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Outcomes of Community Health Worker Interventions

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Prepared by:

RTI International–University of North Carolina Evidence-based Practice Center
Research Triangle Park, North Carolina

Investigators
Meera Viswanathan, Ph.D.
Jennifer Kraschnewski, M.D.
Brett Nishikawa, M.D.
Laura C. Morgan, M.A.
Patricia Thieda, M.A.
Amanda Honeycutt, Ph.D.
Kathleen N. Lohr, Ph.D.
Dan Jonas, M.D., M.P.H.

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The information in this report is intended to help clinicians, employers, policymakers, and others make well-informed decisions about the provision of health care services. This report is intended as a reference and not as a substitute for clinical judgment.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new health care technologies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To bring the broadest range of experts into the development of evidence reports and health technology assessments, AHRQ encourages the EPCs to form partnerships and enter into collaborations with other medical and research organizations. The EPCs work with these partner organizations to ensure that the evidence reports and technology assessments they produce will become building blocks for health care quality improvement projects throughout the Nation. The reports undergo peer review prior to their release.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality.

We welcome comments on this evidence report. They may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850, or by e-mail to **epc@ahrq.gov.**

Carolyn M. Clancy, M.D.
Director
Agency for Healthcare Research and Quality

Jean Slutsky, P.A., M.S.P.H.
Director, Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

Beth Collins Sharp, R.N., Ph.D.
Director, EPC Program
Agency for Healthcare Research and Quality

Margaret Coopey, R.N., M.G.A., M.P.S.
EPC Program Task Order Officer
Agency for Healthcare Research and Quality

Structured Abstract

Objectives. To conduct a systematic review of the evidence on characteristics of community health workers (CHWs) and CHW interventions, outcomes of such interventions, costs and cost-effectiveness of CHW interventions, and characteristics of CHW training.

Data sources. We searched MEDLINE®, Cochrane Collaboration resources, and the Cumulative Index to Nursing and Allied Health Literature for studies published in English from 1980 through November 2008.

Review methods. We used standard Evidence-based Practice Center methods of dual review of abstracts, full-text articles, abstractions, quality ratings, and strength of evidence grades. We resolved disagreements by consensus.

Results. We included 53 studies on characteristics and outcomes of CHW interventions, 6 on cost-effectiveness, and 9 on training. CHWs interacted with participants in a broad array of locations, using a spectrum of materials at varying levels of intensity. We classified 8 studies as low intensity, 18 as moderate intensity, and 27 as high intensity, based on the type and duration of interaction.

Regarding outcomes, limited evidence (five studies) suggests that CHW interventions can improve participant knowledge when compared with alternative approaches such as no intervention, media, mail, or usual care plus pamphlets. We found mixed evidence for CHW effectiveness on participant behavior change (22 studies) and health outcomes (27 studies): some studies suggested that CHW interventions can result in greater improvements in participant behavior and health outcomes when compared with various alternatives, but other studies suggested that CHW interventions provide no statistically different benefits than alternatives. Low or moderate strength of evidence suggests that CHWs can increase appropriate health care utilization for some interventions (30 studies). The literature showed mixed results of effectiveness when analyzed by clinical context: CHW interventions had the greatest effectiveness relative to alternatives for some disease prevention, asthma management, cervical cancer screening, and mammography screening outcomes. CHW interventions were not significantly different from alternatives for clinical breast examination, breast self-examination, colorectal cancer screening, chronic disease management, or most maternal and child health interventions.

Six studies with economic and cost information yielded insufficient data to evaluate the cost-effectiveness of CHW interventions relative to other community health interventions.

Limited evidence described characteristics of CHW training; no studies examined the impact of CHW training on health outcomes.

Conclusions. CHWs can serve as a means of improving outcomes for underserved populations for some health conditions. The effectiveness of CHWs in numerous areas requires further research that addresses the methodological limitations of prior studies and that contributes to translating research into practice.

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Appendixes cited in this report are available at
http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf.

Executive Summary

Introduction

The United States has experienced remarkable improvements in public health and medical progress throughout much of the twentieth century, including major advances in pharmaceutical and medical device innovation and gains in life expectancy. These improvements, however, have not been accessible to all parts of U.S. society. Substantial disparities in life expectancy, health, and health care persist. Although many actors—including health care systems, insurers, health care providers, and patients—contribute to these disparities, bias, discrimination, and stereotyping during the clinical encounter also explain health care disparities. Experts recommend reducing fragmentation in health care systems, improving awareness on the part of health care providers of these problems, strengthening culturally competent approaches to the delivery of health care, and increasing the diversity of the health care workforce, as strategies to reduce health care disparities. A core component in recommendations to address healthcare disparities is the involvement of the community: specifically, the involvement of community health workers (CHWs).

The RTI International–University of North Carolina at Chapel Hill Evidence-based Practice Center (RTI-UNC EPC) conducted a systematic review on outcomes of CHW interventions. The review addressed four key questions (KQs):

KQ 1. How do CHWs interact with participants? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with participants, and length of followup?

KQ 2. What is the impact of CHWs on outcomes, particularly knowledge, behavior, satisfaction, health outcomes, and health care utilization?

KQ 3. What is known about the cost-effectiveness of CHWs for improving health outcomes?

KQ 4a. What are characteristics of training for CHWs in the outpatient setting?

KQ 4b. Are particular training characteristics associated with improved outcomes for patients?

Methods

We searched MEDLINE®, Cochrane Collaboration resources, and the Cumulative Index to Nursing and Allied Health Literature for studies published in English from 1980 through November 2008 in the United States. We refined KQs in collaboration with a panel of technical experts. We searched data sources using more than 10 terms for CHWs, including the Medical Subject Heading term “community health aides.” We used standard Evidence-based Practice Center methods of dual review of abstracts, full-text articles, abstractions, quality ratings, and strength of evidence grades. We resolved disagreements by consensus. We identified 53 studies addressing KQ 1 and KQ 2, 6 studies addressing KQ 3, and 9 studies addressing KQ 4.

Results

KQ 1: Characteristics of Community Health Worker Interaction with Participants

KQ 1 asks for descriptions of the interaction between CHWs and participants; specifically, we examined place of service, type of service, type of educational materials used, duration of interaction with participants, and length of follow-up. CHWs interacted with participants in a broad array of locations, using a spectrum of materials at varying levels of intensity. Studies usually described the place of service and type of intervention in some detail. Across the studies, one-on-one interventions generally occurred in the home, over the telephone, or in a medical setting; by contrast, group interventions tended to take place in a community setting. Studies described types of educational materials poorly or not at all. Studies inconsistently reported duration of interaction with participants and length of followup (the number and length of sessions), and studies did not always clarify whether their reporting was based on protocol or on actual experience.

We synthesized the variety of ways in which CHWs can interact with participants into a single measure of intensity that serves as a proxy of resource allocation. We classified interactions that reported at least four of six elements suggesting a higher resource utilization (one-on-one, face-to-face, 1 hour per session or more, 3 or more months' duration, three or more interactions, and tailored materials) as high intensity; interventions with two or three elements as moderate intensity; and interventions with only one or none of the elements as low intensity. Of the total of 53 studies, we classified 27 as high intensity, 18 as moderate intensity, and 8 as low intensity. The intensity of CHW interventions varied by clinical context: maternal and child health and chronic disease management interventions were all moderate or high intensity, whereas prevention and screening studies were more likely to include low-intensity interventions.

KQ 2: Outcomes of Community Health Worker Interventions

KQ 2 asks about the impact of CHWs on outcomes, with specific attention to the following five domains: knowledge, behavior, satisfaction, health outcomes, and health care utilization. In addition, we summarize results by a key source of heterogeneity, the clinical context of the CHW intervention.

Summary by Outcomes

Knowledge. The five studies reporting information on knowledge together provided moderate strength of evidence that CHW interventions improve the knowledge of participants on disease prevention and cancer screening, compared with other alternatives, and provided low strength of evidence that CHW interventions improve knowledge of label reading among diabetics, compared with usual care, but these studies gave insufficient evidence for knowledge of other issues related to the management of diabetes. This literature did not compare CHWs with a comprehensive range of usual care providers; we cannot therefore conclude that CHWs outperform all alternatives in improving participant knowledge. For the small subset of comparators and outcomes included in this literature, the studies together suggest that CHW

interventions can improve participant knowledge when compared with alternative approaches such as no intervention, media, mail, or usual care plus pamphlets.

Behavior. Twenty-two studies reported on the effect of CHW interventions on participant behavior. The evidence for workplace safety, diabetes mellitus, and the use of bedding encasements for asthma, from five studies, suggested that CHW interventions result in improvements in participant behavior when compared with alternatives such as a community intervention, a lower-intensity CHW intervention, and usual care combined with a pamphlet. The strength of evidence is moderate for the use of bedding encasements for asthma and low for workplace safety and diabetes mellitus. The evidence for disease prevention, improving the environment for child well-being, planned use of cancer screening tests, and breast self-examination, from 14 studies, is mixed, with some studies demonstrating a statistically significant benefit of the CHW arm, and others demonstrating a lack of significant difference. The strength of evidence for these outcomes is low. The evidence for health promotion among Latinas, injury prevention at home, and smoking cessation to reduce asthma, from five studies, failed to demonstrate that CHW interventions resulted in significantly different outcomes than alternatives; the strength of evidence for these outcomes is low.

Together these studies suggest that CHW interventions can, in some instances, result in greater positive changes in participant behavior when compared with a range of alternatives (including no intervention, community intervention, usual care plus a newsletter, media, print, a less intense or delayed CHW arm, or a combination of interventions). In other instances, CHW interventions provided no statistically different benefit when compared with a range of alternatives. When the alternative requires greater resource allocation, as with the use of health care professionals, the absence of statistically significant differences may favor the use of CHWs.

Satisfaction. A single study, focusing on mental health among the homeless, found no differences between study arms in participant satisfaction; the strength of evidence for this outcome is low.

Health outcomes. The literature examined CHW effectiveness on a range of outcomes: 27 of 53 studies reported health outcomes. Moderate strength of evidence exists that CHW interventions improve health outcomes for two clinical areas (improving back pain and improving psychosocial outcomes among caregivers of children with asthma) when compared with either a lower-intensity CHW intervention or a delayed-intervention control group (three studies). The evidence for other outcomes (pediatric immunizations, prenatal care and perinatal outcomes, child development, environment conducive to child well-being, mental health, diabetes, and asthma symptoms), from 22 studies, is mixed, with some studies suggesting that CHW interventions are more effective than alternatives (including no intervention, usual care, and nurses), and other studies showing no difference between CHW interventions and alternatives. For disease prevention (specifically, reduction in body mass index), hypertension, and mental health, the evidence from five studies suggests no difference between CHW interventions and alternative approaches, including the use of CHWs in a lesser capacity, nurses, and print materials; the strength of evidence for these outcomes is low.

Together these studies showed that CHW interventions had a greater effect on some health outcomes when compared with alternatives such as no intervention, usual care, and nurses, but these findings were not consistent across all studies; several studies found no statistically significant benefit of the CHW arm when compared with alternative approaches.

Health care utilization. More than one-half of the identified studies reported on health care utilization. Fifteen studies provided moderate strength of evidence that CHW interventions increase appropriate health care utilization for disease prevention, mammography, infectious diseases, and asthma when compared with a range of alternatives such as no intervention, mail, print, or a less intense CHW arm. Two studies offered low strength of evidence that CHW interventions provide statistically significant benefits in health care utilization for two outcomes: prenatal and perinatal care (when compared with nurses) and hypertension (when compared with usual care). For Pap smears, six studies provided mixed evidence, with some studies suggesting a statistically significant benefit for the CHW arm, and other studies suggesting no significant differences; the strength of evidence for this outcome is low. For health promotion among Latinas, child well-being, clinical breast examination, colorectal cancer screening, and mental health, evidence from nine studies suggested no difference between the CHW intervention and alternatives; the strength of evidence for these outcomes is low.

Together these studies provided low to moderate evidence that CHW interventions increase appropriate health care utilization (e.g., more use of cancer screening tests, less use of emergency services) when compared with a range of alternatives for disease prevention (specifically, medical follow-up for elevated blood pressure), mammography, infectious diseases, and asthma; for other reported outcomes, the evidence was mixed or does not show a statistically significant benefit of the CHW arm.

Summary Findings by Clinical Context

Health promotion and disease prevention. Eleven studies addressed health promotion and disease prevention, including pediatric immunizations, cardiovascular disease, diabetes prevention, HIV prevention, secondhand smoke exposure, colorectal cancer prevention, and general preventive care. Two studies on disease prevention found that CHW interventions versus print or no intervention were more effective in changing knowledge. Results for CHW interventions on behavior outcomes were mixed, with one-half of the studies favoring CHW intervention versus control groups, which consisted of no intervention, media, print, or a combination of interventions. None of the studies evaluated outcomes in the area of satisfaction. Results for CHW interventions on health outcomes, available from four studies, were also mixed.

The results suggest that CHW interventions may serve as an effective means of improving knowledge outcomes and possibly other outcomes related to preventing disease in underserved, minority populations.

Injury prevention. Three studies assessed injury prevention measures and associated behavioral outcomes: two focused on home injury prevention, and one considered workplace injury prevention. One study found improvements in behavior associated with CHW interventions when compared with a minimal community intervention, and one found mixed results with CHW interventions showing a statistically significant benefit in some measures but controls (with no intervention) showing a statistically significant benefit over CHW interventions for other measures. One study showed no significant difference in behavior between CHW interventions and health care professionals. The mixed results preclude any firm conclusions regarding the benefit of CHW interventions for injury prevention behaviors.

Maternal and child health. Fifteen studies meeting our inclusion criteria involved primarily maternal health, child health, or both and reported mainly on health outcomes. A statistically significant benefit of CHWs over standard care was shown most prominently in rapidity of metabolic control for mothers with phenylketonuria (PKU) and in the mental development of

infants of mothers with PKU. CHW interventions were associated with a greater likelihood of initiating breastfeeding among African Americans, more frequent use of nonviolent discipline methods by parents, and higher parenting efficacy scores when compared with video-intervention or no-intervention controls. CHWs were also associated with significant attenuation in the decline of cognitive and motor development among infants with failure to thrive and with a lesser degree of increase in depressive symptoms among postpartum women when compared with no intervention. No significant advantage to CHW intervention was seen for improvements in incidence of low birth weight, presence of neonatal or infant health problems, language development, maternal stress or self-esteem, continuation of breastfeeding beyond 1 week, tobacco exposure for children of smokers, continued drug use among mothers with known prior drug use, growth of children with failure to thrive, or incidence of child maltreatment when compared with nurse interventions, multidisciplinary specialty clinical care, video or print intervention, routine health care, or no intervention.

Most studies involving CHWs for maternal and child health have been concerned with high-risk populations. For maternal and child health, CHWs appear to be most beneficial when addressing existing health conditions instead of potential conditions (i.e., primary prevention). Of the 15 studies that were evaluated, 8 studies reported statistically significant benefit to CHWs, compared with nurse interventions, multidisciplinary specialty clinical care, video or print intervention, routine health care, or no intervention. CHWs have not yet been shown to improve key health outcomes relating to maternal and child health such as prematurity, low birth weight, sustained breastfeeding, or child maltreatment relative to other alternatives such as video or print intervention, routine health care, or no intervention. The lack of such findings suggests that either further research is needed to demonstrate benefits or that there is a true lack of benefit for CHWs in this domain.

Cancer screening. Fifteen studies examining knowledge or health care utilization outcomes of CHW interventions for improving breast, cervical, or colorectal cancer screening met inclusion criteria for this systematic review. Together the 15 studies suggest limited evidence of improvement in knowledge in the CHW arm, compared with alternative approaches such as media or mail, and these studies also suggest conflicting findings on the effect of CHWs on planned or actual behavior changes—specifically, breast self-examination—when compared with no intervention, delayed intervention, mail, minimal CHW, or usual care. The volume of evidence on these outcomes is limited; the quality and design of the studies limit the interpretation of available evidence. Regarding health care utilization, our findings from limited evidence suggest that CHW interventions are not effective in comparison with other alternatives (such as no intervention, mail, tailored print and video, and minimal CHW) in raising the rates of clinical breast examination or colorectal cancer screening. More substantial evidence exists on Pap smears and mammography. The evidence suggests that the CHW arm is at least as effective as other alternatives (such as mail or lower-intensity CHW interventions) in improving Pap smear rates, but more effective than other alternatives (such as no intervention, media, print, community interventions, and usual care) only with low- and moderate-intensity interventions (rather than high-intensity interventions). Studies demonstrated significantly greater improvements in the CHW arm, compared with the alternative (no intervention, mail, print, or minimal CHW) in the main analysis or in subgroup analysis among low-income, minority, or other underserved subsamples.

CHW interventions were not demonstrated to be more effective than alternatives for increasing the utilization of breast self-examination, clinical breast examination, or colorectal

cancer screening. CHWs can serve as a means of improving utilization of Pap smear tests and mammograms for underserved populations; the effectiveness of CHWs for other outcomes requires further research.

Chronic disease management. Thirteen studies addressed disease management, including diabetes mellitus, hypertension, asthma, back pain, mental health, and tuberculosis. Only one of the studies in the area of chronic disease management addressed knowledge outcomes. Two of four CHW interventions on diabetes and two asthma studies addressed behavior changes, comparing the CHW arm with usual care or a less intense CHW arm. These studies found that CHW interventions provided statistically significant benefit for diabetes and for use of bedding encasements in asthma, but not for smoking cessation. Only the mental health study addressed satisfaction outcomes, and this study did not demonstrate a difference between the CHW group and the control. Regarding health outcomes, two of four studies focusing on diabetes management found that a CHW intervention was more effective than usual care in decreasing hemoglobin A1c. None of the studies addressing hypertension management showed a significant difference in blood pressure control between groups. Two asthma studies demonstrated that CHW interventions were more effective than alternatives in reducing unscheduled health care services, improving psychological outcomes, and changing behavior, although symptom measures improved equally in each group. With the exception of asthma, the majority of CHW interventions for chronic disease management (specifically, diabetes, hypertension, and mental health) failed to show consistently greater improvement in health outcomes than usual care. By contrast, four of five studies on chronic disease management found that a CHW intervention was more effective than usual care or a less intense CHW arm in improving health care utilization.

KQ 3: Cost-Effectiveness of Community Health Worker Interventions

We identified six studies in the literature providing economic analyses of CHW interventions. All of the studies included in our review estimated intervention program costs, but not all reported the specific components of those costs or the year for which costs were estimated. None of the CHW intervention evaluations that included an economic analysis reported a standard measure of costs per quality-adjusted life year saved, as recommended in recent guides for performing economic evaluations. One study did report on the costs per life-year saved of the CHW intervention, but potential biases in measurement limit the interpretation of results. We found insufficient evidence to evaluate whether CHW interventions are a cost-effective alternative to clinical interventions to promote health and prevent disease.

KQ 4: Training of Community Health Workers

We found only nine studies meeting our inclusion criteria that described the training of CHWs. All included studies reported evidence of improvement in knowledge or skills, and many focused on aspects of training relevant to the specific health concern. Few reported on training for cultural competence, recruitment and retention process skills, intake and assessment, or protocol delivery. The failure to report on these elements presents a roadblock to identifying critical elements of a standardized curriculum applicable to all CHWs.

No studies reported on the effects of CHW training on health outcomes. The question of how to tailor CHW training to improve health outcomes is a significant gap for future studies to address.

Discussion

CHW interventions have the potential to address two fundamental imperatives for improving health care in the United States: the need to address substantial and persistent health care disparities, and the need to translate more research into practice. CHWs, by virtue of their role as a bridge to the health care system, can help to disseminate widely efficacious interventions to populations that rarely benefit from health care advances.

Evidence about the effectiveness of CHWs relative to other choices is, however, mixed. Some studies demonstrated statistically significant benefits of the CHW approach, compared with other choices; other studies showed mixed results or no statistically significant differences between study arms. For the latter studies, one explanation is a lack of true benefit of the CHW arm relative to other choices. In addition, the choice of controls (including health professionals and CHWs in a lesser capacity), inadequate study power, and the Hawthorne effect may explain the lack of significant differences between CHWs and alternatives. The variation in and inadequate reporting on components of CHW interventions limit assessments of whether high-intensity interventions deliver greater value than low- or moderate-intensity interventions.

We found limited evidence that suggests that CHW interventions can improve participant knowledge when compared with alternative approaches such as no intervention, media, mail, or usual care plus pamphlets. We found mixed evidence for CHW effectiveness on participant behavior change and health outcomes: some studies suggested that CHW interventions can result in greater improvements in participant behavior and health outcomes when compared with various alternatives, but other studies suggested that CHW interventions provide no statistically different benefits. Low or moderate strength of evidence suggests that CHWs can increase appropriate health care utilization for some interventions. The literature showed mixed results of effectiveness when analyzed by clinical context: CHW interventions had the greatest effectiveness relative to alternatives for some disease prevention, asthma management, cervical cancer screening, and mammography screening outcomes. CHW interventions were not significantly different from alternatives for clinical breast examination, breast self-examination, colorectal cancer screening, chronic disease management, or most maternal and child health interventions. We found insufficient evidence to evaluate the cost-effectiveness of CHW interventions relative to other public health interventions.

Our review suggests that CHWs may serve as a means of improving outcomes for underserved populations for some health conditions, as described above. Other health concerns require further research that addresses the methodological limitations of prior studies to fully evaluate the effectiveness of CHW interventions.

Evidence Report

Chapter 1. Introduction

Background

Health Disparities in the United States

The United States experienced remarkable improvements in public health and medical progress throughout much of the twentieth century. These advances, which have continued into the twenty-first century, have been accompanied by significant increases in medical spending. In 2003, total health care spending reached approximately $1.7 trillion, accounting for nearly 16 percent of the gross domestic product.[1] An estimated 5.6 percent of total health care spending was on biomedical research, a proportion unmatched by any other country.[2] Some experts note associations between US expenditures on biomedical research and major advances in pharmaceutical and medical device innovation[2] and accompanying improvements in life expectancy.[3]

These improvements have not been accessible to all parts of US society. Substantial disparities in life expectancy,[4] health, and health care persist.[5-9] Repeated measures of disparities in quality of care and access to care since 2003 demonstrate, at best, only minor improvements.[5-9] According to an Institute of Medicine (IOM) committee report, *Unequal Treatment*, these seemingly intractable differences cannot be explained by clinically appropriate care, differing needs of patients, or patient preferences.[10] Moreover, access-related factors such as insurance status and income also cannot alone explain differences in quality of care or outcomes.[10]

Although many actors, including health care systems, insurers, health care providers, and patients, contribute to these disparities, bias, discrimination, and stereotyping during the clinical encounter also explain health care disparities.[10] Recommendations of the IOM report, echoed by other publications,[11,12] focus on reducing fragmentation in health care systems, improving awareness on the part of health care providers of these problems, strengthening culturally competent approaches to the delivery of health care, and increasing the diversity of the health care workforce.[10]

Role of the Community Health Worker in Addressing Health Disparities

A core component in recommendations to address health disparities is the involvement of the community, specifically the involvement of community health workers (CHWs).[10] Models of care using CHWs vary from making them an integral part of the care delivery team to involving them as community navigators, education providers, or outreach agents.[13]

A key variable along this spectrum is the extent to which CHWs operate within their own social networks. For example, CHW interventions using natural helpers rely on the specialized knowledge and expertise of CHWs working within their own social networks, whereas an outreach worker model may operate across social networks.[14] The nomenclature for CHWs reflects this variation; it includes terms such as natural helpers, lay health advisors, patient navigators, and community health aides, among others. The disease conditions that CHWs help to address also reflect a wide spectrum, from AIDS prevention to smoking cessation, hypertension management to pediatric immunization, and asthma management to maternal and child care.

Common attributes across CHWs, regardless of nomenclature, health condition, or intervention include: (1) their role as health workers who share a relationship with their community (e.g., shared language, ethnicity, geography, race, or disease condition) and (2) the absence of professional training. The relationship that CHWs share with the community in which they work has long identified them as a natural bridge to the health care system.

Explanations for the anticipated outcomes of CHW interventions typically cite theories of individual behavior change.[15-23] Theories of individual behavior change draw upon many ideas. Among them are the stages of change or the transtheoretical model (a framework for understanding motivational readiness to address problem behaviors[24]), social learning or social cognitive theory (an explanation of individual learning as operating through the observation of others within the context of behavioral, environmental, and personal factors[25]), and the health belief model (an explanation of individual health behaviors through attitudes and beliefs toward perceived susceptibility, severity, benefits, and barriers[26]).

Less frequently, authors acknowledge that these interventions also operate within the context of community change.[27-29] According to Minkler and Wallerstein, collaborative models of community change range from community organizing (externally driven and motivated by community needs) to community building (internally generated and drawing upon community strengths) with variants in between.[30] Several ideas help explain the drivers and mechanisms of community change: theories of social justice and human rights (the idea of health as a human right that CHWs can help to achieve in the interest of social justice[28,31]), collaborative empowerment (grantmakers, support organizations, local leaders, and individuals working together in a reciprocal manner[32]), and critical consciousness (the process of critical awareness by which community members become aware of their own agency and create spaces to work with others to bring about changes in individual and community health[33,34]).

CHW engagement is expected to diffuse community change to individuals; in addition, CHWs are postulated to reduce disparities through improving access to care, providing culturally competent health education, counseling, and sometimes rendering direct health services. Additionally, as trusted members of the community, CHWs may help to minimize barriers to care resulting from health beliefs and health values.[10]

History of Community Health Workers

The history of CHWs supports the role that they continue today in providing services to marginalized populations. Perez and Martinez[28] note that the earliest records of CHWs date back to a shortage of doctors in early 17th century Russia, when lay people, called “feldshers,” received training to provide basic medical care to military personnel.[35] Later a similar model arose in China, where farmers with minimal medical training served as “barefoot doctors” to provide basic primary care, including vaccinations and treatment of minor illnesses, to rural underserved regions.[28] Today, thousands of health programs employ CHWs worldwide for similar reasons.[36]

Internationally, a global shortage of medical workers has increased the call for these types of personnel. Significant health care workforce shortages are present in 57 countries, including countries in sub-Saharan Africa, Bangladesh, India, and Indonesia.[37] Figures for the number of physicians per 100,000 people range from a low of 2 in Malawi to a high of 591 in Cuba; the number in the United States is 256.[37] These figures represent overall physician proportions; the proportion of primary care physicians is far lower worldwide.

The AIDS epidemic in developing countries that already face a critical shortage of professional health care workers has strengthened the need to make greater use of CHWs. Task shifting allows CHWs to take on jobs that were previously performed by nurses; this phenomenon holds promise for rapidly filling the health care workforce deficit. One advantage of employing CHWs is the relatively short amount of training time they need, ranging from hours to weeks. This quick turnaround in training allows CHWs to be ready to provide services years before new nurses or doctors can complete their own training. Ultimately, the hope is that task shifting will improve access to primary care and, thus, serve to strengthen health care systems around the world.[37]

In the United States, despite the relatively high ratios of physicians to patients in this country, a significant percentage of the population remains underserved, particularly for primary care. An estimated one in five Americans are medically disenfranchised due to the shortage of primary care physicians, meaning they have inadequate or even no access to these physicians.[38] The need to reduce health disparities among the underserved has led to an interest in CHW interventions within the United States. The 2007 Community Health Worker National Workforce Study suggests that the development of the CHW workforce in the United States occurred over four important time periods: early documentation (1966-1972), utilization of CHWs in special projects (1973-1989), state and federal initiatives (1990-1998), and public policy options (1999-2007).[13] Few references to CHW interventions appear in the literature before the mid-1960s.

During the period of early documentation (1966-1972), CHWs were used to address problems of the poor rather than in specific health improvement models. The New York City Health Department first documented CHW use in a 1960s-era tuberculosis program that involved "neighborhood health aides."[39] One early effectiveness study on CHWs (published in 1970) consisted of a CHW intervention with nurses and physicians to improve compliance in treating pediatric infections.[40]

Public and private funding of projects involving CHWs continued to grow from 1973 to 1989, in turn prompting more publications.[13] Further attention was brought to CHWs as a result of a World Health Organization (WHO) declaration in 1978, proposing the development of national CHW programs as important for promoting primary health care.[41] Another significant step for dissemination of CHW programs occurred when the "Resource Mothers" curriculum, prepared for the Virginia Task Force on Infant Mortality during the 1980s, became one of the early CHW curricula distributed nationally.[42]

From 1990 to 1998, several state and federal bills proposed CHW interventions; none, however, was enacted. Despite this lack of legislative support, training centers dedicated to CHWs opened in Boston[43] and San Francisco.[44] Support remained high for the promise of CHW interventions with the expectation that the widespread incorporation of CHWs into the health delivery system would offer opportunities to improve the delivery of preventive and primary health care in the United States.[45]

The state of Texas passed the first legislation addressing the CHW workforce in 1999, starting the public policy options period (1999-2006).[13,46] During this time, several associations called for expansion of CHW roles and projects, including the National Rural Health Association, the American Association of Diabetes Educators, and the American Public Health Association. As noted earlier, the 2003 IOM report also made recommendations regarding the role of CHWs in addressing health care disparities.[10] Finally, during this same period the first national legislation on CHWs was passed: The Patient Navigator Outreach and Chronic Disease

Prevention Act of 2005. Additionally, the state of Minnesota passed legislation allowing for Medicaid coverage of CHW services in December of 2007.[47]

In 2000, an estimated 86,000 CHWs were supporting American communities.[13] The number of CHWs has continued to grow since then to an estimated 121,000 CHWs in 2005, representing a 41 percent increase from 2000.[13]

Key Questions and Analytic Framework

Key Questions

Numerous recent reviews have examined the effectiveness of CHWs, but their scope has often been limited to specific disease conditions,[48,49] subpopulations,[50,51] or study designs.[52,53] The Agency for Healthcare Research and Quality (AHRQ) commissioned the RTI International–University of North Carolina Evidence-based Practice Center (RTI-UNC EPC) to conduct a systematic review on outcomes of CHW interventions. The nominator for this work was the Minnesota Department of Human Services (MDHS).

The EPC received and revised key questions (KQs) after discussions with internal technical staff, AHRQ staff, MDHS staff, and our Technical Expert Panel (TEP, see below). The final KQs are as follows:

KQ 1. How do community health workers interact with participants? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with participants, and length of followup?

KQ 2. What is the impact of community health workers on outcomes, particularly knowledge, behavior, satisfaction, health outcomes, and health care utilization?

KQ 3. What is known about the cost-effectiveness of community health workers for improving health outcomes?

KQ 4a. What are characteristics of training for community health workers in the outpatient setting?

KQ 4b. Are particular training characteristics associated with improved outcomes for patients?

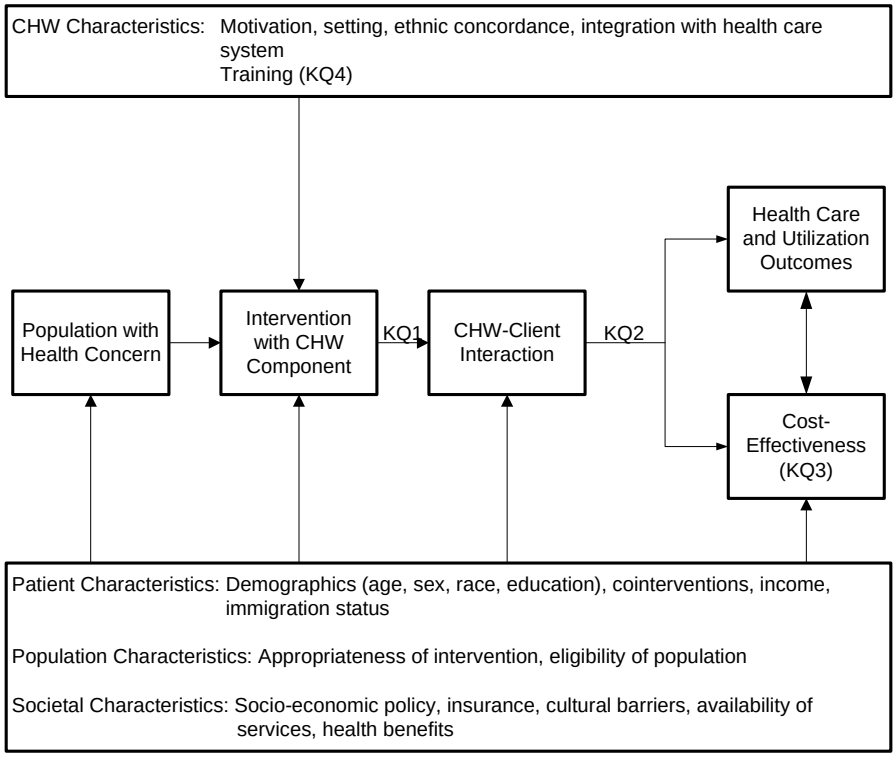
Analytic Framework for Outcomes of Community Health Worker Interventions

Based on our discussion with TEP members, we used the following operational definition of CHWs: A CHW:

- Performs health-related tasks to create a bridge between community members, especially hard-to-reach populations, and the health care system (i.e., performs tasks extending beyond peer counseling or peer support alone).
- Has health training associated with the intervention; training is shorter than that of a professional worker (i.e., training does not form part of a tertiary education certificate).
- Is recognized (or can be identified) as a member of the community in which he or she works, defined by but not limited to, geographic location, race or ethnicity, and exposure or disease status.

As reflected in Figure 1, KQ 1 and KQ 4a are descriptive questions. The information obtained through KQ 1 will inform KQ 2. KQ 3 evaluates cost information for the subset of evidence identified in KQ 1 as effective. The heterogeneity of health conditions, CHW intervention types, and comparators will be explicitly addressed in all KQs.

Figure 1. Outcomes of community health worker interventions: conceptual framework



Production of This Evidence Report

Organization

Chapter 2 describes our methods, including our search strategies and inclusion/exclusion criteria; we also document our approach to grading the quality of articles and rating the strength of evidence. In Chapter 3, we report the results of literature searches and synthesis of retained articles for KQs 1, 2, 3, and 4. Chapter 4 presents our conclusions and offers our recommendations for future research.

References and included studies follow Chapter 4. Appendixes include a detailed description of our search strings (Appendix A[*]), data collection forms (Appendix B), detailed evidence tables (Appendix C), excluded studies (Appendix D), and acknowledgments (Appendix E).

Technical Expert Panel (TEP)

In designing the study questions and methodology at the outset of this report, we consulted several technical and content experts, seeking broad expertise and perspectives. We identified

[*] Appendixes are cited in this report and provided electronically at http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf

seven technical experts to provide assistance throughout the project (Appendix E); two were employed by the Minnesota Department of Human Services (the nominator for this topic). The TEP contributed to AHRQ's broader goals of (1) creating and maintaining science partnerships as well as public-private partnerships and (2) meeting the needs of an array of potential customers and users of its products. Thus, the TEP was both an additional resource and a sounding board during the project.

Divergent and conflicting opinions are common; we perceive them as healthy scientific discourse that contributes to a thoughtful, relevant systematic review. Nonetheless, in the end, study questions, design, and/or methodologic approaches do not necessarily represent the views of individual technical and content experts.

To ensure robust, scientifically relevant work, we called on the TEP to provide reactions to work in progress and advice on substantive issues or possibly overlooked areas of research. Specifically, TEP members participated in conference calls and discussions through e-mail to:

- refine the analytic framework and KQs at the beginning of the project;
- discuss the preliminary assessment of the literature, including inclusion/exclusion criteria; and
- provide input on the information and categories included in evidence tables.

Because of their extensive knowledge of the literature, including numerous articles authored by TEP members themselves, and their active involvement in the field, we also asked TEP members to participate in the external peer review of the draft report.

Uses of This Report

We anticipate that this report will be useful to primary care and public health practitioners; community health workers; national, state, and local health policy makers; Medicaid and other public and private insurers; and community-based researchers. As noted above, we will explicitly consider CHW effectiveness by clinical concern; specialists in these areas may also find this report to be of use in designing and allocating resources for future CHW interventions.

Chapter 2. Methods

In this chapter, we document the procedures that the RTI International–University of North Carolina Evidence-based Practice Center (RTI–UNC EPC) used to develop this comprehensive evidence report on community health workers (CHWs). The team was led by a senior health services researcher (Meera Viswanathan, Ph.D., Study Director), and included a physician trained in internal medicine and pediatrics (Dan Jonas, M.D., M.P.H.), a general internist (Jennifer Kraschnewski, M.D.), a preventive medicine physician (Brett Nishikawa, M.D.), an economist (Amanda Honeycutt, Ph.D.), and two EPC staff members, Laura Morgan, M.A., and Patricia Thieda, M.A.

We describe our inclusion and exclusion criteria, search and retrieval process, and methods of abstracting relevant information from the eligible articles to generate evidence tables. We also discuss our criteria for grading the quality of individual articles and for rating the strength of the evidence as a whole.

Literature Review Methods

Inclusion and Exclusion Criteria

Our inclusion and exclusion criteria are documented in Table 1. As noted in Chapter 1, this systematic review focuses on characteristics, outcomes, cost-effectiveness, and training of CHWs. We restricted our searches to the United States so that we could have data relevant to domestic health care concerns. We also restricted our searches to studies published in 1980 or thereafter to ensure that results had relevance to current practice.

We excluded studies that (1) were published in languages other than English (given the available time and resources); (2) did not report information pertinent to the key clinical questions; (3) had fewer than 40 subjects for randomized controlled trials (RCTs) or nonrandomized cohorts with comparisons; and (4) were not original studies.

A key criterion for inclusion was the requirement that the effect of the CHW had to be abstractable. As a result of this criterion, our review is limited to studies for which the effect of the CHW intervention can be isolated; we excluded 38 studies in which the outcome of the intervention could not be attributed to the CHW. These studies often compared usual care to a combination of interventions that may have included CHWs as one of several components and did not distinguish between the effect of the CHW and other components. Another key criterion was the requirement that the intervention included CHWs. As a result, we excluded studies that relied on peer counselors (13 studies).

For key questions (KQs) 1, 2, and 3, we required that the CHW intervention be compared with an alternative; we excluded 70 studies without comparison arms. For KQ 4, we required that the description of training for CHWs be supported by pre- and post-training evaluation data; we excluded 34 studies without such data.

Table 1. Inclusion/exclusion criteria

Category	Criteria
Populations	All study populations with a CHW intervention
Interventions	Intervention must be delivered by CHWs, not peer counselors or health care professionals. A CHW: • Performs health-related tasks to create a bridge between community members, especially hard-to-reach populations, and the health care system (i.e., performs tasks extending beyond peer counseling or peer support alone). • Has health training associated with the intervention; training is shorter than that of a professional worker (i.e., training does not form part of a tertiary education certificate). • Is recognized (or can be identified) as a member of the community in which he or she works, defined by but not limited to, geographic location, race or ethnicity, and exposure or disease status.
Comparisons	KQs 1, 2, 3: CHW intervention must have a comparison arm; all comparisons admissible as long as the effect of the CHW intervention can be abstracted KQ 4: No comparisons required
Outcomes	KQ 1: Interaction with clients KQ 2: Knowledge, satisfaction, behavior, health outcomes, and health care utilization KQ 3: Cost data KQ 4: Training characteristics
Time period	1980 to November 14, 2008
Study settings and geography	United States
Publication languages	English only
Admissible evidence (study design and other criteria)	Admissible designs controlled trials (n ≥ 40), nonrandomized controlled trials (n ≥ 40), systematic reviews, meta-analyses, prospective trials with historical controls (n ≥ 40) Other criteria • Original research studies must provide sufficient detail regarding methods and results to enable use and adjustment of the data and results • Relevant outcomes must be able to be abstracted from data presented in the papers • Effect of CHW intervention must be abstractable • KQ 4: CHW interventions must provide pre-training and post-training evaluation of CHW knowledge or skills

Literature Search and Retrieval Process

Databases. We searched three electronic databases—MEDLINE®, Cochrane Collaboration resources, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). We also hand-searched the reference lists of relevant articles to make sure that we did not miss any

relevant studies. We consulted with our Technical Expert Panel (TEP) about any studies or trials that were currently under way or that had not yet been published.

Search terms. Based on the inclusion/exclusion criteria above, we generated a list of Medical Subject Heading (MeSH) search terms (Table 2 and Appendix A[†]). Our TEP also reviewed these terms to ensure that we were not missing any critical areas, and this list represents our collective decisions as to the MeSH terms used for all MEDLINE searches.

Table 2. MEDLINE search strategy and unduplicated results for April 2008

Search number	Search Term	Yield
#2	Search "Community Health Aides"[MeSH] OR "health advisor" OR "health worker" OR "health advocate" OR "health paraprofessional" OR "community health representative" OR "outreach worker" OR dumas OR promotoras OR embajadores OR consejeras	6,051
#3	Search "Community Health Aides"[MeSH] OR "health advisor" OR "health worker" OR "health advocate" OR "health paraprofessional" OR "community health representative" OR "outreach worker" OR dumas OR promotoras OR embajadores OR consejeras Limits: Humans, English	3,031
#6	Search (("Outcome Assessment (Health Care)"[MeSH] OR "Pregnancy Outcome"[MeSH])) OR ("Treatment Outcome"[MeSH] OR "Outcome and Process Assessment (Health Care)"[MeSH] OR "Fatal Outcome"[MeSH]) Limits: Humans, English	369,350
#7	Search #3 AND #6 Limits: Humans, English	175
#17	Search ("Patient Education as Topic"[MeSH] OR "Patient Education Handout "[Publication Type]) OR "Professional-Patient Relations"[MeSH]) OR "Office Visits"[MeSH] Limits: Humans, English	109,582
#18	Search #3 AND #17 Limits: Humans, English	90
#26	Search ("Costs and Cost Analysis"[MeSH] OR "Economics"[MeSH] OR "economics "[Subheading] OR "Cost-Benefit Analysis"[MeSH] OR "Cost Allocation"[MeSH] OR "Cost of Illness"[MeSH] OR "Cost Control"[MeSH] OR "Cost Sharing"[MeSH] OR "Cost Savings"[MeSH] OR "Health Care Costs"[MeSH] OR "Direct Service Costs"[MeSH] OR "Hospital Costs"[MeSH] OR "Employer Health Costs"[MeSH] OR "Drug Costs"[MeSH]) Limits: Humans, English	257,114
#27	Search #3 AND #26 Limits: Humans, English	254
#28	Search United States Limits: Humans, English	606,881
#29	Search #27 AND #28 Limits: Humans, English	71
#33	Search (("Education"[MeSH] OR "education "[Subheading])) OR "Education, Professional"[MeSH] OR training Limits: Humans, English	370,579
#34	Search #3 AND #33 Limits: Humans, English	1,013
#35	Search #34 AND #28 Limits: Humans, English	241
#41	Search ("Randomized Controlled Trials as Topic"[MeSH] OR "Randomized Controlled Trial "[Publication Type]) OR "Single-Blind Method"[MeSH]) OR "Double-Blind Method"[MeSH]) OR "Random Allocation"[MeSH] Limits: Humans, English	303,728
#42	Search #3 AND #41 Limits: Humans, English	165
#44	Search control OR controlled Limits: Humans, English	1,368,901
#45	Search #3 AND #44 Limits: Humans, English	908
#46	Search #45 AND #28 Limits: Humans, English	154
	Total unduplicated PubMed records	640

[†] Appendixes cited in this report are available at http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf

Our initial searches in MEDLINE produced 640 unduplicated records. Searches in other databases (CINAHL, Cochrane, and Cochrane Clinical Trials Registry) yielded 169 new records (unduplicated across all databases) for a total of 809 records. We conducted update searches in all databases in November, 2008 and supplemented electronic searches with manual searches of reference lists. In addition, we received recommendations for studies of interest from the TEP and conducted a supplemental search on patient navigators after peer review. In all, we identified 1,076 unduplicated references from all searches (Table 3).

Table 3. Overall unduplicated results and sources of all searches

Original search of MEDLINE, Cochrane, Cochrane Clinical Trials Registry, CINAHL (April 2008)	809
Update search of MEDLINE, Cochrane, Cochrane Clinical Trials Registry, CINAHL (November 2008)	59
TEP recommended references	10
Handsearches of reference lists	173
Supplemental search (Patient Navigator) of MEDLINE, Cochrane, Cochrane Clinical Trials Registry, CINAHL	25
TOTAL	1,076

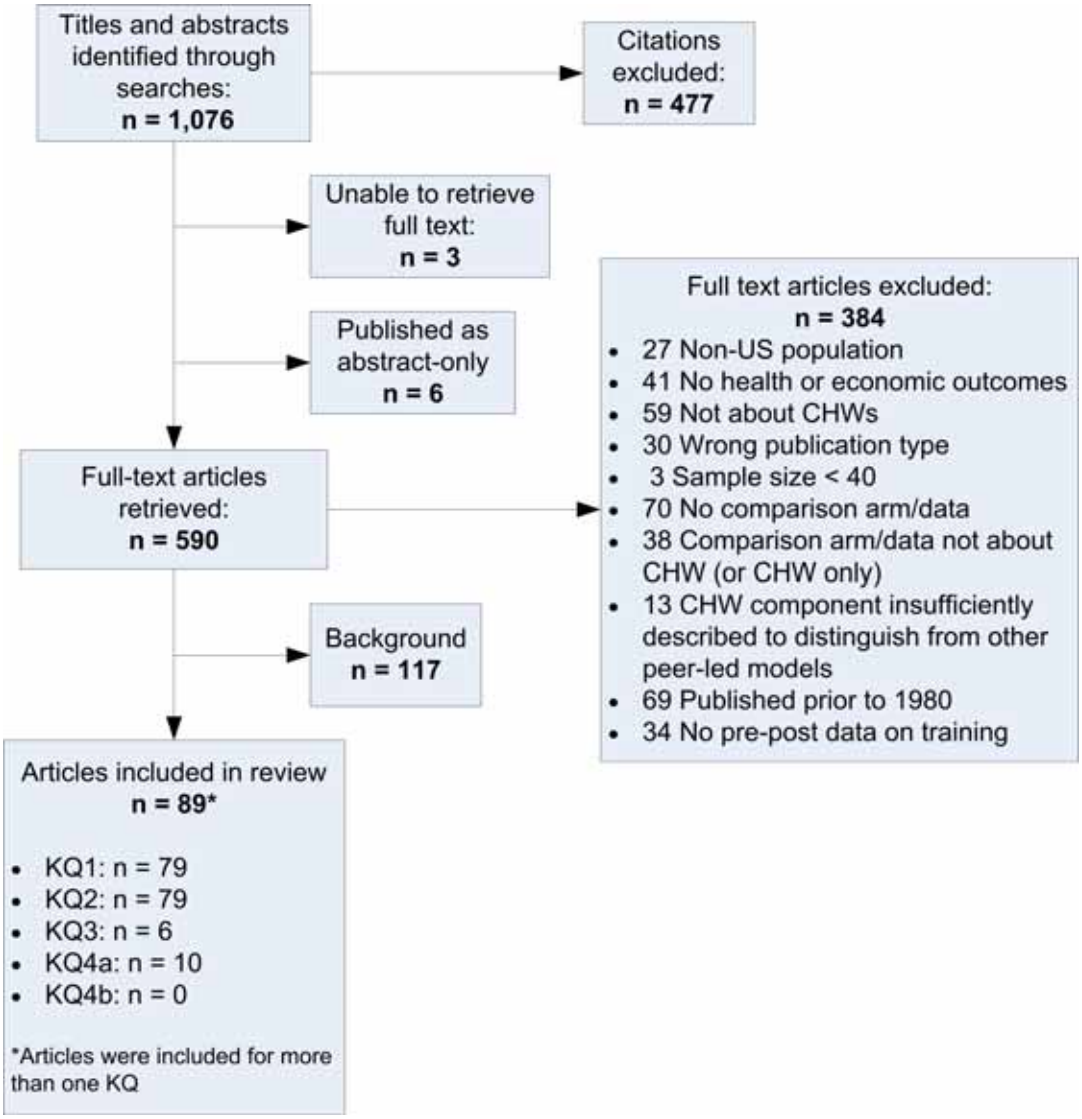
Figure 2 presents the yield and results from our searches, which we conducted from April through November 2008. Beginning with a yield of 1,076 articles, we retained 89 articles that we determined were relevant to address our KQs and met our inclusion/exclusion criteria (Figure 2). We reviewed titles and abstracts of the articles against the basic inclusion criteria above; we retained relevant articles and used them as appropriate in the discussion in Chapter 4.

Article selection process. Once we had identified articles through the electronic database searches, review articles, and reference lists, we examined abstracts of articles to determine whether studies met our criteria. Each abstract was independently, dually reviewed for inclusion or exclusion, using an Abstract Review Form (Appendix B).[‡] If one reviewer concluded that the article should be included in the review, we retained it.

Of this entire group of 1,076 citations, 590 required full review. For the full article review, one team member read each article and decided whether it met our inclusion criteria, using a Full-Text Inclusion/Exclusion Form (Appendix B). Reasons for article exclusion are listed in Appendix D.

[‡] Appendixes cited in this report are available at http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf

Figure 2. Results of literature search



Literature Synthesis

Development of Evidence Tables and Data Abstraction Process

The team jointly developed the evidence tables. We designed the tables to provide sufficient information to enable readers to understand the studies and to determine their quality; we gave particular emphasis to essential information related to our KQs. We based the format of our evidence tables on successful designs that we have used for prior systematic reviews.

We trained abstractors by having them abstract several articles into evidence tables and then reconvening as a group to discuss the utility of the table design. The abstractors repeated this process through several iterations until they decided that the tables included the appropriate categories for gathering the information contained in the articles.

Four members of the team (Jennifer Kraschnewksi, Brett Nishikawa, Laura Morgan, and Patricia Thieda) shared the task of initially entering information into the evidence tables. Authors

of individual sections reviewed the articles and edited all initial table entries for accuracy, completeness, and consistency. Abstractors reconciled all disagreements concerning the information reported in the evidence tables. The full research team met regularly during the article abstraction period and discussed global issues related to the data abstraction process.

The final evidence tables are presented in their entirety in Appendix C. Studies are presented in the evidence tables alphabetically by the last name of the first author. A list of abbreviations and acronyms used in the tables appears at the beginning of that appendix.

Quality Rating of Individual Studies

Quality rating forms for RCTs have been validated and in use for several years; a similarly well-validated form for observational studies does not exist. RTI has been developing a form to rate observational studies.[54] This form, which can be used to rate the quality of a variety of observational studies, was based on a review of more than 90 AHRQ systematic reviews that included observational studies; we supplemented this review with other key articles identifying domains and scales.[55,56] We structured the resultant form largely on the basis of the domains and subdomains suggested by Deeks and colleagues;[55] we then adapted it for use in this systematic review (Appendix B).[§]

The form currently includes review of nine key domains for observational studies: background, sample selection, specification of exposure, specification of outcome, soundness of information, followup, analysis comparability, analysis of outcome, and interpretation. An additional domain for RCTs is the quality of randomization. We used these dimensions of quality to assess the overall quality of the study. We did not attempt to construct a quantitative scale for quality. Previous scales have been critiqued for their lack of inter-rater reliability. An additional concern is scales do not account for a single flaw that may substantially bias results, despite meeting standards for all other aspects of study quality. Each study was dually evaluated for quality; abstractors reconciled all disagreements.

Strength of Available Evidence

We evaluated the strength of evidence based on the AHRQ Comparative Effectiveness Methods Guide.[57] The strength of evidence for each outcome incorporates risk of bias, consistency, directness, precision, and the presence of other modifying factors. As described in Owens et al., the evaluation of risk of bias includes assessment of study design and aggregate quality of studies.[57] We judged good quality studies with strong designs to result in evidence with low risk of bias. We graded evidence as consistent when effect sizes across studies were in the same direction and had a narrow range. When the evidence linked the interventions directly to health outcomes, we graded the evidence as being direct. We graded evidence as being precise when results had low degree of uncertainty. When considering the effect of confounders, we evaluated whether the degree of intensity of interventions in both arms could have explained the effects (or absence of effects); additionally we considered whether other sources of effect modification or confounding had been accounted for. We dually evaluated the overall strength of evidence for each outcome based on a qualitative assessment of strength of evidence for each

[§] Appendixes cited in this report are available at http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf

domain and reconciled all disagreements. The levels of strength of evidence are shown in Table 4.

Table 4. Strength of evidence grades and definitions

Grade	Definition
High	High confidence that the evidence reflects the true effect. Further research is very unlikely to change our confidence in the estimate of effect.
Moderate	Moderate confidence that the evidence reflects the true effect. Further research may change our confidence in the estimate of effect and may change the estimate.
Low	Low confidence that the evidence reflects the true effect. Further research is likely to change our confidence in the estimate of effect and is likely to change the estimate.
Insufficient	Evidence either is unavailable or does not permit estimation of an effect.

Applicability of the Evidence

We evaluated the applicability of the evidence based on a qualitative assessment of the population, intensity, or quality of treatment, choice of the comparator, outcomes, and timing of followup. We based our parameters for evaluation on guidance provided by AHRQ's Comparative Effectiveness Methods Guide.[58] Specifically, we consider whether enrolled populations differ from target populations and how this might affect risk of benefits or harms, whether studied interventions compare to those in routine use and how this might affect risk of benefits or harms, whether comparators reflect best alternative treatment and how this may influence treatment effect size, whether measured outcomes are known to reflect the most important clinical benefits and harms, and whether followup is sufficient to detect clinically important benefits.

External Peer Review

AHRQ's Scientific Resource Center requested review of this report from a wide array of outside experts. We received three external reviews and revised the report as appropriate.

Chapter 3. Results

This chapter presents the results of our evidence review for the following four key questions (KQs): KQ 1, interaction of CHWs with participants; KQ 2, outcomes of community health worker (CHW) interventions; KQ 3, cost-effectiveness of CHW interventions; and KQ 4, training of CHWs and the relationship between CHW training and patient health outcomes. We note that KQ 3, on cost-effectiveness of CHW outcomes, is derivative of KQ 2 and is limited to studies demonstrating effectiveness. As noted in Chapter 2, a total of 53 studies qualified for inclusion for KQ 1 and KQ 2, 6 for KQ 3, and 9 for KQ 4.

Appendix C-1[**] provides the detailed evidence tables for KQs 1, 2, and 3. Appendixes C-2 and C-3 present individual quality ratings for randomized clinical trials (RCTs) and observational studies, respectively. Appendix C-3 provides detailed abstractions for KQ 4. All evidence tables are presented in alphabetical order by last name of the first author.

As noted in earlier chapters, an overall assessment of the effectiveness of CHW outcomes requires evaluation of sources of heterogeneity, including clinical context, intensity of interaction between CHWs and participants, and type of comparator. CHW interventions operate in a variety of clinical contexts; summarizing the effects of these interventions on varied outcomes requires an explicit consideration of the clinical context. For this reason, we have organized the results for KQs 1, 2, and 3 by the clinical context of the interventions identified. These are, specifically, health promotion and disease prevention, injury prevention, maternal and child health, cancer screening, and chronic disease management.

An additional source of heterogeneity is the degree of intensity of the intervention, which can vary by clinical context. We synthesize the evidence from KQ 1 to develop a measure of the intensity (low, moderate, or high) of the interaction between CHWs and participants, and we then include the measure in describing results for KQ 2 and KQ 3. We also record other sources of heterogeneity such as the type of comparator. Chapter 4 discusses the effectiveness of CHW interventions and the potential impact of sources of heterogeneity on effectiveness more fully.

This literature is characterized by several articles together constituting a single study. We refer to studies in the text and cite all relevant articles for each study; article and study counts, therefore, frequently do not match. Our summary tables below feature groups of studies addressing each outcome. Unless otherwise stated, these tables are organized alphabetically by the last name of the first author. The summary tables for KQ 2 and KQ 3 provide information to identify the study (author, and date of publication), study design, population and setting, sample size, study quality, intervention and comparators, and results.

KQ 1: Interaction of Community Health Workers and Participants

KQ 1 focuses on how CHWs interact with participants, specifically the place of service, type of service, type of educational materials used, duration of interaction with participants, and length of contact. We categorize place of service as over the telephone or based in the clinic, the community, home, or workplace. Interventions often employed multiple settings to interact with

[**] Appendixes cited in this report are available at http://www.ahrq.gov/downloads/pub/evidence/pdf/comhealthwork/comhwork.pdf

participants. The type of services ranged from one-on-one interactions to group interactions. All CHW interventions included some element of education; we sought to understand the degree to which these materials were standardized or tailored for each participant. We identified three elements of duration of interaction: the number of sessions, time per session, and the length of time from the first interaction to the last interaction (length of contact). We report summary findings below, for each descriptor, of the interaction between CHWs and participants across all studies and clinical contexts. These characteristics vary greatly across CHW interventions, but a common element is the overall intensity of the intervention. Interventions of lower intensity will require fewer resources than interventions of moderate or high intensity. As a proxy measure of resource allocation, we employ characteristics of the CHW-participant intervention to develop a measure of intensity of interaction. As noted earlier, a key organizing principle for understanding the effectiveness of CHW interventions is clinical context; we conclude this section by describing characteristics of CHW-participant interactions and their intensity by clinical context. Summary tables describing the characteristics of CHWs are provided by clinical context; within each table, studies are presented in order of intensity and then in alphabetical order, by the last name of the first author.

Overview of Interaction Between Community Health Workers and Participants

Place of service. CHWs interacted with participants over the telephone or provided services in one or more of four locations: home, community, clinic, or workplace. CHWs provided home, telephone, and clinic interventions on a one-on-one basis; community interventions were more likely to be oriented toward groups than to individuals. Thirty-two studies had at least one home visit but may have involved telephone and community components as well.[15,17,18,23,59-102] Interventions in five studies occurred primarily by telephone.[19-22,69,70,103-106] In nine studies, interventions included at least one meeting in a community setting and were primarily group-oriented.[27,59,60,107-115] Interventions taking place in the community generally occurred in churches[59,60,107,108] or in other neighborhood or community locations.[27,102,109-114,116-122] Eight studies involved community interventions but did not specify the location;[27,109-115,118-120] of these, only two were one-on-one interventions.[118-121] One intervention occurred in a neighborhood beauty salon,[116] and four occurred on the street or in shelters.[117-122] Five studies took place within clinics or health care settings.[23,77,99,123-125] One intervention occurred in the workplace.[126] We could not determine the place of service for one intervention.[16,127]

Type of service. The type of services varied greatly across included studies. CHWs provided a wide range of services including one-on-one counseling (face-to-face and by telephone), education, support, information on health and community resources, transportation, appointment reminders, and other forms of assistance. The type of service ranged from brief one-time interactions to intensive one-on-one interactions over a span of years. The minimal service provided was a brief, one-time interaction such as distributing condoms and providing prevention literature[117] or a single telephone call to promote cancer screening.[103] At the other end of the spectrum, many interventions had multiple face-to-face counseling sessions, often in the home, to address specific needs.

Type of educational materials used. The least described characteristic of the interaction between CHWs and clients is the type of educational material used. As many as twenty-seven studies did not report any details on the type of educational materials utilized.[16,19-23,67-74,78,79,83,85-

[92,96,97,99,101,104-108,117,120-122,124,125,127] Several studies did not describe educational materials per se but did report that they distributed "materials" as part of the intervention (e.g., safety glasses, materials to reduce exposure to asthma triggers, smoke detectors). The remainder provided minimal descriptions that ranged from the use of a postcard[66] to complex systems, including audio and written formats to appeal to the broadest range of subjects.[63]

Duration of interaction (time per session and number of sessions). The duration of interaction varied broadly overall. Interactions lasted from quite brief (5 minutes to an hour) one-time meetings to extensive multiple interactions totaling several hours in all.

Length of contact. The length of contact—that is, the length of time that CHWs were directly involved with participants (which may have differed from the length of the study, or the length of time between measurement of pre- and postintervention health outcomes)—was inadequately reported in many cases. Length of contact ranged from 1 day[15,103,108,116,117] to 2.5 years.[98]

Intensity of Interaction

Based on the type of interaction, the duration of interaction (time per session, number of sessions, and length of interaction), and the tailoring of CHW interactions, we classified the intensity of an intervention into three categories: low, moderate, or high. Interactions that had at least four of six elements suggesting a higher intensity (one-on-one, face-to-face, an hour per session or more, 3 or more months' duration, three or more interactions, and tailored materials) were classified as high intensity. Interventions with two or three elements were classified as moderate intensity. Interventions with only one or none of the elements were classified as low intensity.

In making these classifications, we relied, whenever possible, on the protocol intentions rather than what actually occurred. When no information was available for the protocol, we relied on reported interactions in the field. When interactions in the field were also not reported, we assumed lower intensity for that aspect for the intervention. For instance, when studies did not report the time spent in each session, we assumed that the time per session did not exceed an hour on average. Similarly, if studies did not report specifically that the materials were tailored for each participant, we assumed that the interventions used generic materials for all participants.

Low-intensity interventions were generally one-time interactions, usually in a group setting. Moderate-intensity interventions occurred in a variety of settings but typically involved only one or two interactions with CHWs over shorter periods of time. High-intensity interventions included multiple interactions, face-to-face, for 3 months or more. Each category varies internally: for instance, within the high-intensity interventions, the number of interactions could vary from 3 to more than 20 in a year, depending on the nature of the intervention. Of the total of 53 studies, we classified 8 studies as low intensity,[19-22,59,60,103,104,107,108,113,117,126] 18 as moderate intensity[106,125],[15,23,63,66,69,70,99,101,102,105,109-112,114,116,118,119,122-124] and 27 as high intensity.[16-18,27,61,62,64,65,67,68,71-98,100,120,121,127,128]

Community Health Worker-Participant Interaction by Clinical Context

Community health worker-participant interactions for health promotion and disease prevention intervention. We included 11 studies on health promotion and disease prevention (Table 5). Six studies occurred in the home and by telephone;[64-71] one additional study was by telephone and mail.[105] Three studies were conducted in community settings—one in a

nonclinical site,[118,119] one in churches,[107] and one on community streets.[117] For one study, the place of service was not reported.[16,127] The majority of studies did not report the educational materials used; one of these studies provided condoms as part of the intervention.[117] Only four studies provided some description of the educational materials used during the intervention.[64-66,117-119]

Table 5. CHW-participant interactions for health promotion and disease prevention

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Auslander et al., 2002[16] Williams et al., 2001[127]	NR	Counseling adults for diabetes prevention: group and individual sessions	NR	6 group sessions and 6 individual sessions weekly, 45-90 minutes per session, over 3 months	High
Barnes et al., 1999[68]	Home and telephone	Information and assistance, referral, transportation to clinic if needed for childhood immunizations	NR	Unspecified number of calls and visits, over 6 months (time per session NR)	High
Barnes-Boyd et al., 2001[71] Nacion et al., 2000[72]	Home	Family-focused care plan; support, model problem-solving skills, promote self-development of mother, provide instruction in infant care; transportation; find community resources for childhood immunizations	NR	12 monthly visits, over 1 year (time per visit NR)	High
Conway et al., 2004[67]	Home and telephone	Problem-solving techniques to reduce environmental tobacco smoke exposure to children	NR	6 home and telephone visits over 4 months (time per session NR)	High
Elder et al., 2005[64] Elder et al., 2006[65]	Home and/or telephone	Home visits or phone calls for Latinas to make healthful dietary behavior changes	Tailored newsletters with homework assignments	12 home visits or telephone calls over a 12-week period, 12 weekly tailored newsletters (time per session NR)	High
Becker et al., 2005[118] Cene et al., 2008[119]	Community--nonclinical site	Counseling for adults with risk factors for cardiovascular disease	Written, culturally sensitive	Multiple (number unspecified) 30-minute sessions over 1-year period	Moderate
Hunter et al., 2004[66]	Home	Facilitated appointment scheduling for annual preventive exams for Latinas	Postcard	1 initial home visit and 1 final followup visit 8 weeks after postcard mailing to begin intervention (time per session NR)	Moderate

NR, not reported.

Table 5. CHW-participant interactions for health promotion and disease prevention (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Krieger et al., 1999[105]	Telephone and mail	Referral to medical care; appointment scheduling assistance; appointment reminder letter; followup to determine whether the appointment was kept; a new appointment for each missed appointment (up to 3); and assistance in reducing barriers to care through referral to community transportation, child care, or other services	NR	Various, brief interactions over 3 months (time per session NR)	Moderate
Rask et al., 2001[69] LeBaron et al., 2004[70]	Home and telephone	Appointment reminder, assistance in overcoming barriers to appointment for pediatric immunizations if needed	NR	At least 1 telephone call, followed by repeat calls and home visit if no telephone contact, over 15 months or less (time per interaction NR)	Moderate
Campbell et al., 2004[107]	Community – churches	Provide information through existing networks; organize and conduct at least three church-wide activities focused on spreading information for colorectal cancer prevention	NR	3 church- based activities during 12 months (time per session NR)	Low
Wendell et al., 2003[117]	Community — streets	Interview on sexual disease risk factors and prevention in at-risk adults; survey interaction	Condoms	Brief one-time interaction handing out condoms and prevention literature (time of interaction NR)	Low

Five studies were of high intensity,[16,64,65,67,68,71,127] four of moderate intensity,[66,69,70,105,118,119] and two of low intensity.[107,117]

Community health worker-participant interactions for injury prevention interventions. We included three studies in injury prevention (Table 6).[101,102,126] Two took place primarily in the home[101,102] and one on farms.[126] Two studies involved the distribution of materials to improve safety;[102,126] one study did not report the educational materials used.[101] Two studies were of moderate intensity;[101,102] one was of low intensity.[126]

Table 6. CHW-participant interactions for injury prevention

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Gielen et al., 2002[101]	Home	Assessed home for injury hazards such as falls, burns, and poisonings; made recommendations about appropriate safety products and practices; referred families to the Child Safety Center	NR	1 home-safety visit sometime between the patient's 6- and 9-month well-infant visits (time of session NR)	Moderate
Schwarz et al., 1993[102]	Home and community	Recruitment of volunteer representative from each block to identify neighborhood resources, facilitate contacts with residents, and reinforce safety messages through monthly block meetings. Home safety inspections in the presence of residents consisting of provision of safety materials; instruction on correcting safety hazards, simple household repairs, use of ipecac and bathwater thermometer, safety behaviors; identification of community resources	Safety materials: smoke detectors, batteries, bathwater thermometer, nightlight, ipecac, sticker for telephone with emergency numbers, and a poster with information on preventing burns, poisonings, falls, and injury from domestic violence	1 home visit and monthly block meetings over 18-month period (time per session NR)	Moderate
Forst et al., 2004[126]	Workplace (farms)	Distribution of eyewear, training on use and on eye health and safety	Reference manual on agricultural eye illness and injury; enlarged photos and fotonovelas; tool kit to demonstrate eye injuries and hazards; protective eyewear	At least 1 individual and at least 1 group session during farming season (time per session NR)	Low

NR, not reported.

Community health worker-participant interactions for maternal and child health interventions. Overall we included 15 studies in maternal and child health (Table 7). All of the studies occurred primarily in the home, but 1 had opportunities for interactions in health care clinics.[77] Only 4 studies provided some description of educational materials used during the intervention;[75-77,80-82,84] the remaining 11 did not report any details.[67,68,71-74,78,79,83,85-87,128] All the maternal and child health studies were of high intensity.

Table 7. CHW-participant interactions for maternal and child well-being

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Barnes-Boyd et al., 2001[71]	Home	Family-focused care plan; support, model problem-solving skills, promote self-development of mother, provide instruction in infant care; transportation; find community resources	NR	Monthly visits over 12 months (time per session NR)	High
Barnes et al., 1999[68]	Home and telephone	Information and assistance, referral, transportation to clinic if needed for childhood immunizations	NR	Unspecified number of calls and visits over 6 months (time per session NR)	High
Barth et al., 1988[73]	Home	Task-directed approach to reduce risk of parenting problems including transportation, support and assistance with participant needs, advocating on participant's behalf, modeling positive parenting and homecare skills	NR	≈2 visits per month, ≈ 4 hours per session, over 6 months	High
Barth et al.,1991[74]	Home	Task-directed approach to reduce the risk of parenting problems	NR	On average 11 visits (range 5-20) over 6 months (time per session not reported but ≈ 4 hours implied)	High
Black et al., 1995[75] Hutcheson et al., 1997[76]	Home	Develop individualized family service plan with specific goals; support mother's needs; promote maternal-child relationship	Handouts, developmental assessment toys	Weekly visits (≈ 1 hour per visit) for 1 year	High
Caulfield et al., 1998[77]	Community (WIC clinics), home or telephone	One-on-one counseling on participants' attitudes toward infant feeding, correcting misconceptions, group support sessions on infant feeding	Breastfeeding motivational video, posters and pamphlets	3 or more meetings during pregnancy (from 24 weeks of gestation) and then weekly up to 16 weeks postpartum if they continued breast feeding (time per meeting NR)	High
Conway et al., 2004[67]	Home and telephone	Problem-solving techniques to reduce environmental tobacco smoke exposure to children	NR	6 home and telephone visits over 4 months (time per session NR)	High
Duggan et al., 1999[78] Duggan et al., 2000[128]	Home	Building relationships with families; active assistance to address existing crises; model problem-solving skills and effective parent-child interaction; link families with needed resources; provide parenting education; ensuring presence of medical home for children	NR	≈22 visits (1 hour each) over 2 years	High

≈, approximately; NR, not reported; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

Table 7. CHW-participant interactions for maternal and child well-being (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Graham et al., 1992[79]	Home	Psychosocial support; educate family about pregnancy; advocate; link to community services for stress reduction; information on health risks during pregnancy and on nutrition	NR	4 visits (1 hour each) at 2-4 week intervals for 2-5 months (until birth of child)	High
Nacion et al., 2000[72]	Home	Intensive home visits for assessment, problem-solving, emotional support, and information	NR	NR	High
Olds et al., 2002[80] Korfmacher et al., 1999[81] Olds et al., 2004[82]	Home	Intensive home visitation: promoting healthy behaviors, competent child care, pregnancy planning, education, employment, linking to social and health services; promoting healthy family/friend relationships	Visit-specific protocol, adapted to individual needs of mother	Every other week (except for weekly visits during the first 4 weeks after enrollment and the first 6 weeks after delivery) through the child's 21st month, followed by monthly visits during the final 3 months, ≈ 75 minutes per session	High
St. James et al., 1999[83]	NR (most likely home, based on activities like cooking)	Counseling, meal planning, pregnancy education, shopping, discuss medical recommendations	NR	≈20 sessions of 2 hours each (weekly in beginning then less frequently) throughout pregnancy	High
Schuler et al., 2000[84]	Home	Teaching and counseling on infant development, health education, mother-infant interaction	Activity sheets	Weekly visits (mean duration 30.1 minutes per visit) for 6 months	High
Silver et al., 1997[85]	Home	Counseling; share information on child health and behavior; link families with existing community resources	NR	6 meetings (1 hour each) with at least biweekly telephone calls and 3 group social activities over 12 months	High
Tessaro et al., 1997[86] Navaie-Waliser et al., 2000[87]	Home	Counseling, assistance in applying for government benefits, housing, employment, education, general advocacy for families	NR	One visit per month (more if needed) for approximately 14 months (time per visit NR)	High

Community health worker-participant interaction for cancer screening interventions. Overall 15 studies concerned cancer screening: 7 took place primarily in the home (visits or telephone)[15,17-22,61-63,103,104,106] and 8 in community locations[59,60,107-113,116,125] (Table 8).

Nine studies described some of the materials used during the intervention;[15,17,18,59-63,103,109-113] six did not report the educational materials used.[19-22,104,106-108,116,125] We found two studies of high intensity,[17,18,61,62] seven of moderate intensity.[15,63,106,109-112,116,125] and six studies of low intensity.[19-22,59,60,103,104,107,108,113]

Table 8. CHW-participant interactions for cancer screening

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Paskett et al., 2006[17] Katz et al., 2007[18]	Home and telephone	Education and barrier-specific counseling to promote screening; scheduling assistance	Individualized health education program	2 visits at 45-60 minutes and 30-45 minutes, 2 intervening telephone calls, and a final visit (time of final visit NR) over 9 to 12 months	High
Sung et al., 1997[61] Sung et al., 1992[62]	Home	Education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening	Video of Pap and breast exam; printed materials	3 visits (months 1, 2, 4) over 4-month period, visits 1 and 2 for 1.5 hours each, time for visit 3 NR	High
Dignan et al., 2005[15]	Home	Barrier-specific counseling to promote screening	Tailored brochure	One-time session of 20-90 minutes	Moderate
Hiatt et al., 1995[125]	Community (various locations)	One-on-one support; education: contact with clients was ongoing and personal	NR	Unspecified # of interactions (time per interaction NR) over 2 years	Moderate
Jandorf et al., 2005[106]	Telephone	One-on-one support and education on screening techniques and barriers to screening; assistance scheduling procedures	NR	At least 3 telephone calls (time per call NR) over 6 months	Moderate
Mock et al., 2007[109]	Community	2 small group gatherings and individual direct contacts to help access medical services and schedule appointments	Language-specific flip charts and booklets	2 sessions of 90 or 120 minutes each over 3 to 4 months	Moderate

NR, not reported.

Table 8. CHW-participant interactions for cancer screening (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Navarro et al., 1995, 1998, 2000[110-112]	Community	12 weekly small group educational sessions	Pamphlets, worksheets, posters developed for project and pamphlets from other organizations	12 sessions of 90 minutes each over 3 months	Moderate
Taylor, et al., 2002[63]	Home and telephone	Tailored responses to individual barriers to cervical cancer screening, clinic referral and scheduling assistance, translation services, transportation assistance	Video, motivational pamphlet, educational brochure, fact sheet, tailored counseling	One-time visit with followup telephone call (time per interaction NR)	Moderate
Wilson et al., 2008[116]	Community—beauty salon	Education, counseling, and information on location of screening services during salon appointment	Written materials (not described)	1 visit (time of session NR)	Moderate
Andersen et al., 2000[103]	Telephone	Barrier-specific telephone counseling to promote screening	Standardized script	1 interaction (time of interaction NR)	Low
Campbell et al., 2004[107]	Community—churches	Provide information through existing networks; organize and conduct at least 3 church-wide activities focused on spreading information	NR	3 church-based activities during 12 months (time per session NR)	Low
Derose et al., 2000[19] Duan et al., 2000[20] Derose et al., 2000[21] Fox et al., 1998[104] Stockdale et al., 2000[22]	Telephone	Barrier-specific telephone counseling to promote screening, discussion of resources for free- and reduced-cost mammograms, translation services, transportation, and childcare assistance	NR	2 telephone calls (1 per year over 2 years), time per session 7-11 minutes on average	Low
Earp et al., 2002[113]	Community	Presentations to community groups and events; one-on-one conversations; use of informational/ motivational materials	Brochures, posters, church fans, holiday cards	2 community activities per month; one-on-one conversations once a week over a 24-month period, time per session NR	Low

Table 8. CHW-participant interactions for cancer screening (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Erwin et al., 1997[108]	Church	Motivational speeches based on cancer survivor experience of CHWs, breast self-exam lessons using a breast model, discussion of resources for free- and reduced-cost mammograms	NR	1 presentation, time NR	Low
Sauaia et al., 2007[59] Welsh et al., 2005[60]	Community (church) and home	Personal education sessions to deliver health promotion messages	Newsletter	At least bimonthly meetings (time per meeting NR) over 5 years	Low

Community health worker–participant interactions for chronic disease management interventions. Overall, 13 studies focused on chronic disease management (Table 9). Seven took place primarily in the home,[23,88-100] 2 in health care settings[123,124] and 4 in community locations.[27,114,120-122] Eight described some of the materials used during the intervention;[27,93-98,100,114,123] five did not report the educational materials used.[23,88-92,99,120-122,124] Two studies provided materials to households to reduce exposure to asthma triggers (bedding, vacuum cleaners, etc.).[96,97,100] Eight were of high intensity[27,88-98,100,120,121] and five studies were of moderate intensity.[23,99,114,122-124]

Table 9. CHW-participant interactions for chronic disease management

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Batts et al., 2001[88] Gary et al., 2003[89] Gary et al., 2005[90] Gary et al., 2000[91] Vetter et al., 2004[92]	Home and telephone	Offer to schedule appointments and visits, provide education, mobilize social support for adults with diabetes mellitus	NR	3 visits (45-60 minutes each) per year over 2 years (and additional contacts as needed)	High
Beckham et al., 2008[93]	Home or clinic (site chosen by participant; majority preferred home)	Diabetes self-management education; referrals to registered dieticians, healing center	Visual aids (majority of participants illiterate)	Up to 15 home visits over 1 year, lasting 1-1.5 hours per visit	High

NR, not reported.

Table 9. CHW-participant interactions for chronic disease management (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Frate et al., 1985[94] Frate et al.,1983[95]	Home or community	Monitor blood pressure; provide health education and support; self-management of hypertension for adults	Pamphlets, scale, low-salt cookbook, AHA and NHLBI pamphlets	Monthly visits over 18 months (time per session NR)	High
Krieger et al., 2005[96] Krieger et al., 2002[97]	Home	Environmental assessment; individualized action plan; education and social support; deliver materials to reduce trigger exposure for asthma	Materials to reduce asthma-trigger exposure	4 to 9 visits over 12 months (time per session NR)	High
Levine et al., 2003[98]	Home	Education, counseling, referrals, providing information on access to health care, answered questions for adults with hypertension	Wallet-sized blood pressure tracking card, educational pamphlet	6 visits over 2.5 years (time per visit NR)	High
Lujan et al., 2007[27]	Community (classroom), telephone, and mail	Deliver participative classes for adults with diabetes mellitus, answered questions, reinforce education, promote behavior change, send biweekly postcards	Audiovisual teaching aids (flip charts, food models, food labels) and handouts	8 weekly 2-hour classes + biweekly telephone calls for 8 weeks followed by biweekly postcards for 16 weeks 24 weeks' total duration of interaction with participants	High
Morse et al., 1997[120] Wolfe et al., 1997[121]	Community—unspecified locations (homeless population)	Assistance with activities of daily living and leisure activities for homeless people with psychiatric diseases	NR	Face-to-face meetings (time per meeting and number NR) over 18 months	High
Parker et al., 2008[100]	Home	Environmental assessment; asthma action plan based on allergy tests; education and social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services	Asthma booklet; materials to reduce asthma trigger exposure	At least 9 visits over 12 months (time per session NR)	High

Table 9. CHW-participant interactions for chronic disease management (continued)

Author, Date of Publication	Place of Service	Type of Service	Educational and Other Materials Provided	Number of Sessions, Time per Session, and Length of Contact with Participants	Intensity—Low, Moderate, High
Bone et al., 1989[123]	Emergency room and telephone	Measured pulse and blood pressure (in emergency room session); provided educational counseling; identified barriers related to referrals, appointment keeping, and adherence to the treatment plan for adults with hypertension	Wallet-sized BP record card	1 face-to-face session (≈20 minutes) and at least 1 pre-followup appointment reminder telephone call (5-10 minutes) (time period over which this occurred NR)	Moderate
Corkery et al., 1997[124]	Hospital clinic	Liaison between patients and health care providers for adults with diabetes mellitus; attended clinic sessions with patient; provided translation, appointment reminders; rescheduled missed appointments; reinforced self-care instructions	NR	Varied (mean = 3.4 months, range: 0.9-5.4), time per session equal to clinic visit duration	Moderate
Morisky et al., 2002[23] Ward et al., 2000[99]	Home and/or clinic	Counseling regarding lifestyle, medication-taking, and appointment-keeping; tailored to patient need for adults with hypertension	NR	Number of visits, time per session, time period over which interactions occurred NR	Moderate
Pilote et al., 1996[122]	Community—shelters (homeless population)	Transported participants to clinic appointment for homeless people with tuberculosis; assisted with paperwork and doctor's recommendations	None	Met participants and went to clinic within a 3 week period (time per session NR)	Moderate
Von Korff et al., 1998[114]	Community—unspecified locations	Led classes on self-managing back pain, discussed strategies and barriers to achieve goals for managing pain	Book, pamphlets, videotapes, flipcharts	4, 2-hour classes held once a week for 1 month	Moderate

KQ 2: Outcomes of Community Health Worker Interventions

KQ 2 asks about the impact of CHWs on outcomes, particularly knowledge, behavior, satisfaction, health outcomes, and health care utilization. As noted earlier, the effect of CHW interventions will vary by clinical context (e.g., diagnosis or health concern), so as with KQ 1, we present results by clinical context for each of the outcomes described above. The areas of

clinical concern are health promotion and disease prevention, injury prevention, maternal and child health, cancer screening, and chronic disease management.

We also assessed each study for quality; in general, we present results for higher quality studies first, followed by findings for moderate and then lower quality studies. We also give the level of intensity of the interaction between CHWs and participants and the type of comparator for each study, using the three intensity categories introduced in KQ 1. As noted there, the intensity of the interaction between CHWs and participants varied by clinical context. For example, maternal and child health interventions were solely high intensity whereas cancer screening studies ranged across high, medium, and low intensity. Because of this variation for cancer screening, we discuss those studies categorized first by intensity, then by quality. For all other clinical contexts, we did not find meaningful patterns by intensity of intervention, either because of lack of variation in intensity, or because the number of studies was insufficient to draw conclusions.

Variation in aims and clinical contexts of the studies, populations and settings, measures of health outcomes, and health care utilization information precluded quantitative synthesis of the results of studies. As with other questions, the number of articles exceeds the number of distinct studies. In all cases, tables list studies by quality (good, fair, then poor) and then alphabetically by last name of the first author of the article(s).

Outcomes for Health Promotion and Disease Prevention

Health promotion and disease prevention: pediatric immunizations. *Study characteristics.* Two RCTs, one good[69,70] and one fair quality,[68] and one poor-quality prospective cohort study (REACH-Futures[71,72]) examined outcomes of CHW interventions to improve pediatric immunization rates in inner cities (Table 10). The RCTs used moderate-intensity interventions and the cohort study used a high-intensity intervention.

Both RCTs used CHWs to provide reminder telephone calls for upcoming clinic appointments. The good-quality RCT, targeting children < 12 months of age in a county public health clinic in metropolitan Atlanta, had CHWs make home visits only if a child remained behind on his or her immunization schedule.[69,70] Additionally, this study compared four groups of children receiving: (1) automated telephone call reminders, (2) CHW outreach, (3) a combination of a CHW and automated telephone call reminders, and (4) a control group defined by normal clinic procedure.[69,70] Outcomes were assessed after 22 months.[69,70]

The fair-quality trial, targeting low-income children in Manhattan, also used CHWs to provide basic immunization education and referral, in addition to assisting in obtaining immunization services through a combination of telephone and home visits.[68] It compared outcomes after 6 months for children receiving the CHW intervention with those for a control group comprising parents who were informed of their child's immunization status at enrollment and instructed to reschedule the missed appointment.[68]

Table 10. CHWs and health promotion and disease prevention: pediatric immunization interventions

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Rask et al.,, 2001;[69] LeBaron et al., 2004[70] RCT Pediatric Immunizations Children <12 months in a county public health clinic in metropolitan Atlanta, Georgia N: 3,050 Good	Moderate	G1: Autodial – automated telephone call delivered recorded message from health department medical staff; if no number or nonworking – then postcard to remind families 7 calendar days before child was due to be immunized G2: Outreach – Following standardized protocol, outreach worker contacted patient within 1 week and made reminder call before appointment; if child still not up to date, monthly home visits attempted G3: Combination of G1 and G2 G4: Normal clinic procedure (control)	Vaccine series completed per immunization registry after 22 months: No statistical difference between CHW and control groups
Barnes et al., 1999[68] RCT Pediatric Immunizations Low-income children in Manhattan, New York N: 434 Fair	Moderate	G1: Basic immunization education and referral. During subsequent contacts (home visits or telephone calls) throughout the remainder of followup, families were reminded of upcoming vaccinations and were recontacted to ensure that requisite vaccines were received. Contact with the clinic or escort to appointments provided if a family required support or assistance to obtain immunization services. G2: Informed of their child's immunization status at the enrollment visit by the control group interviewer and were instructed to reschedule the missed appointment.	Up-to-date on immunizations after 6 months: G1: 75% G2: 54% (*P* = 0.03) Late for immunization: G1: 18% G2: 38% (*P* < 0.05)
Barnes-Boyd et al., 2001[71] Prospective Cohort Pediatric Immunizations Low-income inner-city African-American women and infants in Chicago, Illinois N: 1,922 Poor	High	G1: Monthly home visits over 1 year; visits at prenatal, 1, 6, and 12 months teamed with a nurse. G2: Historic controls with nurse home visits.	Percent fully immunized at 12 months: G1: 77% G2: 63% (*P* <0.001)

CHW, community health worker; G, group; N, number; RCT, randomized controlled trial.

REACH-Futures, a prospective cohort study, compared a group receiving a high-intensity intervention of CHW and nurse visits with historic controls of nurse-only home visits.[71,72]

Monthly home visits started prenatally and ended at 1 year.[71,72] We rated this study poor because of high potential for secular trends, given the time difference between the two groups, and for other confounding problems.[71,72]

Overview of results. These three studies[68-72] evaluated the impact of CHWs on vaccine series completion rates and showed different CHW effectiveness. The good-quality study found no difference between groups receiving the CHW intervention and the control group.[69,70] In contrast, the fair-quality study demonstrated that children in the CHW group were more up-to-date and less likely to be late for their immunizations than the controls.[68] The control group for this study received more intervention directed at improving immunization rates, which would diminish the apparent effectiveness of the CHW. This study was more intensive than either of the other two projects (regular home visits or telephone calls over 6 months to ensure that requisite vaccines were received); this factor may have produced the difference in effectiveness between studies. REACH-Futures[71,72] also found that the CHW-intervention group had a higher proportion of fully immunized participants at 12 months than did the historic controls who had received a nurse-only home visit.

Knowledge. No study reported outcomes for improved knowledge of pediatric immunization.

Behavior. No study reported outcomes for behavior changes.

Satisfaction. No study reported outcomes for satisfaction.

Health outcomes. All three studies evaluated immunization rates. The good-quality trial evaluated vaccine series completion rate from an immunization registry and found no difference between the CHW and control groups.[69,70] The fair-quality trial found that children in the CHW arm were more up-to-date on immunizations than in the control arm (75 percent versus 54 percent, $P = 0.03$) and that fewer children were late for immunizations (18 percent versus 38 percent, $P < 0.5$).[68] The poor-quality study evaluated vaccine series completion rates at 12 months and found that a higher proportion of children receiving the CHW and nurse home visits were up-to-date than historical controls ($P < 0.001$).[71,72]

Health care utilization. No study reported outcomes for health care utilization.

Health promotion and disease prevention: health promotion – Latina health. *Study characteristics.* Two RCTs, one fair[66] and one poor quality,[64,65] examined outcomes of CHW interventions in comparison with mailings for health promotion in Latinas (Table 11). The fair-quality study used a moderate-intensity CHW intervention in uninsured Hispanic women age 40 years and older living at the US-Mexico border (Agua Prieta, Sonora, Mexico, and Douglas, Arizona, United States) with the aim of increasing return to clinic for an annual preventive examination.[66] It compared a group receiving CHW home visits in addition to reminder postcards with a group getting reminder postcards alone.

The poor-quality study, Secretos de la Buena Vida, used a high-intensity CHW model in the same target population living in San Diego County, California.[64,65] It evaluated the effectiveness of weekly CHW home visits and telephone calls in addition to tailored print materials against that of tailored materials alone or off-the-shelf materials for changing dietary behavior. We rated this a poor-quality study because of a high potential for selection bias, measurement bias, and confounding.[64,65]

Table 11. CHWs and health promotion and disease prevention: Latina health promotion interventions

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Hunter et al., 2004[66] RCT Annual preventive exams Uninsured Hispanic women, aged 40 and older, living at the US-Mexico border N: 103 Fair	Moderate	G1: Received postcards in the mail 2 weeks before the month their annual exams were due, printed in language used to complete original questionnaire G2: Received G1 intervention and were visited by a promotora 2 weeks after the postcard had been mailed. Promotora facilitated appointment scheduling and contacted them to facilitate rescheduling if appointment was missed.	Return to clinic for a second comprehensive annual exam: G1: 48% (n = 24) G2: 65% (n = 33) RR, 1.35; 95% CI, 0.95-1.92
Elder et al., 2006;[65] Elder et al., 2005[64] RCT: Secretos de La Buena Vida Dietary behavior, changes Latinas in San Diego County, California N: 357 Poor	High	G1: CHW home visits and/or telephone calls + tailored print materials G2: 12 weekly tailored newsletters and homework G3: 12 weekly off-the-shelf dietary printed material	Total fat gm, total fiber gm (Nutrition Data System 24-hour dietary recall interview) (validated): No significant difference between groups at 6 and 12 months postintervention

CHW, community health worker; CI, confidence interval; G, group; N, number; RCT, randomized controlled trial; RR, risk ratio.

Overview of results. The fair study found that a moderate-intensity CHW intervention was more effective than a reminder postcard in increasing preventive exam appointments.[66] The poor-quality study demonstrated that a high-intensity CHW intervention group was different from those receiving weekly tailored dietary printed material in terms of dietary intake immediately post-intervention. This difference was no longer apparent after 6 months, although all three groups improved.[64,65]

Knowledge. Neither study reported outcomes for improved knowledge of health promotion.

Behavior. The Secretos de la Buena Vida project examined behavioral changes.[64,65] The CHW arm and the tailored print arm did not differ significantly at 6 and 12 months postintervention in dietary intake of fat or fiber, based on a validated measure for 24-hour diet recall.

Satisfaction. Neither study reported outcomes for satisfaction.

Health outcomes. Neither study reported outcomes for improved health.

Health care utilization. The fair-quality, moderate-intensity CHW study reported on the percentage of women returning to clinic for a second annual preventive examination.[66] The CHW arm had a higher percentage of women returning than the postcard-only arm (65 percent versus 48 percent; RR, 1.35; 95percent CI, 0.95-1.92), but the difference was not statistically significant.

Health promotion and disease prevention: disease prevention. *Study characteristics.* Six studies, five RCTs[16,67,105,107,118,119,127] and one prospective cohort study,[117] examined outcomes of CHW interventions for disease prevention in underserved populations throughout the United States (Table 12). Two studies were both high intensity and fair quality;[16,67,127] two studies were moderate intensity, one fair[105] and one poor quality;[118,119] and two studies were low intensity, one fair[117] and one poor quality.[107] Studies focused on a broad range of disorders, including cardiovascular disease prevention,[105,118,119] diabetes prevention,[16,127] HIV prevention,[117]colorectal cancer prevention,[107] and second-hand smoke exposure.[67] Of the five RCTs, three were of fair quality[16,67,105,127] and two were poor.[107,118,119]

The Missouri study was a fair-quality RCT evaluating a high-intensity CHW intervention focused on diabetes prevention in a low-income, African-American female population.[16,127] This study compared 3 months of weekly sessions, alternating between group and individual sessions, targeting stages of change to tailor dietary patterns, with a control group that received a book to read.[16,127] The San Diego study was a fair-quality RCT evaluating a high-intensity CHW intervention focused on decreasing secondary tobacco smoke exposure in Latino neighborhoods in San Diego County, California.[67] The intervention consisted of six home and/or telephone visits by CHWs over 4 months using culturally tailored behavioral problem-solving techniques to reduce secondary tobacco smoke exposure; controls received no intervention.[67] The Seattle, Washington, study was a fair-quality RCT evaluating moderate-intensity CHW assistance with medical followup against verbal advice to see a medical provider in low-income neighborhood participants who were found to have elevated blood pressure.[105]

The sole prospective cohort study, rated fair quality, evaluated the effectiveness of a low-intensity CHW intervention in HIV prevention by street outreach to at-risk community members in Louisiana compared with a control group in a neighborhood receiving no intervention.[117]

The poor-quality Baltimore, Maryland, trial evaluated a moderate-intensity intervention consisting of a nurse practitioner and CHW team at a nonclinical site with exercise equipment; CHWs provided dietary, smoking cessation, and exercise counseling.[118,119] This strategy was compared with "enhanced" primary care, in which the same risk-specific materials and information on local programs were given to the intervention group and results and recommendations were provided to the patients' primary care physicians. We rated it poor because of a high potential for measurement bias.[118,119] The WATCH trial was a poor-quality RCT of low intensity conducted in rural, predominantly African-American churches in North Carolina.[107] This study had four arms: (1) control churches offered a health education session and speakers not related to study objectives; (2) CHW intervention, consisting of organization and presentation of at least three church-wide activities on educating and enhancing support for healthy lifestyle and colorectal cancer screening; (3) four personalized computer-tailored newsletters and four targeted videotapes focused on healthy lifestyle and colorectal screening mailed bimonthly to participants' homes; and (4) both the CHW and the videotape components.[107]

Overview of results. These six disease prevention studies reported on outcomes of knowledge, behavior, health outcomes, and health care utilization. Overall, four studies found that a CHW intervention was more effective in achieving outcomes than the respective control group.[16,105,117-119,127] Two fair-quality studies (the Missouri trial[16,127] and the prospective cohort study[117]) reported improved knowledge of the respective diseases in the CHW intervention as compared to respective controls. Two fair-quality studies (the Missouri trial[16,127] and the prospective cohort study[117]) and one poor-quality study (the Baltimore trial[118,119]) demonstrated that moderate- and low-intensity CHW interventions were more effective than controls in changing health behaviors.

Table 12. CHWs and health promotion and disease prevention: disease prevention interventions

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Auslander et al., 2002;[16] Williams et al., 2001[127] RCT Diabetes prevention Low-income African-American women in a large city (unspecified) in Missouri N: 294 Fair	High	G1: 6 group sessions (approximately 6 to 8 participants per group) and 6 individual sessions targeting stages of change to tailor, dietary pattern with a peer educator, meeting weekly over a 3-month period G2: A book (control)	Food Frequency Questionnaire – Validated: Intervention was effective in reducing fat intake, as measured by percentage of calories from total fat (baseline/6 months): G2: 36.0/34.5 G1: 35.9/32.3 ($P < 0.05$) BMI: No significant difference between groups Knowledge of Label Reading Questionnaire (unvalidated) baseline/6 months: G2: 5.4/5.7 G1: 5.5/6.3 ($P > 0.0001$)
Conway, 2004[67] RCT Secondary tobacco smoke Latino neighborhoods in San Diego County, California N: 143 Fair	High	G1: Culturally relevant home and telephone visits on problem-solving techniques to reduce ETS exposure G2: No intervention (control)	RIA of child's hair for nicotine and cotinine (validated): No significant difference between groups

BMI, body mass index; CBC, community-based care; CHW, community health worker; CI, confidence interval; EPC, enhanced primary care; ETS, environmental tobacco smoke; LHA, lay health advisor; MET, metabolic equivalent; N, number; NP, nurse practitioner; OR, odds ratio; PCP, primary care physician; RCT, randomized controlled trial; RIA, radioimmunoassay; SE, standard error; YMCA, Young Men's Christian Association.

Table 12. CHWs and health promotion and disease prevention: disease prevention interventions (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Krieger, 1999[105] RCT Hypertension Low-income neighborhoods in Seattle, Washington N: 421 Fair	Moderate	G1: CHW assistance with medical followup related to a date when blood pressure was determined to be elevated G2: Advice to see medical provider, list of public and community clinics	Self-report of completed followup appointment within 90 days (validated by medical provider report): G1: 65.1% G2: 46.7% (P = 0.001)
Wendell, 2003[117] Prospective cohort study HIV prevention At-risk neighborhoods in Louisiana N: 6,547 Fair	Low	G1: Discussions with community members during which they assessed the client's needs, imparted a risk- or harm-reduction message, answered questions, made referrals, and negotiated and reinforced behavior change G2: No intervention (control)	Condom use (intervention vs. comparison): OR, 1.37 (95% CI, 1.20 to 1.56; P < 0.001)
Becker et al., 2005;[118] Cene et al., 2008[119] RCT Cardiovascular disease prevention Baltimore, Maryland N: 267 Poor	Moderate	G1: EPC- received risk-specific materials (same as intervention group), PCP received results and recommendations, sent info on local programs (e.g., YMCA) G2: CBC - received care in 1 nonclinical site in the community from a NP and CHW. CHW provided dietary counseling, smoking cessation, and exercise counseling lasting 30 minutes.	Smoking cessation (self-report): G1: 7% reduction G2: 16.2% reduction (P < 0.001)

Table 12. CHWs and health promotion and disease prevention: disease prevention interventions (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Campbell, 2004[107] RCT Colorectal cancer screening African-American rural churches in North Carolina NR (12 churches; completers/dropouts of individual participants from each church not reported) Poor	Low	G1: Control churches were offered health education sessions and speakers on topics of their choice not directly related to study objectives G2: Organize and conduct at least 3 church-wide activities on spreading info and enhancing support for healthy lifestyle and CRC screening (LHA) G3: 4 personalized computer-tailored newsletters and 4 targeted videotapes corresponding to the same behaviors mailed to participants' homes bimonthly for first 6 months after baseline data collection; 4th mailing was 9 months baseline G4: LHA + targeted print and videotape	Dietary change—daily fruit and vegetable servings (baseline/followup): G1: 3.3/3.4 G2: 3.5/3.5 G3: 3.3/3.9 G4: 3.4/3.7 No significant change across arms for LHA interventions Physical activity—recreational (moderate-vigorous) activity MET hours/week, M (SE) (baseline/followup): G1: 9.3(0.88)/8.4(0.69) G2: 10.5(0.9)/10.6(0.70) G3: 9.5(0.80)/10.9(0.61) G4: 9.7(0.76)/9.7(0.60) No significant change across arms for LHA interventions

The two studies that targeted tobacco cessation found opposing results regarding CHW effectiveness.[67,118,119] The fair-quality study (San Diego trial[67]) found no difference in smoking cessation between a high-intensity CHW intervention group and a group receiving nothing based on validated radioimmunoassay (RIA) of children's hair for nicotine and cotinine. The poor-quality study (Baltimore trial[118,119]) found a significant difference between a moderate-intensity CHW intervention and enhanced usual care; however, this outcome was based on self-report. The fair-quality Seattle trial measured health care utilization and demonstrated that a moderate-intensity CHW intervention increased medical followup compared with only verbal advice to seek medical care for elevated blood pressure.[105]

Overall, most (four of the six) disease prevention studies demonstrated that various levels of CHW intervention intensity (low, moderate, or high) were more effective than the comparator, which ranged from nothing to enhanced usual clinical care, in changing a variety of outcomes.

Knowledge. Two fair-quality studies[16,117,127] reported outcomes for improved knowledge of the respective diseases. The Missouri study[16,127] found that participants in the high-intensity, diabetes-oriented CHW intervention, compared with a control group receiving a book to read, had an improved knowledge of label reading as assessed by an unvalidated questionnaire ($P < 0.0001$); this improvement remained statistically significant at 6-month followup. The prospective cohort study[117] demonstrated that a low-intensity CHW street outreach program was effective at increasing knowledge of where to obtain free condoms as determined by an unvalidated questionnaire (90 percent versus 74 percent, odds ratio [OR], 3.2, $P = 0.001$).

Behavior. Five RCTs, three fair[16,67,105,127] and two poor quality,[107,118,119] examined a variety of behavioral changes. Three demonstrated CHW effectiveness[16,105,118,119,127] and two[67,107] showed no difference compared with their respective controls. The Missouri trial on diabetes prevention evaluated dietary change following high-intensity, CHW-led group and individual sessions;[16,127] it found a reduction in fat intake with a validated food frequency questionnaire compared with intake in a control group ($P < 0.0001$). The San Diego trial, a high-intensity CHW intervention of home and telephone visits to reduce second-hand tobacco smoke exposure to children, found no difference from baseline by self-report or validated RIA of children's hair for nicotine and cotinine.[67] In contrast, the Baltimore trial evaluated a CHW intervention and found a difference in self-reported smoking cessation as compared to a standard of care group (16.2 percent reduction versus 7.0 percent, $P < 0.001$).[118,119] Both groups reported less smoking, confirmed by measures of hair cotinine. The North Carolina trial did not show a difference in either fruit and vegetable intake or increased physical activity between intervention and control groups.[107] The prospective cohort low-intensity study targeting HIV prevention demonstrated an increase in condom use reported in the intervention group (OR, 1.37; 95 percent CI, 1.20-1.56).[117]

Satisfaction. No study for health promotion evaluated outcomes focused on satisfaction.

Health outcomes. The Missouri trial found no difference within or between arms when comparing the high-intensity CHW intervention and the control group in terms of body weight and body mass index (BMI) at baseline (BMI 35.7 versus 35.3) and after 6 months (BMI 35.7 versus 35.4).[16,127]

Health care utilization. The Seattle trial evaluated self-reported medical provider followup within 90 days of determined elevated blood pressure.[105] It demonstrated a higher rate of completed medical followup in the CHW group than in the control group (65.1 percent versus 46.7 percent, $P = 0.001$). The number needed to treat in order to bring 1 person to medical care was 5 (95 CI, 3-13).[105]

Outcomes for Injury Prevention

Injury prevention: home safety. *Study characteristics.* One fair-quality RCT[101] and one poor-quality RCT randomized at the community level (called the Safe Block Project)[102] assessed the effect of low-intensity CHW interventions on injury prevention in homes, either for children[101] or for all ages.[102] Both studies involved CHW home visits. The fair-quality RCT consisted of assessment of safety hazards and recommendations for appropriate products and practices compared with safety counseling in a pediatric clinic.[101] The poor-quality RCT also included direct implementation of several safety features into homes compared with no intervention in control households; we rated this trial poor because of its high potential for measurement bias and not masking those who assessed outcomes.[102]

Overview of results. The fair-quality RCT showed no benefit to CHW intervention,[101] but the poor-quality trial had mixed results[102] (Table 13.). Significant benefit was seen for household features that did not require participants to change behaviors (e.g., continued presence of a smoke detector, as installed in intervention homes); conversely, no benefit was observed for other household features that did require behavior change (e.g., maintaining a working light bulb in stairways).

Knowledge. Neither study assessed knowledge-related outcomes.

Table 13. CHW injury prevention interventions and home safety

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Gielen et al., 2002[101] Parents and infants 6 months or younger in large urban teaching hospital pediatric clinic Baltimore, Maryland N: 187 Fair	Moderate	G1: Safety counseling and referral by pediatrician to children's safety center G2: Standard care plus offer of CHW home visit; assessed injury hazards; made recommendations about appropriate safety products and practices; referred families to the children's safety center; 1 visit between 6 and 9 months	No significant difference between groups in home safety practices: Hot water temperature controlled: Pre/Post G1: 39%/47%; G2: 39%/47% Working smoke alarm: Pre/Post G1: 92%/84%; G2: 92%/81% Safety gates used: Pre (planned use)/Post (actual use) G1: 84%/23%; G2: 84%/27% Poisons latched/locked: Pre/Post G1: 26%/12%; G2: 26%/10% Ipecac present: Pre/Post G1: 12%/27%; G2: 12%/31%
Schwarz et al., 1993[102] (Safe Block Study) Inner city residents in neighborhoods with high injury rates Philadelphia, Pennsylvania N: 2,722 Poor	Moderate	G1: Safety inspections, home modifications and education; myriad safety devices (e.g., smoke detectors, ipecac, emergency telephone numbers, light bulbs) G2: Control (details NR)	G1 more likely than G2 to retain intervention modifications such as presence of ipecac ($P < 0.001$), hot water temperature control ($P < 0.001$) No difference between groups for adequate lighting at stairs

CHW, community health worker; G, group; N, number.

Behavior. In the fair-quality RCT,[101] groups did not differ significantly in maintaining adequate stairway lighting (83.1 percent versus 80.1 percent; adjusted odds ratio [AOR], 0.90; 95 percent CI, 0.69-1.16) or in following any of the home safety practices assessed. Hot water temperature control and presence of ipecac increased from baseline in both groups, but presence of a working smoke alarm, use of safety gates on stairs, and latching or locking of poisons declined from baseline. In the poor-quality trial,[102] following the CHW intervention a significantly higher proportion of households continued to have ipecac (which was recommended at the time of the study for households with young children) (81.0 percent versus 9.8 percent; AOR, 0.04; 95 percent CI, 0.02 to 0.07) and smoke detectors (96.0 percent versus 77 percent; AOR, 0.14; 95 percent CI, 0.09 to 0.20) than did controls. These interventions were provided by the CHWs and required no behavior change by participants. In contrast, intervention households were actually less likely than control households to have retained hot water temperature controls (63.2 percent versus 73.2 percent; AOR, 1.73; 95 percent CI, 1.39 to 2.15).

Satisfaction. Neither study assessed satisfaction.

Health outcomes. Neither study assessed direct health outcomes.

Health care utilization. Neither study assessed health care utilization.

Injury prevention: workplace safety. *Study characteristics*. One prospective cohort study, rated poor quality for high potential for selection and measurement bias and lack of description of baseline characteristics, examined the effect of a low-intensity CHW intervention for migrant farm workers to prevent work-related eye injury. The CHW intervention involved distribution of protective eyewear either with or without specific training provided by the CHWs; it was compared to distribution of eye protection not involving CHWs. Outcomes were assessed during the same growing season in parts of the Midwest.

Overview of results. The CHW intervention increased the likelihood of protective eyewear use, particularly when coupled with CHW-led training (Table 14).[126]

Table 14. CHW injury prevention interventions and workplace safety

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Forst et al., 2004[126] Latino migrant and seasonal farm workers Southeast Michigan and northeast Illinois N: 786 Poor	Low intensity	G1: CHW distributed protective eyewear, conducted at least 1 each individual and group training sessions G2: CHW distributed eyewear, did not provide training G3: No CHW component	G1 were more likely to increase use of protective eyewear compared with G2 ($P < 0.0001$) and with G3 ($P = 0.03$) Any CHW intervention increased likelihood of protective eyewear use vs. no CHW ($P = 0.0004$)

CHW, community health worker; G, group; N, number.

Knowledge. Knowledge was not assessed.

Behavior. The presence of any CHW component related to receiving protective eyewear was significantly associated with increased self-report of continued use of the eyewear on a 5-point Likert scale compared with having received the eyewear without CHW involvement (difference in average change in Likert scale value 0.6452, $P < 0.01$). Incorporation of CHW-led training was associated with greater self-reported eyewear use compared with CHW eyewear distribution alone (difference in average change 0.7663, $P < 0.01$) and with no CHW involvement (difference in average change 0.5241, $P = 0.03$). Observed use of eyewear increased in all groups during the study period (CHW trained 1.1 to 36 percent; CHW distributed 0 to 5.2 percent; no CHW 0 to 14 percent,
P-value not reported).

Satisfaction. Satisfaction was not assessed.

Health outcomes. Although the investigators measured the incidence of pterygium, they did not compare groups on this variable and in fact reported it as only inadequately identified.

Health care utilization. No measure of health care utilization was reported.

Outcomes for Maternal and Child Health

Maternal and child health: overview. We identified 15 studies that met inclusion criteria and involved maternal or child health outcomes (or both). All the studies utilized high-intensity interventions, usually involving some series of home visits. All but 1 study were rated either fair (8 studies) or poor (6 studies). The 1 good-quality study found no significant differences associated with interventions employing CHWs. Among the other studies, results were mixed, some showing benefit of CHW interventions and some showing no effect attributable to CHWs. This distribution was found in both fair- and poor-quality studies. Significant associations were most commonly found for existing conditions (e.g., phenylketonuria [PKU] or failure to thrive) rather than primary prevention and in the area of health care utilization (e.g., immunization rates) and behavior (e.g., parenting measures).

Maternal and child health: prenatal care and perinatal outcomes. *Study characteristics.* Six studies assessed prenatal care and perinatal outcomes associated with CHWs.[71,72,77,79,83,86,87] Of these, three were rated fair quality: one RCT involving prenatal care in Cleveland[79] and two cohort studies (one on the Resource Mothers Program for Maternal PKU[83] and one evaluating REACH-Futures[72]). The remaining three studies, rated poor, included one RCT on promotion of breastfeeding in African-American mothers in Baltimore,[77] rated poor for high attrition and lack of specific or validated outcome measures; one cohort study (the Baby Love Maternal Outreach Worker study[31,32]), rated poor for high attrition, high potential for selection bias and confounding, and lack of specific or validated outcome measures; and a second study on REACH-Futures[71] rated poor for high potential for secular trend and other confounding.

Most studies focused on interventions for low-income families, usually from racial or ethnic minority groups. Most CHW interventions involved home visits. The Resource Mothers Program for Maternal PKU[83] involved coaching in activities of daily living unique to mothers with PKU infants including meal planning and medical recommendations concerning pregnancy. The Maternal Outreach Worker program also provided direct assistance to families for obtaining benefits and services.[86,87]

Studies generally compared outcomes for families receiving CHW interventions with outcomes for those receiving usual clinical care (Table 15). The Baltimore breastfeeding study compared CHW intervention with video and other literature and against both interventions combined;[77] the Resource Mothers Program[83] used as controls mothers who had completed pregnancy in the 5 years before the start of the program; and REACH-Futures[71,72] used historic controls of nurse home visits. Outcomes were typically assessed months to years after the interventions.

Overview of results. Improvements over usual care were demonstrated to be associated with CHWs in breastfeeding,[77] maternal control of PKU,[83] and prenatal care.[86,87] However, birth outcomes in mothers with PKU,[83] low birth weight incidence,[86,87] continuation of breastfeeding,[77] and overall presence of infant health problems[71] were not significantly improved by use of CHWs compared with usual care[77,83,86,87] or with health professional intervention.[71]

Knowledge. No study measured knowledge-related outcomes.

Behavior. No study assessed behavior change.

Health outcomes. Peer CHW counseling in the Baltimore study was associated with greater initiation of breastfeeding than standard care (OR, 3.84; 95 percent CI, 1.44-10.21), but the statistically significant difference between groups in the proportion of participants still breastfeeding by 7 to 10 days disappeared.[77] For the Resource Mothers Program,[83] mothers

receiving the CHW intervention needed less time to reach metabolic control (blood phenylalanine level consistently below 10 mg/dL) than those who had not received the intervention (8.5 weeks versus 16 weeks, $P < 0.05$). The head circumference of infants born to participating mothers did not differ significantly between cohorts (mean Z-score of head circumference: intervention -0.56; 95 percent CI, -0.88 - -0.24 versus control -1.4; 95 percent CI, -1.56 - -1.2; $P = 0.08$). The Maternal Outreach Workers program

Table 15. CHW maternal and child interventions and prenatal care and perinatal outcomes

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Graham et al., 1992[79] RCT Pregnant inner-city African-American women Cleveland, Ohio N: 145 Fair	High	G1: Home visits with psychosocial support and encouragement, education, link to community resources, information on health risks; 4 visits of 1 hour each at 2-4 week intervals G2: Routine prenatal obstetric care (control)	No statistically significant difference between groups in incidence of low birth weight: 12.9% intervention, 7.5% controls ($P = 0.51$)
Nacion et al., 2000[72] Cohort REACH-Futures Low-income inner-city African-American pregnant women and infants Chicago, Illinois N: 213 Fair	High	G1: Home visits by CHW G2: Home visits by nurse (historic control)	G1 more likely than G2 to receive problem-solving services ($P < 0.01$) and to have problems identified in women's health ($P = 0.01$), well-child health care deficits ($P = 0.02$), parenting ($P = 0.02$), and socioeconomic issues ($P < 0.01$) G1 less likely than G2 to receive emotional support services ($P < 0.01$), to have referrals placed for women's health ($P = 0.01$), well-woman ($P = 0.02$), emotional/interpersonal ($P < 0.01$), parental support ($P < 0.01$), or for socioeconomic issues ($P < 0.01$)
St. James et al., 1999[83] Cohort Mothers with PKU New England N: 69 Fair	High	G1: Historic control; women who completed pregnancy in the 5 years prior to project onset G2: Resource mothers	Metabolic control achieved in 8.5 weeks for G2 vs. 16 weeks for G1 ($P < 0.05$) Infant mental scale on Bayley Developmental Quotient was 108 for G2 vs. 95 for G1 ($P < 0.05$) No difference in head circumference at birth ($P = 0.08$)

CHW, community health worker; PKU, phenylketonuria; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

Table 15. CHW maternal and child interventions and prenatal care and birth outcomes (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Barnes-Boyd et al., 2001[71] Cohort REACH-Futures Low-income inner-city African-American pregnant women and infants Chicago, Illinois N: 1,922 Poor	High	G1: Monthly home visits over 1 year; visits at prenatal, 1, 6, and 12 months teamed with nurse G2: Historic controls with nurse home visits	Proportion fully immunized at 12 months: CHW 77%, nurse 63% ($P < 0.001$) No significant difference between groups in presence of neonatal or postneonatal health problems (27% CHW vs. 25% nurse)
Caulfield et al., 1998[77] RCT African-American women receiving prenatal care Baltimore, Maryland N: 548 Poor	High	G1: Standard WIC services only G2: WIC plus video and literature G3: WIC plus peer counseling G4: WIC plus peer counseling plus video and literature	Initiation of breastfeeding: G1: 26% (referent) G2: 50% (OR, 1.36; 95% CI, 0.52-3.54) G3: 62% (OR, 3.84; 95% CI, 1.44-10.21) G4: 52% (OR, 1.92; 95% CI, 0.78-4.76) Breastfeeding at 7-10 days: G1: 14% (referent) G2: 30% (OR, 0.79; 95% CI, 0.25-2.52) G3: 38% (OR, 1.11; 95% CI, 0.34-3.61) G4: 38% (OR, 1.52; 95% CI, 0.50-4.59)
Tessaro et al., 1997[86,87] Cohort Maternal Outreach Workers Medicaid-eligible pregnant women with 1 or more pregnancy risk factors North Carolina N: 705 Poor	High	G1: CHW intervention G2: Matched controls, not otherwise defined	Maternal depression score increased by 2.1 in G1 vs. 5.1 in G2 ($P = 0.01$) Prenatal care, African Americans: G1: 60.7% adequate, 32.6% intermediate, 6.7% inadequate G2: 63.8% adequate, 31.5% intermediate, 4.7% inadequate Prenatal care, Whites: G1: 77.4% adequate, 19.7% intermediate, 2.9% inadequate G2: 75.1% adequate, 22.8% intermediate, 2.1% inadequate No difference between groups in maternal self-esteem ($P = 0.19$) or perceived stress ($P = 0.75$) No difference in observed vs. expected incidence of low birth weight or very low birth weight: African Americans -13 ($P = 0.12$), Whites +1 ($P = 0.58$)

demonstrated a trend toward lower incidence of adequate prenatal care for African-American women receiving CHW intervention than for controls (significance not reported);[86,87] neither the observed nor the expected incidences of low birth weight or very low birth weight infants differed significantly. REACH-Futures found no difference between CHW intervention and controls in incidence of neonatal or postneonatal infant health problems.[71]

Health care utilization. The Cleveland study showed a significant increase in the ratio of actual to expected numbers of prenatal visits for women receiving CHW intervention ($P = 0.029$);[79] the investigators did not compare the intervention findings to those from women in the control group.

Other. The fair-quality analysis from REACH-Futures found that CHW home visits were more likely than nurse home visits to include identification of problems in women's health ($P = 0.01$), deficits in well-child care ($P = 0.02$), parenting issues ($P = 0.02$), and socioeconomic issues ($P < 0.01$) and that participants were more likely to receive problem-solving services ($P < 0.01$).[72] However, CHWs were less likely than nurses to provide emotional support services ($P < 0.01$) or to place referrals for women's health ($P = 0.01$), well-woman care ($P = 0.02$), emotional/interpersonal support ($P < 0.01$), parental support ($P < 0.01$), or socioeconomic issues ($P < 0.01$).

Maternal and child health: Child development. *Study characteristics.* Four studies considered the impact of CHWs on child development (Table 16). Three were rated fair quality and one poor quality; all used high-intensity interventions. One RCT focused on children with nonorganic failure to thrive in Baltimore, Maryland;[75,76] another RCT examined the Home Visitation 2000 program in Denver, Colorado;[80-82] and a cohort study involved the Resource Mothers Program for Maternal PKU in New England.[83] The RCT assessing the Hawaii Healthy Start Program[78,128] was rated poor for high potential for site-specific bias.

Overview of results. Variation in timing and specific outcomes among studies precludes much summarization of results. Two of the studies demonstrated some significant benefit of CHW intervention over usual care; the other two showed no significant difference between CHW intervention and controls. The failure-to-thrive study demonstrated that the CHW home visiting program was effective in mitigating declines in cognitive and motor development, but not language, if implemented during the first year of life (Table 16).[75,76] The PKU Resource Mothers Program study found higher mental development for infants born to mothers who participated than for those born to historic controls.[83] By contrast, the Home Visitation 2000 trial showed more improvement in language development with nurse visits rather than CHWs,[80-82] and the Hawaii trial found no difference in mental or psychomotor development between children receiving CHW intervention and controls.

Knowledge. No study assessed knowledge about child development issues.

Behavior. No study included health behaviors in the outcomes measured.

Satisfaction. No study considered satisfaction outcomes.

Table 16. CHW maternal and child interventions and child development

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Black et al., 1995;[75] Hutcheson et al., 1997[76] Low-income urban children with nonorganic failure to thrive Baltimore, Maryland N: 130 Fair	High	G1: Weekly CHW home visits with community health nurse supervision for 1 year, addressing various child health and development needs, nutrition intervention, and concerns raised by mothers G2: Clinic-based multidisciplinary services; no CHW intervention	Smaller postintervention decline in cognitive and motor development for G1 vs. G2 only for children recruited in infancy Bayley cognitive development (SD): G1: 96.9 (SD 15.8) to 89.3 (17.4) G2: 96.2 (12.1) to 86.1 (18.7) Bayley motor development: G1: 91.1 (18.7) to 92.0 (14.6) G2: 95.3 (17.7) to 91.5 (18.7) (*P* = 0.02) No significant differences between groups for language development
Korfmacher et al., 1999;[81] Olds et al., 2002;[80] Olds et al., 2004[82] Home Visitation 2000 Medicaid-eligible pregnant women Denver, Colorado N: 735 Fair	High	G1: Developmental screening plus intensive home visitation: promoting healthy behaviors, competent child care, pregnancy planning, education, employment; linking to social and health services; promoting healthy family/friend relationships; variable frequency from weekly to monthly up to 24 months of age G2: Developmental screening plus nurse home visits G3: Developmental screening and referrals	Preschool Language Scales at 21 months (G3 mean 99.49): G1 vs. G3 +0.40 (95% CI, -1.94 to +2.74) G2 vs. G3 +1.73 (95% CI, -0.64 to +4.11) Mental Development Index at 24 months (G3 mean 89.38): G1 vs. G3 +0.07 (95% CI, -2.39 to +2.53) G2 vs. G3 +0.75 (95% CI, -1.77 to +3.28)
St. James et al., 1999[83] Mothers with PKU (PKU Resource Mothers Program) New England N: 69 Fair	High	G1: Historic control; women who completed pregnancy in the 5 years before project onset G2: Resource mothers	Infant mental scale on Bayley Developmental Quotient was G1: 95 G2: 108 (*P* < 0.05)

CHW, community health workers; CI, confidence interval; G, group; PKU, phenylketonuria; SD, standard deviation.

Table 16. CHW maternal and child interventions and child development (continued)

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Duggan et al., 1999;[128] Duggan et al., 2000[78] Families at high risk for child maltreatment Oahu, Hawaii N: 730 Poor	High	G1: Home visiting with individualized service plans, child developmental screenings, and mother-child interaction assessments; family support plan within 45 days of initial visit, reviewed every 6 months, revised annually; periodic screening for developmental delays, observational assessment of parent-child interaction and home environment; ensure existence of medical home, link to other needed resources G2: Control (details NR)	All outcome measures at 2 years postintervention Bayley Scales of Infant Development – Mental Development Index: G1: 90.0 G2: 89.2 (P = 0.60) Psychomotor Development Index: G1: 92.1 G2: 90.4 (P = 0.12)

Health outcomes. All four studies examined various health outcomes. In the Baltimore, Maryland, failure-to-thrive study, the decline in cognitive development over 1 year as measured by the Bayley Scales of Infant Development was less severe for the home intervention group than for the clinic-only group (P = 0.02) for children recruited during infancy. Groups of children recruited at older ages did not differ using the Battelle Developmental Inventory, although all groups demonstrated some degree of decline in cognitive function. Whether this decline was attributable to failure to thrive or to some other factor was not assessed in the study. Children in the intervention group showed less severe decline in receptive and expressive language than did age-matched controls (P = 0.05), but all groups experienced relative declines in language over the course of the study. All groups showed significant improvements in weight for age, weight for height, and height for age, but the groups did not differ significantly.

The Home Visitation 2000 study in Denver, Colorado, found slightly greater improvement over controls with nurse home visits than with CHW visits for the Preschool Language Scales at 21 months and the Mental Development Index at 24 months.[80-82]

Infants in the intervention cohort of the Resource Mothers Program in New England had higher mean Bayley Developmental Quotient (mental scale) values than those in the control cohort (108 versus 95) at 12 months of age ($P < 0.05$).[83]

At 2 years postintervention, children in the Hawaii Healthy Start Program[78,128] who received CHW intervention had a mean Bayley Mental Development Index score of 90.0 versus 89.2 for controls (P = 0.60) and a Psychomotor Development Index score of 92.1 versus 90.4 for controls (P = 0.12).

Health care utilization. No study assessed health care utilization.

Maternal and child health: Environment conducive to child well-being. *Study characteristics.* Factors contributing to an environment conducive to the health and well-being of children were assessed directly in 10 studies; 6 rated as fair quality and 4 as poor quality. The five fair-quality RCTs covered the following populations and interventions: smokers in San Diego;[67] low-income urban children with nonorganic failure to thrive;[75,76] the Parent to Parent Network for mothers of children with chronic conditions;[85] a trial targeting children in New York

with missed immunization visits;[68] a trial involving drug-using mothers in Maryland;[84] and the Home Visitation 2000 RCT.[80-82] Finally, of the four poor-quality studies, two RCTs (both involving the Child-Parent Enrichment Project, or CPEP[73,74]) were rated poor for lack of relevant outcome measures; the Hawaii Healthy Start Program[78,128] was rated poor for high potential for site-specific bias; and on the REACH-Futures trial[71] was rated poor because of high potential for secular trend and for other confounding.

Overview of results. The variety of outcomes assessed by the studies precludes much summary of results. Of the 10 studies in this category, only 4 reported significantly beneficial outcomes for CHWs over usual care.

The New York study[68] and REACH-Futures trial[71] did find CHW-associated improvements in immunization status. Home Visitation 2000 showed greater improvement with nurse than with CHW interventions for mother-infant interaction, home environment, and tobacco smoke exposure.[80-82] The Hawaii study found that CHW intervention significantly increased appropriate parental coping and discipline methods and decreased injuries from partner-related violence.[78,128]

As to the remaining studies: the San Diego study found no significant impact by CHWs on exposure to environmental tobacco smoke among children of smokers.[67] The failure-to-thrive study found no effect of CHWs on outcomes related to home environment or parenting behavior.[75,76] The Parent to Parent Network study showed no significant difference between intervention and control groups for maternal psychiatric well-being postintervention;[85] however, the results were potentially confounded by differences at baseline. No differences were found in the Maryland study[84] for maternal drug use or mother-child interaction. Other studies on substance abuse, child maltreatment, and improving psychiatric outcomes among caregivers of children with chronic diseases also did not report significant differences between study arms.[74,84]

Knowledge. No study assessed measures of knowledge.

Behavior. The failure-to-thrive study found no differences between groups for parent-child interaction behavior during feeding using a modified Parent Child Early Relational Assessment.[75,76] It did show improved interactive communication with parents during feeding among children over time for all groups ($P < 0.001$), but no differences were apparent according to intervention status. Developmental appropriateness of the home environment, as assessed postintervention by the Home Observation for Measurement of the Environment Scales, was slightly higher for the CHW intervention group than for the clinic-only group (31.6 [SD 3.6] versus 29.3 [SD 4.2] for infants; 32.4 [SD 5.1] versus 30.3 [SD 5.7] for older children; $P = 0.05$ [significance not reported by age strata]). However, no baseline scores were reported for this measure to ascertain the true effect of CHWs.

In the Maryland study on substance-abusing mothers, self-reported postintervention substance use was similar for mothers receiving CHW interventions and for those in the control group (65 percent versus 68 percent for alcohol, 46 percent versus 44 percent for cocaine and/or heroin, and 25 percent versus 38 percent for marijuana; $P \geq 0.1$).[84]

The Hawaii study found that parents who received CHW intervention had a greater postintervention use of nonviolent discipline strategies (see Table 16), reported less parenting-related stress, and had higher parenting efficacy scores than those receiving usual care alone.[78,128]

Satisfaction. No study assessed satisfaction outcomes.

Health outcomes. Among children of smokers in the San Diego study,[67] no reduction was seen in parental report of children's tobacco exposure or in nicotine or cotinine levels in children's hair for either CHW or control participants. The Parent to Parent Network demonstrated no difference between groups in postintervention Psychiatric Symptom Index

scores (intervention 22.1 versus control 20.1).[85] However, the baseline score for the intervention group was significantly higher than for the control group (24.1 versus 20.3, respectively; $P < 0.05$). Adjustment for this baseline difference revealed a greater degree of improvement in the intervention group than in controls, except for the depression subscale, which was improved in both groups. However, whether this reflected true improvement attributable to CHWs or was simply a regression to the mean could not be determined. The New York study showed that children receiving CHW intervention were more likely than control children to be current on their immunizations ($P = 0.03$) and less likely to have received immunizations behind schedule ($P < 0.05$) (Table 17).[68]

Table 17. CHW maternal and child interventions and environment conducive to child health

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Barnes et al., 1999[68] Low-income immigrant children from Dominican Republic NW Manhattan, New York N: 434 Fair	High	G1: Basic immunization education and referral; home visits with reminders of immunizations due, followup to ensure compliance G2: Information provided on child's missed immunizations, encouraged to reschedule missed appointments (control)	Immunizations up to date: G1: 75% G2: 54% ($P = 0.03$) Late for immunizations: G1: 18% G2: 38% ($P < 0.05$)
Conway et al., 2004[67] Latino families with smokers and children between 1 and 9 years old San Diego County, California N: 143 Fair	High	G1: Home and telephone visits on problem-solving techniques to reduce environmental tobacco smoke exposure; 6 visits over 4 months G2: Participated in surveys but received no other intervention (control)	No difference between groups for parent report of child's tobacco exposure or child's hair nicotine or cotinine levels (no reduction in either group)
Black et al., 1995[75]; Hutcheson et al., 1997[76] Low-income urban children with nonorganic failure to thrive Baltimore, Maryland N: 130 Fair	High	G1: Weekly CHW home visits with community health nurse supervision for 1 year, addressing various child health and development needs, nutrition intervention, and concerns raised by mothers G2: Clinic-based multidisciplinary services; no CHW intervention	No significant differences between groups for parent-child interaction HOMES home environment scores not reported pre-intervention

CHW, community health worker; CI, confidence interval; G, group; N, number; ng/dL, nanograms/deciliter; SD, standard deviation.

Table 17. CHW maternal and child interventions and environment conducive to child health (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Korfmacher et al., 1999;[81] Olds et al., 2002;[80] Olds et al., 2004[82] (Home Visitation 2000) Medicaid-eligible pregnant women Denver, Colorado N: 735 Fair	High	G1: Developmental screening plus intensive home visitation: promoting healthy behaviors, competent child care, pregnancy planning, education, employment; linking to social and health services; promoting healthy family/friend relationships; variable frequency from weekly to monthly up to 24 months of age G2: Developmental screening plus nurse home visits G3: Developmental screening and referrals (control)	Greater improvement in mother-infant interaction and home environment with intervention vs. controls for nurse home visits (least squares mean 1.32, $P \leq 0.05$) than for CHW visits (least squares mean 1.16, $P < 0.1$) Urine cotinine among smoking mothers reduced in all groups, more so for nurse intervention: CHW vs. control -76.19 ng/dL (95% CI, -302.21 to -149.82) Nurse vs. control -246.68 ng/dL (95% CI, -466.19 to -27.16; $P \leq 0.05$)
Schuler et al., 2000[84] Women with known history of drug use plus their infants Unspecified inner city, Maryland N: 192 Fair	High	G1: 9 visits of 30 minutes each to enhance mothers' ability to manage self-identified problems by using existing services and family and social supports; modeling infant development behavior/activities G2: 3 monthly visits of 17 minutes each for tracking purposes only	No difference between groups in self-reported maternal drug use or in infant warmth on observed mother-child interactions 65% of intervention and 68% of controls reported alcohol use postintervention, 46% of intervention and 44% of controls reported cocaine and/or heroin use, 25% of intervention and 38% of controls reported marijuana use ($P \geq 0.1$)
Silver et al., 1997[85] Inner-city, low-income, minority women with children who have a chronic disease Bronx or Lower Westchester, New York N: 365 Fair	High	G1: Intervention G2: Usual care (control)	Psychiatric Symptom Index scores higher at baseline in G1 than G2 ($P < 0.05$), but no difference between groups postintervention
Barnes-Boyd et al., 2001[71] (REACH-Futures) Low-income inner-city African-American pregnant women and infants Chicago, Illinois N: 1,922 Poor	High	G1: Monthly home visits over 1 year; visits at prenatal, 1, 6, and 12 months teamed with nurse G2: Nurse home visits (historic controls)	Proportion fully immunized at 12 months: CHW 77%, nurse 63% ($P < 0.001$)

Table 17. CHW maternal and child interventions and environment conducive to child health (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Barth et al., 1988[73] Families referred for high risk of child maltreatment Contra Costa County, California N: 65 Poor	High	G1: Twice-monthly home visits over 6 months with links to other community resources G2: Usual care	Child Abuse Potential Inventory pre- vs. postintervention: G1: 116.33 (SD 47.75) to 88.54 (SD 53.09) G2: 103.50 (SD 43.26) to 92.44 (SD 51.44) ($P \geq 0.05$ between groups)
Barth et al., 1991[74] Families referred for high risk of child maltreatment Contra Costa County, California N: 240 Poor	High	G1: Home visits G2: Usual care	Increase in total child maltreatment-related reports and court actions: G1: +40 families to +65 total reports G2: +41 families to +74 total reports (no significance testing reported)
Duggan et al., 1999;[128] Duggan et al., 2000[78] Families at high risk for child maltreatment Oahu, Hawaii N: 730 Poor	High	G1: Home visiting with individualized service plans, child developmental screenings, and mother-child interaction assessments; family support plan within 45 days of initial visit, reviewed every 6 months, revised annually; periodic screening for developmental delays, observational assessment of parent-child interaction and home environment; ensure existence of medical home, links to other needed resources G2: Control (details NR)	All outcome measures at 2 years postintervention Reported frequent use of nonviolent discipline strategies: G1: 39% G2: 34% ($P = 0.03$) Reported parenting-related stress: G1: 77.7% G2: 80.7% ($P = 0.08$) Parenting efficacy (Parenting Sense of Confidence Scale): G1: 76.1 G2: 74.1 ($P = 0.03$) Maternal life skills (Community Life Skills Scale): G1: 23.9 G2: 23.9 ($P = 0.84$) Maternal social support (Maternal Social Support Index): G1: 21.4 G2: 21.7 ($P = 0.48$) Maternal substance use: G1: 18% G2: 20% ($P = 0.55$)

Table 17. CHW maternal and child interventions and environment conducive to child health (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Duggan et al., 1999;[128] Duggan et al., 2000[78] (continued)			Maternal depressive symptoms: G1: 23% G2: 26% (*P* = 0.49) Poor, general maternal mental health: G1: 36% G2: 39% (*P* = 0.43) Home learning environment (Total Home Observation for Measurement of the Environment Scale): G1: 34.6 G2: 34.1 (*P* = 0.47) Mother-child interaction (Nursing Child Assessment Satellite Training scales): G1: Caregiver total 15.0, child total 7.2 G2: Caregiver total 14.6 (*P* = 0.28), child total 7.2 (*P* = 0.83) Partner-related violence in household resulting in injury: G1: 16% G2: 24% (*P* = 0.03) Confirmed Child Protective Services reports: G1: 2% G2: 3% (*P* = 0.40) Presence of primary care provider: G1: 91% G2: 86% (*P* = 0.09) Adequate number of well-child visits: G1: 60% G2: 55% (*P* = 0.95) Immunizations up to date: G1: 87% G2: 85% (*P* = 0.45)

The Maryland study found infant warmth (on a 5-point scale) to be equal for those receiving CHW interventions and controls (2.5, SD 0.4 for both groups).[84]

Home Environment 2000 demonstrated more improvement over controls in mother-infant interaction and in home environment for nurse home visits (least squares mean 1.32, $P \leq 0.05$)

than for CHW visits (least squares mean 1.16, $P < 0.1$).[80-82] Among participating families with mothers who smoked, maternal urine cotinine was reduced in all groups; those receiving nurse home visits had a significantly greater degree of reduction than those receiving CHW visits (nurse versus control -246.68 ng/dL; 95 percent CI, -466.19 to -27.16); CHW versus control -76.19 ng/dL; 95 percent CI, -302.21 to -149.82; $P \leq 0.05$).

The studies from Contra Costa, California, found no significant difference between groups on the Child Abuse Potential Inventory postintervention (Table 17); both groups showed improvement and no difference in reported cases of child maltreatment.[73,74]

The Hawaii study[78,128] demonstrated no difference between groups for maternal life skills (Table 17), maternal social support, maternal substance use, maternal depressive symptoms, or incidence of poor general mental health among mothers at 2 years postintervention. Neither home learning environment nor parent-child interactions differed between groups at 2 years. The investigators did not report how each of these measures compared with baseline values. The study did show lower incidence of injuries attributable to partner-related violence among families receiving CHW intervention ($P = 0.03$), but no differences in reported or confirmed cases of child maltreatment.

Health care utilization. Children receiving CHW intervention in the Hawaii study were no more likely than those receiving usual care to have a primary care provider ($P = 0.09$) (Table 17), to have received the recommended number of well-child visits ($P = 0.95$), or to be current on immunization status ($P = 0.45$).[78,128]

Outcomes for Cancer Screening

Cancer screening. *Study Characteristics.* A total of 15 studies (24 citations) examined outcomes of CHW interventions for improving breast, cervical, or colorectal cancer screening.[15,17-22,59-63,103,104,106-113,116,125] Information on these studies is spread across multiple tables, depending on the specific focus: improving knowledge, changing behavior, breast self-examination, Pap smears, mammography, clinical breast examination, and colorectal cancer screening.

Of these studies, 10 are RCTs[15,17-22,61-63,103,104,106-113] and 5 are observational studies.[59,60,108,113,116,125] The RCTs include three randomized by communities[103] or churches.[19-22,104,107] Of the five observational studies, one was a quasi-experimental controlled cohort,[125] two were prospective cohorts,[108,113] one used retrospective records,[59,60] and one used repeated cross-sectional survey of women attending beauty salons randomly assigned to experimental and control groups.[116] The studies spanned the quality range as well: two were of good quality,[17,18,103] seven of fair quality,[59-63,106,108,109,125] and six of poor quality.[15,19-22,104,107,110-113,116]

As noted in our section on KQ 1, seven studies used low-intensity CHW models, 6 used moderate-intensity interventions, and two used high-intensity interventions. Six studies included more than two arms. Studies compared the CHW arm with a variety of alternatives, including no intervention or usual care (6 studies), mail (3 studies), community interventions (4 studies), CHWs in a lesser capacity (2 studies), and CHWs in combination with other interventions (2 studies).

With the exception of two studies on colorectal cancer screening,[106,107] all other studies focus on women. All studies focused mainly on minority or underserved communities.

Studies used varied definitions of outcomes. The greatest commonality was reporting on utilization of cancer screening tests such as mammography, clinical breast examination, Pap smears, and colorectal cancer screening. Of the 15 studies, 13 reported on changes in rates of

utilization, but they varied in their specific definitions (ever use, use in the past 3 months, 1 year, 2 years, and so on).[15,17-22,59-63,104,106-113,125] With the exception of 3 studies examining Medicaid or medical records for mammography use,[17,18,59,60,63] all relied solely on self-report.

Overview of results. Together, the 15 studies suggest limited evidence of improvement in knowledge in the CHW arm compared with alternative approaches; they present conflicting findings on the effect of CHWs on planned and actual health behaviors, specifically breast self-examination. The volume of evidence on these outcomes is limited; the quality and design of the studies limits the interpretation of available evidence.

Unlike most of the other subsections dealing with other purposes for CHW strategies, cancer screening studies used high-, moderate-, and low-intensity interventions. Enough studies and evidence are available to permit some analysis by the intensity variable as it relates to Pap smears and mammography. Summary tables for these two outcomes are therefore presented by intensity (low, then moderate, then high), followed by quality, and then alphabetical order, by last name of first author(s); for all other sections, we present studies by quality, and then alphabetical order, by last name of first author(s).

Regarding health care utilization, our findings from this limited evidence do not support the conclusion that CHW interventions are more effective in comparison with other alternatives in raising the rates of clinical breast examination or colorectal cancer screening. More substantial evidence exists on Pap smears and mammography. The CHW approach is at least as effective as the alternative in improving Pap smear rates, but it is more effective than the alternative only in limited circumstances of low- and moderate-intensity interventions. With respect to mammography rates, studies demonstrated significantly greater improvements in the CHW arm compared with the alternative (no intervention, mail, print, or minimal CHW) in either the entire sample or in subsamples.

Knowledge. Two studies (three articles; Table 18) examined changes in knowledge and found limited evidence of improvement for the CHW arm.[17,18,109] A good-quality, high-intensity study in North Carolina measured knowledge for 12 individual measures on breast cancer and a composite score.[17,18] The studies together suggest improvements in the CHW arm, although the results are not consistent on the relative benefit of the CHW arm versus the alternative. Although differences between the CHW and the comparison arm (mail intervention) were not statistically significant for the composite measure of knowledge, the study reported significant different improvements favoring the CHW arm on two individual items measuring knowledge. Both arms demonstrated improvements in other measures, but these improvements were not statistically significantly different. A second study, of fair quality and moderate intensity in California, found significantly different improvements on two measures of knowledge, favoring the CHW arm compared with the media intervention arm.[109]

Table 18. CHW cancer screening: improving knowledge

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Paskett et al., 2006;[17] Katz et al., 2007[18] RCT Community health centers, Robeson County, North Carolina 820 Good	High	G1: Letter and NCI brochure sent about the need for regular cervical cancer screening 6 months after random assignment, followed by letter and NCI brochure about the need for mammography 3 months after followup assessment (control) G2: Individualized health education program that was culturally acceptable and tailored to meet the needs of each woman, intensive face-to-face interactive educational program administered over a 9- to 12-month period, consisting of 3 in-person visits, with educational materials provided at each visit and followup telephone calls and mailings thereafter	Composite knowledge score: not statistically significantly higher in CHW group
Mock et al., 2007[109] RCT Vietnamese-American women, Santa Clara County, California 968 Fair	Moderate	G1: CHW small group meetings; direct contact with subjects; Vietnamese language ads for TV, radio, newspaper; booklets and printed materials in various community locations G2: Vietnamese-language ads for TV, radio, newspaper; booklets and printed materials in various community locations; delayed educational session	Reported awareness of need for Pap test by women 18+ years old (baseline/followup): G1: 68.4%/93.9% ($P < 0.001$) G2: 68.5%/70.2% ($P = 0.55$) Z-test $P < 0.001$ Heard of Pap test: G1: 81.8%/99.6% ($P < 0.001$) G2: 87.2%/95.2% ($P < 0.001$) Z-test $P < 0.001$

CHW, community health workers; G, group; NCI, National Cancer Institute; RCT, randomized controlled trial; TV, television.

Behavior: planned testing. Two studies, one of fair quality and low intensity[63] and the other of poor quality and moderate intensity,[116] provide contradictory findings on the effect of CHWs on planned behavior Table 19). The fair-quality study compared a CHW arm with direct and usual care; differences in the rate of planned Pap smear tests favoring the CHW arm were statistically significant compared with either direct mail or usual care.[63] The poor-quality study reported no differences among study arms. However, the design of the study, which involved repeated cross-sections in salons randomly assigned to experimental and control status in which experimental salons offered barrier-specific counseling, was not measuring changes in intent over time; rather, it was concerned with differences in a cross-sectional sample. Low penetration combined with contamination across the samples (as suggested by the 37 percent and 10 percent of the sample reporting breast health messages at control sites and experimental sites, respectively) could have diluted the effects of the intervention.[116]

Table 19. CHW cancer screening: changing planned behaviors

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Taylor, et al., 2002[63] RCT Chinese-American women, Seattle, Washington, and Vancouver, British Columbia 402 (181 Seattle, 221 Vancouver) Fair	Low	G1: Introductory mailing, CHW visit with multimedia and tailored counseling, telephone followup and tailored counseling, logistic assistance as needed G2: Direct mail multimedia materials G3: Usual care at local clinics and doctors' offices (control)	Pap testing planned within 2 years: G1: 72% G2: 59% G3: 48% (G1 vs. G3 $P < 0.001$, G2 vs. G3 $P = 0.05$, G1 vs. G2 $P = 0.03$)
Wilson et al., 2008[116] Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups Neighborhood hair salons, Brooklyn, New York 40 salons/1,210 respondents Poor	Moderate	G1: Control, before intervention G2: Stylist group, before intervention G3: Control, after intervention G4: Stylist group, after intervention Intervention consisted of education, counseling, and information on location of screening services during salon appointment	Intention to receive clinical breast examination in next year: G3: 90% G4: 89% AOR, 0.9; adjusted 95% CI, 0.6-1.2 Intention to receive mammogram in next year: G3: 70% G4: 74% AOR, 1.3; adjusted 95% CI, 0.9-1.2

CHW, community health worker; CI, confidence interval; G, group; AOR, adjusted odds ratio.

Behavior: breast self-examination. Five studies (eight citations; Table 20) reported on changes in self-breast examination as outcomes of CHW interventions.[61,62,108,110-112,116,125] Of these five studies, three were of fair quality[61,62,108,125] and two of poor quality.[110-112,116] They included one high-intensity,[61,62] three moderate-intensity,[110-112,116,125] and one low-intensity study.[108]

These studies provide conflicting evidence of the effectiveness of the CHW approach, either in comparison with an alternative or over time independent of a comparison. Two studies reported significant differences between the CHW arm and an alternative (low-intensity CHW, mailed intervention, delayed intervention, or no intervention).[108,110-112] The same two studies also provided evidence of significant differences between baseline and followup for the CHW arm.[108,110-112] A third study employed repeated cross-sectional measurements and reported higher rates in the followup assessment but these were not statistically significant.[116] The fourth study

Table 20. CHW cancer screening: changing breast self-examination behavior

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Erwin et al., 1997[108] Prospective cohort Church or community groups, rural Mississippi River Delta region, Arkansas 412 Fair	Low	G1: Members of a Witness Project team, composed of 7 local African-American women who had survived breast or cervical cancer, spoke in groups of 2 to 5 at local churches and community organization meetings G2: Delayed intervention (control)	Regular practice of BSE (self-report): G1: 69.8% to 82% ($P < 0.005$ compared with baseline) G2: 82% to 82% (P = NS compared with baseline) BSE in the past month (self-report): G1: 49% to 65.4% ($P < 0.001$ compared with baseline) G2: 65% to 72% (P = NS compared with baseline)
Hiatt et al., 2008[125] Prospective cohort Public health clinics and the low-income neighborhoods in San Francisco and Contra Costa County, California 1,616 Fair	Moderate	G1: One-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction G2: No intervention (control)	Ever completed breast self-examination (Total N [%] pretest/Total N [%] posttest): G1: 800 (89)/810 (92) X^2 = NR, P=0.031 G2: 793 (83)/ 802(81) X^2 = NR, not significant Completed breast self-examination monthly in the past year (Total N [%] pretest/Total N [%] posttest): G1: 800 (24)/808 (26) X^2 = NR, not significant G2: 793 (18)/ 801(23) X^2 = NR, P=0.018

AOR, adjusted odds ratio; BSE, breast self examination; CHW, community health worker; CI, confidence interval; G, group; NR, not reported; NS, not significant; OR, odds ratio; RCT, randomized controlled trial.

Table 20. CHW cancer screening: changing breast self-examination behavior (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Sung et al., 1997[61]; Sung et al., 1992[62] RCT Inner-city African Americans, state unspecified 195 Fair	High	G1: CHW home visits, education on breast and cervical cancer, BSE educational materials on screening, facilitation to address logistical barriers to screening G2: Mailed educational materials on cancer screening	Pretest/posttest change in self-report of BSE for entire sample: G1: 52.1%/51.0% G2: 41.1%/41.0%, difference in change: -1.0 (95% CI, -6.1 to 4.1) Pretest/posttest change in self-report of BSE, postintervention respondents only: G1: 57.0%/53.8% G2: 40.2%/40.2%, difference in change: -3.2 (95% CI, -17.5 to 11.1) Posttest report of BSE, women not previously on recommended screening schedules, whole sample: G1: 24.4% G2: 17.2%, difference in change: 7.2% (95% CI, -5.0-19.3) Posttest report of BSE, women not previously on recommended screening schedules, postintervention respondents only: G1: 47.5% G2: 26.2%, difference in change: 21.3% (95% CI, 2.3-40.3)
Navarro et al., 1998,[111] Navarro et al., 1995,[110] Navarro et al., 2000[112] RCT Low-income Latinas, Southeast San Diego County, California 365 Poor	Moderate	G1: CHW delivering community living skills sessions, details NR G2: CHW delivering cancer education sessions, 12 weekly group sessions conducted over 3 months plus 2 additional sessions offered within a year of beginning of group meetings	Pretest-posttest changes in percentage of women performing monthly BSEs: Participant unit of analysis (n = 361) G1: 18.5 G2: 33.2 *P* < 0.001 t = 3.23 CHW unit of analysis (n = 35) G1: 18.6 G2: 31.8 *P* = 0.021 t = 2.43 Odds of monthly BSE at 1-year and 2-year followup for cancer screening group (*P* value): Year 1: 2.03 (0.016) Year 2: 0.96 (0.877)

Table 20. CHW cancer screening: changing breast self-examination behavior (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Wilson et al., 2008[116] Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups Neighborhood hair salons, Brooklyn, New York 40 salons/1,210 respondents Poor	Moderate	G1: Control, before intervention G2: Stylist group, before intervention G3: Control, after intervention G4: Stylist group, after intervention Intervention: provide messages promoting breast health during salon visit	Engaging in BSE in past 3 months: G1: 25% G2: 28%, *P* = 0.26 for differences between G1 and G2 G3: 37% G4: 40% AOR for differences between G3 and G4 1.3; adjusted 95% CI, 0.9-1.7

failed to find any improvements over time.[61,62] The fifth study found reported conflicting results for the two selected measures.

Of the three fair-quality studies, the high-intensity study compared the CHW arm with a mailed intervention,[61,62] the moderate-intensity study compared the CHW arm (outreach) to no-intervention arm, and the low-intensity CHW arm compared the CHW arm to a delayed intervention.[108] The high-intensity study found no significant improvements over time in either arm, or between arms, except when the sample was restricted to a much reduced subsample who were available at followup and were not on the recommended screening schedule.[61,62] The moderate-intensity study found improvements in the intervention arm over time for ever use of breast self-examination, but no significant differences in the control arm, but also found opposite effects for another measure: monthly breast self-examinations, with significant differences in the control arm over time, but not the intervention arm The low-intensity study found that the CHW arm resulted in significant improvements over time compared with the delayed-intervention arm.[108] However, baseline differences between the two arms were large; significant differences between the two arms could have resulted from ceiling effects.

Of the two poor-quality studies, one moderate-intensity intervention compared a more intense CHW arm with a less intense CHW arm;[110-112] the other moderate-intensity intervention compared the CHW arm with a no-intervention control.[116] In the former study, the two arms differed significantly through 1-year followup but not at the 2-year followup.[110-112] In the latter study, rates of breast self-examination were higher in followup interviews than in baseline interviews, but the differences between the arms was not statistically significant.[116]

Satisfaction. No study reported outcomes for satisfaction.

Health outcomes: No study reported on health outcomes.

Health care utilization: Pap smears. The evidence on the effectiveness of CHW interventions draws upon six studies (nine articles; Table 21).[17,18,61-63,110-112] Most studies demonstrate that the CHW arm is as effective as the alternative in improving Pap smear rates. CHWs were not more effective than mailed interventions in high-intensity interventions. They were more effective than the alternative in limited circumstances involving low- or moderate-intensity intervention in three of four studies. Because intensity may, thus, actually be an important policy variable for analyzing use of Pap smears, we present information on Pap smear use ordered first by intensity and then by the quality of the studies.

Table 21. CHW cancer screening: Pap smears

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Taylor, et al., 2002[63] RCT Chinese-American women, Seattle, Washington, and Vancouver, British Columbia 402 (181 Seattle, 221 Vancouver) Fair	Low	G1: Introductory mailing, CHW visit with multimedia and tailored counseling, telephone followup and tailored counseling, logistic assistance as needed G2: Direct mail multimedia materials G3: Usual care at local clinics and doctors' offices (control)	Self-reported Pap testing completed since intervention: G1: 39%, G2: 25%, G3: 15% (G1 vs. G3, *P* < 0.001; G2 vs. G3, *P* = 0.03; G1 vs. G2, *P* = 0.02) Medical records for Pap screening received between randomization and followup, using intention-to-treat: Results not provided, significant differences between outreach worker versus control (*P* <.001), direct mail versus control (*P* =.07), and outreach worker versus direct mail (*P* =.04) Medical records for Pap screening received in the past 2 years, using intention-to-treat: Results not provided, significant differences between outreach worker versus control (*P* <.001) and direct mail versus control (*P* =.03)

CHW, community health worker; CI, confidence interval; G, group; N, number; NCI, National Cancer Institute; NR, not reported; RCT, randomized controlled trial; TV, television.

Table 21. CHW cancer screening: Pap smears (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Hiatt et al., 2008[125] Prospective cohort Public health clinics and the low-income neighborhoods in San Francisco and Contra Costa County, California 1,616 Fair	Moderate	G1: One-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction G2: No intervention (control)	Ever completed Pap smear (logistic regression, 95% CI) Residence in outreach area over time: 1.5 (0.6-4.2) Completed Pap smear in the past 3 years (logistic regression, 95% CI) Residence in outreach area over time: 0.9 (0.6-1.3)
Mock et al., 2007[109] RCT Vietnamese-American women, Santa Clara County, California 968 Fair	Moderate	G1: CHW small group meetings, direct contact with subjects, Vietnamese language ads for TV/radio/newspaper, booklets and printed materials in various community locations G2: Vietnamese-language ads for TV/radio/newspaper, booklets and printed materials in various community locations, delayed educational session	Self-report of having ever had Pap (baseline/followup): G1: 65.8%/81.8% ($P < 0.001$); G2: 70.1%/75.5% ($P < 0.001$); Z test P = 0.001 Self-report of Pap in past year: G1: 45.7%/67.3% ($P < 0.001$); G2: 50.9%/55.7% ($P = 0.035$); Z test $P < 0.001$ Ever had Pap test (among those who had not had Pap test pre-outreach): G1: 46.0 (N = 144); G2: 27.1 (N = 161) $P < 0.001$

Table 21. CHW cancer screening: Pap smears (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Navarro et al., 1998;[111] Navarro et al., 1995;[110] Navarro et al., 2000[112] RCT Low-income Latinas, southeast San Diego County, California 365 Poor	Moderate	G1: CHW delivering community living skills sessions, details NR G2: CHW delivering cancer education sessions, 12 weekly group sessions conducted over 3 months plus 2 additional sessions offered within a year of beginning of group meetings	Pretest-posttest changes in percentages of women who had a Pap test within past year: Participant unit of analysis (n = 360) G1: 16.2 G2: 23.1 *P* = 0.096 t = 1.67 CHW unit of analysis (n = 35) G1: 18.4 G2: 23.4 *P* = 0.369 t = 0.91 Odds of Pap smear 1-year and 2-year followup for cancer screening group (*P* value): Year 1: 2.10 (0.017) Year 2: 1.70 (0.082)
Paskett et al., 2006;[17] Katz et al., 2007[18] RCT Community health centers, Robeson County, North Carolina 820 Good	High	G1: Control sent letter and NCI brochure about the need for regular cervical cancer screening 6 months after random assignment, followed by letter and NCI brochure about the need for mammography 3 months after followup assessment G2: Individualized health education program that was culturally acceptable and tailored to meet the needs of each woman, intensive face-to-face interactive educational program administered over a 9- to 12-month period, consisting of 3 in-person visits, with educational materials provided each visit and followup telephone calls and mailings after	Cervical cancer screening rates within risk-appropriate guidelines: Significant differences between baseline and followup for both groups, no significant differences between intervention and control groups

Table 21. CHW cancer screening: Pap smears (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Sung et al., 1997;[61] Sung et al., 1992[62] RCT Inner-city African Americans, state unspecified 195 Fair	High	G1: CHW home visits, education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening G2: Mailed educational materials on cancer screening	Pretest/posttest change in self-report of receiving Pap smears for entire sample: G1: 50.3%/58.7% G2: 51.9%/62.1%, difference in change: -1.8 (95% CI, -8.0-4.4) Pretest/posttest change in self-report of receiving Pap smears, postintervention respondents only: G1: 52.7%/63.4% G2: 50.0%/62.7%, difference in change: -2.0 (95% CI, -11.0-7.0) Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, whole sample: G1: 33.3% G2: 34.2%, difference in change: -0.9 (95% CI, -15.7-13.9) Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, postintervention respondents only: G1: 61.4% G2: 51.0%, difference in change: 10.4 (95% CI, -9.5-30.0)

One low-intensity trial, of fair quality, compared CHWs with direct mail and with usual care in cities in Washington and British Columbia.[63] CHWs were more effective than either alternative in increasing Pap smear rates, using both self-report and medical records.

Of the three moderate-intensity interventions, one in Santa Clara County, California, was of fair quality[109], a second in San Francisco and Contra Costa was also fair quality,[125] and the third in San Diego County, California, was rated poor quality.[110-112] The fair-quality study in Santa Clara compared CHWs with a media intervention; CHWs were effective in increasing rates of Pap smears.[109] The fair-quality study in San Francisco and Contra Costa found no statistically significant difference in changes in self-reported Pap smears between residents of intervention and control communities.[125] The poor-quality study compared a higher-intensity CHW arm focusing on cancer control with a lower-intensity CHW arm.[110-112] Although both arms demonstrated effectiveness compared with baseline values, participation in the more intense arm did not affect use of Pap smears compared with the less intense arm in the short term, but it did demonstrate effectiveness in the longer term (at 1- and 2-year followups). Followups were

marked by high dropout rates, however, so the effectiveness in the longer term could be explained by selection bias.

Two high-intensity trials, one good-quality study in North Carolina,[17,18] and one fair-quality study among inner-city African Americans (location unspecified),[61,62] compared CHWs to mailed interventions. These two studies reported consistent results failing to demonstrate effectiveness of CHWs in improving Pap smear use compared with mailed interventions, but both studies showed that both arms demonstrated improvement compared with baseline values.

Health care utilization: mammography. Eleven studies (21 articles; Table 22), provide evidence on the effectiveness of CHW intervention with respect to breast cancer screening by mammography.[15,17-22,59-62,103,104,108,110-113,116] Eight of these studies demonstrated significantly greater improvements in the CHW arm compared with the alternative (no intervention, mail, print, or minimal CHW) in either the entire sample or in subsamples.[17-22,59-62,103,104,108,110-113] Two of three studies reporting nonsignificant differences between the CHW arm and the alternative were moderate-intensity, poor-quality studies comparing CHWs with no intervention;[15,116] one of these studies reported nonsignificant differences between the CHW arm and the control, favoring the CHW arm. The third was a moderate-intensity fair-quality study comparing the effect of CHW interventions with controls at the community level.[125] As with use of Pap smears, intensity may be a relevant analytic variable, so we report findings below first by intensity, then by study quality.

Four studies did not report changes over time;[15,17-22,103,104] one study failed to show improvement in the intervention area,[125] and the remaining six studies all demonstrated some improvement in the control arm (no intervention, delayed intervention, mail, print, or minimal CHW), although the improvement was not statistically significant.

Studies conducting subgroup analyses demonstrated that CHW interventions can provide benefits for subpopulations. Four studies provide evidence that CHW interventions are likely to be more beneficial than alternative interventions in low-income, minority populations with some health care barriers.[19-22,60,103,104,113]

Low-intensity interventions generally compared CHW with minimal to no intervention, We identified five such studies, one good-quality,[103] two fair,[59,60,108] and two poor.[19-22,104,113] Collectively CHWs were generally effective in raising mammography rates, but with potentially greater effects in subpopulations.

The good study from Washington State, comparing a no-intervention control group with CHW groups receiving community activities, individual counseling, or a combination of community activities and individual counseling found that all the CHW intervention arms had higher rates of new users than the no-intervention control, but the study did not find significantly greater effectiveness of CHW arms in comparison with a no-intervention control.[103] The community activities arm appeared to be more effective than a no-intervention control in preventing relapse (that is, in ensuring that regular users or women who were adherent to recommended screening guidelines at baseline continued to be adherent at followup) than in enrolling new users.

Table 22. CHW cancer screening: mammography

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Andersen, 2000[103] RCT of communities Rural communities, Washington 6,685 Good	Low	G1: Control—no intervention reported G2: Community activities—developing social norms G3: Individual counseling—telephone G4: Community activities and individual counseling	Proportion of mammography rates among regular users (regular user is more than 1 mammogram, last mammogram within 2 years, and the previous mammogram within 2 years of the last mammogram) (self-reported): G1: 0.922 G2: 0.951, difference from G1 = 0.029, *P* = 0.01 (95% CI, 0.008-0.052) G3: 0.918, difference from G1 = 0.004, *P* = 0.81 (95% CI, -0.043-0.032) G4: 0.936, difference from G1 = 0.014, *P* = 0.27 (95% CI, -0.013-0.039) Proportion for G2+G3+G4: 0.935, difference from G1 = 0.013, *P* = 0.40 (95% CI, -0.012-0.038) In subgroup analysis, the intervention was more effective than the control in preventing relapse among women who needed >2 hours to get a medical appointment G1: 88.1%, difference in proportions for G2: 7.1% (*P* ≤ 0.01) G2: 6.0% (*P* ≤ 0.01) G3: 5.6% (*P* ≤ 0.05) Proportion of mammography rates among new users (under-users at baseline) (self-reported): G1: 0.578 G2: 0.599, difference from G1 = 0.021, *P* = 0.63 (95% CI, -0.080-0.117) G3: 0.606, difference from G1 = 0.028, *P* = 0.47 (95% CI, -0.064-0.113) G4: 0.604, difference from G1 = 0.026, *P* = 0.55 (95% CI, -0.062-0.122)

CHW, community health worker; CI, confidence interval; G, group; GEE, generalized estimating equation; ICD, International Classification of Diseases; N, number; NCI, National Cancer Institute; NR, not reported; NS, not significant; OR, odds ratio; RCT, randomized controlled trial; RR, relative risk; t, t-test.

Table 22. CHW cancer screening: mammography (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Andersen, 2000[103] (continued)			Proportion for G2+G3+G4: 0.603, difference from G1 = 0.025, *P* = 0.40 (95% CI, -0.035-0.085) In subgroup analysis, among under-users/intervention more effective than control in increasing mammography rates among women within communities without a female physician (G2: 12.4%, G3: 10.5%, G4: 16.5%; *P* < 0.05) and among women with no health insurance (G2: 23.2%, G3: 9.9%, G4: 22.1%; *P* ≤ 0.05)
Erwin et al., 1997[108] Prospective cohort Church or community groups, rural Mississippi River Delta region, Arkansas 412 Fair	Low	G1: Members of a Witness Project team, composed of 7 local African-American women who had survived breast or cervical cancer, spoke in groups of 2 to 5 at local churches and community organization meetings G2: Delayed intervention (control)	Ever had mammography (self-report): G1: 52.4% to 64.4% *(P* < 0.05 compared with baseline) G2: 60.4% to 63.3% (*P* = NS compared with baseline)
Sauaia et al., 2007;[59] Welsh et al., 2005[60] Retrospective cohort Church communities, Colorado Latina-only analysis: 4,739[59]; Latina vs. white analysis: 6,696[60] Fair	Low	G1: Trained peer counselors (Promotoras) delivered health promotion message personally, through meetings held at least bimonthly immediately after mass and through other church events, conducted health groups that met at the home of one of the participants, same newsletter used in the printed intervention G2: Printed intervention incorporated into church display, bulletin, and/or pulpit announcements	Pretest/posttest mammography rates via ICD codes on Medicaid claims (baseline/followup): Latina-only analysis: G1: 59%/61% G2: 58%/58%, unadjusted rates not significant in either group, GEE model adjusting for insurance group, age, income, rural vs. urban, and disability found increased biennial mammograms in intervention group (*P* = 0.03)[59] Latina vs. white analysis: G1: Latina 25%/30% (unadjusted GEE *P* = 0.3); non-Latina 32%/38% (unadjusted GEE *P* = 0.4) G2: Latina 45%/43% (unadjusted GEE *P* = 0.27); non-Latina 41%/44% (unadjusted GEE *P* = 0.02)[60]

Table 22. CHW cancer screening: mammography (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Sauaia et al., 2007;[59] Welsh et al., 2005[60] (continued)			Comparison of mammography rates by intervention and ethnicity, via ICD codes on Medicaid claims (pretest-posttest time-intervention interaction term by GEE) Latina: G1 vs. G2 adjusted GEE *P* = 0.07 Non-Latina: G1 vs. G2 adjusted GEE *P* = 0.10
Derose et al., 2000;[19] Dean et al., 2000;[20] Derose et al., 2000;[21] Stockdale et al., 2000;[22] Fox et al., 1998[104] RCT Church communities, Louisiana 813 Poor	Low	G1: Control churches provided minimal intervention: a library of resource materials on cancer and cancer prevention; assistance with starting a health committee or working with an existing health committee; computer hardware, software, and a printer, as well as computer training for at least 1 church member G2: 1 session of telephone counseling annually, for 2 years, by peer counselor; counseling individualized to address barriers; churches also received computer support offered to control churches	Nonadherence rate (among baseline adherent): G1: 23.3% G2: 15.8% (*P* = 0.029) Nonadherence rate (among baseline nonadherent): G1: 37.4% G2: 34.8% (*P* = 0.324)
Earp et al., 2002[113] Prospective cohort Black women, eastern North Carolina 801 Poor	Low	G1: Counties receiving CHW and other targeted activity—presentations to community groups and events, one-on-one conversations, use of informational/ motivational materials G2: Comparison counties—no intervention reported	Self-report of mammogram in past 2 years (baseline/followup): G1: 41%/58% G2: 56%/67% (adjusted *P* = 0.05) Self-report of mammogram in past 2 years, stratified by income (baseline/followup): < $12k annually— G1: 37%/59% G2: 49%/60% (adjusted *P* = 0.02) $12k or greater annually— G1: 56%/59% G2: 73%/82% (adjusted *P* = 0.92)

Table 22. CHW cancer screening: mammography (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Dignan et al., 2005[15] RCT Urban American-Indian women, Denver, Colorado 157 (for intervention groups, N for control NR) Poor	Moderate	G1: Control interventions NR data from Colorado Mammography Program G2: Tailored education brochure using data from baseline interview. Face-to-face planned for delivery at participant's home (1 session lasting 20-90 minutes), presenting information on breast cancer and value of early detection, review of brochure G3: Telephone intervention, as above	Mammograms over past 12 months, self-report (baseline/followup): G1: 51.9%/50.0% G2: 29%/41.8% G3: 34.4%/45.2% Chi-square: G1 vs. G2+G3: 2.68, *P* = 0.10; *P* for G2 vs. G3: 0.83; *P* for G2, pre-changes: 0.029; *P* for G3, pre-changes: 0.197
Hiatt et al., 2008[125] Prospective cohort Public health clinics and the low-income neighborhoods in San Francisco and Contra Costa County, California 1,616 Fair	Moderate	G1: One-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction G2: No intervention (control)	Ever completed mammography (logistic regression, 95% CI) Residence in outreach area over time: 0.7 (0.5-1.0) Completed mammography in past 2 years (logistic regression, 95% CI) Residence in outreach area over time: 0.7 (0.5-1.0) Completed 3 mammographies in past 5 years (logistic regression, 95% CI) Residence in outreach area over time: 0.8 (0.5-1.1)

Table 22. CHW cancer screening: mammography (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Navarro et al., 1998;[111] Navarro et al., 1995;[110] Navarro et al., 2000[112] RCT Low-income Latinas, southeast San Diego County, California 365 Poor	Moderate	G1: CHW delivering community living skills sessions, details NR G2: CHW delivering cancer education sessions, 12 weekly group sessions conducted over 3 months plus 2 additional sessions offered within a year of beginning of group meetings	Pretest-posttest changes in percentage of women ≥40 years who had mammogram within past year: Participant unit of analysis (n = 113) G1: 7 G2: 21.4 *P* = 0.029 t = 2.22 CHW unit of analysis (n = 33) G1: 6.8 G2: 24.3 *P* = 0.063 t = 1.96 Odds of mammogram 1-year and 2-year followup for cancer screening group (*P* value): Year 1: 1.50 (0.484) Year 2: 3.88 (0.018)
Wilson et al., 2008[116] Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups Neighborhood hair salons, Brooklyn, New York 40 salons/1,210 respondents Poor	Moderate	Intervention consisted of education, counseling, and information on location of screening services during salon appointment G1: Control, before intervention G2: Stylist group, before intervention G3: Control, after intervention G4: Stylist group, after intervention	Mammogram in past 3 months: G1: 13% G2: 14% AOR, 1.1 (95% CI, 0.8-1.7)

Table 22. CHW cancer screening: mammography (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Paskett et al., 2006;[17] Katz et al., 2007[18] RCT Community health centers, Robeson County, North Carolina 820 Good	High	G1: Sent control letter and NCI brochure about the need for regular cervical cancer screening 6 months after random assignment, followed by letter and NCI brochure about the need for mammography 3 months after followup assessment G2: Individualized health education program that was culturally acceptable and tailored to meet the needs of each woman, intensive face-to-face interactive educational program administered over a 9- to 12-month period, consisting of 3 in-person visits, with educational materials provided each visit and followup telephone calls and mailings after	Mammogram receipt from medical record data: G1: 27.3% G2: 42.5%, RR, 1.56; 95% CI, 1.29-1.87, *P* <.001 Significant differences within racial groups as well
Sung et al., 1997;[61] Sung et al., 1992[62] RCT Inner-city African Americans, state unspecified 195 Fair	High	G1: CHW home visits, education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening G2: Mailed educational materials on cancer screening	Pretest/posttest change in self-report of receiving mammography for entire sample: G1: 35.5%/50.4% G2: 34.3%/39.4%, difference in change: 9.8% (95% CI, 2.9-16.7) Pretest/posttest change in self-report of receiving mammography, postintervention respondents only: G1: 32.5%/58.7% G2: 34.0%/47.9%, difference in change: 12.4% (95% CI, 1.0-24.3) Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, whole sample: G1: 29.7% G2: 24.4%, difference in change: 5.8% (95% CI, -7.0-18.6) Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, postintervention respondents only: G1: 50.0% G2: 35.5%, difference in change: 14.5% (95% CI, 4.5-23.6)

One fair-quality study involved Latinas in Colorado enrolled in Medicare or Medicaid fee-for-service, or three other health maintenance organizations (Kaiser Permanente of Colorado, Access, and Anthem Blue Cross and Blue Shield).[59] It found nonsignificant and modest differences in mammography screening rates in unadjusted analyses that compared a CHW intervention with a printed intervention. In adjusted analysis, the difference between the two arms was statistically significant, favoring the CHW arm. The other fair-quality study, in Arkansas, also reported significantly greater improvements in self-reported use of mammography in the CHW arm compared with a delayed intervention arm. However, the two groups differed significantly at baseline, with higher rates of ever-use of mammography reported in the control group; thus a ceiling effect limiting improvements in the control group cannot be ruled out.[108]

The two poor-quality, low-intensity studies also suggested favorable results for the CHW arm compared with a minimal[19-22,104] or no-intervention arm[113] for the entire sample or for subpopulations.

Four moderate-intensity interventions, one of fair quality[125] and three of poor quality,[15,110-112,116] reported outcomes for self-reported mammography use. The fair-quality study in San Francisco and Contra Costa found no statistically significant difference in changes in self-reported mammography between intervention communities and control communities.[125] One study in New York, which compared CHW with no-intervention controls, found no significant differences between intervention and control arms after the intervention in use of mammography during the prior 3 months.[116] Both studies described measure effects at the community level rather than at the individual level. Low penetration of the intervention and potential contamination between experimental and control samples limit the interpretation of the results.

Two other studies, both assessed as moderate intensity overall, compared higher-intensity CHW to lower-intensity CHW intervention;[15,110-112] they both reported improvements in both arms. Only the study in San Diego County, California, found significant differences; it demonstrated that the relatively more intense arm was more effective in the 3- to 6-month period following the intervention.[110-112] These improvements were not consistently significantly different between the two arms over the long run (1- and 2-year followups) for a reduced and potentially self-selected subsample.

Two high-intensity trials, one good-quality[17,18] and one fair-quality,[61,62] both compared CHWs to mailed interventions and reported improvements in the CHW arms of their studies. Only the good-quality study (using Medicaid records from North Carolina) found significant differences in mammography rates between the CHW arm and the mailed intervention arm.[17,18] The fair-quality study, using self-reported mammography among inner-city African Americans (location unspecified), did not find any significant differences for the overall sample using intention-to-treat analysis, but it did report significant differences when analysis was limited to a potentially biased subsample of respondents available at followup.[62,129]

Four studies found evidence of effect modification in subgroup analysis.[19-22,60,103,104,113] The evidence is derived from low-intensity studies of varying quality. The good-quality study from Washington found that CHW intervention arms were more effective than a control arm in subgroups: among regular users (women adherent at baseline), the CHW intervention arms showed significantly greater rates of mammography use among women who needed less than 2 hours to schedule a medical appointment.[103] In the same study, subgroup analysis for under-users (women who were not adherent at baseline) found that the CHW interventions were significantly more effective than the no-intervention control among women without female doctors or

insurance. These subgroup findings suggest that the CHW approach is effective in addressing some, but not all, access barriers to the use of mammography.

The fair-quality study from Colorado[59,60] reported weak but slightly more powerful effects of the CHW approach compared with a printed intervention approach in increasing mammography rates among Medicaid-enrolled Latinas compared with non-Latina whites ($P = 0.07$ for Latinas, and $P = 0.10$ for non-Latina whites).[60] Similarly, the poor-quality studies also suggested subgroup effects. One study found CHWs to be more effective than a no-intervention control group in increasing rates of self-reported mammography for the overall sample and in groups with incomes below $12,000, but not in groups with incomes equal to or exceeding $12,000.[113] Another found that the CHW approach was more effective than with a minimal intervention approach in ensuring conversion to adherence among under-users rather than in maintaining adherence among regular or adherent users.[19-22,104]

Health care utilization: clinical breast examination. Four studies reporting on clinical breast examination (seven articles; Table 23)[61,62,110-112,116] included a high-intensity and three moderate-intensity interventions. Two of these studies were of fair quality;[61,62,125] the other two were rated poor.[110-112,116] Together the studies suggest that CHW interventions are not effective in comparison with other alternatives, although two studies that provide information on changes between baseline and followup found that the CHW arm results in improvements over time.

The fair-quality high-intensity trial found no differences between the CHW arm and a mailed intervention, with the exception of a reduced and possibly selective sample of respondents only at followup.[61,62] The fair-quality moderate-intensity study found no difference over time in most measures of self-reported clinical breast examination in intervention communities or control communities.[125] Of the two poor-quality moderate-intensity studies, one trial compared a more intense CHW arm with a less intense CHW arm[110-112] and the cross-sectional study compared it with a no-intervention arm.[116] Neither study reported significant differences, although the women in the more intense CHW arm of the trial did report higher rates of clinical breast examination after the intervention.

Health care utilization: colorectal cancer screening. Two studies, one of moderate intensity and fair quality, and another of low intensity and poor quality compared three groups on outcomes for fecal occult blood tests (FOBT) and other colorectal cancer screening tests (Table 24).[107] In the fair-quality moderate-intensity intervention, patients who received navigation services had higher rates of FOBT after three months of services than patients who received usual care, but these differences were not statistically significant. Patients receiving navigation services were significantly more likely than controls to have set an endoscopy appointment at three months and kept it by six months after the intervention.[106] The low-intensity poor-quality study reported that rates of FOBT were higher in the CHW arm over time; however, the CHW arm and the comparison arms of a no-intervention control or of tailored print and videotapes did not differ significantly. The study reported no benefit of the intervention for other colorectal screening tests.

Table 23. CHW cancer screening: clinical breast examination

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Sung et al., 1997[61]; Sung et al., 1992[62] RCT Inner-city African Americans, state unspecified 195 Fair	High	G1: CHW home visits, education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening G2: Mailed educational materials on cancer screening	Pretest/posttest change in self-report of receiving CBE for entire sample: G1: 55.2%/64.5% G2: 55.7%/59.5%, difference in change: 4.9 (95% CI, -6.1-4.1) Pretest/posttest change in self-report of receiving CBE, postintervention respondents only: G1: 59.1%/72.0% G2: 57.8%/61.8%, difference in change: 8.9% (95% CI, 1.1-16.7) Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, whole sample: G1: 37.0% G2: 28.6%, difference in change: 8.4% (95% CI, -6.9-23.7) Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, postintervention respondents only: G1: 71.1% G2: 46.5%, difference in change: 24.6% (95% CI, 3.9-45.3)
Hiatt et al., 2008[125] Prospective cohort Public health clinics and the low-income neighborhoods in San Francisco and Contra Costa County, California 1,616 Fair	Moderate	G1: One-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction G2: No intervention (control)	Ever completed clinical breast examination (Total N [%] pretest/Total N [%] posttest): G1: 801 (94)/812 (95) X^2 = NR, not significant G2: 798 (82)/ 803 (87) X^2 = NR, P=0.006 Completed clinical breast examination in past year (Total N [%] pretest/Total N [%] posttest): G1: 800 (75)/809 (74) X^2 = NR, not significant G2: 796 (56)/ 803 (60) X^2 = NR, not significant Completed 3 or more clinical breast examinations in past 5 years (Total N [%] pretest/Total N [%] posttest): G1: 793 (73)/809 (73) X^2 = NR, not significant G2: 792 (54)/ 800 (54) X^2 = NR, not significant

Adj, adjusted; CBE, clinical breast examination; CHW, community health worker; CI, confidence interval; NR, not reported; OR, odds ratio; RCT, randomized controlled trial; t, t-test.

Table 23. CHW cancer screening: clinical breast examination (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Navarro et al., 1998;[111] Navarro et al., 1995;[110] Navarro et al., 2000[112] RCT Low-income Latinas, southeast San Diego County, California 365 Poor	Moderate	G1: CHW delivering community living skills sessions, details NR G2: CHW delivering cancer education sessions, 12 weekly group sessions conducted over 3 months plus 2 additional sessions offered within a year of beginning of group meetings	Pretest-posttest changes in percentage of women who had CBE within past year: Participant unit of analysis (n = 359) G1: 15.5 G2: 17.7 *P* = 0.589 t = 0.54 CHW unit of analysis (n = 35) G1: 19.3 G2: 19.5 *P* = 0.967 t = 0.04 Odds of CBE 1-year and 2-year followup for cancer screening group (*P* value): Year 1: 1.21 (0.556) Year 2: 1.93 (0.038)
Wilson et al., 2008[116] Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups Neighborhood hair salons, Brooklyn, New York 40 salons/1,210 respondents Poor	Moderate	Intervention consisted of education, counseling, and information on location of screening services during salon appointment G1: Control, before intervention G2: Stylist group, before intervention G3: Control, after intervention G4: Stylist group, after intervention	CBE in past 3 months: G1: 27% G2: 27%, *P* = 0.85 for differences between G1 and G2 G3: 27% G4: 29% AOR, 1.2; adjusted 95% CI, 0.9-1.7

Table 24. CHW cancer screening: colorectal cancer screening

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Jandorf et al., 2005 RCT East Harlem, New York City 78 Fair	Moderate	G1: Patient navigator (education and assistance with screening and navigation process) G2: Usual care	Completed FOBT after 3 months (%): G1: 42.1 G2: 25.0 *P* = 0.086 Had endoscopy appointment at 3 months (%): G1: 18.4 G2: 0 *P* = 0.005 Completed endoscopy at 3 months (%): G1: 15.8 G2: 5.0 *P* = 0.115 Completed endoscopy at 6 months (%): G1: 23.7 G2: 5.0 *P* = 0.019
Campbell, 2004[107] RCT African-American rural churches, North Carolina NR (12 churches; completers/dropouts of individual participants from each church NR) Poor	Low	G1: Control churches were offered health education sessions and speakers on topics of their choice not directly related to study objectives G2: Organized and conducted at least 3 church-wide activities on spreading information and enhancing support for healthy lifestyle and CRC screening (LHA) G3: 4 personalized computer-tailored newsletters and 4 targeted videotapes corresponding to the same behaviors mailed to participants' homes bimonthly for first 6 months after baseline data collection; 4th targeted videotape mailing was 9 months after baseline G4: LHA and targeted videotapes	FOBT test in past year (% baseline/% followup): G1: 30.4%/21.7% G2: 23.5%/33.3% G3: 19.7%/36.8% G4: 19.5%/31.0% *P* = 0.08 Other CRC test in past year (% baseline/% followup): G1: 20.3%/27.5% G2: 19.6%/25.5% G3: 23.7%/21.1% G4: 26.4%/14.9% *P* = ns

CRC, colorectal cancer; FOBT, fecal occult blood test; LHA, lay health advisor; NR, not reported; ns, not significant; RCT, randomized controlled trial.

Outcomes for Chronic Disease Management

Chronic disease management: diabetes mellitus. *Study characteristics.* Four studies (eight articles; Table 25), three RCTs,[27,88-92,124] and one prospective cohort study[93] examined outcomes of CHW interventions for diabetes care among underserved minority populations with type 2

diabetes mellitus. All studies were rated fair quality. Three studies[27,88-93] used a high-intensity intervention; one study[124] used a moderate-intensity intervention.

Table 25. CHW chronic disease management: diabetes mellitus

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Beckham, 2008[93] Cohort Health center for underserved with type 2 diabetes Hawaii N: 116 Fair	High	G1: Diabetes case management by CHW, including home visits, based on needs of patients; CHWs collaborate with multidisciplinary team to determine high-priority learning areas and develop an intervention plan to implement during subsequent visits, plan included a blood regimen and target levels, diet plan, exercise plan, medication schedule, insulin injection plan, and preventive health/health maintenance plan G2: Usual care with multidisciplinary team approach, minus CHW; glucose self-monitoring	HgbA1c, mean change from baseline (SD): G1: -2.2 (1.8) G2: -0.2 (1.5) *P* < 0.0001* *Note on *P* value: the investigators did not report a value comparing the groups; RTI researchers calculated the value using the data in the article
Corkery, 1997[124] RCT Hispanic and African-American populations in East Harlem, New York City, New York N: 64 Fair	Moderate	G1: Intervention—CHW acted as liaison, attended clinic sessions, interpreted, reinforced self-care instructions and appointment reminders G2: Encounters occurred between nurse and patient only (control)	Diabetes education program completion: G1: 80% G2: 47% (*P* = 0.01) No difference in mean change in HgbA1c between groups

Approx, approximately; CHW, Community Health Worker; DKQ, Diabetes Knowledge Questionnaire; HgbA1c, Hemoglobin A1c; LDL, low-density lipoprotein; NCM, nurse case manager; RCT, randomized controlled trial; RN, Registered nurse; SBP, systolic blood pressure.

Table 25. CHW chronic disease management: diabetes mellitus (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Gary 2000;[91] Batts 2001;[88] Gary 2003;[89] Vetter 2004;[92] Gary 2005[90] RCT Project Sugar African-American population in East Baltimore, Maryland N: 186 Fair	High	G1: Usual care—continued on-going care from their own health professionals plus quarterly newsletter containing information on diabetes-related health topics G2: NCM intervention—RN + certified diabetes educator, 45-minute face-to-face clinic visits and/or telephone contacts, direct patient care, management, education, counseling, followup, referral, physician feedback—goal was 3 visits per year G3: CHW intervention—45 to 60-minute face-to-face home visits and/or telephone contacts, no direct implementation of therapeutic strategies but facilitated preventive care by offering to schedule appointments and provide education, 3 visits per year G4: Combined NCM plus CHW—3 visits per year with each	HgbA1c, mean change from baseline at 2 years: G1: ref G2: -0.31 ± 0.49% G3: -0.30 ± 0.48% G4: 0.8 ± 0.52% ($P < 0.05$ for within-group change from baseline for G4 only) LDL, mean change from baseline at 2 years: G1: -16.7± 5.5 mg/dl G2: +6 (approximate) ($P < 0.05$ for within-group change from baseline) G3: +6 (approximate) G4: +4 (approximate) ($P < 0.05$ for within-group change from baseline) SBP, mean change from baseline at 2 years: G1: ref G2: +6 (approximate) ($P < 0.05$ for within-group change from baseline) G3: -4 (approximate) G4: -2 (approximate) Dietary risk scores—validated, mean change from baseline at 2 years: G1: ref G2: -2.4 ± 1.99 G3: -3.45 ± 1.87 G4: -2.13 ± 1.92
Lujan, 2007[27] RCT Mexican Americans in a major border city in Texas N: 150 Fair	High	G1: A team of 2 promotoras delivered 8 weekly, 2-hour participative group classes and followup to intervention group, using multiple audiovisual teaching aids and handouts, contacted class participants by telephone biweekly to answer questions, reinforce education, promoted behavior change, sent postcards biweekly G2: Usual care by clinic staff—verbal information and 1 or 2 pamphlets on diabetes self-management	HgbA1c at baseline (SD)/ 6 months (SD): G1: 8.21 (2.2)/7.76 (1.87) G2: 7.71 (1.49)/8.01 (1.8) Mean change between groups: $P < 0.001$ Bilingual Diabetes Knowledge Questionnaire (validated): baseline (SD)/6 months (SD): G1: 69.1 (13.6)/77.2 (14.4) G2: 66.9 (15.2)/65.1 (21.0) Mean change between groups: $P < .002$ Diabetes Health Belief Measure–(validated): baseline (SD)/6 months (SD): G1: 56.4 (12.2)/54.6 (8.4) G2: 57.0 (10.6)/50.8 (13.6) Mean change between groups: $P < 0.01$

The 6-month RCT conducted in Texas used a high-intensity intervention for Mexican Americans that compared eight weekly, 2-hour group classes with promotoras to usual care plus educational pamphlets.[27] The RCT in New York City used a moderate-intensity intervention for inner-city Hispanics and African Americans that evaluated the use of CHWs as clinic liaisons compared with nurse-patient encounters.[124] The Project Sugar trial RCT in Baltimore, Maryland, compared several high-intensity interventions in inner-city African Americans with type 2 diabetes: (1) CHW face-to-face home visits and telephone contact, (2) nurse care manager intervention, (3) a combined nurse care manager and CHW, and (4) standard clinical care with an additional quarterly diabetes newsletter.[88-92] The prospective cohort study in Hawaii examined a high-intensity intervention comparing CHW diabetes case management, including home visits, in addition to a multidisciplinary team, with usual clinical care involving a multidisciplinary team approach.[93] Heterogeneity of population, study designs, interventions, and outcomes preclude quantitative synthesis of results.

Overview of results. Of these four studies on diabetes management, two studies found the CHW intervention to be beneficial in decreasing hemoglobin A1c (HgbA1c) as compared with usual care;[27,93] conversely, two studies found no difference between groups in mean change from baseline in HgbA1c.[88-92,124] The Texas study also evaluated outcomes of knowledge and found that the CHW intervention was effective compared with usual clinical care in increasing diabetes knowledge.[27] The Hawaii study found that diabetes case management by a CHW in conjunction with a multidisciplinary team was more effective at decreasing HgbA1c than a multidisciplinary team alone.[93] The New York study demonstrated that a CHW liaison was more effective than usual clinical care in behavioral changes leading to program completion rates.[124] Project Sugar, a high-intensity study, found significant changes from baseline within, but not between, groups for various health outcomes.[88-92]

Knowledge. The Texas study evaluated outcomes for improved knowledge at 6 months in diabetic patients following eight weekly CHW-led group classes in Mexican Americans.[27] A validated tool, the bilingual Diabetes Knowledge Questionnaire (DKQ), showed a difference between arms, with an improved score in the CHW group compared with the group receiving usual care plus educational pamphlets ($P < 0.002$).[27]

Behavior. Project Sugar evaluated dietary risk scores (which identifies positive as well as problematic dietary behaviors and measures potential barriers to dietary change). Scores improved across all CHW arms as compared with the usual clinical care group following a high-intensity CHW intervention (all CHW arms versus usual clinical care [score ± standard deviation]: -2.4 ± 1.99 versus -3.45 ± 1.87 versus -2.13 ± 1.92; *P* not reported).[88-92] The New York study demonstrated an increased proportion of completion of a diabetes education program after a low-intensity CHW intervention compared with usual clinical care (80 percent versus 47 percent, $P = 0.01$).[124]

Satisfaction. No study reported outcomes about satisfaction with diabetes care.

Health outcomes. The Texas trial demonstrated better improvement in diabetes control (measured by mean change in HgbA1c) in the high-intensity CHW intervention group than in the usual care group after 6 months ($P < 0.001$).[27] The Hawaii study found that a high-intensity CHW intervention in conjunction with a multidisciplinary team was more effective in decreasing mean HgbA1c when compared with usual care with a multidisciplinary team (-2.2 versus 0.2).[93] The Hawaii study investigators did not report *P* value comparing the groups; we were able to calculate it using the data provided in the article and found the difference to be statistically significant ($P < 0.0001$).[93] Project Sugar reported no significant change between the four study

groups for the primary outcome, HgbA1c. The only group with a significant improvement from baseline to2 years was the CHW plus nurse care manager arm (improvement of 0.8 percent ± 0.52 percent, $P < 0.05$).[88-92] Postintervention, a power calculation showed the study was powered to detect a difference of only 1.2 percent change in HgbA1c. Secondary outcomes from Project Sugar included low density lipoprotein (LDL) cholesterol, systolic blood pressure, and diastolic blood pressure; none differed significantly between study groups in change from baseline measures. LDL cholesterol changed for the worse within the CHW plus nurse care manager arm (+4 mg/dl, $P < 0.05$).[88-92]

Health care utilization. No study evaluated diabetes care utilization.

Chronic disease management: hypertension. *Study characteristics.* Four studies (five articles; Table 26), two RCTs[23,98,99] and two prospective cohorts,[94,95,123] examined outcomes of moderate-intensity CHW interventions for blood pressure management among adult patients with hypertension. We rated one study as fair quality and three as poor quality. All four studies evaluated a CHW intervention compared with an intervention that involved a CHW in a lesser capacity.[23,94,95,98,99,123] The two RCTs, one fair[98] and one poor[99] quality, evaluated CHW interventions in inner-city minority populations.[23,98,99]

Table 26. CHW chronic disease management: hypertension

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Levine, 2003[98] RCT African Americans in inner-city Baltimore, Maryland N: 789 Fair	High	G1: G2 care plus 5 CHW visits with blood pressure measurement, addressing issues of blood pressure management and access to medical care G2: CHW home visit for education, counseling, and referral	Pre/postintervention blood pressure (systolic/diastolic): G1: 147.7/89.2 (95% CI, 145.5-149.9/87.8-90.6) → 145/86.2 (95% CI, 142.3-147.7/84.2-88.2) G2: 148.6/89.3 (95% CI, 146.4-150.7/87.8-90.8) → 142.1/84.7 (95% CI, 138.8-145.4/82.7-86.7) $P < 0.05$ for differences between baseline and followup for each group, $P > 0.1$ between groups Percentage with adequate hypertension control (< 140/90): G1: 16% → 36% G2: 18% → 34% pre/post P <0.01 group difference NS
Ward, 2000;[99] Morisky, 2002[23] RCT Inner-city African Americans and Hispanics in a large West Coast city N: 1,367 Poor	Moderate	G1: CHW post-clinic appointment counseling session G2: Appointment reminder cards and telephone calls G3: Home visits by CHW G4: Standard clinic care	Percentage with blood pressure control (< 140/90)—baseline/ 6 months/12 months: G1: 35.2%/46%/46% ($P < 0.01$) G2: 40.2%/42%/48% ($P < 0.01$) G3: 29.7%/NR but "improved" G4: 36.9%/NR but "improved" All groups improved; differences between groups NR

CHW, community health worker; NS, not significant; RCT, randomized controlled trial.

Table 26. CHW chronic disease management: hypertension (continued)

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Frate, 1983[95] Frate,1985[94] Prospective cohort Rural central Mississippi N: 667 Poor	High	G1: Hypertension health counselors—monthly visits that encouraged compliance to both pharmacological and nonpharmacological therapy that had been prescribed G2: Family-based self-help G3: Church-based self-help	Proportion of hypertensives controlled (< 160/95): G1: 80.6% G2: 90.0% G3: 79.9% (P < 0.0001)
Bone, 1989[123] Prospective cohort Low-income African Americans in emergency department in Baltimore, Maryland N: 722 Poor	Moderate	G1: Control (not able to be contacted by CHW) G2: Contacted by CHW; initially, all patients contacted by CHWs in emergency department; CHWs measured pulse and blood pressure, provided educational counseling, identified barriers related to referrals, assisted with appointment-keeping and adherence to treatment plan; session lasted about 20 minutes	Returned to emergency department for followup appointment: G1: 41% G2: 60% (P < 0.001)

The fair-quality trial from Baltimore, Maryland, evaluated a CHW home visit for patient education, counseling, and referral compared with a CHW home visit plus five additional visits for blood pressure measurement and management, and access to medical care.[98] The poor-quality RCT from the West Coast, rated as such because of a high attrition rate, use of a completers analysis, and high potential for bias, evaluated CHW postclinic appointment counseling sessions, CHW home visits, appointment reminder cards and calls, and standard clinical care.[23,99]

The prospective cohort study from rural central Mississippi, which we rated as poor quality because of a high potential for confounding and inappropriate statistical methods, evaluated a moderate-intensity CHW intervention using CHWs as "hypertension health counselors" in providing monthly visits encouraging compliance with previously prescribed pharmacological and nonpharmacological therapies.[94,95] The other prospective cohort study from Baltimore, Maryland, which we rated poor because of a lack of methods describing an analysis plan a priori, a high potential for confounding, and lack of comparison of participant characteristics at baseline, evaluated a moderate-intensity CHW intervention..[123] It examined the impact on appointment followup of a CHW followup telephone call after an emergency department visit during which patients had their blood pressure measured, were provided education counseling, and were assisted with appointment keeping and adherence to a treatment plan. The comparison group included patients who had received a single CHW visit in the emergency department but who could not be reached later for assistance in appointment keeping.[123] Heterogeneity of study designs, interventions, and outcomes preclude quantitative synthesis of results.

Overview of results. We did not find any fair- or good-quality studies that compared the impact of a CHW intervention with usual care on blood pressure control. Of the three studies that evaluated blood pressure control, only the Mississippi prospective cohort demonstrated a significant difference between study groups in terms of proportion of hypertensive subjects controlled (defined in this study as blood pressure less than 160/95).[94,95] Neither RCT demonstrated between-group differences in blood pressure control.[23,98,99] However, these studies did note improvement from baseline to study completion within all groups, some of which were statistically significant.[23,98,99] The Baltimore prospective cohort did not evaluate blood pressure control but instead examined health care utilization.[123] This study demonstrated that CHW worker followup was more effective than no followup in increasing return visit appointment rates.

Knowledge. No study reported improved knowledge.

Behavior. No study reported improved behaviors.

Satisfaction. No study reported satisfaction outcomes.

Health outcomes. We did not find any fair- or good-quality studies that compared the impact of a CHW intervention with usual care on blood pressure control. Three of the four studies did report on blood pressure control. Both RCTs found an improvement within most groups but no difference between groups in terms of blood pressure control.[23,98,99] The fair-quality RCT demonstrated that the low-intensity CHW arm (1 home visit) and the high-intensity CHW arm (6 home visits) both improved blood pressure control. However, the difference between the groups was not statistically significant.[98] The poor-quality RCT also demonstrated an improvement in blood pressure within all groups, including the usual care arm, but no significant difference between groups.[23,99] The Mississippi prospective cohort study did not report statistical tests for either between- or within-group comparisons.[94]

Health care utilization. The poor-quality prospective cohort in a Baltimore emergency department demonstrated that patients in the low-intensity CHW intervention were more likely to return for a followup appointment than were patients in the comparison group (60 percent versus 40 percent, $P < 0.001$).[123] However, the comparison patients were not able to be contacted for followup by the CHW, thus biasing the results for this outcome in favor of the intervention arm.[123]

Chronic disease management: infectious diseases. *Study characteristics.* One RCT of fair quality examined outcomes of a CHW intervention to facilitate access to health care for tuberculosis (TB) in a homeless population with positive purified protein derivative (PPD) test results in San Francisco, California (Table 27).[122] This study used a moderate-intensity model. CHWs who were familiar with homelessness were assigned to TB-infected individuals and responsible for accompanying them to their clinic appointments.[122] Outcomes were compared with outcomes for a group receiving a monetary incentive to attend the TB clinic in addition to an appointment and bus tokens and with a control group who were given clinic appointments and bus tokens.

Overview of results. This RCT demonstrated that a CHW intervention was less effective than the monetary incentive but more effective than usual care in leading to adherence to a first followup appointment.[122]

Knowledge. This RCT did not report outcomes for improved knowledge.

Behavior. This RCT did not report outcomes for improved behaviors.

Satisfaction. This RCT did not report outcomes of satisfaction.

Health outcomes. This RCT did not report outcomes of health.

Table 27. CHW chronic disease management: infectious diseases

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Pilote, 1996[122] RCT Homeless people with positive purified protein deriviative for tuberculosis in San Francisco, California N = 244 Fair	Moderate	G1: Peer health advisor—met with patient and took them to clinic appointment, facilitated paperwork, reviewed physician recommendations G2: Monetary incentive—$5 at clinic, appointment, and bus tokens G3: Usual care—appointment and bus tokens	Adherence to first followup appointment (95% CI): *P* calculated vs. G3 G1: 75% (70-80); (*P* = 0.004) G2: 84% (76-92); (*P* < 0.001) G3: 53% (47-59)

CI, confidence interval; RCT, randomized controlled trial.

Health care utilization. A moderate-intensity CHW intervention was less effective than a monetary incentive ($5) in increasing adherence to a first followup clinic appointment (75 percent [95% CI, 70-80] versus 84 percent [95% CI, 76-92], *P* = not reported). However, the CHW intervention was more effective than a control group who received an appointment and bus tokens (75 percent [95% CI, 70-80] versus 53 percent [95% CI, 47-59], *P* = 0.004).[122]

Chronic disease management: back pain. *Study characteristics.* One RCT of fair quality evaluated a moderate-intensity intervention of four 2-hour weekly group classes led by CHWs compared with usual care supplemented by a book on back pain (Table 28).[114] The classes focused on applying problem-solving techniques for back pain self-management and included educational materials (book and videos) supporting active management of back pain.[114]

Overview of results. This fair-quality RCT found that a moderate-intensity CHW intervention was significantly effective in reducing back pain when compared with a control group at 6 months; the groups did not differ significantly at 12 months.[114]

Knowledge. This RCT did not report outcomes for improved knowledge.

Behavior. This RCT did not report changes in participant behavior.

Satisfaction. This RCT did not report outcomes of satisfaction.

Health outcomes. The moderate-intensity CHW intervention was more effective in decreasing participant back pain than usual care supplemented by a book on back pain at 6 months.[114] More participants in the intervention arm achieved a 50 percent or greater reduction in Roland Disability Score from baseline than in the control group at 6 months (47.9 percent versus 33 percent, *P* = 0.02).[114] However, Roland Disability Scores at 12 months did not differ between arms (5.75 ± 6.31 versus 6.75 ±6.39, *P* = 0.092).[114] The authors attributed this lack of difference to the fact that the intervention was intended not to reduce pain intensity but rather to lower patient worries about back pain.[114] Additionally, participants receiving a CHW intervention had a lower worry rating (unvalidated tool) than those in the control group at 12 months (2.63 ± 2.58 versus 3.83 ± 3.08, *P* = 0.013).[114]

Table 28. CHW chronic disease management: back pain

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Von Korff, 1998[114] RCT People with chronic back pain in Washington state N = 255 Fair	Moderate	G1: 4, 2-hour classes held once a week, with 10 to 15 participants, led by 2 CHWs G2: Usual care includes back pain book	"The next time I have back or leg pain, I will try to manage the problem without seeing a health professional" (not validated): G1: 77% agreed G2: 60% agreed (*P* = 0.008) 50% or greater reduction in Roland Disability Questionnaire Score from baseline at 6 months (validated): G1: 47.9% G2: 33% (*P* = 0.02) Roland Disability at 12 months (validated): G1: 5.75 (6.31) G2: 6.75 (6.39) (*P* = 0.092) Worry rating (0-10) at 12 months (not validated): G1: 2.63 (2.58) G2: 3.83 (3.08) (*P* = 0.013)

CHW, community health worker; RCT, randomized controlled trial.

Health care utilization. This RCT did not report on health care utilization.

Other. Participants in the CHW arm reported being more likely to self-manage back or leg pain than those in the control arm, a measure of self-efficacy (77 percent versus 60 percent, *P* = 0.008).[114]

Chronic disease management: mental health. *Study characteristics.* One RCT of poor quality with three trial arms evaluated an assertive community treatment with a CHW intervention compared with an assertive community treatment alone and with a brokered case management intervention (Table 29).[120,121] The study population included people in St. Louis, Missouri, who were homeless or at risk for being homeless and were diagnosed with serious psychiatric diagnoses.[120,121] The CHWs' role was to assist with daily living and be available for leisure activities. This intervention was rated as high-intensity as defined in KQ 1. A high rate of attrition (only 85 of 165 provided followup) contributed to the poor-quality rating of this study.[120,121]

Overview of results. Clients in the assertive community treatment arm plus a CHW did not differ in results when compared with the assertive community treatment group alone, although for many outcomes both of these arms were superior to the brokered case management arm.[120,121] The assertive community treatment arms (both with and without a CHW) had more contact with their case managers and were more satisfied than those in the brokered case management arm.[120,121] Clients in the assertive community treatment also had fewer psychiatric symptoms at 18 months than clients in the brokered condition.[120,121] Days in stable housing did not differ among groups.[120,121]

Table 29. CHW chronic disease management: mental health

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Wolff, 1997[121] Morse, 1997[120] RCT Homeless with serious psychiatric conditions in St. Louis, Missouri N = 165 Poor	High	G1: Assertive community treatment—intensive individualized treatment, responsibility for providing or coordinating all services needed by client, persistent followup and in-person service delivery, performed by staff with backgrounds in psychology, social work, and counseling G2: G1 plus CHW, whose role was to assist with activities of daily living and be available for leisure activities G3: Brokered case management	Number of days in stable housing in past month—baseline (SD)/18 months (SD): G1: 6.36 (11.71)/21.75 (12.76) G2: 4.94 (11.08)/17.54 (14.45) G3: 7.18 (12.38)/16.00 (14.86) (*P* < 0.31) Client satisfaction (validated): G1: 3.27 (0.42) G2: 3.12 (0.57) G3: 2.74 (0.68) *P* < 0.01 Brief Psychiatric Rating Scale Total Symptom Score (validated): G1: 53.54 (15.54)/39.96 (12.25) G2: 57.97 (20.29)/38.77 (12.23) G3: 50.6 (14/31)/51.6 (16.7) *P* = 0.001 Program contact (days/month): G1: 8.29 (7.51) G2: 6.95 (4.91) G3: 0.3 (0.49) *P* < 0.001

CHW: community health worker; RCT, randomized controlled trial; SD: standard deviation.

Knowledge. This RCT did not report outcomes for improved knowledge.

Behavior. This RCT did not report outcomes for improved behaviors.

Satisfaction. Clients in the assertive community treatment arms (both with and without a CHW) were more satisfied with their treatment program than clients in the brokered case management arm (satisfaction score ± standard deviation: 3.12 ± 0.57 versus 3.27 ± 0.42 versus 2.74 ± 0.68, $P < 0.05$).[120,121]

Health outcomes. Clients in the assertive community treatment arm plus a CHW did not differ in health outcome results as compared with the assertive community treatment group alone. Clients in the assertive community treatment arms (both with and without a CHW) had fewer psychiatric symptoms as rated by the Brief Psychiatric Rating Scale (BPRS) at 18 months compared to baseline than did those in the brokered case management arm (baseline (SD)/18-month followup (SD): 57.97 (20.29)/38.77 (12.23) versus 53.54 (15.54)/39.96 (12.25) versus 50.60 (14.31)/51.60 (16.70), $P = 0.001$ for any difference among the three groups; *P* for comparison of either assertive community treatment arm not reported).[120,121] Days in stable housing between groups did not differ across the groups.

Health care utilization. Use of health services did not differ between the assertive community treatment plus a CHW arm and the assertive community treatment group alone. Clients in the assertive community treatment arms (both with and without a CHW) had more days in contact with the program than did clients in the brokered case management arm (6.95 (4.91) versus 8.29 (7.51) versus 0.3 (0.49), $P < 0.05$).

Chronic disease management: asthma. *Study characteristics.* Two RCTs (three articles), one good-quality,[96,97] and one fair-quality,[100] examined outcomes of CHW interventions for asthma care among pediatric patients with persistent asthma. Both studies used a highly resource-intensive CHW model. Both studies provided comprehensive multifaceted interventions that included an environmental assessment, asthma action plan, education, referrals, allergy control mattress covers and pillows, vacuums, and cleaning supplies, pest management, and smoking cessation assistance to the high-intensity intervention arm, delivered over a year in several home visits. The Seattle King County Healthy Homes (SKCHH) project (Washington State) compared outcomes for children receiving a high-intensity multivisit home intervention with those for children receiving a low-intensity single home visit that included an environmental assessment, some education, and bedding encasements, followed by the full intervention after a year.[96,97] The Community Action Against Asthma (CAAA) project adapted the SKCHH project to Detroit, Michigan, comparing a group receiving the high-intensity multivisit home intervention with a control group receiving an asthma information booklet and the full intervention after a year.[100] Variations in measures of health behavior, outcomes, and health care utilization preclude quantitative synthesis of the results.

Overview of results. Two trials demonstrated that high-intensity CHW interventions are more effective than either low-intensity interventions or a control group in reducing unscheduled use of health care services and improving psychological outcomes for caregivers. Both studies demonstrated changes in behavior, such as increased use of bed encasements and vacuuming, associated with the materials distributed by the CHW, but not for other behaviors that may have required external or additional resources or change, such as removal of mold or reduced exposure to environmental tobacco smoke. Both studies demonstrated significant improvements within but not across trial arms for some measures of symptoms,[96,97,100] reduced days with activity limitations, and reduced use of beta-agonists.[96,97] Authors postulated that these results could be explained either because a minimal intervention may be effective for some outcomes or because of regression to the mean, temporal trends, or the Hawthorne effect (improvement in performance attributable to being observed) among the less intensive or control group participants.[96,97] Nevertheless, for health outcomes demonstrating a difference between trial arms such as symptom days, the more intense arm was more effective than the less intense or control arm.

Knowledge. Neither study reported outcomes for improved knowledge of asthma triggers.

Behavior. Both studies examined a variety of behavioral changes (Table 30). Both studies reported increased use of materials provided—that is, mattress covers, pillows, and vacuums, suggesting reduced exposure to dust mites— in the more intense arm. Both studies failed to find differences between the two arms for behavioral changes associated with smoking cessation. Other behaviors that did not differ between arms included removal of pets and use of exhaust fans in the bathroom[96,97] and removal of mold.[100]

Table 30. CHW asthma interventions and behavior

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Krieger et al., 2005;[96] Krieger et al., 2002[97] RCT Children ages 4-12 years with persistent asthma Low-income households in King County, Washington N: 274 Good	High	G1: Environmental assessment; asthma action plan; education and social support; mattress covers, pillows, vacuum, cleaning supplies; smoking cessation referral; 4-8 visits over 12 months G2: Environmental home assessment action plan, limited education, bedding encasements; full intervention after 12 months	Behavior, summary score of trigger reduction behaviors Across groups comparison: GEE coefficient (95% CI, 0.41 (-0.13-0.95); *P* = 0.141) Frequencies of actions to reduce dust exposure and the use of bedding encasements increased more in the high-intensity group; kitchen ventilation improved more in the low-intensity group. Neither group increased the frequency of washing sheets or dusting, nor reduced exposure to pets (although pet ownership was uncommon among participants) and smoking in the home; behavior summary score improved in both groups, and the across-group difference was not significant
Parker et al., 2008[100] RCT Children ages 7-11 years with persistent asthma Southwest and eastside Detroit, Michigan N: 298 Fair	High	G1: Environmental assessment; asthma action plan based on allergy tests; education and social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services; minimum 9 planned home visits over 12 months G2: Asthma information booklet, full intervention after 12 months	Intervention effect (or-intervention/or-control) Vacuum cleaner used: 29.5 (6.90, 126); *P* < 0.0001 Allergen cover on child's pillow: 19.7 (4.12, 94.2); *P* = 0.0006 Allergen cover on child's mattress: 9.70 (4.33, 21.7); *P* < 0.0001 Visible mold growth removed: 0.74 (0.33, 1.66); *P* = 0.47 Child is around people who smoke: 0.60 (0.28, 1.32); *P* = 0.20 Statistically significant intervention effect in the reduction of concentration of dog allergen per gram of bedroom dust (*P* < 0.001) but not for cockroach, dust mite, or cat allergen concentration

CI, confidence interval; GEE, generalized estimating equation; RCT, randomized controlled trial.

Satisfaction. Neither study reported outcomes for satisfaction.

Health outcomes. The SKCHH project reported on the number of symptom days in the past 2 weeks. The CAAA project looked at the occurrence of more than 2 symptom days per week for children not on any controller medication or corticosteroids (Table 31).

Table 31. CHW asthma interventions and health outcomes

Author, Year Study Design Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Krieger et al., 2005;[96] Krieger et al., 2002[97] RCT Children ages 4-12 years with persistent asthma Low-income households in King County, Washington N: 274 Good	High	G1: Environmental assessment; asthma action plan; education and social support; mattress covers, pillows, vacuum, cleaning supplies; smoking cessation referral; 4-8 visits over 12 months G2: Environmental home assessment action plan; limited education; bedding encasements; full intervention after 12 months	Pediatric Asthma Caregiver QoL Scale (score range 1-7 with higher scores indicating better QoL) Score at exit (G1 vs. G2): 5.6 vs. 5.4 GEE coefficient 0.58 (95% CI, 0.18-0.99), *P* = 0.005; NNT = 4.8 ITT analysis yielded similar results: improvements in QoL were greater in G1 (data NR, *P* = 0.009) Asthma symptom days (self-reported number of 24-hour periods during 2 weeks before interview with asthma symptoms: wheezing, tightness in chest, cough, shortness of breath, slowing down activities due to asthma, nighttime awakenings): G1 vs. G2 at exit: 3.2 vs. 3.9 GEE coefficient -1.24 (95% CI, -2.9 to 0.4), *P* = 0.138 Days with activity limitation over 2-week period Score at exit (G1 vs. G2): 1.5 vs. 1.7 GEE coefficient -1.5 (95% CI, -2.84 to -0.15), OR, 0.22 (0.06, 0.86), *P* = 0.29 Missed school in past 2 weeks: G1 vs. G2 at exit: 12.2% vs. 20.3% GEE coefficient -0.77 (95% CI, -1.70 to 0.16), OR, 0.46 (0.18, 1.18), *P* = 0.105 Days used controller medication over 2–week period: G1 vs. G2 at exit: 3.5 vs. 3.6 GEE coefficient -1.03 (95% CI, -2.79 to 0.73), *P* = 0.250 Days used beta2-agonist over 2-week period: G1 vs. G2 at exit: 4.0 vs. 4.0 GEE coefficient -0.23 (95% CI, -1.88 to 1.42), *P* = 0.781 Caregiver missed work in past 2 weeks: G1 vs. G2 at exit: 11.2% vs. 13.0% GEE coefficient 0.07 (95% CI, -0.91 to 1.0.5), OR, 1.07 (0.40, 2.85), *P* = 0.890

CI, confidence interval; GEE, generalized estimating equation; ITT, intention to treat; NNT, number needed to treated; NR, not reported; OR, odds ratio; QoL, quality of life; vs., versus.

Table 31. CHW asthma interventions and health outcomes (continued)

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Parker et al., 2008[100] RCT Children ages 7-11 years with persistent asthma Southwest and eastside Detroit, Michigan N: 298 Fair	High	G1: Environmental assessment; asthma action plan based on allergy tests; education and social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services; minimum 9 planned home visits over 12 months G2: Asthma information booklet, full intervention after 12 months	Caregiver depressive symptoms measured by Center for Epidemiologic Studies Depression Scale (CES-D) mean at baseline/endpoint: G1: 1.62/1.54 G2: 1.58/1.64 *P* = 0.0218 Improvements in both instrumental and emotional social support combined and instrumental support alone were not statistically significant (data NR) Child's self-reported average asthma symptom frequency: G1: symptoms occurred less frequently at baseline for all 8 symptoms assessed G2: symptoms occurred less frequently for 6 of 8 symptoms Persistent cough at baseline, postintervention (on a 6-point scale, higher is worse): G1: 3.81, 3.36 G2: 3.48, 3.44 *P* = 0.034 Cough with exercise at baseline, postintervention (on a 6-point scale, higher is worse): G1: 4.27, 3.69 G2: 3.80, 3.66 *P* = 0.017 Has any symptom more than 2 days per week and not on a corticosteroid G1 (pre/post) vs. G2 (pre/post) intervention effect (95% CI): 60/42 vs. 51/46; 0.56 (0.29 to 1.06); *P* = 0.073 Has any symptom more than 2 days per week and not on any controller G1 (pre/post) vs. G2 (pre/post) intervention effect (95% CI): 53/32 vs. 38/37; 0.39 (0.20 to 0.73); *P* = 0.004

Results from these two trials were mixed. The Seattle (SKCHH) project reported nonsignificant differences between the arms in the reduction in symptoms days, whereas the Detroit (CAAA) project found significant differences between the trial arms for children not on any controller medication (OR, 0.39 [95 percent CI, 0.20-0.73]).[96,97] The differences between trial arms in reduction of symptom days was not statistically significant in the subset of children not on corticosteroids.[100]

The Seattle (SKCHH) project also examined differences in trial arms in days with activity limitation, use of beta-agonists, use of controller medications, missed school days for the child,

and missed caregiver workdays. With the exception of days with activity limitations, the study found no differences between the intervention arms.[96,97] It also found a significantly higher increase in caregiver quality of life (measured by the Center for Epidemiologic Studies Depression Scale in the more intense arm (coefficient for difference between groups in mean change from exit to baseline: 0.58 [95 percent CI, 0.18-0.99]).[96,97]

The Detroit (CAAA) project found significant improvements in symptoms for both intervention and control arms, but differences were statistically significant only for coughing with exercise and persistent cough. It also found significant differences between trial arms in some but not all measures of lung function; these results could potentially be explained by seasonal influences, changes in instrumentation, and inadequate power.[100] Finally, it reported a statistically significant reduction ($P = 0.0218$) in caregiver depressive symptoms (measured by the Center for Epidemiologic Studies Depression Scale) in the intervention arm (mean value at baseline and followup: 1.62 and 1.54) compared to a rise in depressive symptoms in the control arm (mean value at baseline and followup: 1.58 to 1.64). The study found no statistically significant differences between the two groups in changes in social support between baseline and the endpoint.[100]

Health care utilization. Both studies (Table 32). found a significant difference in the reduction in unscheduled medical care—emergency room visits, hospitalizations, and unscheduled doctor visits—favoring the more intense intervention at three points: 2 months (OR: 0.38; 95% CI, 0.16-0.89),[96,97] 3onths (OR: 0.43; 95% CI, 0.23-0.80),[100] and 12 months (OR: 0.40; 95% CI, 0.22-0.74).[100]

Table 32. CHW asthma interventions and health care utilization

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Krieger et al., 2005;[96] Krieger et al., 2002[97] Children ages 4-12 years with persistent asthma Low-income households in King County, Washington N: 274 Good	High	G1: Environmental assessment; asthma action plan; education and social support; mattress covers, pillows, vacuum, cleaning supplies; smoking cessation referral; 4 to 8 visits over 12 months G2: Environmental home assessment action plan, limited education, bedding encasements; full intervention after 12 months	Urgent health services used over 2 months G1 vs. G2 at exit: 8.4% vs. 16.4% GEE coefficient -0.97 (95% CI, -1.8 to -0.12), OR 0.38 (0.16, 0.89), $P = 0.026$; NNT = 12.9 ITT analysis yielded similar results: improvements in urgent health services were greater in G1 (data NR, $P = 0.062$)

CI; confidence interval; GEE, generalized estimating equation; ITT, intention to treat; NNT, number not treated; NR, not reported; OR, odds ratio; RCT, randomized controlled trial.

Table 32. CHW asthma interventions and health care utilization (continued)

Author, Year Population Setting Sample Size Quality	Intensity of CHW Intervention	Study Groups	Results
Parker et al., 2008 [100] Children ages 7-11 years with persistent asthma Southwest and eastside Detroit, Michigan N: 298 Fair	High	G1: Environmental assessment; asthma action plan based on allergy tests; education and social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services; minimum 9 planned home visits over 12 months G2: Asthma information booklet, full intervention after 12 months	Reduction in unscheduled health care utilization for asthma Percentage needed unscheduled medical care–G1 (pre/post) vs. G2 (pre/post); intervention effect (95% CI): In past 3 months: 50/45 vs. 42/56; 0.43 (0.23 to 0.80); *P* = 0.007 In past 12 months: 65/59 vs. 58/73; 0.40 (0.22 to 0.74); *P* = 0.004

KQ 3: Cost-Effectiveness of Community Health Worker Interventions

Overview of Economic Analyses

A total of nine studies that met inclusion criteria for this review contained information about intervention costs, cost-effectiveness, or cost-benefits. We focused here on the six studies that also demonstrated effectiveness of the CHW intervention, either as compared with the alternatives that were analyzed or as compared with baseline, or usual, care.[17-22,75,80,96,104,121] The studies on CHWs that included economic information varied a great deal in terms of the populations targeted for intervention, the types of interventions implemented and the settings for those interventions, the alternatives that were analyzed, and the outcomes the interventions sought to impact.

Targeted populations, for example, ranged from Latina women to low-income infants and children. The types of interventions using CHWs as a study arm included early childhood and child health interventions, cancer screening interventions, and chronic disease management interventions. Some studies evaluated alternatives that varied intensity levels for the CHW intervention; others compared the CHW intervention without nurse-delivered interventions; and others compared the CHW intervention with lower intensity alternatives that did not involve direct interaction with targeted patients (e.g., providing written materials only). Study outcomes also varied a great deal across studies, reflecting the diversity of types of interventions and targeted populations (e.g., outcomes related to use of health care, child health and development, and impacts on usual activities such as work or school). Intervention settings also varied; some CHW interventions focused on working with participants in their homes, one focused on working with homeless individuals, and another took place in urban churches.

The three studies with economic information that we eventually excluded involved (1) a diet change intervention that targeted Hispanic women,[64] (2) an environmental tobacco smoke intervention that targeted young Latino children,[67] and (3) a children's immunization intervention that compared CHW interventions with mail or telephone interventions for raising

children's immunization rates.[69,70] These three studies produced no statistically significant impact on CHW intervention groups as compared with outcomes in the control groups.

In the discussion below, we cite only the articles with data specific to the cost-analysis; studies spanned several other citations specific to outcomes not relevant to the discussion below.

Economics: cancer screening. *Study characteristics*. Two studies (one trial and one prospective cohort) evaluated program costs or cost-effectiveness for CHW interventions that sought to improve women's mammography rates.[17,22] The ROSE study targeted low-income, rural white, African-American, and Native-American women in North Carolina ages 40 years and older, all of whom had not had a mammogram in the previous 12 months.[17,18] These women were randomly assigned to a high-intensity CHW intervention, which involved three home visits with followup telephone calls and mailings, or to a comparison group. The CHW intervention was delivered for a period of 12 to 14 months. The LAMP CHW study collected data on program costs and cost-effectiveness for a low-intensity cancer screening CHW intervention.[19-22,104] The intervention was a church-based telephone counseling program that targeted female church members ages 50 to 80 years to promote mammography. Some of these women had obtained mammograms 1 to 2 years before the initial survey and within the 2-year window before that ("adherent" group), whereas others had not ("nonadherent" group). Church volunteers made one telephone call per 12-month period to encourage and address barriers to mammography.

Overview of economic analysis results. Both studies report program costs and the costs per additional mammography screening.[17,22] Both studies estimated program costs using a program or funder perspective (i.e., including only those costs that would be incurred by a prevention program to deliver the intervention); that is, they did not employ a societal perspective. Because the LAMP study used volunteer labor, the costs of the intervention from the program perspective are necessarily low compared with the costs of the ROSE intervention, which paid their CHWs. To better understand what costs would be if CHWs had to be hired to deliver the LAMP intervention, Stockdale et al.[22] also report two alternative program cost estimates—one that values volunteer time at the minimum wage and another that values volunteer time at the average wage rate.

Measures of effectiveness for economic analysis. The main effectiveness outcome that both studies used for their economic analyses was mammogram receipt in the 12 months before a followup survey. The ROSE study outcomes were based on review of a woman's medical record.[17,22] The LAMP study outcomes were based on participants' self-reports via a telephone interview; it also estimated life-years saved based on a model of screening, diagnosis, and treatment for breast cancer.[22]

Economic outcomes. The total cost of the ROSE intervention was estimated to be $329,054,[17] which translates to approximately $404 per participant, based on the 815 participants who fully participated in the intervention and data collection. The year of costs was not reported for the ROSE study. Program costs for the LAMP intervention were estimated to be $11 per participant in 1997 dollars when the opportunity cost of CHW volunteers' time was excluded from the cost calculation. Costs were estimated at $28 per person when CHW volunteers' time was valued at the minimum wage and $52 per person when an average wage rate for each type of volunteer was used (1997 dollars).[22] To compare ROSE and LAMP costs, we assumed that the ROSE costs are in 2000 dollars (the midpoint of the study time period, 1998 through 2002). Using the consumer price index for all urban consumers (CPI-U) to adjust the LAMP intervention cost of $52 per participant in 1997 dollars to 2000 dollars yields an estimate of $56 per LAMP

participant, as contrasted with the high-intensity ROSE intervention cost of about $404 per participant.

Both studies also reported costs per additional screening.[17,22] Paskett et al. estimated the impact of the ROSE intervention to be 66 additional mammograms in the CHW intervention group, resulting in a cost-effectiveness ratio of $4,986 per additional mammogram (assumed 2000 dollars).[17] Stockdale et al. estimated the impact of the LAMP intervention to be 3.24 additional mammography screenings for each of the 45 churches that participated in the study, resulting in an estimated cost per additional screening of $903 (1997 dollars) when CHW volunteers' time was valued at the average wage rate.[22] Although these findings appear to suggest that the LAMP intervention had a much lower cost per additional mammogram received than did the ROSE intervention, the effectiveness and cost-effectiveness results are not comparable between these two studies because the LAMP intervention targeted women who were both adherent and nonadherent with screening guidelines, whereas the ROSE intervention targeted only nonadherent women. Focusing on results for the nonadherent LAMP participants only, the estimated intervention effectiveness is 1.46 additional screenings per church per year (not statistically significant), which we estimate to produce a cost-effectiveness ratio of $2,005 per additional mammography screening in 1997 dollars, or $2,151 in 2000 dollars, when the time of CHWs is valued using expected wage rates.

Stockdale et al. also estimated the cost per life-year saved by the LAMP intervention and subsequent mammography screening as $46,308 (1997 dollars),[22] when CHW time was valued using expected wage rates ($33,632 plus the estimated cost per life-year saved for mammography screening of $12,676).

Economics: chronic disease management. *Study characteristics*. Two studies provided economic information on the management of chronic diseases; both studies are described in more detail in the last section of KQ 2. One study evaluated an asthma control intervention for children;[96]the other evaluated an intervention to prevent homelessness in patients with mental illness.[121]

The asthma intervention, known as the Seattle King County Healthy Homes (SKCHH) project, evaluated a 1-year high-intensity CHW intervention approach, involving five to nine CHW home visits.[96] The investigators compared this high-intensity intervention with a low-intensity version that involved only one CHW home visit and evaluated health care utilization and costs for participants, intervention program costs, and other measures related to asthma control, quality of life, and productivity.

The homelessness prevention intervention compared three alternative case management approaches for people with mental illness at high risk of homelessness:

- brokered case management—a low-intensity intervention that can be viewed as the baseline, or usual care, approach;
- assertive community treatment—a high-intensity intervention that involves frequent interaction with the client and assistance with a host of activities and social service acquisition; and
- assertive community treatment with CHWs—a high-intensity CHW intervention that consists of assertive community treatment, adding a CHW to interact with and assist clients.[121]

Each intervention was provided over 18 months. Key outcomes were health care and social services utilization, program costs, and pre- and postintervention measures of 6 months of costs for health care and social services among study participants.

Overview of economic analysis results. Both studies report program costs per participant from the program perspective. For the Seattle study, Krieger et al.[96] estimated the cost of the 12-month intervention by summing payments for salary and fringe benefits, supplies, rent, travel, and office expenses and adding indirect costs of 13 percent. For the homelessness prevention study, Wolff et al.[121] estimated the additional intervention program costs of assertive community treatment, with and without CHWs, as the costs above those for brokered case management; their estimates values CHW time at the minimum wage.

Both studies estimated the impact of the intervention on health care and/or social services costs for program participants. For example, Krieger et al. assessed the pre- and postintervention costs of urgent care services for both CHW intervention arms (high and low intensity).[96] Wolff et al. also assessed the pre- and postintervention costs of the following services for program participants in all three intervention arms: mental and physical health, vocational and educational, residential, and supportive social.[121]

Measures of effectiveness for economic analysis. Neither study created a measure of the costs per unit of program effectiveness (e.g., cost per additional day in stable housing or cost per additional day of school attendance). Instead, both studies estimated program cost savings or potential cost savings by comparing health care or social services costs in the preintervention time period with costs in the postintervention time period.

For example, the Seattle study estimated urgent care costs for the targeted children in the 2 months before the start of the intervention and compared these values without analogous costs in the 2-month period before the exit interview.[96] For this work, Krieger et al. defined urgent care costs as the costs of hospital admissions, emergency department visits, and unscheduled clinic visits.[96] Because this intervention sought to reduce use of urgent health care services among participants with asthma, a reduction in urgent care costs for participants may be viewed as cost savings attributable to the intervention.

The homelessness prevention intervention also compared preintervention and postintervention costs for participants in each of the study arms. For this work, Wolff et al. calculated costs for the following services, by study arm:

- mental health inpatient,
- mental health outpatient,
- physical health inpatient,
- physical health outpatient,
- vocational and educational,
- residential,
- cash social support, and
- in-kind social support.[121]

Wolff et al. also provided a total cost amount that summed the per-patient costs for all of the above services and included the intervention cost for assertive community treatment (with or without CHWs).[121] However, reductions in these total or specific services costs should not be viewed as cost savings attributable to the intervention because utilization and costs of some services might be expected to rise, rather than fall, as the result of a successful intervention. For example, successful assertive community treatment interventions might lead to larger

pre/postintervention increases in vocational and educational service costs than a brokered case management approach.

Economic outcomes. In the Seattle program, costs for the high-intensity CHW intervention were $1,124 per child higher in 2001 dollars than costs for the low-intensity CHW intervention.[96] Estimated costs for the low-intensity asthma intervention were not provided.[96]

For the homelessness prevention intervention, annual program costs were $6,200 per participant for the assertive community treatment intervention with CHWs and $6,440 per participant for assertive community treatment only.[121] These cost estimates are in 1992 dollars and are in addition to costs for brokered case management—costs that were not reported in the article. Adjusting these cost estimates to 2001 dollars using the CPI-U, we estimate the costs of assertive community treatment with CHWs to be $7,826 per patient and the costs of assertive community treatment only to be $8,129 per patient, in addition to costs for brokered case management.

For the Seattle study of children with asthma, Krieger et al. also provided estimates of pre/postintervention health care cost reductions attributable to the CHW asthma intervention.[96]Comparing urgent care costs in the 2 months before the intervention with costs in the 2 months at the end of the intervention, they estimated cost reductions of $201 to $334 per child in 2001 dollars.[96] For the low-intensity CHW group, analogous cost reductions were $185 to $315 per child. Assuming these cost reductions persist for 1 year, estimated annual cost reductions are $1,200 to $2,000 per child for the high-intensity CHW intervention in 2001 dollars. Krieger et al. also discussed the cost-effectiveness of the high-intensity intervention relative to the low-intensity approach.[96] They found savings in urgent care costs for the high intervention group relative to the low intervention group of $57 to $80 per child over a 2-month period.[96] The authors reported that if these cost reductions were to last for 3 to 4 years, the high-intensity intervention would be cost saving relative to the low-intensity intervention. Whether assuming the same level of reduced urgent care utilization and costs for several years postintervention is reasonable, however, remains unclear. The authors did find that urgent care utilization remained low in the high-intensity group for at least 6 months following the intervention.[96]

For the study of homeless mentally ill participants, Wolff et al. conducted regression analyses to explore whether study arms differed in their measures of total costs over the 18-month study period.[121] They found no difference in total costs across study arms after controlling for patients' costs in the preintervention period.[121] They also compared 6-month costs in the preintervention period to 6-month costs for three separate postintervention periods (1 to 6 months, 7 to 12 months, and 13 to 18 months). At least in part because the number of participants in each intervention arm was relatively small (N = 35, 28, and 22, respectively), postintervention costs varied a great deal across time periods. The authors point out that, when comparing the preintervention period with the first 6 months' postintervention period, inpatient mental health services costs fell $1,315 for assertive community treatment with CHWs, rose almost $4,500 for assertive community treatment only, and rose more than $8,000 for brokered case management.[121] Considering the second 6-month period of the intervention, inpatient mental health services costs fell by more ($4,400 per participant) in the assertive community treatment only group than in the assertive community treatment with CHWs group ($2,651 per participant). Inpatient mental health services costs also declined in that time period for the brokered case management group ($1,252 per participant). All of these cost estimates are in 1992 dollars.

The cost estimates for health and social services that Wolff et al.[121] report are difficult to interpret using the currently recommended framework for performing and evaluating cost-effectiveness analyses.[130,131] The recommended approach for performing cost-effectiveness analysis is to specify the perspective of the study a priori and to calculate net costs for use in cost-effectiveness evaluation as intervention costs less any costs for health care or other relevant variables (including productivity losses) averted by the intervention. The societal perspective is recommended for economic evaluation, which implies that all costs should be included, regardless of who bears them. Although the Wolff et al.[121] article implies that the intent was to estimate costs from the societal perspective, their measure of total costs excludes criminal justice and family burden costs (mentioned as a limitation), it excludes productivity costs, and it includes societal transfers (cash and in-kind support) that are not recommended for inclusion in economic analyses from the societal perspective. The presentation of costs in three different intervention time periods also makes it difficult to interpret the Wolff et al. estimates, because costs differed a great deal over time for each intervention arm.[121] Finally, the total cost measures they presented cannot readily be used in economic evaluations without some adjustments. Their total cost estimates represent the sum of intervention costs and specific health care and social services costs. These total cost estimates vary a great deal across intervention arms (including for the preintervention period) and across time within each intervention arm. In contrast, the recommended estimates for use in economic evaluations are measures of net costs that provide a single measure of costs for each intervention arm that subtract from intervention costs the health care, productivity, and other related cost reductions attributable to the intervention.[131]

Economics: child health. *Study characteristics*. Two studies evaluated program costs for CHW interventions that sought to improve child health.[75,80] One study, set in Maryland, evaluated the impact of a high-intensity CHW intervention for children with nonorganic failure to thrive in a low-income urban setting. As reported by Black et al., children diagnosed with failure to thrive were randomized to receive either the CHW intervention, which involved the delivery of clinical services plus weekly home visits from a trained CHW, or the clinical intervention only.[75] The Home Visitation 2000 RCT targeted low-income, pregnant women for a home visiting intervention that involved prenatal home visits, followed by home visits every 1 to 2 months until the target child was 2 years of age.[80] In this study, Olds et al. compared the impact of using CHWs to deliver the home visiting intervention with the impact of using nurses.[80] In addition to program costs, it evaluated several child health and developmental outcomes (e.g., mother-child interaction, quality of the home environment, child developmental outcomes).

Overview of economic analysis results. Both studies reported intervention program costs. Cost components for the failure-to-thrive trial included salaries for the CHW or nurse, materials costs, transportation costs, costs of police service, and a 10 percent overhead fee.[75] Olds et al. provided a per-family total cost of the 2.5 year Home Visitation 2000 trial,[80] but they did not specify details on what was included in the cost estimate.

Measures of effectiveness for economic analysis. Because both of these studies reported only the intervention costs, they did not examine intervention costs in relationship to outcomes. Thus we had no measures of intervention effectiveness for these economic analyses.

Economic outcomes. Annual program costs for the failure-to-thrive CHW intervention were $2,828 per child in 1993 dollars.[75] Although the article did not explicitly state this, we assumed that this cost estimate reflects the additional costs of the CHW intervention relative to the clinical intervention (usual care). When adjusted to 2002 dollars using the CPI-U, the CHW intervention for these children has an estimated annual cost of $3,520 per child. For the Home Visitation 2000

RCT, program costs were $9,140 per family in 2002 dollars for the nurse home visitation arm and $6,162 per family for the CHW intervention arm.[80] These costs are for the full 2.5 years of the program. Dividing these estimates by 2.5, we estimate annual costs of $3,656 per family for the nurse home visitation intervention and $2,465 for the CHW home visitation intervention—both in 2002 dollars.

Economics: summary of findings. Table 33 summarizes findings from the six CHW intervention articles that provided information on program costs and other economic outcomes (presented in the order of discussion above, by clinical context). Cost estimates are shown as presented in each article, but we also report each cost estimate adjusted to 2008 dollars using the CPI-U. Although adjusting some of the cost estimates using the medical care component of the CPI might have been more appropriate, because that component accounts for faster growth in prices in the health care sector than in other parts of the US economy, we used the CPI-U because all studies relied on nonmedical labor to provide the CHW intervention.

Table 33. Summary of economic analyses of CHW interventions

Author, Year	Intervention Description	Annual Intervention Program Costs Per Participant, Year of Dollars Specified or Assumed	Annual Intervention Program Costs, 2008 Dollars	Results of Other Economic Analyses
Stockdale et al., 2000[22]	Mammography screening intervention	$52 (1997)	$70	$903 per additional mammography screening, 1997$ $46,308 per life-year saved for intervention plus mammogram, 1997$
Paskett et al., 2006[17]	Mammography screening intervention	$404 (2000 assumed)	$505	$4,986 per additional mammography screening, (2000$ assumed)
Krieger et al., 2005[96]	Asthma management intervention	$1,124 (2001)	$1,366	$201-$334 reduced urgent care costs per child, high-intensity CHW intervention, 2001$
Wolff et al., 1997[121]	Homelessness prevention intervention	$6,200 (1992) (CHW intervention)	$9,514	Reductions in inpatient mental health services costs for CHW intervention relative to usual care in all intervention time periods
Olds et al., 2002[80]	Child health and development intervention	$2,565 (2002) (CHW intervention)	$3,070	None
Black et al., 1995[75]	Child health intervention	$2,828 (1993)	$4,214	None

CHW, community health worker.

KQ 4: Training of Community Health Workers

Characteristics of Training for Community Health Workers

Overview. *Study characteristics.* As noted in Chapter 2, an inclusion criterion specific to KQ 4 was that all studies reported on changes in knowledge or skills among CHWs after training. Although we identified 46 citations that were potential includes,[111,132-176] only 9 studies (10 citations) provided evidence of changes in knowledge or skills among CHWs after training.[137,141,143,147-150,155,169,176]

All included studies were set in minority or underserved communities. Three focused on cancer prevention,[137,141,143,176] two on cardiovascular disease,[147,149] and one each on health promotion,[169] tobacco cessation,[150] salmonella prevention in the manufacture of queso fresco,[155] and on health insurance enrollment, immunizations, and asthma prevention.[148]

The studies included in this section spanned a variety of models of CHW interventions. Five studies relied on volunteers;[137,141,149,155,169,176] other studies either paid CHWs or did not report on payment status. The size of the intervention effort also varied: the number of CHWs trained through these programs ranged from 4[147] to 1,504.[148] The educational background and prior training of the CHWs undergoing training were rarely reported: one study reported that 98 percent (of 79 CHWs) had either a college bachelor's or graduate degree,[137] whereas another study reported that all trainees (4 CHWs) had 10 years of prior experience as CHWs.[147] Studies also varied in their degree of specificity in reporting eligibility criteria for CHWs. The contribution of CHWs to developing training materials varied, ranging from intensive involvement in pretesting to no involvement. Studies also varied in their reporting on training components; in the following sections, we describe reported data on components of training.

Training on cultural competence. Two studies reported training for cultural competence, but they provided no details on the content, method, and number of sessions.[148,149]

Training on recruitment and retention process skills. Two studies reported training on recruitment and retention.[141,150,176] One study noted that client recruitment was addressed, but the content, method, and number of sessions was not reported.[150] The other recorded five 2-hour sessions covering recruitment strategies and role-playing practice.[141,176]

Training on intake and assessment. One study reported training for intake and assessment, specifically on community mobilization, communication skills, and outreach strategies, but it provided no details on the content, method, and number of sessions.[148] A second study noted two training sessions for assessment and role-play.[147]

Training on protocol delivery. Two studies reported on training on protocol delivery.[147,148] One provided no further details,[148] and the second listed health education counseling as part of the curriculum, and included role play for cancer screening counseling sessions and cardiovascular disease counseling sessions that was followed by external feedback from a clinical psychologist.[147]

Training on health topic. The purpose of training CHWs on health topics was to prepare them to educate participants. Seven studies described the health content of their training in some detail;[137,141,143,147,150,155,169,176] all provided evidence of change in knowledge of skills after training (Table 34). Only two reported significance tests.

Table 34. CHW training and evaluation results

Author, Year Study Name Setting: Geography Setting: Organizational, Social, Cultural	Objective or Aim of Training	Training on Content/Health Topic	Evaluation and Testing Results of the Curriculum (Improvements in CHW Knowledge)
Balcazar et al., 2006[149] Salud Para Su Corazon-National Council of La Raza Escondido, California; Chicago, Illinois; Ojo Caliente, New Mexico Latino communities	To promote heart-healthy behaviors among Latinos	Not described	The closed-format pre/posttest scores reported a score of 74% correct for the pretest and 100% for the posttest (n = 11). Differences in pre-post promotora knowledge score changes (N = 29) were statistically significant ($P < 0.05$) but data reported in bar graph only
Beck et al., 2007[143] Center for Health Communities' cancer education program Milwaukee County, Wisconsin African- American churches	To train the trainer in cancer education	2 90-minute train-the-trainer workshops	Pre/post percentage correct— Ability to define cancer: General: 89/93; breast: 79/86; colon: 15/57; prostate: 80/75 Ability to identify signs and symptoms of cancer: General: NA; breast: 71/88; colon: 81/93; prostate: 40/75 Ability to identify screening recommendations: General: NA; breast 67/67; colon: NA; prostate: 80/75 Ability to identify risk factors: General: 59/85; breast: 54/92; colon: 19/89; prostate: 40/75 Ability to identify strategies to reduce cancer risk: General: 70/78; breast: 8/33; colon: 92/96; prostate: 20/75
Bell et al.,1999[155] Abuela Project Yakima County, Washington Hispanic communities	To train Hispanic women to make queso fresco that was authentic in taste and texture but did not use raw milk in an effort to reduce the incidence of Salmonella serotype Typhimurium infections resulting from eating queso fresco made from raw milk	Workshops on how to make new queso fresco recipe (i.e., without raw milk)	Pretraining/posttraining: Recognized health risks associated with eating unpasteurized milk and cheese (N): 10/14; 14/15 Make queso fresco with fresh unpasteurized milk: 6/12; 1/15.

BSE, breast self examination; CHW, community health workers; CVD, cardiovascular disease; NA, not applicable; SD, standard deviation.

Table 34. CHW training and evaluation results (continued)

Author, Year Study Name Setting: Geography Setting: Organizational, Social, Cultural	Objective or Aim of Training	Training on Content/Health Topic	Evaluation and Testing Results of the Curriculum (Improvements in CHW Knowledge)
Kuhajda et al., 2006[147] Pine Apple Heart Disease and Stroke Project Pine Apple, Alabama African-American women in rural southern community	To train CHWs for heart disease and stroke and in skills for counseling and assessing high-risk women in the Pine Apple clinic	Topics addressed in training included cardiovascular disease; developing action plans (heart attack, congestive heart failure, stroke); high blood pressure; tobacco control; cancer (lung, colorectal, breast, cervical)	Counseling CHWs' responses on pre/post training questionnaires showed increases in knowledge and self-reported behaviors in each of the following areas: heart disease and stroke prevention strategies, cancer prevention strategies, heart attack or stroke signs and symptoms, cancer signs and symptoms, current heart disease and stroke prevention activities, current cancer prevention activities. Data reported in bar graph only
Martinez-Bristow et al., 2006[150] Tobacco Free El Paso El Paso, Texas Neighborhood clinics	To train Spanish-speaking counselors to deliver tobacco cessation interventions	5 days of training for each level of certification for nicotine addiction	Results from pre/posttest measuring self-confidence suggest that participants understood training material; data NR Mean satisfaction scores (1 = definitely not confident to 5 = definitely confident) high for recipients of each certification: Beginner: 4.8, intermediate: 4.7, advanced: 4.6
Navarro et al., 2007[141,176] Por La Vida Cuidandome San Diego, California Latino communities	To train community health advisors to conduct interactive educational group sessions and train-the-trainer and their "learning partners"	Manual had sessions for understanding female body, breast cancer, Pap test, breast health, risks	Changes in knowledge and behavior, pre/post test for primary participants; and learning partners (percentage naming the following test for breast/cervical cancer early detection): BSE 58.6/74.7; 46.4/56.3 Clinical breast exam: 29.1/28.8; 28.8/20.7 Mammography: 49.8/71.2; 45.0/63.1 Pap test: 84.6/91.9; 79.3/85.1 Knows BSE: 90.5/99.3; 82.4/93.2 Knows mammography recommendations: 32.3/55.8; 27.4/38.1 Names ≥1 breast cancer symptom: 75.1/96.8; 70.3/94.1 Names ≥1 treatment for breast cancer: 40.0/65.6; 27.9/45.0 Names ≥1 risk factor: 8.1/16.5; 6.8/7.2 Names ≥1 factor for cervical cancer: 30.9/59.6; 24.3/35.1 BSE in past month: 62.3/87.4; 55.9/71.5 Mammography ever: 63.3/70.0; 66.7/68.3 Pap test ever: 92.3/97.9; 88.3/92.8

Table 34. CHW training and evaluation results (continued)

Author, Year Study Name Setting: Geography Setting: Organizational, Social, Cultural	Objective or Aim of Training	Training on Content/Health Topic	Evaluation and Testing Results of the Curriculum (Improvements in CHW Knowledge)
Perez et al., 2006[148] Northern Manhattan Community Voices Collaborative Northern Manhattan, New York, neighborhoods	To train community health workers, focusing on facilitating insurance enrollment, child immunization, and asthma management	Yes, but not described	Pre/post scores in competency and knowledge (gains, percentage change): Insurance enrollment: 24%/72% (gain = 48%; percentage change = 200; n tested = 61) Immunization promotion: 83%/96% (gain = 48%; percentage change = 16; n tested = 472) Asthma management: 63%/83% (gain = 20%; percentage change = 32; n tested = 499)
Williams et al., 1996[169] No study name Atlanta and Fort Valley, Georgia Older African Americans	To raise awareness of and increase participation of older African Americans in health promotion activities	Training divided into 3 categories: G1: chronic disease education and self-care G2: lifestyle education G3: consumer education Topics for these categories developed into 12 training modules	Obtained score ≥80 on pre/posttest for hypertension and diabetes training sessions: Urban, low to middle income: 32%/60% Inner-city, low income: 11%/72% Rural, mixed income: 28%/93%
Yu et al., 2007[137] No study name Southeast Michigan Chinese communities	To increase the self-efficacy of CHWs in conducting breast cancer screening promotion	Training manual had 9 chapters and 5 appendices (1 was a bilingual glossary of medical terms); content includes socioedemographic characteristics and special health concerns, outreach strategies, effective communication skills for promoting screening. Also a web site, PowerPoint slides, and audio recordings available	Change in trainees' knowledge and self-efficacy Knowledge—mean number of correct answers pre (SD)/post (SD): 6 (1.4)/8 (1.1), $P < 0.001$ Self-efficacy—mean score pre (SD)/post (SD): 61.0 (11.5)/65.0 (9.2), $P = 0.016$

Training on evaluation. A single study reported evaluation as one of the seven core modules in their curriculum but provided no further details.[148]

Other training. Four studies reported training on communication skills,[137,148,149,176] and a single study reported on making referrals.[176] Training curricula may well have included additional elements that were not reported.

Patient Outcomes of Community Health Worker Training

We did not identify any studies that reported on patient health outcomes of CHW interventions that were linked to characteristics of training.

Chapter 4. Discussion

This chapter discusses our findings for four key questions (KQs) relating to the interaction between community health workers (CHWs) and clients (KQ 1), outcomes of CHW interventions (KQ 2), costs of CHW interventions (KQ 3), and training of CHWs (KQ 4). As noted in earlier chapters, KQs 1 and 4 are largely descriptive. KQs 2 and 3 are more analytic; they focus on health and cost-effectiveness outcomes. We specify in this discussion the strength of the evidence for the KQs related to outcomes (KQ 2) and cost-effectiveness (KQ 3); we also evaluate the applicability of studies included for outcomes (KQ 2). We refer readers to Chapter 2 for methods for evaluating the strength of evidence and quality of studies.

The strength of evidence for each outcome incorporates grades for risk of bias, consistency, directness, precision, and the presence of other modifying factors. Our approach is based on one developed by the Evidence-based Practice Center program for its comparative effectiveness review activities.[57] In the outcome-specific tables that follow, our overall grade of the strength of evidence appears in the far right column; grades for key domains are in the intermediate columns.

In this review, we ultimately had grades of only moderate or low. To recapitulate, moderate means that we have moderate confidence that the evidence reflects the true effect; further research may change our confidence in the estimate of effect and in fact may change the estimate. Low means that we have only low confidence that the evidence reflects the true effect; further research is likely to change the confidence in the estimate of effect and is likely to change the estimate.[57]

Interactions between Community Health Workers and Clients (KQ 1)

KQ 1 asks for descriptions of the interaction between CHWs and participants; specifically, we examined place of service, type of service, type of educational materials used, duration of interaction with participants, and length of followup. We identified 53 studies with 79 citations in all, addressing KQ 1.[15-23,27,59-105,107-114,116-124,126-128]

CHWs interacted with participants in a broad array of locations, using a spectrum of materials at varying levels of intensity. Studies usually described the place of service and type of intervention in some detail. Across the studies, one-on-one interventions generally occurred in the home, on the telephone, or in a medical setting; by contrast, group interventions tended to take place in a community setting. Studies described types of educational materials poorly or not at all. Studies inconsistently reported duration of interaction with participants and length of followup (the number and length of sessions), and they did not always clarify whether their reporting was based on protocol or on actual experience. The frequent failure to distinguish between protocol and actual experience represents a missed opportunity to explore the balance between planned and actual resource allocation and to identify strategies to translate effective CHW interventions into a variety of community settings.

We synthesized the variety of ways that CHWs can interact with participants into a single measure of intensity that serves as a proxy of resource allocation. Interactions that reported at least four of six elements suggesting a higher intensity (one-on-one, face-to-face, 1 hour per session or more, 3 or more months' duration, three or more interactions, and tailored materials) were classified as high intensity. Interventions with two or three elements were classified as

moderate intensity. Interventions with only one or none of the elements of high intensity were classified as low intensity.

Of the total of 53 studies, we classified 27 as high intensity,[16-18,27,61,62,64,65,67,68,71-98,100,120,121,127,128] 18 as moderate intensity,[15,23,63,66,69,70,99,101,102,105,106,109-112,114,116,118,119,122-125] and 8 as low intensity.[19-22,59,60,103,104,107,108,113,117,126]

The intensity of CHW interventions varied by clinical context (Table 35). Maternal and child health and chronic disease management interventions were all moderate or high intensity, whereas prevention and screening studies were more likely to involve low-intensity interventions.

Table 35. Number of studies, by clinical focus and intensity of interventions

Primary Clinical Context	Low Intensity (percentage)	Moderate Intensity (percentage)	High Intensity (percentage)	Total Number of Studies (percentage)
Health promotion and disease prevention	2[107,117] (18.2)	4[66,69,70,105,118,119] (36.4)	5[16,64,65,67,68,71,127] (45.5)	11 (100)
Injury prevention	1[126] (33.3)	2[101,102] (66.7)	None	3 (100)
Maternal and child health	None	None	15[71-87] (100)	15 (100)
Cancer screening	6[19-22,59,60,103,104,107,108,113] (40.0)	7[15,63,106,109-112,116,125] (46.7)	2[17,18,61,62] (13.3)	15 (100)
Chronic disease management	None	5[23,99,114,122-124] (38.5)	8[27,88-98,100,120] (61.5)	13 (100)
Total (may be less than sum of rows because of overlapping studies)	8	18	27	53

Outcomes of Community Health Worker Interventions (KQ 2)

KQ 2 asks about the impact of CHWs on outcomes, with specific attention to the following five domains: knowledge, behavior and behavior change, satisfaction, health outcomes, and health care utilization. A key source of heterogeneity is the clinical context of the CHW intervention. The applicability of our findings is related to the clinical context of intervention. Studies targeted one or more of five primary contextual categories and a wide array of specific topic areas (number of subdomains in parentheses): health promotion and disease prevention (3), injury prevention (2), maternal and child health (3), cancer screening (6), and chronic disease management (6); collectively the focus of the studies in this review covered 20 distinct clinical or public health activities. Four studies overlapped primary clinical categories.[67,68,71,107]

As Table 36 demonstrates, we found numerous research gaps in the key clinical areas and domains. Satisfaction and knowledge are virtually ignored by studies in this evidence base. By contrast, health outcomes and health care utilization are better represented by studies we included; more than one-half of the studies included one or both of these outcomes.

Table 36. Summary of studies reporting on outcomes by primary clinical context and subtopic

Primary Clinical Context and Subdomain	Number of Studies by Outcomes					
	Knowledge	Behavior	Satisfaction	Health Outcomes	Health care utilization	Total*
Health promotion and disease prevention						
Health promotion and disease prevention: pediatric immunizations	None	None	None	3	None	3
Health promotion and disease prevention: health promotion – Latina health	None	1	None	None	1	2
Health promotion and disease prevention: disease prevention	2	5	None	1	1	6
Injury prevention						
Injury prevention: home safety	None	2	None	None	None	2
Injury prevention: workplace safety	None	1	None	None	None	1
Maternal and child health						
Maternal and child health: prenatal care and perinatal outcomes	None	None	None	5	1	6
Maternal and child health: child development	None	None	None	4	None	4
Maternal and child health: environment conducive to child well-being	None	3	None	7	None	10
Cancer screening						
Cancer screening (overall)	2	2	None	None	None	2
Cancer screening: breast self-examination	None	5	None	None	None	5
Cancer screening: Pap smears	None	None	None	None	6	6
Cancer screening: mammography	None	None	None	None	11	11
Cancer screening: clinical breast examination	None	None	None	None	4	4
Cancer screening: colorectal cancer screening	None	None	None	None	2	2
Chronic disease management						
Chronic disease management: diabetes mellitus	1	2	None	4	None	4
Chronic disease management: hypertension	None	None	None	3	1	4
Chronic disease management: infectious diseases	None	None	None	None	1	1
Chronic disease management: back pain	None	None	None	1	None	1
Chronic disease management: mental health	None	None	1	1	1	1
Chronic disease management: asthma	None	2	None	2	2	2
Total*	5	22	1	27	30	53

*Total may be less than sum of cells because of overlapping studies.

In the section below, we discuss the strength of evidence for these five primary outcome domains and specific subdomains, reflecting the clinical context of the intervention. We follow the examination of outcomes with a summary of results for each clinical context and subdomain and then consider applicability.

We identified 53 studies comprising 79 citations addressing KQ 2. Thirty-eight were randomized controlled trials (RCTs)[16-18,27,61,62,64,65,67,68,71-98,100,106,120,121,127,128] and 15 were observational studies.[59,60,71,72,83,86,87,93-95,102,108,113,116,117,123,125,126] Of the 53 studies, we rated 4 as good quality,[17,18,69,70,96,97,103] 29 as fair,[16,27,59-63,66-68,72,75,76,79-85,88-93,98,100,101,105,106,108,109,114,117,122,124,125,127] and 20 as poor.[15,19-23,64,65,71,73,74,77,78,86,87,94,95,99,102,104,107,110-113,116,118-121,123,126,128]

Knowledge

As noted in Chapter 1, studies examining the effectiveness of CHW interventions are based in part on theories of individual behavior change. Studies relying on social cognitive theory as a model of individual behavior change anticipate that participants in CHW interventions will change their behavior based on knowledge they gain by observing and learning from CHWs.

Very few studies presented evidence on the effect of CHW interventions on the knowledge of participants (Table 37). The five studies reporting information on knowledge together provide (a) moderate strength of evidence that CHW interventions improve the knowledge of participants on disease prevention[16,117,127] and cancer screening[17,18,109] compared with other alternatives, (b) low strength of evidence that CHW interventions improve knowledge of label reading compared with usual care, but (c) insufficient evidence for knowledge of other issues related to the clinical or self-management of diabetes, such as dietary knowledge, appropriate diet, frequency of checking blood sugar, understanding the need for eye doctor visits, knowledge of how diabetes affects the body (eye, kidney, nerve, cardiovascular problems), or understanding insulin or other medication.[27]

This literature did not compare CHWs with a comprehensive range of usual care providers. Therefore, we cannot conclude that CHWs outperform all alternatives in improving participant knowledge. Nevertheless, for the much smaller subset of comparators and outcomes included in this literature, the studies together suggest that CHW interventions can improve participant knowledge when compared with alternative approaches such as no intervention, media, mail, or usual care plus pamphlets.

We found no evidence on knowledge for all other clinical topics and subdomains, as documented above in Table 36. The absence of data on the vast majority of clinical concerns that investigators in this field sought to study (as listed in Table 36) suggests that researchers may have elected to give priority to collecting and publishing data on health outcomes and health care utilization data rather than intermediate outcomes such as knowledge.

Table 37. Effect of CHW interventions on knowledge: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Health promotion and disease prevention: disease prevention							
2; 6,841[16,117,127]	Medium 1 RCT, 1 prospective cohort/fair	Consistent	Indirect	Precise	Absent	Favors CHW intervention vs. print or no intervention (for improved knowledge of label reading, knowledge of fat in diet, and knowledge of where to obtain free condoms)	Moderate
Cancer screening							
2; 1,788[17,18,109]	Low 2 RCTs/1 good, 1 fair	Consistent	Indirect	Imprecise	Absent	Favors CHW vs. media or mail	Moderate
Chronic disease management: diabetes mellitus							
1; 150[27]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Not reported	Absent	Favors CHW intervention vs. usual care plus pamphlets (for knowledge of label reading)	Low

CHW, community health worker; RCT, randomized controlled trial.

Behavior

Twenty-two studies reported on the effect of CHW interventions on participant behavior. The evidence for workplace safety, diabetes mellitus, and the use of bedding encasements for asthma, from five studies, suggests that CHW interventions can change participant behavior in the desired direction when compared with alternatives such as a community intervention, a lower-intensity CHW intervention, and usual care combined with a pamphlet (Table 38).[17,18,88-92,96,97,100,109,124,126] The strength of evidence is moderate for the use of bedding encasements for asthma and low for workplace safety and diabetes mellitus.

The evidence for disease prevention, improving the environment for child well-being, planned use of cancer screening tests, and breast self-examination, from 14 studies, is mixed. Some studies demonstrate a statistically significant benefit from the CHW arm, but others show no significant differences.[16,61-63,67,75,76,78,84,105,107,108,110-112,116,118,119,125,127,128] The strength of evidence for these outcomes is low.

The evidence for health promotion among Latinas, injury prevention at home, and smoking cessation to reduce asthma, from five studies, failed to demonstrate that CHW interventions resulted in statistically significant different outcomes than alternatives; the strength of evidence for these outcomes is low.[64,65,96,97,100-102] We found no evidence to evaluate the effectiveness of CHW interventions for all other clinical concerns described in Table 36.

Table 38. Effect of CHW interventions on behavior: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Health promotion and disease prevention: health promotion – Latina health							
1; 357[64,65]	High 1 RCT/poor	Consistency unknown (single study)	Indirect	Not reported	Present	No difference between CHW intervention and tailored or off-the-shelf interventions	Low
Health promotion and disease prevention: disease prevention							
5; 1,125+12 churches[16,67,105,107,118,119,127]	Medium 5 RCTs/3 fair, 2 poor	Inconsistent	Indirect	Imprecise	Present	Mixed results: 3of 5 studies favor CHW intervention vs. control (no intervention, combination of interventions, media/print)	Low
Injury prevention: home safety							
2; 2,909[101,102]	Medium 2 RCTs/1 fair, 1 poor	Inconsistent	Indirect	Precise	Present	No difference between CHW and health professional or no intervention	Low
Injury prevention: workplace safety							
1;786[126]	High 1 prospective cohort/poor	Consistency unknown (single study)	Direct	Imprecise	Present	Favors CHW over community intervention	Low
Maternal and child health: environment conducive to child well-being							
3; 1,052[75,76,78,84,128]	Medium 3 RCTs/2 fair, 1 poor	Inconsistent	Direct	Imprecise	Present	Mixed results: Most with no difference between CHW & control; some benefit to CHW over no intervention	Low
Cancer screening: planned use of screening tests							
2; 1,612[63,116]	Medium 1 RCT, 1 cohort/1 fair, 1 poor	Inconsistent	Indirect	Imprecise	Present	Mixed results: 1 study shows benefit in CHW arm vs. usual, other shows no difference vs. no intervention	Low

CHW, community health worker; RCT, randomized controlled trial.

Table 38. Effect of CHW interventions on behavior: strength of evidence (continued)

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Cancer screening: breast self-examination							
5; 3,798[61,62,108,110-112,116,125]	Medium 2 RCTs, 3 cohorts/3 fair, 2 poor	Inconsistent	Direct	Imprecise	Present	Mixed results: 2 of 5 studies show benefit of CHW vs. alternative (mail or minimal CHW), 3 of 5 show no difference vs. delayed or no intervention	Low
Chronic disease management: diabetes mellitus							
2; 213[88-92,124]	Medium 2 RCTs/fair	Consistent	Indirect	Precise	Absent	Favors CHW intervention vs. usual care plus newsletter	Low
Chronic disease management: asthma, use of bedding encasements							
2; 572[96,97,100]	Low 2 RCTs/1 good, 1 fair	Consistent	Indirect	Precise	Absent	Favors CHW vs. less intense CHW arm or delayed CHW arm	Moderate
Chronic disease management: asthma, other behaviors (smoking cessation, removal of mold)							
2; 572[96,97,100]	Low 2 RCTs/1 good, 1 fair	Inconsistent	Indirect	Imprecise	Absent	No difference between CHW vs. less intense CHW arm or delayed CHW arm	Low

Together these studies suggest that CHW interventions can, in some instances, yield greater positive changes in participant behavior than a range of alternatives (including no intervention, community intervention, usual care plus a newsletter, media/print, a less intense or delayed CHW arm, or a combination of interventions). In other instances, CHWs interventions provided no statistically different benefit when compared with a range of alternatives, in the context of improvements in all arms. When the alternative requires greater resource allocation, as with the use of health professionals, the absence of a statistically significant difference may support the use of CHWs.[101]

The absence of consistent evidence showing that CHW interventions provide greater benefit when compared with alternatives may be explained in part by either the inadequacy of the CHW approach in changing some behaviors or other factors such as limitations of study design and the Hawthorne effect. Regarding the effectiveness of the CHW approach, CHWs may be more effective at changing behaviors that are relatively easy to adopt (such as the use of bedding encasements provided through the intervention) and less effective in changing behaviors that may require additional support (such as smoking cessation) or more resources (such as the removal of mold or changing home environments). Study design considerations such as the choice of lower-intensity CHW interventions or the use of other fairly intensive alternatives (or

both situations) may not produce statistically significant differences between the CHW arm and the alternative; the absence of differences may be further compounded by inadequate power in many of these studies. As for the Hawthorne effect, when CHWs collect or report on outcomes in all study arms (as was often the case in these studies), this lack of blinding of outcomes assessors can induce an observation-related improvement in performance.

Satisfaction

CHW interventions are often expected to prompt individual and social change and thereby reduce health disparities in either access to care or outcomes of care (or both). An indirect measure of improved access to the health care system is the participant's satisfaction with care. A single study, focusing on mental health among the homeless, found no differences between study arms in participant satisfaction; the strength of evidence for this outcome is low (Table 39).

Table 39. Effect of CHW interventions on participant satisfaction: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Chronic disease management: mental health							
1;165[120,121]	High 1 RCT/poor	Consistency unknown (single study)	Direct	Not reported	Present	No difference between CHW intervention and control	Low

CHW, community health worker; RCT, randomized controlled trial.

We found no evidence to evaluate the effectiveness of CHW interventions for the other 19 other clinical concerns described in Table 36. We note that our exclusion of studies without comparison arms may have excluded program evaluations that examined participant satisfaction in greater detail.

Health Outcomes

The literature examined CHW effectiveness on a range of outcomes. Of the 53 studies, 27 reported specifically on health outcomes (Table 40).

The evidence for back pain and for improving psychosocial outcomes among caregivers of children with asthma, from three studies, provides moderate strength of evidence that CHW interventions improve health outcomes when compared with either a lower-intensity CHW intervention or a delayed-intervention control group.[96,97,100,114]

The evidence for seven clinical areas and subdomains—pediatric immunizations, prenatal care and perinatal outcomes, child development, environment conducive to child well-being, diabetes, mental health, and asthma symptoms—from 22 studies, is mixed. Some studies suggested that CHW interventions are more effective than alternatives (including no intervention, usual care, and nurses), but others produced no differences between CHW interventions and alternatives.[27,67-93,96,97,100,124,128]

Table 40. Effect of CHW interventions on health outcomes: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Health promotion and disease prevention: pediatric immunizations							
3; 5,406[68-72]	Medium 2 RCTs, 1 cohort/1 good, 1 fair, 1 poor	Inconsistent	Direct	Imprecise	Present	Mixed results: 2 of 3 studies favor CHW intervention vs. control; 1 shows no difference between CHW interventions and no intervention	Low
Health promotion and disease prevention: disease prevention							
1; 294[16,127]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Not reported	Absent	No difference between CHW intervention and print intervention (for change in body mass index)	Low
Maternal and child health: prenatal care and perinatal outcomes							
5; 3,389[71,77,79, 83,86,87]	High 2 RCTs, 3 cohorts/2 fair, 3 poor	Inconsistent	Some direct, some indirect	Imprecise	Present	Mixed results, between CHW and professionals or no intervention or usual care	Low
Maternal and child health: child development							
4; 1,664[75,76,78, 80-83,128]	Medium 3 RCTs, 1 cohorts/3 fair, 1 poor	Inconsistent	Direct	Imprecise	Present	Mixed results: 2 studies show some benefit for CHW vs. no intervention or health professional, 2 show no difference between CHW and health professional	Low
Maternal and child health: environment conducive to child well-being							
7; 2,299[67,68,73, 74,78,84,85,128]	Medium 7 RCTs/4 fair, 3 poor	Inconsistent	Mostly indirect	Imprecise	Present	Mixed results: 5 studies show no benefit for CHW over alternatives, 2 show benefit of CHW arm vs. usual care or health professional	Low

CHW, community health worker; RCT, randomized controlled trial.

Table 40. Effect of CHW interventions on health outcomes: strength of evidence (continued)

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Chronic disease management: diabetes mellitus							
4; 479[27,88-93,124]	Low 4 RCTs/fair	Inconsistent	Direct	Imprecise	Absent	Mixed results: 2 of 4 studies found CHW more effective than usual care in decreasing mean HgbA1c, 2 found no difference	Low
Chronic disease management: hypertension							
3; 2,823[23,94,95,98,99]	Medium 2 RCTs, 1 cohort/1 fair, 2 poor	Consistent	Direct	Precise	Present	No difference between CHW intervention and CHW in a lesser capacity	Low
Chronic disease management: back pain							
1; 255[114]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Not reported	Absent	Favors CHW intervention vs. usual care plus a book for Roland score at 6 months and worry score at 12 months; no difference in Roland score at 12 months	Moderate
Chronic disease management: mental health							
1; 165[120,121]	High 1 RCT/poor	Consistency unknown (single study)	Direct	Not reported	Present	No difference between CHW intervention and usual care (health professionals)	Low
Chronic disease management: asthma symptoms							
2; 572[96,97,100]	Low 2 RCTs/1 good, 1 fair	Inconsistent	Direct	Imprecise	Absent	Mixed results: 1 favors CHW vs. delayed intervention; no difference between CHW and less intense intervention	Low
Chronic disease management: asthma, caregiver psychosocial outcomes							
2; 572[96,97,100]	Low 2 RCTs/1 good, 1 fair	Consistent	Direct	Precise	Absent	Favors CHW vs. less intense CHW arm or delayed intervention	Moderate

For disease prevention, hypertension, and mental health, the evidence from five studies suggests no difference between CHW interventions and alternative approaches, including the use

of CHWs in a lesser capacity, nurses, and print materials; the strength of evidence for these outcomes is low.[16,23,94,95,98,99,120,121,127] We found no evidence to evaluate the effectiveness of CHW interventions for other clinical concerns described in Table 36.

Our overall assessment for the effect of CHWs on health outcomes is similar to our assessment of their effect on behavior change. Together these studies show that CHW interventions can have a greater effect on health outcomes than certain alternative options such as no intervention, usual care, and nurses, but these findings are not consistent across all studies; several studies find no statistically significant benefit to the CHW arm when compared with alternative approaches. The strength of evidence for the reported absence of differences is therefore low. As with our summary assessment of the effect of CHW interventions on change in participant behavior, we believe that in the context of comparable gains in study arms and the absence of statistically significant differences among study arms, the choice of CHW interventions may be reasonable when the comparator is a high-resource alternative.

Health Care Utilization

More than half of the 53 identified studies (30 studies) reported on health care utilization (Table 41).

Table 41. Effect of CHW intervention on health care utilization: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Health promotion and disease prevention: health promotion – Latina health							
1; 103[66]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Imprecise	Present	No difference between CHW and mail	Low
Health promotion and disease prevention: disease prevention							
1; 421[105]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Precise	Absent	Favors CHW intervention vs. no intervention	Moderate
Maternal and child health: prenatal care and perinatal outcomes							
1; 145[79]	Medium 1 RCT/fair	Consistency unknown (single study)	Indirect	Imprecise	Absent	Favors CHW vs. health professional	Low
Maternal and child health: Environment conducive to child well-being							
1; 730[78,128]	High 1 RCT/poor	Consistency unknown (single study)	Indirect	Imprecise	Present	No difference between CHW intervention and routine clinical care	Low

CHW, community health worker; RCT, randomized controlled trial.

Table 41. Effect of CHW intervention on health care utilization: strength of evidence (continued)

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Cancer screening: Pap smears							
6; 4,366[17,18,61-63,110-112,125]	Low 5 RCTs, 1 observational/1 good, 4 fair, 1 poor	Inconsistent	Direct	Imprecise (when reported)	Present	Mixed results: 3 of 6 studies show some difference between CHW and minimal CHW, media, direct mail, and usual care, 3 show no difference between CHW and mail or no intervention	Low
Cancer screening: mammography							
11; 17,401[15,17-22,59-62,103,104,108,110-113,116,125,177]	Medium 6 RCTs, 5 observa-tional studies/2 good, 4 fair, 5 poor	Consistent	Direct	Precise (when reported)	Present	8 of 11 studies favor CHW vs. no intervention, mail, print, or minimal CHW; 3 show no difference CHW and no-intervention control	Moderate
Cancer screening: clinical breast examination							
4; 3,386[61,62,110-112,116,125]	High 2 RCTs, 2 observa-tional/2 fair, 2 poor	Consistent	Direct	Imprecise	Present	No difference between CHW intervention and mail, CHW in lesser capacity and no intervention	Low
Cancer screening: colorectal cancer screening							
2; NR[107], 78[106]	High 2 RCT/1 fair, 1 poor	Inconsistent	Direct	NR	Present	Mixed results, 1 study favors CHW versus usual care, the other shows no difference between CHW intervention and controls (no-intervention control, tailored print and video)	Low
Chronic disease management: hypertension							
1; 722[123]	High 1 cohort/ poor	Consistency unknown (single study)	Direct	Not reported	Present	Favors CHW intervention vs. no intervention	Low

Table 41. Effect of CHW intervention on health care utilization: strength of evidence (continued)

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Chronic disease management: infectious diseases							
1; 244[122]	Medium 1 RCT/fair	Consistency unknown (single study)	Direct	Precise	Absent	Favors CHW intervention vs. control group given bus tokens, but monetary incentive was more effective than CHW or control given bus tokens	Moderate
Chronic disease management: mental health							
1; 165[120,121]	High 1 RCT/poor	Consistency unknown (single study)	Indirect	Not reported	Present	No difference between CHW intervention and usual care (health professionals)	Low
Chronic disease management: asthma							
2; 572[96,97,100]	Low 2 RCTs/1 good, 1 fair	Consistent	Direct	Precise	Absent	Favors CHW vs. less intense CHW arm or delayed intervention	Moderate

Fifteen studies provide moderate strength of evidence that CHW interventions increase appropriate health care utilization for disease prevention, mammography, infectious diseases, and asthma when compared with a range of alternatives such as no intervention, mail, print, or a less intense CHW arm. [15,17-22,59-62,96,97,100,103-105,108,110-113,116,122,177] Two studies provide low strength of evidence that CHW interventions provide benefits in health care utilization when compared with nurses for prenatal and perinatal care and usual care for hypertension.[79,123]

For Pap smears, six studies provide mixed evidence. Some studies report statistically significant benefit for the CHW arm but others find no significant differences; the strength of evidence for this outcome is low.[17,18,61-63,110-112,125] For health promotion among Latinas, child well-being, clinical breast examination, colorectal cancer screening, and mental health, evidence from nine studies suggests that the CHW intervention and alternatives do not differ; the strength of evidence for these outcomes is low.[61,62,66,78,106,107,110-112,116,120,121,125,128] We found no evidence to evaluate the effectiveness of CHW interventions for all other clinical concerns described in Table 36.

Together, these studies provide either low or moderate evidence that CHW interventions increase some appropriate health care utilization (e.g., more use of cancer screening tests, less use of emergency services) when compared with a range of alternatives for disease prevention, mammography, infectious diseases, and asthma. For other reported outcomes, however, the evidence is mixed or does not show a statistically significant benefit of the CHW arm. As with our discussion of results for participant behavior and health outcomes, we note that for some

outcomes that had no statistically significant benefit of the CHW arm, the strength of evidence is low; the reasons are similar to those discussed above and include study design, choice of comparators, and the Hawthorne effect.

Applicability of Findings about Outcomes

Our analysis of applicability reviewed studies by clinical context along five dimensions: population, intensity of treatment, choice of comparator, outcomes, and timing of followup. We summarize these findings across all studies below.

Population. CHW interventions were generally conducted in underserved populations and were not overly restrictive in their inclusion criteria. We note, however, that individual studies tended to focus on a specific subset, such as low-income Latinas or inner-city African-Americans, of the larger and diverse group of the underserved. As a result, the intervention effects are likely to be applicable to the population studied, but the findings cannot be extrapolated as being relevant to all underserved populations. In particular, the applicability of these studies to low-income populations that would not qualify for Medicaid, but could not afford health insurance, is unclear.

Intensity of the treatment. As noted in earlier chapters, the studies in this review were predominantly high intensity (51 percent) or moderate intensity (34 percent) rather than low intensity (15 percent). We found CHW interventions for Pap smears to be more effective than comparison efforts (such as no intervention, media, print, community interventions, and usual care) only in the relatively limited circumstances of low- and moderate-intensity interventions rather than high-intensity interventions. We found no clear evidence of variation in the effectiveness of CHW interventions by intensity of the intervention for any other outcomes. The absence of consistent evidence supporting the use of high-intensity interventions and the limited applicability of these more costly approaches to a larger population suggests that future interventions may be well served if they re-examine assumptions that high-intensity interventions work better than moderate- or low-intensity interventions.

Choice of comparator. The wide variation in the choice of comparators across all included studies reflects the immense array of options for health care in the United States. Although investigators often did justify or explain their choices of comparator, the selections often reflected a reasonable range of usual care options for the appropriate subpopulations, such as a health professional alternative for children with chronic diseases or no intervention for home safety. The diversity of these comparators does, however, limit the generalizability of our findings significantly. Our assessment of effectiveness of the CHW arm (or lack thereof) can be interpreted only in the context of the specific comparators in the literature; these findings cannot be said to be meaningful for a comprehensive range of comparators or even for usual care.

Outcomes. Forty-two percent of the 53 studies reported on behaviors, 51 percent on health outcomes, and 57 percent on health care utilization. The focus on these outcomes was appropriate and applicable to settings other than those selected for the study. The choice of outcome measures was rarely comparable across studies. The variations in outcome measures and choice of comparators precluded quantitative syntheses.

Timing of followup. Included studies by and large had an appropriate length of followup for examining the effect of the CHW intervention. Some outcomes, such as developmental outcomes for children in the relatively short term (12 months to 4 years), may not always have a high

correlation with long-term health outcomes, but we regard them as appropriate for the intervention.

Summary Findings by Clinical Context

Health promotion and disease prevention. Eleven studies addressed health promotion and disease prevention, including pediatric immunizations,[68-72] cardiovascular disease,[105,118,119] diabetes prevention,[16,127] HIV prevention,[117] second-hand smoke exposure,[67] colorectal cancer prevention,[107] and general preventive care.[64-66] Two studies on disease prevention found that CHW interventions were more effective in changing knowledge than print or no intervention.[16,117,127] Results for CHW interventions on behavior outcomes were mixed, with half of the studies favoring CHW intervention versus control groups consisting of no intervention, media/print, or a combination of interventions.[16,105,118,119,127] None of the studies evaluated satisfaction outcomes. Results for CHW interventions on health outcomes, available from four studies,[16,68-72,127] were also mixed.

The results suggest that CHW interventions can serve as an effective means of improving knowledge outcomes and possibly other outcomes related to preventing disease in underserved, minority populations.

Injury prevention. Three studies assessed injury prevention measures: two focused on home injury prevention[101,102] and one considered workplace injury prevention.[126] The workplace study found improvements in behavior associated with CHW interventions when compared with a minimal community intervention.[126] One home injury prevention study found mixed results with CHW interventions showing statistically significant benefit in some measures but controls (with no intervention) showing statistically significant benefit over CHW interventions for other measures.[102] The other home injury prevention study showed no significant difference in behavior between CHW interventions and health care professional. [101] None of the studies assessed direct health outcomes. The mixed results preclude any firm conclusions regarding the benefit of CHW interventions for injury prevention.

Maternal and child health. Fifteen studies meeting our inclusion criteria involved primarily maternal and/or child health.[67,71-87,128] Of these, 12 focused exclusively on potentially vulnerable populations (e.g., racial or ethnic minorities, recent immigrants, low-income families, inner-city residents).[67,68,71,72,75-77,79-82,84-87] Another three targeted families identified as high risk for child maltreatment.[73,74,78,128] Pregnant women were part of the target population for eight studies.[71,72,77,79-83,86,87] One study each addressed pregnant women with phenylketonuria (PKU),[83] children with failure to thrive,[75,76] and children with "chronic disease" (not otherwise characterized).[85]

Statistically significant benefit of CHWs over standard care was shown most prominently in the rapidity of metabolic control for mothers with PKU and in the mental development of infants of mothers with PKU.[83] CHW interventions were associated with a greater likelihood of initiating breastfeeding among African Americans, more frequent use of nonviolent discipline methods by parents, and higher parenting efficacy scores than either video intervention or no intervention. The study of infants with failure to thrive found a decline in cognitive and motor development among infants and an increase in depressive symptoms among mothers over time in both arms of the study; however, CHWs were significantly associated with attenuation in the decline in cognitive and motor development of infants with failure to thrive and in the increase in depressive symptoms among mothers when compared with no intervention.[75,76] No significant advantage to CHW intervention was seen for improvements in incidence of low birth weight,

presence of neonatal or infant health problems, language development, maternal stress or self-esteem, continuation of breastfeeding beyond 1 week, tobacco exposure for children of smokers, continued drug use among mothers with known prior drug use, growth of children with failure to thrive, or incidence of child maltreatment when compared with nurse interventions, multidisciplinary specialty clinical care, video or print intervention, routine health care, or no intervention.

Most studies involving CHWs for maternal and child health were concerned with high-risk populations. For maternal and child health, CHWs appear to be most beneficial when addressing existing health conditions instead of potential conditions, i.e., primary prevention. Eight of the 15 studies evaluated reported statistically significant benefit to CHWs compared with nurse interventions, multidisciplinary specialty clinical care, video or print intervention, routine health care, or no intervention. CHWs have not yet been shown to improve key health outcomes relating to maternal and child health such as prematurity, low birth weight, sustained breastfeeding, or child maltreatment relative to other alternatives such as video or print intervention, routine health care, or no intervention. The lack of such findings suggests either that further research is needed to demonstrate benefits or that the use of CHWs in this domain actually does not produce greater benefits than the use of existing approaches.

Cancer screening. Fifteen studies that examined outcomes of CHW interventions for improving breast, cervical, or colorectal cancer screening met inclusion criteria for this systematic review.[15,17-22,59-63,103,104,106-113,116,125] All studies focused on minority or underserved communities. With the exception of two studies on colorectal cancer screening that included both men and women, all studies focus on increasing the rates of breast and cervical cancer screening among women.

Together, the 15 studies suggest limited evidence of improvement in knowledge in the CHW arm compared with groups receiving alternative approaches such as media or mail. Findings were conflicting about the effect of CHWs on planned or actual behavior changes, specifically breast self-examination, when compared with no intervention, delayed intervention, mail, minimal CHW, or usual care. The volume of evidence on health outcomes is limited; the quality and design of the studies limits the interpretation of available evidence.

Regarding health care utilization, our findings from limited evidence suggest that CHW interventions are not effective in comparison with other alternatives (such as no intervention, mail, tailored print and video, and minimal CHW) in raising the rates of clinical breast examination or colorectal cancer screening. More substantial evidence exists on Pap smears and mammography. It suggests that CHWs are at least as effective as alternative steps (such as mail or lower-intensity CHW interventions) in improving Pap smear rates; they are more effective than alternatives (such as no intervention, media, print, community interventions, and usual care) only in limited circumstances of low- and moderate-intensity interventions rather than high-intensity interventions. Studies demonstrated significantly greater improvements in the CHW groups than in comparison groups (no intervention, mail, print, or minimal CHW) in either the entire sample or in low-income, minority, or other underserved subsamples.

CHW interventions were more effective than alternatives (ranging from usual care to a less intense CHW arm) for increasing the appropriate use of Pap smears and mammograms, for specific subpopulations and subtypes of interventions. They were not, however, more effective than alternatives for increasing the utilization of breast self-examination, clinical breast examination, or colorectal cancer screening. CHWs can serve as a means of improving

utilization of Pap smear tests and mammograms for underserved populations; the effectiveness of CHWs for other outcomes requires further research.

Chronic disease management. Thirteen studies addressed disease management for several diagnoses: diabetes mellitus,[27,88-93,124] hypertension,[23,94,98,99,123] asthma,[96,97,100] back pain,[114] mental health,[120,121] and tuberculosis.[122] Only one of these studies addressed knowledge of diabetes and found an improved score in the CHW group compared with the group receiving usual care plus educational pamphlets.[27]

Two CHW interventions on diabetes[88-92,124] and both asthma studies[96,97,100] addressed behavior changes; for diabetes, they favored CHW interventions over usual care and a less intense CHW arm, and for asthma, they favored CHWs with respect to improving use of bedding encasements but not smoking cessation. Only the study in mental health addressed satisfaction outcomes; it did not demonstrate a difference between the CHW and the control groups.[120,121]

Several studies investigated various health outcomes. In diabetes management, two of four studies found that a CHW intervention was more effective than usual care in decreasing HgbA1c.[27,93] None of the four studies addressing hypertension management showed a significant difference in blood pressure control between groups.[23,94,98,99,123] Both asthma studies demonstrated that CHW interventions were effective in reducing unscheduled health care services, psychological outcomes, and behavior changes between groups;[96,97,100] however, symptom measures improved within the CHW and comparison groups but did not differ significantly between the groups.

In four of five studies on chronic disease management, a CHW intervention was more effective than either usual care or a less intense CHW arm in improving health care utilization for hypertension, mental health, and asthma.[96,97,100,122,123] The fifth study found that CHWs were less effective than a monetary incentive in increasing adherence to clinic appointments among tuberculosis-infected patients.

For chronic disease management, the majority of CHW interventions failed to show greater improvement in health outcomes than were observed for usual care. The exception is asthma care, for which CHWs were effective for many outcomes. Further research is necessary to determine the role of CHWs in chronic disease management.

Cost-Effectiveness of Community Health Worker Interventions (KQ 3)

Only six studies that we identified in the literature provided economic analyses of CHW interventions.[17,22,75,80,96,121] Our analysis does not include three other studies of CHW interventions that reported information on intervention program costs but found that CHW interventions were ineffective or less effective than the baseline care approach.[64,67,69,70]

All six studies included for this KQ estimated intervention program costs, but not all reported the specific components of those costs or the year for which costs were estimated. Four of the studies performed economic analyses beyond program cost estimation to examine program costs in relationship to effectiveness. The two cancer screening studies both reported estimates of the cost per additional mammography screening. Although the common measures reported across these two studies suggest that comparisons might be straightforward, differences in the targeted populations nonetheless hinder comparisons of cost-effectiveness ratios across the studies. In particular, the low-intensity intervention targeted women regardless of their adherence to screening guidelines; however, the high-intensity intervention targeted only nonadherent women.

The other two studies that performed additional economic analyses focused on estimating potential reductions in costs of both health care and social services attributable to the CHW intervention.

None of the CHW intervention evaluations that included an economic analysis reported a standard measure of costs per quality-adjusted life year saved as recommended in recent guides for performing economic evaluations.[130,131 2003] One study did report on the costs per life-year saved of the CHW intervention, which is useful for comparing the intervention costs with those for other life-saving interventions, but that study provided the intervention both to women who had previously obtained mammography in line with mammogram screening guidelines and to women who had not; this approach biases the cost-effectiveness results in favor of the intervention, even when CHW time was valued using average wage rates.[22] The lack of reporting on intervention costs and cost-effectiveness according to standardized and commonly accepted measures makes it challenging to compare economic outcomes across CHW intervention studies; it also makes it even more complicated to compare cost-effectiveness between CHW interventions and non-CHW health care interventions currently being reported in the literature.

In sum, limited evidence is currently available on the cost-effectiveness of CHW interventions for 7 of the 20 clinical contexts and subdomains we have examined in this systematic review (Table 42). For all the other clinical concerns described in Table 36, we found no evidence. Until better information is made available, assessing whether CHW interventions are a cost-effective alternative to clinical interventions to promote health and prevent disease is difficult, if not impossible.

Table 42. Cost and cost-effectiveness of CHW interventions: strength of evidence

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Health promotion and disease prevention: pediatric immunizations							
1; NA[69,70]	---	---	---	---	---	Not evaluated because of lack of evidence of intervention effectiveness	---
Health promotion and disease prevention: health promotion – Latina health							
1; NA[64]	---	---	---	---	---	Not evaluated because of lack of evidence of intervention effectiveness	---
Maternal and child health: child development							
2;130[75] 630[80]	Low 2 RCTs	Consistent	Direct	Imprecise	Absent	Cost for CHW home visitation program was lower than for nurse home visitation program; no comparison of costs to program effectiveness	Low

CHW, community health worker; RCT, randomized controlled trial.

Table 42. Cost and cost-effectiveness of CHW interventions: strength of evidence (continued)

Number of Studies; # of Subjects	Risk of Bias Design/ Quality	Consistency	Directness	Precision	Other Modifying Factors (Intensity, Confounding)	Results	Overall Strength of Evidence
Maternal and child health: environment conducive to child well-being							
1; NA[67]	---	---	---	---	---	Not evaluated because of lack of evidence of intervention effectiveness	---
Cancer screening: mammography promotion							
2; 851[17] 1,443[22]	Moderate 2 RCTs	Consistent	Direct	Imprecise	Absent	Cost per additional mammogram is not a standardized measure that can be compared to the cost-effectiveness of other interventions	Low
Chronic disease management: mental health							
1; 165[121]	High 1 RCT	Consistency unknown (single study)	Direct	Imprecise	Absent	Intervention costs slightly lower for CHW arm than for traditional assertive community treatment; inconclusive results on impact of CHW on net program costs	Low
Chronic disease management: asthma							
1;170[96]	Low 1 RCT	Consistency unknown (single study)	Direct	Imprecise	Absent	Larger urgent care cost reductions for high-intensity CHW group as compared to low-intensity CHW group.	Moderate

Training of Community Health Workers (KQ 4)

We found only nine studies meeting our inclusion criteria that described the training of CHWs.[137,141,143,147,150,155,169 148,149,176] Our inclusion criterion required the evaluation of skills before and after training; all included studies reported evidence of improvement in knowledge or skills. Few studies reported on training for cultural competence, recruitment and retention process skills, intake and assessment, and protocol delivery; studies generally focused on aspects of training relevant to the health concern.

Such data are useful for future studies on the same clinical topic, but the failure to report on common elements such as cultural competence, recruitment and retention process skills, intake and assessment, and protocol delivery presents a roadblock to identifying critical elements of a standardized curriculum applicable to all CHWs. Whether studies routinely conduct such training and do not report on them is unclear from the studies that we identified.

No study reported on the effects of CHW training on health outcomes. Practitioners and policy makers seeking to institutionalize CHWs may seek to understand what measures of CHW activities best assess the effectiveness of their contributions to improved health outcomes and further, how to incorporate those elements into training curricula. As seen from the limited evidence available to answer KQ 4b, studies do not presently report sufficient information to answer this question. The question of how to tailor CHW training to improve health outcomes is a significant gap for future studies to address.

Two studies reported certification associated with their curricula. One study, focusing on tobacco cessation, offered three levels of certification: introductory ("Basic Skills to Stop Using Tobacco"), intermediate ("Treatment Specialist"), and advanced ("Leave the Addiction").[150] A second study, on cancer education, provided a certificate of completion at the end of the training, but it gave no further details.[143]

Several studies reported on the availability of their curricula for future projects. These included topics related to safe manufacture of queso fresco,[155] tobacco cessation,[150] breast cancer education,[137] heart disease and stroke,[147] and heart healthy behaviors among Latinos.[149]

We note that the nine studies identified as eligible for this KQ represent a small fraction of all studies reporting on training. Other ineligible studies did not evaluate pre- and posttraining skills or knowledge: many were purely descriptive of training programs.[134,153,154,161,170,171,175] Among the ineligible studies that provided a critical appraisal or evaluation of the training program without pre- and posttraining results, several limited the assessment of the knowledge or skills of the CHW to the posttraining period only, without a pretest.[139,142,145,156,160,167,173,176] A substantial number of other ineligible studies evaluated the training or curriculum based on feedback from designers, trainers, or other stakeholders.[132,135,137,138,140,141,151,152,157-160,162-169,172-174,176] These studies could not inform our key question on training; thus, we excluded them from the systematic review proper, but we note them here to be helpful to readers who may wish to pursue these topics further.

Limitations of this Review

Limitations of the Evidence Base

Reporting. Our ability to draw conclusions on the effectiveness of CHW interventions is limited by the relative paucity of detail on specific elements of the interventions. Studies inconsistently adhered to reporting standards such as STROBE[178] and CONSORT,[179] making critical appraisal of internal validity and assessment of applicability challenging. In particular, many studies did not report on the intensity of the intervention (the number and length of sessions and the time period of interaction with clients), the existence of protocols governing the intensity of intervention, or fidelity to such protocols. CHW interventions represent an opportunity to translate effective interventions into a variety of community settings; the absence of information on fidelity limits their translation. The limited available information on protocol also results in little usable data on training of CHWs.

Choice of appropriate comparators. The evidence base is marked by great heterogeneity in comparators in addition to appreciable diversity in the CHW model itself. Although appropriate comparators can and should differ by the specific outcomes being addressed, studies often did not justify the choice of comparator(s), either on its own merits or in relation to usual care. For that reason, our conclusions regarding the effectiveness of CHWs are necessarily limited. We

also note that a potential Hawthorne effect may exist for studies comparing variants of CHW interventions rather than CHW interventions with usual care: the effect of the more intense arm may have been diluted by a Hawthorne effect in the less intense arm, whereby observation by CHWs could improve outcomes (at least in the short term) in the latter case.

Study design. Many studies did not report *a priori* hypotheses about their primary outcomes or give details about their power calculations (if any were done). Limited sample sizes may have resulted in studies that were not powered to find a difference between "experimental" and "control" or "comparison" groups where one may in fact exist.

A further design limitation is the frequent reliance on CHWs for data collection of outcomes in all study arms. This practice can lead to potential bias on the part of the outcome assessor; when subjects are providing responses directly to the CHWs gathering data about outcomes, their information may be colored by social desirability on their part. Moreover, a potential Hawthorne effect in this situation cannot be ruled out, as noted above.

Appropriate adjustment for confounding. The evidence base is also limited by variations in the specific confounders and effect modifiers that investigators included or controlled for in their analyses. Omitting important confounders and effect modifiers, especially co-interventions in comparison arms, limits the interpretability and utility of the evidence from such investigations. Furthermore, using the studies that did account for confounders and effect modifiers is hampered by the lack of consistent definition and inclusion of key variables.

These deficiencies together appreciably limit the consistency and validity of the evidence. As a result, we found very few outcomes for which we were able to attribute at least a moderate strength of association, despite the relatively large body of evidence that we examined.

Limitations of the Review

We limited our search to articles published in English, primarily for reasons of time and resources. We excluded studies with samples sizes less than 40. We also limited our review to the United States, so our review does not address the nature, outcomes, or cost-effectiveness of CHW interventions, or the training of CHWs, elsewhere, particularly in developing countries. However, whether CHWs in the United States have the same professional and sociodemographic characteristics as CHWs elsewhere is not well understood, so for purposes of this review, constraining the included studies to those done in the United States may not have influenced our findings much.

Our decision to include studies with comparison arms for KQs 1 and 2 likely reduced our yield of studies for knowledge, behavior, and satisfaction. We note, however, that studies reporting on knowledge, behavior, and satisfaction alone, without additional data on health outcomes, do not add to the evidence on the critical question of whether CHW interventions improve health outcomes.

For similar time and resource reasons, we did not conduct dual independent, blinded review of articles for abstraction of information into evidence tables. Instead, one reviewer performed the initial review, and a second reviewer examined that input and recommended changes or corrections when needed. These two reviewers reconciled any differences by consensus discussion. These procedures are generally in accord with the usual procedures for the RTI-UNC Evidence-based Practice Center. To enable us to address any systematic bias in our work that the above approach may have introduced, however, we did apply dual independent review for assessing the quality of individual articles and grading the strength of evidence.

The paucity of "similar" articles, for populations, patient characteristics, settings, and outcomes measured, precluded any efforts to pool findings statistically.

Future Research Directions

The evidence on CHW interventions, although extensive, could benefit from future research. We discuss methodological improvements, design considerations, and substantive gaps below.

Methodological improvements. Future studies should consistently adopt four important steps: (1) give clear conceptual models that explain the expected mechanism of change initiated by the CHW intervention, (2) justify the choices of alternative or comparison steps; (3) specify *a priori* the primary outcomes to be measured; and (4) state hypotheses that build upon the conceptual framework and the choice of comparator. In addition, studies of CHW interventions should calculate required sample size to ensure that they are adequately powered and report on those power calculations.

Studies will also benefit from external evaluation of outcomes by investigators or data collection personnel blinded to the experimental and comparison groups rather than measurement of outcomes by CHWs. Such results would be less likely to be influenced by social desirability bias or other problems of internal validity of results. These benefits must be weighed against the practical difficulties of obtaining outcome data through external observers who (unlike CHWs) may not have a relationship with the community and may be viewed with a greater degree of suspicion.

A significant gap that future studies can address is adequate reporting of design, exposures, and outcomes. Adherence to standards such as STROBE[178] and CONSORT[179] will help to improve the strength of evidence provided by this literature. More generally, studies infrequently reported the gap between planned and actual protocol delivery; reporting the changes to protocol delivery is critical to a better understanding of how to scale up effective interventions.

Design considerations. CHW interventions will also benefit from the use of practical clinical trials. CHW interventions are examples of community-based research, which is vital for successful Type 2 translation – the adaption of evidence-based interventions to real-world settings.[180-182] Representative participants, multiple and diverse settings, clinically relevant alternative interventions, and a focus on measures relevant to decision makers, which include cost, quality of life, reach, and adoption) can enhance the utility of CHW studies for translational research.[183-185]

The RE-AIM framework[††]–reach, effectiveness, adoption, implementation, and maintenance–provides practical guidance for the development of measures of public health impact for CHW interventions.[186] Studies in our review focused on effectiveness, but they rarely provided quantitative assessments of these elements as measures of public health impact, despite their underlying reliance on models of community change in addition to individual change.

[††] According to the RE-AIM framework[186] (reach is defined as the absolute number, proportion, and representativeness of individuals who are willing to participate in a given initiative, intervention, or program. Efficacy or effectiveness is the impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes. Adoption is the absolute number, proportion, and representativeness of settings and intervention agents (people who deliver the program) who are willing to initiate a program. At the setting level, implementation refers to the intervention agents' fidelity to the various elements of an intervention's protocol, including consistency of delivery as intended and the time and cost of the intervention. At the individual level, implementation refers to clients' use of the intervention strategies. Maintenance is the extent to which a program or policy becomes institutionalized or part of the routine organizational practices and policies. Within the RE-AIM framework, maintenance also applies at the individual level. At the individual level, maintenance has been defined as the long-term effects of a program on outcomes after 6 or more months after the most recent intervention contact.

Investigators may find the RE-AIM formulation helpful in providing an analytic or logic model by which to design and conduct their studies.

Substantive gaps. We identified several substantive gaps in the field that warrant further attention. They fall into several groups: (1) outcomes themselves, specifically knowledge and satisfaction; (2) clinical areas, including obesity prevention and colorectal cancer screening; (3) populations addressed, and specifically interventions for certain underserved populations; and (4) costs and cost-effectiveness analysis. We discuss these points in greater detail below.

Theoretical models underpinning CHW interventions postulate changes in knowledge as precursors to changes in behavior, health outcomes, or health care utilization. Our review uncovered surprisingly few studies that examined changes in knowledge. Although the focus on health outcomes and health care utilization is appropriate, additional evaluation of changes in knowledge would help to clarify the processes of change initiated by CHWs; such information would then aid investigators in refining aspects of their interventions that are not as effective as expected.

CHW interventions serve as a bridge to the health care system for the underserved and are expected to serve as a tool to reduce disparities in access to and quality of care. Improved satisfaction of participants with CHW interventions is a necessary first step to successful implementation of the intervention and eventual reduction in disparities. As with the literature on knowledge and evaluation of public health impact, single-arm studies may well report satisfaction in greater depth; more rigorous comparative studies almost uniformly do not report on satisfaction. Further investigation of satisfaction, in addition to the existing and appropriate focus on behaviors, health outcomes, and health care utilization, can help illuminate the effects of CHW interventions on health disparities.

Despite evidence of effectiveness and recommendations from a number of organizations including the US Preventive Services Task Force and the American Cancer Society, colorectal cancer screening uptake has been suboptimal. Roughly 60 percent of adults older than 50 report having been screened for colorectal cancer.[187,188] In addition, even lower rates of screening have been reported in populations with high poverty rates[189] and in racial and ethnic minorities, including Hispanic and nonwhite populations.[190] We uncovered a single study focusing on CHW interventions for colorectal cancer;[107] future research in this area may be fruitful in identifying successful strategies for increasing screening rates for this deadly condition.

Existing CHW interventions often focus on underserved populations defined by race, ethnicity, or geographic location. Underserved groups such as low-income populations who are ineligible for Medicaid (such as low-income undocumented immigrants) and therefore at higher risk of being uninsured or the elderly may also potentially benefit from studies of CHW interventions. Important conditions for such investigators include mental health problems, dementia including Alzheimer's disease, and disabilities.

Future research on CHW interventions should focus on designing studies that prospectively collect data on program costs and effectiveness. Such work should aim to ensure that all necessary data are collected to perform and report on the cost-effectiveness or net costs of the CHW intervention as compared with baseline and alternative approaches. Program managers and local evaluators may benefit from checklists[130,131] and step-by-step instructions for designing and performing economic evaluations of health care and community prevention interventions.[191] The first step in collecting program cost data is to list the key program activities. The next steps are to determine the perspective of the cost analysis (e.g., program, patient, or societal perspective) and to list all the resources required to support each activity (e.g., labor, contracted services,

materials and supplies, building space, donated resources). The final steps are to create a system and forms for the ongoing collection of program cost data. Many resources are available to guide program managers through each step of the cost data collection process, including checklists published in Gold et al., 1996[130] and Haddix et al., 2003[131] and forms available online in Honeycutt et al., 2006.[191] These lists and forms can readily be adapted to capture all of the resources used or lost in providing CHW program activities. For example, to collect and analyze the costs of multiple arms of a CHW intervention program, a list of activities and resources to support the activities should be created for each arm. Based on these lists, worksheets should be developed specific to each intervention arm for use in prospective program data collection. After all data have been collected, costs for each intervention arm should be estimated and reported alongside other study outcomes. Economic evaluations of CHW interventions should also include sensitivity analyses to examine how uncertainty or variability in assumed costs or effectiveness affects program cost-effectiveness. For example, time spent by CHWs in delivering the intervention should be given a positive value in all economic evaluations of CHW interventions, but it may also be useful to explore the extent to which valuing time at the minimum wage makes the intervention look favorable as compared with valuing time at average wage rates for paid health care workers (e.g., licensed practical nurses or medical assistants).

In summary, future economic evaluations of CHW interventions should (1) evaluate the cost-effectiveness of the interventions as compared with baseline or alternative interventions, (2) model program outcomes to estimate the program's full impact on life years or quality-adjusted life years saved to improve comparability of results, and (3) include sensitivity analyses to examine the impact of variability in economic inputs on the cost-effectiveness of CHW interventions. Using such standard approaches to evaluate CHW interventions will improve the utility and comparability of study results; thus, such approaches will also aid decision makers in determining which health promotion and disease prevention activities to support.

In the absence of consistent data on intervention costs, we created a pragmatic measure in this report to approximate the intensity of resources used for CHW interventions. Consistent data on costs in future studies will ideally provide the best information to evaluate intervention intensity. In the interim, further development and validation of pragmatic measures of resource intensity can help policy makers shape the specifics of CHW interventions to provide the most meaningful benefit for improved health outcomes.

Conclusion

CHW interventions have the potential to address two fundamental imperatives in improving health care in the United States: the need to address substantial and persistent health care disparities and the need to translate more research into practice. CHWs, by virtue of their role as a bridge to the health care system, can help to disseminate widely efficacious interventions to populations that rarely benefit from health care advances.

Evidence about the effectiveness of CHWs relative to other choices for providing these types of health care and public health services is at best mixed. Some studies that we assessed demonstrated statistically significant benefits of the CHW approach compared with other choices; other studies showed conflicting results or no statistically significant differences between study arms. For the latter studies, one explanation is a lack of true benefit of the CHW arm relative to other choices. In addition, the choice of controls, including health professionals

and CHWs in a lesser capacity, inadequate study power, and the Hawthorne effect may explain the lack of significant differences between CHWs and alternatives.

We found limited evidence that suggests that CHW interventions can improve participant knowledge when compared with alternative approaches such as no intervention, media, mail, or usual care plus pamphlets. We found mixed evidence for CHW effectiveness on participant behavior change and health outcomes: some studies suggested that CHW interventions can result in greater improvements in participant behavior and health outcomes when compared with various alternatives, but other studies suggested that CHW interventions provide no statistically different benefits. Low or moderate strength of evidence suggests that CHWs can increase appropriate utilization for some conditions or preventive services.

The literature showed mixed results of effectiveness when analyzed by clinical context. CHW interventions had the greatest effectiveness relative to alternatives for some disease prevention, asthma management, cervical cancer screening, and mammography screening outcomes. CHW interventions were not significantly different from alternatives for clinical breast examination, self-breast examination, colorectal cancer screening, chronic disease management, or most maternal and child health interventions. We found insufficient evidence to evaluate the cost-effectiveness of CHW interventions relative to other public health interventions.

Our review suggests that CHWs may serve as a means of improving outcomes for underserved populations for some health conditions, as described above. Other health concerns require further research that addresses methodological limitations of prior studies to evaluate fully the effectiveness of CHW interventions.

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Appendix A: Exact Search Strings

Appendix A: Exact Search Strings

Medline Focused Search: April 2008

#2	Search "Community Health Aides"[Mesh] OR "health advisor" OR "health worker" OR "health advocate" OR "health paraprofessional" OR "community health representative" OR "outreach worker" OR dumas OR promotoras OR embajadores OR consejeras	6051
#3	Search "Community Health Aides"[Mesh] OR "health advisor" OR "health worker" OR "health advocate" OR "health paraprofessional" OR "community health representative" OR "outreach worker" OR dumas OR promotoras OR embajadores OR consejeras Limits: Humans, English	3031
#6	Search (("Outcome Assessment (Health Care)"[Mesh] OR "Pregnancy Outcome"[Mesh])) OR ("Treatment Outcome"[Mesh] OR "Outcome and Process Assessment (Health Care)"[Mesh] OR "Fatal Outcome"[Mesh]) Limits: Humans, English	369350
#7	Search #3 AND #6 Limits: Humans, English	175
#17	Search ((("Patient Education as Topic"[Mesh] OR "Patient Education Handout "[Publication Type])) OR "Professional-Patient Relations"[Mesh]) OR "Office Visits"[Mesh] Limits: Humans, English	109582
#18	Search #3 AND #17 Limits: Humans, English	90
#26	Search ("Costs and Cost Analysis"[Mesh] OR "Economics"[Mesh] OR "economics "[Subheading] OR "Cost-Benefit Analysis"[Mesh] OR "Cost Allocation"[Mesh] OR "Cost of Illness"[Mesh] OR "Cost Control"[Mesh] OR "Cost Sharing"[Mesh] OR "Cost Savings"[Mesh] OR "Health Care Costs"[Mesh] OR "Direct Service Costs"[Mesh] OR "Hospital Costs"[Mesh] OR "Employer Health Costs"[Mesh] OR "Drug Costs"[Mesh]) Limits: Humans, English	257114
#27	Search #3 AND #26 Limits: Humans, English	254
#28	Search United States Limits: Humans, English	606881
#29	Search #27 AND #28 Limits: Humans, English	71
#33	Search (("Education"[Mesh] OR "education "[Subheading])) OR "Education, Professional"[Mesh] OR training Limits: Humans, English	370579
#34	Search #3 AND #33 Limits: Humans, English	1013
#35	Search #34 AND #28 Limits: Humans, English	241
#41	Search ((((("Randomized Controlled Trials as Topic"[Mesh] OR "Randomized Controlled Trial "[Publication Type])) OR "Single-Blind Method"[Mesh]) OR "Double-Blind Method"[Mesh]) OR "Random Allocation"[Mesh] Limits: Humans, English	303728
#42	Search #3 AND #41 Limits: Humans, English	165
#44	Search control OR controlled Limits: Humans, English	1368901
#45	Search #3 AND #44 Limits: Humans, English	908

Medline unduplicated records = 640

Cochrane April 2008
Analogous terms
= 11*
*Unduplicated in Medline search

Cochrane Clinical Trials Registry April 2008
Analogous terms
= 41*
Unduplicated in Medline search

CINAHL April 2008
Analogous terms
KQ1 = 61*
KQ2 = 45*
KQ3 = 21*
KQ4 = 21*
*Unduplicated in Medline search

Total unduplicated across all searches = 815

Update search November 2008

Medline = 38*
Cochrane = 0
Cochrane Clinical Trials Registry = 9*
CINAHL = 13*
*Unduplicated in previous searches

Supplemental search: “Patient Navigator”
Medline = 21
CINAHL = 26
Cochrane – 8

Total new (unduplicated across all new and prior searches) = 25

Appendix B: Abstract Forms

Appendix B. Abstraction Forms

Abstract Review Form (Originally in Excel)

Column	Question
A	Refid
B	Author, Year
C	Original research (Exclude editorials, commentaries, letters to the editor, reviews etc)
D	Includes community health worker component
E	Study published in English?
F	Is this study located in the US?
G	If not in US, where?
H	RCT and n ≥ 40
I	Cohorts with comparison and n ≥ 40
J	Cost or cost-benefit analysis
K	Exclude ("No" on one or more questions in Columns C - I)?
L	Name of intervention (if provided)
M	Retain for - Background or discussion or review of references other….
N	Comments
O	Reviewer initials

Full-text review form (Originally in EXCEL)

Column	Question
A	Refid
B	Author, year
C	Reviewer Initials
D	Abstract only
E	Wrong population (non-US)
F	Wrong Outcomes (no patient related health or economic outcomes)
G	Study not about CHW
H	Wrong publication type (review or letter to the editor)
I	Sample size too small (<40)
J	No comparison arm/data
K	Comparison arm/data not about CHW or CHW alone
L	CHW component insufficiently described to distinguish between CHW and other peer led models
M	Other?
N	Exclude but save for background, cost, training or setting, pick one! (only if yes for at least one column D-M)
O	Should be included for KQ 4a (What are characteristics of training for community health workers in the outpatient setting?)
P	**Should be included!**
Q	Need more information
R	Related citations
S	Left blank
T	How do community health workers interact with clients? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with clients, and length of followup?
U	What is the impact of community health workers on outcomes, particularly knowledge, behavior, satisfaction, health outcomes, and health care utilization?
V	What is known about the cost-effectiveness of community health workers for improving

	health outcomes?
W	Are particular training characteristics associated with improved outcomes for patients?
X	Study design
Y	Comparisons (identify arms) i
Z	Health condition of interest
AA	Name of intervention
AB	Notes- including additional citations

Abstraction Form for Evidence Tables (Originally in EXCEL)

Column	Category	Question
A	Identifying information	Reviewer Initials
B		Author Year {#RefID}
C		Trial Name
D		Objective or aim
E	Setting	Setting: Geography
F		Setting: Organizational, Social, Cultural
G		What is the community? (neighborhood, disease etc.)
H		Study design: RCT/Prospective cohort/Retropective cohort/Prospective cohort with historic control/case-control/case series/other
I		Start date- year
J		Duration - length
K	N	Eligible
L		Enrolled
M		Randomized
N		Completers
O		Withdrawals or dropouts
P		Health condition of interest
Q	Inclusion/Exclusion	Inclusion criteria (include run-in details)
R		Exclusion criteria
S	Groups	Groups (please use- G1: G2: G3: etc.)
T		Describe interventions (if necessary)
U		n of each group
V	Community Health Worker	CHW definition:
W		CHW training:
X		Place of service
Y		Title of CHW (specify: lay health advisor, community health worker, etc)
Z		Paid or volunteer
AA		Relationship with the community (rshared race, ethnicity, disease condition, etc)
AB	Community Health Worker (continued)	N of CHW
AC		Supervision of CHW (who supervises [clinician vs non clinician] and frequency of supervision)
ad		Prior training of CHW
AE		Type of service
AF		Type of educational materials utilized
AG		Duration of interaction with clients
AH		Length of followup

Column	Category	Question
AI	Baseline characteristics of patients	Age (mean)
AJ		Sex (% female)
AK		Race (%)
AL		Other?
AM	Recruiting and retention	Role of CHW in recruiting and retention
AN		Recruitment: Need rates for each group
AO		Retention: Need rates for each group
AP	Knowledge and attitude	Measure (Is it valdidated?)
AQ		Results
AR		Measure (Is it valdidated?)
AS		Results
AT		Measure (Is it valdidated?)
AU		Results
AV	Quality of Life	Measure (Is it valdidated?)
AW		Results
AX		Measure (Is it valdidated?)
AY		Results
AZ		Measure (Is it valdidated?)
BA		Results
BB	Health Outcomes	Measure (Is it valdidated?)
BC		Results
BD		Measure (Is it valdidated?)
BE		Results
BF		Measure (Is it valdidated?)
BG		Results
BH	Healthcare utilization	Measure (Is it valdidated?)
BI		Results
BJ		Measure (Is it valdidated?)
BK		Results
BL		Measure (Is it valdidated?)
BM		Results
BN	Costs (Economics)	Measure (Is it valdidated?)
BO		Results
BP		Measure (Is it valdidated?)
BQ		Results
BR		Explanation of overall outcomes.
BS		Quality rating: Good / fair / poor
BT	Applicable key questions	KQ 1 - How do community health workers interact with clients? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with clients, and length of followup?
BU		KQ 2 - What is the impact of community health workers on outcomes, particularly knowledge,

Column	Category	Question
		behavior, satisfaction, health outcomes, and health care utilization?
BV		KQ 3 - What is known about the cost-effectiveness of community health workers for improving health outcomes?
BW		KQ 4a - What are characteristics of training for community health workers in the outpatient setting?
BX		KQ 4b - Are particular training characteristics associated with improved outcomes for patients?
BY	Additional outcomes (please add more here at the end if you must!)	Measure (Is it validated?)
BZ		Results
CA		Measure (Is it validated?)
CB		Results
CC		Measure (Is it validated?)
CD		Results
CE		Measure (Is it validated?)
CF		Results
CG		The gulf between the rest and KQ4a
CH		(Blank)
CI	Training Characteristics	Eligibility for CHW training (inclusion criteria for CHW)
CJ		Input of CHW in curriculum development
CK		Training on cultural competency (describe content; instructional method; number of sessions; testing)
CL	Training Characteristics (continued)	Training on recruitment and retention process skills, e.g., motivational interviewing (describe content; instructional method; number of sessions; testing)
CM		Training on intake/assessment, (describe content; instructional method; number of sessions; testing)
CN		Training on protocol delivery, i.e., recruitment, followup, fidelity to the intervention, referrals (describe content; instructional method; number of sessions; testing)
CO		Training on health topic (describe content; instructional method; number of sessions; testing)
CP		Training on evaluation (describe content; instructional method; number of sessions; testing)
CQ		Other training (describe type)
CR		Other training content; instructional method; number of sessions; testing
CS		Other training (describe type)
CT		Other training content; instructional method; number of sessions; testing
CU		Name of curriculum
CV		Availability
CW		Evaluation and testing results of the curriculum (improvements in CHW knowledge)
CX		Certification (any certication [yes/no/nr]; if yes, name of certifying body

Quality Review for randomized controlled trials (Originally in EXCEL)

Column	Category	Question
A		**REFID**
B		**Reviewer initial**
C	Background/context	Is the hypothesis/aim/objective of the study described? Yes No
D	Sample Definition and Selection	Are the inclusion/exclusion criteria clearly stated (does not require the reader to infer)? [Abstractor: use "Partially" if only some criteria are stated clearly.] Yes Partially No
E		Did the authors report conducting a power analysis or some other basis for determining the adequacy of study group sizes for the primary outcome(s) being abstracted? Yes No
F	Randomization	Was the assignment to the treatment groups adequately randomized? Yes (Adequate approaches to sequence generation, i.e., computer-generated random numbers, random numbers tables) No (Inadequate approaches to sequence generation, i.e., use of alternation, case record numbers, birth dates or week days) NR
G		Was allocation of randomization adequately concealed? Yes (Adequate approaches to concealment of randomisation, i.e., centralised or pharmacy-controlled randomisation, serially-numbered identical containers, on-site computer based system with a randomisation sequence that is not readable until allocation, other approaches with robust methods to prevent foreknowledge of the allocation sequence to clinicians and patients) No (Inadequate approaches to concealment of randomisation, i.e., use of alternation, case record numbers, birth dates or week days, open random numbers lists, serially numbered envelopes (even sealed opaque envelopes can be subject to manipulation) NA (study not adequately randomized) NR
H	Interventions/Exposure	What is the level of detail in describing the intervention or exposure? Low (unclear, many details missing) Medium (pretty clear, most details provided) High (very clear, all required details provided)

Column	Category	Question
I		Is usual clinical care (sometimes called standard care) described? Yes No NA (not an intervention study)
J	Contamination	Did researchers rule out any impact from an unintended intervention/exposure that might bias results, e.g., through multivariate analysis, stratification, or subgroup analysis? Yes No NA (no unintended interventions reported)
K		Could variation from the protocol have compromised the findings of study? Yes (variation from protocol exists and could have compromised findings) No (variation from protocol exists, but unlikely to have compromised findings) Cannot determine (no variation from protocol reported) NA (study does not require protocol, or no variation from protocol exists)
L	Blinding	Outcome assessors masked? Yes No Yes, but method not described Not reported
M		Care provider masked? Yes No Yes, but method not described Not reported NA
N		Patient masked? Yes No Yes, but method not described Not reported
O	Soundness of information	Are interventions/exposures measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
P		Are outcomes measured in a valid and reliable manner?

Column	Category	Question
		Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
Q	Follow-up	Is the length of time following the intervention/exposure sufficient to support the conclusions of the study regarding outcomes? Yes No
R		Did attrition from any group exceed 20 percent (after randomization)? Yes - how much? No Cannot determine
S		Did attrition differ between groups by more than 15 percentage points (after randomization)? Yes - how much? No Cannot determine
T	Analysis Comparability	Are baseline characteristics similar in exposed and comparison cohorts? Yes No Cannot determine
U		Does the analysis control for baseline differences? Yes No Cannot determine NA (no baseline differences reported)
V	Analysis Outcome	Is the analysis conducted on an intention-to-treat (ITT) basis, that is, the intervention allocation status rather than the actual intervention received? Yes No
W		Were there any post-randomization exclusions? Yes (how many?) No Cannot tell
X	Interpretation	Are conclusions supported by results with possible bias and limitations taken into consideration? Yes Partially

Column	Category	Question
		No
Y	Quality	Good Fair Poor

Quality Review for observational trials (Originally in EXCEL)

Column	Category	Question
A		**REFID**
B		**Reviewer initial**
C	Background/ Context	Is the hypothesis/aim/objective of the study described? Yes No
D	Sample Definition and Selection	Are the inclusion/exclusion criteria clearly stated (does not require the reader to infer)? [Abstractor: use "Partially" if only some criteria are stated clearly.] Yes Partially No
E		Did the authors report conducting a power analysis or some other basis for determining the adequacy of study group sizes for the primary outcome(s) being abstracted? Yes No
F	Interventions/ Exposure	What is the level of detail in describing the intervention or exposure? Intensity, duration, frequency, setting and timing Low (unclear, many details missing) Medium (pretty clear, most details provided) High (very clear, all required details provided)
G		Is usual clinical care (sometimes called standard care) described? Yes No NA (not an intervention study)
H	Contamination	Did researchers rule out any impact from an unintended intervention/exposure that might bias results, e.g., through multivariate analysis, stratification, or subgroup analysis? Yes No NA (no unintended interventions reported)
I		Could variation from the protocol have compromised the findings of study? Yes (variation from protocol exists and could have compromised findings) No (variation from protocol exists, but unlikely to have compromised findings) Cannot determine (no variation from protocol reported) NA (study does not require protocol, or no variation from protocol exists)
J	Blinding	Were the outcome assessors blinded to the intervention or

Column	Category	Question
		exposure status of participants? Yes No NA (not an intervention study)
K	Soundness of information	Are interventions/exposures measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
L		Are outcomes measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
M	Follow-up	In cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention/exposure and outcome the same for cases and controls? [Abstractor: Where follow-up was the same for all study patients the answer is yes. If different lengths of follow-up were adjusted by, for example, survival analysis, the answer is yes. Studies where differences in follow-up are ignored should be answered NA.] Yes No Cannot determine NA (cross-sectional)
N		Is the length of time following the intervention/exposure sufficient to support the conclusions of the study regarding outcomes? Yes No NA (cross-sectional)
O		Did attrition from any group exceed 20 percent (after allocation of treatment)? Yes - how much? No Cannot determine NA (cross sectional)
P		Did attrition differ between groups by more than 15 percentage points (after allocation of treatment)?

Column	Category	Question
		Yes - how much? No Cannot determine NA (cross sectional)
Q	Analysis comparability	Are baseline characteristics similar in exposed and comparison cohorts? Yes No Cannot determine NA (case series)
R		Does the analysis control for baseline differences? Yes No Cannot determine NA (no baseline differences reported)
S		Were the important confounding and modifying variables taken into account in the design and analysis (e.g., through matching, stratification, or statistical adjustment)? Yes Partially No Cannot determine
T	Analysis Outcome	Is the analysis conducted on an intention-to-treat (ITT) basis, that is, the intervention allocation status rather than the actual intervention received? Yes No
U		Is the impact of loss to follow-up (or differential loss to followup) assessed (e.g. through sensitivity analysis or other intention-to-treat adjustment methods? Yes No Cannot determine NA (cross-sectional or case-control selected on outcome)
V		Are the statistical methods used to assess the primary outcomes appropriate to the data? [Abstractor: The statistical techniques used must be appropriate to the data. For example, non-parametric methods should be used for small sample sizes (N<30). If studies have not accounted for differences between the unit of allocation and the unit of analysis, (e.g., through mixed models or generalized estimating equations for analysis of individual covariates or through t-tests or weighted t-tests for cluster-level analysis) then the answer is no. If outcomes are rare and little or no statistical analysis has been conducted, answer yes if studies have accounted for alternative causes other than the

Column	Category	Question
		intervention/exposure. For details on whether specific statistical tests are appropriate, go to http://bama.ua.edu/~jleeper/627/choosestat.html.4] Yes Partially No NA (not reported)
W		For cohort studies only, if the outcome has a greater than 10 percent prevalence, is the risk ratio and relative risk calculated directly (not using logistic regression)? Yes No NA (not a cohort study)
X		Does the study report appropriate estimates of the random variability in the data for the main outcomes?4 [Abstractors: In non-normally distributed data the inter-quartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported.] Yes No
Y	Interpretation	Are conclusions supported by results with possible bias and limitations taken into consideration? Yes Partially No
Z	Quality	Good Fair Poor

Appendix B: Abstract Forms

Appendix B. Abstraction Forms

Abstract Review Form (Originally in Excel)

Column	Question
A	Refid
B	Author, Year
C	Original research (Exclude editorials, commentaries, letters to the editor, reviews etc)
D	Includes community health worker component
E	Study published in English?
F	Is this study located in the US?
G	If not in US, where?
H	RCT and n ≥ 40
I	Cohorts with comparison and n ≥ 40
J	Cost or cost-benefit analysis
K	Exclude ("No" on one or more questions in Columns C - I)?
L	Name of intervention (if provided)
M	Retain for - Background or discussion or review of references other….
N	Comments
O	Reviewer initials

Full-text review form (Originally in EXCEL)

Column	Question
A	Refid
B	Author, year
C	Reviewer Initials
D	Abstract only
E	Wrong population (non-US)
F	Wrong Outcomes (no patient related health or economic outcomes)
G	Study not about CHW
H	Wrong publication type (review or letter to the editor)
I	Sample size too small (<40)
J	No comparison arm/data
K	Comparison arm/data not about CHW or CHW alone
L	CHW component insufficiently described to distinguish between CHW and other peer led models
M	Other?
N	Exclude but save for background, cost, training or setting, pick one! (only if yes for at least one column D-M)
O	Should be included for KQ 4a (What are characteristics of training for community health workers in the outpatient setting?)
P	**Should be included!**
Q	Need more information
R	Related citations
S	Left blank
T	How do community health workers interact with clients? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with clients, and length of followup?
U	What is the impact of community health workers on outcomes, particularly knowledge, behavior, satisfaction, health outcomes, and health care utilization?
V	What is known about the cost-effectiveness of community health workers for improving

	health outcomes?
W	Are particular training characteristics associated with improved outcomes for patients?
X	Study design
Y	Comparisons (identify arms) i
Z	Health condition of interest
AA	Name of intervention
AB	Notes- including additional citations

Abstraction Form for Evidence Tables (Originally in EXCEL)

Column	Category	Question
A	Identifying information	Reviewer Initials
B		Author Year {#RefID}
C		Trial Name
D		Objective or aim
E	Setting	Setting: Geography
F		Setting: Organizational, Social, Cultural
G		What is the community? (neighborhood, disease etc.)
H		Study design: RCT/Prospective cohort/Retropective cohort/Prospective cohort with historic control/case-control/case series/other
I		Start date- year
J		Duration - length
K	N	Eligible
L		Enrolled
M		Randomized
N		Completers
O		Withdrawals or dropouts
P		Health condition of interest
Q	Inclusion/Exclusion	Inclusion criteria (include run-in details)
R		Exclusion criteria
S	Groups	Groups (please use- G1: G2: G3: etc.)
T		Describe interventions (if necessary)
U		n of each group
V	Community Health Worker	CHW definition:
W		CHW training:
X		Place of service
Y		Title of CHW (specify: lay health advisor, community health worker, etc)
Z		Paid or volunteer
AA		Relationship with the community (rshared race, ethnicity, disease condition, etc)
AB	Community Health Worker (continued)	N of CHW
AC		Supervision of CHW (who supervises [clinician vs non clinician] and frequency of supervision)
ad		Prior training of CHW
AE		Type of service
AF		Type of educational materials utilized
AG		Duration of interaction with clients
AH		Length of followup

Column	Category	Question
AI	Baseline characteristics of patients	Age (mean)
AJ		Sex (% female)
AK		Race (%)
AL		Other?
AM	Recruiting and retention	Role of CHW in recruiting and retention
AN		Recruitment: Need rates for each group
AO		Retention: Need rates for each group
AP	Knowledge and attitude	Measure (Is it valdidated?)
AQ		Results
AR		Measure (Is it valdidated?)
AS		Results
AT		Measure (Is it valdidated?)
AU		Results
AV	Quality of Life	Measure (Is it valdidated?)
AW		Results
AX		Measure (Is it valdidated?)
AY		Results
AZ		Measure (Is it valdidated?)
BA		Results
BB	Health Outcomes	Measure (Is it valdidated?)
BC		Results
BD		Measure (Is it valdidated?)
BE		Results
BF		Measure (Is it valdidated?)
BG		Results
BH	Healthcare utilization	Measure (Is it valdidated?)
BI		Results
BJ		Measure (Is it valdidated?)
BK		Results
BL		Measure (Is it valdidated?)
BM		Results
BN	Costs (Economics)	Measure (Is it valdidated?)
BO		Results
BP		Measure (Is it valdidated?)
BQ		Results
BR		Explanation of overall outcomes.
BS		Quality rating: Good / fair / poor
BT	Applicable key questions	KQ 1 - How do community health workers interact with clients? Specifically, what is the place of service, type of service, type of educational materials used, duration of interaction with clients, and length of followup?
BU		KQ 2 - What is the impact of community health workers on outcomes, particularly knowledge,

Column	Category	Question
		behavior, satisfaction, health outcomes, and health care utilization?
BV		KQ 3 - What is known about the cost-effectiveness of community health workers for improving health outcomes?
BW		KQ 4a - What are characteristics of training for community health workers in the outpatient setting?
BX		KQ 4b - Are particular training characteristics associated with improved outcomes for patients?
BY	Additional outcomes (please add more here at the end if you must!)	Measure (Is it validated?)
BZ		Results
CA		Measure (Is it validated?)
CB		Results
CC		Measure (Is it validated?)
CD		Results
CE		Measure (Is it validated?)
CF		Results
CG		The gulf between the rest and KQ4a
CH		(Blank)
CI	Training Characteristics	Eligibility for CHW training (inclusion criteria for CHW)
CJ		Input of CHW in curriculum development
CK		Training on cultural competency (describe content; instructional method; number of sessions; testing)
CL	Training Characteristics (continued)	Training on recruitment and retention process skills, e.g., motivational interviewing (describe content; instructional method; number of sessions; testing)
CM		Training on intake/assessment, (describe content; instructional method; number of sessions; testing)
CN		Training on protocol delivery, i.e., recruitment, followup, fidelity to the intervention, referrals (describe content; instructional method; number of sessions; testing)
CO		Training on health topic (describe content; instructional method; number of sessions; testing)
CP		Training on evaluation (describe content; instructional method; number of sessions; testing)
CQ		Other training (describe type)
CR		Other training content; instructional method; number of sessions; testing
CS		Other training (describe type)
CT		Other training content; instructional method; number of sessions; testing
CU		Name of curriculum
CV		Availability
CW		Evaluation and testing results of the curriculum (improvements in CHW knowledge)
CX		Certification (any certication [yes/no/nr]; if yes, name of certifying body

Quality Review for randomized controlled trials (Originally in EXCEL)

Column	Category	Question
A		**REFID**
B		**Reviewer initial**
C	Background/context	Is the hypothesis/aim/objective of the study described? Yes No
D	Sample Definition and Selection	Are the inclusion/exclusion criteria clearly stated (does not require the reader to infer)? [Abstractor: use "Partially" if only some criteria are stated clearly.] Yes Partially No
E		Did the authors report conducting a power analysis or some other basis for determining the adequacy of study group sizes for the primary outcome(s) being abstracted? Yes No
F	Randomization	Was the assignment to the treatment groups adequately randomized? Yes (Adequate approaches to sequence generation, i.e., computer-generated random numbers, random numbers tables) No (Inadequate approaches to sequence generation, i.e., use of alternation, case record numbers, birth dates or week days) NR
G		Was allocation of randomization adequately concealed? Yes (Adequate approaches to concealment of randomisation, i.e., centralised or pharmacy-controlled randomisation, serially-numbered identical containers, on-site computer based system with a randomisation sequence that is not readable until allocation, other approaches with robust methods to prevent foreknowledge of the allocation sequence to clinicians and patients) No (Inadequate approaches to concealment of randomisation, i.e., use of alternation, case record numbers, birth dates or week days, open random numbers lists, serially numbered envelopes (even sealed opaque envelopes can be subject to manipulation) NA (study not adequately randomized) NR
H	Interventions/Exposure	What is the level of detail in describing the intervention or exposure? Low (unclear, many details missing) Medium (pretty clear, most details provided) High (very clear, all required details provided)

Column	Category	Question
I		Is usual clinical care (sometimes called standard care) described? Yes No NA (not an intervention study)
J	Contamination	Did researchers rule out any impact from an unintended intervention/exposure that might bias results, e.g., through multivariate analysis, stratification, or subgroup analysis? Yes No NA (no unintended interventions reported)
K		Could variation from the protocol have compromised the findings of study? Yes (variation from protocol exists and could have compromised findings) No (variation from protocol exists, but unlikely to have compromised findings) Cannot determine (no variation from protocol reported) NA (study does not require protocol, or no variation from protocol exists)
L	Blinding	Outcome assessors masked? Yes No Yes, but method not described Not reported
M		Care provider masked? Yes No Yes, but method not described Not reported NA
N		Patient masked? Yes No Yes, but method not described Not reported
O	Soundness of information	Are interventions/exposures measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
P		Are outcomes measured in a valid and reliable manner?

Column	Category	Question
		Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
Q	Follow-up	Is the length of time following the intervention/exposure sufficient to support the conclusions of the study regarding outcomes? Yes No
R		Did attrition from any group exceed 20 percent (after randomization)? Yes - how much? No Cannot determine
S		Did attrition differ between groups by more than 15 percentage points (after randomization)? Yes - how much? No Cannot determine
T	Analysis Comparability	Are baseline characteristics similar in exposed and comparison cohorts? Yes No Cannot determine
U		Does the analysis control for baseline differences? Yes No Cannot determine NA (no baseline differences reported)
V	Analysis Outcome	Is the analysis conducted on an intention-to-treat (ITT) basis, that is, the intervention allocation status rather than the actual intervention received? Yes No
W		Were there any post-randomization exclusions? Yes (how many?) No Cannot tell
X	Interpretation	Are conclusions supported by results with possible bias and limitations taken into consideration? Yes Partially

Column	Category	Question
		No
Y	Quality	Good Fair Poor

Quality Review for observational trials (Originally in EXCEL)

Column	Category	Question
A		**REFID**
B		**Reviewer initial**
C	Background/ Context	Is the hypothesis/aim/objective of the study described? Yes No
D	Sample Definition and Selection	Are the inclusion/exclusion criteria clearly stated (does not require the reader to infer)? [Abstractor: use "Partially" if only some criteria are stated clearly.] Yes Partially No
E		Did the authors report conducting a power analysis or some other basis for determining the adequacy of study group sizes for the primary outcome(s) being abstracted? Yes No
F	Interventions/ Exposure	What is the level of detail in describing the intervention or exposure? Intensity, duration, frequency, setting and timing Low (unclear, many details missing) Medium (pretty clear, most details provided) High (very clear, all required details provided)
G		Is usual clinical care (sometimes called standard care) described? Yes No NA (not an intervention study)
H	Contamination	Did researchers rule out any impact from an unintended intervention/exposure that might bias results, e.g., through multivariate analysis, stratification, or subgroup analysis? Yes No NA (no unintended interventions reported)
I		Could variation from the protocol have compromised the findings of study? Yes (variation from protocol exists and could have compromised findings) No (variation from protocol exists, but unlikely to have compromised findings) Cannot determine (no variation from protocol reported) NA (study does not require protocol, or no variation from protocol exists)
J	Blinding	Were the outcome assessors blinded to the intervention or

Column	Category	Question
		exposure status of participants? Yes No NA (not an intervention study)
K	Soundness of information	Are interventions/exposures measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
L		Are outcomes measured in a valid and reliable manner? Objective (clinical reports, lab findings, previously validated measures) Objective measure, not validated Prospective documentation (including self-report in daily diaries) Retrospective self-report (patient/participant response) Not reported
M	Follow-up	In cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention/exposure and outcome the same for cases and controls? [Abstractor: Where follow-up was the same for all study patients the answer is yes. If different lengths of follow-up were adjusted by, for example, survival analysis, the answer is yes. Studies where differences in follow-up are ignored should be answered NA.] Yes No Cannot determine NA (cross-sectional)
N		Is the length of time following the intervention/exposure sufficient to support the conclusions of the study regarding outcomes? Yes No NA (cross-sectional)
O		Did attrition from any group exceed 20 percent (after allocation of treatment)? Yes - how much? No Cannot determine NA (cross sectional)
P		Did attrition differ between groups by more than 15 percentage points (after allocation of treatment)?

Column	Category	Question
		Yes - how much? No Cannot determine NA (cross sectional)
Q	Analysis comparability	Are baseline characteristics similar in exposed and comparison cohorts? Yes No Cannot determine NA (case series)
R		Does the analysis control for baseline differences? Yes No Cannot determine NA (no baseline differences reported)
S		Were the important confounding and modifying variables taken into account in the design and analysis (e.g., through matching, stratification, or statistical adjustment)? Yes Partially No Cannot determine
T	Analysis Outcome	Is the analysis conducted on an intention-to-treat (ITT) basis, that is, the intervention allocation status rather than the actual intervention received? Yes No
U		Is the impact of loss to follow-up (or differential loss to followup) assessed (e.g. through sensitivity analysis or other intention-to-treat adjustment methods? Yes No Cannot determine NA (cross-sectional or case-control selected on outcome)
V		Are the statistical methods used to assess the primary outcomes appropriate to the data? [Abstractor: The statistical techniques used must be appropriate to the data. For example, non-parametric methods should be used for small sample sizes (N<30). If studies have not accounted for differences between the unit of allocation and the unit of analysis, (e.g., through mixed models or generalized estimating equations for analysis of individual covariates or through t-tests or weighted t-tests for cluster-level analysis) then the answer is no. If outcomes are rare and little or no statistical analysis has been conducted, answer yes if studies have accounted for alternative causes other than the

Column	Category	Question
		intervention/exposure. For details on whether specific statistical tests are appropriate, go to http://bama.ua.edu/~jleeper/627/choosestat.html.4] Yes Partially No NA (not reported)
W		For cohort studies only, if the outcome has a greater than 10 percent prevalence, is the risk ratio and relative risk calculated directly (not using logistic regression)? Yes No NA (not a cohort study)
X		Does the study report appropriate estimates of the random variability in the data for the main outcomes?4 [Abstractors: In non-normally distributed data the inter-quartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported.] Yes No
Y	Interpretation	Are conclusions supported by results with possible bias and limitations taken into consideration? Yes Partially No
Z	Quality	Good Fair Poor

Appendix C: Evidence Tables

List of Abbreviations

AA	African American
AIDS	Acquired immune deficiency syndrome
b/c	because
BF	breastfeeding
BMI	body mass index
BP	blood pressure
BSN	bachelor of science - Nursing
BW	body weight
CAD	Coronary artery disease
CBC	community based care
CD	cannot determine
CES	Community environmental specialists
CES-D	Center for Epidemiologic Studies Depression Scale
CG	control group
CHD	coronary heart disease
CHO	Carbohydrates
CHW(s)	community health worker(s)
CPEP	Child Parent Enrichment Program
DR	Doctor
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised
EAG	Enhanced Anticipatory Guidance
EG	experimental group
EPC	evidence-based practice center
EPC	"enhanced" primary care
ER	emergency room
ETS	Environmental tobacco smoke
FPL	federal poverty level
FTT	Failure to thrive
g	gram
GED	general education degree
GHC	Group Health Cooperative of Puget Sound
gm	gram
h	hour
HbA1c	Glycosylated (or glycated) hemoglobin
HBP	high blood pressure
HIV	Human immunodeficiency virus
HMO	Health Maintenance Organization
HS	high school
HSP	Hawaii's Health Start Program
ht	height
HTN	hypertension
hx	history
ICD	International Classification of Diseases
IHDP	Infant Health and Development Program
IL	Illinois
ITT	intent to treat
JNC-VI	Sixth Report of Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure
kcal	kilocalorie
LBW	low birth weight
LDL	Low-density lipoprotein
LHA	Lay Health Advisor
MD	medical doctor; Maryland
mg/dl	milligrams/deciliter
MI	Michigan
min	minute
mmol/L	millimoles/liter
mo	month
N	number

NA	not applicable
NCM	nurse case manager
NDS	Nutrition Data System
NNT	number needed to treat
NP	nurse practitioner
NR	not reported
NS	not significant
NW	northwest
NY	New York
NYC	New York City
PCP	primary care physician
PI	principal investigator
PKU	phenylketonuria
PSI	Psychiatric Symptom Index
RCT	randomized controlled trials
REACH	Resources, Education and Care in Home
RIA	radioimmunoassay
RN	registered nurse
SBP	systolic blood pressure
SD	standard deviation
SE	standard error
SLE	stressful life events
TPV	tailored print and video
UC	usual care
VLBW	very low birth weight
WATCH	Wellness for African Americans Through Churches Project
WIC	Women, Infants, and Children
wk	week
y	year
y/o	years old
YMCA	Young Men’s Christian Association
yr	year

Evidence Table C-1. Key Questions 1, 2, and 3

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Andersen et al., 2000 **Trial Name** Community Trial of Mammography Promotion **Objective or Aim** To learn how best to increase use of screening among women aged 50 to 80 **Geography** 40 communities in predominantly rural Washington state, selected by zipcodes corresponding to towns or clusters of towns **Organization** Community or telephone **Type of Community** Rural neighborhoods **Study Design** RCT of communities **Start Date** NR **Duration** 2 years	**Eligible (N)** 10,967 at baseline 8,907 at followup **Enrolled (N)** 10,967 **Randomized (N)** 14,080 **Completers (N)** 6,685 **Withdrawals or Dropouts (N)** 2,222 of N eligible at followup **Health Condition of Interest** Mammography **Inclusion Criteria** Women age 50 to 80 living in one of 40 communities **Exclusion Criteria** History of breast cancer **Groups** G1: Control G2: Community activities G3: Individual counseling G4: Both **Interventions** G1: Control, no intervention reported G2: Community activities - developing social norms G3: Individual counseling - telephone G4: Community activities and individual couseling **Group (N)** G1: 1,688 G2: 1,630 G3: 1,650 G4: 1,717	**Title of CHW** Volunteer **Paid or Volunteer** Volunteer **Relationship with Community** Shared community **CHW (N)** NR **Supervision of CHW** Non-clinician- field research coordinators **Prior Training** NR **Type of Service** Barrier-specific telephone counseling to promote screening **Type of Educational Materials Used** NR **Duration of Interaction with Clients** One interaction (time of interaction NR) **Length of Follow-up** 2 years	**Age (mean)** NR **Sex (% female)** 100 **Race (%)** 97% white **Other** NR **Role of CHW in Recruiting and Retention** None **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Increase in mammography rates (self-reported) **Results** No significant differences between intervention groups and control; no significant differences for individual counseling or combined individual couseling and communitities activities, but increased mammography use by regular users between baseline and followup for community activities arm by 2.9% ($P = 0.01$). **Measure 2** Increase in mammography rates (self-reported) **Results** Among under-users at baseline, intervention more effective than control in increasing mammography rates amon women with in communities without a female physician (10% to 16%; $P < 0.05$), and among women with no health insurance (10% to 23%; $P \leq 0.05$); NS effect for community attitudes on mammography, age, time taken to get a medical appointment, financial comfort, mammography facility in community, income, education, proportion of Hispanic population, urban/rural, size of community, and employment status among regular users, intervention was more effective than control in preventing relapse among women who needed > 2 hours to get a medical appointment. NS effect for community attitudes on mammography, age, use of mammography in community, female MD, financial comfort, mammography facility in community, income, education, proportion of Hispanic population, urban/rural, size of community, and employment status	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Auslander et al., 2002; Williams et al., 2001 **Trial Name** Eat Well Live Well Nutrition Program **Objective or Aim** A culturally specific, peer-led dietary change program designed to reduce risk of type 2 diabetes in low-income African-American women. **Geography** Large Midwestern city in Missouri **Organization** Targeted neighborhoods **Type of Community** Race, Neighborhood **Study Design** RCT **Start Date** NR **Duration** 3 months	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** NR **Completers (N)** 294 **Withdrawals or Dropouts (N)** 104 **Health Condition of Interest** Diabetes Prevention **Inclusion Criteria** African-American women ages 25–55 years and living in neighborhoods **Exclusion Criteria** Pregnancy, diabetes, BMI < 27 **Groups** G1: Treatment G2: Control **Interventions** G1: Six group sessions (approximately six to eight participants per group) and six individual sessions targeting stages of change to tailor dietary pattern with a peer educator, meeting weekly over a 3-month period; duration of each session 45-90 minutes G2: Control - a book **Group (N)** G1: Treatment 138 G2: Control 156	**Title of CHW** Peer educators **Paid or Volunteer** NR **Relationship with Community** African-American women from target community with no background in nutrition or education, were recruited by lead agency to deliver intervention. **CHW (N)** 3 **Supervision of CHW** Weekly supervision during implementation phases, including meeting with educators, research dietitian, project coordinator and research assistants **Prior Training** No background in nutrition or education **Type of Service** Counseling **Type of Educational Materials Used** Program Manual **Duration of Interaction with Clients** 3 months **Length of Follow-up** 3 months	**Age (mean)** G1: 41.2 G2: 40.2 **Sex (% female)** 1 **Race (%)** African-American **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Knowledge of Label Reading Questionnaire (Unvalidated) –baseline/6 months **Results** **G2:** 5.4/5.7, **G1:** 5.5/6.3 (*P* > 0.0001) **Measure 2** Readiness to change dietary patterns - no **Results** Overall, participants in treatment group reported a greater readiness to change their dietary patterns than those in control group at posttest assessment. **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Weight, BMI **Results** No significant group differences **Measure 2** FFQ - Validated **Results** Intervention was effective in reducing fat intake, as measured by percent of calories from total fat (baseline/6 months): G2: 36.0/34.5, G1: 35.9/32.3, *P* < 0.05 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barnes et al., 1999 **Trial Name** NR **Objective or Aim** To assess effectiveness of a volunteer driven outreach program on immunization rates in children younger than 2 years. **Geography** NW Manhatten, NY **Organization** Organizational: Patients of 1 of 2 ambulatory pediatric clinics of a major medical center **Type of Community** Low-income children who are part of a large, highly mobile immigrant community originating from DR **Study Design** RCT **Start Date** 1993 **Duration** 6 months	**Eligible (N)** 434 **Enrolled (N)** 163 **Randomized (N)** 434 **Completers (N)** 140 **Withdrawals or Dropouts (N)** 23 **Health Condition of Interest** Immunizations **Inclusion Criteria** • Younger than 2 years residing in NW Manhattan • No-shows for a scheduled appointment in pediatric clinic, and • Overdue for a vaccine. **Exclusion Criteria** NR **Groups** G1: Intervention G2: Control **Interventions** G1: Basic immunization education and referral. During subsequent contacts (home visits or telephone calls) throughout remainder of follow-up , families were reminded of upcoming vaccinations and were recontacted to ensure that requisite vaccines were received. If a family required support or assistance to obtain immunization services G2: Informed of their child's immunization status at enrollment visit by control group interviewer and were instructed to reschedule missed appointment. **Group (N)** G1: 71 G2: 84	**Title of CHW** Community volunteers **Paid or Volunteer** Volunteer **Relationship with Community** NR- community volunteers **CHW (N)** NR **Supervision of CHW** Organized by coordinator from local branch of larger international charitable organization **Prior Training** NR **Type of Service** Unspecified # of home visits and phone calls **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Unspecified # of calls and visits over 6 months (time per session NR) **Length of Follow-up** Maximum of 6 months	**Age (mean)** G1: 9.5 months G2: 9.4 months **Sex (% female)** G1: 50 G2: 40 **Race (%)** G1: 87% Hispanic G2: 85% Hispanic **Other** Primary language of caregiver -spanish G1: 66 G2: 75% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Late for immunization **Results** G1: 18% G2: 38% *P* < 0.05 **Measure 2** Up to date on immunizations **Results** G1: 75% G2: 54% *P* = 0.03	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barnes-Boyd et al., 2001 **Trial Name** REACH-Futures **Objective or Aim** NR **Geography** Chicago **Organization** Inner city community clinic **Type of Community** Mostly African-American; impoverished; low employment and literacy, high infant and child morbidity and mortality, poor maternal outcomes, high incidence early unplanned pregnancies and childhood injuries **Study Design** Cohort with historic control **Start Date** 1986 **Duration** 8 years	**Eligible (N)** 1,922 **Enrolled (N)** 1,922 **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Infant health **Inclusion Criteria** All recipients: • below 150% of poverty line • lived in inner-city communities **Exclusion Criteria** NA **Groups** G1: REACH-Futures CHW+nurse G2: REACH nurse-only historic control **Interventions** • Home visits-family focused care plan • Support model problem-solving skills • Promote self-development of mother • Provide instruction in infant care • Transportation • Find community resources for childhood immunizations **Group (N)** G1: 666 G2: 1256	**Title of CHW** Maternal-Child Health Advocate **Paid or Volunteer** Paid **Relationship with Community** Within community **CHW (N)** 10 **Supervision of CHW** Teamed with nurses (at least BSN) **Prior Training** • Minimum HS or GED • Experience in community service **Type of Service** home visits **Type of Educational Materials Used** Direct instruction **Duration of Interaction with Clients** 12 monthly visits by CHW alone, teamed with nurses for one prenatal visit and at 1, 6 and 12 months; duration per visit NR **Length of Follow-up** 12 months	**Age (mean)** G1: 51% < 20 y/o G2: 36% < 20 y/o **Sex (% female)** 100 **Race (%)** G1: 85% African-American G2: 80% African-American **Other** G1: 56% primiparous G2: 41% G1: 53% < HS education G2: 36% G1: 94% BW > 2500gm G2: 93% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 2 mo 86%, 11 mo 56% G2: 2 mo 75%, 11 mo 58%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Extrapolated infant mortality rate (n too small) **Results** G1: 3.0 G2: 4.7 (not significant) **Measure 2** Presence of health problems **Results** Neonatal G1: 27% G2: 25% Postneonatal G1: 27% G2: 25% (neither significant) **Measure 3** % fully immunized at 12 months **Results** G1: 77% G2: 63% ($P < 0.001$) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW+nurse home visits resulted in higher immunization status than nurse-only visits; no difference in health problems or mortality **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barth et al., 1988 **Trial Name** CPEP **Objective or Aim** Preventing child abuse **Geography** California / Contra Costa County **Organization** Social **Type of Community** At risk **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** 95 referred **Enrolled (N)** 65 enrolled **Randomized (N)** 65 **Completers (N)** 50 G1: 24 G2: 26 **Withdrawals or Dropouts (N)** G1: 5 G2: 10 **Health Condition of Interest** Child abuse **Inclusion Criteria** Referred to CPEP, by public health, education, or social service professionals **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: CPEP services involved six months of home visiting by paraprofessional women and linkage to other formal and informal community resources. **Group (N)** G1: 24 G2: 26	**Title of CHW** Parenting Consultants **Paid or Volunteer** NR **Relationship with Community** Members of community **CHW (N)** 8 **Supervision of CHW** Group Supervision **Prior Training** 100 hours **Type of Service** Task centered approach **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈2 visits per month, ≈ 4 hours per session, over 6 months **Length of Follow-up** 6 months	**Age (mean)** G1: 21.75 G2: 23.04 **Sex (% female)** 100 **Race (%)** • 43% white • 27% were Latino (primarily Chicano) • 20% black • 6% were Asian (primarily South East Asian refugees) • 4% Native American **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Child Abuse Potential Inventory **Results** G1: pre/post means 116.33/88.54 G2: pre/post means 103.50/92.44 No significant difference between posttests	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Overall no differences in outcomes, though clients appreciated services **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barth, 1991 **Trial Name** CPEP **Objective or Aim** Prevent child abuse **Geography** Contra Costa County, California **Organization** Organizational/ Community **Type of Community** At risk for chid abuse **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** 313 referred **Enrolled (N)** 240 **Randomized (N)** 240 **Completers (N)** 61% (191) **Withdrawals or Dropouts (N)** 39% (49) **Health Condition of Interest** Child abuse **Inclusion Criteria** Referred to CPEP by public health, education, or social service professionals **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: Intervention G2: Control **Group (N)** G1: 97 G2: 94 (Completers - article indicates 240 were initially randomized but only 191 completed posttest)	**Title of CHW** Parenting Consultants **Paid or Volunteer** NR **Relationship with Community** Members of community **CHW (N)** 8 **Supervision of CHW** Group supervision **Prior Training** NR **Type of Service** • Task centered approach • Home visits • Links to community resources **Type of Educational Materials Used** NR **Duration of Interaction with Clients** On average 11 visits (range 5-20) over 6 months (time per session not reported but ≈ 4 hours implied) **Length of Follow-up** Mean 3 years (range 2-5)	**Age (mean)** G1: 23.25 G2: 23.75 **Sex (% female)** 100 **Race (%)** • White: 45% • Latin (primarily Chicano): 31% • Black: 17% • Other: 7% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Reported child abuse **Results** No differences in increase between groups **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Overall no differences in outcomes, though clients appreciated services **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Batts et al., 2001; Garyet al., 2003; Vetter, et al., 2004; Gary et al., 2005; Gary et al., 2000 **Trial Name** Project Sugar **Objective or Aim** To determine diabetes care priorities and needs in a group of urban African-American adults with type 2 diabetes; To determine prevalence of depressive symptoms and re l a t i o n s h i p between depressive symptoms and metabolic control . **Geography** East Baltimore, MD **Organization** 2 primary care clinics **Type of Community** African-American adults with type 2 diabetes **Study Design** RCT **Start Date** 1994 **Duration** 2 years	**Eligible (N)** 822 **Enrolled (N)** 332 **Randomized (N)** 186 **Completers (N)** 183 **Withdrawals or Dropouts (N)** 3 **Health Condition of Interest** • Diabetes Mellitus, type 2 • Depression **Inclusion Criteria** Eligibility criteria included following: • Age 35–75 years • African-American ancestry • Residence in East Baltimore • Presence of type 2 diabetes • Absence of comorbid conditions limiting probable life span to 4 years (e.g., cancer, AIDS) • Attendance at either of 2 Johns Hopkins–affiliated primary care clinics • No indication of end-stage complications of diabetes (e.g., kidney dialysis or transplant, blindness, or lower- extremity amputation) **Exclusion Criteria** • Comorbid conditions limiting probable life span < 4 years • Indication of end-stage complications of diabetes (dialysis or t+R2ransplant, blindness or lower extremity amputation) **Groups** G1: usual care G2: nurse care manager G3: CHW G4: NCM + CHW	**Title of CHW** Members of community of interest trained to perform non-medical case management tasks **Paid or Volunteer** NR **Relationship with Community** • Local hs graduate enrolled in college part-time • No formal training in health care prior to study **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** None **Type of Service** • Home visits to provide education • Mobilize social support for adults with diabetes mellitus **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 3 visits (45-60 minutes each) per year over 2 years (+ additional contacts as needed) **Length of Follow-up** 2 years	**Age (mean)** 59 **Sex (% female)** 75 **Race (%)** 100% AA **Other** • 50% had an income of $7,500 • Participants had diabetes an average of 9 years • 91% on medication (46% used insulin, 45% used an oral agent) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** LDL **Results** G1: -16.7± 5.5 mg/dl G2: +6 (approx) (*P*<0.05 for within-group change from baseline) G3: +6 (approx.) G4: + 4 (approx.) (*P*<0.05 for within-group change from baseline) **Measure 2** SBP **Results** G1: ref G2: +6 (approx.) (*P*<0.05 for within-group change from baseline) G3: -4 (approx) G4: -2 (approx). **Measure 3** hga1c **Results** G1: ref G2: -0.31 ± 0.49% G3: -0.30 ± 0.48% G4: 0.8 ± 0.52% **Measure 4** Dietary risk scores **Results** G1: ref G2: -2.4± 1.99 G3: -3.45 ± 1.87 G4: -2.13 ± 1.92 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Batts et al., 2001; Garyet al., 2003; Vetter, et al., 2004; Gary et al., 2005; Gary et al., 2000 (continued)	**Interventions** G1: continued on-going care from their own health professionals + quarterly newsletter containing info on diabetes-related health topics and trial communication G2: NCM intervention: NCM was RN + certified diabetes educator, interventions were 45 min face-to-face clinic visits and/or phone contacts, direct patient care, management, education, counseling, follow-up, referral and physician feedback - goal was 3 visits/yr G3: CHW interventions were 45-60 min face-to-face home visits and/or phone contacts, no direct implementation of therapeutic strategieis but facilitated preventibe care by offering to schedule appointments + provide education, 3 visits/yr G4: combined NCM + CHW - three visits/year with each **Group (N)** G1: 34 G2: 38 G3: 41 G4: 36		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Becker et al., 2005; Cene et al., 2008 **Trial Name** NR **Objective or Aim** Determine relative effectiveness of alternative model of community-based care provided in black community compared with "enhanced" primary care **Geography** Baltimore, MD **Organization** Identified from Baltimore Hospitals **Type of Community** Blacks **Study Design** RCT **Start Date** NR **Duration** 1 year	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** 364 siblings (194 families) **Completers (N)** 267 **Withdrawals or Dropouts (N)** 97 **Health Condition of Interest** Cardiovascular disease prevention **Inclusion Criteria** • Sibling of black < 60 years hospitalized for a CHD event at one of 10 Baltimore hospitals • Aged 30-59 • No known history of CAD • No chronic glucocorticosteroid therapy • No autoimmune disease • No cancer • No immediate life-threatening comorbidity **Exclusion Criteria** See prior **Groups** G1: EPC G2: CBC **Interventions** G1: EPC- received risk-specific materials (same as intervention group), PCP received results and recommendations, sent info on YMCA program, etc. G2: CBC - received care in 1 nonclinical site in community from a NP and CHW. CHW provided dietary counseling, smoking cessation, and exercise counseling lasting 30 minutes. **Group (N)** G1: 168 G2: 196	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** "Culturally sensitive navigator" **CHW (N)** 1? **Supervision of CHW** NR **Prior Training** NR **Type of Service** Counseling for adults with risk factors for cardiovascular disease, face-to-face, phone calls **Type of Educational Materials Used** Written, culturally sensitive **Duration of Interaction with Clients** Multiple (# unspecified) 30 minute sessions over 1 year **Length of Follow-up** 1 year	**Age (mean)** G1: 47.9 G2: 47.6 **Sex (% female)** G1: 66 G2: 61 **Race (%)** African American:100% **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Smoking Cessation (self-report) **Results** G1: 7% reduction G2: 16.2% reduction (*P* < 0.001) **Measure 2** BP **Results** **Measure 3** LDL (mmol/L) **Results** G1: 3.38+-1 G2: 3.06+-1 (*P* < 0.0001) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Beckham et al., 2008 **Trial Name** NR **Objective or Aim** Effectiveness of CHWs on diabetes management among a population with primarily Native Hawaiian and Samoan ethnic minority participants with HbA1c greater than 10% **Geography** Hawaii **Organization** Organizational **Type of Community** Underserved diabetics **Study Design** Prospective cohort **Start Date** 2002 **Duration** Up to a year	**Eligible (N)** 175 **Enrolled (N)** 116 **Randomized (N)** NA **Completers (N)** 80 **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** Diabetes **Inclusion Criteria** Patients with HBa1C > 10 **Exclusion Criteria** Refusal to participate (these became control group) **Groups** G1: Intervention G2: UC **Interventions** G1: diabetes case management by CHW, including home visits; based on needs of patients, CHWs collaborate with rest of multidisciplinary team to determine high-priority learning areas and to develop an intervention plan to implement during subsequent visits, plan included a blood regimen and target levels, diet plan, exercise plan, medication schedule, insulin injetion plan, and preventive health/health mainteance plan G2: UC **Group (N)** G1: 80 G2: 36	**Title of CHW** Community health worker **Paid or Volunteer** Paid **Relationship with Community** Ethnicity and language **CHW (N)** 3 **Supervision of CHW** CHWs met with Medical Director and Preventive Health Department Director once every 2 weeks for in-service training and case conferences for duration of project. **Prior Training** 6 months of study at community college **Type of Service** Based on needs of patient - CHWs would collaborate with rest of multidisciplinary team to determine high-priority learning areas and to develop an intervention plan to implement during subsequent visits. Each plan included a blood glucose self-monitoring regimen and target levels, diet plan, exercise plan, medication schedule, insulin injection plan, and preventive health/health maintenance plan. **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Up to a year - number of CHW visits per participant averaged 4.24 (range 5 1–15 visits), with each visit averaging 1 to 1.5 hours. **Length of Follow-up** 1 year	**Age (mean)** G1: 51.8 G2: 46.6 **Sex (% female)** G1: 55 G2: 50 **Race (%)** G1: Hawaiian 51.3% Samoan 12.5% Filipino10% Caucasian 16.2% Tongan 2.5% Other 7.5% G2: Hawaiian 55.6% Samoan 11.1% Filipino 8.3% Caucasian 11.1% Tongan 2.8% Other 11.1% **Other** Baseline HbA1c (%) G1: 11.0 (6 .8) G2: 10.8 (6 (%) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Post intervention period HbA1c **Results** G1: 8.8 6 (1.7) G2: 10.4 (6 1.3) *P* < 0.0001 (Note on *P* value: investigators did not report one comparing groups, RTI researchers calculated it using data in article **Measure 2** Decrease in HbA1C **Results** G1: 2.2 (SD 1.8) G2: 0.2 (SD 1.5); *P* < 0.01 compared to baseline **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Blacket al., 1995; Hutcheson, et al., 1997 **Trial Name** NR **Objective or Aim** Evaluate efficacy of family-focused, home-based intervention on growth and development of children with nonorganic FTT **Geography** Baltimore, MD **Organization** Recruited from urban pediatric clinics serving low income families **Type of Community** Low-income, urban **Study Design** RCT **Start Date** NR **Duration** 1 year	**Eligible (N)** approx 163 **Enrolled (N)** 130 **Randomized (N)** 130 **Completers (N)** 706: 116 (to end of intervention) 1445: 74 (to 4 y/o) **Withdrawals or Dropouts (N)** 706: 14 1445: 56 **Health Condition of Interest** Nonorganic failure to thrive **Inclusion Criteria** • < 25 mo • Wt for age < 5th percentile • EGA 36+ wk • Birth weight appropriate for gestational age • Wt for ht < 10th percentile **Exclusion Criteria** • No congenital disorders • No chronic illness • No developmental disabilities **Groups** G1: home intervention G2: clinic-only **Interventions** G1: CHW home visit weekly x 1 year w/ community health nurse supervision G2: clinic-based multidisciplinary services **Group (N)** G1: 64 G2: 66	**Title of CHW** Lay home visitor **Paid or Volunteer** Paid **Relationship with Community** Knowledge of community Familiarity with culture **CHW (N)** 3 part-time **Supervision of CHW** Community health nurse, frequency NR **Prior Training** Experience with children and families **Type of Service** • Home visits to develop individualized family service plan with specific goals • Support mother's needs • Promote maternal-child relationship **Type of Educational Materials Used** Hawaii Early Learning Program was used as curriculum guide; handouts, developmental assessment toys, personalized notebooks **Duration of Interaction with Clients** Weekly visits (≈ 1 hour per visit) for 1 year **Length of Follow-up** 18 months	**Age (mean)** G1: younger 7.8 mo (SD 2.8); older 17.1 mo (3.7) G2: younger 6.6 (3.6); older 17.9 (4.3) **Sex (% female)** G1: younger 50%, older 44% G2: younger 45%, older 38% **Race (%)** African American – G1: younger 84%, older 91% G2: younger 85%, older 97% **Other** Mean BW G1: younger 2881 gm (400), older 2868 (385) G2: younger 3010 (524), older 2881 (432) Prior FTT hospitalization G1: younger 6%, older 0 G2: younger 10%, older 3% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 80% overall **Retention Rates** 706: G1: 89% G2: 89% 1,445: G1: 65% G2: 68%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Home environment (validated: Home Observation for Measurement of Environment Scales) **Results** G1 higher post-intervention scores than G2 (no significance testing reported) **Measure 2** Competence pre vs. post intervention **Results** Negative affect (below median on Brief Symptom Inventory) G1: 3.1 (SD 0.9) → 3.4 (0.6) G2: 2.9 (0.9) → 3.6 (0.7) Non-negative G1: 3.1 (0.6) → 3.6 (0.6) G2: 3.1 (0.9) → 3.5 (0.6) **Measure 3** Growth (wt for age, wt for ht, ht for age) (validated with Natl Center for Health Statistics charts) **Results** Significant improvement in each, no difference in improvement btw groups **Measure 4** Parent-child behavior during feeding (validated: modified Parent Child Early Relational Assessment) **Results** No significant differences between groups	**Health Outcomes:** **Measure 1** Cognitive and motor development (validated: Bayley Scales of Infant Development @ post-intervention; Battelle Developmental Inventory @ 4 y/o) **Results** Younger (1-12 mo at recruitment): G1: less decline pre/post vs. G2 (P = 0.02) Older (12.1-24.9 mo at recruitment): no significant difference in decline between groups Negative affect - cognitive G1: 96.6 (SD 17.0) → 86.2 (15.8) → 77.4 (18.3) G2: 91.8 (13.0) **Measure 2** Language development (validated: Bayley Scales and Receptive/Expressive Emergent Language Scale) **Results** Receptive-younger G1: 92.7→88.5 G2: 98.7→88.0 Older G1: 92.3→83.2 G2: 98.3→82.7 (overall P = 0.05) Expressive - no differences in declines reported between groups **Healthcare Utilization:** NR	**Costs (Economics):** NR **Measure 1** Annual per-child cost of home visits (ingredients method) **Results** $2,828/child/year **Explanation of Overall Outcomes** CHW home visit + multidisciplinary clinic management were significantly better than MDC alone in attenuating cognitive and motor decline among infants (but not older children) and attenuating receptive language decline; no significant difference observed in growth, expressive language, or parent-child interaction **Quality Rating** Fair **Health Outcomes:** **Measure 1** Negative affect @ baseline, post-intervention, 4 y/o **Results** Negative affect group G1: 4.2 (SD 1.0) → 4.4 (0.7) → 3.5 (0.5) G2: 4.3 (0.7) → 4.4 (0.6) → 3.6 (0.3) Non-negative group G1: 4.2 (0.7) → 4.3 (0.6) → 3.7 (0.2) G2: 4.5 (0.5) → 4.4 (0.7) → 3.4 (0.6) **Measure 2** Warmth @ 4 y/o **Results** Negative affect group G1: 2.8 (SD 0.5) G2: 2.9 (0.5) Non-negative group G1: 2.9 (0.5) G2: 2.5 (0.5)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Bone et al., 1989 **Trial Name** NA **Objective or Aim** Determine (1) feasibility and impact of introducing indigenious CHWs into ED to supplement detection, referral, and follow-up efforts performed by ED clinical staff (2) degree to which CHWs efforts improve HBP follow-up in high-risk groups **Geography** Baltimore, MD **Organization** Johns Hopkins Hospital Adult ER **Type of Community** Predominately black, low-income **Study Design** Prospective cohort **Start Date** 1982 **Duration** 2 years	**Eligible (N)** 722 **Enrolled (N)** 722 **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** HTN **Inclusion Criteria** ER patients scheduled for BP follow-up **Exclusion Criteria** Patients without a telephone number **Groups** G1: control (not able to be contacted by CHW) G2: contacted by CHW Initially, all patients were contacted initially by CHWs in ER. CHWs took pulse and BP measurements, provided educational counseling, identiifed barriers related to referrals, assisted **Interventions** G1: none G2: telephone preappointment reminder for scheduled BP follow-up, including education counseling. Multple attempts (at least 3) were made to contact patients 1-2 days before scheduled follow-up. Telephone encounters lasted 5-10 minutes, conducted at night. **Group (N)** G1: 278 G2: 444	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** Individuals residing in community where ED is located and interested in HBP (usually b/c of family or personal history). All women, age 30-45 years. **CHW (N)** 6 **Supervision of CHW** Initially by community health nurse/health educator on adaily basis, later reduced to weekly as HCWs were judged competent by nurse educator and ED staff **Prior Training** No prior work in health related area but some had previous community service; all had HS education **Type of Service** Face-to-face session; Telephone **Type of Educational Materials Used** Verbal **Duration of Interaction with Clients** 1 face-to-face session (≈20 minutes) and at least 1 pre-followup appointment reminder telephone call (5-10 minutes) (time period over which this occurred NR) **Length of Follow-up** NR	**Age (mean)** NR **Sex (% female)** NR **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** CHW was to contact patients for pre-appointment reminders **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Returned to ED for follow-up appt **Results** G1: 41% G2: 60% (*P* < 0.001)	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Campbell, 2004 **Trial Name** WATCH **Objective or Aim** Compare effectiveness of 2 strategies to promote colorectal cancer preventive behaviors among African American members of 12 rural North Carolina churches. **Geography** Rural NC **Organization** Churches in rural counties **Type of Community** African American rural churches **Study Design** RCT **Start Date** 1999 **Duration** 1 yr	**Eligible (N)** 26 churches **Enrolled (N)** 12 churches **Randomized (N)** 12 churches **Completers (N)** NR (presumably 12 churches; completers/dropouts of individual participants from each church not reported) **Withdrawals or Dropouts (N)** NR (presumably 12 churches; completers/dropouts of individual participants from each church not reported) **Health Condition of Interest** Colorectal cancer **Inclusion Criteria** • Church in one of five rural eastern NC counties with at least 80 active members and expressed interest in participation • All active members (i.e., attending study church at least once/month) aged 18 or older were eligible to participate **Exclusion Criteria** NR **Groups** G1: Control G2: LHA only G3: TPV only G4: Combined LHA and TPV	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer **Relationship with Community** Church membership **CHW (N)** 62 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Provide information through existing networks; organize and conduct at least three church-wide activities focused on spreading information for colorectal cancer prevention **Type of Educational Materials Used** TPV and combined groups (G2 and G4): videos, computer-tailored newsletters **Duration of Interaction with Clients** Three church- based activities during 12 months (time per session NR) **Length of Follow-up** 12 months	**Age (mean)** 52 **Sex (% female)** 74 **Race (%)** African American: 99% **Other** BMI ≥30: 40% **Role of CHW in Recruiting and Retention** Organize church activities, but recruitment is really NA in this case **Recruitment Rates** NR **Retention Rates** Participated in WATCH church activities (%): G1: 22.5 G2: 32.5 G3: 23.3 G4: 16.5

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Dietary change--daily fruit and vegetable servings (Baseline/Followup) **Results** G1: 3.3/3.4 G2: 3.5/3.5 G3: 3.3/3.9 G4: 3.4/3.7 *P* = 0.02 for G3 vs. G1 *P* = ns for G2 vs. G1 **Measure 2** Physical Activity: recreational (moderate-vigorous) activity MET hours/week, M (SE) (baseline/followup) **Results** G1: 9.3 (0.88)/8.4 (0.69) G2: 10.5 (0.90)/10.6 (0.70) G3: 9.5 (0.80)/10.9 (0.61) G4: 9.7 (0.76)/9.7 (0.60) *P* = 0.07 for G2 **Healthcare Utilization:** **Measure 1** Other CRC test in past year (% Baseline/% Followup) **Results** G1: 20.3/27.5 G2: 19.6/25.5 G3: 23.7/21.1 G4: 26.4/14.9 *P* = ns **Measure 2** FOBT test in past year (% Baseline/% Followup) **Results** G1: 30.4/21.7 G2: 23.5/33.3 G3: 19.7/36.8 G4: 19.5/31.0 *P* = 0.08	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Campbell, 2004 (continued)	**Interventions** G1: Control churches offered health education sessions and speakers on topics of their choice not directly related to study objectives G2: Organize and conduct at least 3 church-wide activities on spreading info and enhancing support for healthy lifestyle and CRC screening (LHA) G3: 4 personalized computer-tailored newsletters and 4 targeted videotapes (TPV) corresponding to same behaviors mailed to participants' homes bimonthly for first 6 months after baseline data collection; 4th mailing was 9 months post baseline G4: LHA + TPV **Group (N)** G1: 129 G2: 123 G3: 159 G4: 176		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Caulfield et al., 1998 **Trial Name** NR **Objective or Aim** To promote breast feeding among African-American women **Geography** Baltimore, MD **Organization** Organizational - WIC **Type of Community** Neighborhood-socioeconomic **Study Design** RCT **Start Date** 1992 **Duration** Various - from minimal to 20 weeks	**Eligible (N)** 4 clinics, 674 women **Enrolled (N)** 548 **Randomized (N)** 4 clinics **Completers (N)** 242 **Withdrawals or Dropouts (N)** 306 **Health Condition of Interest** Breast feeding **Inclusion Criteria** African-american woman attending prenatal care at participating clinic before 24 weeks gestation, singleton, planning to keep baby and remain in catchment area **Exclusion Criteria** Contraindications to BF; HIV, certain meds, pregnancy termination, twins, miscarriage, still birth, maternal or neonatal hospitalizatiion for 2 or more weeks **Groups** G1: Control G2: Video G3: Peer counselor G4: Video and Peer Counselor **Interventions** G1: All on-going WIC services as required by state and federal regulation G2: WIC services plus motivational video additional literature G3: WIC services plus peer counselling before and after birth G4: WIC services plus video plus peer counselling **Group (N)** G1: 57 G2: 64 G3: 55 G4: 66	**Title of CHW** Peer counselor **Paid or Volunteer** NR **Relationship with Community** Shared condition - WIC recipient that successfully breast fed in past **CHW (N)** NR **Supervision of CHW** Random quality assurance visit to one clinic each week **Prior Training** 5 weeks of training **Type of Service** One-on-one counselling **Type of Educational Materials Used** Various - NR **Duration of Interaction with Clients** 3 or more meetings during pregnancy (from 24 weeks of gestation) and then weekly up to 16 weeks postpartum if they continued breast feeding **Length of Follow-up** Up to 16 weeks post partum	**Age (mean)** G1: < 18 37%, 18-25 40%, > 25 23% G2: < 18 27%, 18-25 53%, > 25 20% G3: < 18 33%, 18-25 40%, > 25 27% G4: < 18 23%, 18-25 53%, > 25 24% **Sex (% female)** 100 **Race (%)** 100% African- American **Other** Nulliparity G1: 23% G2: 48% G3: 20% G4: 32% < HS G1: 86% G2: 64% G3: 75% G4: 85% Employed G1: 13% G2: 33% G3: 17% G4: 28% **Role of CHW in Recruiting and Retention:** NR **Recruitment Rates:** NR **Retention Rates:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Still breast feeding at 7-10 days **Results** G1: 14% OR 1.00 G2: 30% OR 0.79 95% CI, (0.25, 2.52) G3: 38% OR 1.11 95% CI, (0.34, 3.61) G4: 38% OR 1.52 95% CI, (0.50, 4.59) *P* < 0.05 **Measure 2** Odds of intitiating and continuing BF (@7-10 d) relative to control group **Results** G1: 1 (control) G2: 1.36 (0.52, 3.54) / 0.79 (0.25, 2.52) G3: 3.84 (1.44, 10.21) / 1.11 (0.34, 3.61) G4: 1.92 (0.78, 4.76) / 1.52 (0.50, 4.59) **Measure 3** Intiation of breast feeding **Results** G1: 26% (OR, 1.00) G2: 50% (OR, 1.36; 95% CI, 0.52-3.54) G3: 62% (OR, 3.84; 95% CI, 1.44-10.21)G4: 52% (OR, 1.92; 95% CI, 0.78-4.76) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW were effective at increasing initiation of BF, but no difference in continuation at 7-10 days **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Conway et al., 2004 **Trial Name** NR **Objective or Aim** Evaluate a culturally tailored behavioral problem solving intervention to reduce environmental tobacco smoke exposure amongst young Latino children **Geography** San Diego County **Organization** Areas with large Latino population **Type of Community** Community organizations and venues **Study Design** RCT **Start Date** NR **Duration** 12 months	**Eligible (N)** NR **Enrolled (N)** 143 **Randomized (N)** 143 **Completers (N)** 127 **Withdrawals or Dropouts (N)** 16 **Health Condition of Interest** Environmental tobacco smoke exposure **Inclusion Criteria** • Latino • Have child 1-9 y/o • Exposure of child to 6+ cigarettes/week **Exclusion Criteria** NR **Groups** G1: CHW G2: control **Interventions** G1: Home and telephone visits on problem-solving techniques to reduce environmental tobacco smoke exposure; 6 visits over 4 months G2: Participated in surveys but received no other intervention **Group (N)** 1 adult + 1 child dyad G1: 71 G2: 72	**Title of CHW** Promotora **Paid or Volunteer** NR (text implies volunteer) **Relationship with Community** Bicultural, bilingual, Latina **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home and telephone visits on problem-solving techniques to reduce ETS exposure to children **Type of Educational Materials Used** Contracting, shaping, positive reinforcement, problem solving, social support **Duration of Interaction with Clients** 6 home and telephone visits over 4 months (time per session NR) **Length of Follow-up** 12 mo	**Age (mean)** 33 y (adults), 4 y (children) **Sex (% female)** • Adult: Nearly 100% • Children: 55% **Race (%)** 100% Latino **Other** • Income: $700-1099/mo • Mexican-born: 85% • Acculturation: 2.0/5 • Mexican-educated: 71% • Median education: 9-11 y **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** 81% overall

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** RIA of child's hair for nicotine and cotinine **Results** No significant differences between groups **Measure 2** Parent report of child's past month ETS exposure **Results** No significant differences between groups **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** CHW intervention cost (estimated) **Results** $29000 **Explanation of Overall Outcomes** No difference observed in subjective or objective measures of ETS exposure with CHW visits vs. control **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Corkery et al., 1997 **Trial Name** NR **Objective or Aim** Determine effect of bicultural CHW on completion of diabetes education in inner-city Hispanic patient population and evaluate impact of completion of education program on patient knowledge, self-care behaviors, and glycemic control. **Geography** NYC - East Harlem **Organization** Cultural: Hispanic-Americans, primarily PR origin, and African-Americans **Type of Community** Disease: diabetes, neighborhood, socio-economic, cultural **Study Design** RCT **Start Date** NR **Duration** Mean 3.4 months (range 0.9 to 5.4)	**Eligible (N)** 64 **Enrolled (N)** 64 **Randomized (N)** 64 **Completers (N)** 40 (63%) **Withdrawals or Dropouts (N)** 24 (37%) **Health Condition of Interest** Diabetes **Inclusion Criteria** • Newly referred to clinic for patient education • Hispanic • > 20 yrs old **Exclusion Criteria** None **Groups** G1: Intervention G2: Control **Interventions** G1: Intervention- CHW acted as liason, attended clinic sessions, interpreter, reinforced self are instructions and appointment reminders G2: Control - encounters occurred between nurse and patient only **Group (N)** G1: 30 G2: 34	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** Bicultural, bilingual Hispanic-American of Puerto Rican heritage who lived in East Harlem **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** Previously volunteered in a diabetes clinic **Type of Service** Attended clinic visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Varied (mean = 3.4 months, range: 0.9-5.4), time per session equal to clinic visit duration **Length of Follow-up** Mean - 7.7 months (range 6-16.2)	**Age (mean)** 52.8 years **Sex (% female)** 74 **Race (%)** 100% Hispanic **Other** 46% literate **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** **NR**

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** HgbA1c **Results** No difference in mean change between groups **Measure 2** Diabetes Education Program Completion **Results** G1: 80% G2: 47% (*P* = 0.01) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Derose et al., 2000; Dean et al., 2000; Derose et al., 2000; Stockdale et al., 2000; Fox et al., 1998 **Trial Name** Los Angeles Mammography Promotion **Objective or Aim** Assess effectiveness of telephone counseling in a church-based mammography promotion intervention trial **Geography** LA county **Organization** Telephone counseling **Type of Community** Church communities **Study Design** RCT **Start Date** 1996 **Duration** 2 years	**Eligible (N)** 1,969 on first screening 1,777 on second screening **Enrolled (N)** 1443 **Randomized (N)** 1113 **Completers (N)** 813 **Withdrawals or Dropouts (N)** 300 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Women ages 50-80, living in private residencies, not being too ill or impaired to be interviewed, being able to be interveiwed in English or Spanish, living in a sample area, and being reachable by telephone **Exclusion Criteria** NR **Groups** G1: Control G2: CHW **Interventions** G1: Control churches provided minimal intervention: a library of resource materials on cancer and cancer prevention, assistance with starting a health committee or working with an existing health committee, computer hardware, software, and a printer, as well as computer training for at least one church member G2: One session of telephone counseling annually, for 2 years, by peer counselor; counseling individualized to address barriers, churches also received computer support offered to control churches **Group (N)** G1: 397 G2: 416	**Title of CHW** Peer counselor **Paid or Volunteer** Some full-time staff, telephone counselors paid $150 stipend per year **Relationship with Community** Hired from participating churches assigned to telephone counseling **CHW (N)** 26 **Supervision of CHW** NR **Prior Training** NA **Type of Service** Barrier-specific telephone counseling to promote screening, discussion of resources for free- and reduced-cost mammograms, translation services, transportation, and childcare assistance **Type of Educational Materials Used** Verbal **Duration of Interaction with Clients** 2 telephone calls (one per year over 2 years), time per session 7-11 minutes on average **Length of Follow-up** 2 years	**Age (mean)** NR **Sex (% female)** 100 **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Nonadherence to mammogram, by self-report **Results** Nonadherence rates among adherent users at baseline: G1: 23.3% G2: 15.8% (*P* = 0 .029) Nonadherence rate among nonadherent users at baseline G1: 37.4% G2: 34.8 (*P* = 0.324)	**Costs (Economics):** **Measure 1** Sensitivity Analysis **Results** Assuming that all labor is voluntary and that churches provide materials and resources: • Cost per additional screening for a LAMP study participant = $188; • Cost if all participants are adherent at baseline = $145; • Cost if all participants nonadherent at baseline = $419 (using LAMP effectiveness rates for adherent (7.5%) and nonadherent (2.6%) participants **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Dignan et al., 2005 **Trial Name** **Objective or Aim** Determine relative effectiveness of face-to-face and telephone delivery of culturally sensitive Navigator intervention to increase adherence to guidelines for mammography screening among American Indian women **Geography** Denver metropolitan area **Organization** Urban American Indian Women **Type of Community** NR **Study Design** RCT **Start Date** August 2001 **Duration** One year	**Eligible (N)** 929 **Enrolled (N)** 157 (for intervention groups, N for control NR) **Randomized (N)** 157 (for intervention groups, N for control NR) **Completers (N)** 157 (for intervention groups, N for control NR) **Withdrawals or Dropouts (N)** 157 (for intervention groups, N for control NR) **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Urban American Indian women 40 years and older living in greater Denver Metropolitan area and had not had a mammogram within previous 18 months **Exclusion Criteria** **Groups** G1: control G2: face-to-face G3: telephone intervention **Interventions** G1: Control, interventions not reported, data from Colorado Mammography Program data G2: Tailored education brochure using data from baseline interview. face-to-face planned for delivery at participant's home (1 session lasting 20-90 minutes), presenting information on breast cancer and value of early detection, review of brochure G3: Telephone intervention, as above **Group (N)** G1: G2: 77 G3:133	**Title of CHW** Native sister/Navigators **Paid or Volunteer** NR **Relationship with Community** Recruited from Denver metro area **CHW (N)** N **Supervision of CHW** NR **Prior Training** NR **Type of Service** Barrier-specific counseling to promote screening, face-to-face vs. telephone **Type of Educational Materials Used** Tailored educational brochure **Duration of Interaction with Clients** One time session 20-90 minutes **Length of Follow-up** 6 months	**Age (mean)** 54.2 years **Sex (% female)** 100 **Race (%)** Native Americans **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Mammograms over past 12 months (self-report) **Results** G1: 51.9 -- > 50.0 G2: 29 -- > 41.8 G3: 34.4 -- > 45.2 Chi-square G1 vs G2+G3:2.68, *P* = 0.10; *P* for G2 vs G3: 0.83; *P* for G2, pre-post changes: 0.029; *P* for G3, pre-post changes: 0.197	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Duggan et al., 1999; Duggan et al., 2000 **Trial Name** Hawaii's Healthy Start Program (HSP) **Objective or Aim** Prevent child abuse and neglect and promote child health and development in newborns of families at risk for poor child outcomes **Geography** Hawaii Oahu **Organization** Organizational **Type of Community** At risk for chid abuse **Study Design** RCT **Start Date** 1994 **Duration** 2 years	**Eligible (N)** 901 families **Enrolled (N)** 730 families **Randomized (N)** 730 families **Completers (N)** 566 at 2 years **Withdrawals or Dropouts (N)** 164 families **Health Condition of Interest** Child abuse **Inclusion Criteria** Lived in target community, and not known to child protective services **Exclusion Criteria** Non-English speaking **Groups** G1: Healthy Start Program G2: Control G3: Test Control **Interventions** G1: Home visiting with individualized service plans, child developmental screenings, and mother-child interaction assessments; family support plan within 45 days of initial visit, reviewed q 6 mo, revised annually; periodic screening for DD, observational assessment of parent-child interaction and home environment; ensure existence of medical home, links to other needed resources G2: Control G3: Test Control was only interviewed at end **Group (N)** G1: HSP: 373 G2: Control: 270 G3: Test Control: 41	**Title of CHW** Home visitors **Paid or Volunteer** NR **Relationship with Community** from community **CHW (N)** NR **Supervision of CHW** Non-clinician- met weekly w/home visitors **Prior Training** NR **Type of Service** Counselling--building relationship with families; active assistance to address existing crises; model problem-solving skills and effective parent-child interaction; link families with needed resources; provide parenting education; ensuring presence of medical home for children **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈22 visits (1 hour each) over 2 years [Protocol called for weekly visits] **Length of Follow-up** 2 years	**Age (mean)** Mother's average age G1: 24 years G2: 24 years **Sex (% female)** 100 **Race (%)** G1: Hawaiian: 21% Pacific Islander: 13% Asian: 10% Filipino: 18% Caucasian: 11% Multiracial or unknown: 28% G2: Hawaiian: 19% Pacific Islander: 14% Asian: 7% Filipino: 20 Caucasian: 13% Multiracial or unknown: 26% **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Bayley Scales of Infant Development, Mental Development Index at 2 years post-intervention **Results** G1: 90.0 G2: 89.2 *P* = 0.60 **Measure 2** Bayley Scales of Infant Development, Psychomotor Development Index at 2 years post-interventino **Results** G1: 92.1 G2: 90.4 *P* = 0.12 **Measure 3** Has primary care provider? **Results** G1: 91% G2: 86% *P* = 0.09 **Healthcare Utilization:** **Measure 1** Adequate # of well-child visits **Results** G1: 89% G2: 84% *P* = 0.09 **Measure 2** Immunizations up to date **Results** G1: 87% G2: 85% *P* = 0.45	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Earp et al., 2002 **Trial Name** North Carolina Breast Cancer Screening Program **Objective or Aim** Determine effectiveness of lay health advisor intervention, supplemented by limited number of other activities, aimed at increasing self-reported mammography use among African American women 50 years and older in eastern North Carolina; correcting beliefs about causes of breast cancer; increasing acceptance of need for regular mammography **Geography** Eastern NC **Organization** Black women **Type of Community** Mostly rural, 37% minority, 12% below FPL; low likelihood of having had mammogram **Study Design** Prospective cohort for main analysis **Start Date** 1993 **Duration** 4 years	**Eligible (N)** 10 counties, 2441 women **Enrolled (N)** 2296 **Randomized (N)** 993 (African American) **Completers (N)** 801 **Withdrawals or Dropouts (N)** 192 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** • Living in study county • African-American • At least 50 y/o • no h/o breast cancer **Exclusion Criteria** • Death • Departure from study area • Admission to nursing home • Development of breast cancer • Prior participation in CHW training **Groups** G1: Counties receiving CHW and other targeted activity G2: Comparison **Interventions** G1: Counties receiving CHW and other targeted activity: presentations to community groups and events, one-on-one conversations, use of informational/ motivational materials G2: Comparison counties, no intervention reported **Group (N)** G1: 390 G2: 411	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer **Relationship with Community** Members of community; same county **CHW (N)** 170 **Supervision of CHW** Main analysis: - described in Earp JA, Viadro CI, Vincus AA, et al. Lay health advisors: a strategy for getting word out about breast cancer. Health Educ Behav. 1997;24:432–451. 412 - by "community outreach specialists" monthly (meetings and assistance **Prior Training** NR **Type of Service** Presentations to community groups and events, one-on-one conversations, use of informational/motivational materials **Type of Educational Materials Used** Brochures, posters, church fans, holiday cards **Duration of Interaction with Clients** 2 community activities per month; one-on-one conversations once a week over a 24- month period, time per session NR **Length of Follow-up** 32 months	**Age (mean)** G1: 46% < 65, 23% > 74 G2: 44% < 65, 24% > 74 **Sex (% female)** 100 **Race (%)** African American 100% **Other** Income < $12k G1: 81% G2: 63%; No medical visits in past year G1: 9% G2: 7%; Low breast cancer knowledge G1: 43% G2: 31%; Low perceived support for breast cancer screening G1: 43% G2: 35% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** Main analyis: 87% all races (no recruitment rate given for African Americans or for G1/G2 412 - NR **Retention Rates** G1: 89% G2: 88%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pre/post percentage point difference in reported mammogram, adjusted for change in mammography attitude **Results** • No recent mammogram at baseline: CHW advice: +9 diffused discussion: +10 project awareness: +15 • Recent mammogram at baseline: CHW advice: +8 diffused discussion: 0 project awareness: +5 **Healthcare Utilization:** **Measure 1** Self-report of mammogram in past 2 years, stratified by income **Results** < $12k annually G1: pre 37%, post 59% G2: pre 49%, post 60% (adjusted *P* = 0.02); $12k or greater annually G1: pre 56%, post 59% G2: pre 73%, post 82% (adjusted *P* = 0.92) **Measure 2** Self-report of mammogram in past 2 years **Results** G1: pre 41%, post 58% G2: pre 56%, post 67% (adjusted *P* = 0.05)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW community intervention is associated with significantly higher proportions of African-American women reporting having received mammograms, especially among lower income strata **Quality Rating** Poor **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Elder et al., 2006; Elder et al., 2005 **Trial Name** Secretos de la Buena Vida **Objective or Aim** Determine whether CHW + tailored print materials vs. tailored print materials vs. off-the-shelf print materials was more effective to maintain diet change at 1 y f/u **Geography** San Diego County **Organization** Spanish-dominant Latina **Type of Community** Central and southern regions **Study Design** RCT **Start Date** 2001 **Duration** 2 years	**Eligible (N)** 510 **Enrolled (N)** 357 **Randomized (N)** 357 **Completers (N)** 281 **Withdrawals or Dropouts (N)** 76 **Health Condition of Interest** Dietary behavior **Inclusion Criteria** • Female • 18-65 y/o • Hispanic surname • Spanish-dominant • Valid telephone number **Exclusion Criteria** • Pregnant • Medically prescribed diet • Not remaining in San Diego **Groups** G1: CHW + tailored print G2: tailored print G3: control **Interventions** G1: CHW home visits and/or phone calls + tailored print materials G2: 12 weekly tailored newsletters and homework G3: 12 weekly off-the-shelf dietary printed material **Group (N)** G1: 120 G2: 118 G3: 119	**Title of CHW** Promotora **Paid or Volunteer** NR **Relationship with Community** Indigenous to community, Spanish language dominant, perceived as a community role model **CHW (N)** 4 **Supervision of CHW** NR **Prior Training** NR **Type of Service** G1: weekly home visits or telephone calls + tailored health info newsletters G2: tailored health info newsletters G3: population-targeted print materials **Type of Educational Materials Used** G1: negotiated behavioral change goals G1 and G2: tailored newsletters and activity inserts based on baseline participant data; magnets w/ healthy lifestyle messages; recipes G3: language-appropriate materials w/ dietary information developed for Latino popul **Duration of Interaction with Clients** 12 home visits or telephone calls over a 12-week period, 12 weekly tailored newsletters (duration per session NR) **Length of Follow-up** 1 year	**Age (mean)** G1: 38.6 (SD 10.1) G2: 40.4 (9.9) G3: 40.1 (9.8) **Sex (% female)** 100 **Race (%)** Hispanic **Other** Married G1: 94% G2: 93% G3: 93%; BMI G1: 28.9 (SD 5.7) G2: 30.4 (5.6) G3: > 29.6 (5.4) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 93/120 = 78% G2: 90/118 = 76% G3: 98/119 = 82%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** % calories from fat (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 2** Total gm fiber (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 3** Total fat gm (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 4** Post-intervention calorie/fat intake (using Nutrition Data System) **Results** kcal ($P < .01$) G1: 1,286.9 G2: 1,419.2 G3: 1,436.2 (G1-G3 $P < .05$ G1-G2 $P < .1$) Fat gm ($P < .05$) G1: 43.1 G2: 49.8 G3: 49.3 (G1-G3 p < .1 G1-G2 $P < .05$) % fat cal G1: 29.3 G2: 30.4 G3: 30 (NS) Saturated fat gm ($P < .05$) G1: 14.4 G2: 16.9 G3: 16.6 (G1-G3 $P < .1$ G1-G2 **Healthcare Utilization:** NR	**Measure 1** Cost per unit of change **Results** Per reduced fat gm G1: $8.28 G2: $5.11 G3: $1.30 Per reduced saturated fat gm G1: $21.09 G2: $17.31 G3: $3.21 Per reduced calorie G1: $0.36 G2: $3.21 G3: $0.07 **Measure 2** Per-participant cost **Results** G1: $135 G2: $45 G3: 9 **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Elder et al., 2006; Elder et al., 2005 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
		Measure 2 Dietary fiber intake (gm) (using Nutrition Data System) **Results** Total fiber gm G1: 16.1 G2: 17.2 G3: 15.6 (NS) Soluble fiber gm G1: 4.7 G2: 5.1 G3: 4.8 (NS) Insoluble fiber gm G1: 11.1 G2: 11.8 G3: 10.5 (NS) **Measure 3** Other dietary intake (via NDS) **Results** CHO gm (*P* < .05) G1: 171.2 G2: 187.3 G3: 187.1 (G1-G3 *P* < .05 G1-G2 *P* < .1) Glucose gm (*P* < .01) G1: 16 G2: 21.1 G3: 18.4 (G1-G3 NS G1-G2 *P* < .05) Fructose gm (*P* < .001) G1: 16.9 G2: 22.7 G3: 19.1 G1-G3 NS G1-G2 *P* < .05 G2-G3 *P* < .1) Sucrose gm G1: 30.5 G2: 31.2 G3

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Erwin et al., 1997 **Trial Name** Witness project **Objective or Aim** Examine effectiveness of Witness Project, a culturally competent cancer education program that trains cancer survivors to promote early detection and increased breast self-examination and mammography in population of rural, underserved, African American women **Geography** Rural Mississippi River Delta region of Arkansas **Organization** Church or community group **Type of Community** Neighborhood **Study Design** Prospective cohort **Start Date** 1994 **Duration** 6 months	**Eligible (N)** NA **Enrolled (N)** 433 **Randomized (N)** NA **Completers (N)** 412 **Withdrawals or Dropouts (N)** 21 **Health Condition of Interest** BSE and mammography **Inclusion Criteria** Inclusion criteria for women NR, churches selected from convenience sample **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: Members of a Witness Project team, composed of 7 local African American women who had survived breast or cervical cancer, speak in groups of 2 to 5 at local churches and community organization meetings G2: Control group offered delayed intervention **Group (N)** G1: 204 (152 aged ≥40) G2: 206 (140 aged ≥40)	**Title of CHW** Witness role model **Paid or Volunteer** NR **Relationship with Community** Shared race, cancer survivors **CHW (N)** 7 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Motivational speeches based on cancer survivor, experience of CHWs, breast self-exam lessons using a breast model, discussion of resources for free- and reduced-cost mammograms **Type of Educational Materials Used** NR **Duration of Interaction with Clients** One presentation, time NR **Length of Follow-up** 6 months	**Age (mean)** G1: 52.5 G2: 49.3 **Sex (% female)** 100 **Race (%)** 100% African-American **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Breast self exam in past month (self-report) **Results** G1: 49% to 65.4% (*P* < 0.001 compared to baseline) G2: 65% to 72% (*P* = NS compared to baseline) **Measure 2** Regular practice of breast self-exam (self-report) **Results** Baseline G1: 69.8% to 82% (*P* = NS compared to baseline) G2: 82% to 82% (*P* < 0.005 compared to baseline) **Measure 3** Ever had mammography (self-report) **Results** G1: 52.4% to 64.4% (*P* < 0.05 compared to baseline) G2: 60.4% to 63.3% (*P* = NS compared to baseline) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Through use of community churches and cancer survivors, breast cancer screening activities can be improved in this population **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Forst et al., 2004 **Trial Name** NR **Objective or Aim** Evaluate CHW model to reduce eye injuries and illnesses in Latino migrant and seasonal farmworkers **Geography** SE Michigan, northern Illinois **Organization** Latino migrant and seasonal farm workers **Type of Community** Farm workers; high incidence of eye injury **Study Design** Prospective cohort **Start Date** 2001 **Duration** 16 wk	**Eligible (N)** 36 farms, total workers NR **Enrolled (N)** 34 farms, 1,000 workers **Randomized (N)** 786 **Completers (N)** 703 **Withdrawals or Dropouts (N)** 83 **Health Condition of Interest** Eye injury **Inclusion Criteria** Farm owners' consent **Exclusion Criteria** NR **Groups** G1: CHW + protective eyewear + training + information sheet G2: CHW + eyewear + information sheet G3: Eyewear + information sheet **Interventions** G1: CHW worked w/ subjects, trained subjects on eye health and safety (minimum of 2 training sessions = 1 individual + 1 group) G2: CHW distributed eyewear w/o additional training G3: Research team distributed eyewear w/o additional training **Group (N)** G1: 256 (141 IL, 115 MI) G2: 298 (179 IL, 119 MI) G3: 149 (78 IL, 71 MI)	**Title of CHW** Promotor de salud **Paid or Volunteer** NR **Relationship with Community** Actively employed farm workers; Spanish fluency **CHW (N)** 16 **Supervision of CHW** Weekly with promotor-coordinators from study team **Prior Training** Demonstrated leadership and communication skills; demonstrated respect for farm workers and owners **Type of Service** G1: CHW worked w/ subjects, trained subjects on eye health and safety G2: CHW distributed eyewear w/o additional training **Type of Educational Materials Used** G1: Trainer training; reference manual on agricultural eye illness and injury; photos and fotonovelas; tool kit to demonstrate eye injuries and hazards **Duration of Interaction with Clients** G1: At least 1 individual and at least 1 group session during farming season (duration per session NR) **Length of Follow-up** 16 wk	**Age (mean)** G1: 33.5 G2: 32.4 G3: 32.8 **Sex (% female)** G1: 24 G2: 19 G3: 15 **Race (%)** 90% Mexican 10% Mexican-American **Other** • Read Spanish: 77% • < 8 y school: 75% • < 4 y school: 25% • Read English: 16% **Role of CHW in Recruiting and Retention** G1: Recruited and worked alongside subjects, collected data G2: Recruited, collected data **Recruitment Rates** 786/1000 = 78.6% **Retention Rates** G1: 67/186 = 36% G2: 172/198 = 87% G3: 76/107 = 71%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Pre/post change in % wearing safety glasses **Results** Self-report: G1: 1.48 (*P* < .0001) G2: 0.71 (*P* < .0001) G3: 0.96 (*P* < .0001) G1-G2 *P* < .0001 G1-G3 *P* = .03 G1and 2-G3 *P* = .0004 Observed: G1: 1.1→36% G2: 0→5.2% G3: 0→14%) **Measure 2** Pre/post subject risk perception of eye injury **Results** Results not interpretable **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Cumulative number of eye injuries for season **Results** IL 11 cases pterygium; MI 4 (both likely underreported) **Healthcare Utilization:** NR	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** CHW intervention increased reported and observed use of protective eyewear, more so with associated training **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Frate et al., 1985; Frate et al., 1983 **Trial Name** NR **Objective or Aim** Evaluation of different interventions to contol hypertension in a rural setting **Geography** Central Mississippi **Organization** Cultural **Type of Community** Hypertension and rural community **Study Design** Observational-quasi-experimental **Start Date** Early 1980's **Duration** 18 months	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** NA **Completers (N)** 667 **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Hypertension **Inclusion Criteria** Patients with physician confirmed hpertension **Exclusion Criteria** NA **Groups** G1: Hypertension Health Counselors G2: Family based self help G3: Church based self help **Interventions** **Group (N)** G1: 207 G2: 131 G3: 229	**Title of CHW** Hypertension Health Counselors **Paid or Volunteer** Volunteer **Relationship with Community** Native **CHW (N)** 5 **Supervision of CHW** NR **Prior Training** Certified and equipped to measure blood pressure **Type of Service** Monitoring BP, education and support **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Monthly visits over 18 months (time per session NR) **Length of Follow-up** 18 months	**Age (mean)** NR **Sex (% female)** NR **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Proportion controlled **Results** G1: 80.6% G2: 90.0% G3: 79.9% **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Extra Poor!

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Gielen et al., 2002 **Trial Name** NA **Objective or Aim** Present results of an intervention trial to enhance parents' home-safety practices through pediatric safety counseling, home visits and an on-site children's safety center where paretns receive personalized education and can purchase reduced-cost products **Geography** NR (probably Baltimore, MD) **Organization** Pediatric resident continuity clinic in large, urban teaching hospital **Type of Community** Same **Study Design** RCT **Start Date** NR **Duration** 18 months	**Eligible (N)** 43 first- and second-year residents; 305 patients' parents **Enrolled (N)** 39 residents; 187 families **Randomized (N)** 39 residents; 187 families **Completers (N)** 122 families **Withdrawals or Dropouts (N)** 11 became ineligible, 15 refused further contact, 39 unable to contact **Health Condition of Interest** Pediatric safety **Inclusion Criteria** • Residents: all first- and second-year resdients • Parent-patient dyads of participating residents were then approached in clinic waiting room - elgibiliy criteria included infants 6 mos or younger, free of serious medical problems, caretakers were english-speaking and lived with child **Exclusion Criteria** See prior **Groups** G1: Standard intervention G2: Enhanced intervention **Interventions** Both groups of pediatric residents invited to attend 1-hour seminar on problme of injuries; both groups received 5-hr EAG training program G1: received safety counseling and referral to children's safety center from their pediatrician G2: received standard services plus "offer of" a home-safety visit from a CHW **Group (N)** G1: 20 residents, 93 parents G2: 19 residents, 94 parents	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits between 6 and 9 mo well child checks: assessed injury hazards; made recommendations about appropriate safety products and practices; referred families to CSC **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 1 home-safety visit sometime between patient's 6- and 9-month well-infant visits (duration of session NR) **Length of Follow-up** NA	**Age (mean)** Mean age of mother = 24 years **Sex (% female)** Parents 98% female **Race (%)** 94% AA **Other** NR **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Poisons kept latched or locked **Results** G1: 12% G2: 10% *P*-value not reported **Measure 2** Presence of ipecac **Results** G1: 27% G2: 31% *P*-value NR **Quality of Life:** **Measure 1** Hot water ≤ 48.9 C **Results** G1: 47% G2: 47% *P*-value NR **Measure 2** Working smoke alarm **Results** G1: 84% G2: 81% *P*-value NR **Measure 3** Stairs protected by gate or door, **Results** G1: 23% G2: 27% *P*-value NR	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Graham et al., 1992 **Trial Name** NR **Objective or Aim** Prevention of low birth weight using home intervention **Geography** Cleveland **Organization** Organizational clinic-derived sample **Type of Community** Inner city black **Study Design** RCT **Start Date** 1987 **Duration** NR	**Eligible (N)** 190 145 (190 total used to validate instrument, but some were ineligible at > 28 wk) **Enrolled (N)** 145 **Randomized (N)** 87 in experimental group, 145 overall **Completers (N)** 52 in experimental group 110 total **Withdrawals or Dropouts (N)** 35 out of 87 in experimental group **Health Condition of Interest** Low birth weight **Inclusion Criteria** • Black • Between 17th and 28th week of gestation • Low family functioning score • At least 1 stressful life event prior to registration • Registering at study clinic during specified period **Exclusion Criteria** • Living > 5 mi from clinic • Limited reading ability **Groups** G1: Experimental G2: Control **Interventions** G1: Experimental - 4 home visits G2: Control **Group (N)** G1: Experimental- 87 G2: Control - 58	**Title of CHW** Home visitors **Paid or Volunteer** NR **Relationship with Community** Shared race and gender having children of their own **CHW (N)** 2 **Supervision of CHW** NR **Prior Training** motherhood **Type of Service** Home visits: psychosocial support to patient and encouragement to family to be supportive of pregnancy, accomplished through education about pregnancy and encouragement of significant others to attend home visits, clinic visits, clinic **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 4 visits (1 hour each) at 2-4 week intervals for 2 to 5 months (until birth of child) **Length of Follow-up** Birth of child	**Age (mean)** 24 y **Sex (% female)** 100 **Race (%)** Black 100% **Other** • 38% primiparous • 11% married • 84% receiving Medicaid **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** • 1326 screened • 190 high-risk • 145 randomized **Retention Rates** G1: 52/87 completed all 4 visits (60%) G2: 100% (only birth information needed for this group)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** LBW rate **Results** G1: (All): 12.9% (*P* = 0.51) G1: (Completers): 7.7% (*P* = 0.98) G2: 7.5% **Healthcare Utilization:** **Measure 1** Ratio of actual:expected prenatal clinic visits **Results** G1 (All): 1.12 (SD 0.48, *P* = 0.029) G1 (Completers): 1.17 (SD 0.46, *P* = 0.007) G2: 0.93 (SD 0.44)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW home visits increased utilization of prenatal clinic care, but had no effect on LBW incidence **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hiatt et al., 2008 **Trial Name** Breast and Cervical cancer Intervention Study (BACCIS) **Objective or Aim** Effect of Breast and Cervical Cancer Intervention Study (BACCIS), a multi-component intervention conducted in San Francisco Bay Area between 1992 and 1997. **Geography** San Francisco, CA **Organization** Hospital **Type of Community** Income, Neighborhood **Study Design** Modified 2x2 design in 8 neighborhoods **Start Date** 1993 **Duration** 4 years	**Eligible (N)** 25,000 **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** 1,616 **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Cancer **Inclusion Criteria** Women living in area of interest **Exclusion Criteria** NR **Groups** G1: Intervention G2: Control **Interventions** G1: one-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction. G2: Control **Group (N)** G1: 801 G2: 798	**Title of CHW** Lay health workers **Paid or Volunteer** Paid **Relationship with Community** Locally recruited **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Intensively trained in basic breast and cervical cancer biology, screening and treatment, and availability of health care and screening services **Type of Service** Support and information **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Unspecified # of interactions (length per session NR) over 2 years **Length of Follow-up** 4 years	**Age (mean)** ~60% > 50 yrs **Sex (% female)** 100 **Race (%)** White: 31 Black: 30 Latina: 14% Latina Chinese: 17% Other: 7% **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Ever completed breast self-examination (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (89)/810 (92) X^2 = NR, *P*=0.031 G2: 793 (83)/ 802(81) X^2 = NR, not significant **Measure 2** Completed breast self-examination monthly in past year (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (24)/808 (26) X^2 = NR, not significant G2: 793 (18)/ 801(23) X^2 = NR, *P*=0.018 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Ever completed mammography (Total N [%] pretest/Total N [%] posttest) **Results** G1: 798 (83)/812 (86) X^2 = NR, not significant G2: 798 (68)/ 803 (77) X^2 = NR, *P*=0.001 **Measure 2** Ever completed mammography (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.7 (0.5, 1.0) **Measure 3** Completed mammography in the past 2 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 798 (73)/812 (71) X^2 = NR, not significant G2: 798 (57)/ 803 (62) X^2 = NR, *P*=0.022 **Measure 4** Completed mammography in past 2 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.7 (0.5, 1.0) **Measure 5** Completed 3 or more mammographies in past 5 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 794 (50)/812 (51) X^2 = NR, not significant G2: 794 (35)/ 803 (41) X^2 = NR, *P*=0.008 **Measure 6** Completed 3 mammographies in past 5 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.8 (0.5, 1.1) **Measure 7** Ever completed clinical breast examination (Total N [%] pretest/Total N [%] posttest)	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hiatt et al., 2008 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Results G1: 801 (94)/812 (95) X^2 = NR, not significant G2: 798 (82)/ 803 (87) X^2 = NR, *P*=0.006 **Measure 8** Completed clinical breast examination in past year (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (75)/809 (74) X^2 = NR, not significant G2: 796 (56)/ 803 (60) X^2 = NR, not significant **Measure 9** Completed 3 or more clinical breast examinations in past 5 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 793 (73)/809 (73) X^2 = NR, not significant G2: 792 (54)/ 800 (54) X^2 = NR, not significant **Measure 10** Ever completed pap smear (Total N [%] pretest/Total N [%] posttest) **Results** G1: 801 (95)/812 (96) X^2 = NR, not significant G2: 798 (83)/ 801 (87) X^2 = NR, *P*=0.021 **Measure 11** Ever completed Pap smear (logistic regression, 95% CI) **Results** Residence in outreach area over time: 1.5 (0.6, 4.2) **Measure 12** Completed pap smear in past 3 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 799 (84)/811 (87) X^2 = NR, not significant G2: 798 (69)/ 801 (75) X^2 = NR, *P*=0.009 **Measure 13** Completed Pap smear in the past 3 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.9 (0.6, 1.3)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hunter et al., 2004 **Trial Name** NR **Objective or Aim** Test effectiveness of a CHW (promotora) program to increase compliance with annual preventive exams among uninsured Hispanic women, aged 40 and older, living at US-Mexico border **Geography** US-Mexico border communities: Douglas, Arizona - 16,500 residents **Organization** cultural/community **Type of Community** Latina women **Study Design** RCT **Start Date** 1999 **Duration** 1 year	**Eligible (N)** 151 **Enrolled (N)** 103 **Randomized (N)** 101 **Completers (N)** 98 **Withdrawals or Dropouts (N)** 3 **Health Condition of Interest** Preventive care - Women's health **Inclusion Criteria** • Aged 40 or older • Residents of household • Not pregnant • At least 2 months postpartum • US women who participated in an initial comprehensive clinical exam **Exclusion Criteria** **Groups** G1: Postcard G2: Promotora **Interventions** G1: received postcards in mail 2 weeks before month their annual exams were due, printed in language used to complete original questionnaire G2: Received postcard reminders and were visited by promotora 2 weeks after postcard had been mailed. Promotora facilitated appointment scheduling, contacted them to facilitate rescheduling if appt was missed. **Group (N)** G1: 50 G2: 51	**Title of CHW** Promotora **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits; telephone calls to facilitate appt scheduling for annual preventive exams **Type of Educational Materials Used** None **Duration of Interaction with Clients** One initial home visit and one final follow-up visit 8 weeks after postcard mailing to begin intervention(time per session NR) **Length of Follow-up** NA	**Age (mean)** 50.3 years **Sex (% female)** 100 **Race (%)** 96% Hispanic **Other** • Born in Mexico: 86% • Blow federal poverty line: 76% • Less than hs education: 77% **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Measure 3** **Healthcare Utilization:** **Measure 1** Returned to clinic for a second comprehensive annual exam **Results** G1: 48% (n = 24) G2: 65% (n = 33) RR, 1.35, 95% CI, 0.95-1.92	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Jandorf et al., 2005 **Trial Name** NR **Objective or Aim** To determine whether a patient navigator (PN) would enhance CRC screening participation beyond physician recommendation alone in a neighborhood healthcare setting. **Geography** East Harlem, NYC **Organization** Inner city primary care practice **Type of Community** NR **Study Design** RCT **Start Date** 2002 **Duration** 6 months	**Eligible (N)** 125 **Enrolled (N)** NR **Randomized (N)** 78 **Completers (N)** 78 **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Colorectal cancer **Inclusion Criteria** Men and women ≥ 50 yrs of age **Exclusion Criteria** FOBT within past yr; FS or barium enema within past 3-5 yrs; colonoscopy within past 10 yrs **Groups** G1: Patient navigator G2: Usual care **Interventions** G1: Navigated G2: Not navigated **Group (N)** G1: 38 G2: 40	**Title of CHW** Patient Navigator **Paid or Volunteer** Paid **Relationship with Community** Shared community & ethnic background **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Assistance with completing screening process including written and telephone reminders, scheduling & assistance; education; support and advocacy **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Telephone calls (unspecified #, unspecified length) over 6 month period **Length of Follow-up** 6 months	**Age (mean)** G1: 61.1 G2: 61.2 **Sex (% female)** G1: 76.3 G2: 72.5 **Race (% Hispanic)** G1: 78.9 G2: 85.0 **Other** G1: Income ≤$10,000: 72.2% ≥ HS education: 13.2% Had family history of cancer: 36.8% G2: Income ≤$10,000: 64.1% ≥ HS education:10.0% Had family history of cancer: 38.5% **Role of CHW in Recruiting and Retention** PN approached prospective participants **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Completed FOBT after 3 months (% yes) **Results** G1: 42.1 G2: 25.0 *P* = 0.086 **Measure 2** Had endoscopy appointment at 3 months (%) **Results** G1: 18.4 G2: 0 *P* = 0.005 **Measure 3** Completed endoscopy at 3 months (%) **Results** G1: 15.8 G2: 5.0 *P* = 0.115 **Measure 4** Completed endoscopy at 6 months (%) **Results** G1: 23.7 G2: 5.0 *P* = 0.019	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004; **Trial Name** Home Visitation 2000 **Objective or Aim** Examine differences between CHWs and nurses in using home visitation to reduce incidence of child maltreatment; to examine distal effects of prenatal and infancy home visiting by CHWs or nurses, at 2-4 y/o **Geography** Denver **Organization** Recruited from prenatal clinics **Type of Community** Low-income **Study Design** RCT **Start Date** 1994 **Duration** 15 mo	**Eligible (N)** 1178 **Enrolled (N)** 735 **Randomized (N)** 735 **Completers (N)** 560 **Withdrawals or Dropouts (N)** 175 (n at 24 month assessment), 130 (n at 4 year assessment) **Health Condition of Interest** Child maltreatment; maternal and child health **Inclusion Criteria** Pregnant; Medicaid-qualified or no private insurance **Exclusion Criteria** Previous live birth **Groups** G1: CHW visitation G2: nurse visitation G3: control **Interventions** G1: Incremental developmental screening and referral + CHW home visitations G2: Developmental screening and referral + nurse home visitations G3: Developmental screening and referral **Group (N)** G1: 244 G2: 236 G3: 255	**Title of CHW** Paraprofessional **Paid or Volunteer** Paid **Relationship with Community** "Shared social characteristics" **CHW (N)** 10 **Supervision of CHW** 2 LCSWs (2 supervisors to 10 visitors) **Prior Training** HS education, no degree in "helping professions"; preferentially prior work experience in human services agencies **Type of Service** Intensive home visitation: promoting healthy behaviors, competent child care, pregnancy planning, education, employment; linking to social and health services; promoting healthy family/friend relationships **Type of Educational Materials Used** Visit-specific protocol, adapted to individual needs of mother **Duration of Interaction with Clients** Every other week (except for weekly visits during first 4 weeks after enrollment and first 6 weeks after delivery) through child's 21st month, followed by monthly visits during final 3 months, ≈ 75 min per session **Length of Follow-up** until child 4 y/o	**Age (mean)** G1: 19.44 G2: 20.24 G3: 19.70 **Sex (% female)** 100 **Race (%)** G1: Hispanic: 45%, Caucasian non-Hispanic: 35% African-American: 17% G2: Hispanic: 44% Caucasian non-Hispanic: 37% African-American: 16% G3: Hispanic: 46% Caucasian non-Hispanic: 35% African-American: 16% **Other** G1 younger and living in denser households than G2 **Role of CHW in Recruiting and Retention** **Recruiting: NR** Retention: emphasis on developing continuous relationship between home visitor and subject families **Recruitment Rates** 62% overall **Retention Rates** G1: 77% G2: 71% G3: 80%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Content of home visit, pregnancy **Results** Personal health G1 27% G2: 38% (*P* < 0.001) Environmental health G1 15% G2: 7% (*P* < 0.001) Life course development G1: 15% G2: 14% (*P* < 0.05) Parental caregiving G1: 24% G2: 25% Friends/family G1: 19% G2: 15% (*P* < 0.001)	**Health Outcomes:** **Measure 1** Language @ 21 mo (Preschool Lanaguge Scale) **Results** Least squares mean G1: 99.89 G2: 101.22 G3: 99.49 Mean difference G1-G3: 0.4 (-1.94 - 2.74) G2-G3: 1.73 (-0.64 - 4.11) Least squares mean (low resource group) G1: 97.83 G2: 101.52 G3: 96.85 Mean difference G1-G3: 0.98 (-2.65 - 4.62) G2-G3: 4.67 (0.85-8.49, **Measure 2** Mental development delay @ 24 mo (Mental Development Index) **Results** Least squares mean G1: 89.45 G2: 90.13 G3: 89.38 Difference G1-G3: 0.07 (-2.39 - 2.53) G2-G3: 0.75 (-1.77 - 3.28) Low resource group: least squares mean G1: 88.54 G2: 90.18 G3: 86.2 Difference G1-G3: 2.33 (-1.46 - 6.12) G2-G3: 3.98 (-0.07 - 8.02) G1-G2 1.26 **Measure 1** Subsequent fertility @ 24 mo **Results** Pregnancy G1: 33% G2: 29% G3: 41% G1-G3: 0.7 (0.46-1.06, *P* < 0.1) G2-G3: 0.6 (0.39-0.93, *P* ≤ 0.05) G1-G2: 0.88 (0.57-1.36) G1-G2 (adjusted) = 0.82 (0.51-1.31)	**Costs (Economics):** **Measure 1** Per-family cost over 2.5 years (inflation adjusted, 2002 dollars) **Results** G2: $6,162 G3: $9,140 **Measure 3** Average cost (including salary + benefits, supplies, travel, rent, equipment, training) over approx 2.5 y **Results** G1: $5,178/family G2: $7,681/family **Explanation of Overall Outcomes** CHWs were more likely than nurses to discuss environmental health and friends/family, life course development (after pregnancy), and less likely to discuss personal health (during pregnancy) and parental caregiving (after pregnancy); CHWs home visits have little significant effect on maternal & infant health outcomes, except for improved mother-child interactions among low psychological resource subpopulation; CHW visits showed improvement over control in maternal health but not in child health; nurse visit outcomes generally favored child health but not maternal **Quality Rating** Fair **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Measure 3 Mother-infant interaction **Results** Least squares mean G1: 100.15 G2: 100.31 G3: 98.99 G1 vs. G3: 1.16 (-0.11 - 2.42, *P* < 0.1) G2 vs. G3: 1.32 (0.03-2.60, *P* ≤ 0.05) Least squares mean difference G1 vs. G2 (low resource group) = 0.06 (01.87 - 1.98), adjusted 0.08 (-1.99 - 2.16) **Quality of Life:** **Measure 1** Home environment **Results** Least squares mean G1: 37.4 G2: 37.79 G3: 37.1; Mean difference G1-G3: 0.3 (-0.49 - 1.1) G2-G3: 0.69 (-0.12 - 1.5, *P* < 0.1) Least squares mean difference (low resource group) G1-G2: 0.26 (-0.95 - 1.47), adjusted -0.05 (-1.35 - 1.24) **Measure 3** Post-intervention reductino in urine cotinine levels among smokers (ng/mL) **Results** G1: 89 G2: 259 G3: 12 (NS) Least squares mean difference G1 vs G2: 189.16 (-51.38 - 429.69), adjusted 266.75 (-3.34 - 536.84) Mean difference G1 vs. G3 -76.19 ng/dL (95% CI, -302.21,-149.82) G2 vs. G3 -246.68 ng/dL (95% CI, -466.19,-27.16) *P* ≤0.05	Birth G1: 13% G2: 12% G3: 19% G1-G3: 0.63 (0.37-1.07, *P* < 0.1) G2-G3: 0.58 (0.33-1.01, *P* ≤ 0.05) G1-G2: 0.9 **Healthcare Utilization:** NR **Measure 2** Maternal life course **Results** Married G1: 32% G3: 44% (*P* = 0.02) Living w/ bio father G1: 33% G3: 43% (*P* = 0.03) Working at child 2-4 y/o G1: 15 mo G3: 13 mo (*P* = 0.04) Sense of mastery G1: 101 G3: 99 (*P* = 0.03) Mental health score G1: 101 G2: 99 (*P* = 0.03) No G1-G3 difference on education, welfare **Measure 3** Mother-child interaction **Results** Sensitive responsive interactions during free play G1: 101 G3: 99 (*P* = 0.03); no difference G2 vs G3 **Measure 4** Home environment (Home Observation for Measurement of Environment inventory) **Results** For low psychologic resource group: environment supportive of early learning G1: 24.63 G2: 24.61 G3: 23.35 (G1-G3 *P* = 0.03 G2-G3: *P* = 0.03)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Krieger et al., 1999 **Trial Name** Seattle Hypertension Intervention Project **Objective or Aim** Determine whether tracking and outreach intervention delivered by community health workers improved medical follow-up of persons whose elevated blood pressure detected during blood pressure measurement at community sites **Geography** Seattle **Organization** Various community sites: social services agencies, food banks, shelters/missions, public libraries, grocery stores, community centers, etc. **Type of Community** Low-income neighborhoods **Study Design** RCT **Start Date** 1994 **Duration** 28 months	**Eligible (N)** 759 **Enrolled (N)** 421 **Randomized (N)** 421 **Completers (N)** 397 **Withdrawals or Dropouts (N)** 110 **Health Condition of Interest** Hypertension **Inclusion Criteria** • BP at least 140/90 • 18+ y/o • Black or White race • Income no more than 200% FPL (1995) **Exclusion Criteria** See inclusion criteria **Groups** G1: Intervention G2: Usual care **Interventions** G1: CHW assistance with medical follow-up G2: advice to see medical provider, list of public and community clinics **Group (N)** G1: 209 G2: 212	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Similar income community, predominantly black (12/14) **CHW (N)** 14 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Medical referral, telephone appt scheduling, appt reminder letter, post-appt f/u, rescheduling missed appt, assistance with other barriers to care (e.g. transportation) **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Various, brief interactions over 3 months (time per session NR) **Length of Follow-up** 3 months	**Age (mean)** 24.9% < 40 y/o 18.3% > 64 y/o **Sex (% female)** 27.8 **Race (%)** 79.1% Black **Other** 40% uninsured **Role of CHW in Recruiting and Retention** Providing initial BP measurement **Recruitment Rates** 55.5% (421 enrolled of 759 eligible) **Retention Rates** G1: 95% G2: 93%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** Self-report of completed f/u appt (validated by medical provider report) **Results** G1: 65.1% completed f/u within 90 days G2: 46.7% (*P* = 0.001)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention was associated with significantly higher proportion of subjects completing HTN follow-up exam within 90 days **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Krieger et al., 2002; Krieger et al., 2005[47,48] **Trial Name** Seattle-King County Health Homes Project (SKCHH) **Objective or Aim** Assess effectiveness of a CHW intervention focused on reducing exposure to indoor asthma triggers **Geography** King Co, Washington **Organization** Low income urban households **Type of Community** Low income urban households with child diagnosed with asthma **Study Design** RCT **Start Date** 1999 **Duration** 1 year	**Eligible (N)** 447 **Enrolled (N)** 274 **Randomized (N)** 274 **Completers (N)** 214 **Withdrawals or Dropouts (N)** 60 **Health Condition of Interest** pediatric asthma **Inclusion Criteria** A household was eligibile if: • home to a child 4-12 years with diagnosed persistent asthma • income < 200% of 1996 federal poverty threshold • child enrolled in Medicaid • caregiver verbally proficient in English, Spanish or Vietnamese • child spent ≥ 50% of nights in house • house was in King County. **Exclusion Criteria** A child with another chronic illness requiring daily medications; household participation in other asthma case management or care coordination programs in past 2 years; plans to leave King County during next 6 months **Groups** G1: high intensity G2: low intensity **Interventions** G1: Initial home environmental assessment and individualized action plans specifying participant and CHES actions to reduce household exposures. CHES made additional visits over 12-month period to provide education and social support, materials to reduce exposures (e.g., bedding covers, vacuums); free allergy testing; advocacy for improved housing conditions. G2: Single CHES visit which consisted of initial environmental assessment, home action plan, limited education, and bedding encasements **Group (N)** G1: 138 G2: 136	**Title of CHW** Community Home Environmental Specialists (CHES) **Paid or Volunteer** Paid **Relationship with Community** Connection to and understanding of community; shared ethnic, linguistic, and cultural background with project participants; recognition as a person who can be respected and trusted **CHW (N)** 6 **Supervision of CHW** NR **Prior Training** NR **Type of Service** home visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 4 to 9 visits over 12 months (time per session NR) **Length of Follow-up** 1 year	**Age (mean)** G1: 7.4 G2: 7.3 **Sex (% female)** G1: 44.2 G2: 38.2 **Race (%)** Non-Hispanic White G1: 12.3 G2: 21.3 Non-Hispanic AA G1: 31.9 G2: 27.9 Vietnamese G1: 25.4 G2: 22.1 Other Asian G1: 9.4 G2: 5.2 Hispanic G1: 17.4 G2: 17.7 Other G1: 3.6 G2: 5.9 **Other** Household had at least 1 asthma trigger: 75% Urgent health use in past 2 months (%) G1: 25.9 G2: 21.3 Smoker in home (%) G1: 39.9 G2: 41.9 Severe persist asthma G1: 32.6 G2: 23.5 **Role of CHW in Recruiting and Retention** Cannot determine **Recruitment Rates** NR **Retention Rates** G1: 80% G2: 76%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Behavior summary score of trigger reduction behaviors (vacuum and dust child's bedroom at least twice/2 weeks, vacuum cloth-covered furniture at least twice/2 weeks or remove it, use doormat or remove shoes, use allergy control covers on mattress and pillow **Results** Across groups comparison: GEE coefficient (95% CI): 0.41 (-0.13, 0.95); *P* = 0.141 frequencies of actions to reduce dust exposure and use of bedding encasements increased more in high-intensity group. Kitchen ventilation improved more in low-intensity group. Neither group increased frequency of washing sheets or dusting nor reduced exposure to pets (although pet ownership was uncommon among participants) and smoking in home. behavior summary score improved in both groups, and across-group difference was not significant **Quality of Life:** **Measure 1** Pediatric Asthma Caregiver Quality of Life Scale (score range 1-7 with higher scores indicating better QoL) **Results** Score at exit (G1 vs. G2): 5.6 vs. 5.4 GEE coefficient 0.58 (95% CI, 0.18, 0.99), *P* = 0.005; NNT = 4.8 ITT analysis yielded simalr results: improvements in QoL were greater in G1 (data NR, *P* = 0.009) **Measure 2** Asthma symptom days (self-reported # of 24-hour periods during 2 weeks before interview with asthma symptoms: wheeze, tightness in chest, cough, shortness of breath, slowing down activities due to asthma, nighttime awakenings) **Results** G1 vs. G2 at exit: 3.2 vs. 3.9 GEE coefficient -1.24 (95% CI, -2.9, 0.4), *P* = 0.138	**Health Outcomes:** **Measure 1** Days with activity limitation/2 weeks **Results** Score at exit (G1 vs. G2): 1.5 vs. 1.7 GEE coefficient -1.5 (95% CI, -2.84, -0.15), OR 0.22 (0.06, 0.86), *P* = 0.29 **Measure 2** Missed school in past 2 weeks (%) **Results** G1 vs. G2 at exit: 12.2 vs. 20.3 GEE coefficient -0.77 (95% CI, -1.70, 0.16), OR 0.46 (0.18, 1.18), *P* = 0.105 **Measure 3** Urgent health services use/2 months (%) **Results** G1 vs. G2 at exit: 8.4 vs. 16.4 GEE coefficient -0.97 (95% CI, -1.8, -0.12), OR 0.38 (0.16, 0.89), *P* = 0.026; NNT = 12.9 ITT analysis yielded simalr results: improvements in urgent health services were greater in G1 (data NR, *P* = 0.062) **Measure 4** Days used controller medication/2 weeks **Results** G1 vs. G2 at exit: 3.5 vs. 3.6 GEE coefficient -1.03 (95% CI, -2.79, 0.73), *P* = 0.250 **Measure 5** Days used beta2-agonist/2 weeks **Results** G1 vs. G2 at exit: 4.0 vs. 4.0 GEE coefficient -0.23 (95% CI, -1.88, 1.42), *P* = 0.781 **Measure 6** Missed work in past 2 weeks (%) **Results** G1 vs. G2 at exit: 11.2 vs. 13.0 GEE coefficient 0.07 (95% CI, -0.91, 1.0.5), OR 1.07 (0.40, 2.85), *P* = 0.890 **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** Urgent care costs (hospital admissions, ER visits, unscheduled clinic visits) **Results** Two months before exit interview G1 $6301-$8856 ($57-$80/child) less than G2. Estimated decrease in 2 month costs between baseline and exit: G1: $22084-$36700 ($201-$344/child) vs. G2: $19246-$32756 ($185-$315/child) **Explanation of Overall Outcomes** NR **Quality Rating** Good **Health Outcomes:**

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Levine et al., 2003 **Trial Name** NR **Objective or Aim** Compare program effectiveness and intervention efficacy of more and less intensive education/behavior interventions on control of SBP **Geography** Sandtown-Winchester Community, Baltimore **Organization** inner city **Type of Community** Urban African-American **Study Design** RCT **Start Date** NR **Duration** 30 months	**Eligible (N)** 817 **Enrolled (N)** 789 **Randomized (N)** 789 **Completers (N)** 471 **Withdrawals or Dropouts (N)** 318 **Health Condition of Interest** Hypertensive heart disease **Inclusion Criteria** African-American adults w/ HTN (140+/90+) **Exclusion Criteria** • Terminal conditions • Mental impairment • Acute conditions precluding participation **Groups** G1: More intense intervention G2: Less intense intervention **Interventions** G1: G2 care + 5 CHW visits with BP measurement, addressing issues of BP management and access to medical care G2: CHW home visit for education, counseling, and referral **Group (N)** G1: 387 G2: 402	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Indigenous to community **CHW (N)** NR **Supervision of CHW** Nurse-supervised **Prior Training** NR **Type of Service** Home visits; BP measurement; education; assistance with access to care **Type of Educational Materials Used** Counseling; BP tracking card; educational pamphlet **Duration of Interaction with Clients** 6 visits over 2.5 years (length per visit NR) **Length of Follow-up** 40 mo	**Age (mean)** G1: 53.8 G2: 54.6 **Sex (% female)** G1: 61.2 G2: 62.5 **Race (%)** 100'% African-American **Other** • HS-level education: 42% • < HS: 45% • Unemployed: 32% • Income < $10k: 65% • With usual source of care: 79% • Uninsured: 20% **Role of CHW in Recruiting and Retention** • Initial neighborhood surveillance • Recruiting for individual RCT **Recruitment Rates** 0.97 **Retention Rates** G1: 240/387 = 62% G2: 231/402 = 57%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** BP change (unadjusted systolic/diastolic ± SE; adjusted systolic/diastolic ± SE) **Results** G1: -5.5±1.5/-4.1±0.9; 5.6±1.5/-3.8±1.0) G2: -3.2±1.5/-2.9±1.0; -3.3±1.5/-2.6±1.0) *P* < .005 for differences between baseline and followup for each group, no differences between groups **Measure 2** % with adequate HTN control (< 140/90) **Results** G1: 16% → 36% G2: 18% → 34% pre/post *P* < .01 group difference NS **Measure 3** Pre/post BP (systolic/diastolic) **Results** G1: 147.7/89.2 (95% CI, 145.5, 149.9 / 87.8, 90.6) → 145/86.2 (95% CI, 142.3, 147.7 / 84.2, 88.2) G2: 148.6/89.3 (95% CI, 146.4, 150.7 / 87.8, 90.8) → 142.1/84.7 (95% CI, 138.8, 145.4 / 82.7, 86.7) *P* < 0.05 for differences between baseline and followup for eachHealthcare **Measure 4** JNC-VI classification pre/post **Results** No significant differences **Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention produced significant pre/post change in proportion of HTN under control in both arms, but no difference between arms; no significant pre vs post change in BP classification within or between arms; more intensive group had less favorable results than less intensive group **Quality Rating** Fair **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Lujan; 2007 **Trial Name** NA **Objective or Aim** Determine effectiveness of intervention led by promotoras on glycemic control, diabetes knowledge and diabetes health beliefs of Mexican-Americans with type 2 DM living on Texas-Mexico border **Geography** Texas-Mexico border city **Organization** Mexican Americans at a Catholic faith-based community clinic **Type of Community** Type 2 diabetes mellitus **Study Design** RCT **Start Date** NR **Duration** NR	**Eligible (N)** 160 **Enrolled (N)** 150 **Randomized (N)** 150 **Completers (N)** 141 **Withdrawals or Dropouts (N)** 9 **Health Condition of Interest** Diabetes mellitus type 2 **Inclusion Criteria** 40+ years, self-reported Mexican American ethnicity, diagnosed with type 2 diabetes for at least 1 year, taking or having taken hypoglycemic agents within past 6 months, willing to participate, noncompletion of formal diabetes education program at clinic, ability to speak either English or Spanish, only 1 per household **Exclusion Criteria** Type 1 diabetes, younger than 40 years, diagnosed with diabetes for less than 1 year, being treated for complciations that would interfere with ability to participate in classes **Groups** G1: Promotoras G2: Usual Care **Interventions** G1: A team of 2 promotoras delivered 8 weekly, 2 hour participative group classes and follow-up to intervention group, using multiple visual audio teaching aides and handouts, contacted class participants by phone biweekly to answer questions, reinforce education, promote behavior change, sent postcards biweekly G2: Usual care by clinic staff - verbal information and 1 or 2 pamphlets on diabetes self-management **Group (N)** G1: 75 G2: 75	**Title of CHW** Community lay workers (promotoras) **Paid or Volunteer** paid **Relationship with Community** bilingual clinic employees **CHW (N)** NR **Supervision of CHW** PI attended every class **Prior Training** NR **Type of Service** Classroom: 8 weekly 2-hour group classes; Biweekly Telephone calls **Type of Educational Materials Used** Developed by certified health educator with promotoras, based on ADA Guidelines **Duration of Interaction with Clients** 8 weekly 2-hour classes + biweekly telephone calls for 8 weeks followed by biweekly postcards for 16 weeks 24 weeks total duration of interaction with participants **Length of Follow-up** 6 months	**Age (mean)** 58 years **Sex (% female)** 80 **Race (%)** 100% Mexican American **Other** • Without health insurance: 68% • Preferred to speak Spanish: 97% • Catholic: 74% **Role of CHW in Recruiting and Retention** Unclear **Recruitment Rates** NA **Retention Rates** G1: 71 G2: 70 (at 6 months)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Bilingual DKQ - validated: 24 itms designed for Mexican Americans and elicits information about respondent's understanding of cause of diabetes, types of diabetes, self-management skills, and complications of diabetes **Results** Baseline/ 6 months (SD): G1: 69.1 (13.6)/77.2 (14.4) G2: 66.9 (15.2)/65.1 (21.0) (*P* < .002 for mean change between groups) **Measure 2** Diabetes Health Belief Measure (DHBM) **Results** **Baseline(SD)/6 months(SD):** G1: 56.4(12.2)/54.6(8.4) G2: 57.0(10.6)/50.8(13.6) Mean change between groups: *P* < 0.01 **Quality of Life:** NR	**Health Outcomes:** **Measure 1** HgbA1c **Results** Baseline(SD)/6 months(SD): G1: 8.21(2.2)/7.76(1.87) G2: 7.71(1.47)/8.01(1.8) Mean change between groups: *P* < 0.001 **Measure 3** HgbA1c - validated **Results** At 6 months: G1: 7.76 G2: 8.01 (*P* < .001) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Mock et al., 2007 **Trial Name** Vietnamese REACH for Health Initiative **Objective or Aim** Increase cervical cancer screening rates **Geography** Santa Clara County, CA **Organization** Commnity **Type of Community** Vietnamese American women **Study Design** RCT **Start Date** 2001 **Duration** 3 years	**Eligible (N)** NR **Enrolled (N)** 1005 **Randomized (N)** NR **Completers (N)** 968 **Withdrawals or Dropouts (N)** 37 **Health Condition of Interest** Pap screening **Inclusion Criteria** • Vietnamese American • Female • ≥18 years • Living in Santa Clara County **Exclusion Criteria** NR **Groups** G1: CHW + media G2: media only **Interventions** G1: CHW small group meetings, direct contact with subjects, Vietnamese language ads for TV/radio/newspaper, booklets and printed materials in various community locations G2: Vietnamese language ads for TV/radio/newspaper, booklets and printed materials in various community locations, delayed educational session **Group (N)** G1: 491 G2: 477	**Title of CHW** Lay health worker **Paid or Volunteer** Paid, $1500 **Relationship with Community** Shared race/ethnicity, physical community **CHW (N)** 50 **Supervision of CHW** Non clinician **Prior Training** NR **Type of Service** Small group gatherings, direct contacts to help access medical services and schedule appts **Type of Educational Materials Used** Prepared presentation with flip chart, QandA **Duration of Interaction with Clients** 2 sessions of 90 or 120 minutes each plus individual contacts over 3 to 4 months **Length of Follow-up** 3-4 months	**Age (mean)** G1: 45.7 G2: 46.0 **Sex (% female)** G1: 100 G2: 100 **Race (%)** Vietnamese 100 **Other** Mean years in US G1: 8.92 G2: 9.23 Self-rated speaking English poorly/not at all G1: 56.3% G2: 57.7% > HS education G1: 57.5% G2: 54.8% Married G1: 61.3% G2: 64.3% Employed G1: 26% G2: 27.1% **Role of CHW in Recruiting and Retention** CHW recruited subjects from within her own social network **Recruitment Rates** G1: 100% G2: 100% **Retention Rates** G1: 97.8% G2: 94.8%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Reported awareness of need for Pap by women 18+ y/o **Results** G1: 68.4→93.9% (*P* < 0.001) G2: 68.5→70.2% (*P* = 0.55); Z-test *P* < 0.001) **Measure 2** Reported awareness of need for pap test by women 18+ years old **Results** G1: 81.8%/99.6% (*P* < 0.001) G2: 87.2%/95.2% (*P* < 0.001) Z-test *P* < 0.001 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Self-report of Pap in past year **Results** G1: 45.7→67.3% (*P* < 0.001) G2: 50.9→55.7% (*P* = 0.035); Z test *P* < 0.001 **Measure 2** Ever had Pap test (among those who had not had Pap test preoutreach) **Results** G1: 46.0 (N = 144) G2: 27.1 *P* < .001 (N = 161) **Measure 3** Self-report of having ever had Pap **Results** G1: 65.8→81.8% (*P* < 0.001) G2: 70.1→75.5 (*P* < 0.001); Z test *P* = 0.001	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW + media intervention significantly increases understanding of and utilization of Pap compared to media intervention alone **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Morisky et al., 2002; Ward et al., 2000 **Trial Name** Community Hypertension Intervention Project (CHIP) **Objective or Aim** Develop effective strategies for enhancing treatment adherence for hypertensive minority populations **Geography** Large West Coast city **Organization** County medical center **Type of Community** Low-income, inner-city Blacks and Hispanics **Study Design** RCT **Start Date** NR **Duration** 4 years	**Eligible (N)** NR **Enrolled (N)** 1367 **Randomized (N)** 1367 **Completers (N)** NR **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Hypertension **Inclusion Criteria** Adult w/ diagnosis of HTN attending county hospital clinic or private health clinic **Exclusion Criteria** NR **Groups** G1: Individualized CHW pt counseling G2: Appt tracking G3: CHW home visits + voluntary discussion group attendance G4: Usual care **Interventions** G1: CHW post-clinic appt counseling session G2: Appt reminder cards and phone calls G3: Home visits by CHW G4: Standard clinic care **Group (N)** G1: 330 G2: 328 G3: 333 G4: 328	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Same ethnic group as patient, language concordant **CHW (N)** NR **Supervision of CHW** NR **Prior Training** 1 month interview training program **Type of Service** Counselling after clinic visits, or home visits **Type of Educational Materials Used** Education on treatment, lifestyle modification info, info on community resources **Duration of Interaction with Clients** G1: 5-10 min after each clinic visit G3: variable **Number of visits, duration per session, time period over which interactions occurred** NR **Length of Follow-up** 12 mo	**Age (mean)** 53.5 (SD 12.0) **Sex (% female)** 59.2 **Race (%)** Black: 77% Hispanic: 21% **Other** • < HS education: 49% • Married: 33% • Income < $14k/y: > 87% • Public insurance: 54% • Uninsured: 30% **Role of CHW in Recruiting and Retention** Interviews with new enrollees **Recruitment Rates** > 98% overall **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** BP Control **Results** G1: 35.2% @ baseline, 46% @ 6 and 12 mo ($P < 0.01$) G2: 40.2% @ baseline 42% @ 6 mo 48% @ 12 mo ($P < 0.01$) G3: 29.7% @ baseline %NR but "improved" @ 6 & 12 mo G4: 36.9% @ baseline % NR but "improved" No significant differences vs. control - all groups improved **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Nacion et al., 2000 **Trial Name** REACH-Futures **Objective or Aim** Can maternal-child health advocates, working with professional nurses, provdie health screening, problem identification, self and infant care information, and referrals in a safe manner? **Geography** Chicago **Organization** inner city **Type of Community** Predominantly African-American and Latino **Study Design** Retrospective cohort **Start Date** 1992 **Duration** 32 mo	**Eligible (N)** 218 **Enrolled (N)** 213 **Randomized (N)** 213 **Completers (N)** 213 **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Maternal and child health **Inclusion Criteria** Home visit accomplished by CHW with validating follow-up by nurse **Exclusion Criteria** Visit conducted by CHW + nurse together **Groups** G1: CHW visit G2: nurse visit **Interventions** NR **Group (N)** G1: 213 G2: 213	**Title of CHW** Maternal-Child Health Advocate **Paid or Volunteer** Paid **Relationship with Community** Within community, minority **CHW (N)** 11 **Supervision of CHW** Validation by nurse after each visit **Prior Training** Minimum HS or GED; experience in community service **Type of Service** Intensive home visits for assessment, problem solving, emotional support, and information **Type of Educational Materials Used** NR **Duration of Interaction with Clients** NR **Length of Follow-up** NR	**Age (mean)** 58% 20+ y/o **Sex (% female)** 100 **Race (%)** • African-American: 90% • Latina: 9% **Other** • < HS education: 51% • Gravida-1: 53% **Role of CHW in Recruiting and Retention** NA - CHW visits were unit of analysis **Recruitment Rates** NA - CHW visits were unit of analysis **Retention Rates** NA - CHW visits were unit of analysis

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Agreement in identifying problems **Results** CHW more likely to identify problems in woman's health (P =0.01), well child health care deficits (P = 0.02), parenting (P = 0.02), socioeconomic (P < 0.01); most visits identified no problems **Measure 2** Agreement in placing referrals **Results** Nurse more likely to make referrals for woman's health (P = 0.01), well woman (P = 0.02), emotional/interpersonal, parental support, and socioeconomic (P < 0.01); most visits involved no referrals **Measure 3** Services provided (per completed Maternal-Child Activity form) **Results** Problem solving G1: 16% G2: 7% (P < 0.01) Emotional support G1: 4% G2: 14% (P < 0.01) Assessment, information: No difference between groups	**Costs (Economics):** NR **Explanation of Overall Outcomes** • CHW and nurse home visits were comparable in most regards • CHW more likely to identify problems and provide problem solving • Nurse more likely to provide referrals and emotional support **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000 **Trial Name** Por La Vida Damos Cuenta Program **Objective or Aim** To describe impact of intervention known as Por La Vida (PLV) on cancer screening for Latinas in San Diego, California **Geography** Southeast area of San Diego County, CA **Organization** Low-income Latino communites **Type of Community** Low-income Latino women **Study Design** RCT **Start Date** NR **Duration** NR	**Eligible (N)** NR **Enrolled (N)** 512 **Randomized (N)** 512 **Completers (N)** 365 **Withdrawals or Dropouts (N)** 147 **Health Condition of Interest** Breast and cervical cancer **Inclusion Criteria** Part of social network of consejeras recruiting participants. No other inclusion criteria reported. **Exclusion Criteria** NR **Groups** G1: Lower intensity CHW intervention G2: Higher intensity CHW intervention **Interventions** G1: CHW delivering Community Living Skills sessions, details NR G2: CHW delivering Cancer education sessions, 12 weekly group sessions conducted over 3-months plus 2 additional sessions offered within a year of beginning of group meetings **Group (N)** G1: 18 consejeras, 238 women G2: 18 consejeras, 274 women	**Title of CHW** Consejeras **Paid or Volunteer** NR **Relationship with Community** Member of Latino community perceived, as "natural helpers" by community **CHW (N)** 36 **Supervision of CHW** Yes--"unobtrusive observations" of ongoing sessions and debriefing sessions with consejeras each month by PLV "staff" but no reporting of who these staff members are **Prior Training** NR **Type of Service** Small group educational sessions **Type of Educational Materials Used** Pamphlets, work sheets, posters, plastic models of female body, pelvic models **Duration of Interaction with Clients** 12 sessions of 90 minutes each over 3 months **Length of Follow-up** 3 months 1 and 2 year followup	**Age (mean)** • Average: 34 • Range: 18-72 **Sex (% female)** 100 **Race (%)** Latina: 100 **Other** • Median gross family income: $12,000 • Median years of formal education: 7 • Born in Mexico: 92% • Avg acculturation: 2 **Role of CHW in Recruiting and Retention** CHW recruited all participants through social networks **Recruitment Rates** 1 **Retention Rates** G1: 68.1 G2: 72.6

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pretest-posttest changes in % of women performing monthly BSEs **Results** Participant unit of analysis (n = 361) G1: 18.5 G2: 33.2 *P* < 0.001 t = 3.23 Consejera unit of analysis (n = 35) G1: 18.6 G2: 31.8 *P* = 0.021 t = 2.43 **Measure 3** Pretest-posttest changes in % of women ≥40 yrs who had mammogram within past year **Results** Participant unit of analysis (n = 113) G1: 7 G2: 21.4 *P* = 0.029 t = 2.22 Consejera unit of analysis (n = 33) G1: 6.8 G2: 24.3 *P* = 0.063 t = 1.96 **Healthcare Utilization:** **Measure 1** Pretest-posttest changes in % of women who had physical breast exam within past year **Results** Participant unit of analysis (n = 359) G1: 15.5 G2: 17.7 *P* = 0.589 t = 0.54 Consejera unit of analysis (n = 35) G1: 19.3 G2: 19.5 *P* = 0.967 t = 0.04	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** Increase in use of cancer screening tests higher in PLV cancer intervention group compared to community living skills (control) group Results from 1 and 2 yr followup suggest that cancer screening rates in Latinas of low socio-economic level with limited a **Quality Rating** Poor **Health Outcomes:** **Measure 1** Odds of montly BSE 1 yr and 2 yr followup for cancer screening group (*P* value) **Results** Year 1: 2.03 (.016) Year 2: 0.96 (.877) **Measure 2** Odds of CBE 1 yr and 2 yr followup for cancer screening group (P value) **Results** Year 1: 1.21 (.556) Year 2: 1.93 (.038) **Measure 3** Odds of mammogram 1 yr and 2 yr followup for cancer screening group (P value) **Results** Year 1: 1.50 (.484) Year 2: 3.88 (.018)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000			

(continued)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 2 Pretest-posttest changes in percentages of women who had a Pap test within past year **Results** Participant unit of analysis (n = 360) G1: 16.2 G2: 23.1 *P* = 0.096 t = 1.67 Consejera unit of analysis (n = 35) G1: 18.4 G2: 23.4 *P* = 0.369 t = 0.91	**Measure 4** Odds of pap smear 1 yr and 2 yr followup for cancer screening group (*P* value) **Results** Year 1: 2.10 (.017) Year 2: 1.70 (.082)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Parker et al., 2008 **Trial Name** Community Action Against Asthma (CAAA) **Objective or Aim** Evaluate a CHW intervention to improve children's asthma-related health by reducing household environmental triggers for asthma **Geography** Eastside and southwest Detroit, MI **Organization** Urban households with children attending neighborhood elementary schools **Type of Community** Urban neighborhoods with child with asthma **Study Design** RCT **Start Date** 2000 **Duration** 1 year	**Eligible (N)** 510 **Enrolled (N)** 328 **Randomized (N)** 328 **Completers (N)** 227 **Withdrawals or Dropouts (N)** 101 **Health Condition of Interest** pediatric asthma **Inclusion Criteria** Child 7-11 years with persistent asthma (defined as any of following being true: one or more daytime symptoms reported as being present "more than two times per week,"; sleep disturbance reported "more than two times per week"; and daily use of doctor-prescribed medicine for respiratory symptoms) living in southwest or eastside Detroit **Exclusion Criteria** Children who lived outside of defined geographic area or were monolingual in a language other than Spanish or English were excluded from study. **Groups** G1: CHW G2: Control **Interventions** G1: Environmental assessment; asthma action plan based on allergy tests; education and social support; social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services; minimum 9 planned home visits over 12 months G2: Asthma information booklet, full intervention after 12 months **Group (N)** G1: 150 G2: 148	**Title of CHW** CES **Paid or Volunteer** NR **Relationship with Community** Detroit residents; 2 were bilingual (Spanish and English) **CHW (N)** 4 **Supervision of CHW** NR; however, there was a steering committee of community members, health agencies, etc. involved in project; also CHWs had continued training throughout intervention period **Prior Training** NR **Type of Service** home visits **Type of Educational Materials Used** Written materials on on dangers of ETS exposure for children with asthma Global Initiative for Asthma booklet **Duration of Interaction with Clients** At least 9 visits over 12 months (time per session NR **Length of Follow-up** 1 year	**Age (mean)** G1: 9.01 G2: 8.8 **Sex (% female)** G1: 43 G2: 41 **Race (%)** African American G1: 83 G2: 79 Hispanic G1: 11 G2: 10 Caucasian G1: 4 G2: 5 Other G1: 3 G2: 6 **Other** Caregiver smokers (%) G1: 40 G2: 35 Moderate-severe persistent asthma G1: 51 G2: 44 Household income < $10000 G1: 37 G2: 46 **Role of CHW in Recruiting and Retention** No role; CES was assigned cases **Recruitment Rates** NA **Retention Rates** G1: 77% G2: 75% (Does not include 30 postrandomization exclusions)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Behavior to reduce asthma triggers in house **Results** Intervention Effect (OR-intervention/OR-control) Vacuum cleaner used: 29.5 (6.90, 126); *P* < 0.0001 Allergen cover on child's pillow: 19.7 (4.12, 94.2); *P* = 0.0006 Allergen cover on child's mattress: 9.70 (4.33, 21.7); *P* < 0.0001 Visible mold growth remo **Measure 3** Caregiver depressive symptoms measured by CES-D **Results** Mean @ Baseline/Endpoint G1: 1.62/1.54 G2: 1.58/1.64 *P* = 0.0218 Improvements in both instrumental and emotional social support combined and instrumental support alone were not statistically significant (data NR) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Child's average asthma symptom frequency **Results** G1: Symptoms occurring less frequently at baseline for all eight symptoms assessed G2: Symptoms occurring less frequently for 6 of 8 Persistent cough baseline, post-intervention: G1: 3.81, 3.36 G2: 3.48, 3.44 *P* = 0.034 Cough w/ exercise baseline, post: G1: 4.27, 3.69 G2: 3.80, 3.66 *P* = 0.017 **Healthcare Utilization:** **Measure 1** Has any symptom more than 2 days/week and not on a corticosteroid **Results** G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI): 60/42 vs. 51/46; 0.56 (0.29, 1.06); *P* = 0.073 **Measure 2** Has any symptom more than 2 days/week and not on any controller **Results** G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI: 53/32 vs. 38/37; 0.39 (0.20, 0.73); *P* = 0.004 **Measure 3** Reduction in unscheduled health care utilization for asthma **Results** Needed unscheduled medical care G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI): In last 12 months: 65/59 vs. 58/73; 0.40 (0.22, 0.74); *P* = 0.004 In last 3 months: 50/45 vs. 42/56; 0.43 (0.23, 0.80); *P* = 0.007	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Paskett et al., 2006; Katz et al., 2007 **Trial Name** ROSE (Robeson County Outreach Screening and Education) **Objective or Aim** To use LHAs to deliver individualized health education to improve rates of mammography screening **Geography** Robeson County, NC **Organization** Community health centers - Robeson Health Care Corporation (federally funded, four centers) **Type of Community** County **Study Design** RCT **Start Date** February 1998 **Duration** 4 years	**Eligible (N)** 1,503 **Enrolled (N)** 901 **Randomized (N)** 897 **Completers (N)** 820 **Withdrawals or Dropouts (N)** 77 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Women without a mammogram in past 12 months **Exclusion Criteria** Mentally or physically unable to participate, unreachable, language/hearing barrier **Groups** G1: Control G2: Intervention **Interventions** G1: Control sent letter and NCI brochure about need for regular cervical cancer screening 6 months after random assignment, followed by letter and NCI brochure about need for mammography 3 months after follow-up asssment G2: Individualized health education program that was culturally acceptable and tailored to meet needs of each woman, intensive face-to-face interactive educational program administered over a 9- to 12 month period, consisting of 3 in-person visits, with educational materials provided each visit and follow-up phone calls and mailings after **Group (N)** G1: 444 G2: 453	**Title of CHW** Lay health advisor **Paid or Volunteer** Paid **Relationship with Community** Ethnicity: 2 native American and 1 African-American **CHW (N)** 3 **Supervision of CHW** LHA supervisor checked in weekly by phone or in-person to discuss cases and problems; periodic attendance of LHA supervisor during patient visits **Prior Training** 1 nurse, 1 social worker, 1 research study interviewer **Type of Service** home visits, phone calls **Type of Educational Materials Used** written, culturally sensitive **Duration of Interaction with Clients** Two visits, 45-60 minutes, and 30-45 minutes, two intervening telephone calls, and a final visit (duration of final visit NR) over 9 to 12 months **Length of Follow-up** 14 months	**Age (mean)** 55.1 **Sex (% female)** 100 **Race (%)** • African-American: 33% • Native American: 42% • White: 25% **Other** NR **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Composite belief scores (higher is better) **Results** G1: 6.95 G2: 7.55 (*P* = 0.004) **Measure 2** Composite knowledge scores **Results** Specific scores NR, *P* value for G1 = 0.002, G1 < 0.001, no statistically significant differences **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Cervical cancer screening rates within risk-appropriate guidelines **Results** Significant differences between baseline and followup for both groups, no significant differences between intervention and control groups **Measure 2** Mammogram receipt from medical record data **Results** G1: 27.3% G2: 42.5%, RR = 1.56, 95% CI, 1.29 to 1.87, *P* < .001; significant differences within racial groups as well **Measure 3** Intervention cost divided by additional mammograms in LHA group compared with usual care **Results** $4,986 per additional mammogram in LHA group	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Pilote et al., 1996 **Trial Name** NR **Objective or Aim** Peer health advisers familiar with homelessness and ways of street could facilitate access to health care for TB in a homeless population. **Geography** San Francisco, CA **Organization** Homeless population **Type of Community** Lack of neighborhood (homeless) **Study Design** RCT **Start Date** June 1992 **Duration** 23 months	**Eligible (N)** 297 **Enrolled (N)** 244 **Randomized (N)** 244 **Completers (N)** 173 **Withdrawals or Dropouts (N)** 71 **Health Condition of Interest** TB **Inclusion Criteria** Homeless men and women, PPD positive **Exclusion Criteria** recent follow-up **Groups** G1: Peer health advisor G2: Monetary incentive G3: Usual care **Interventions** G1: Peer health advisor- met with patient and took them to clinic appointment, facilitated paperwork, reviewed physician recommendations G2: Monetary incentive - $5 at clinic, appointment and bus tokens G3: Usual care - appointment and bus tokens **Group (N)** G1: 83 G2: 82 G3: 79	**Title of CHW** Peer health adviser **Paid or Volunteer** Paid **Relationship with Community** Also homeless **CHW (N)** 7 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Took client to clinic and helped with proccess **Type of Educational Materials Used** None **Duration of Interaction with Clients** NR - met client and went to clinic within a 3 week period (duration of session NR) **Length of Follow-up** 3 weeks	**Age (mean)** Median G1: 40 G2: 39 G3: 40 **Sex (% female)** G1: 13 G2:19 G3:16 **Race (%)** G1: African American: 48 White: 33 Hispanic: 16 G2: African American: 57 White: 27 Hispanic: 11 G3: African American: 54 White: 27 Hispanic: 13 **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Adherence to first follow-up appointment % (95% CI) *P* versus usual care - unclear how obtained **Results** G1: Peer health advisor 75 (70-80) *P* = 0.004 G2: Monetary incentive 84 (76-92) *P* < 0.001 G3: Usual care 53 (47-59)	**Costs (Economics):** NR **Explanation of Overall Outcomes** **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Rask et al., 2001; LeBaron et al., 2004[63] **Trial Name** NA **Objective or Aim** (1) Prospectively measure costs of 3 different registry-based interventions implemented in an urban indigent population and (2) evaluate how size of targeted population affects cost estimates **Geography** Fulton County, GA **Organization** MATCH (Metro Atlanta Team for Child Health) immunization registry: community-based partnership between two county health agencies, local nonprofit, federally qualified community health centers **Type of Community** See prior **Study Design** RCT **Start Date** 1996 **Duration** 22 months (35 mo for follow-up contact; 53 months for electronic acquisition of vaccine information)	**Eligible (N)** 3050 **Enrolled (N)** 3050 **Randomized (N)** 3050 **Completers (N)** NR **Withdrawals or Dropouts (N)** 304 not exposed to intervention (within intervention arms) **Health Condition of Interest** Pediatric immunizations **Inclusion Criteria** Children aged < 12 months seen in a county public health clinic **Exclusion Criteria** NR **Groups** G1: AUTODIAL G2: OUTREACH worker G3: combination of 1 and 2 G4: CONTROL **Interventions** G1: Autodial -received an automated telephone call or postcard to remind families 7 calendar days before child was due to be immunized. Patient received postcard if no number or nonworking. Delivered recorded message from head medical staff. G2: Outreach - contacted by outreach worker following a standardized protocol initated by a phone call wihtin 1 week. outreach worker made reminder call before appt if time known. if child remained behind next monht, a home visit was attempted monthly until contact was made. **Group (N)** G1: 763 G2: 760 G3: 764 G4: 763	**Title of CHW** Outreach worker **Paid or Volunteer** NR **Relationship with Community** • African American woman raised in inner-city Atlanta • Bilingual Hispanic worker **CHW (N)** 2 **Supervision of CHW** Doctorate in community psychology and extensive experience in conducting inner-city studies **Prior Training** College-educated **Type of Service** Phone calls, home visit for appointment reminder, assistance in overcoming barriers to appointment for pediatric immunizations if needed Phone calls, home visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** At least one telephone call, followed by repeat calls and home visit if no telephone contact, over 15 months or less (time per interaction NR) **Length of Follow-up** 15 months	**Age (mean)** 9 months **Sex (% female)** 51 **Race (%)** 93% minority (black or Hispanic) **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Vaccine Series complete from immunization registry **Results** No statistical difference between CHW and control groups **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** Average monthly costs to dleiver immunization interventions per child **Results** G1: $1.34 G2: $1.87 G3: $2.76 **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sauaia et al., 2007; Welsh et al., 2005 **Trial Name** Tepeyac Project **Objective or Aim** To increase breast cancer screening rates among Latinas in Colorado;[64] To compare effect of promotora vs printed statewide interventions on mammogram rates of Latinas and non-Latina whites (NLWs) enrolled in Medicaid fee-for-service program [65] **Geography** Colorado **Organization** Catholic Churches, Latina Women **Type of Community** Church communities **Study Design** Retrospective cohort **Start Date** 2000 **Duration** 5 yrs	**Eligible (N)** • Latina only analysis: 4,739;[64] • Latina vs. white analysis: 6,696[65] **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** Latina only analysis: 4739[64]; Latina vs. white analysis: 6696[65] **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Latina only analysis: • Latinas (identified through race and ethnicity data combined with surnames) • Aged 50 to 69 years • Continuously enrolled in insurance plan (Medicaid or Medicare) for longer than 23 months with no gap in coverage longer than 30 days • Survived entire baseline or follow-up period[64] Latina vs. white comparison: • White or Latina women (identified through race and ethnicity data) • Aged 50-64 years • Enrolled in CO Medicaid at least 18 mo during baseline and follow-up periods[65] **Exclusion Criteria** NR **Groups** G1: Promotora Intervention - study subjects living in zip codes of churches visited by promotoras during 2000 and 2001 G2: Printed intervention - Subjects living in remaining zip codes	**Title of CHW** Promotora (peer counselors) **Paid or Volunteer** Paid **Relationship with Community** Shared community and ethnicity **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Peer "approach" after Sunday mass and during church-related activities; facilitation of home discussion groups **Type of Educational Materials Used** • Letter describing project • Bilingual printed materials from NCI that promote breast ca screening and reflect a sense of family • Display unit • Short bilingual messages suitable for delivery from pulpit and publication in church bulletins **Duration of Interaction with Clients** At least bimonthly meetings(length NR) over 5 years **Length of Follow-up** NA	**Age (mean)** Latina only analysis: Not specified;[64] Latina vs. white analysis G1: Latina 59 (SD 4.1); non-Latina 57.5 (4.3) G2: Latina 58.4 (4.4); non-Latina 57.9 (4.5)[65] **Sex (% female)** 100 **Race (%)** Latina only analysis: 100% Latina;[64] Latina vs. white analysis G1: 52% Latina, 48% non-Latina white G2: 26% Latina, 74% non-Latina white[65] **Other** **Role of CHW in Recruiting and Retention** Unclear **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** comparison of mammography rates by intervention and ethnicity, via ICD codes on Medicaid claims (pre/post time-intervention interaction term by GEE) **Results** Latina, G1 vs. G2 adjusted GEE *P* = 0.07 Non-Latina, G1 vs. G2 adjusted GEE *P* = 0.10 **Measure 2** Pre/post mammography rates via ICD codes on Medicaid claims **Results** Latina only analysis G1: 59 to 61% G2: 58% at baseline and followup, unadjusted rates not significant in either group, GEE model adjusting for insurance group, age, income, rural vs. urban, and disability found increased biennial mammograms in Intervention group (*P* = 0.03);[64] Latina vs. white analysis G1: Latina 25→30% (unadjusted GEE *P* = 0.3); non-Latina 32→38% (unadjusted GEE *P* = 0.4) G2: Latina 45→43% (unadjusted GEE *P* = 0.27); non-Latina 41→44% (unadjusted GEE *P* = 0.02)[65]	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention in churches resulted in slight improvement in mammography rates among Medicaid-eligible Latinas, no statistically significant difference in ethnic disparities within promotora group, increased disparities in non promotora group (because non Latina had greater improvement than Latinas) **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sauaia et al., 2007; Welsh et al., 2005 (continued)	**Interventions** G1: Trained peer counselors (Promotoras) delived health promotion message personally, through meetings held at least bimonthly immediately after mass and through other church events, conducted health groups that met at home of one of participants, same newsletter used in printed Intervention G2: Printed intervention incorporated into church display, bulletin and/or pulpit announcements **Group (N)** Latina only analysis G1: 4 churches, N at baseline: 536, N at followup: 590 G2: 209 churches, N at baseline: 5130, N at followup: 5708;[64] Latina vs. white analysis G1: 4 churches, N at baseline: 197, N at followup: 211 G2: 209 churches, N at baseline		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Schuler et al., 2000 **Trial Name** NR **Objective or Aim** Effects of home-based intervention on mother-infant interaction among drug using women and their infants to compare mother–infant interaction among drug-using mothers who did and did not receive home-based intervention **Geography** Maryland NR **Organization** Organizational recruited from large university hospital **Type of Community** Drug abuse Inner city, African-American **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** NR **Enrolled (N)** 192 families **Randomized (N)** 192 **Completers (N)** 171 **Withdrawals or Dropouts (N)** 21 families Not at all clear from article: "study included 171 families (87 control, 84 intervention). 31 dyads were lost before 2-week baseline visit, and 32 additional families lost after 2-week visit (see Table 1). Thus, 192 (97 control, 95 intervention) families seen for 6-month evaluation visit. Observation data dropped from 13 families because interaction involved caretaker other than mother, and data from 8 families were lost because of mechanical difficulties" **Health Condition of Interest** Infant health Maternal drug use; mother-child interaction **Inclusion Criteria** Women were eligible if they or their infants had a positive urine toxicology screen at birth or history of recent drug use was noted in medical charts. **Exclusion Criteria** Infants who were not discharged into care of their mothers or had serious developmental or congenital problems that required special services (e.g., spina bifida) **Groups** G1: CHW G2: Control **Interventions** G1: Visits to enhance mothers' ability to manage self-identified problems by using existing services and family and social supports; modeling infant development behavior/activities G2: Meetings for tracking purposes only **Group (N)** G1: 84 G2: 87	**Title of CHW** Lay Visitors **Paid or Volunteer** NR **Relationship with Community** Shared ethnicity African American women who "knew community" **CHW (N)** 3- 2 for intervention, one for control group **Supervision of CHW** Visitors met with a psychologist and a pediatrician weekly to track progress of families and to discuss concerns about families **Prior Training** Past experience making home visits, no additional details provided **Type of Service** G1: home intervention was developmentally oriented and was based on program used by IHDP- visitors went once a week enhancing mothers' ability to manage self-identified problems by using existing services and family and social supports; modelling infant development behavior/activities G2: brief monthly home tracking visits to reduce attrition **Type of Educational Materials Used** HELP at Home: Hawaii Early Learning Profile **Duration of Interaction with Clients** G1: 9 visits, about 30 minutes per visit G2: 3 visits, about 17 minutes each **Length of Follow-up** 6 months	**Age (mean)** 27 years **Sex (% female)** 100 **Race (%)** African American: 96% **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Infant warmth measured by assessment of videotaped mother-infant interaction using previously validated scale **Results** No difference between groups. In control group, mothers who continued to use drugs were less responsive to their babies than were mothers who were drug free. In intervention group, drug use was not associated with maternal responsiveness.	**Health Outcomes:** **Measure 3** Self-reported maternal drug use **Results** At 6 months, there were no significant group differences in cocaine and/or heroin use, alcohol use, or marijuana use during last 6 months **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** No direct effects of intervention, in control group, mothers who continued to use drugs were less responsive to their babies than mothers who were drug free. In intervention group, drug use was not associated with maternal responsiveness. **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Schwarz et al., 1993 **Trial Name** Safe Block Project **Objective or Aim** Improve injury prevention knowledge and reduce number of hazards in home and reduce rates of injury occurring to residents of an inner city community. **Geography** Philadelphia **Organization** Social **Type of Community** Neighborhood High injury rate **Study Design** Prospective case-control observational Quasi-experimental; non-random controlled trial **Start Date** 1989 **Duration** 1 year 21 months	**Eligible (N)** 34 203 (17,058 intervention = approx 5,890 homes; 17,145 control) **Enrolled (N)** 2722 4476 (3004 received intervention, 1472 control homes randomly selected) **Randomized (N)** NA 2722 (1250 intervention + 1472 control homes selected for assessment) **Completers (N)** 1962 (902 intervention, 1060 control) **Withdrawals or Dropouts (N)** 28% not inspected in each group (348 intervention, 412 control) **Health Condition of Interest** Home Safety **Inclusion Criteria** Residents of 17 neighborhoods 9 census tracks with highest injury rates in community **Exclusion Criteria** NA inability to contact household residents **Groups** G1: Intervention G2: Control **Interventions** • Home modification for simple prevention measures • Home inspection to inform residents about hazards and ways of alleviating them • Education about selected injury prevention practices. **Group (N)** G1: 17 085 G2: 17 145 For postintervention assessments, 1250 of 3004 homes were randomly selected. assessments were conducted in 902 of1250 homes (72%).	**Title of CHW** Intervention team **Paid or Volunteer** Paid and volunteer **Relationship with Community** Shared community **CHW (N)** 3 community safety liaisons who recruited an undisclosed # of volunteer block supervisors and 10 safety inspectors. **Supervision of CHW** Supervised by personnel from Injury Control Section of Philadelphia Department of Public Health. **Prior Training** NR **Type of Service** Safety inspections home modifications, inspections, and education; myriad safety devices (e.g. smoke detectors, ipecac, emergency phone numbers, light bulbs, batteries, bathwater thermometer) **Type of Educational Materials Used** NR direct teaching from safety inspectors **Duration of Interaction with Clients** 1 home visit and monthly block meetings over 18 month-period (duration per session NR) **Length of Follow-up** 12 months	**Age (mean)** G1: < 5 yrs: 9.3%, 5-17 yrs: 17.6%, 18-64 yrs: 53.7%, > 64 yrs: 19.5% G2: < 5 yrs: 9.9%, 5-17 yrs: 18.9%, 18-64 yrs: 58.1%, > 64 yrs: 13.1% **Sex (% female)** NR **Race (%)** G1: African-American: 96.8%, Other: 3.2% G2: African-American: 95.7%, Other: 4.3% **Other** Injuries in 1987- rate per 1000 residents G1: 17.1 G2: 15.7 **Role of CHW in Recruiting and Retention** Block Representatives were asked to urge neighbors to participate in project. **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** No syrup of ipecac for children < 5 yrs **Results** G1: 29% G2: 90.2% *P* < 0.001 Adjusted OR, 0.04 95% CI, 0.02-0.07 **Measure 2** Inadequate light on stairs **Results** G1: 17.9% G2: 19.9% *P* = 0.41 Adjusted OR, .41 95% CI, 0.69-1.16 **Measure 3** Hot water ≥125°F **Results** G1: 36.8% G2: 26.8% *P* < 0.001 Adjusted OR, 1.73 95% CI, 1.39, 2.15 **Measure 1** No bedside light for > 64 yrs adults **Results** G1: 13.3% G2: 15.1% *P* = 0.90 Adjusted OR, 1.03 95% CI, 0.68- 1.57 **Measure 2** No smoke detectors **Results** G1: 4% G2: 23% *P* < 0.001 Adjusted OR, 0.14 95% CI, 0.09- 0.20 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Principal positive finding of this study is a distinct difference between control and intervention homes with respect to safety knowledge and home hazards that required minimal to moderate effort to correct. Intervention homes were found to be safer than control homes, particularly with respect to hazards related to fires and poisonings. **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Silver et al., 1997 **Trial Name** Parent to Parent Network **Objective or Aim** Evaluate psychological outcomes of Parent-To-Parent Network (PTPN), a community-based support program for mothers of five- to eight-year-old children with a variety of ongoing health conditions **Geography** NYC - Bronx; or Lower Westchester **Organization** Organizational Large urban medical centers; community-based delivery of intervention **Type of Community** Mothers that have children with chronic disease Inner-city, low-income, minority **Study Design** RCT **Start Date** 1990 **Duration** 1-2 years	**Eligible (N)** 512 **Enrolled (N)** 365 mothers **Randomized (N)** 365 **Completers (N)** 94% completed 12 month interview (343) **Withdrawals or Dropouts (N)** 6% LTF **Health Condition of Interest** Maternal health Mothers' psychiatric well-being **Inclusion Criteria** • Five-to-eight-year-old children who had ongoing health conditions (defined as one that had lasted or was expected to last for at least three months or had required hospitalization for 30 days or more in previous year) • Mother could speak conversational english and live with her child in catchment area • Have easy access to a phone **Exclusion Criteria** A family was excluded if child was moderately or severely mentally retarded or had a life expectancy under 18 months. **Groups** G1: Experimental G2: Control **Interventions** G1: 6 one-hour meetings and 3 group activities 6 face-to-face interventions at home or in hospital + telephone calls + group activities G2: Usual care **Group (N)** G1: 183 G2: 182	**Title of CHW** Lay Intervenor **Paid or Volunteer** NR (guessing paid) Paid ("accepted jobs") **Relationship with Community** Shared experience Same neighborhoods (recruited via community newspapers); raised children with ongoing healht conditions **CHW (N)** 3 **Supervision of CHW** Supervised by a clinical psychologist and a social worker - frequency NR **Prior Training** 40 hours plus intensive training **Type of Service** Counselling, face-to-face meetings; telephone calls; group activities with others in program **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 6 meetings (1 hour each) with at least biweekly telephone calls + 3 group social activities over 12 months **Length of Follow-up** 12 months 6, 12, and 18 mo	**Age (mean)** Mother's age G1: 34.7 G2: 34.0 Children's age G1: 7.2 G2: 7.0 **Sex (% female)** 100% female (mothers) Children G1: (45%) G2: (47%) **Race (%)** Mother’s ethnicity % Hispanic G1:43 G2: 46 Black G1: 41 G2:32 White, not Hispanic G1:11 G2: 17 Mixed/Other G1: 5 G2: 6 **Other** Asthma 35%, sickle cell anemia, epilepsy, and congenital heart disease (8% each), and cleft lip or palate, cancer, and endocrine disorders (5% each). Spina bifida and other congenital anomalies each occurred in 2%; 15% had multiple health conditions, mostly asthma G1: 35% fair to poor health; G2: 31% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 95% G2: 93%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** PSI **Results** Pre- intervention G1: 24.1 G2: 20.3 ($P < 0.05$) Post intervention G1: 22.1 G2: 20.1 (no significant difference between groups) **Measure 2** PSI subsets **Results** All adjusted posttest scores other than Depression were directionally lower in EG than CG **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Posttest scores of EG and CG mothers did not differ significantly. Although intervention effects were not related to participation level or illness-related and sociodemographic factors, a significant interaction with stressful life events (SLE) was found. **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year St. James et al., 1999 **Trial Name** Resource Mothers Program for Maternal PKU **Objective or Aim** Increase number of well-treated pregnancies and thus reduce number of adverely affected offspring **Geography** New England **Organization** Maternal PKU Collaborative Study enrollees **Type of Community** PKU **Study Design** Retrospective cohort **Start Date** NR **Duration** NR	**Eligible (N)** NR **Enrolled (N)** 83 pregnancies from 69 mothers **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** PKU outcomes in children **Inclusion Criteria** Mothers with PKU **Exclusion Criteria** NA **Groups** G1: control (no resource mother) - women with PKU G2: PKU women with resource mother **Interventions** G1: NR G2: resource mothers met with pregnant women for approx 20 sessions of 2 hours each, weekly in beginning and less frequently as pregnancy proceeded. Activities included cooking, shopping, meal planning, preparing for baby, discussing pregnancy, discussing medical recommendations. **Group (N)** G1: 64 offspring from 55 mothers G2: 19 offspring from 14 mothers	**Title of CHW** Resource Mother **Paid or Volunteer** Paid **Relationship with Community** Resource mothers had children with PKU **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Lived with disease **Type of Service** Face-to-face meetings **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈20 sessions of 2 hours each (weekly in beginning then less frequently) throughout pregnancy **Length of Follow-up** 12 months after birth	**Age (mean)** Maternal age G1: 26.5 G2: 24.1 **Sex (% female)** 100 **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Birth head-circumference z score **Results** G1: -1.4 (95% CI, -1.56- -1.2) G2:-0.56 (95% CI, -0.88 - -0.24); *P* = 0.08 **Measure 2** Baylely developmental quotient **Results** G1: 95 (95% CI, 92-98) G2: 108 (95% CI, 104-112); *P* < 0.05 **Measure 3** maternal metabolic control **Results** G1: 16.1 weeks(95% CI, 14.4-17.8) G2: 8.5 weeks (95% CI, 6.3-10.7); *P* < 0.05 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992 **Trial Name** National Black Women's Health Project **Objective or Aim** Test effectiveness of in-home, culturally sensitive educational program conducted by lay health workers by measuring improvement in frequency of breast and cervical cancer screening **Geography** Unclear, possibly Atlanta **Organization** Inner city community health center **Type of Community** Inner city African-American **Study Design** RCT **Start Date** NR **Duration** 17 months	**Eligible (N)** NR **Enrolled (N)** 321 **Randomized (N)** 321 **Completers (N)** 195 **Withdrawals or Dropouts (N)** 126 **Health Condition of Interest** breast cancer, cervical cancer **Inclusion Criteria** NR **Exclusion Criteria** NR **Groups** G1: intervention G2: control **Interventions** G1: CHW home visits, education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening G2: mailed educational materials on cancer screening **Group (N)** G1: 163 G2: 158	**Title of CHW** Lay health worker **Paid or Volunteer** NR **Relationship with Community** Recruited from National Black Women's Health Project **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Self-help support group leaders within NBWHP **Type of Service** Home visits **Type of Educational Materials Used** Home visits, video of Pap and breast exam, printed materials **Duration of Interaction with Clients** 3 visits (months 1, 2, 4) over four month period, visits 1 and 2 1.5 hours each, time for visit 3 NR **Length of Follow-up** 11 months	**Age (mean)** G1: 18-34: 13.5% 35-44: 46% 45-59: 22.1% 60-97: 18.4% G2: 18-34: 13.3% 35-44: 44.3% 45-59: 24.7% 60-97: 17.7% **Sex (% female)** 100 **Race (%)** NR (presumed 100% African American) **Other** G1: Income ≤$15,000: 45.4% Married: 33.7% > HS education: 40.5% Employed: 55.2% G2: Income ≤$15,000: 48% Married: 30.4% > HS education: 38.4% Employed: 46.8% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 1st attempt: 20% (55/275) 2nd attempt: 44% (266/600) **Retention Rates** G1: 57% (93/163) G2: 65% (102/158)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Pretest-posttest change in self-report of BSE for entire sample **Results** G1: 52.1%/51.0%; G2: 41.1%/41.0%, diff in change: -1.0 (95% CI, -6.1-4.1) **Measure 2** Pretest-posttest change in self-report of BSE, post-intervention respondents only **Results** G1: 57.0%/53.8%; G2: 40.2%/40.2%, diff in change: -3.2 (95% CI, -17.5, 11.1) **Measure 3** Posttest report of BSE, women not previously on recommended screening schedules, whole sample **Results** G1: 24.4%; G2: 17.2%, diff in change: 7.2% (95% CI, -5.0-19.3) **Measure 4** Posttest report of BSE, women not previously on recommended screening schedules, post-intervention respondents only **Results** G1: 47.5%; G2: 26.2%, diff in change: 21.3% (95% CI, 2.3-40.3) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pre/post change in self-report of receiving screening exams, women not previously on recommended screening schedules, whole sample **Results** No significant difference between groups for any screening modality **Healthcare Utilization:** **Measure 1** Pretest-posttest change in self-report of receiving Pap smears for entire sample **Results** G1: 50.3%/58.7%; G2: 51.9%/62.1%, diff in change: -1.8 (95% CI, -8.0-4.4) **Measure 2** Pretest-posttest change in self-report of receiving Pap smears, postintervention respondents only **Results** G1: 52.7%/63.4%; G2: 50.0%/62.7%, diff in change: -2.0 (95% CI, -11.0-7.0) **Measure 3** Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, whole sample **Results** G1: 33.3% G2: 34.2% diff in change: -0.9 (95% CI, -15.7-13.9) **Measure 4** Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, postintervention respondents only **Results** G1: 61.4% G2: 51.0% diff in change: 10.4 (95% CI, -9.5-30.0)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention effective in increasing receipt of clinical breast exam and mammogram, only when including women already on some recommended screening schedule, and only when nonrespondents are assumed to be similar to respondents. Using intention-to-treat, no differences in any screening modality **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 5 Pretest-posttest change in self-report of receiving mammography for entire sample **Results** G1: 35.5%/50.4% G2: 34.3%/39.4% diff in change: 9.8% (95% CI, 2.9-16.7) **Measure 6** Pretest-posttest change in self-report of receiving mammography, postintervention respondents only **Results** G1: 32.5%/58.7%; G2: 34.0%/47.9%, diff in change: 12.4% difference (95% CI, 1.0-24.3) **Measure 7** Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, whole sample **Results** G1: 29.7% G2: 24.4% diff in change: 5.8% (95% CI, -7.0-18.6) **Measure 8** Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, postintervention respondents only **Results** G1: 50.0% G2: 35.5% diff in change: 14.5% (95% CI, 4.5-23.6) **Measure 9** Pretest-posttest change in self-report of receiving CBE for entire sample **Results** G1: 55.2%/64.5% G2: 55.7%/59.5% diff in change: 4.9 (95% CI, -6.1-4.1) **Measure 10** Pretest-posttest change in self-report of receiving CBE, postintervention respondents only **Results** G1: 59.1%/72.0% G2: 57.8%/61.8% diff in change: 8.9% (95% CI, 1.1-16.7)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992[71]			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 11 Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, whole sample **Results** G1: 37.0% G2: 28.6% diff in change: 8.4% (95% CI, -6.9-23.7) **Measure 12** Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, postintervention respondents only: **Results** G1: 71.1% G2: 46.5% diff in change: 24.6% (95% CI, 3.9-45.3)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Taylor et al., 2002 **Trial Name** NR **Objective or Aim** Evaluate impact of 2 culturally and linguistically appropriate cervical cancer control educational interventions: a "high intensity" outreach worker-based intervention and a "low intensity" direct mail intervention **Geography** Seattle and Vancouver BC **Organization** Recruited from respondents to community-based survey **Type of Community** Chinese-American women **Study Design** RCT **Start Date** 1999 **Duration** 18 months	**Eligible (N)** 2312 (986 Seattle, 1326 Vancouver) (numbers deduced from text) **Enrolled (N)** 1532 (710 Seattle, 822 Vancouver) **Randomized (N)** 482 (199 Seattle, 283 Vancouver) **Completers (N)** 402 (181 Seattle, 221 Vancouver) **Withdrawals or Dropouts (N)** 80 (18 Seattle, 62 Vancouver) **Health Condition of Interest** Pap testing **Inclusion Criteria** • Chinese women • No history of Pap or intention of Pap within 2 years of survey • 20-69 years old • Speak Cantonese, English, or Mandarin **Exclusion Criteria** • Hysterectomy • Invasive cervical cancer **Groups** G1: CHW G2: direct mail G3: control **Interventions** G1: Introductory mailing, CHW visit with multimedia and tailored counseling, phone followup and tailored counseling, logistic assistance as needed G2: Direct mail multimedia materials G3: Control: usual care at local clinics and doctors' offices **Group (N)** G1: 161 G2: 161 G3: 160	**Title of CHW** Outreach worker **Paid or Volunteer** NR **Relationship with Community** Shared culture, ethnicity **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Trained to act as role models, to provide social support, to serve as cultural mediators between women and health care facilities, to use visual aids and provide tailored responses to each woman's individual barriers to cervical cancer screening **Type of Educational Materials Used** Video, motivational pamphlet, educational brochure, fact sheet, tailored counseling **Duration of Interaction with Clients** One time visit with follow up telephone call (time per interaction NR) **Length of Follow-up** 6 months	**Age (mean)** 58% 45-69 y/o: G1: 53% G2: 63% G3: 58% **Sex (% female)** 100 **Race (%)** Chinese 100% **Other** • 12 or more years education: 44% • Married: 81% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 66% (proportions not available for each group) **Retention Rates** 402/432 = 83% G1: 129/161 = 80% G2: 139/161 = 86% G3: 134/160 = 84%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Report Pap testing planned within 2 years **Results** G1: 72% G2: 59% G3: 48% (G1 vs G3 *P* < 0.001 G2 vs G3: *P* = 0.05 G1 vs G2 *P* = 0.03) **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Medical records for pap screening received between randomization and followup, using intent-to-treat **Results** Results not provided, significant differences between outreach worker versus control (*P* < .001), direct mail versus control (*P* = .07), and outreach worker versus direct mail (*P* = .04) **Measure 2** Medical records for pap screening received in past 2 years, using intent-to-treat **Results** Results not provided, significant differences between outreach worker versus control (*P* < .001) and direct mail versus control (*P* = .03) **Measure 3** Self-reported Pap testing completed since intervention **Results** G1: 39% G2: 25% G3: 15% (G1 vs G3, *P* < 0.001 G2 vs G3, *P* = 0.03 G1 vs G2, *P* = 0.02)	**Costs (Economics):** NR **Explanation of Overall Outcomes** Women who received CHW home visits were significantly more likely to report having Pap testing after intervention compared to women receiving direct mail or no intervention **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Tessaro et al., 1997; Navaie-Waliser et al., 2000 **Trial Name** Maternal Outreach Worker (MOW) Program **Objective or Aim** Reduce infant morbidity and mortality via early prenatal care, consistence of care, health behavior and parenting skills, infant preventive care and social services, increased pregnancy spacing, decreasing unplanned pregnancies; to determine whether particip **Geography** North Carolina **Organization** Medicaid-eligible population, via social worker or nurse referral **Type of Community** High infant mortality with disproportionately higher in African-Americans vs. Caucasians **Study Design** prospective cohort **Start Date** 1992 **Duration** 3 years	**Eligible (N)** 14,977 **Enrolled (N)** 705 **Randomized (N)** NA **Completers (N)** 447 **Withdrawals or Dropouts (N)** 258 **Health Condition of Interest** Infant health **Inclusion Criteria** Medicaid-eligible, < 28 wk EGA, singleton livebirth; Caucasian or African-American (this study) **Exclusion Criteria** Moved away, lost to follow-up, declined services, interview not completed **Groups** G1: CHW G2: matched controls **Interventions** G1: CHW home visits **Group (N)** G1: 373 (yr 2) -- > 221 (yr 3) G2: 332 (yr 2) -- > 198 (yr 3)	**Title of CHW** Maternal Outreach Worker (MOW) **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits, assistance in applying for govt benefits, housing, employment, education; general advocacy for families **Type of Educational Materials Used** Reinforcing positive health behavior; modeling parent-infant interactions; reinforce need for prenatal care, immunizations, family planning **Duration of Interaction with Clients** One visit/month (more if needed) for approximately 14 months (duration per visit NR) **Length of Follow-up** 1 year	**Age (mean)** < 18 y G1: 31% G2: 15.6% **Sex (% female)** 100 **Race (%)** G1: African-American: 61.8% Caucasian: 38.2% G2: African-American, 59.4% Caucasian (limited to African-American and Caucasian): 40.6% **Other** Often receive aid from friends/family G1: 41.4% G2: 58.1% ($P < 0.001$) Reported good health G1: 78.4% G2: 85.5% ($P < 0.05$) Social supportiveness of pregnancy G1: 52.6% G2: 62.9% ($P < 0.05$) Prior physical abuse by partner G1: 14.9% G2: 10% ($P < 0.1$) No difference in education, gravidity, smoking **Role of CHW in Recruiting and Retention** Active recruitment of very high risk population **Recruitment Rates** NR **Retention Rates** G1: 249/373 = 67% G2: 198/332 = 60%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Low birth weight (observed minus expected) **Results** African-American: LBW -13 (*P* = 0.12); VLBW -6 (*P* = 0.1) Caucasian: LBW +1 (*P* = 0.58); VLBW 0 (*P* = 0.6) **Measure 2** Prenatal care adequate (Kessner index) **Results** African American G1: Adequate: 60.7% Intermediate: 32.6% Inadequate: 6.7% G2: Adequate: 63.8% Intermediate: 31.5% Inadequate: 4.7% Caucasian: G1: Adequate: 77.4% Intermediate: 19.7% Inadequate: 2.9% G2: Adequate: 75.1% Intermediate: 22.8% Inadequate: 2.1% **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW visits resulted in higher proportion of adequate care for Caucasian but lower for African-Americans (significant difference for African-Americans); fewer than expected LBW and VLBW for African-Americans but not Caucasians **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Von Korff et al., 1998 **Trial Name** NR **Objective or Aim** Evaluate a4-session self-management group intervention for patients with pain in primary care, led by trained lay persons with back pain. intervention was designed to reduce patient worries, encourage self-care, and reduce activity limitations. **Geography** Western Washington State **Organization** HMO **Type of Community** Condition - back pain **Study Design** RCT **Start Date** 1996 **Duration** NR	**Eligible (N)** 364 **Enrolled (N)** 255 **Randomized (N)** 255 **Completers (N)** 0.85 **Withdrawals or Dropouts (N)** 0.145 **Health Condition of Interest** Back pain **Inclusion Criteria** Patients diagnosed with back pain ages 25-70, at least one prior back pain visit, interested in learning more about caring for back pain,enrolled for at least a year Group Health Cooperative of Puget Sound **Exclusion Criteria** Surgery or disenrollment from GHC **Groups** G1: Self management group G2: Usual care **Interventions** G1: Four 2-hour classes held once a week, with 10 to 15 participants, led by two trained volunteers. G2: Usual care includes back pain book **Group (N)** G1: 129 G2: 126	**Title of CHW** Lay leaders **Paid or Volunteer** Volunteer **Relationship with Community** Shared disease **CHW (N)** 8 **Supervision of CHW** NR **Prior Training** NR **Type of Service** classes **Type of Educational Materials Used** Book, pamphlets, videotapes **Duration of Interaction with Clients** Four 2-hour classes held once a week for 1 month **Length of Follow-up** 12 months	**Age (mean)** G1: 49.4 G2: 50.3 **Sex (% female)** G1: 68.2 G2: 56.4 **Race (%)** G1: White: 91.4% Non-white: 8.6% G2: White: 79.7% Non-white: 20.3% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** "Next time I have back or leg pain, I will try to manage problem without seeing a health professional" - Not validated **Results** G1: 77% agreed G2: 60% (*P* = 0.008) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Roland Disability at 12 months - validated **Results** G1: 5.75 (6.31) G2: 6.75 (6.39) *P* = 0.092 **Measure 2** Worry rating (0-10) at 12 months - not validated **Results** G1: 2.63 (2.58) G2: 3.83 (3.08) *P* = 0.013 **Measure 3** 50% or greater reduction in Roland Disability Questionnaire Score from baseline at 6 months - validated **Results** G1: 47.9% G2: 33% (X2 = 5.2; df = 1; *P* = 0.02) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wendell et al., 2003 **Trial Name** NA **Objective or Aim** To determine whether street outreach to prevent HIV infection as practised by state-funded community-based organizations (CBOs) is effective in promoting condom use **Geography** Louisiana **Organization** Neighborhoods through out state characterized by one or more of following: high rates of STD/HIV, high levels of drug use, exchange of sex for money or drugs, 'crack' houses, or injection drug users **Type of Community** At risk neighborhoods **Study Design** Observational - cross sectional **Start Date** 1998 **Duration** 2 years	**Eligible (N)** NA **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** HIV prevention **Inclusion Criteria** NA **Exclusion Criteria** NA **Groups** G1: Intervention G2: Comparison **Interventions** G1: Discussions with community members during which they assessed client's needs, imparted a risk- or harm-reduction message on sexual disease, answered questions, made referrals, and negotiated and reinforced behaviour change. **Group (N)** G1: 4950 G2: 1597	**Title of CHW** Outreach workers **Paid or Volunteer** Paid **Relationship with Community** Members of community except in New Orleans **CHW (N)** at least 42 **Supervision of CHW** OPH (Office of public health) **Prior Training** NR **Type of Service** Interview - survey interaction **Type of Educational Materials Used** Condoms, educational materials, bleach kits, coupons for new needles, services such as substance abuse treatment, STD care and social services **Duration of Interaction with Clients** Brief - Most interactions involved introducing themselves, handing out condoms and literature and perhaps delivering a brief prevention message **Length of Follow-up** NA	**Age (mean)** G1: 12-14 yrs: 2% 15-19 yrs: 27% 20-24 yrs: 24% 25-34 yrs: 27% 35+ yrs: 20% G2: 12-14 yrs: 1% 15-19 yrs: 24% 20-24 yrs: 23% 25-34 yrs: 28% 35+ yrs: 24% **Sex (% female)** G1: 48 G2: 40 **Race (%)** G1: African American: 89% White: 7% Other: 4% G2: African American: 87% White: 8% Other :5% **Other** Two or more sexual partners G1: 72 69 G2:1.14 OR 95% CI (1.01, 1.29) *P* = 0.04 Men who had sex with men (men only) G1: 16 11 G2: 1.64 OR 95% CI, (1.3, 2.06) *P* = 0.001 Injected drugs G1: 7% G2: 4% OR 95% CI, 1.8 (1.37, 2.37) *P* = 0.001 **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Survey - not validated **Results** Know where to get free condoms G1: 90 G2: 74 OR 95% CI, 3.2 (2.75, 3.73) *P* = 0.001 **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Survey - not validated **Results** Condom use Intervention vs. comparison [odds ratio 1.37 (95% confidence Interval 1.20, 1.56; *P*<0.001)]. **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wilson et al., 2008 **Trial Name** NR **Objective or Aim** Assess effectiveness of breast health promoting messages administered by salon stylists to clients in salon setting **Geography** Brooklyn, NY **Organization** Neighborhood hair salons **Type of Community** Neighborhoods **Study Design** Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups **Start Date** 2002 **Duration** 3 months for each salon	**Eligible (N)** 257 salons **Enrolled (N)** NR **Randomized (N)** 40 salons **Completers (N)** 40 salons/1210 respondents **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** breast cancer **Inclusion Criteria** Salons providing services in target NYC neighborhoods; clients receiving services at experimental and control salons were eligible to participate **Exclusion Criteria** Salons were excluded if owner was a member of Health and Beauty Council **Groups** G1: Control salon, at baseline G2: Experimental salon, at baseline G3: Control salon, at followup G4: Experimental salon, at followup **Interventions** G1: Control, before intervention G2: Stylists group, before intervention G3: Control, after intervention G4: Stylists group, after intervention Intervention consisted of education, counseling, and information on location of screening services during salon appointment **Group (N)** G1: 369 (12 salons) G2: 816 (28 salons) G3+G4: 1210 (N of salons NR, individual N NR)	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer (with $30 compensation for training time) **Relationship with Community** Hair stylist working in neighborhood/community **CHW (N)** 29 **Supervision of CHW** Program staff made frequent visits to salons to support stylists in their promotion of message delivery throughout time during which program was administered. **Prior Training** NR **Type of Service** One-on-one counseling during salon visit to provide education, counseling, and information on location of cancer screening services **Type of Educational Materials Used** Written materials (not described) **Duration of Interaction with Clients** One visit - (time of session NR) **Length of Follow-up** 3 months	**Age (mean)** G1: 38 G2: 39 G3+G4: 38 **Sex (% female)** 100 **Race (%)** African G1: 91 G2: 93 Hispanic G1: 7 G2: 6 Other G1: 2 G2: 1 **Other** Born in US (%) G1: 56 G2: 52 Family hx of breast cancer (%) G1: 10 G2: 9 **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Engaging in BSE in past 3 months **Results** G1: 25% G2: 28%, *P* = 0.26 for differences between G1 and G2 G3: 37% G4: 40% Adjusted OR, for differences between G3: and G4 1.3; Adj 95% CI, 0.9-1.7 **Measure 2** Intention to receive mammogram in next year **Results** G3: 70% G4: 74% Adj OR 1.3; Adj 95% CI, 0.9-1.2 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Clinical breast exam (CBE) in past 3 months **Results** G1: 27% G2: 27%, *P* = 0.85 for differences between G1 and G2 G3: 27% G4: 29% AOR 1.2 (95% CI, 0.9-1.7) **Measure 2** Mammogram in past 3 months **Results** G1: 13% G2: 14% Adj OR 1.1; Adj 95% CI, 0.8-1.7	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wolff et al. 1997; Morse et al. 1997 **Trial Name** NR **Objective or Aim** Three types of case management were compared to determine their relative effectiveness in helping people with severe mental illness who were homeless or at risk of homelessness. and cost-effectiveness of three approaches to case management for individuals with severe mental illness who were at risk for homelessness **Geography** St. Louis, Missouri **Organization** Organizational **Type of Community** Mental Illness and homelessness **Study Design** RCT **Start Date** 1990 **Duration** 18 months	**Eligible (N)** 204 **Enrolled (N)** NR **Randomized (N)** 165 **Completers (N)** 135 (Outcomes based on 85) **Withdrawals or Dropouts (N)** 30 **Health Condition of Interest** Mental illness **Inclusion Criteria** Current homelessness or risk for homelessness; serious DSM-III-R axis I diagnosis; no recent convictions for rape, homicide, or serious assault; and willingness to receive services and participate in a longitudinal study **Exclusion Criteria** See Inclusion criteria **Groups** G1: Assertive community treatment G2: Assertive community treatment with community workers, G3: Receiving brokered case management (purchase of services). **Interventions** G1: Assertive community treatment - intensive individualized treatment, responsibility for providing or coordingating all services needed by client, persistent follow-up and in vivo service delivery, performed by staff with backgounds in psychology, social work, and counseling G2: G1 + Community Health Worker, whose role was to assist with activities of daily living and be available for leisure activities **Group (N)** NR for primary intervention study G1: 28 in assertive community treatment G2: 35 in assertive community treatment with community workers, G3: 22 receiving brokered case management (purchase of services).	**Title of CHW** Community worker **Paid or Volunteer** Some paid and some volunteer **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Included participation in individual and community leisure activities. Some also supplemented work of assertive community treatment staff by assisting clients with activities of daily living, although this usually occurred only on a limited basis. **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Face-to-face meetings (length of each and number NR) over 18 months **Length of Follow-up** 18 months	**Age (mean)** 33.6 years **Sex (% female)** 41.2 **Race (%)** • African-American: 55.3 % • Aglo-American: 44.7% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Client Satisfaction **Results** G1: 3.27(0.42) G2: 3.12(0.57) G3: 2.74(0.68) *P* < 0.01 **Measure 2** N of days in stable housing in past month **Results** Basline(SD)/18 months(SD) G1: 6.36(11.71)/21.75(12.76) G2: 4.94(11.08)/17.54(14.45) G3: 7.18(12.38)/16.00(14.86) (*P* < 0.31)	**Health Outcomes:** **Measure 1** BPRS (Brief Psychiatric Rating Scale score) Total Symptom Score **Results** G1:53.54(15.54)/39.96(12.25) G2: 57.97(20.29)/38.77(12.23) G3: 50.6(14/31)/51.6(16.7) *P* = 0.001 **Healthcare Utilization:** **Measure 1** Program contact (days/mo) **Results** G1:8.29(7.51) G2: 6.95(4.91) G3: 0.3(0.49) *P* < 0.001	**Costs (Economics):** **Measure 1** Total costs over 18-month study period for average client in each treatment condition **Results** Assertive community treatment only, $49,510; No significant difference Assertive community treatment with community workers, $39,913; brokered case management, $45,076 **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Andersen et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Auslander, et al., 2002;
Williams et al., 2001

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Barnes et al., 1999 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Not reported **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes: 24% in G1 **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No **Does Analysis Control for Baseline Differences?** No **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes many as they were randomized before enrollment **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barth, 1991

Hypothesis/Aim/ Objective of Study Described?
YES- kind of

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
Can't tell so No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
No

Care Provider Masked?
NA

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective in some

Outcomes Measured in Valid and Reliable Manner
Objective in some

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes at least 3

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barth et al., 1988

Hypothesis/Aim/ Objective of Study Described?
YES- kind of

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
Can't tell so No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Not reported

Care Provider Masked?
NA

Patient Masked?
Not reported

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective in some

Outcomes Measured in Valid and Reliable Manner
Objective in some

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes at least 3

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Batts et al., 2001;
Gary et al., 2005;
Gary et al., 2003;
Gary et al., 2000;
Vetter et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No (and primary outcome not clearly identified)

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No (completers analysis)

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Becker et al., 2005;
Cene et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - G1:26% G2:27%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Black et al., 1995;
Hutcheson et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Objective, validated; and retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes, for characteristics in table 1, but trend toward lower baseline receptive language in intervention group at baseline (table 2); no reporting of maternal baseline psychiatric measures

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially (difficult to tell since there is no sample size calculation, no definition of primary outcome, numerous comparisons/outcomes evaluated, no clarity of what represents a clinically important difference for outcomes rather than just a statistically important difference, and there were baseline differences in receptive language socres...)

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Campbell et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
No

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
NR

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Caulfield et al., 1998 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NA **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** Yes **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report (patient/participant response) **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** 56% overall drop out **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** NR **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No **Does Analysis Control for Baseline Differences?** Yes (via logistic regression) **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes **Conclusions Supported by Results?** Partially **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Conway et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
NR (randomization method NR)

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low, broad concepts provided without detailed description of promotoras intervetion techniques

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective, not validated

Outcomes Measured in Valid and Reliable Manner
Objective, validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
NR, no table 1, inadequate description of comparability of groups

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Corkery et al., 1997 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Not reported **Care Provider Masked?** Not reported **Patient Masked?** Not reported	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective (some validated, some not) and retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Objective (some validated, some not) and retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - 37% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** Yes **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** No **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Dean et al., 2000;
Derose et al., 2000;
Derose et al., 2000;
Fox et al., 1998;
Stockdale et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
NA

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 73%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Dignan et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No (outcome asks about past 12 months, followup data obtained within 6 months)

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 29%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Greater number of patients age 65+ in telephone group

Does Analysis Control for Baseline Differences?
Cannot determine

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Duggan et al., 1999; Duggan et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NA **Level of Detail in Describing Intervention/Exposure** Low **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Yes **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report (patient/participant response) **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** No **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Partially **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Elder et al., 2006;
Elder et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low, many details about tailored print materials not provided (just general topics covered are identified); minimal description of what promotoras acually did

Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine, possible there could be contamination if subjects in various groups had interactions w/ each other

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (24-hour dietary recall) for primary outcomes; accuracy of measure is debatable given recall issues, social desirability/those working with promotoras may have greater desire to report lower intake of fat/etc. to please promotoras with which they've established a relationship. Of not, BMI changes from baseline were similar in all groups but decreased least in promotoras group—suggesting that intermediate measures used (dietary intake of fat, etc.) were not in line with BMI changes that would be expected.

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No for 12 week outcomes; Yes for 1 year outcomes (G1 22%, G2 24%)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No, important differences in perceived barriers to fat, stages of change for fat, …More participants in tailored condition (than promotoras group) were in earlier stages of change. Also, tailored group had worse overall health (per self-report)

Does Analysis Control for Baseline Differences?
No

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Gielen et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective meansure, not validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 27% in standard; 15% in enhanced

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Graham et al., 1992

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
G1: 60% completers; 72% overall received some visits

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes (control group 100% of sample available)

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Yes (24)

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Hiatt et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
2x2

Allocation of Randomization Adequately Concealed?
No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report

Outcomes Measured in Valid and Reliable Manner
Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes - some

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Hunter et al., 2004 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** NR **Care Provider Masked?** NR **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective measure, not validated **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Jandorf et al., 2005 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** No **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** Yes **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** Yes **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** Yes **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective, some validated; Prospective documentation **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - G1 48%, G2 38% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** Yes - G1 48%, G2 38%, G3 20% **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Yes (G1 = 11, G2 = 12, G3 = 17 in one study); Yes (G1 = 34, G2 = 35, G3 = 34 in another study) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Krieger et al., 1999

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
For main outcome (completing follow-up visit): retrospective self-report of patient
For blood pressure: Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (30% vs. 22% attrition)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes (by report)

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Krieger et al., 2002; Krieger et al., 2005 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** Yes **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** Yes **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** NR **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes and no **Any Post-Randomization Exclusions?** Yes **Conclusions Supported by Results?** Yes **Quality Rating** Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Levine et al., 2003 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** NR **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective, validated **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - G1 38%, G2 43% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Yes (G1 = 145, G2 = 173) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Lujanet al., 2007

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
Yes (but only 1 subject crossed over from control to intervention, so minimal impact on results)

Outcome Assessors Masked?
Yes

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine (for most characteristics because no table 1; most characteristics reported for entire sample rather than for each group; of note, mean Hgb A1c levels were different at baseline---8.71 vs. 7.71)

Does Analysis Control for Baseline Differences?
CD

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes (1)

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Mock et al., 2007 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR (but subjects from same household were kept in same arm) **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Morisky et al., 2002;
Ward et al., 2000

Hypothesis/Aim/ Objective of Study Described?
No

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
NR

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Blood pressure measurement technique not reported

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (flow diagram/attrition not clearly reported, but Table 2 "BP in control" section indicates that was quite high)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine (they suggest that they are, but there is no Table 1 and baseline characteristics are not adequately reported)

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Partially (no discussion of effect of CHWs)

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** No **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** NR **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Parker et al., 2008 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective (some validated, some not) and retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Objective (some validated, some not) and retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes (23% and 25%) **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes (30) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Paskett et al., 2006;
Katz et al., 2007

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
Yes

Care Provider Masked?
Yes

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Yes: 17 refused

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Pilote et al., 1996

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
NR

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
CD

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Rask t al., 2001;
LeBaron et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
NR

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
CD

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
CD

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
CD

Conclusions Supported by Results?
NR

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Schuler et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No NR

Allocation of Randomization Adequately Concealed?
No NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No Yes: exclusion of families with a different home visiting component; multivariate analyses

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes, but method not described

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Some objective; others Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Kind of Yes

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Silver et al., 1997 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** Yes (randomizer unaware of baseline responses & not involved with intervention) **Level of Detail in Describing Intervention/Exposure** Low **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes, but method not described Not reported **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No: experimental group had significantly higher baseline PSI score **Does Analysis Control for Baseline Differences?** NA Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell Yes (22) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Author Year
Sung et al., 1997;
Sung et al., 1992

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
na

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (G1 43%, G2 35%)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Taylor et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report

Outcomes Measured in Valid and Reliable Manner
Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Von Korff et al., 1998 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes, but method not described **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wolff et al., 1997
Morse et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes 85/165

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes - 30+%

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
Cannot determine

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
No

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barnes-Boyd et al., 2001

Hypothesis/Aim/ Objective of Study Described?
No

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
NR

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Cannot determine

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes (14% at 2 months and 44% at 11 months for REACH-Futures and 25% and 42% for REACH, respectively)

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
No (no assessment of secular trend; this is a historical comparison)

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
Cannot determine

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
No (no RR reported)

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Beckham et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
NA

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective (clinical reports, lab findings, previously validated measures)

Outcomes Measured in Valid and Reliable Manner?
Objective (clinical reports, lab findings, previously validated measures)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Bone et al., 1989

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium (odd that it is described in results rather than methods section)

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
prospective documentation

Outcomes Measured in Valid and Reliable Manner?
Prospective documentation (return to ED for follow up visit)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
CD

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine (this is really just one prospective cohort, they did not a priori define analysis plan and only in results define those that CHWs were unable to reach as comparison group)

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No or cannot determine, not reported

Does Analysis Control for Baseline Differences?
Cannot determine, no description of analysis

Confounding and Modifying Variables Accounted for?
CD

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
NA, methods not reported

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Caulfield et al., 1998

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
Yes a bit

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Earp et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Partially

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Yes

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No (for income, lack of medical visits, perceived barriers to screening, knowledge about breast cancer)

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Erwin et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Partially

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Forst et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No (authors do not describe any variation, or lack of variation, from protocol; however, there is fair potential for contamination)

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Yes

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes - about 30% overall (note: 83 subjects were excluded at end b/c one CHW admitted to completing questionnaires herself)

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Frate et al., 1985

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective

Outcomes Measured in Valid and Reliable Manner?
Objective

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
No

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Extra Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Nacion et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
NR

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
Cannot determine

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Sauaia et al., 2007;
Welsh et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
objective measure

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
Partially

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information

Follow-Up
Analysis Comparability/Outcome

Author Year
Schwarz et al., 1993

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Not really

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No: "health department personnel were not blinded to intervention or control status of each household"

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective measure, not validated

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
St. James et al., 1999

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
Yes

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
CD

Confounding and Modifying Variables Accounted for?
CD

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
No

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding Soundness of Information	Follow-Up Analysis Comparability/Outcome
Author Year Tessaro et al., 1997; Navaie-Waliser, et al., 2000	**Same Length of Follow-up or Adjustment for Different Length of Follow-up?** Yes
Hypothesis/Aim/ Objective of Study Described? Yes	**Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes
Criteria Clearly Stated? Yes	**Did Attrition for Any Group Exceed 20% After Allocation of Treatment?** Yes - G1 34%; G2 40%
Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)? No	**Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?** No
Level of Detail in Describing Intervention/Exposure? Low	**Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No, differences in age, race, marital status, education, annual family income. (Baseline data for a number of other important factors NR)
Is Usual Clinical Care Described? No	**Does Analysis Control for Baseline Differences?** Yes
Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results? Yes	**Confounding and Modifying Variables Accounted for?** Partially
Could Variation from Protocol have Compromised Study Findings? Cannot determine	**Analysis Conducted on ITT Basis?** Yes
Outcome Assessors Blinded to Intervention/Exposure Status of Participants? NR	**Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?** No
Interventions/Exposures Measured in Valid and Reliable Manner? NR	**Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?** Partially (a great number of analyses conducted w/ multiple comparisons and several regressions; no description of primary outcomes; no sample size calculations; no adjustment for multiple comparisons; potential data mining)
Outcomes Measured in Valid and Reliable Manner? Combination of validated scales/questionnaires and responses to interview questions	**For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?** No
	Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes? Yes
	Conclusions Supported by Results? No (conclusions do not reflect potential biases in results)
	Quality Rating Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wendell et al., 2003

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
NA

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective measure, not validated

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
NA

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wilson et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner?
retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
NA

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
NR

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-4. Key Questions 4 and 4a

Study Characteristics Setting	Community Health Worker
Author Year Balcazar et al., 2006	**Title of CHW** Promotora
Trial Name Salud Para Su Corazon-NCLR	**Relationship with Community** NR
Objective or Aim To promote heart-healthy behaviors among Latinos	**CHW (N)** 29
Geography Escondido CA, Chicago IL, Ojo Caliente NM	**Supervision of CHW** NR
Organization Latino communities	**Prior Training** NR
Type of Community Latino communities	**Type of Service** Education sessions
Start Date 2000	**Type of Educational Materials Used** Handouts, recipes, videos, actor scripts, games
Health Condition of Interest Cardiovascular disease	**Duration of Interaction with Clients** 7 2-hour sessions over 6 months
	Length of Follow-up 1 year

Training Characteristics

Eligibility for CHW Training
NR

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR (curriculum does offer "cultural and language appropriate instructional methods" but details NR)

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
NR

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Your Heart, Your life

Availability of Curriculum
Available online

Evaluation and Testing Results of Curriculum
closed-format pre-post test scores reported a score of 74% for pretest and 100% correct for posttest (n = 11). Differences in pre-post promotora knowledge scores changes (N = 29) were statistically ($P < 0.05$) but data reported in bar graph only.

Certification
NR

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Beck et al., 2007	**Title of CHW** Church Health Action Team (CHAT) member
Trial Name Center for Health Communities' cancer education program	**Relationship with Community** Respected member of church congregation
Objective or Aim Train trainer in cancer education	**CHW (N)** 6 (2 from each of 3 participating churches)
Geography Milwaukee County	**Supervision of CHW** NR
Organization African- American churches	**Prior Training** NR
Type of Community African- American churches	**Type of Service** Small group educational presentations
Start Date 2002	**Type of Educational Materials Used** PowerPoint slides, handouts, brochures
Health Condition of Interest Cancer prevention	**Duration of Interaction with Clients** 4 60-minute presentations
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Member of congregation, well-respected, formal or informal leader, expressed enthusiasm for project

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
2 90-minute train-the-trainer workshops

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Pre-post % correct
Ability to define cancer:
(1)General 89/93 (2)Breast 79/86
(3)Colon 15/57 (4)Prostate 80/75
Ability to identify signs/symptoms of cancer:
(1) NA/NA (2) 71/88
(3) 81/93 (4) 40/75
Ability to identify screening recommendations:
(1) NA/NA (2) 67/67
(3) NA/NA (4) 80/75
Ability to identify risk factors:
(1) 59/85 (2) 54/92
(3) 19/89 (4) 40/75
Ability to identify strategies to reduce cancer risk:
(1) 70/78 (2) 8/33
(3) 92/96 (4) 20/75

Certification
"Certificate of completion" at 2nd training session

Other Pertinent Information
Results reported for 1 church only; CHWs presented 3 of modules while pastor presented 4th

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Bell, et al., 1999	**Title of CHW** Abuela educators
Trial Name Abuela Project	**Relationship with Community** Shared ethnicity
Objective or Aim To train Hispanic women to make queso fresco that was authentic in taste and texture but did not use raw milk in an effort to reduce incidence of Salmonella serotype Typhimurium infections resulting from eating queso fresco made from raw milk.	**CHW (N)** 15
	Supervision of CHW NR
	Prior Training NR
Geography Yakima County, Washington	**Type of Service** Workshop, After training, each CHW singed contract indicating willingness to teach at least 15 members of community
Organization Hispanic communities	**Type of Educational Materials Used** Pamphlet,
Type of Community Hispanics	**Duration of Interaction with Clients** 1 workshop
Start Date 1997	**Length of Follow-up** NR
Health Condition of Interest Salmonella	

Training Characteristics

Eligibility for CHW Training
Older Hispanic women from Yakima County

Input of CHW in Curriculum Development
None; however, curriculum was developed with input from respected Hispanic woman from Yakima community

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Workshops on how to make new queso fresco recipe (i.e., w/o raw milk)

Other Training Content; Instructional Method; Number of Sessions; Testing
Training sessions were hands-on and interactive; participants encouraged to ask questions & make comments

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Abuela Project

Availability of Curriculum
Pamphlet available

Evaluation and Testing Results of Curriculum
Pretraining/ post-training: recognized health risks associated with eating unpasteurized milk and cheese: 10/14; 14/15
Make queso fresco with fresh unpasteurized milk: 6/12; 1/15.

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Kuhajda et al., 2006	**Title of CHW** Counseling CHW; Assessment CHW
Trial Name Pine Apple Heart Disease and Stroke Project	**Relationship with Community** African American women with experience as community health volunteers in county
Objective or Aim To train CHWs for heart disease and stroke and in skills for counseling and assessing high-risk women in Pine Apple clinic.	**CHW (N)** 4
Geography Pine Apple, Alabama	**Supervision of CHW** NR
Organization African American women in rural southern community	**Prior Training** Trained as community health advisors through U of Alabama-Birmingham; all had 10 yrs experience as community health volunteers
Type of Community African American women in rural southern community	**Type of Service** Counseling CHWs counseled clinic patients using project manual; Assessment CHWs assessed future patients before and after counseling sessions
Start Date NR	**Type of Educational Materials Used** NR
Health Condition of Interest Cardiovascular disease	**Duration of Interaction with Clients** NR
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Chosen from a pool of CHWs trained as community health advisers through U of Alabama; expert advisory panel member assisted in selection

Input of CHW in Curriculum Development
CHWs shared ideas and concerns about training content and implementation of training sessions at a preliminary planning meeting

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
Health education counseling; role-played cancer screening counseling sessions and CVD counseling sessions

Training on Health Topic
NR

Training on Evaluation
Topics addressed in training included CVD; Developing action plans (heart attack, congestive heart failure, stroke); High blood pressure; tobacco control; Cancer (lung, colorectal , breast, cervical)

Other Training
NR

Name of Curriculum
Training used revised revised Women's Wellness Sourcebook Module III: Heart and Stroke

Availability of Curriculum
Yes--revised manuals on cancer & stroke served as guide for training

Evaluation and Testing Results of Curriculum
Counseling CHWs' responses on pre-post training questionnaires showed increases in knowledge and self-reported behaviors in each of following areas: heart disease and stroke prevention strategies, cancer prevention strategies, heart attack or stroke signs and symptoms, cancer signs and symptoms, current heart disease and stroke prevention activities, current cancer prevention activities. Data reported in bar graph only.

Certification
NR

Other Pertinent Information
4 week training period; counseling CHWs required to be present for entire 4-wk period (except 2 half days devoted to training assessment CHWs). A variety of media and text materials usd to simulate active participation

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Martinez-Bristow et al., 2006	**Title of CHW** Promotores
Trial Name Tobacco Free El Paso	**Relationship with Community** Spanish speaking members of community
Objective or Aim To train Spanish speaking counselors to deliver tobacco cessation interventions.	**CHW (N)** NR (89 participants in total, but 5% were healthcare professionals; baseline data collected for 74)
Geography El Paso	**Supervision of CHW** NR
Organization Neighborhood clinics	**Prior Training** NR
Type of Community Spanish-speaking populations	**Type of Service** Counseling
Start Date 2003	**Type of Educational Materials Used** NR
Health Condition of Interest Tobacco cessation	**Duration of Interaction with Clients** NR
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
NR (training was open to employees of certain clinics, healthcare professionals as well as promotores)

Input of CHW in Curriculum Development
Curriculum taken from University of Arizona's Healthcare Partnership which was developed in 1996

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
Client recruitment was addressed in level 2 (Treatment Specialist) training; content, method, # of sessions NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
Nicotine addiction

Training on Evaluation
NR

Other Training
5 days of training for each level of certification

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
Available through U of Arizona developed website; no separate curriculum developed for Tobacco Free El Paso--curriculum "borrowed" directly from U of A

Evaluation and Testing Results of Curriculum
Results from pre-posttest measuring self-confidence suggest that participants understood training material; however data NR.
Mean satisfaction scores (1 = definitely not confident to 5 = definitely confident) high for recipients of each certification: beginner: 4.8, intermediate: 4.7, advanced: 4.6

Certification
3 certifications offered: introductory (Basic Skills to Stop Using Tobacco); intermediate (Treatment Specialist); advanced (Leave Addiction)

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Navarro et al., 2007	**Title of CHW** Consejeras
Trial Name Por La Vida Cuidandome	**Relationship with Community** Part of local Latino community
Objective or Aim Train community health advisors to conduct interactive educational group sessions and train-the-trainer (through "learning partners"	**CHW (N)** 17 consejeras, 285 primary participants, 222 learning partners
Geography San Diego, CA	**Supervision of CHW** NR
Organization Latino communities	**Prior Training** NR
Type of Community Women with low level of acculturation in low socioeconomic Latino communities	**Type of Service** Interactive educational group sessions, recruiting women from local community to be primary participants in these sessions
Start Date 1996	**Type of Educational Materials Used** Manual to guide sessions
Health Condition of Interest Breast & cervical cancer	**Duration of Interaction with Clients** 12 weekly sessions
	Length of Follow-up 6 months after pretest

Training Characteristics

Eligibility for CHW Training
NR

Input of CHW in Curriculum Development
Developed over time & preveiously implement, so no

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
There were 5 2-hour sessions covering recruitment strategies and role playing practice to lead sessions

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
Manual had sessions for understanding female body, breast cancer, Pap test, breast health, risks

Training on Evaluation
NR

Other Training
Referral, communication skills

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Por La Vida Cuidandomje, Taking Care of Myself: Women and Cancer

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Changes in knowledge & behavior pre/post test for primary participants; & learning partners
Names following test for breast/cervical cancer early detection:
BSE 58.6/74.7; 46.4/56.3
Clinical breast exam: 29.1/28.8; 28.8/20.7
Mammography: 49.8/71.2; 45.0/63.1
Pap test 84.6/91.9/79.3/85.1
Knows BSE: 90.5/99.3; 82.4/93.2
Knows mammography recs: 32.3/55.8; 27.4/38.1
Names ≥1 breast cancer symptom: 75.1/96.8; 70.3/94.1
Names ≥1 txt for breast cancer: 40.0/65.6; 27.9/45.0
Names ≥1 risk factor: 8.1/16.5; 6.8/7.2
Names ≥1 factor for cervical cancer: 30.9/59.6; 24.3/35.1
BSE in pasat month: 62.3/87.4; 55.9/71.5
Mammography ever: 63.3/70.0; 66.7/68.3
Pap test ever: 92.3/97.9; 88.3/92.8

Certification
No

Other Pertinent Information
14 program sessions (12 weekly sessions + 2 monthly session) plus 5 additional 2-hour sessions covering recruitment strategies and role playing practice to lead sessions

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Perez, 2006	**Title of CHW** CHW
Trial Name Northern Manhattan Community Voices Collaborative	**Relationship with Community** Live in community or a nearby neighborhood; share cultural & ethnic traditions with program participants
Objective or Aim To train community health workers, focusing on facilitating insurance enrollment, child immunization, and asthma management	**CHW (N)** # trained between 2000 & 2005: (1) 88 (2) 792 (3 624
Geography Northern Manhattan	**Supervision of CHW** NR
Organization Neighborhoods	**Prior Training** NR
Type of Community Northern Manhattan - Washington Heights, Inwood, and Harlem, comprising low income communities and/or racial and ethnic minorities (Dominican, African-American)	**Type of Service** Community-wide health promotion activities; serve as bridge to primary health care provider **Type of Educational Materials Used** NR
Start Date 2000	**Duration of Interaction with Clients** NR
Health Condition of Interest (1) health insurance (2) child immunizaations (3) asthma management	**Length of Follow-up** varied

Training Characteristics

Eligibility for CHW Training
Reside in community; shared culturual & enthic traditions with those they'll be serving; experience with programs offered by organization; good people skills; committed to community development

Input of CHW in Curriculum Development
NR

Training on Cultural Competency
Yes but not described

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
Yes but not described

Training on Protocol Delivery
Yes but not described

Training on Health Topic
Yes but not described

Training on Evaluation
Yes but not described (one of 7 core modules)

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Gains in competency and knowledge (pre/post):
(1) 24%/72% (gain = 48%; % change = 200; n tested = 61)
(2) 83%/96% (gain-48%; %change = 16; n tested = 472)
(3) 63%/83% (gain = 20%; %change = 32; n tested = 499)

Certification
NR

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Williams, 1996	**Title of CHW** Lay health educator
Trial Name NR	**Relationship with Community** Older adult community members
Objective or Aim To raise awareness of & increase participation of older African-Americans in health promotion activities	**CHW (N)** 47
Geography Atlanta & Fort Valley Georgia	**Supervision of CHW** Program outreach coordinators
Organization Older African-Americans	**Prior Training** NR
Type of Community large urban & small township	**Type of Service** Conduct or facilitate at least 1 health promotion session/month & disseminate health ed materials through at least 1 of grassroots channels
Start Date 1992	**Type of Educational Materials Used** Leaflets, brochures, pamphlets
Health Condition of Interest Health promotion & education	**Duration of Interaction with Clients** 1 group session/month
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Older (> 55) living in target communities; expected to be knowledgeable about community, have history of volunteering, demonstrate good communication skills & ability to establish rapport with target population; nonsmokers of moderate weight, have at least 8th grade education

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Training divided into 3 categories: chronic disease education & self-care, lifestyle education, and consumer education. Topics for these categories developed into 12 training modules

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Obtained score ≥80 on pre and posttest for hypertension & diabetes training sessions:
G1: 32%/60%
G2: 11%/72%
G3: 28%/93%

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Yu et al., 2007	**Title of CHW** Lay health advisor (LHA)
Trial Name NR	**Relationship with Community** Shared language
Objective or Aim To inrease self-efficacy of HLAs in conducting breast cancer screening promotion	**CHW (N)** 79 (10 others were eligible but unable to complete training program)
Geography Southeast Michigan	**Supervision of CHW** NR
Organization Chinese communities	**Prior Training** NR with respect to breast cancer screening; however-- Graduate degree: 67.4% College degree: 30.3% High school education: 2.2%
Type of Community Chinese American women	**Type of Service** NR
Start Date	**Type of Educational Materials Used** NR
Health Condition of Interest Breast cancer	**Duration of Interaction with Clients** NR (Phase I only)
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Adults bilingual in English & Chinese; at least a high school diploma; demonstrated enthusiasm for helping others

Input of CHW in Curriculum Development
Community leaders gave input to training materials; first-tier LHAs pretested training manual & Web site and provided comments for final version

Training on Cultural Competency
NR (but point out critical imporantance of a culturally competent program for this population)

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Training manual had 9 chapters + 5 appendices (1 was a bilingual glossary of medical terms); content includes socieodemographi characteristics & special health concerns, outreach strategies, effective communication skills for promoting screening. Also a web site, PowerPointslides and audio recordings available

Other Training Content; Instructional Method; Number of Sessions; Testing
3-month self-study of training materials. program included both on-site instruction and materials on paper as well as on Web sites or CDs for self-paced study.
Name of Curriculum

Name of Curriculum
Training manual: Helping Women Fight Breast Cancer

Availability of Curriculum
Through U of Michigan HAAP

Evaluation and Testing Results of Curriculum
Change in trainees' knowledge & self-efficacy
Knowledge-Mean # of correct answers pre (SD)/post (SD): 6 (1.4)/8 (1.1), $P < 0.001$
Self-efficacy-mean score pre (SD)/post (SD): 61.0 (11.5)/65.0 (9.2), $P = 0.016$

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

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Appendix C: Evidence Tables

List of Abbreviations

AA	African American
AIDS	Acquired immune deficiency syndrome
b/c	because
BF	breastfeeding
BMI	body mass index
BP	blood pressure
BSN	bachelor of science - Nursing
BW	body weight
CAD	Coronary artery disease
CBC	community based care
CD	cannot determine
CES	Community environmental specialists
CES-D	Center for Epidemiologic Studies Depression Scale
CG	control group
CHD	coronary heart disease
CHO	Carbohydrates
CHW(s)	community health worker(s)
CPEP	Child Parent Enrichment Program
DR	Doctor
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised
EAG	Enhanced Anticipatory Guidance
EG	experimental group
EPC	evidence-based practice center
EPC	"enhanced" primary care
ER	emergency room
ETS	Environmental tobacco smoke
FPL	federal poverty level
FTT	Failure to thrive
g	gram
GED	general education degree
GHC	Group Health Cooperative of Puget Sound
gm	gram
h	hour
HbA1c	Glycosylated (or glycated) hemoglobin
HBP	high blood pressure
HIV	Human immunodeficiency virus
HMO	Health Maintenance Organization
HS	high school
HSP	Hawaii's Health Start Program
ht	height
HTN	hypertension
hx	history
ICD	International Classification of Diseases
IHDP	Infant Health and Development Program
IL	Illinois
ITT	intent to treat
JNC-VI	Sixth Report of Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure
kcal	kilocalorie
LBW	low birth weight
LDL	Low-density lipoprotein
LHA	Lay Health Advisor
MD	medical doctor; Maryland
mg/dl	milligrams/deciliter
MI	Michigan
min	minute
mmol/L	millimoles/liter
mo	month
N	number

NA	not applicable
NCM	nurse case manager
NDS	Nutrition Data System
NNT	number needed to treat
NP	nurse practitioner
NR	not reported
NS	not significant
NW	northwest
NY	New York
NYC	New York City
PCP	primary care physician
PI	principal investigator
PKU	phenylketonuria
PSI	Psychiatric Symptom Index
RCT	randomized controlled trials
REACH	Resources, Education and Care in Home
RIA	radioimmunoassay
RN	registered nurse
SBP	systolic blood pressure
SD	standard deviation
SE	standard error
SLE	stressful life events
TPV	tailored print and video
UC	usual care
VLBW	very low birth weight
WATCH	Wellness for African Americans Through Churches Project
WIC	Women, Infants, and Children
wk	week
y	year
y/o	years old
YMCA	Young Men’s Christian Association
yr	year

Evidence Table C-1. Key Questions 1, 2, and 3

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Andersen et al., 2000 **Trial Name** Community Trial of Mammography Promotion **Objective or Aim** To learn how best to increase use of screening among women aged 50 to 80 **Geography** 40 communities in predominantly rural Washington state, selected by zipcodes corresponding to towns or clusters of towns **Organization** Community or telephone **Type of Community** Rural neighborhoods **Study Design** RCT of communities **Start Date** NR **Duration** 2 years	**Eligible (N)** 10,967 at baseline 8,907 at followup **Enrolled (N)** 10,967 **Randomized (N)** 14,080 **Completers (N)** 6,685 **Withdrawals or Dropouts (N)** 2,222 of N eligible at followup **Health Condition of Interest** Mammography **Inclusion Criteria** Women age 50 to 80 living in one of 40 communities **Exclusion Criteria** History of breast cancer **Groups** G1: Control G2: Community activities G3: Individual counseling G4: Both **Interventions** G1: Control, no intervention reported G2: Community activities - developing social norms G3: Individual counseling - telephone G4: Community activities and individual couseling **Group (N)** G1: 1,688 G2: 1,630 G3: 1,650 G4: 1,717	**Title of CHW** Volunteer **Paid or Volunteer** Volunteer **Relationship with Community** Shared community **CHW (N)** NR **Supervision of CHW** Non-clinician- field research coordinators **Prior Training** NR **Type of Service** Barrier-specific telephone counseling to promote screening **Type of Educational Materials Used** NR **Duration of Interaction with Clients** One interaction (time of interaction NR) **Length of Follow-up** 2 years	**Age (mean)** NR **Sex (% female)** 100 **Race (%)** 97% white **Other** NR **Role of CHW in Recruiting and Retention** None **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Increase in mammography rates (self-reported) **Results** No significant differences between intervention groups and control; no significant differences for individual counseling or combined individual couseling and communitities activities, but increased mammography use by regular users between baseline and followup for community activities arm by 2.9% ($P = 0.01$). **Measure 2** Increase in mammography rates (self-reported) **Results** Among under-users at baseline, intervention more effective than control in increasing mammography rates amon women with in communities without a female physician (10% to 16%; $P < 0.05$), and among women with no health insurance (10% to 23%; $P \leq 0.05$); NS effect for community attitudes on mammography, age, time taken to get a medical appointment, financial comfort, mammography facility in community, income, education, proportion of Hispanic population, urban/rural, size of community, and employment status among regular users, intervention was more effective than control in preventing relapse among women who needed > 2 hours to get a medical appointment. NS effect for community attitudes on mammography, age, use of mammography in community, female MD, financial comfort, mammography facility in community, income, education, proportion of Hispanic population, urban/rural, size of community, and employment status	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Auslander et al., 2002; Williams et al., 2001 **Trial Name** Eat Well Live Well Nutrition Program **Objective or Aim** A culturally specific, peer-led dietary change program designed to reduce risk of type 2 diabetes in low-income African-American women. **Geography** Large Midwestern city in Missouri **Organization** Targeted neighborhoods **Type of Community** Race, Neighborhood **Study Design** RCT **Start Date** NR **Duration** 3 months	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** NR **Completers (N)** 294 **Withdrawals or Dropouts (N)** 104 **Health Condition of Interest** Diabetes Prevention **Inclusion Criteria** African-American women ages 25–55 years and living in neighborhoods **Exclusion Criteria** Pregnancy, diabetes, BMI < 27 **Groups** G1: Treatment G2: Control **Interventions** G1: Six group sessions (approximately six to eight participants per group) and six individual sessions targeting stages of change to tailor dietary pattern with a peer educator, meeting weekly over a 3-month period; duration of each session 45-90 minutes G2: Control - a book **Group (N)** G1: Treatment 138 G2: Control 156	**Title of CHW** Peer educators **Paid or Volunteer** NR **Relationship with Community** African-American women from target community with no background in nutrition or education, were recruited by lead agency to deliver intervention. **CHW (N)** 3 **Supervision of CHW** Weekly supervision during implementation phases, including meeting with educators, research dietitian, project coordinator and research assistants **Prior Training** No background in nutrition or education **Type of Service** Counseling **Type of Educational Materials Used** Program Manual **Duration of Interaction with Clients** 3 months **Length of Follow-up** 3 months	**Age (mean)** G1: 41.2 G2: 40.2 **Sex (% female)** 1 **Race (%)** African-American **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Knowledge of Label Reading Questionnaire (Unvalidated) –baseline/6 months **Results** **G2:** 5.4/5.7, **G1:** 5.5/6.3 (*P* > 0.0001) **Measure 2** Readiness to change dietary patterns - no **Results** Overall, participants in treatment group reported a greater readiness to change their dietary patterns than those in control group at posttest assessment. **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Weight, BMI **Results** No significant group differences **Measure 2** FFQ - Validated **Results** Intervention was effective in reducing fat intake, as measured by percent of calories from total fat (baseline/6 months): G2: 36.0/34.5, G1: 35.9/32.3, *P* < 0.05 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barnes et al., 1999 **Trial Name** NR **Objective or Aim** To assess effectiveness of a volunteer driven outreach program on immunization rates in children younger than 2 years. **Geography** NW Manhatten, NY **Organization** Organizational: Patients of 1 of 2 ambulatory pediatric clinics of a major medical center **Type of Community** Low-income children who are part of a large, highly mobile immigrant community originating from DR **Study Design** RCT **Start Date** 1993 **Duration** 6 months	**Eligible (N)** 434 **Enrolled (N)** 163 **Randomized (N)** 434 **Completers (N)** 140 **Withdrawals or Dropouts (N)** 23 **Health Condition of Interest** Immunizations **Inclusion Criteria** • Younger than 2 years residing in NW Manhattan • No-shows for a scheduled appointment in pediatric clinic, and • Overdue for a vaccine. **Exclusion Criteria** NR **Groups** G1: Intervention G2: Control **Interventions** G1: Basic immunization education and referral. During subsequent contacts (home visits or telephone calls) throughout remainder of follow-up , families were reminded of upcoming vaccinations and were recontacted to ensure that requisite vaccines were received. If a family required support or assistance to obtain immunization services G2: Informed of their child's immunization status at enrollment visit by control group interviewer and were instructed to reschedule missed appointment. **Group (N)** G1: 71 G2: 84	**Title of CHW** Community volunteers **Paid or Volunteer** Volunteer **Relationship with Community** NR- community volunteers **CHW (N)** NR **Supervision of CHW** Organized by coordinator from local branch of larger international charitable organization **Prior Training** NR **Type of Service** Unspecified # of home visits and phone calls **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Unspecified # of calls and visits over 6 months (time per session NR) **Length of Follow-up** Maximum of 6 months	**Age (mean)** G1: 9.5 months G2: 9.4 months **Sex (% female)** G1: 50 G2: 40 **Race (%)** G1: 87% Hispanic G2: 85% Hispanic **Other** Primary language of caregiver -spanish G1: 66 G2: 75% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Late for immunization **Results** G1: 18% G2: 38% *P* < 0.05 **Measure 2** Up to date on immunizations **Results** G1: 75% G2: 54% *P* = 0.03	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barnes-Boyd et al., 2001 **Trial Name** REACH-Futures **Objective or Aim** NR **Geography** Chicago **Organization** Inner city community clinic **Type of Community** Mostly African-American; impoverished; low employment and literacy, high infant and child morbidity and mortality, poor maternal outcomes, high incidence early unplanned pregnancies and childhood injuries **Study Design** Cohort with historic control **Start Date** 1986 **Duration** 8 years	**Eligible (N)** 1,922 **Enrolled (N)** 1,922 **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Infant health **Inclusion Criteria** All recipients: • below 150% of poverty line • lived in inner-city communities **Exclusion Criteria** NA **Groups** G1: REACH-Futures CHW+nurse G2: REACH nurse-only historic control **Interventions** • Home visits-family focused care plan • Support model problem-solving skills • Promote self-development of mother • Provide instruction in infant care • Transportation • Find community resources for childhood immunizations **Group (N)** G1: 666 G2: 1256	**Title of CHW** Maternal-Child Health Advocate **Paid or Volunteer** Paid **Relationship with Community** Within community **CHW (N)** 10 **Supervision of CHW** Teamed with nurses (at least BSN) **Prior Training** • Minimum HS or GED • Experience in community service **Type of Service** home visits **Type of Educational Materials Used** Direct instruction **Duration of Interaction with Clients** 12 monthly visits by CHW alone, teamed with nurses for one prenatal visit and at 1, 6 and 12 months; duration per visit NR **Length of Follow-up** 12 months	**Age (mean)** G1: 51% < 20 y/o G2: 36% < 20 y/o **Sex (% female)** 100 **Race (%)** G1: 85% African-American G2: 80% African-American **Other** G1: 56% primiparous G2: 41% G1: 53% < HS education G2: 36% G1: 94% BW > 2500gm G2: 93% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 2 mo 86%, 11 mo 56% G2: 2 mo 75%, 11 mo 58%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Extrapolated infant mortality rate (n too small) **Results** G1: 3.0 G2: 4.7 (not significant) **Measure 2** Presence of health problems **Results** Neonatal G1: 27% G2: 25% Postneonatal G1: 27% G2: 25% (neither significant) **Measure 3** % fully immunized at 12 months **Results** G1: 77% G2: 63% ($P < 0.001$) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW+nurse home visits resulted in higher immunization status than nurse-only visits; no difference in health problems or mortality **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barth et al., 1988 **Trial Name** CPEP **Objective or Aim** Preventing child abuse **Geography** California / Contra Costa County **Organization** Social **Type of Community** At risk **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** 95 referred **Enrolled (N)** 65 enrolled **Randomized (N)** 65 **Completers (N)** 50 G1: 24 G2: 26 **Withdrawals or Dropouts (N)** G1: 5 G2: 10 **Health Condition of Interest** Child abuse **Inclusion Criteria** Referred to CPEP, by public health, education, or social service professionals **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: CPEP services involved six months of home visiting by paraprofessional women and linkage to other formal and informal community resources. **Group (N)** G1: 24 G2: 26	**Title of CHW** Parenting Consultants **Paid or Volunteer** NR **Relationship with Community** Members of community **CHW (N)** 8 **Supervision of CHW** Group Supervision **Prior Training** 100 hours **Type of Service** Task centered approach **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈2 visits per month, ≈ 4 hours per session, over 6 months **Length of Follow-up** 6 months	**Age (mean)** G1: 21.75 G2: 23.04 **Sex (% female)** 100 **Race (%)** • 43% white • 27% were Latino (primarily Chicano) • 20% black • 6% were Asian (primarily South East Asian refugees) • 4% Native American **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Child Abuse Potential Inventory **Results** G1: pre/post means 116.33/88.54 G2: pre/post means 103.50/92.44 No significant difference between posttests	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Overall no differences in outcomes, though clients appreciated services **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Barth, 1991 **Trial Name** CPEP **Objective or Aim** Prevent child abuse **Geography** Contra Costa County, California **Organization** Organizational/ Community **Type of Community** At risk for chid abuse **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** 313 referred **Enrolled (N)** 240 **Randomized (N)** 240 **Completers (N)** 61% (191) **Withdrawals or Dropouts (N)** 39% (49) **Health Condition of Interest** Child abuse **Inclusion Criteria** Referred to CPEP by public health, education, or social service professionals **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: Intervention G2: Control **Group (N)** G1: 97 G2: 94 (Completers - article indicates 240 were initially randomized but only 191 completed posttest)	**Title of CHW** Parenting Consultants **Paid or Volunteer** NR **Relationship with Community** Members of community **CHW (N)** 8 **Supervision of CHW** Group supervision **Prior Training** NR **Type of Service** • Task centered approach • Home visits • Links to community resources **Type of Educational Materials Used** NR **Duration of Interaction with Clients** On average 11 visits (range 5-20) over 6 months (time per session not reported but ≈ 4 hours implied) **Length of Follow-up** Mean 3 years (range 2-5)	**Age (mean)** G1: 23.25 G2: 23.75 **Sex (% female)** 100 **Race (%)** • White: 45% • Latin (primarily Chicano): 31% • Black: 17% • Other: 7% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Reported child abuse **Results** No differences in increase between groups **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Overall no differences in outcomes, though clients appreciated services **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Batts et al., 2001; Garyet al., 2003; Vetter, et al., 2004; Gary et al., 2005; Gary et al., 2000 **Trial Name** Project Sugar **Objective or Aim** To determine diabetes care priorities and needs in a group of urban African-American adults with type 2 diabetes; To determine prevalence of depressive symptoms and re l a t i o n s h i p between depressive symptoms and metabolic control . **Geography** East Baltimore, MD **Organization** 2 primary care clinics **Type of Community** African-American adults with type 2 diabetes **Study Design** RCT **Start Date** 1994 **Duration** 2 years	**Eligible (N)** 822 **Enrolled (N)** 332 **Randomized (N)** 186 **Completers (N)** 183 **Withdrawals or Dropouts (N)** 3 **Health Condition of Interest** • Diabetes Mellitus, type 2 • Depression **Inclusion Criteria** Eligibility criteria included following: • Age 35–75 years • African-American ancestry • Residence in East Baltimore • Presence of type 2 diabetes • Absence of comorbid conditions limiting probable life span to 4 years (e.g., cancer, AIDS) • Attendance at either of 2 Johns Hopkins–affiliated primary care clinics • No indication of end-stage complications of diabetes (e.g., kidney dialysis or transplant, blindness, or lower- extremity amputation) **Exclusion Criteria** • Comorbid conditions limiting probable life span < 4 years • Indication of end-stage complications of diabetes (dialysis or t+R2ransplant, blindness or lower extremity amputation) **Groups** G1: usual care G2: nurse care manager G3: CHW G4: NCM + CHW	**Title of CHW** Members of community of interest trained to perform non-medical case management tasks **Paid or Volunteer** NR **Relationship with Community** • Local hs graduate enrolled in college part-time • No formal training in health care prior to study **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** None **Type of Service** • Home visits to provide education • Mobilize social support for adults with diabetes mellitus **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 3 visits (45-60 minutes each) per year over 2 years (+ additional contacts as needed) **Length of Follow-up** 2 years	**Age (mean)** 59 **Sex (% female)** 75 **Race (%)** 100% AA **Other** • 50% had an income of $7,500 • Participants had diabetes an average of 9 years • 91% on medication (46% used insulin, 45% used an oral agent) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** LDL **Results** G1: -16.7± 5.5 mg/dl G2: +6 (approx) (*P*<0.05 for within-group change from baseline) G3: +6 (approx.) G4: + 4 (approx.) (*P*<0.05 for within-group change from baseline) **Measure 2** SBP **Results** G1: ref G2: +6 (approx.) (*P*<0.05 for within-group change from baseline) G3: -4 (approx) G4: -2 (approx). **Measure 3** hga1c **Results** G1: ref G2: -0.31 ± 0.49% G3: -0.30 ± 0.48% G4: 0.8 ± 0.52% **Measure 4** Dietary risk scores **Results** G1: ref G2: -2.4± 1.99 G3: -3.45 ± 1.87 G4: -2.13 ± 1.92 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Batts et al., 2001; Garyet al., 2003; Vetter, et al., 2004; Gary et al., 2005; Gary et al., 2000 (continued)	**Interventions** G1: continued on-going care from their own health professionals + quarterly newsletter containing info on diabetes-related health topics and trial communication G2: NCM intervention: NCM was RN + certified diabetes educator, interventions were 45 min face-to-face clinic visits and/or phone contacts, direct patient care, management, education, counseling, follow-up, referral and physician feedback - goal was 3 visits/yr G3: CHW interventions were 45-60 min face-to-face home visits and/or phone contacts, no direct implementation of therapeutic strategieis but facilitated preventibe care by offering to schedule appointments + provide education, 3 visits/yr G4: combined NCM + CHW - three visits/year with each **Group (N)** G1: 34 G2: 38 G3: 41 G4: 36		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Becker et al., 2005; Cene et al., 2008 **Trial Name** NR **Objective or Aim** Determine relative effectiveness of alternative model of community-based care provided in black community compared with "enhanced" primary care **Geography** Baltimore, MD **Organization** Identified from Baltimore Hospitals **Type of Community** Blacks **Study Design** RCT **Start Date** NR **Duration** 1 year	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** 364 siblings (194 families) **Completers (N)** 267 **Withdrawals or Dropouts (N)** 97 **Health Condition of Interest** Cardiovascular disease prevention **Inclusion Criteria** • Sibling of black < 60 years hospitalized for a CHD event at one of 10 Baltimore hospitals • Aged 30-59 • No known history of CAD • No chronic glucocorticosteroid therapy • No autoimmune disease • No cancer • No immediate life-threatening comorbidity **Exclusion Criteria** See prior **Groups** G1: EPC G2: CBC **Interventions** G1: EPC- received risk-specific materials (same as intervention group), PCP received results and recommendations, sent info on YMCA program, etc. G2: CBC - received care in 1 nonclinical site in community from a NP and CHW. CHW provided dietary counseling, smoking cessation, and exercise counseling lasting 30 minutes. **Group (N)** G1: 168 G2: 196	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** "Culturally sensitive navigator" **CHW (N)** 1? **Supervision of CHW** NR **Prior Training** NR **Type of Service** Counseling for adults with risk factors for cardiovascular disease, face-to-face, phone calls **Type of Educational Materials Used** Written, culturally sensitive **Duration of Interaction with Clients** Multiple (# unspecified) 30 minute sessions over 1 year **Length of Follow-up** 1 year	**Age (mean)** G1: 47.9 G2: 47.6 **Sex (% female)** G1: 66 G2: 61 **Race (%)** African American:100% **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Smoking Cessation (self-report) **Results** G1: 7% reduction G2: 16.2% reduction (*P* < 0.001) **Measure 2** BP **Results** **Measure 3** LDL (mmol/L) **Results** G1: 3.38+-1 G2: 3.06+-1 (*P* < 0.0001) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Beckham et al., 2008 **Trial Name** NR **Objective or Aim** Effectiveness of CHWs on diabetes management among a population with primarily Native Hawaiian and Samoan ethnic minority participants with HbA1c greater than 10% **Geography** Hawaii **Organization** Organizational **Type of Community** Underserved diabetics **Study Design** Prospective cohort **Start Date** 2002 **Duration** Up to a year	**Eligible (N)** 175 **Enrolled (N)** 116 **Randomized (N)** NA **Completers (N)** 80 **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** Diabetes **Inclusion Criteria** Patients with HBa1C > 10 **Exclusion Criteria** Refusal to participate (these became control group) **Groups** G1: Intervention G2: UC **Interventions** G1: diabetes case management by CHW, including home visits; based on needs of patients, CHWs collaborate with rest of multidisciplinary team to determine high-priority learning areas and to develop an intervention plan to implement during subsequent visits, plan included a blood regimen and target levels, diet plan, exercise plan, medication schedule, insulin injetion plan, and preventive health/health mainteance plan G2: UC **Group (N)** G1: 80 G2: 36	**Title of CHW** Community health worker **Paid or Volunteer** Paid **Relationship with Community** Ethnicity and language **CHW (N)** 3 **Supervision of CHW** CHWs met with Medical Director and Preventive Health Department Director once every 2 weeks for in-service training and case conferences for duration of project. **Prior Training** 6 months of study at community college **Type of Service** Based on needs of patient - CHWs would collaborate with rest of multidisciplinary team to determine high-priority learning areas and to develop an intervention plan to implement during subsequent visits. Each plan included a blood glucose self-monitoring regimen and target levels, diet plan, exercise plan, medication schedule, insulin injection plan, and preventive health/health maintenance plan. **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Up to a year - number of CHW visits per participant averaged 4.24 (range 5 1–15 visits), with each visit averaging 1 to 1.5 hours. **Length of Follow-up** 1 year	**Age (mean)** G1: 51.8 G2: 46.6 **Sex (% female)** G1: 55 G2: 50 **Race (%)** G1: Hawaiian 51.3% Samoan 12.5% Filipino10% Caucasian 16.2% Tongan 2.5% Other 7.5% G2: Hawaiian 55.6% Samoan 11.1% Filipino 8.3% Caucasian 11.1% Tongan 2.8% Other 11.1% **Other** Baseline HbA1c (%) G1: 11.0 (6 .8) G2: 10.8 (6 (%) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Post intervention period HbA1c **Results** G1: 8.8 6 (1.7) G2: 10.4 (6 1.3) *P* < 0.0001 (Note on *P* value: investigators did not report one comparing groups, RTI researchers calculated it using data in article **Measure 2** Decrease in HbA1C **Results** G1: 2.2 (SD 1.8) G2: 0.2 (SD 1.5); *P* < 0.01 compared to baseline **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Blacket al., 1995; Hutcheson, et al., 1997 **Trial Name** NR **Objective or Aim** Evaluate efficacy of family-focused, home-based intervention on growth and development of children with nonorganic FTT **Geography** Baltimore, MD **Organization** Recruited from urban pediatric clinics serving low income families **Type of Community** Low-income, urban **Study Design** RCT **Start Date** NR **Duration** 1 year	**Eligible (N)** approx 163 **Enrolled (N)** 130 **Randomized (N)** 130 **Completers (N)** 706: 116 (to end of intervention) 1445: 74 (to 4 y/o) **Withdrawals or Dropouts (N)** 706: 14 1445: 56 **Health Condition of Interest** Nonorganic failure to thrive **Inclusion Criteria** • < 25 mo • Wt for age < 5th percentile • EGA 36+ wk • Birth weight appropriate for gestational age • Wt for ht < 10th percentile **Exclusion Criteria** • No congenital disorders • No chronic illness • No developmental disabilities **Groups** G1: home intervention G2: clinic-only **Interventions** G1: CHW home visit weekly x 1 year w/ community health nurse supervision G2: clinic-based multidisciplinary services **Group (N)** G1: 64 G2: 66	**Title of CHW** Lay home visitor **Paid or Volunteer** Paid **Relationship with Community** Knowledge of community Familiarity with culture **CHW (N)** 3 part-time **Supervision of CHW** Community health nurse, frequency NR **Prior Training** Experience with children and families **Type of Service** • Home visits to develop individualized family service plan with specific goals • Support mother's needs • Promote maternal-child relationship **Type of Educational Materials Used** Hawaii Early Learning Program was used as curriculum guide; handouts, developmental assessment toys, personalized notebooks **Duration of Interaction with Clients** Weekly visits (≈ 1 hour per visit) for 1 year **Length of Follow-up** 18 months	**Age (mean)** G1: younger 7.8 mo (SD 2.8); older 17.1 mo (3.7) G2: younger 6.6 (3.6); older 17.9 (4.3) **Sex (% female)** G1: younger 50%, older 44% G2: younger 45%, older 38% **Race (%)** African American – G1: younger 84%, older 91% G2: younger 85%, older 97% **Other** Mean BW G1: younger 2881 gm (400), older 2868 (385) G2: younger 3010 (524), older 2881 (432) Prior FTT hospitalization G1: younger 6%, older 0 G2: younger 10%, older 3% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 80% overall **Retention Rates** 706: G1: 89% G2: 89% 1,445: G1: 65% G2: 68%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Home environment (validated: Home Observation for Measurement of Environment Scales) **Results** G1 higher post-intervention scores than G2 (no significance testing reported) **Measure 2** Competence pre vs. post intervention **Results** Negative affect (below median on Brief Symptom Inventory) G1: 3.1 (SD 0.9) → 3.4 (0.6) G2: 2.9 (0.9) → 3.6 (0.7) Non-negative G1: 3.1 (0.6) → 3.6 (0.6) G2: 3.1 (0.9) → 3.5 (0.6) **Measure 3** Growth (wt for age, wt for ht, ht for age) (validated with Natl Center for Health Statistics charts) **Results** Significant improvement in each, no difference in improvement btw groups **Measure 4** Parent-child behavior during feeding (validated: modified Parent Child Early Relational Assessment) **Results** No significant differences between groups	**Health Outcomes:** **Measure 1** Cognitive and motor development (validated: Bayley Scales of Infant Development @ post-intervention; Battelle Developmental Inventory @ 4 y/o) **Results** Younger (1-12 mo at recruitment): G1: less decline pre/post vs. G2 (P = 0.02) Older (12.1-24.9 mo at recruitment): no significant difference in decline between groups Negative affect - cognitive G1: 96.6 (SD 17.0) → 86.2 (15.8) → 77.4 (18.3) G2: 91.8 (13.0) **Measure 2** Language development (validated: Bayley Scales and Receptive/Expressive Emergent Language Scale) **Results** Receptive-younger G1: 92.7→88.5 G2: 98.7→88.0 Older G1: 92.3→83.2 G2: 98.3→82.7 (overall P = 0.05) Expressive - no differences in declines reported between groups **Healthcare Utilization:** NR	**Costs (Economics):** NR **Measure 1** Annual per-child cost of home visits (ingredients method) **Results** $2,828/child/year **Explanation of Overall Outcomes** CHW home visit + multidisciplinary clinic management were significantly better than MDC alone in attenuating cognitive and motor decline among infants (but not older children) and attenuating receptive language decline; no significant difference observed in growth, expressive language, or parent-child interaction **Quality Rating** Fair **Health Outcomes:** **Measure 1** Negative affect @ baseline, post-intervention, 4 y/o **Results** Negative affect group G1: 4.2 (SD 1.0) → 4.4 (0.7) → 3.5 (0.5) G2: 4.3 (0.7) → 4.4 (0.6) → 3.6 (0.3) Non-negative group G1: 4.2 (0.7) → 4.3 (0.6) → 3.7 (0.2) G2: 4.5 (0.5) → 4.4 (0.7) → 3.4 (0.6) **Measure 2** Warmth @ 4 y/o **Results** Negative affect group G1: 2.8 (SD 0.5) G2: 2.9 (0.5) Non-negative group G1: 2.9 (0.5) G2: 2.5 (0.5)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Bone et al., 1989 **Trial Name** NA **Objective or Aim** Determine (1) feasibility and impact of introducing indigenious CHWs into ED to supplement detection, referral, and follow-up efforts performed by ED clinical staff (2) degree to which CHWs efforts improve HBP follow-up in high-risk groups **Geography** Baltimore, MD **Organization** Johns Hopkins Hospital Adult ER **Type of Community** Predominately black, low-income **Study Design** Prospective cohort **Start Date** 1982 **Duration** 2 years	**Eligible (N)** 722 **Enrolled (N)** 722 **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** HTN **Inclusion Criteria** ER patients scheduled for BP follow-up **Exclusion Criteria** Patients without a telephone number **Groups** G1: control (not able to be contacted by CHW) G2: contacted by CHW Initially, all patients were contacted initially by CHWs in ER. CHWs took pulse and BP measurements, provided educational counseling, identiifed barriers related to referrals, assisted **Interventions** G1: none G2: telephone preappointment reminder for scheduled BP follow-up, including education counseling. Multple attempts (at least 3) were made to contact patients 1-2 days before scheduled follow-up. Telephone encounters lasted 5-10 minutes, conducted at night. **Group (N)** G1: 278 G2: 444	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** Individuals residing in community where ED is located and interested in HBP (usually b/c of family or personal history). All women, age 30-45 years. **CHW (N)** 6 **Supervision of CHW** Initially by community health nurse/health educator on adaily basis, later reduced to weekly as HCWs were judged competent by nurse educator and ED staff **Prior Training** No prior work in health related area but some had previous community service; all had HS education **Type of Service** Face-to-face session; Telephone **Type of Educational Materials Used** Verbal **Duration of Interaction with Clients** 1 face-to-face session (≈20 minutes) and at least 1 pre-followup appointment reminder telephone call (5-10 minutes) (time period over which this occurred NR) **Length of Follow-up** NR	**Age (mean)** NR **Sex (% female)** NR **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** CHW was to contact patients for pre-appointment reminders **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Returned to ED for follow-up appt **Results** G1: 41% G2: 60% (*P* < 0.001)	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Campbell, 2004 **Trial Name** WATCH **Objective or Aim** Compare effectiveness of 2 strategies to promote colorectal cancer preventive behaviors among African American members of 12 rural North Carolina churches. **Geography** Rural NC **Organization** Churches in rural counties **Type of Community** African American rural churches **Study Design** RCT **Start Date** 1999 **Duration** 1 yr	**Eligible (N)** 26 churches **Enrolled (N)** 12 churches **Randomized (N)** 12 churches **Completers (N)** NR (presumably 12 churches; completers/dropouts of individual participants from each church not reported) **Withdrawals or Dropouts (N)** NR (presumably 12 churches; completers/dropouts of individual participants from each church not reported) **Health Condition of Interest** Colorectal cancer **Inclusion Criteria** • Church in one of five rural eastern NC counties with at least 80 active members and expressed interest in participation • All active members (i.e., attending study church at least once/month) aged 18 or older were eligible to participate **Exclusion Criteria** NR **Groups** G1: Control G2: LHA only G3: TPV only G4: Combined LHA and TPV	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer **Relationship with Community** Church membership **CHW (N)** 62 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Provide information through existing networks; organize and conduct at least three church-wide activities focused on spreading information for colorectal cancer prevention **Type of Educational Materials Used** TPV and combined groups (G2 and G4): videos, computer-tailored newsletters **Duration of Interaction with Clients** Three church- based activities during 12 months (time per session NR) **Length of Follow-up** 12 months	**Age (mean)** 52 **Sex (% female)** 74 **Race (%)** African American: 99% **Other** BMI ≥30: 40% **Role of CHW in Recruiting and Retention** Organize church activities, but recruitment is really NA in this case **Recruitment Rates** NR **Retention Rates** Participated in WATCH church activities (%): G1: 22.5 G2: 32.5 G3: 23.3 G4: 16.5

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Dietary change--daily fruit and vegetable servings (Baseline/Followup) **Results** G1: 3.3/3.4 G2: 3.5/3.5 G3: 3.3/3.9 G4: 3.4/3.7 *P* = 0.02 for G3 vs. G1 *P* = ns for G2 vs. G1 **Measure 2** Physical Activity: recreational (moderate-vigorous) activity MET hours/week, M (SE) (baseline/followup) **Results** G1: 9.3 (0.88)/8.4 (0.69) G2: 10.5 (0.90)/10.6 (0.70) G3: 9.5 (0.80)/10.9 (0.61) G4: 9.7 (0.76)/9.7 (0.60) *P* = 0.07 for G2 **Healthcare Utilization:** **Measure 1** Other CRC test in past year (% Baseline/% Followup) **Results** G1: 20.3/27.5 G2: 19.6/25.5 G3: 23.7/21.1 G4: 26.4/14.9 *P* = ns **Measure 2** FOBT test in past year (% Baseline/% Followup) **Results** G1: 30.4/21.7 G2: 23.5/33.3 G3: 19.7/36.8 G4: 19.5/31.0 *P* = 0.08	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Campbell, 2004 (continued)	**Interventions** G1: Control churches offered health education sessions and speakers on topics of their choice not directly related to study objectives G2: Organize and conduct at least 3 church-wide activities on spreading info and enhancing support for healthy lifestyle and CRC screening (LHA) G3: 4 personalized computer-tailored newsletters and 4 targeted videotapes (TPV) corresponding to same behaviors mailed to participants' homes bimonthly for first 6 months after baseline data collection; 4th mailing was 9 months post baseline G4: LHA + TPV **Group (N)** G1: 129 G2: 123 G3: 159 G4: 176		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Caulfield et al., 1998 **Trial Name** NR **Objective or Aim** To promote breast feeding among African-American women **Geography** Baltimore, MD **Organization** Organizational - WIC **Type of Community** Neighborhood-socioeconomic **Study Design** RCT **Start Date** 1992 **Duration** Various - from minimal to 20 weeks	**Eligible (N)** 4 clinics, 674 women **Enrolled (N)** 548 **Randomized (N)** 4 clinics **Completers (N)** 242 **Withdrawals or Dropouts (N)** 306 **Health Condition of Interest** Breast feeding **Inclusion Criteria** African-american woman attending prenatal care at participating clinic before 24 weeks gestation, singleton, planning to keep baby and remain in catchment area **Exclusion Criteria** Contraindications to BF; HIV, certain meds, pregnancy termination, twins, miscarriage, still birth, maternal or neonatal hospitalizatiion for 2 or more weeks **Groups** G1: Control G2: Video G3: Peer counselor G4: Video and Peer Counselor **Interventions** G1: All on-going WIC services as required by state and federal regulation G2: WIC services plus motivational video additional literature G3: WIC services plus peer counselling before and after birth G4: WIC services plus video plus peer counselling **Group (N)** G1: 57 G2: 64 G3: 55 G4: 66	**Title of CHW** Peer counselor **Paid or Volunteer** NR **Relationship with Community** Shared condition - WIC recipient that successfully breast fed in past **CHW (N)** NR **Supervision of CHW** Random quality assurance visit to one clinic each week **Prior Training** 5 weeks of training **Type of Service** One-on-one counselling **Type of Educational Materials Used** Various - NR **Duration of Interaction with Clients** 3 or more meetings during pregnancy (from 24 weeks of gestation) and then weekly up to 16 weeks postpartum if they continued breast feeding **Length of Follow-up** Up to 16 weeks post partum	**Age (mean)** G1: < 18 37%, 18-25 40%, > 25 23% G2: < 18 27%, 18-25 53%, > 25 20% G3: < 18 33%, 18-25 40%, > 25 27% G4: < 18 23%, 18-25 53%, > 25 24% **Sex (% female)** 100 **Race (%)** 100% African- American **Other** Nulliparity G1: 23% G2: 48% G3: 20% G4: 32% < HS G1: 86% G2: 64% G3: 75% G4: 85% Employed G1: 13% G2: 33% G3: 17% G4: 28% **Role of CHW in Recruiting and Retention:** NR **Recruitment Rates:** NR **Retention Rates:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Still breast feeding at 7-10 days **Results** G1: 14% OR 1.00 G2: 30% OR 0.79 95% CI, (0.25, 2.52) G3: 38% OR 1.11 95% CI, (0.34, 3.61) G4: 38% OR 1.52 95% CI, (0.50, 4.59) *P* < 0.05 **Measure 2** Odds of intitiating and continuing BF (@7-10 d) relative to control group **Results** G1: 1 (control) G2: 1.36 (0.52, 3.54) / 0.79 (0.25, 2.52) G3: 3.84 (1.44, 10.21) / 1.11 (0.34, 3.61) G4: 1.92 (0.78, 4.76) / 1.52 (0.50, 4.59) **Measure 3** Intiation of breast feeding **Results** G1: 26% (OR, 1.00) G2: 50% (OR, 1.36; 95% CI, 0.52-3.54) G3: 62% (OR, 3.84; 95% CI, 1.44-10.21)G4: 52% (OR, 1.92; 95% CI, 0.78-4.76) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW were effective at increasing initiation of BF, but no difference in continuation at 7-10 days **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Conway et al., 2004 **Trial Name** NR **Objective or Aim** Evaluate a culturally tailored behavioral problem solving intervention to reduce environmental tobacco smoke exposure amongst young Latino children **Geography** San Diego County **Organization** Areas with large Latino population **Type of Community** Community organizations and venues **Study Design** RCT **Start Date** NR **Duration** 12 months	**Eligible (N)** NR **Enrolled (N)** 143 **Randomized (N)** 143 **Completers (N)** 127 **Withdrawals or Dropouts (N)** 16 **Health Condition of Interest** Environmental tobacco smoke exposure **Inclusion Criteria** • Latino • Have child 1-9 y/o • Exposure of child to 6+ cigarettes/week **Exclusion Criteria** NR **Groups** G1: CHW G2: control **Interventions** G1: Home and telephone visits on problem-solving techniques to reduce environmental tobacco smoke exposure; 6 visits over 4 months G2: Participated in surveys but received no other intervention **Group (N)** 1 adult + 1 child dyad G1: 71 G2: 72	**Title of CHW** Promotora **Paid or Volunteer** NR (text implies volunteer) **Relationship with Community** Bicultural, bilingual, Latina **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home and telephone visits on problem-solving techniques to reduce ETS exposure to children **Type of Educational Materials Used** Contracting, shaping, positive reinforcement, problem solving, social support **Duration of Interaction with Clients** 6 home and telephone visits over 4 months (time per session NR) **Length of Follow-up** 12 mo	**Age (mean)** 33 y (adults), 4 y (children) **Sex (% female)** • Adult: Nearly 100% • Children: 55% **Race (%)** 100% Latino **Other** • Income: $700-1099/mo • Mexican-born: 85% • Acculturation: 2.0/5 • Mexican-educated: 71% • Median education: 9-11 y **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** 81% overall

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** RIA of child's hair for nicotine and cotinine **Results** No significant differences between groups **Measure 2** Parent report of child's past month ETS exposure **Results** No significant differences between groups **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** CHW intervention cost (estimated) **Results** $29000 **Explanation of Overall Outcomes** No difference observed in subjective or objective measures of ETS exposure with CHW visits vs. control **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Corkery et al., 1997 **Trial Name** NR **Objective or Aim** Determine effect of bicultural CHW on completion of diabetes education in inner-city Hispanic patient population and evaluate impact of completion of education program on patient knowledge, self-care behaviors, and glycemic control. **Geography** NYC - East Harlem **Organization** Cultural: Hispanic-Americans, primarily PR origin, and African-Americans **Type of Community** Disease: diabetes, neighborhood, socio-economic, cultural **Study Design** RCT **Start Date** NR **Duration** Mean 3.4 months (range 0.9 to 5.4)	**Eligible (N)** 64 **Enrolled (N)** 64 **Randomized (N)** 64 **Completers (N)** 40 (63%) **Withdrawals or Dropouts (N)** 24 (37%) **Health Condition of Interest** Diabetes **Inclusion Criteria** • Newly referred to clinic for patient education • Hispanic • > 20 yrs old **Exclusion Criteria** None **Groups** G1: Intervention G2: Control **Interventions** G1: Intervention- CHW acted as liason, attended clinic sessions, interpreter, reinforced self are instructions and appointment reminders G2: Control - encounters occurred between nurse and patient only **Group (N)** G1: 30 G2: 34	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** Bicultural, bilingual Hispanic-American of Puerto Rican heritage who lived in East Harlem **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** Previously volunteered in a diabetes clinic **Type of Service** Attended clinic visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Varied (mean = 3.4 months, range: 0.9-5.4), time per session equal to clinic visit duration **Length of Follow-up** Mean - 7.7 months (range 6-16.2)	**Age (mean)** 52.8 years **Sex (% female)** 74 **Race (%)** 100% Hispanic **Other** 46% literate **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** **NR**

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** HgbA1c **Results** No difference in mean change between groups **Measure 2** Diabetes Education Program Completion **Results** G1: 80% G2: 47% (*P* = 0.01) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Derose et al., 2000; Dean et al., 2000; Derose et al., 2000; Stockdale et al., 2000; Fox et al., 1998 **Trial Name** Los Angeles Mammography Promotion **Objective or Aim** Assess effectiveness of telephone counseling in a church-based mammography promotion intervention trial **Geography** LA county **Organization** Telephone counseling **Type of Community** Church communities **Study Design** RCT **Start Date** 1996 **Duration** 2 years	**Eligible (N)** 1,969 on first screening 1,777 on second screening **Enrolled (N)** 1443 **Randomized (N)** 1113 **Completers (N)** 813 **Withdrawals or Dropouts (N)** 300 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Women ages 50-80, living in private residencies, not being too ill or impaired to be interviewed, being able to be interveiwed in English or Spanish, living in a sample area, and being reachable by telephone **Exclusion Criteria** NR **Groups** G1: Control G2: CHW **Interventions** G1: Control churches provided minimal intervention: a library of resource materials on cancer and cancer prevention, assistance with starting a health committee or working with an existing health committee, computer hardware, software, and a printer, as well as computer training for at least one church member G2: One session of telephone counseling annually, for 2 years, by peer counselor; counseling individualized to address barriers, churches also received computer support offered to control churches **Group (N)** G1: 397 G2: 416	**Title of CHW** Peer counselor **Paid or Volunteer** Some full-time staff, telephone counselors paid $150 stipend per year **Relationship with Community** Hired from participating churches assigned to telephone counseling **CHW (N)** 26 **Supervision of CHW** NR **Prior Training** NA **Type of Service** Barrier-specific telephone counseling to promote screening, discussion of resources for free- and reduced-cost mammograms, translation services, transportation, and childcare assistance **Type of Educational Materials Used** Verbal **Duration of Interaction with Clients** 2 telephone calls (one per year over 2 years), time per session 7-11 minutes on average **Length of Follow-up** 2 years	**Age (mean)** NR **Sex (% female)** 100 **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Nonadherence to mammogram, by self-report **Results** Nonadherence rates among adherent users at baseline: G1: 23.3% G2: 15.8% (*P* = 0 .029) Nonadherence rate among nonadherent users at baseline G1: 37.4% G2: 34.8 (*P* = 0.324)	**Costs (Economics):** **Measure 1** Sensitivity Analysis **Results** Assuming that all labor is voluntary and that churches provide materials and resources: • Cost per additional screening for a LAMP study participant = $188; • Cost if all participants are adherent at baseline = $145; • Cost if all participants nonadherent at baseline = $419 (using LAMP effectiveness rates for adherent (7.5%) and nonadherent (2.6%) participants **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Dignan et al., 2005 **Trial Name** **Objective or Aim** Determine relative effectiveness of face-to-face and telephone delivery of culturally sensitive Navigator intervention to increase adherence to guidelines for mammography screening among American Indian women **Geography** Denver metropolitan area **Organization** Urban American Indian Women **Type of Community** NR **Study Design** RCT **Start Date** August 2001 **Duration** One year	**Eligible (N)** 929 **Enrolled (N)** 157 (for intervention groups, N for control NR) **Randomized (N)** 157 (for intervention groups, N for control NR) **Completers (N)** 157 (for intervention groups, N for control NR) **Withdrawals or Dropouts (N)** 157 (for intervention groups, N for control NR) **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Urban American Indian women 40 years and older living in greater Denver Metropolitan area and had not had a mammogram within previous 18 months **Exclusion Criteria** **Groups** G1: control G2: face-to-face G3: telephone intervention **Interventions** G1: Control, interventions not reported, data from Colorado Mammography Program data G2: Tailored education brochure using data from baseline interview. face-to-face planned for delivery at participant's home (1 session lasting 20-90 minutes), presenting information on breast cancer and value of early detection, review of brochure G3: Telephone intervention, as above **Group (N)** G1: G2: 77 G3:133	**Title of CHW** Native sister/Navigators **Paid or Volunteer** NR **Relationship with Community** Recruited from Denver metro area **CHW (N)** N **Supervision of CHW** NR **Prior Training** NR **Type of Service** Barrier-specific counseling to promote screening, face-to-face vs. telephone **Type of Educational Materials Used** Tailored educational brochure **Duration of Interaction with Clients** One time session 20-90 minutes **Length of Follow-up** 6 months	**Age (mean)** 54.2 years **Sex (% female)** 100 **Race (%)** Native Americans **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Mammograms over past 12 months (self-report) **Results** G1: 51.9 -- > 50.0 G2: 29 -- > 41.8 G3: 34.4 -- > 45.2 Chi-square G1 vs G2+G3:2.68, *P* = 0.10; *P* for G2 vs G3: 0.83; *P* for G2, pre-post changes: 0.029; *P* for G3, pre-post changes: 0.197	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Duggan et al., 1999; Duggan et al., 2000 **Trial Name** Hawaii's Healthy Start Program (HSP) **Objective or Aim** Prevent child abuse and neglect and promote child health and development in newborns of families at risk for poor child outcomes **Geography** Hawaii Oahu **Organization** Organizational **Type of Community** At risk for chid abuse **Study Design** RCT **Start Date** 1994 **Duration** 2 years	**Eligible (N)** 901 families **Enrolled (N)** 730 families **Randomized (N)** 730 families **Completers (N)** 566 at 2 years **Withdrawals or Dropouts (N)** 164 families **Health Condition of Interest** Child abuse **Inclusion Criteria** Lived in target community, and not known to child protective services **Exclusion Criteria** Non-English speaking **Groups** G1: Healthy Start Program G2: Control G3: Test Control **Interventions** G1: Home visiting with individualized service plans, child developmental screenings, and mother-child interaction assessments; family support plan within 45 days of initial visit, reviewed q 6 mo, revised annually; periodic screening for DD, observational assessment of parent-child interaction and home environment; ensure existence of medical home, links to other needed resources G2: Control G3: Test Control was only interviewed at end **Group (N)** G1: HSP: 373 G2: Control: 270 G3: Test Control: 41	**Title of CHW** Home visitors **Paid or Volunteer** NR **Relationship with Community** from community **CHW (N)** NR **Supervision of CHW** Non-clinician- met weekly w/home visitors **Prior Training** NR **Type of Service** Counselling--building relationship with families; active assistance to address existing crises; model problem-solving skills and effective parent-child interaction; link families with needed resources; provide parenting education; ensuring presence of medical home for children **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈22 visits (1 hour each) over 2 years [Protocol called for weekly visits] **Length of Follow-up** 2 years	**Age (mean)** Mother's average age G1: 24 years G2: 24 years **Sex (% female)** 100 **Race (%)** G1: Hawaiian: 21% Pacific Islander: 13% Asian: 10% Filipino: 18% Caucasian: 11% Multiracial or unknown: 28% G2: Hawaiian: 19% Pacific Islander: 14% Asian: 7% Filipino: 20 Caucasian: 13% Multiracial or unknown: 26% **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Bayley Scales of Infant Development, Mental Development Index at 2 years post-intervention **Results** G1: 90.0 G2: 89.2 *P* = 0.60 **Measure 2** Bayley Scales of Infant Development, Psychomotor Development Index at 2 years post-interventino **Results** G1: 92.1 G2: 90.4 *P* = 0.12 **Measure 3** Has primary care provider? **Results** G1: 91% G2: 86% *P* = 0.09 **Healthcare Utilization:** **Measure 1** Adequate # of well-child visits **Results** G1: 89% G2: 84% *P* = 0.09 **Measure 2** Immunizations up to date **Results** G1: 87% G2: 85% *P* = 0.45	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Earp et al., 2002 **Trial Name** North Carolina Breast Cancer Screening Program **Objective or Aim** Determine effectiveness of lay health advisor intervention, supplemented by limited number of other activities, aimed at increasing self-reported mammography use among African American women 50 years and older in eastern North Carolina; correcting beliefs about causes of breast cancer; increasing acceptance of need for regular mammography **Geography** Eastern NC **Organization** Black women **Type of Community** Mostly rural, 37% minority, 12% below FPL; low likelihood of having had mammogram **Study Design** Prospective cohort for main analysis **Start Date** 1993 **Duration** 4 years	**Eligible (N)** 10 counties, 2441 women **Enrolled (N)** 2296 **Randomized (N)** 993 (African American) **Completers (N)** 801 **Withdrawals or Dropouts (N)** 192 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** • Living in study county • African-American • At least 50 y/o • no h/o breast cancer **Exclusion Criteria** • Death • Departure from study area • Admission to nursing home • Development of breast cancer • Prior participation in CHW training **Groups** G1: Counties receiving CHW and other targeted activity G2: Comparison **Interventions** G1: Counties receiving CHW and other targeted activity: presentations to community groups and events, one-on-one conversations, use of informational/ motivational materials G2: Comparison counties, no intervention reported **Group (N)** G1: 390 G2: 411	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer **Relationship with Community** Members of community; same county **CHW (N)** 170 **Supervision of CHW** Main analysis: - described in Earp JA, Viadro CI, Vincus AA, et al. Lay health advisors: a strategy for getting word out about breast cancer. Health Educ Behav. 1997;24:432–451. 412 - by "community outreach specialists" monthly (meetings and assistance **Prior Training** NR **Type of Service** Presentations to community groups and events, one-on-one conversations, use of informational/motivational materials **Type of Educational Materials Used** Brochures, posters, church fans, holiday cards **Duration of Interaction with Clients** 2 community activities per month; one-on-one conversations once a week over a 24- month period, time per session NR **Length of Follow-up** 32 months	**Age (mean)** G1: 46% < 65, 23% > 74 G2: 44% < 65, 24% > 74 **Sex (% female)** 100 **Race (%)** African American 100% **Other** Income < $12k G1: 81% G2: 63%; No medical visits in past year G1: 9% G2: 7%; Low breast cancer knowledge G1: 43% G2: 31%; Low perceived support for breast cancer screening G1: 43% G2: 35% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** Main analyis: 87% all races (no recruitment rate given for African Americans or for G1/G2 412 - NR **Retention Rates** G1: 89% G2: 88%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pre/post percentage point difference in reported mammogram, adjusted for change in mammography attitude **Results** • No recent mammogram at baseline: CHW advice: +9 diffused discussion: +10 project awareness: +15 • Recent mammogram at baseline: CHW advice: +8 diffused discussion: 0 project awareness: +5 **Healthcare Utilization:** **Measure 1** Self-report of mammogram in past 2 years, stratified by income **Results** < $12k annually G1: pre 37%, post 59% G2: pre 49%, post 60% (adjusted *P* = 0.02); $12k or greater annually G1: pre 56%, post 59% G2: pre 73%, post 82% (adjusted *P* = 0.92) **Measure 2** Self-report of mammogram in past 2 years **Results** G1: pre 41%, post 58% G2: pre 56%, post 67% (adjusted *P* = 0.05)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW community intervention is associated with significantly higher proportions of African-American women reporting having received mammograms, especially among lower income strata **Quality Rating** Poor **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Elder et al., 2006; Elder et al., 2005 **Trial Name** Secretos de la Buena Vida **Objective or Aim** Determine whether CHW + tailored print materials vs. tailored print materials vs. off-the-shelf print materials was more effective to maintain diet change at 1 y f/u **Geography** San Diego County **Organization** Spanish-dominant Latina **Type of Community** Central and southern regions **Study Design** RCT **Start Date** 2001 **Duration** 2 years	**Eligible (N)** 510 **Enrolled (N)** 357 **Randomized (N)** 357 **Completers (N)** 281 **Withdrawals or Dropouts (N)** 76 **Health Condition of Interest** Dietary behavior **Inclusion Criteria** • Female • 18-65 y/o • Hispanic surname • Spanish-dominant • Valid telephone number **Exclusion Criteria** • Pregnant • Medically prescribed diet • Not remaining in San Diego **Groups** G1: CHW + tailored print G2: tailored print G3: control **Interventions** G1: CHW home visits and/or phone calls + tailored print materials G2: 12 weekly tailored newsletters and homework G3: 12 weekly off-the-shelf dietary printed material **Group (N)** G1: 120 G2: 118 G3: 119	**Title of CHW** Promotora **Paid or Volunteer** NR **Relationship with Community** Indigenous to community, Spanish language dominant, perceived as a community role model **CHW (N)** 4 **Supervision of CHW** NR **Prior Training** NR **Type of Service** G1: weekly home visits or telephone calls + tailored health info newsletters G2: tailored health info newsletters G3: population-targeted print materials **Type of Educational Materials Used** G1: negotiated behavioral change goals G1 and G2: tailored newsletters and activity inserts based on baseline participant data; magnets w/ healthy lifestyle messages; recipes G3: language-appropriate materials w/ dietary information developed for Latino popul **Duration of Interaction with Clients** 12 home visits or telephone calls over a 12-week period, 12 weekly tailored newsletters (duration per session NR) **Length of Follow-up** 1 year	**Age (mean)** G1: 38.6 (SD 10.1) G2: 40.4 (9.9) G3: 40.1 (9.8) **Sex (% female)** 100 **Race (%)** Hispanic **Other** Married G1: 94% G2: 93% G3: 93%; BMI G1: 28.9 (SD 5.7) G2: 30.4 (5.6) G3: > 29.6 (5.4) **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 93/120 = 78% G2: 90/118 = 76% G3: 98/119 = 82%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** % calories from fat (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 2** Total gm fiber (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 3** Total fat gm (Nutrition Data System 24-h dietary recall interview) **Results** No significant difference between groups at 6 and 12 months post-intervention **Measure 4** Post-intervention calorie/fat intake (using Nutrition Data System) **Results** kcal ($P < .01$) G1: 1,286.9 G2: 1,419.2 G3: 1,436.2 (G1-G3 $P < .05$ G1-G2 $P < .1$) Fat gm ($P < .05$) G1: 43.1 G2: 49.8 G3: 49.3 (G1-G3 p < .1 G1-G2 $P < .05$) % fat cal G1: 29.3 G2: 30.4 G3: 30 (NS) Saturated fat gm ($P < .05$) G1: 14.4 G2: 16.9 G3: 16.6 (G1-G3 $P < .1$ G1-G2 **Healthcare Utilization:** NR	**Measure 1** Cost per unit of change **Results** Per reduced fat gm G1: $8.28 G2: $5.11 G3: $1.30 Per reduced saturated fat gm G1: $21.09 G2: $17.31 G3: $3.21 Per reduced calorie G1: $0.36 G2: $3.21 G3: $0.07 **Measure 2** Per-participant cost **Results** G1: $135 G2: $45 G3: 9 **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Elder et al., 2006; Elder et al., 2005 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
		Measure 2 Dietary fiber intake (gm) (using Nutrition Data System) **Results** Total fiber gm G1: 16.1 G2: 17.2 G3: 15.6 (NS) Soluble fiber gm G1: 4.7 G2: 5.1 G3: 4.8 (NS) Insoluble fiber gm G1: 11.1 G2: 11.8 G3: 10.5 (NS) **Measure 3** Other dietary intake (via NDS) **Results** CHO gm (*P* < .05) G1: 171.2 G2: 187.3 G3: 187.1 (G1-G3 *P* < .05 G1-G2 *P* < .1) Glucose gm (*P* < .01) G1: 16 G2: 21.1 G3: 18.4 (G1-G3 NS G1-G2 *P* < .05) Fructose gm (*P* < .001) G1: 16.9 G2: 22.7 G3: 19.1 G1-G3 NS G1-G2 *P* < .05 G2-G3 *P* < .1) Sucrose gm G1: 30.5 G2: 31.2 G3

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Erwin et al., 1997 **Trial Name** Witness project **Objective or Aim** Examine effectiveness of Witness Project, a culturally competent cancer education program that trains cancer survivors to promote early detection and increased breast self-examination and mammography in population of rural, underserved, African American women **Geography** Rural Mississippi River Delta region of Arkansas **Organization** Church or community group **Type of Community** Neighborhood **Study Design** Prospective cohort **Start Date** 1994 **Duration** 6 months	**Eligible (N)** NA **Enrolled (N)** 433 **Randomized (N)** NA **Completers (N)** 412 **Withdrawals or Dropouts (N)** 21 **Health Condition of Interest** BSE and mammography **Inclusion Criteria** Inclusion criteria for women NR, churches selected from convenience sample **Exclusion Criteria** NA **Groups** G1: Intervention G2: Control **Interventions** G1: Members of a Witness Project team, composed of 7 local African American women who had survived breast or cervical cancer, speak in groups of 2 to 5 at local churches and community organization meetings G2: Control group offered delayed intervention **Group (N)** G1: 204 (152 aged ≥40) G2: 206 (140 aged ≥40)	**Title of CHW** Witness role model **Paid or Volunteer** NR **Relationship with Community** Shared race, cancer survivors **CHW (N)** 7 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Motivational speeches based on cancer survivor, experience of CHWs, breast self-exam lessons using a breast model, discussion of resources for free- and reduced-cost mammograms **Type of Educational Materials Used** NR **Duration of Interaction with Clients** One presentation, time NR **Length of Follow-up** 6 months	**Age (mean)** G1: 52.5 G2: 49.3 **Sex (% female)** 100 **Race (%)** 100% African-American **Other** **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Breast self exam in past month (self-report) **Results** G1: 49% to 65.4% (*P* < 0.001 compared to baseline) G2: 65% to 72% (*P* = NS compared to baseline) **Measure 2** Regular practice of breast self-exam (self-report) **Results** Baseline G1: 69.8% to 82% (*P* = NS compared to baseline) G2: 82% to 82% (*P* < 0.005 compared to baseline) **Measure 3** Ever had mammography (self-report) **Results** G1: 52.4% to 64.4% (*P* < 0.05 compared to baseline) G2: 60.4% to 63.3% (*P* = NS compared to baseline) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Through use of community churches and cancer survivors, breast cancer screening activities can be improved in this population **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Forst et al., 2004 **Trial Name** NR **Objective or Aim** Evaluate CHW model to reduce eye injuries and illnesses in Latino migrant and seasonal farmworkers **Geography** SE Michigan, northern Illinois **Organization** Latino migrant and seasonal farm workers **Type of Community** Farm workers; high incidence of eye injury **Study Design** Prospective cohort **Start Date** 2001 **Duration** 16 wk	**Eligible (N)** 36 farms, total workers NR **Enrolled (N)** 34 farms, 1,000 workers **Randomized (N)** 786 **Completers (N)** 703 **Withdrawals or Dropouts (N)** 83 **Health Condition of Interest** Eye injury **Inclusion Criteria** Farm owners' consent **Exclusion Criteria** NR **Groups** G1: CHW + protective eyewear + training + information sheet G2: CHW + eyewear + information sheet G3: Eyewear + information sheet **Interventions** G1: CHW worked w/ subjects, trained subjects on eye health and safety (minimum of 2 training sessions = 1 individual + 1 group) G2: CHW distributed eyewear w/o additional training G3: Research team distributed eyewear w/o additional training **Group (N)** G1: 256 (141 IL, 115 MI) G2: 298 (179 IL, 119 MI) G3: 149 (78 IL, 71 MI)	**Title of CHW** Promotor de salud **Paid or Volunteer** NR **Relationship with Community** Actively employed farm workers; Spanish fluency **CHW (N)** 16 **Supervision of CHW** Weekly with promotor-coordinators from study team **Prior Training** Demonstrated leadership and communication skills; demonstrated respect for farm workers and owners **Type of Service** G1: CHW worked w/ subjects, trained subjects on eye health and safety G2: CHW distributed eyewear w/o additional training **Type of Educational Materials Used** G1: Trainer training; reference manual on agricultural eye illness and injury; photos and fotonovelas; tool kit to demonstrate eye injuries and hazards **Duration of Interaction with Clients** G1: At least 1 individual and at least 1 group session during farming season (duration per session NR) **Length of Follow-up** 16 wk	**Age (mean)** G1: 33.5 G2: 32.4 G3: 32.8 **Sex (% female)** G1: 24 G2: 19 G3: 15 **Race (%)** 90% Mexican 10% Mexican-American **Other** • Read Spanish: 77% • < 8 y school: 75% • < 4 y school: 25% • Read English: 16% **Role of CHW in Recruiting and Retention** G1: Recruited and worked alongside subjects, collected data G2: Recruited, collected data **Recruitment Rates** 786/1000 = 78.6% **Retention Rates** G1: 67/186 = 36% G2: 172/198 = 87% G3: 76/107 = 71%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Pre/post change in % wearing safety glasses **Results** Self-report: G1: 1.48 (*P* < .0001) G2: 0.71 (*P* < .0001) G3: 0.96 (*P* < .0001) G1-G2 *P* < .0001 G1-G3 *P* = .03 G1and 2-G3 *P* = .0004 Observed: G1: 1.1→36% G2: 0→5.2% G3: 0→14%) **Measure 2** Pre/post subject risk perception of eye injury **Results** Results not interpretable **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Cumulative number of eye injuries for season **Results** IL 11 cases pterygium; MI 4 (both likely underreported) **Healthcare Utilization:** NR	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** CHW intervention increased reported and observed use of protective eyewear, more so with associated training **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Frate et al., 1985; Frate et al., 1983 **Trial Name** NR **Objective or Aim** Evaluation of different interventions to contol hypertension in a rural setting **Geography** Central Mississippi **Organization** Cultural **Type of Community** Hypertension and rural community **Study Design** Observational-quasi-experimental **Start Date** Early 1980's **Duration** 18 months	**Eligible (N)** NR **Enrolled (N)** NR **Randomized (N)** NA **Completers (N)** 667 **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Hypertension **Inclusion Criteria** Patients with physician confirmed hpertension **Exclusion Criteria** NA **Groups** G1: Hypertension Health Counselors G2: Family based self help G3: Church based self help **Interventions** **Group (N)** G1: 207 G2: 131 G3: 229	**Title of CHW** Hypertension Health Counselors **Paid or Volunteer** Volunteer **Relationship with Community** Native **CHW (N)** 5 **Supervision of CHW** NR **Prior Training** Certified and equipped to measure blood pressure **Type of Service** Monitoring BP, education and support **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Monthly visits over 18 months (time per session NR) **Length of Follow-up** 18 months	**Age (mean)** NR **Sex (% female)** NR **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Proportion controlled **Results** G1: 80.6% G2: 90.0% G3: 79.9% **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Extra Poor!

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Gielen et al., 2002 **Trial Name** NA **Objective or Aim** Present results of an intervention trial to enhance parents' home-safety practices through pediatric safety counseling, home visits and an on-site children's safety center where paretns receive personalized education and can purchase reduced-cost products **Geography** NR (probably Baltimore, MD) **Organization** Pediatric resident continuity clinic in large, urban teaching hospital **Type of Community** Same **Study Design** RCT **Start Date** NR **Duration** 18 months	**Eligible (N)** 43 first- and second-year residents; 305 patients' parents **Enrolled (N)** 39 residents; 187 families **Randomized (N)** 39 residents; 187 families **Completers (N)** 122 families **Withdrawals or Dropouts (N)** 11 became ineligible, 15 refused further contact, 39 unable to contact **Health Condition of Interest** Pediatric safety **Inclusion Criteria** • Residents: all first- and second-year resdients • Parent-patient dyads of participating residents were then approached in clinic waiting room - elgibiliy criteria included infants 6 mos or younger, free of serious medical problems, caretakers were english-speaking and lived with child **Exclusion Criteria** See prior **Groups** G1: Standard intervention G2: Enhanced intervention **Interventions** Both groups of pediatric residents invited to attend 1-hour seminar on problme of injuries; both groups received 5-hr EAG training program G1: received safety counseling and referral to children's safety center from their pediatrician G2: received standard services plus "offer of" a home-safety visit from a CHW **Group (N)** G1: 20 residents, 93 parents G2: 19 residents, 94 parents	**Title of CHW** CHW **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits between 6 and 9 mo well child checks: assessed injury hazards; made recommendations about appropriate safety products and practices; referred families to CSC **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 1 home-safety visit sometime between patient's 6- and 9-month well-infant visits (duration of session NR) **Length of Follow-up** NA	**Age (mean)** Mean age of mother = 24 years **Sex (% female)** Parents 98% female **Race (%)** 94% AA **Other** NR **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Poisons kept latched or locked **Results** G1: 12% G2: 10% *P*-value not reported **Measure 2** Presence of ipecac **Results** G1: 27% G2: 31% *P*-value NR **Quality of Life:** **Measure 1** Hot water ≤ 48.9 C **Results** G1: 47% G2: 47% *P*-value NR **Measure 2** Working smoke alarm **Results** G1: 84% G2: 81% *P*-value NR **Measure 3** Stairs protected by gate or door, **Results** G1: 23% G2: 27% *P*-value NR	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Graham et al., 1992 **Trial Name** NR **Objective or Aim** Prevention of low birth weight using home intervention **Geography** Cleveland **Organization** Organizational clinic-derived sample **Type of Community** Inner city black **Study Design** RCT **Start Date** 1987 **Duration** NR	**Eligible (N)** 190 145 (190 total used to validate instrument, but some were ineligible at > 28 wk) **Enrolled (N)** 145 **Randomized (N)** 87 in experimental group, 145 overall **Completers (N)** 52 in experimental group 110 total **Withdrawals or Dropouts (N)** 35 out of 87 in experimental group **Health Condition of Interest** Low birth weight **Inclusion Criteria** • Black • Between 17th and 28th week of gestation • Low family functioning score • At least 1 stressful life event prior to registration • Registering at study clinic during specified period **Exclusion Criteria** • Living > 5 mi from clinic • Limited reading ability **Groups** G1: Experimental G2: Control **Interventions** G1: Experimental - 4 home visits G2: Control **Group (N)** G1: Experimental- 87 G2: Control - 58	**Title of CHW** Home visitors **Paid or Volunteer** NR **Relationship with Community** Shared race and gender having children of their own **CHW (N)** 2 **Supervision of CHW** NR **Prior Training** motherhood **Type of Service** Home visits: psychosocial support to patient and encouragement to family to be supportive of pregnancy, accomplished through education about pregnancy and encouragement of significant others to attend home visits, clinic visits, clinic **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 4 visits (1 hour each) at 2-4 week intervals for 2 to 5 months (until birth of child) **Length of Follow-up** Birth of child	**Age (mean)** 24 y **Sex (% female)** 100 **Race (%)** Black 100% **Other** • 38% primiparous • 11% married • 84% receiving Medicaid **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** • 1326 screened • 190 high-risk • 145 randomized **Retention Rates** G1: 52/87 completed all 4 visits (60%) G2: 100% (only birth information needed for this group)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** LBW rate **Results** G1: (All): 12.9% (*P* = 0.51) G1: (Completers): 7.7% (*P* = 0.98) G2: 7.5% **Healthcare Utilization:** **Measure 1** Ratio of actual:expected prenatal clinic visits **Results** G1 (All): 1.12 (SD 0.48, *P* = 0.029) G1 (Completers): 1.17 (SD 0.46, *P* = 0.007) G2: 0.93 (SD 0.44)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW home visits increased utilization of prenatal clinic care, but had no effect on LBW incidence **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hiatt et al., 2008 **Trial Name** Breast and Cervical cancer Intervention Study (BACCIS) **Objective or Aim** Effect of Breast and Cervical Cancer Intervention Study (BACCIS), a multi-component intervention conducted in San Francisco Bay Area between 1992 and 1997. **Geography** San Francisco, CA **Organization** Hospital **Type of Community** Income, Neighborhood **Study Design** Modified 2x2 design in 8 neighborhoods **Start Date** 1993 **Duration** 4 years	**Eligible (N)** 25,000 **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** 1,616 **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Cancer **Inclusion Criteria** Women living in area of interest **Exclusion Criteria** NR **Groups** G1: Intervention G2: Control **Interventions** G1: one-on-one visits at various events and locations; presentations to community-based organizations (agencies); and Women's Health Days, offering free mammograms, Pap tests, and breast self-examination instruction. G2: Control **Group (N)** G1: 801 G2: 798	**Title of CHW** Lay health workers **Paid or Volunteer** Paid **Relationship with Community** Locally recruited **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Intensively trained in basic breast and cervical cancer biology, screening and treatment, and availability of health care and screening services **Type of Service** Support and information **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Unspecified # of interactions (length per session NR) over 2 years **Length of Follow-up** 4 years	**Age (mean)** ~60% > 50 yrs **Sex (% female)** 100 **Race (%)** White: 31 Black: 30 Latina: 14% Latina Chinese: 17% Other: 7% **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Ever completed breast self-examination (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (89)/810 (92) X^2 = NR, *P*=0.031 G2: 793 (83)/ 802(81) X^2 = NR, not significant **Measure 2** Completed breast self-examination monthly in past year (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (24)/808 (26) X^2 = NR, not significant G2: 793 (18)/ 801(23) X^2 = NR, *P*=0.018 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Ever completed mammography (Total N [%] pretest/Total N [%] posttest) **Results** G1: 798 (83)/812 (86) X^2 = NR, not significant G2: 798 (68)/ 803 (77) X^2 = NR, *P*=0.001 **Measure 2** Ever completed mammography (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.7 (0.5, 1.0) **Measure 3** Completed mammography in the past 2 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 798 (73)/812 (71) X^2 = NR, not significant G2: 798 (57)/ 803 (62) X^2 = NR, *P*=0.022 **Measure 4** Completed mammography in past 2 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.7 (0.5, 1.0) **Measure 5** Completed 3 or more mammographies in past 5 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 794 (50)/812 (51) X^2 = NR, not significant G2: 794 (35)/ 803 (41) X^2 = NR, *P*=0.008 **Measure 6** Completed 3 mammographies in past 5 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.8 (0.5, 1.1) **Measure 7** Ever completed clinical breast examination (Total N [%] pretest/Total N [%] posttest)	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hiatt et al., 2008 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Results G1: 801 (94)/812 (95) X^2 = NR, not significant G2: 798 (82)/ 803 (87) X^2 = NR, *P*=0.006 **Measure 8** Completed clinical breast examination in past year (Total N [%] pretest/Total N [%] posttest) **Results** G1: 800 (75)/809 (74) X^2 = NR, not significant G2: 796 (56)/ 803 (60) X^2 = NR, not significant **Measure 9** Completed 3 or more clinical breast examinations in past 5 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 793 (73)/809 (73) X^2 = NR, not significant G2: 792 (54)/ 800 (54) X^2 = NR, not significant **Measure 10** Ever completed pap smear (Total N [%] pretest/Total N [%] posttest) **Results** G1: 801 (95)/812 (96) X^2 = NR, not significant G2: 798 (83)/ 801 (87) X^2 = NR, *P*=0.021 **Measure 11** Ever completed Pap smear (logistic regression, 95% CI) **Results** Residence in outreach area over time: 1.5 (0.6, 4.2) **Measure 12** Completed pap smear in past 3 years (Total N [%] pretest/Total N [%] posttest) **Results** G1: 799 (84)/811 (87) X^2 = NR, not significant G2: 798 (69)/ 801 (75) X^2 = NR, *P*=0.009 **Measure 13** Completed Pap smear in the past 3 years (logistic regression, 95% CI) **Results** Residence in outreach area over time: 0.9 (0.6, 1.3)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Hunter et al., 2004 **Trial Name** NR **Objective or Aim** Test effectiveness of a CHW (promotora) program to increase compliance with annual preventive exams among uninsured Hispanic women, aged 40 and older, living at US-Mexico border **Geography** US-Mexico border communities: Douglas, Arizona - 16,500 residents **Organization** cultural/community **Type of Community** Latina women **Study Design** RCT **Start Date** 1999 **Duration** 1 year	**Eligible (N)** 151 **Enrolled (N)** 103 **Randomized (N)** 101 **Completers (N)** 98 **Withdrawals or Dropouts (N)** 3 **Health Condition of Interest** Preventive care - Women's health **Inclusion Criteria** • Aged 40 or older • Residents of household • Not pregnant • At least 2 months postpartum • US women who participated in an initial comprehensive clinical exam **Exclusion Criteria** **Groups** G1: Postcard G2: Promotora **Interventions** G1: received postcards in mail 2 weeks before month their annual exams were due, printed in language used to complete original questionnaire G2: Received postcard reminders and were visited by promotora 2 weeks after postcard had been mailed. Promotora facilitated appointment scheduling, contacted them to facilitate rescheduling if appt was missed. **Group (N)** G1: 50 G2: 51	**Title of CHW** Promotora **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits; telephone calls to facilitate appt scheduling for annual preventive exams **Type of Educational Materials Used** None **Duration of Interaction with Clients** One initial home visit and one final follow-up visit 8 weeks after postcard mailing to begin intervention(time per session NR) **Length of Follow-up** NA	**Age (mean)** 50.3 years **Sex (% female)** 100 **Race (%)** 96% Hispanic **Other** • Born in Mexico: 86% • Blow federal poverty line: 76% • Less than hs education: 77% **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Measure 3** **Healthcare Utilization:** **Measure 1** Returned to clinic for a second comprehensive annual exam **Results** G1: 48% (n = 24) G2: 65% (n = 33) RR, 1.35, 95% CI, 0.95-1.92	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Jandorf et al., 2005 **Trial Name** NR **Objective or Aim** To determine whether a patient navigator (PN) would enhance CRC screening participation beyond physician recommendation alone in a neighborhood healthcare setting. **Geography** East Harlem, NYC **Organization** Inner city primary care practice **Type of Community** NR **Study Design** RCT **Start Date** 2002 **Duration** 6 months	**Eligible (N)** 125 **Enrolled (N)** NR **Randomized (N)** 78 **Completers (N)** 78 **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Colorectal cancer **Inclusion Criteria** Men and women ≥ 50 yrs of age **Exclusion Criteria** FOBT within past yr; FS or barium enema within past 3-5 yrs; colonoscopy within past 10 yrs **Groups** G1: Patient navigator G2: Usual care **Interventions** G1: Navigated G2: Not navigated **Group (N)** G1: 38 G2: 40	**Title of CHW** Patient Navigator **Paid or Volunteer** Paid **Relationship with Community** Shared community & ethnic background **CHW (N)** 1 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Assistance with completing screening process including written and telephone reminders, scheduling & assistance; education; support and advocacy **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Telephone calls (unspecified #, unspecified length) over 6 month period **Length of Follow-up** 6 months	**Age (mean)** G1: 61.1 G2: 61.2 **Sex (% female)** G1: 76.3 G2: 72.5 **Race (% Hispanic)** G1: 78.9 G2: 85.0 **Other** G1: Income ≤$10,000: 72.2% ≥ HS education: 13.2% Had family history of cancer: 36.8% G2: Income ≤$10,000: 64.1% ≥ HS education:10.0% Had family history of cancer: 38.5% **Role of CHW in Recruiting and Retention** PN approached prospective participants **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Completed FOBT after 3 months (% yes) **Results** G1: 42.1 G2: 25.0 *P* = 0.086 **Measure 2** Had endoscopy appointment at 3 months (%) **Results** G1: 18.4 G2: 0 *P* = 0.005 **Measure 3** Completed endoscopy at 3 months (%) **Results** G1: 15.8 G2: 5.0 *P* = 0.115 **Measure 4** Completed endoscopy at 6 months (%) **Results** G1: 23.7 G2: 5.0 *P* = 0.019	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004; **Trial Name** Home Visitation 2000 **Objective or Aim** Examine differences between CHWs and nurses in using home visitation to reduce incidence of child maltreatment; to examine distal effects of prenatal and infancy home visiting by CHWs or nurses, at 2-4 y/o **Geography** Denver **Organization** Recruited from prenatal clinics **Type of Community** Low-income **Study Design** RCT **Start Date** 1994 **Duration** 15 mo	**Eligible (N)** 1178 **Enrolled (N)** 735 **Randomized (N)** 735 **Completers (N)** 560 **Withdrawals or Dropouts (N)** 175 (n at 24 month assessment), 130 (n at 4 year assessment) **Health Condition of Interest** Child maltreatment; maternal and child health **Inclusion Criteria** Pregnant; Medicaid-qualified or no private insurance **Exclusion Criteria** Previous live birth **Groups** G1: CHW visitation G2: nurse visitation G3: control **Interventions** G1: Incremental developmental screening and referral + CHW home visitations G2: Developmental screening and referral + nurse home visitations G3: Developmental screening and referral **Group (N)** G1: 244 G2: 236 G3: 255	**Title of CHW** Paraprofessional **Paid or Volunteer** Paid **Relationship with Community** "Shared social characteristics" **CHW (N)** 10 **Supervision of CHW** 2 LCSWs (2 supervisors to 10 visitors) **Prior Training** HS education, no degree in "helping professions"; preferentially prior work experience in human services agencies **Type of Service** Intensive home visitation: promoting healthy behaviors, competent child care, pregnancy planning, education, employment; linking to social and health services; promoting healthy family/friend relationships **Type of Educational Materials Used** Visit-specific protocol, adapted to individual needs of mother **Duration of Interaction with Clients** Every other week (except for weekly visits during first 4 weeks after enrollment and first 6 weeks after delivery) through child's 21st month, followed by monthly visits during final 3 months, ≈ 75 min per session **Length of Follow-up** until child 4 y/o	**Age (mean)** G1: 19.44 G2: 20.24 G3: 19.70 **Sex (% female)** 100 **Race (%)** G1: Hispanic: 45%, Caucasian non-Hispanic: 35% African-American: 17% G2: Hispanic: 44% Caucasian non-Hispanic: 37% African-American: 16% G3: Hispanic: 46% Caucasian non-Hispanic: 35% African-American: 16% **Other** G1 younger and living in denser households than G2 **Role of CHW in Recruiting and Retention** **Recruiting: NR** Retention: emphasis on developing continuous relationship between home visitor and subject families **Recruitment Rates** 62% overall **Retention Rates** G1: 77% G2: 71% G3: 80%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Content of home visit, pregnancy **Results** Personal health G1 27% G2: 38% (*P* < 0.001) Environmental health G1 15% G2: 7% (*P* < 0.001) Life course development G1: 15% G2: 14% (*P* < 0.05) Parental caregiving G1: 24% G2: 25% Friends/family G1: 19% G2: 15% (*P* < 0.001)	**Health Outcomes:** **Measure 1** Language @ 21 mo (Preschool Lanaguge Scale) **Results** Least squares mean G1: 99.89 G2: 101.22 G3: 99.49 Mean difference G1-G3: 0.4 (-1.94 - 2.74) G2-G3: 1.73 (-0.64 - 4.11) Least squares mean (low resource group) G1: 97.83 G2: 101.52 G3: 96.85 Mean difference G1-G3: 0.98 (-2.65 - 4.62) G2-G3: 4.67 (0.85-8.49, **Measure 2** Mental development delay @ 24 mo (Mental Development Index) **Results** Least squares mean G1: 89.45 G2: 90.13 G3: 89.38 Difference G1-G3: 0.07 (-2.39 - 2.53) G2-G3: 0.75 (-1.77 - 3.28) Low resource group: least squares mean G1: 88.54 G2: 90.18 G3: 86.2 Difference G1-G3: 2.33 (-1.46 - 6.12) G2-G3: 3.98 (-0.07 - 8.02) G1-G2 1.26 **Measure 1** Subsequent fertility @ 24 mo **Results** Pregnancy G1: 33% G2: 29% G3: 41% G1-G3: 0.7 (0.46-1.06, *P* < 0.1) G2-G3: 0.6 (0.39-0.93, *P* ≤ 0.05) G1-G2: 0.88 (0.57-1.36) G1-G2 (adjusted) = 0.82 (0.51-1.31)	**Costs (Economics):** **Measure 1** Per-family cost over 2.5 years (inflation adjusted, 2002 dollars) **Results** G2: $6,162 G3: $9,140 **Measure 3** Average cost (including salary + benefits, supplies, travel, rent, equipment, training) over approx 2.5 y **Results** G1: $5,178/family G2: $7,681/family **Explanation of Overall Outcomes** CHWs were more likely than nurses to discuss environmental health and friends/family, life course development (after pregnancy), and less likely to discuss personal health (during pregnancy) and parental caregiving (after pregnancy); CHWs home visits have little significant effect on maternal & infant health outcomes, except for improved mother-child interactions among low psychological resource subpopulation; CHW visits showed improvement over control in maternal health but not in child health; nurse visit outcomes generally favored child health but not maternal **Quality Rating** Fair **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004 (continued)			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Measure 3 Mother-infant interaction **Results** Least squares mean G1: 100.15 G2: 100.31 G3: 98.99 G1 vs. G3: 1.16 (-0.11 - 2.42, *P* < 0.1) G2 vs. G3: 1.32 (0.03-2.60, *P* ≤ 0.05) Least squares mean difference G1 vs. G2 (low resource group) = 0.06 (01.87 - 1.98), adjusted 0.08 (-1.99 - 2.16) **Quality of Life:** **Measure 1** Home environment **Results** Least squares mean G1: 37.4 G2: 37.79 G3: 37.1; Mean difference G1-G3: 0.3 (-0.49 - 1.1) G2-G3: 0.69 (-0.12 - 1.5, *P* < 0.1) Least squares mean difference (low resource group) G1-G2: 0.26 (-0.95 - 1.47), adjusted -0.05 (-1.35 - 1.24) **Measure 3** Post-intervention reductino in urine cotinine levels among smokers (ng/mL) **Results** G1: 89 G2: 259 G3: 12 (NS) Least squares mean difference G1 vs G2: 189.16 (-51.38 - 429.69), adjusted 266.75 (-3.34 - 536.84) Mean difference G1 vs. G3 -76.19 ng/dL (95% CI, -302.21,-149.82) G2 vs. G3 -246.68 ng/dL (95% CI, -466.19,-27.16) *P* ≤0.05	Birth G1: 13% G2: 12% G3: 19% G1-G3: 0.63 (0.37-1.07, *P* < 0.1) G2-G3: 0.58 (0.33-1.01, *P* ≤ 0.05) G1-G2: 0.9 **Healthcare Utilization:** NR **Measure 2** Maternal life course **Results** Married G1: 32% G3: 44% (*P* = 0.02) Living w/ bio father G1: 33% G3: 43% (*P* = 0.03) Working at child 2-4 y/o G1: 15 mo G3: 13 mo (*P* = 0.04) Sense of mastery G1: 101 G3: 99 (*P* = 0.03) Mental health score G1: 101 G2: 99 (*P* = 0.03) No G1-G3 difference on education, welfare **Measure 3** Mother-child interaction **Results** Sensitive responsive interactions during free play G1: 101 G3: 99 (*P* = 0.03); no difference G2 vs G3 **Measure 4** Home environment (Home Observation for Measurement of Environment inventory) **Results** For low psychologic resource group: environment supportive of early learning G1: 24.63 G2: 24.61 G3: 23.35 (G1-G3 *P* = 0.03 G2-G3: *P* = 0.03)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Krieger et al., 1999 **Trial Name** Seattle Hypertension Intervention Project **Objective or Aim** Determine whether tracking and outreach intervention delivered by community health workers improved medical follow-up of persons whose elevated blood pressure detected during blood pressure measurement at community sites **Geography** Seattle **Organization** Various community sites: social services agencies, food banks, shelters/missions, public libraries, grocery stores, community centers, etc. **Type of Community** Low-income neighborhoods **Study Design** RCT **Start Date** 1994 **Duration** 28 months	**Eligible (N)** 759 **Enrolled (N)** 421 **Randomized (N)** 421 **Completers (N)** 397 **Withdrawals or Dropouts (N)** 110 **Health Condition of Interest** Hypertension **Inclusion Criteria** • BP at least 140/90 • 18+ y/o • Black or White race • Income no more than 200% FPL (1995) **Exclusion Criteria** See inclusion criteria **Groups** G1: Intervention G2: Usual care **Interventions** G1: CHW assistance with medical follow-up G2: advice to see medical provider, list of public and community clinics **Group (N)** G1: 209 G2: 212	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Similar income community, predominantly black (12/14) **CHW (N)** 14 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Medical referral, telephone appt scheduling, appt reminder letter, post-appt f/u, rescheduling missed appt, assistance with other barriers to care (e.g. transportation) **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Various, brief interactions over 3 months (time per session NR) **Length of Follow-up** 3 months	**Age (mean)** 24.9% < 40 y/o 18.3% > 64 y/o **Sex (% female)** 27.8 **Race (%)** 79.1% Black **Other** 40% uninsured **Role of CHW in Recruiting and Retention** Providing initial BP measurement **Recruitment Rates** 55.5% (421 enrolled of 759 eligible) **Retention Rates** G1: 95% G2: 93%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** Self-report of completed f/u appt (validated by medical provider report) **Results** G1: 65.1% completed f/u within 90 days G2: 46.7% (*P* = 0.001)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention was associated with significantly higher proportion of subjects completing HTN follow-up exam within 90 days **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Krieger et al., 2002; Krieger et al., 2005[47,48] **Trial Name** Seattle-King County Health Homes Project (SKCHH) **Objective or Aim** Assess effectiveness of a CHW intervention focused on reducing exposure to indoor asthma triggers **Geography** King Co, Washington **Organization** Low income urban households **Type of Community** Low income urban households with child diagnosed with asthma **Study Design** RCT **Start Date** 1999 **Duration** 1 year	**Eligible (N)** 447 **Enrolled (N)** 274 **Randomized (N)** 274 **Completers (N)** 214 **Withdrawals or Dropouts (N)** 60 **Health Condition of Interest** pediatric asthma **Inclusion Criteria** A household was eligibile if: • home to a child 4-12 years with diagnosed persistent asthma • income < 200% of 1996 federal poverty threshold • child enrolled in Medicaid • caregiver verbally proficient in English, Spanish or Vietnamese • child spent ≥ 50% of nights in house • house was in King County. **Exclusion Criteria** A child with another chronic illness requiring daily medications; household participation in other asthma case management or care coordination programs in past 2 years; plans to leave King County during next 6 months **Groups** G1: high intensity G2: low intensity **Interventions** G1: Initial home environmental assessment and individualized action plans specifying participant and CHES actions to reduce household exposures. CHES made additional visits over 12-month period to provide education and social support, materials to reduce exposures (e.g., bedding covers, vacuums); free allergy testing; advocacy for improved housing conditions. G2: Single CHES visit which consisted of initial environmental assessment, home action plan, limited education, and bedding encasements **Group (N)** G1: 138 G2: 136	**Title of CHW** Community Home Environmental Specialists (CHES) **Paid or Volunteer** Paid **Relationship with Community** Connection to and understanding of community; shared ethnic, linguistic, and cultural background with project participants; recognition as a person who can be respected and trusted **CHW (N)** 6 **Supervision of CHW** NR **Prior Training** NR **Type of Service** home visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 4 to 9 visits over 12 months (time per session NR) **Length of Follow-up** 1 year	**Age (mean)** G1: 7.4 G2: 7.3 **Sex (% female)** G1: 44.2 G2: 38.2 **Race (%)** Non-Hispanic White G1: 12.3 G2: 21.3 Non-Hispanic AA G1: 31.9 G2: 27.9 Vietnamese G1: 25.4 G2: 22.1 Other Asian G1: 9.4 G2: 5.2 Hispanic G1: 17.4 G2: 17.7 Other G1: 3.6 G2: 5.9 **Other** Household had at least 1 asthma trigger: 75% Urgent health use in past 2 months (%) G1: 25.9 G2: 21.3 Smoker in home (%) G1: 39.9 G2: 41.9 Severe persist asthma G1: 32.6 G2: 23.5 **Role of CHW in Recruiting and Retention** Cannot determine **Recruitment Rates** NR **Retention Rates** G1: 80% G2: 76%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Behavior summary score of trigger reduction behaviors (vacuum and dust child's bedroom at least twice/2 weeks, vacuum cloth-covered furniture at least twice/2 weeks or remove it, use doormat or remove shoes, use allergy control covers on mattress and pillow **Results** Across groups comparison: GEE coefficient (95% CI): 0.41 (-0.13, 0.95); *P* = 0.141 frequencies of actions to reduce dust exposure and use of bedding encasements increased more in high-intensity group. Kitchen ventilation improved more in low-intensity group. Neither group increased frequency of washing sheets or dusting nor reduced exposure to pets (although pet ownership was uncommon among participants) and smoking in home. behavior summary score improved in both groups, and across-group difference was not significant **Quality of Life:** **Measure 1** Pediatric Asthma Caregiver Quality of Life Scale (score range 1-7 with higher scores indicating better QoL) **Results** Score at exit (G1 vs. G2): 5.6 vs. 5.4 GEE coefficient 0.58 (95% CI, 0.18, 0.99), *P* = 0.005; NNT = 4.8 ITT analysis yielded simalr results: improvements in QoL were greater in G1 (data NR, *P* = 0.009) **Measure 2** Asthma symptom days (self-reported # of 24-hour periods during 2 weeks before interview with asthma symptoms: wheeze, tightness in chest, cough, shortness of breath, slowing down activities due to asthma, nighttime awakenings) **Results** G1 vs. G2 at exit: 3.2 vs. 3.9 GEE coefficient -1.24 (95% CI, -2.9, 0.4), *P* = 0.138	**Health Outcomes:** **Measure 1** Days with activity limitation/2 weeks **Results** Score at exit (G1 vs. G2): 1.5 vs. 1.7 GEE coefficient -1.5 (95% CI, -2.84, -0.15), OR 0.22 (0.06, 0.86), *P* = 0.29 **Measure 2** Missed school in past 2 weeks (%) **Results** G1 vs. G2 at exit: 12.2 vs. 20.3 GEE coefficient -0.77 (95% CI, -1.70, 0.16), OR 0.46 (0.18, 1.18), *P* = 0.105 **Measure 3** Urgent health services use/2 months (%) **Results** G1 vs. G2 at exit: 8.4 vs. 16.4 GEE coefficient -0.97 (95% CI, -1.8, -0.12), OR 0.38 (0.16, 0.89), *P* = 0.026; NNT = 12.9 ITT analysis yielded simalr results: improvements in urgent health services were greater in G1 (data NR, *P* = 0.062) **Measure 4** Days used controller medication/2 weeks **Results** G1 vs. G2 at exit: 3.5 vs. 3.6 GEE coefficient -1.03 (95% CI, -2.79, 0.73), *P* = 0.250 **Measure 5** Days used beta2-agonist/2 weeks **Results** G1 vs. G2 at exit: 4.0 vs. 4.0 GEE coefficient -0.23 (95% CI, -1.88, 1.42), *P* = 0.781 **Measure 6** Missed work in past 2 weeks (%) **Results** G1 vs. G2 at exit: 11.2 vs. 13.0 GEE coefficient 0.07 (95% CI, -0.91, 1.0.5), OR 1.07 (0.40, 2.85), *P* = 0.890 **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** Urgent care costs (hospital admissions, ER visits, unscheduled clinic visits) **Results** Two months before exit interview G1 $6301-$8856 ($57-$80/child) less than G2. Estimated decrease in 2 month costs between baseline and exit: G1: $22084-$36700 ($201-$344/child) vs. G2: $19246-$32756 ($185-$315/child) **Explanation of Overall Outcomes** NR **Quality Rating** Good **Health Outcomes:**

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Levine et al., 2003 **Trial Name** NR **Objective or Aim** Compare program effectiveness and intervention efficacy of more and less intensive education/behavior interventions on control of SBP **Geography** Sandtown-Winchester Community, Baltimore **Organization** inner city **Type of Community** Urban African-American **Study Design** RCT **Start Date** NR **Duration** 30 months	**Eligible (N)** 817 **Enrolled (N)** 789 **Randomized (N)** 789 **Completers (N)** 471 **Withdrawals or Dropouts (N)** 318 **Health Condition of Interest** Hypertensive heart disease **Inclusion Criteria** African-American adults w/ HTN (140+/90+) **Exclusion Criteria** • Terminal conditions • Mental impairment • Acute conditions precluding participation **Groups** G1: More intense intervention G2: Less intense intervention **Interventions** G1: G2 care + 5 CHW visits with BP measurement, addressing issues of BP management and access to medical care G2: CHW home visit for education, counseling, and referral **Group (N)** G1: 387 G2: 402	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Indigenous to community **CHW (N)** NR **Supervision of CHW** Nurse-supervised **Prior Training** NR **Type of Service** Home visits; BP measurement; education; assistance with access to care **Type of Educational Materials Used** Counseling; BP tracking card; educational pamphlet **Duration of Interaction with Clients** 6 visits over 2.5 years (length per visit NR) **Length of Follow-up** 40 mo	**Age (mean)** G1: 53.8 G2: 54.6 **Sex (% female)** G1: 61.2 G2: 62.5 **Race (%)** 100'% African-American **Other** • HS-level education: 42% • < HS: 45% • Unemployed: 32% • Income < $10k: 65% • With usual source of care: 79% • Uninsured: 20% **Role of CHW in Recruiting and Retention** • Initial neighborhood surveillance • Recruiting for individual RCT **Recruitment Rates** 0.97 **Retention Rates** G1: 240/387 = 62% G2: 231/402 = 57%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** BP change (unadjusted systolic/diastolic ± SE; adjusted systolic/diastolic ± SE) **Results** G1: -5.5±1.5/-4.1±0.9; 5.6±1.5/-3.8±1.0) G2: -3.2±1.5/-2.9±1.0; -3.3±1.5/-2.6±1.0) *P* < .005 for differences between baseline and followup for each group, no differences between groups **Measure 2** % with adequate HTN control (< 140/90) **Results** G1: 16% → 36% G2: 18% → 34% pre/post *P* < .01 group difference NS **Measure 3** Pre/post BP (systolic/diastolic) **Results** G1: 147.7/89.2 (95% CI, 145.5, 149.9 / 87.8, 90.6) → 145/86.2 (95% CI, 142.3, 147.7 / 84.2, 88.2) G2: 148.6/89.3 (95% CI, 146.4, 150.7 / 87.8, 90.8) → 142.1/84.7 (95% CI, 138.8, 145.4 / 82.7, 86.7) *P* < 0.05 for differences between baseline and followup for eachHealthcare **Measure 4** JNC-VI classification pre/post **Results** No significant differences **Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention produced significant pre/post change in proportion of HTN under control in both arms, but no difference between arms; no significant pre vs post change in BP classification within or between arms; more intensive group had less favorable results than less intensive group **Quality Rating** Fair **Health Outcomes:** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Lujan; 2007 **Trial Name** NA **Objective or Aim** Determine effectiveness of intervention led by promotoras on glycemic control, diabetes knowledge and diabetes health beliefs of Mexican-Americans with type 2 DM living on Texas-Mexico border **Geography** Texas-Mexico border city **Organization** Mexican Americans at a Catholic faith-based community clinic **Type of Community** Type 2 diabetes mellitus **Study Design** RCT **Start Date** NR **Duration** NR	**Eligible (N)** 160 **Enrolled (N)** 150 **Randomized (N)** 150 **Completers (N)** 141 **Withdrawals or Dropouts (N)** 9 **Health Condition of Interest** Diabetes mellitus type 2 **Inclusion Criteria** 40+ years, self-reported Mexican American ethnicity, diagnosed with type 2 diabetes for at least 1 year, taking or having taken hypoglycemic agents within past 6 months, willing to participate, noncompletion of formal diabetes education program at clinic, ability to speak either English or Spanish, only 1 per household **Exclusion Criteria** Type 1 diabetes, younger than 40 years, diagnosed with diabetes for less than 1 year, being treated for complciations that would interfere with ability to participate in classes **Groups** G1: Promotoras G2: Usual Care **Interventions** G1: A team of 2 promotoras delivered 8 weekly, 2 hour participative group classes and follow-up to intervention group, using multiple visual audio teaching aides and handouts, contacted class participants by phone biweekly to answer questions, reinforce education, promote behavior change, sent postcards biweekly G2: Usual care by clinic staff - verbal information and 1 or 2 pamphlets on diabetes self-management **Group (N)** G1: 75 G2: 75	**Title of CHW** Community lay workers (promotoras) **Paid or Volunteer** paid **Relationship with Community** bilingual clinic employees **CHW (N)** NR **Supervision of CHW** PI attended every class **Prior Training** NR **Type of Service** Classroom: 8 weekly 2-hour group classes; Biweekly Telephone calls **Type of Educational Materials Used** Developed by certified health educator with promotoras, based on ADA Guidelines **Duration of Interaction with Clients** 8 weekly 2-hour classes + biweekly telephone calls for 8 weeks followed by biweekly postcards for 16 weeks 24 weeks total duration of interaction with participants **Length of Follow-up** 6 months	**Age (mean)** 58 years **Sex (% female)** 80 **Race (%)** 100% Mexican American **Other** • Without health insurance: 68% • Preferred to speak Spanish: 97% • Catholic: 74% **Role of CHW in Recruiting and Retention** Unclear **Recruitment Rates** NA **Retention Rates** G1: 71 G2: 70 (at 6 months)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Bilingual DKQ - validated: 24 itms designed for Mexican Americans and elicits information about respondent's understanding of cause of diabetes, types of diabetes, self-management skills, and complications of diabetes **Results** Baseline/ 6 months (SD): G1: 69.1 (13.6)/77.2 (14.4) G2: 66.9 (15.2)/65.1 (21.0) (*P* < .002 for mean change between groups) **Measure 2** Diabetes Health Belief Measure (DHBM) **Results** **Baseline(SD)/6 months(SD):** G1: 56.4(12.2)/54.6(8.4) G2: 57.0(10.6)/50.8(13.6) Mean change between groups: *P* < 0.01 **Quality of Life:** NR	**Health Outcomes:** **Measure 1** HgbA1c **Results** Baseline(SD)/6 months(SD): G1: 8.21(2.2)/7.76(1.87) G2: 7.71(1.47)/8.01(1.8) Mean change between groups: *P* < 0.001 **Measure 3** HgbA1c - validated **Results** At 6 months: G1: 7.76 G2: 8.01 (*P* < .001) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Mock et al., 2007 **Trial Name** Vietnamese REACH for Health Initiative **Objective or Aim** Increase cervical cancer screening rates **Geography** Santa Clara County, CA **Organization** Commnity **Type of Community** Vietnamese American women **Study Design** RCT **Start Date** 2001 **Duration** 3 years	**Eligible (N)** NR **Enrolled (N)** 1005 **Randomized (N)** NR **Completers (N)** 968 **Withdrawals or Dropouts (N)** 37 **Health Condition of Interest** Pap screening **Inclusion Criteria** • Vietnamese American • Female • ≥18 years • Living in Santa Clara County **Exclusion Criteria** NR **Groups** G1: CHW + media G2: media only **Interventions** G1: CHW small group meetings, direct contact with subjects, Vietnamese language ads for TV/radio/newspaper, booklets and printed materials in various community locations G2: Vietnamese language ads for TV/radio/newspaper, booklets and printed materials in various community locations, delayed educational session **Group (N)** G1: 491 G2: 477	**Title of CHW** Lay health worker **Paid or Volunteer** Paid, $1500 **Relationship with Community** Shared race/ethnicity, physical community **CHW (N)** 50 **Supervision of CHW** Non clinician **Prior Training** NR **Type of Service** Small group gatherings, direct contacts to help access medical services and schedule appts **Type of Educational Materials Used** Prepared presentation with flip chart, QandA **Duration of Interaction with Clients** 2 sessions of 90 or 120 minutes each plus individual contacts over 3 to 4 months **Length of Follow-up** 3-4 months	**Age (mean)** G1: 45.7 G2: 46.0 **Sex (% female)** G1: 100 G2: 100 **Race (%)** Vietnamese 100 **Other** Mean years in US G1: 8.92 G2: 9.23 Self-rated speaking English poorly/not at all G1: 56.3% G2: 57.7% > HS education G1: 57.5% G2: 54.8% Married G1: 61.3% G2: 64.3% Employed G1: 26% G2: 27.1% **Role of CHW in Recruiting and Retention** CHW recruited subjects from within her own social network **Recruitment Rates** G1: 100% G2: 100% **Retention Rates** G1: 97.8% G2: 94.8%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Reported awareness of need for Pap by women 18+ y/o **Results** G1: 68.4→93.9% (*P* < 0.001) G2: 68.5→70.2% (*P* = 0.55); Z-test *P* < 0.001) **Measure 2** Reported awareness of need for pap test by women 18+ years old **Results** G1: 81.8%/99.6% (*P* < 0.001) G2: 87.2%/95.2% (*P* < 0.001) Z-test *P* < 0.001 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Self-report of Pap in past year **Results** G1: 45.7→67.3% (*P* < 0.001) G2: 50.9→55.7% (*P* = 0.035); Z test *P* < 0.001 **Measure 2** Ever had Pap test (among those who had not had Pap test preoutreach) **Results** G1: 46.0 (N = 144) G2: 27.1 *P* < .001 (N = 161) **Measure 3** Self-report of having ever had Pap **Results** G1: 65.8→81.8% (*P* < 0.001) G2: 70.1→75.5 (*P* < 0.001); Z test *P* = 0.001	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW + media intervention significantly increases understanding of and utilization of Pap compared to media intervention alone **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Morisky et al., 2002; Ward et al., 2000 **Trial Name** Community Hypertension Intervention Project (CHIP) **Objective or Aim** Develop effective strategies for enhancing treatment adherence for hypertensive minority populations **Geography** Large West Coast city **Organization** County medical center **Type of Community** Low-income, inner-city Blacks and Hispanics **Study Design** RCT **Start Date** NR **Duration** 4 years	**Eligible (N)** NR **Enrolled (N)** 1367 **Randomized (N)** 1367 **Completers (N)** NR **Withdrawals or Dropouts (N)** NR **Health Condition of Interest** Hypertension **Inclusion Criteria** Adult w/ diagnosis of HTN attending county hospital clinic or private health clinic **Exclusion Criteria** NR **Groups** G1: Individualized CHW pt counseling G2: Appt tracking G3: CHW home visits + voluntary discussion group attendance G4: Usual care **Interventions** G1: CHW post-clinic appt counseling session G2: Appt reminder cards and phone calls G3: Home visits by CHW G4: Standard clinic care **Group (N)** G1: 330 G2: 328 G3: 333 G4: 328	**Title of CHW** Community health worker **Paid or Volunteer** NR **Relationship with Community** Same ethnic group as patient, language concordant **CHW (N)** NR **Supervision of CHW** NR **Prior Training** 1 month interview training program **Type of Service** Counselling after clinic visits, or home visits **Type of Educational Materials Used** Education on treatment, lifestyle modification info, info on community resources **Duration of Interaction with Clients** G1: 5-10 min after each clinic visit G3: variable **Number of visits, duration per session, time period over which interactions occurred** NR **Length of Follow-up** 12 mo	**Age (mean)** 53.5 (SD 12.0) **Sex (% female)** 59.2 **Race (%)** Black: 77% Hispanic: 21% **Other** • < HS education: 49% • Married: 33% • Income < $14k/y: > 87% • Public insurance: 54% • Uninsured: 30% **Role of CHW in Recruiting and Retention** Interviews with new enrollees **Recruitment Rates** > 98% overall **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** BP Control **Results** G1: 35.2% @ baseline, 46% @ 6 and 12 mo ($P < 0.01$) G2: 40.2% @ baseline 42% @ 6 mo 48% @ 12 mo ($P < 0.01$) G3: 29.7% @ baseline %NR but "improved" @ 6 & 12 mo G4: 36.9% @ baseline % NR but "improved" No significant differences vs. control - all groups improved **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Nacion et al., 2000 **Trial Name** REACH-Futures **Objective or Aim** Can maternal-child health advocates, working with professional nurses, provdie health screening, problem identification, self and infant care information, and referrals in a safe manner? **Geography** Chicago **Organization** inner city **Type of Community** Predominantly African-American and Latino **Study Design** Retrospective cohort **Start Date** 1992 **Duration** 32 mo	**Eligible (N)** 218 **Enrolled (N)** 213 **Randomized (N)** 213 **Completers (N)** 213 **Withdrawals or Dropouts (N)** 0 **Health Condition of Interest** Maternal and child health **Inclusion Criteria** Home visit accomplished by CHW with validating follow-up by nurse **Exclusion Criteria** Visit conducted by CHW + nurse together **Groups** G1: CHW visit G2: nurse visit **Interventions** NR **Group (N)** G1: 213 G2: 213	**Title of CHW** Maternal-Child Health Advocate **Paid or Volunteer** Paid **Relationship with Community** Within community, minority **CHW (N)** 11 **Supervision of CHW** Validation by nurse after each visit **Prior Training** Minimum HS or GED; experience in community service **Type of Service** Intensive home visits for assessment, problem solving, emotional support, and information **Type of Educational Materials Used** NR **Duration of Interaction with Clients** NR **Length of Follow-up** NR	**Age (mean)** 58% 20+ y/o **Sex (% female)** 100 **Race (%)** • African-American: 90% • Latina: 9% **Other** • < HS education: 51% • Gravida-1: 53% **Role of CHW in Recruiting and Retention** NA - CHW visits were unit of analysis **Recruitment Rates** NA - CHW visits were unit of analysis **Retention Rates** NA - CHW visits were unit of analysis

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Agreement in identifying problems **Results** CHW more likely to identify problems in woman's health (P =0.01), well child health care deficits (P = 0.02), parenting (P = 0.02), socioeconomic (P < 0.01); most visits identified no problems **Measure 2** Agreement in placing referrals **Results** Nurse more likely to make referrals for woman's health (P = 0.01), well woman (P = 0.02), emotional/interpersonal, parental support, and socioeconomic (P < 0.01); most visits involved no referrals **Measure 3** Services provided (per completed Maternal-Child Activity form) **Results** Problem solving G1: 16% G2: 7% (P < 0.01) Emotional support G1: 4% G2: 14% (P < 0.01) Assessment, information: No difference between groups	**Costs (Economics):** NR **Explanation of Overall Outcomes** • CHW and nurse home visits were comparable in most regards • CHW more likely to identify problems and provide problem solving • Nurse more likely to provide referrals and emotional support **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000 **Trial Name** Por La Vida Damos Cuenta Program **Objective or Aim** To describe impact of intervention known as Por La Vida (PLV) on cancer screening for Latinas in San Diego, California **Geography** Southeast area of San Diego County, CA **Organization** Low-income Latino communites **Type of Community** Low-income Latino women **Study Design** RCT **Start Date** NR **Duration** NR	**Eligible (N)** NR **Enrolled (N)** 512 **Randomized (N)** 512 **Completers (N)** 365 **Withdrawals or Dropouts (N)** 147 **Health Condition of Interest** Breast and cervical cancer **Inclusion Criteria** Part of social network of consejeras recruiting participants. No other inclusion criteria reported. **Exclusion Criteria** NR **Groups** G1: Lower intensity CHW intervention G2: Higher intensity CHW intervention **Interventions** G1: CHW delivering Community Living Skills sessions, details NR G2: CHW delivering Cancer education sessions, 12 weekly group sessions conducted over 3-months plus 2 additional sessions offered within a year of beginning of group meetings **Group (N)** G1: 18 consejeras, 238 women G2: 18 consejeras, 274 women	**Title of CHW** Consejeras **Paid or Volunteer** NR **Relationship with Community** Member of Latino community perceived, as "natural helpers" by community **CHW (N)** 36 **Supervision of CHW** Yes--"unobtrusive observations" of ongoing sessions and debriefing sessions with consejeras each month by PLV "staff" but no reporting of who these staff members are **Prior Training** NR **Type of Service** Small group educational sessions **Type of Educational Materials Used** Pamphlets, work sheets, posters, plastic models of female body, pelvic models **Duration of Interaction with Clients** 12 sessions of 90 minutes each over 3 months **Length of Follow-up** 3 months 1 and 2 year followup	**Age (mean)** • Average: 34 • Range: 18-72 **Sex (% female)** 100 **Race (%)** Latina: 100 **Other** • Median gross family income: $12,000 • Median years of formal education: 7 • Born in Mexico: 92% • Avg acculturation: 2 **Role of CHW in Recruiting and Retention** CHW recruited all participants through social networks **Recruitment Rates** 1 **Retention Rates** G1: 68.1 G2: 72.6

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pretest-posttest changes in % of women performing monthly BSEs **Results** Participant unit of analysis (n = 361) G1: 18.5 G2: 33.2 *P* < 0.001 t = 3.23 Consejera unit of analysis (n = 35) G1: 18.6 G2: 31.8 *P* = 0.021 t = 2.43 **Measure 3** Pretest-posttest changes in % of women ≥40 yrs who had mammogram within past year **Results** Participant unit of analysis (n = 113) G1: 7 G2: 21.4 *P* = 0.029 t = 2.22 Consejera unit of analysis (n = 33) G1: 6.8 G2: 24.3 *P* = 0.063 t = 1.96 **Healthcare Utilization:** **Measure 1** Pretest-posttest changes in % of women who had physical breast exam within past year **Results** Participant unit of analysis (n = 359) G1: 15.5 G2: 17.7 *P* = 0.589 t = 0.54 Consejera unit of analysis (n = 35) G1: 19.3 G2: 19.5 *P* = 0.967 t = 0.04	**Costs (Economics):** **NR** **Explanation of Overall Outcomes** Increase in use of cancer screening tests higher in PLV cancer intervention group compared to community living skills (control) group Results from 1 and 2 yr followup suggest that cancer screening rates in Latinas of low socio-economic level with limited a **Quality Rating** Poor **Health Outcomes:** **Measure 1** Odds of montly BSE 1 yr and 2 yr followup for cancer screening group (*P* value) **Results** Year 1: 2.03 (.016) Year 2: 0.96 (.877) **Measure 2** Odds of CBE 1 yr and 2 yr followup for cancer screening group (P value) **Results** Year 1: 1.21 (.556) Year 2: 1.93 (.038) **Measure 3** Odds of mammogram 1 yr and 2 yr followup for cancer screening group (P value) **Results** Year 1: 1.50 (.484) Year 2: 3.88 (.018)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000			

(continued)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 2 Pretest-posttest changes in percentages of women who had a Pap test within past year **Results** Participant unit of analysis (n = 360) G1: 16.2 G2: 23.1 *P* = 0.096 t = 1.67 Consejera unit of analysis (n = 35) G1: 18.4 G2: 23.4 *P* = 0.369 t = 0.91	**Measure 4** Odds of pap smear 1 yr and 2 yr followup for cancer screening group (*P* value) **Results** Year 1: 2.10 (.017) Year 2: 1.70 (.082)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Parker et al., 2008 **Trial Name** Community Action Against Asthma (CAAA) **Objective or Aim** Evaluate a CHW intervention to improve children's asthma-related health by reducing household environmental triggers for asthma **Geography** Eastside and southwest Detroit, MI **Organization** Urban households with children attending neighborhood elementary schools **Type of Community** Urban neighborhoods with child with asthma **Study Design** RCT **Start Date** 2000 **Duration** 1 year	**Eligible (N)** 510 **Enrolled (N)** 328 **Randomized (N)** 328 **Completers (N)** 227 **Withdrawals or Dropouts (N)** 101 **Health Condition of Interest** pediatric asthma **Inclusion Criteria** Child 7-11 years with persistent asthma (defined as any of following being true: one or more daytime symptoms reported as being present "more than two times per week,"; sleep disturbance reported "more than two times per week"; and daily use of doctor-prescribed medicine for respiratory symptoms) living in southwest or eastside Detroit **Exclusion Criteria** Children who lived outside of defined geographic area or were monolingual in a language other than Spanish or English were excluded from study. **Groups** G1: CHW G2: Control **Interventions** G1: Environmental assessment; asthma action plan based on allergy tests; education and social support; social support; mattress covers, pillows, vacuum, cleaning supplies; counseling on environmental tobacco smoke; integrated pest management services; minimum 9 planned home visits over 12 months G2: Asthma information booklet, full intervention after 12 months **Group (N)** G1: 150 G2: 148	**Title of CHW** CES **Paid or Volunteer** NR **Relationship with Community** Detroit residents; 2 were bilingual (Spanish and English) **CHW (N)** 4 **Supervision of CHW** NR; however, there was a steering committee of community members, health agencies, etc. involved in project; also CHWs had continued training throughout intervention period **Prior Training** NR **Type of Service** home visits **Type of Educational Materials Used** Written materials on on dangers of ETS exposure for children with asthma Global Initiative for Asthma booklet **Duration of Interaction with Clients** At least 9 visits over 12 months (time per session NR **Length of Follow-up** 1 year	**Age (mean)** G1: 9.01 G2: 8.8 **Sex (% female)** G1: 43 G2: 41 **Race (%)** African American G1: 83 G2: 79 Hispanic G1: 11 G2: 10 Caucasian G1: 4 G2: 5 Other G1: 3 G2: 6 **Other** Caregiver smokers (%) G1: 40 G2: 35 Moderate-severe persistent asthma G1: 51 G2: 44 Household income < $10000 G1: 37 G2: 46 **Role of CHW in Recruiting and Retention** No role; CES was assigned cases **Recruitment Rates** NA **Retention Rates** G1: 77% G2: 75% (Does not include 30 postrandomization exclusions)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Behavior to reduce asthma triggers in house **Results** Intervention Effect (OR-intervention/OR-control) Vacuum cleaner used: 29.5 (6.90, 126); *P* < 0.0001 Allergen cover on child's pillow: 19.7 (4.12, 94.2); *P* = 0.0006 Allergen cover on child's mattress: 9.70 (4.33, 21.7); *P* < 0.0001 Visible mold growth remo **Measure 3** Caregiver depressive symptoms measured by CES-D **Results** Mean @ Baseline/Endpoint G1: 1.62/1.54 G2: 1.58/1.64 *P* = 0.0218 Improvements in both instrumental and emotional social support combined and instrumental support alone were not statistically significant (data NR) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Child's average asthma symptom frequency **Results** G1: Symptoms occurring less frequently at baseline for all eight symptoms assessed G2: Symptoms occurring less frequently for 6 of 8 Persistent cough baseline, post-intervention: G1: 3.81, 3.36 G2: 3.48, 3.44 *P* = 0.034 Cough w/ exercise baseline, post: G1: 4.27, 3.69 G2: 3.80, 3.66 *P* = 0.017 **Healthcare Utilization:** **Measure 1** Has any symptom more than 2 days/week and not on a corticosteroid **Results** G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI): 60/42 vs. 51/46; 0.56 (0.29, 1.06); *P* = 0.073 **Measure 2** Has any symptom more than 2 days/week and not on any controller **Results** G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI: 53/32 vs. 38/37; 0.39 (0.20, 0.73); *P* = 0.004 **Measure 3** Reduction in unscheduled health care utilization for asthma **Results** Needed unscheduled medical care G1 (pre/post) vs. G2 (pre/post) Intervention Effect (95% CI): In last 12 months: 65/59 vs. 58/73; 0.40 (0.22, 0.74); *P* = 0.004 In last 3 months: 50/45 vs. 42/56; 0.43 (0.23, 0.80); *P* = 0.007	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Paskett et al., 2006; Katz et al., 2007 **Trial Name** ROSE (Robeson County Outreach Screening and Education) **Objective or Aim** To use LHAs to deliver individualized health education to improve rates of mammography screening **Geography** Robeson County, NC **Organization** Community health centers - Robeson Health Care Corporation (federally funded, four centers) **Type of Community** County **Study Design** RCT **Start Date** February 1998 **Duration** 4 years	**Eligible (N)** 1,503 **Enrolled (N)** 901 **Randomized (N)** 897 **Completers (N)** 820 **Withdrawals or Dropouts (N)** 77 **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Women without a mammogram in past 12 months **Exclusion Criteria** Mentally or physically unable to participate, unreachable, language/hearing barrier **Groups** G1: Control G2: Intervention **Interventions** G1: Control sent letter and NCI brochure about need for regular cervical cancer screening 6 months after random assignment, followed by letter and NCI brochure about need for mammography 3 months after follow-up asssment G2: Individualized health education program that was culturally acceptable and tailored to meet needs of each woman, intensive face-to-face interactive educational program administered over a 9- to 12 month period, consisting of 3 in-person visits, with educational materials provided each visit and follow-up phone calls and mailings after **Group (N)** G1: 444 G2: 453	**Title of CHW** Lay health advisor **Paid or Volunteer** Paid **Relationship with Community** Ethnicity: 2 native American and 1 African-American **CHW (N)** 3 **Supervision of CHW** LHA supervisor checked in weekly by phone or in-person to discuss cases and problems; periodic attendance of LHA supervisor during patient visits **Prior Training** 1 nurse, 1 social worker, 1 research study interviewer **Type of Service** home visits, phone calls **Type of Educational Materials Used** written, culturally sensitive **Duration of Interaction with Clients** Two visits, 45-60 minutes, and 30-45 minutes, two intervening telephone calls, and a final visit (duration of final visit NR) over 9 to 12 months **Length of Follow-up** 14 months	**Age (mean)** 55.1 **Sex (% female)** 100 **Race (%)** • African-American: 33% • Native American: 42% • White: 25% **Other** NR **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Composite belief scores (higher is better) **Results** G1: 6.95 G2: 7.55 (*P* = 0.004) **Measure 2** Composite knowledge scores **Results** Specific scores NR, *P* value for G1 = 0.002, G1 < 0.001, no statistically significant differences **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Cervical cancer screening rates within risk-appropriate guidelines **Results** Significant differences between baseline and followup for both groups, no significant differences between intervention and control groups **Measure 2** Mammogram receipt from medical record data **Results** G1: 27.3% G2: 42.5%, RR = 1.56, 95% CI, 1.29 to 1.87, *P* < .001; significant differences within racial groups as well **Measure 3** Intervention cost divided by additional mammograms in LHA group compared with usual care **Results** $4,986 per additional mammogram in LHA group	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Pilote et al., 1996 **Trial Name** NR **Objective or Aim** Peer health advisers familiar with homelessness and ways of street could facilitate access to health care for TB in a homeless population. **Geography** San Francisco, CA **Organization** Homeless population **Type of Community** Lack of neighborhood (homeless) **Study Design** RCT **Start Date** June 1992 **Duration** 23 months	**Eligible (N)** 297 **Enrolled (N)** 244 **Randomized (N)** 244 **Completers (N)** 173 **Withdrawals or Dropouts (N)** 71 **Health Condition of Interest** TB **Inclusion Criteria** Homeless men and women, PPD positive **Exclusion Criteria** recent follow-up **Groups** G1: Peer health advisor G2: Monetary incentive G3: Usual care **Interventions** G1: Peer health advisor- met with patient and took them to clinic appointment, facilitated paperwork, reviewed physician recommendations G2: Monetary incentive - $5 at clinic, appointment and bus tokens G3: Usual care - appointment and bus tokens **Group (N)** G1: 83 G2: 82 G3: 79	**Title of CHW** Peer health adviser **Paid or Volunteer** Paid **Relationship with Community** Also homeless **CHW (N)** 7 **Supervision of CHW** NR **Prior Training** NR **Type of Service** Took client to clinic and helped with proccess **Type of Educational Materials Used** None **Duration of Interaction with Clients** NR - met client and went to clinic within a 3 week period (duration of session NR) **Length of Follow-up** 3 weeks	**Age (mean)** Median G1: 40 G2: 39 G3: 40 **Sex (% female)** G1: 13 G2:19 G3:16 **Race (%)** G1: African American: 48 White: 33 Hispanic: 16 G2: African American: 57 White: 27 Hispanic: 11 G3: African American: 54 White: 27 Hispanic: 13 **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Adherence to first follow-up appointment % (95% CI) *P* versus usual care - unclear how obtained **Results** G1: Peer health advisor 75 (70-80) *P* = 0.004 G2: Monetary incentive 84 (76-92) *P* < 0.001 G3: Usual care 53 (47-59)	**Costs (Economics):** NR **Explanation of Overall Outcomes** **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Rask et al., 2001; LeBaron et al., 2004[63] **Trial Name** NA **Objective or Aim** (1) Prospectively measure costs of 3 different registry-based interventions implemented in an urban indigent population and (2) evaluate how size of targeted population affects cost estimates **Geography** Fulton County, GA **Organization** MATCH (Metro Atlanta Team for Child Health) immunization registry: community-based partnership between two county health agencies, local nonprofit, federally qualified community health centers **Type of Community** See prior **Study Design** RCT **Start Date** 1996 **Duration** 22 months (35 mo for follow-up contact; 53 months for electronic acquisition of vaccine information)	**Eligible (N)** 3050 **Enrolled (N)** 3050 **Randomized (N)** 3050 **Completers (N)** NR **Withdrawals or Dropouts (N)** 304 not exposed to intervention (within intervention arms) **Health Condition of Interest** Pediatric immunizations **Inclusion Criteria** Children aged < 12 months seen in a county public health clinic **Exclusion Criteria** NR **Groups** G1: AUTODIAL G2: OUTREACH worker G3: combination of 1 and 2 G4: CONTROL **Interventions** G1: Autodial -received an automated telephone call or postcard to remind families 7 calendar days before child was due to be immunized. Patient received postcard if no number or nonworking. Delivered recorded message from head medical staff. G2: Outreach - contacted by outreach worker following a standardized protocol initated by a phone call wihtin 1 week. outreach worker made reminder call before appt if time known. if child remained behind next monht, a home visit was attempted monthly until contact was made. **Group (N)** G1: 763 G2: 760 G3: 764 G4: 763	**Title of CHW** Outreach worker **Paid or Volunteer** NR **Relationship with Community** • African American woman raised in inner-city Atlanta • Bilingual Hispanic worker **CHW (N)** 2 **Supervision of CHW** Doctorate in community psychology and extensive experience in conducting inner-city studies **Prior Training** College-educated **Type of Service** Phone calls, home visit for appointment reminder, assistance in overcoming barriers to appointment for pediatric immunizations if needed Phone calls, home visits **Type of Educational Materials Used** NR **Duration of Interaction with Clients** At least one telephone call, followed by repeat calls and home visit if no telephone contact, over 15 months or less (time per interaction NR) **Length of Follow-up** 15 months	**Age (mean)** 9 months **Sex (% female)** 51 **Race (%)** 93% minority (black or Hispanic) **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Vaccine Series complete from immunization registry **Results** No statistical difference between CHW and control groups **Healthcare Utilization:** NR	**Costs (Economics):** **Measure 1** Average monthly costs to dleiver immunization interventions per child **Results** G1: $1.34 G2: $1.87 G3: $2.76 **Explanation of Overall Outcomes** NR **Quality Rating** Good

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sauaia et al., 2007; Welsh et al., 2005 **Trial Name** Tepeyac Project **Objective or Aim** To increase breast cancer screening rates among Latinas in Colorado;[64] To compare effect of promotora vs printed statewide interventions on mammogram rates of Latinas and non-Latina whites (NLWs) enrolled in Medicaid fee-for-service program [65] **Geography** Colorado **Organization** Catholic Churches, Latina Women **Type of Community** Church communities **Study Design** Retrospective cohort **Start Date** 2000 **Duration** 5 yrs	**Eligible (N)** • Latina only analysis: 4,739;[64] • Latina vs. white analysis: 6,696[65] **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** Latina only analysis: 4739[64]; Latina vs. white analysis: 6696[65] **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** Breast cancer screening **Inclusion Criteria** Latina only analysis: • Latinas (identified through race and ethnicity data combined with surnames) • Aged 50 to 69 years • Continuously enrolled in insurance plan (Medicaid or Medicare) for longer than 23 months with no gap in coverage longer than 30 days • Survived entire baseline or follow-up period[64] Latina vs. white comparison: • White or Latina women (identified through race and ethnicity data) • Aged 50-64 years • Enrolled in CO Medicaid at least 18 mo during baseline and follow-up periods[65] **Exclusion Criteria** NR **Groups** G1: Promotora Intervention - study subjects living in zip codes of churches visited by promotoras during 2000 and 2001 G2: Printed intervention - Subjects living in remaining zip codes	**Title of CHW** Promotora (peer counselors) **Paid or Volunteer** Paid **Relationship with Community** Shared community and ethnicity **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Peer "approach" after Sunday mass and during church-related activities; facilitation of home discussion groups **Type of Educational Materials Used** • Letter describing project • Bilingual printed materials from NCI that promote breast ca screening and reflect a sense of family • Display unit • Short bilingual messages suitable for delivery from pulpit and publication in church bulletins **Duration of Interaction with Clients** At least bimonthly meetings(length NR) over 5 years **Length of Follow-up** NA	**Age (mean)** Latina only analysis: Not specified;[64] Latina vs. white analysis G1: Latina 59 (SD 4.1); non-Latina 57.5 (4.3) G2: Latina 58.4 (4.4); non-Latina 57.9 (4.5)[65] **Sex (% female)** 100 **Race (%)** Latina only analysis: 100% Latina;[64] Latina vs. white analysis G1: 52% Latina, 48% non-Latina white G2: 26% Latina, 74% non-Latina white[65] **Other** **Role of CHW in Recruiting and Retention** Unclear **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** comparison of mammography rates by intervention and ethnicity, via ICD codes on Medicaid claims (pre/post time-intervention interaction term by GEE) **Results** Latina, G1 vs. G2 adjusted GEE *P* = 0.07 Non-Latina, G1 vs. G2 adjusted GEE *P* = 0.10 **Measure 2** Pre/post mammography rates via ICD codes on Medicaid claims **Results** Latina only analysis G1: 59 to 61% G2: 58% at baseline and followup, unadjusted rates not significant in either group, GEE model adjusting for insurance group, age, income, rural vs. urban, and disability found increased biennial mammograms in Intervention group (*P* = 0.03);[64] Latina vs. white analysis G1: Latina 25→30% (unadjusted GEE *P* = 0.3); non-Latina 32→38% (unadjusted GEE *P* = 0.4) G2: Latina 45→43% (unadjusted GEE *P* = 0.27); non-Latina 41→44% (unadjusted GEE *P* = 0.02)[65]	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention in churches resulted in slight improvement in mammography rates among Medicaid-eligible Latinas, no statistically significant difference in ethnic disparities within promotora group, increased disparities in non promotora group (because non Latina had greater improvement than Latinas) **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sauaia et al., 2007; Welsh et al., 2005 (continued)	**Interventions** G1: Trained peer counselors (Promotoras) delived health promotion message personally, through meetings held at least bimonthly immediately after mass and through other church events, conducted health groups that met at home of one of participants, same newsletter used in printed Intervention G2: Printed intervention incorporated into church display, bulletin and/or pulpit announcements **Group (N)** Latina only analysis G1: 4 churches, N at baseline: 536, N at followup: 590 G2: 209 churches, N at baseline: 5130, N at followup: 5708;[64] Latina vs. white analysis G1: 4 churches, N at baseline: 197, N at followup: 211 G2: 209 churches, N at baseline		

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes

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Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Schuler et al., 2000 **Trial Name** NR **Objective or Aim** Effects of home-based intervention on mother-infant interaction among drug using women and their infants to compare mother–infant interaction among drug-using mothers who did and did not receive home-based intervention **Geography** Maryland NR **Organization** Organizational recruited from large university hospital **Type of Community** Drug abuse Inner city, African-American **Study Design** RCT **Start Date** NR **Duration** 6 months	**Eligible (N)** NR **Enrolled (N)** 192 families **Randomized (N)** 192 **Completers (N)** 171 **Withdrawals or Dropouts (N)** 21 families Not at all clear from article: "study included 171 families (87 control, 84 intervention). 31 dyads were lost before 2-week baseline visit, and 32 additional families lost after 2-week visit (see Table 1). Thus, 192 (97 control, 95 intervention) families seen for 6-month evaluation visit. Observation data dropped from 13 families because interaction involved caretaker other than mother, and data from 8 families were lost because of mechanical difficulties" **Health Condition of Interest** Infant health Maternal drug use; mother-child interaction **Inclusion Criteria** Women were eligible if they or their infants had a positive urine toxicology screen at birth or history of recent drug use was noted in medical charts. **Exclusion Criteria** Infants who were not discharged into care of their mothers or had serious developmental or congenital problems that required special services (e.g., spina bifida) **Groups** G1: CHW G2: Control **Interventions** G1: Visits to enhance mothers' ability to manage self-identified problems by using existing services and family and social supports; modeling infant development behavior/activities G2: Meetings for tracking purposes only **Group (N)** G1: 84 G2: 87	**Title of CHW** Lay Visitors **Paid or Volunteer** NR **Relationship with Community** Shared ethnicity African American women who "knew community" **CHW (N)** 3- 2 for intervention, one for control group **Supervision of CHW** Visitors met with a psychologist and a pediatrician weekly to track progress of families and to discuss concerns about families **Prior Training** Past experience making home visits, no additional details provided **Type of Service** G1: home intervention was developmentally oriented and was based on program used by IHDP- visitors went once a week enhancing mothers' ability to manage self-identified problems by using existing services and family and social supports; modelling infant development behavior/activities G2: brief monthly home tracking visits to reduce attrition **Type of Educational Materials Used** HELP at Home: Hawaii Early Learning Profile **Duration of Interaction with Clients** G1: 9 visits, about 30 minutes per visit G2: 3 visits, about 17 minutes each **Length of Follow-up** 6 months	**Age (mean)** 27 years **Sex (% female)** 100 **Race (%)** African American: 96% **Other** NR **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Infant warmth measured by assessment of videotaped mother-infant interaction using previously validated scale **Results** No difference between groups. In control group, mothers who continued to use drugs were less responsive to their babies than were mothers who were drug free. In intervention group, drug use was not associated with maternal responsiveness.	**Health Outcomes:** **Measure 3** Self-reported maternal drug use **Results** At 6 months, there were no significant group differences in cocaine and/or heroin use, alcohol use, or marijuana use during last 6 months **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** No direct effects of intervention, in control group, mothers who continued to use drugs were less responsive to their babies than mothers who were drug free. In intervention group, drug use was not associated with maternal responsiveness. **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Schwarz et al., 1993 **Trial Name** Safe Block Project **Objective or Aim** Improve injury prevention knowledge and reduce number of hazards in home and reduce rates of injury occurring to residents of an inner city community. **Geography** Philadelphia **Organization** Social **Type of Community** Neighborhood High injury rate **Study Design** Prospective case-control observational Quasi-experimental; non-random controlled trial **Start Date** 1989 **Duration** 1 year 21 months	**Eligible (N)** 34 203 (17,058 intervention = approx 5,890 homes; 17,145 control) **Enrolled (N)** 2722 4476 (3004 received intervention, 1472 control homes randomly selected) **Randomized (N)** NA 2722 (1250 intervention + 1472 control homes selected for assessment) **Completers (N)** 1962 (902 intervention, 1060 control) **Withdrawals or Dropouts (N)** 28% not inspected in each group (348 intervention, 412 control) **Health Condition of Interest** Home Safety **Inclusion Criteria** Residents of 17 neighborhoods 9 census tracks with highest injury rates in community **Exclusion Criteria** NA inability to contact household residents **Groups** G1: Intervention G2: Control **Interventions** • Home modification for simple prevention measures • Home inspection to inform residents about hazards and ways of alleviating them • Education about selected injury prevention practices. **Group (N)** G1: 17 085 G2: 17 145 For postintervention assessments, 1250 of 3004 homes were randomly selected. assessments were conducted in 902 of1250 homes (72%).	**Title of CHW** Intervention team **Paid or Volunteer** Paid and volunteer **Relationship with Community** Shared community **CHW (N)** 3 community safety liaisons who recruited an undisclosed # of volunteer block supervisors and 10 safety inspectors. **Supervision of CHW** Supervised by personnel from Injury Control Section of Philadelphia Department of Public Health. **Prior Training** NR **Type of Service** Safety inspections home modifications, inspections, and education; myriad safety devices (e.g. smoke detectors, ipecac, emergency phone numbers, light bulbs, batteries, bathwater thermometer) **Type of Educational Materials Used** NR direct teaching from safety inspectors **Duration of Interaction with Clients** 1 home visit and monthly block meetings over 18 month-period (duration per session NR) **Length of Follow-up** 12 months	**Age (mean)** G1: < 5 yrs: 9.3%, 5-17 yrs: 17.6%, 18-64 yrs: 53.7%, > 64 yrs: 19.5% G2: < 5 yrs: 9.9%, 5-17 yrs: 18.9%, 18-64 yrs: 58.1%, > 64 yrs: 13.1% **Sex (% female)** NR **Race (%)** G1: African-American: 96.8%, Other: 3.2% G2: African-American: 95.7%, Other: 4.3% **Other** Injuries in 1987- rate per 1000 residents G1: 17.1 G2: 15.7 **Role of CHW in Recruiting and Retention** Block Representatives were asked to urge neighbors to participate in project. **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** No syrup of ipecac for children < 5 yrs **Results** G1: 29% G2: 90.2% *P* < 0.001 Adjusted OR, 0.04 95% CI, 0.02-0.07 **Measure 2** Inadequate light on stairs **Results** G1: 17.9% G2: 19.9% *P* = 0.41 Adjusted OR, .41 95% CI, 0.69-1.16 **Measure 3** Hot water ≥125°F **Results** G1: 36.8% G2: 26.8% *P* < 0.001 Adjusted OR, 1.73 95% CI, 1.39, 2.15 **Measure 1** No bedside light for > 64 yrs adults **Results** G1: 13.3% G2: 15.1% *P* = 0.90 Adjusted OR, 1.03 95% CI, 0.68- 1.57 **Measure 2** No smoke detectors **Results** G1: 4% G2: 23% *P* < 0.001 Adjusted OR, 0.14 95% CI, 0.09- 0.20 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Principal positive finding of this study is a distinct difference between control and intervention homes with respect to safety knowledge and home hazards that required minimal to moderate effort to correct. Intervention homes were found to be safer than control homes, particularly with respect to hazards related to fires and poisonings. **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Silver et al., 1997 **Trial Name** Parent to Parent Network **Objective or Aim** Evaluate psychological outcomes of Parent-To-Parent Network (PTPN), a community-based support program for mothers of five- to eight-year-old children with a variety of ongoing health conditions **Geography** NYC - Bronx; or Lower Westchester **Organization** Organizational Large urban medical centers; community-based delivery of intervention **Type of Community** Mothers that have children with chronic disease Inner-city, low-income, minority **Study Design** RCT **Start Date** 1990 **Duration** 1-2 years	**Eligible (N)** 512 **Enrolled (N)** 365 mothers **Randomized (N)** 365 **Completers (N)** 94% completed 12 month interview (343) **Withdrawals or Dropouts (N)** 6% LTF **Health Condition of Interest** Maternal health Mothers' psychiatric well-being **Inclusion Criteria** • Five-to-eight-year-old children who had ongoing health conditions (defined as one that had lasted or was expected to last for at least three months or had required hospitalization for 30 days or more in previous year) • Mother could speak conversational english and live with her child in catchment area • Have easy access to a phone **Exclusion Criteria** A family was excluded if child was moderately or severely mentally retarded or had a life expectancy under 18 months. **Groups** G1: Experimental G2: Control **Interventions** G1: 6 one-hour meetings and 3 group activities 6 face-to-face interventions at home or in hospital + telephone calls + group activities G2: Usual care **Group (N)** G1: 183 G2: 182	**Title of CHW** Lay Intervenor **Paid or Volunteer** NR (guessing paid) Paid ("accepted jobs") **Relationship with Community** Shared experience Same neighborhoods (recruited via community newspapers); raised children with ongoing healht conditions **CHW (N)** 3 **Supervision of CHW** Supervised by a clinical psychologist and a social worker - frequency NR **Prior Training** 40 hours plus intensive training **Type of Service** Counselling, face-to-face meetings; telephone calls; group activities with others in program **Type of Educational Materials Used** NR **Duration of Interaction with Clients** 6 meetings (1 hour each) with at least biweekly telephone calls + 3 group social activities over 12 months **Length of Follow-up** 12 months 6, 12, and 18 mo	**Age (mean)** Mother's age G1: 34.7 G2: 34.0 Children's age G1: 7.2 G2: 7.0 **Sex (% female)** 100% female (mothers) Children G1: (45%) G2: (47%) **Race (%)** Mother’s ethnicity % Hispanic G1:43 G2: 46 Black G1: 41 G2:32 White, not Hispanic G1:11 G2: 17 Mixed/Other G1: 5 G2: 6 **Other** Asthma 35%, sickle cell anemia, epilepsy, and congenital heart disease (8% each), and cleft lip or palate, cancer, and endocrine disorders (5% each). Spina bifida and other congenital anomalies each occurred in 2%; 15% had multiple health conditions, mostly asthma G1: 35% fair to poor health; G2: 31% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** G1: 95% G2: 93%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** PSI **Results** Pre- intervention G1: 24.1 G2: 20.3 ($P < 0.05$) Post intervention G1: 22.1 G2: 20.1 (no significant difference between groups) **Measure 2** PSI subsets **Results** All adjusted posttest scores other than Depression were directionally lower in EG than CG **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** Posttest scores of EG and CG mothers did not differ significantly. Although intervention effects were not related to participation level or illness-related and sociodemographic factors, a significant interaction with stressful life events (SLE) was found. **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year St. James et al., 1999 **Trial Name** Resource Mothers Program for Maternal PKU **Objective or Aim** Increase number of well-treated pregnancies and thus reduce number of adverely affected offspring **Geography** New England **Organization** Maternal PKU Collaborative Study enrollees **Type of Community** PKU **Study Design** Retrospective cohort **Start Date** NR **Duration** NR	**Eligible (N)** NR **Enrolled (N)** 83 pregnancies from 69 mothers **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** PKU outcomes in children **Inclusion Criteria** Mothers with PKU **Exclusion Criteria** NA **Groups** G1: control (no resource mother) - women with PKU G2: PKU women with resource mother **Interventions** G1: NR G2: resource mothers met with pregnant women for approx 20 sessions of 2 hours each, weekly in beginning and less frequently as pregnancy proceeded. Activities included cooking, shopping, meal planning, preparing for baby, discussing pregnancy, discussing medical recommendations. **Group (N)** G1: 64 offspring from 55 mothers G2: 19 offspring from 14 mothers	**Title of CHW** Resource Mother **Paid or Volunteer** Paid **Relationship with Community** Resource mothers had children with PKU **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Lived with disease **Type of Service** Face-to-face meetings **Type of Educational Materials Used** NR **Duration of Interaction with Clients** ≈20 sessions of 2 hours each (weekly in beginning then less frequently) throughout pregnancy **Length of Follow-up** 12 months after birth	**Age (mean)** Maternal age G1: 26.5 G2: 24.1 **Sex (% female)** 100 **Race (%)** NR **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Birth head-circumference z score **Results** G1: -1.4 (95% CI, -1.56- -1.2) G2:-0.56 (95% CI, -0.88 - -0.24); *P* = 0.08 **Measure 2** Baylely developmental quotient **Results** G1: 95 (95% CI, 92-98) G2: 108 (95% CI, 104-112); *P* < 0.05 **Measure 3** maternal metabolic control **Results** G1: 16.1 weeks(95% CI, 14.4-17.8) G2: 8.5 weeks (95% CI, 6.3-10.7); *P* < 0.05 **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992 **Trial Name** National Black Women's Health Project **Objective or Aim** Test effectiveness of in-home, culturally sensitive educational program conducted by lay health workers by measuring improvement in frequency of breast and cervical cancer screening **Geography** Unclear, possibly Atlanta **Organization** Inner city community health center **Type of Community** Inner city African-American **Study Design** RCT **Start Date** NR **Duration** 17 months	**Eligible (N)** NR **Enrolled (N)** 321 **Randomized (N)** 321 **Completers (N)** 195 **Withdrawals or Dropouts (N)** 126 **Health Condition of Interest** breast cancer, cervical cancer **Inclusion Criteria** NR **Exclusion Criteria** NR **Groups** G1: intervention G2: control **Interventions** G1: CHW home visits, education on breast and cervical cancer, breast self-exam, educational materials on screening, facilitation to address logistical barriers to screening G2: mailed educational materials on cancer screening **Group (N)** G1: 163 G2: 158	**Title of CHW** Lay health worker **Paid or Volunteer** NR **Relationship with Community** Recruited from National Black Women's Health Project **CHW (N)** NR **Supervision of CHW** NR **Prior Training** Self-help support group leaders within NBWHP **Type of Service** Home visits **Type of Educational Materials Used** Home visits, video of Pap and breast exam, printed materials **Duration of Interaction with Clients** 3 visits (months 1, 2, 4) over four month period, visits 1 and 2 1.5 hours each, time for visit 3 NR **Length of Follow-up** 11 months	**Age (mean)** G1: 18-34: 13.5% 35-44: 46% 45-59: 22.1% 60-97: 18.4% G2: 18-34: 13.3% 35-44: 44.3% 45-59: 24.7% 60-97: 17.7% **Sex (% female)** 100 **Race (%)** NR (presumed 100% African American) **Other** G1: Income ≤$15,000: 45.4% Married: 33.7% > HS education: 40.5% Employed: 55.2% G2: Income ≤$15,000: 48% Married: 30.4% > HS education: 38.4% Employed: 46.8% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 1st attempt: 20% (55/275) 2nd attempt: 44% (266/600) **Retention Rates** G1: 57% (93/163) G2: 65% (102/158)

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Pretest-posttest change in self-report of BSE for entire sample **Results** G1: 52.1%/51.0%; G2: 41.1%/41.0%, diff in change: -1.0 (95% CI, -6.1-4.1) **Measure 2** Pretest-posttest change in self-report of BSE, post-intervention respondents only **Results** G1: 57.0%/53.8%; G2: 40.2%/40.2%, diff in change: -3.2 (95% CI, -17.5, 11.1) **Measure 3** Posttest report of BSE, women not previously on recommended screening schedules, whole sample **Results** G1: 24.4%; G2: 17.2%, diff in change: 7.2% (95% CI, -5.0-19.3) **Measure 4** Posttest report of BSE, women not previously on recommended screening schedules, post-intervention respondents only **Results** G1: 47.5%; G2: 26.2%, diff in change: 21.3% (95% CI, 2.3-40.3) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Pre/post change in self-report of receiving screening exams, women not previously on recommended screening schedules, whole sample **Results** No significant difference between groups for any screening modality **Healthcare Utilization:** **Measure 1** Pretest-posttest change in self-report of receiving Pap smears for entire sample **Results** G1: 50.3%/58.7%; G2: 51.9%/62.1%, diff in change: -1.8 (95% CI, -8.0-4.4) **Measure 2** Pretest-posttest change in self-report of receiving Pap smears, postintervention respondents only **Results** G1: 52.7%/63.4%; G2: 50.0%/62.7%, diff in change: -2.0 (95% CI, -11.0-7.0) **Measure 3** Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, whole sample **Results** G1: 33.3% G2: 34.2% diff in change: -0.9 (95% CI, -15.7-13.9) **Measure 4** Posttest rate of self-report of receiving Pap smears, women not previously on recommended screening schedules, postintervention respondents only **Results** G1: 61.4% G2: 51.0% diff in change: 10.4 (95% CI, -9.5-30.0)	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW intervention effective in increasing receipt of clinical breast exam and mammogram, only when including women already on some recommended screening schedule, and only when nonrespondents are assumed to be similar to respondents. Using intention-to-treat, no differences in any screening modality **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 5 Pretest-posttest change in self-report of receiving mammography for entire sample **Results** G1: 35.5%/50.4% G2: 34.3%/39.4% diff in change: 9.8% (95% CI, 2.9-16.7) **Measure 6** Pretest-posttest change in self-report of receiving mammography, postintervention respondents only **Results** G1: 32.5%/58.7%; G2: 34.0%/47.9%, diff in change: 12.4% difference (95% CI, 1.0-24.3) **Measure 7** Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, whole sample **Results** G1: 29.7% G2: 24.4% diff in change: 5.8% (95% CI, -7.0-18.6) **Measure 8** Posttest rate of self-report of receiving mammography, women not previously on recommended screening schedules, postintervention respondents only **Results** G1: 50.0% G2: 35.5% diff in change: 14.5% (95% CI, 4.5-23.6) **Measure 9** Pretest-posttest change in self-report of receiving CBE for entire sample **Results** G1: 55.2%/64.5% G2: 55.7%/59.5% diff in change: 4.9 (95% CI, -6.1-4.1) **Measure 10** Pretest-posttest change in self-report of receiving CBE, postintervention respondents only **Results** G1: 59.1%/72.0% G2: 57.8%/61.8% diff in change: 8.9% (95% CI, 1.1-16.7)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Sung et al., 1997; Sung et al., 1992[71]			

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
	Measure 11 Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, whole sample **Results** G1: 37.0% G2: 28.6% diff in change: 8.4% (95% CI, -6.9-23.7) **Measure 12** Posttest rate of self-report of receiving CBE, women not previously on recommended screening schedules, postintervention respondents only: **Results** G1: 71.1% G2: 46.5% diff in change: 24.6% (95% CI, 3.9-45.3)	

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Taylor et al., 2002 **Trial Name** NR **Objective or Aim** Evaluate impact of 2 culturally and linguistically appropriate cervical cancer control educational interventions: a "high intensity" outreach worker-based intervention and a "low intensity" direct mail intervention **Geography** Seattle and Vancouver BC **Organization** Recruited from respondents to community-based survey **Type of Community** Chinese-American women **Study Design** RCT **Start Date** 1999 **Duration** 18 months	**Eligible (N)** 2312 (986 Seattle, 1326 Vancouver) (numbers deduced from text) **Enrolled (N)** 1532 (710 Seattle, 822 Vancouver) **Randomized (N)** 482 (199 Seattle, 283 Vancouver) **Completers (N)** 402 (181 Seattle, 221 Vancouver) **Withdrawals or Dropouts (N)** 80 (18 Seattle, 62 Vancouver) **Health Condition of Interest** Pap testing **Inclusion Criteria** • Chinese women • No history of Pap or intention of Pap within 2 years of survey • 20-69 years old • Speak Cantonese, English, or Mandarin **Exclusion Criteria** • Hysterectomy • Invasive cervical cancer **Groups** G1: CHW G2: direct mail G3: control **Interventions** G1: Introductory mailing, CHW visit with multimedia and tailored counseling, phone followup and tailored counseling, logistic assistance as needed G2: Direct mail multimedia materials G3: Control: usual care at local clinics and doctors' offices **Group (N)** G1: 161 G2: 161 G3: 160	**Title of CHW** Outreach worker **Paid or Volunteer** NR **Relationship with Community** Shared culture, ethnicity **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Trained to act as role models, to provide social support, to serve as cultural mediators between women and health care facilities, to use visual aids and provide tailored responses to each woman's individual barriers to cervical cancer screening **Type of Educational Materials Used** Video, motivational pamphlet, educational brochure, fact sheet, tailored counseling **Duration of Interaction with Clients** One time visit with follow up telephone call (time per interaction NR) **Length of Follow-up** 6 months	**Age (mean)** 58% 45-69 y/o: G1: 53% G2: 63% G3: 58% **Sex (% female)** 100 **Race (%)** Chinese 100% **Other** • 12 or more years education: 44% • Married: 81% **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** 66% (proportions not available for each group) **Retention Rates** 402/432 = 83% G1: 129/161 = 80% G2: 139/161 = 86% G3: 134/160 = 84%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Report Pap testing planned within 2 years **Results** G1: 72% G2: 59% G3: 48% (G1 vs G3 *P* < 0.001 G2 vs G3: *P* = 0.05 G1 vs G2 *P* = 0.03) **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Medical records for pap screening received between randomization and followup, using intent-to-treat **Results** Results not provided, significant differences between outreach worker versus control (*P* < .001), direct mail versus control (*P* = .07), and outreach worker versus direct mail (*P* = .04) **Measure 2** Medical records for pap screening received in past 2 years, using intent-to-treat **Results** Results not provided, significant differences between outreach worker versus control (*P* < .001) and direct mail versus control (*P* = .03) **Measure 3** Self-reported Pap testing completed since intervention **Results** G1: 39% G2: 25% G3: 15% (G1 vs G3, *P* < 0.001 G2 vs G3, *P* = 0.03 G1 vs G2, *P* = 0.02)	**Costs (Economics):** NR **Explanation of Overall Outcomes** Women who received CHW home visits were significantly more likely to report having Pap testing after intervention compared to women receiving direct mail or no intervention **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Tessaro et al., 1997; Navaie-Waliser et al., 2000 **Trial Name** Maternal Outreach Worker (MOW) Program **Objective or Aim** Reduce infant morbidity and mortality via early prenatal care, consistence of care, health behavior and parenting skills, infant preventive care and social services, increased pregnancy spacing, decreasing unplanned pregnancies; to determine whether particip **Geography** North Carolina **Organization** Medicaid-eligible population, via social worker or nurse referral **Type of Community** High infant mortality with disproportionately higher in African-Americans vs. Caucasians **Study Design** prospective cohort **Start Date** 1992 **Duration** 3 years	**Eligible (N)** 14,977 **Enrolled (N)** 705 **Randomized (N)** NA **Completers (N)** 447 **Withdrawals or Dropouts (N)** 258 **Health Condition of Interest** Infant health **Inclusion Criteria** Medicaid-eligible, < 28 wk EGA, singleton livebirth; Caucasian or African-American (this study) **Exclusion Criteria** Moved away, lost to follow-up, declined services, interview not completed **Groups** G1: CHW G2: matched controls **Interventions** G1: CHW home visits **Group (N)** G1: 373 (yr 2) -- > 221 (yr 3) G2: 332 (yr 2) -- > 198 (yr 3)	**Title of CHW** Maternal Outreach Worker (MOW) **Paid or Volunteer** NR **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Home visits, assistance in applying for govt benefits, housing, employment, education; general advocacy for families **Type of Educational Materials Used** Reinforcing positive health behavior; modeling parent-infant interactions; reinforce need for prenatal care, immunizations, family planning **Duration of Interaction with Clients** One visit/month (more if needed) for approximately 14 months (duration per visit NR) **Length of Follow-up** 1 year	**Age (mean)** < 18 y G1: 31% G2: 15.6% **Sex (% female)** 100 **Race (%)** G1: African-American: 61.8% Caucasian: 38.2% G2: African-American, 59.4% Caucasian (limited to African-American and Caucasian): 40.6% **Other** Often receive aid from friends/family G1: 41.4% G2: 58.1% ($P < 0.001$) Reported good health G1: 78.4% G2: 85.5% ($P < 0.05$) Social supportiveness of pregnancy G1: 52.6% G2: 62.9% ($P < 0.05$) Prior physical abuse by partner G1: 14.9% G2: 10% ($P < 0.1$) No difference in education, gravidity, smoking **Role of CHW in Recruiting and Retention** Active recruitment of very high risk population **Recruitment Rates** NR **Retention Rates** G1: 249/373 = 67% G2: 198/332 = 60%

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Low birth weight (observed minus expected) **Results** African-American: LBW -13 (*P* = 0.12); VLBW -6 (*P* = 0.1) Caucasian: LBW +1 (*P* = 0.58); VLBW 0 (*P* = 0.6) **Measure 2** Prenatal care adequate (Kessner index) **Results** African American G1: Adequate: 60.7% Intermediate: 32.6% Inadequate: 6.7% G2: Adequate: 63.8% Intermediate: 31.5% Inadequate: 4.7% Caucasian: G1: Adequate: 77.4% Intermediate: 19.7% Inadequate: 2.9% G2: Adequate: 75.1% Intermediate: 22.8% Inadequate: 2.1% **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** CHW visits resulted in higher proportion of adequate care for Caucasian but lower for African-Americans (significant difference for African-Americans); fewer than expected LBW and VLBW for African-Americans but not Caucasians **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Von Korff et al., 1998 **Trial Name** NR **Objective or Aim** Evaluate a4-session self-management group intervention for patients with pain in primary care, led by trained lay persons with back pain. intervention was designed to reduce patient worries, encourage self-care, and reduce activity limitations. **Geography** Western Washington State **Organization** HMO **Type of Community** Condition - back pain **Study Design** RCT **Start Date** 1996 **Duration** NR	**Eligible (N)** 364 **Enrolled (N)** 255 **Randomized (N)** 255 **Completers (N)** 0.85 **Withdrawals or Dropouts (N)** 0.145 **Health Condition of Interest** Back pain **Inclusion Criteria** Patients diagnosed with back pain ages 25-70, at least one prior back pain visit, interested in learning more about caring for back pain,enrolled for at least a year Group Health Cooperative of Puget Sound **Exclusion Criteria** Surgery or disenrollment from GHC **Groups** G1: Self management group G2: Usual care **Interventions** G1: Four 2-hour classes held once a week, with 10 to 15 participants, led by two trained volunteers. G2: Usual care includes back pain book **Group (N)** G1: 129 G2: 126	**Title of CHW** Lay leaders **Paid or Volunteer** Volunteer **Relationship with Community** Shared disease **CHW (N)** 8 **Supervision of CHW** NR **Prior Training** NR **Type of Service** classes **Type of Educational Materials Used** Book, pamphlets, videotapes **Duration of Interaction with Clients** Four 2-hour classes held once a week for 1 month **Length of Follow-up** 12 months	**Age (mean)** G1: 49.4 G2: 50.3 **Sex (% female)** G1: 68.2 G2: 56.4 **Race (%)** G1: White: 91.4% Non-white: 8.6% G2: White: 79.7% Non-white: 20.3% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** "Next time I have back or leg pain, I will try to manage problem without seeing a health professional" - Not validated **Results** G1: 77% agreed G2: 60% (*P* = 0.008) **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Roland Disability at 12 months - validated **Results** G1: 5.75 (6.31) G2: 6.75 (6.39) *P* = 0.092 **Measure 2** Worry rating (0-10) at 12 months - not validated **Results** G1: 2.63 (2.58) G2: 3.83 (3.08) *P* = 0.013 **Measure 3** 50% or greater reduction in Roland Disability Questionnaire Score from baseline at 6 months - validated **Results** G1: 47.9% G2: 33% (X2 = 5.2; df = 1; *P* = 0.02) **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wendell et al., 2003 **Trial Name** NA **Objective or Aim** To determine whether street outreach to prevent HIV infection as practised by state-funded community-based organizations (CBOs) is effective in promoting condom use **Geography** Louisiana **Organization** Neighborhoods through out state characterized by one or more of following: high rates of STD/HIV, high levels of drug use, exchange of sex for money or drugs, 'crack' houses, or injection drug users **Type of Community** At risk neighborhoods **Study Design** Observational - cross sectional **Start Date** 1998 **Duration** 2 years	**Eligible (N)** NA **Enrolled (N)** NA **Randomized (N)** NA **Completers (N)** NA **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** HIV prevention **Inclusion Criteria** NA **Exclusion Criteria** NA **Groups** G1: Intervention G2: Comparison **Interventions** G1: Discussions with community members during which they assessed client's needs, imparted a risk- or harm-reduction message on sexual disease, answered questions, made referrals, and negotiated and reinforced behaviour change. **Group (N)** G1: 4950 G2: 1597	**Title of CHW** Outreach workers **Paid or Volunteer** Paid **Relationship with Community** Members of community except in New Orleans **CHW (N)** at least 42 **Supervision of CHW** OPH (Office of public health) **Prior Training** NR **Type of Service** Interview - survey interaction **Type of Educational Materials Used** Condoms, educational materials, bleach kits, coupons for new needles, services such as substance abuse treatment, STD care and social services **Duration of Interaction with Clients** Brief - Most interactions involved introducing themselves, handing out condoms and literature and perhaps delivering a brief prevention message **Length of Follow-up** NA	**Age (mean)** G1: 12-14 yrs: 2% 15-19 yrs: 27% 20-24 yrs: 24% 25-34 yrs: 27% 35+ yrs: 20% G2: 12-14 yrs: 1% 15-19 yrs: 24% 20-24 yrs: 23% 25-34 yrs: 28% 35+ yrs: 24% **Sex (% female)** G1: 48 G2: 40 **Race (%)** G1: African American: 89% White: 7% Other: 4% G2: African American: 87% White: 8% Other :5% **Other** Two or more sexual partners G1: 72 69 G2:1.14 OR 95% CI (1.01, 1.29) *P* = 0.04 Men who had sex with men (men only) G1: 16 11 G2: 1.64 OR 95% CI, (1.3, 2.06) *P* = 0.001 Injected drugs G1: 7% G2: 4% OR 95% CI, 1.8 (1.37, 2.37) *P* = 0.001 **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Survey - not validated **Results** Know where to get free condoms G1: 90 G2: 74 OR 95% CI, 3.2 (2.75, 3.73) *P* = 0.001 **Quality of Life:** NR	**Health Outcomes:** **Measure 1** Survey - not validated **Results** Condom use Intervention vs. comparison [odds ratio 1.37 (95% confidence Interval 1.20, 1.56; *P*<0.001)]. **Healthcare Utilization:** NR	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Fair

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wilson et al., 2008 **Trial Name** NR **Objective or Aim** Assess effectiveness of breast health promoting messages administered by salon stylists to clients in salon setting **Geography** Brooklyn, NY **Organization** Neighborhood hair salons **Type of Community** Neighborhoods **Study Design** Repeated cross-sectional survey of women attending salons randomly assigned to experimental and control groups **Start Date** 2002 **Duration** 3 months for each salon	**Eligible (N)** 257 salons **Enrolled (N)** NR **Randomized (N)** 40 salons **Completers (N)** 40 salons/1210 respondents **Withdrawals or Dropouts (N)** NA **Health Condition of Interest** breast cancer **Inclusion Criteria** Salons providing services in target NYC neighborhoods; clients receiving services at experimental and control salons were eligible to participate **Exclusion Criteria** Salons were excluded if owner was a member of Health and Beauty Council **Groups** G1: Control salon, at baseline G2: Experimental salon, at baseline G3: Control salon, at followup G4: Experimental salon, at followup **Interventions** G1: Control, before intervention G2: Stylists group, before intervention G3: Control, after intervention G4: Stylists group, after intervention Intervention consisted of education, counseling, and information on location of screening services during salon appointment **Group (N)** G1: 369 (12 salons) G2: 816 (28 salons) G3+G4: 1210 (N of salons NR, individual N NR)	**Title of CHW** Lay health advisor **Paid or Volunteer** Volunteer (with $30 compensation for training time) **Relationship with Community** Hair stylist working in neighborhood/community **CHW (N)** 29 **Supervision of CHW** Program staff made frequent visits to salons to support stylists in their promotion of message delivery throughout time during which program was administered. **Prior Training** NR **Type of Service** One-on-one counseling during salon visit to provide education, counseling, and information on location of cancer screening services **Type of Educational Materials Used** Written materials (not described) **Duration of Interaction with Clients** One visit - (time of session NR) **Length of Follow-up** 3 months	**Age (mean)** G1: 38 G2: 39 G3+G4: 38 **Sex (% female)** 100 **Race (%)** African G1: 91 G2: 93 Hispanic G1: 7 G2: 6 Other G1: 2 G2: 1 **Other** Born in US (%) G1: 56 G2: 52 Family hx of breast cancer (%) G1: 10 G2: 9 **Role of CHW in Recruiting and Retention** NA **Recruitment Rates** NA **Retention Rates** NA

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: **Measure 1** Engaging in BSE in past 3 months **Results** G1: 25% G2: 28%, *P* = 0.26 for differences between G1 and G2 G3: 37% G4: 40% Adjusted OR, for differences between G3: and G4 1.3; Adj 95% CI, 0.9-1.7 **Measure 2** Intention to receive mammogram in next year **Results** G3: 70% G4: 74% Adj OR 1.3; Adj 95% CI, 0.9-1.2 **Quality of Life:** NR	**Health Outcomes:** NR **Healthcare Utilization:** **Measure 1** Clinical breast exam (CBE) in past 3 months **Results** G1: 27% G2: 27%, *P* = 0.85 for differences between G1 and G2 G3: 27% G4: 29% AOR 1.2 (95% CI, 0.9-1.7) **Measure 2** Mammogram in past 3 months **Results** G1: 13% G2: 14% Adj OR 1.1; Adj 95% CI, 0.8-1.7	**Costs (Economics):** NR **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Study Characteristics Setting	Number (N) Inclusion/Exclusion Groups	Community Health Worker	Baseline Characteristics Recruiting and Retention
Author Year Wolff et al. 1997; Morse et al. 1997 **Trial Name** NR **Objective or Aim** Three types of case management were compared to determine their relative effectiveness in helping people with severe mental illness who were homeless or at risk of homelessness. and cost-effectiveness of three approaches to case management for individuals with severe mental illness who were at risk for homelessness **Geography** St. Louis, Missouri **Organization** Organizational **Type of Community** Mental Illness and homelessness **Study Design** RCT **Start Date** 1990 **Duration** 18 months	**Eligible (N)** 204 **Enrolled (N)** NR **Randomized (N)** 165 **Completers (N)** 135 (Outcomes based on 85) **Withdrawals or Dropouts (N)** 30 **Health Condition of Interest** Mental illness **Inclusion Criteria** Current homelessness or risk for homelessness; serious DSM-III-R axis I diagnosis; no recent convictions for rape, homicide, or serious assault; and willingness to receive services and participate in a longitudinal study **Exclusion Criteria** See Inclusion criteria **Groups** G1: Assertive community treatment G2: Assertive community treatment with community workers, G3: Receiving brokered case management (purchase of services). **Interventions** G1: Assertive community treatment - intensive individualized treatment, responsibility for providing or coordingating all services needed by client, persistent follow-up and in vivo service delivery, performed by staff with backgounds in psychology, social work, and counseling G2: G1 + Community Health Worker, whose role was to assist with activities of daily living and be available for leisure activities **Group (N)** NR for primary intervention study G1: 28 in assertive community treatment G2: 35 in assertive community treatment with community workers, G3: 22 receiving brokered case management (purchase of services).	**Title of CHW** Community worker **Paid or Volunteer** Some paid and some volunteer **Relationship with Community** NR **CHW (N)** NR **Supervision of CHW** NR **Prior Training** NR **Type of Service** Included participation in individual and community leisure activities. Some also supplemented work of assertive community treatment staff by assisting clients with activities of daily living, although this usually occurred only on a limited basis. **Type of Educational Materials Used** NR **Duration of Interaction with Clients** Face-to-face meetings (length of each and number NR) over 18 months **Length of Follow-up** 18 months	**Age (mean)** 33.6 years **Sex (% female)** 41.2 **Race (%)** • African-American: 55.3 % • Aglo-American: 44.7% **Other** **Role of CHW in Recruiting and Retention** NR **Recruitment Rates** NR **Retention Rates** NR

Evidence Table C-1. Key Questions 1, 2, and 3 (continued)

Knowledge, Attitude, and Behavior Quality of Life	Health Outcomes Healthcare Utilization	Costs (Economics) Additional Outcomes
Knowledge, Attitude, and Behavior: NR **Quality of Life:** **Measure 1** Client Satisfaction **Results** G1: 3.27(0.42) G2: 3.12(0.57) G3: 2.74(0.68) *P* < 0.01 **Measure 2** N of days in stable housing in past month **Results** Basline(SD)/18 months(SD) G1: 6.36(11.71)/21.75(12.76) G2: 4.94(11.08)/17.54(14.45) G3: 7.18(12.38)/16.00(14.86) (*P* < 0.31)	**Health Outcomes:** **Measure 1** BPRS (Brief Psychiatric Rating Scale score) Total Symptom Score **Results** G1:53.54(15.54)/39.96(12.25) G2: 57.97(20.29)/38.77(12.23) G3: 50.6(14/31)/51.6(16.7) *P* = 0.001 **Healthcare Utilization:** **Measure 1** Program contact (days/mo) **Results** G1:8.29(7.51) G2: 6.95(4.91) G3: 0.3(0.49) *P* < 0.001	**Costs (Economics):** **Measure 1** Total costs over 18-month study period for average client in each treatment condition **Results** Assertive community treatment only, $49,510; No significant difference Assertive community treatment with community workers, $39,913; brokered case management, $45,076 **Explanation of Overall Outcomes** NR **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Andersen et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Auslander, et al., 2002;
Williams et al., 2001

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Barnes et al., 1999 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Not reported **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes: 24% in G1 **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No **Does Analysis Control for Baseline Differences?** No **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes many as they were randomized before enrollment **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barth, 1991

Hypothesis/Aim/ Objective of Study Described?
YES- kind of

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
Can't tell so No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
No

Care Provider Masked?
NA

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective in some

Outcomes Measured in Valid and Reliable Manner
Objective in some

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes at least 3

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barth et al., 1988

Hypothesis/Aim/ Objective of Study Described?
YES- kind of

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
Can't tell so No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Not reported

Care Provider Masked?
NA

Patient Masked?
Not reported

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective in some

Outcomes Measured in Valid and Reliable Manner
Objective in some

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes at least 3

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Batts et al., 2001;
Gary et al., 2005;
Gary et al., 2003;
Gary et al., 2000;
Vetter et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No (and primary outcome not clearly identified)

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No (completers analysis)

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Becker et al., 2005;
Cene et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - G1:26% G2:27%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Black et al., 1995;
Hutcheson et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Objective, validated; and retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes, for characteristics in table 1, but trend toward lower baseline receptive language in intervention group at baseline (table 2); no reporting of maternal baseline psychiatric measures

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially (difficult to tell since there is no sample size calculation, no definition of primary outcome, numerous comparisons/outcomes evaluated, no clarity of what represents a clinically important difference for outcomes rather than just a statistically important difference, and there were baseline differences in receptive language socres...)

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Campbell et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
No

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
NR

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Caulfield et al., 1998 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NA **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** Yes **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report (patient/participant response) **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** 56% overall drop out **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** NR **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No **Does Analysis Control for Baseline Differences?** Yes (via logistic regression) **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes **Conclusions Supported by Results?** Partially **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Conway et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
NR (randomization method NR)

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low, broad concepts provided without detailed description of promotoras intervetion techniques

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective, not validated

Outcomes Measured in Valid and Reliable Manner
Objective, validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
NR, no table 1, inadequate description of comparability of groups

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Corkery et al., 1997 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Not reported **Care Provider Masked?** Not reported **Patient Masked?** Not reported	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective (some validated, some not) and retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Objective (some validated, some not) and retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - 37% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** Yes **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** No **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Dean et al., 2000;
Derose et al., 2000;
Derose et al., 2000;
Fox et al., 1998;
Stockdale et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
NA

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 73%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Dignan et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
No (outcome asks about past 12 months, followup data obtained within 6 months)

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 29%

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Greater number of patients age 65+ in telephone group

Does Analysis Control for Baseline Differences?
Cannot determine

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Duggan et al., 1999; Duggan et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NA **Level of Detail in Describing Intervention/Exposure** Low **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Yes **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report (patient/participant response) **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** No **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Partially **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Elder et al., 2006;
Elder et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low, many details about tailored print materials not provided (just general topics covered are identified); minimal description of what promotoras acually did

Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine, possible there could be contamination if subjects in various groups had interactions w/ each other

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (24-hour dietary recall) for primary outcomes; accuracy of measure is debatable given recall issues, social desirability/those working with promotoras may have greater desire to report lower intake of fat/etc. to please promotoras with which they've established a relationship. Of not, BMI changes from baseline were similar in all groups but decreased least in promotoras group—suggesting that intermediate measures used (dietary intake of fat, etc.) were not in line with BMI changes that would be expected.

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No for 12 week outcomes; Yes for 1 year outcomes (G1 22%, G2 24%)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No, important differences in perceived barriers to fat, stages of change for fat, …More participants in tailored condition (than promotoras group) were in earlier stages of change. Also, tailored group had worse overall health (per self-report)

Does Analysis Control for Baseline Differences?
No

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Gielen et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective meansure, not validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes - 27% in standard; 15% in enhanced

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
Yes

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Graham et al., 1992

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
G1: 60% completers; 72% overall received some visits

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes (control group 100% of sample available)

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Yes (24)

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Hiatt et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
2x2

Allocation of Randomization Adequately Concealed?
No

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report

Outcomes Measured in Valid and Reliable Manner
Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes - some

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Hunter et al., 2004 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** NR **Care Provider Masked?** NR **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective measure, not validated **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Jandorf et al., 2005 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** No **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** Yes **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Korfmacher et al., 1999; Olds et al., 2002; Olds et al., 2004 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** Yes **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** Yes **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective, some validated; Prospective documentation **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - G1 48%, G2 38% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** Yes - G1 48%, G2 38%, G3 20% **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Yes (G1 = 11, G2 = 12, G3 = 17 in one study); Yes (G1 = 34, G2 = 35, G3 = 34 in another study) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Krieger et al., 1999

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
For main outcome (completing follow-up visit): retrospective self-report of patient
For blood pressure: Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (30% vs. 22% attrition)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes (by report)

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Krieger et al., 2002; Krieger et al., 2005 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** Yes **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** Yes **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** Yes **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** NR **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes and no **Any Post-Randomization Exclusions?** Yes **Conclusions Supported by Results?** Yes **Quality Rating** Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Levine et al., 2003 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** No **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** NR **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Prospective documentation **Outcomes Measured in Valid and Reliable Manner** Objective, validated **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes - G1 38%, G2 43% **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Yes (G1 = 145, G2 = 173) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Lujanet al., 2007

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
Yes (but only 1 subject crossed over from control to intervention, so minimal impact on results)

Outcome Assessors Masked?
Yes

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine (for most characteristics because no table 1; most characteristics reported for entire sample rather than for each group; of note, mean Hgb A1c levels were different at baseline---8.71 vs. 7.71)

Does Analysis Control for Baseline Differences?
CD

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Yes (1)

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Mock et al., 2007 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Partially **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR (but subjects from same household were kept in same arm) **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** NA **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Morisky et al., 2002;
Ward et al., 2000

Hypothesis/Aim/ Objective of Study Described?
No

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
NR

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Blood pressure measurement technique not reported

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (flow diagram/attrition not clearly reported, but Table 2 "BP in control" section indicates that was quite high)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine (they suggest that they are, but there is no Table 1 and baseline characteristics are not adequately reported)

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
No, completers analysis

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Partially (no discussion of effect of CHWs)

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Navarro et al., 1998; Navarro et al., 1995; Navarro et al., 2000 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** No **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** NA **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** NR **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Cannot tell **Conclusions Supported by Results?** Yes **Quality Rating** Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Parker et al., 2008 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** Yes **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** High **Usual Clinical Care Described?** No **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** No **Outcome Assessors Masked?** No **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Objective (some validated, some not) and retrospective self-report **Outcomes Measured in Valid and Reliable Manner** Objective (some validated, some not) and retrospective self-report **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** Yes (23% and 25%) **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** No **Any Post-Randomization Exclusions?** Yes (30) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Paskett et al., 2006;
Katz et al., 2007

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
Yes

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
Yes

Care Provider Masked?
Yes

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Yes: 17 refused

Conclusions Supported by Results?
Yes

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Pilote et al., 1996

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Medium

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
NR

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
CD

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Rask t al., 2001;
LeBaron et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
CD

Outcome Assessors Masked?
NR

Care Provider Masked?
NR

Patient Masked?
NR

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner
Objective

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
CD

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
CD

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
CD

Analysis Conducted on ITT Basis?
CD

Any Post-Randomization Exclusions?
CD

Conclusions Supported by Results?
NR

Quality Rating
Good

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Schuler et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No NR

Allocation of Randomization Adequately Concealed?
No NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No Yes: exclusion of families with a different home visiting component; multivariate analyses

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
Yes, but method not described

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Some objective; others Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Kind of Yes

Any Post-Randomization Exclusions?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Silver et al., 1997 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** Yes (randomizer unaware of baseline responses & not involved with intervention) **Level of Detail in Describing Intervention/Exposure** Low **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** No **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes, but method not described Not reported **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** Retrospective self-report (patient/participant response) **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No: experimental group had significantly higher baseline PSI score **Does Analysis Control for Baseline Differences?** NA Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** Cannot tell Yes (22) **Conclusions Supported by Results?** Yes **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Author Year
Sung et al., 1997;
Sung et al., 1992

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
NR

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
na

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes (G1 43%, G2 35%)

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
No

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Taylor et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
Yes

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
High

Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
No

Outcome Assessors Masked?
No

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report

Outcomes Measured in Valid and Reliable Manner
Objective, previously validated

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
No

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Analysis Conducted on ITT Basis?
Yes

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding	Soundness of Information Follow-Up Analysis Comparability/Outcome
Author Year Von Korff et al., 1998 **Hypothesis/Aim/ Objective of Study Described?** Yes **Criteria Clearly Stated?** Yes **Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?** No **Assignment Randomized** NR **Allocation of Randomization Adequately Concealed?** NR **Level of Detail in Describing Intervention/Exposure** Medium **Usual Clinical Care Described?** Yes **Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?** NA **Could Variation from Protocol have Compromised Study Findings?** Cannot determine **Outcome Assessors Masked?** Yes, but method not described **Care Provider Masked?** No **Patient Masked?** No	**Interventions/Exposures Measured in Valid and Reliable Manner?** NR **Outcomes Measured in Valid and Reliable Manner** Objective **Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes **Did Attrition from Any Group Exceed 20% After Randomization?** No **Did Attrition Differ by More Than 15 Percentage Points After Randomization?** No **Baseline Characteristics Similar in Exposed/Comparison Cohorts?** Yes **Does Analysis Control for Baseline Differences?** Yes **Analysis Conducted on ITT Basis?** Yes **Any Post-Randomization Exclusions?** No **Conclusions Supported by Results?** Partially **Quality Rating** Fair

Evidence Table C-2. Key Questions 1, 2, and 3: Quality RCTs (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding

Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wolff et al., 1997
Morse et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Assignment Randomized
No

Allocation of Randomization Adequately Concealed?
NR

Level of Detail in Describing Intervention/Exposure
Low

Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Masked?
NR

Care Provider Masked?
No

Patient Masked?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Outcomes Measured in Valid and Reliable Manner
Retrospective self-report (patient/participant response)

Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition from Any Group Exceed 20% After Randomization?
Yes 85/165

Did Attrition Differ by More Than 15 Percentage Points After Randomization?
Yes - 30+%

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
Cannot determine

Analysis Conducted on ITT Basis?
No

Any Post-Randomization Exclusions?
Cannot tell

Conclusions Supported by Results?
No

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Barnes-Boyd et al., 2001

Hypothesis/Aim/ Objective of Study Described?
No

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
NR

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Cannot determine

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes (14% at 2 months and 44% at 11 months for REACH-Futures and 25% and 42% for REACH, respectively)

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
No (no assessment of secular trend; this is a historical comparison)

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
Cannot determine

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
No (no RR reported)

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Beckham et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
NA

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective (clinical reports, lab findings, previously validated measures)

Outcomes Measured in Valid and Reliable Manner?
Objective (clinical reports, lab findings, previously validated measures)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Bone et al., 1989

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium (odd that it is described in results rather than methods section)

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
prospective documentation

Outcomes Measured in Valid and Reliable Manner?
Prospective documentation (return to ED for follow up visit)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
CD

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine (this is really just one prospective cohort, they did not a priori define analysis plan and only in results define those that CHWs were unable to reach as comparison group)

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No or cannot determine, not reported

Does Analysis Control for Baseline Differences?
Cannot determine, no description of analysis

Confounding and Modifying Variables Accounted for?
CD

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
NA, methods not reported

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Caulfield et al., 1998

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Yes

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
Yes a bit

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Earp et al., 2002

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Partially

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Yes

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No (for income, lack of medical visits, perceived barriers to screening, knowledge about breast cancer)

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Erwin et al., 1997

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report (patient/participant response)

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
No

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
Yes

Confounding and Modifying Variables Accounted for?
Partially

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Forst et al., 2004

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
Yes

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
No (authors do not describe any variation, or lack of variation, from protocol; however, there is fair potential for contamination)

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective, not validated

Outcomes Measured in Valid and Reliable Manner?
Retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
Yes

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Yes - about 30% overall (note: 83 subjects were excluded at end b/c one CHW admitted to completing questionnaires herself)

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Frate et al., 1985

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective

Outcomes Measured in Valid and Reliable Manner?
Objective

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
Cannot determine

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
Cannot determine

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Cannot determine

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
No

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Extra Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Nacion et al., 2000

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
NA

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
NR

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
Cannot determine

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Sauaia et al., 2007;
Welsh et al., 2005

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Prospective documentation

Outcomes Measured in Valid and Reliable Manner?
objective measure

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
Partially

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information

Follow-Up
Analysis Comparability/Outcome

Author Year
Schwarz et al., 1993

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Yes

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Not really

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No: "health department personnel were not blinded to intervention or control status of each household"

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective measure, not validated

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
No

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
No

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
No

Does Analysis Control for Baseline Differences?
No

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
No

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
No

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Partially

Quality Rating
Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
St. James et al., 1999

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
Partially

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
No

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
Yes

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
Yes

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
Yes

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
CD

Does Analysis Control for Baseline Differences?
CD

Confounding and Modifying Variables Accounted for?
CD

Analysis Conducted on ITT Basis?
Yes

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
No

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
No

Conclusions Supported by Results?
No

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics Background Inclusion/Exclusion Criteria Randomization Interventions/Exposure Contamination Blinding Soundness of Information	Follow-Up Analysis Comparability/Outcome
Author Year Tessaro et al., 1997; Navaie-Waliser, et al., 2000	**Same Length of Follow-up or Adjustment for Different Length of Follow-up?** Yes
Hypothesis/Aim/ Objective of Study Described? Yes	**Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?** Yes
Criteria Clearly Stated? Yes	**Did Attrition for Any Group Exceed 20% After Allocation of Treatment?** Yes - G1 34%; G2 40%
Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)? No	**Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?** No
Level of Detail in Describing Intervention/Exposure? Low	**Baseline Characteristics Similar in Exposed/Comparison Cohorts?** No, differences in age, race, marital status, education, annual family income. (Baseline data for a number of other important factors NR)
Is Usual Clinical Care Described? No	**Does Analysis Control for Baseline Differences?** Yes
Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results? Yes	**Confounding and Modifying Variables Accounted for?** Partially
Could Variation from Protocol have Compromised Study Findings? Cannot determine	**Analysis Conducted on ITT Basis?** Yes
Outcome Assessors Blinded to Intervention/Exposure Status of Participants? NR	**Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?** No
Interventions/Exposures Measured in Valid and Reliable Manner? NR	**Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?** Partially (a great number of analyses conducted w/ multiple comparisons and several regressions; no description of primary outcomes; no sample size calculations; no adjustment for multiple comparisons; potential data mining)
Outcomes Measured in Valid and Reliable Manner? Combination of validated scales/questionnaires and responses to interview questions	**For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?** No
	Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes? Yes
	Conclusions Supported by Results? No (conclusions do not reflect potential biases in results)
	Quality Rating Poor

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wendell et al., 2003

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
NA

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
No

Level of Detail in Describing Intervention/Exposure?
Medium

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
Yes

Could Variation from Protocol have Compromised Study Findings?
Cannot determine

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
Objective measure, not validated

Outcomes Measured in Valid and Reliable Manner?
Objective measure, not validated

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
NA

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
Yes

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
Yes

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Yes

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Fair

Evidence Table C-3. Key Questions 1, 2, and 3: Quality Observational (continued)

Study Characteristics
Background
Inclusion/Exclusion Criteria
Randomization
Interventions/Exposure
Contamination
Blinding
Soundness of Information
Follow-Up
Analysis Comparability/Outcome

Author Year
Wilson et al., 2008

Hypothesis/Aim/ Objective of Study Described?
Yes

Criteria Clearly Stated?
No

Power Analysis or Some Other Basis for Determining Adequacy of Study Group Sizes for Primary Outcome(s)?
Yes

Level of Detail in Describing Intervention/Exposure?
Low

Is Usual Clinical Care Described?
NA

Researchers Rule out Impact from Unintended Intervention/Exposure that Might Bias Results?
No

Could Variation from Protocol have Compromised Study Findings?
NA

Outcome Assessors Blinded to Intervention/Exposure Status of Participants?
No

Interventions/Exposures Measured in Valid and Reliable Manner?
NR

Outcomes Measured in Valid and Reliable Manner?
retrospective self-report

Same Length of Follow-up or Adjustment for Different Length of Follow-up?
NA

Is Length of Time Following Intervention/Exposure Sufficient to Support Conclusions?
NA

Did Attrition for Any Group Exceed 20% After Allocation of Treatment?
NA

Did Attrition Differ by More Than 15 Percentage Points After Allocation of Treatment?
NA

Baseline Characteristics Similar in Exposed/Comparison Cohorts?
NR

Does Analysis Control for Baseline Differences?
NA

Confounding and Modifying Variables Accounted for?
No

Analysis Conducted on ITT Basis?
NA

Impact of Loss to Follow-up (or Differential Loss to Follow-up) Assessed?
NA

Statistical Methods Used to Assess Primary Outcomes Appropriate to Data?
Partially

For Cohort Studies Only, If Outcome has Greater than 10% Prevalence, is Risk Ratio and Relative Risk Calculated Directly?
NA

Does Study Report Appropriate Estimates of Random Variability in Data for Main Outcomes?
Yes

Conclusions Supported by Results?
Yes

Quality Rating
Poor

Evidence Table C-4. Key Questions 4 and 4a

Study Characteristics Setting	Community Health Worker
Author Year Balcazar et al., 2006	**Title of CHW** Promotora
Trial Name Salud Para Su Corazon-NCLR	**Relationship with Community** NR
Objective or Aim To promote heart-healthy behaviors among Latinos	**CHW (N)** 29
Geography Escondido CA, Chicago IL, Ojo Caliente NM	**Supervision of CHW** NR
Organization Latino communities	**Prior Training** NR
Type of Community Latino communities	**Type of Service** Education sessions
Start Date 2000	**Type of Educational Materials Used** Handouts, recipes, videos, actor scripts, games
Health Condition of Interest Cardiovascular disease	**Duration of Interaction with Clients** 7 2-hour sessions over 6 months
	Length of Follow-up 1 year

Training Characteristics

Eligibility for CHW Training
NR

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR (curriculum does offer "cultural and language appropriate instructional methods" but details NR)

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
NR

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Your Heart, Your life

Availability of Curriculum
Available online

Evaluation and Testing Results of Curriculum
closed-format pre-post test scores reported a score of 74% for pretest and 100% correct for posttest (n = 11). Differences in pre-post promotora knowledge scores changes (N = 29) were statistically ($P < 0.05$) but data reported in bar graph only.

Certification
NR

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Beck et al., 2007	**Title of CHW** Church Health Action Team (CHAT) member
Trial Name Center for Health Communities' cancer education program	**Relationship with Community** Respected member of church congregation
Objective or Aim Train trainer in cancer education	**CHW (N)** 6 (2 from each of 3 participating churches)
Geography Milwaukee County	**Supervision of CHW** NR
Organization African- American churches	**Prior Training** NR
Type of Community African- American churches	**Type of Service** Small group educational presentations
Start Date 2002	**Type of Educational Materials Used** PowerPoint slides, handouts, brochures
Health Condition of Interest Cancer prevention	**Duration of Interaction with Clients** 4 60-minute presentations
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Member of congregation, well-respected, formal or informal leader, expressed enthusiasm for project

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
2 90-minute train-the-trainer workshops

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Pre-post % correct
Ability to define cancer:
(1)General 89/93 (2)Breast 79/86
(3)Colon 15/57 (4)Prostate 80/75
Ability to identify signs/symptoms of cancer:
(1) NA/NA (2) 71/88
(3) 81/93 (4) 40/75
Ability to identify screening recommendations:
(1) NA/NA (2) 67/67
(3) NA/NA (4) 80/75
Ability to identify risk factors:
(1) 59/85 (2) 54/92
(3) 19/89 (4) 40/75
Ability to identify strategies to reduce cancer risk:
(1) 70/78 (2) 8/33
(3) 92/96 (4) 20/75

Certification
"Certificate of completion" at 2nd training session

Other Pertinent Information
Results reported for 1 church only; CHWs presented 3 of modules while pastor presented 4th

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Bell, et al., 1999	**Title of CHW** Abuela educators
Trial Name Abuela Project	**Relationship with Community** Shared ethnicity
Objective or Aim To train Hispanic women to make queso fresco that was authentic in taste and texture but did not use raw milk in an effort to reduce incidence of Salmonella serotype Typhimurium infections resulting from eating queso fresco made from raw milk.	**CHW (N)** 15
	Supervision of CHW NR
	Prior Training NR
Geography Yakima County, Washington	**Type of Service** Workshop, After training, each CHW singed contract indicating willingness to teach at least 15 members of community
Organization Hispanic communities	**Type of Educational Materials Used** Pamphlet,
Type of Community Hispanics	**Duration of Interaction with Clients** 1 workshop
Start Date 1997	**Length of Follow-up** NR
Health Condition of Interest Salmonella	

Training Characteristics

Eligibility for CHW Training
Older Hispanic women from Yakima County

Input of CHW in Curriculum Development
None; however, curriculum was developed with input from respected Hispanic woman from Yakima community

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Workshops on how to make new queso fresco recipe (i.e., w/o raw milk)

Other Training Content; Instructional Method; Number of Sessions; Testing
Training sessions were hands-on and interactive; participants encouraged to ask questions & make comments

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Abuela Project

Availability of Curriculum
Pamphlet available

Evaluation and Testing Results of Curriculum
Pretraining/ post-training: recognized health risks associated with eating unpasteurized milk and cheese: 10/14; 14/15
Make queso fresco with fresh unpasteurized milk: 6/12; 1/15.

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Kuhajda et al., 2006	**Title of CHW** Counseling CHW; Assessment CHW
Trial Name Pine Apple Heart Disease and Stroke Project	**Relationship with Community** African American women with experience as community health volunteers in county
Objective or Aim To train CHWs for heart disease and stroke and in skills for counseling and assessing high-risk women in Pine Apple clinic.	**CHW (N)** 4
Geography Pine Apple, Alabama	**Supervision of CHW** NR
Organization African American women in rural southern community	**Prior Training** Trained as community health advisors through U of Alabama-Birmingham; all had 10 yrs experience as community health volunteers
Type of Community African American women in rural southern community	**Type of Service** Counseling CHWs counseled clinic patients using project manual; Assessment CHWs assessed future patients before and after counseling sessions
Start Date NR	**Type of Educational Materials Used** NR
Health Condition of Interest Cardiovascular disease	**Duration of Interaction with Clients** NR
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Chosen from a pool of CHWs trained as community health advisers through U of Alabama; expert advisory panel member assisted in selection

Input of CHW in Curriculum Development
CHWs shared ideas and concerns about training content and implementation of training sessions at a preliminary planning meeting

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
Health education counseling; role-played cancer screening counseling sessions and CVD counseling sessions

Training on Health Topic
NR

Training on Evaluation
Topics addressed in training included CVD; Developing action plans (heart attack, congestive heart failure, stroke); High blood pressure; tobacco control; Cancer (lung, colorectal , breast, cervical)

Other Training
NR

Name of Curriculum
Training used revised revised Women's Wellness Sourcebook Module III: Heart and Stroke

Availability of Curriculum
Yes--revised manuals on cancer & stroke served as guide for training

Evaluation and Testing Results of Curriculum
Counseling CHWs' responses on pre-post training questionnaires showed increases in knowledge and self-reported behaviors in each of following areas: heart disease and stroke prevention strategies, cancer prevention strategies, heart attack or stroke signs and symptoms, cancer signs and symptoms, current heart disease and stroke prevention activities, current cancer prevention activities. Data reported in bar graph only.

Certification
NR

Other Pertinent Information
4 week training period; counseling CHWs required to be present for entire 4-wk period (except 2 half days devoted to training assessment CHWs). A variety of media and text materials usd to simulate active participation

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Martinez-Bristow et al., 2006	**Title of CHW** Promotores
Trial Name Tobacco Free El Paso	**Relationship with Community** Spanish speaking members of community
Objective or Aim To train Spanish speaking counselors to deliver tobacco cessation interventions.	**CHW (N)** NR (89 participants in total, but 5% were healthcare professionals; baseline data collected for 74)
Geography El Paso	**Supervision of CHW** NR
Organization Neighborhood clinics	**Prior Training** NR
Type of Community Spanish-speaking populations	**Type of Service** Counseling
Start Date 2003	**Type of Educational Materials Used** NR
Health Condition of Interest Tobacco cessation	**Duration of Interaction with Clients** NR
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
NR (training was open to employees of certain clinics, healthcare professionals as well as promotores)

Input of CHW in Curriculum Development
Curriculum taken from University of Arizona's Healthcare Partnership which was developed in 1996

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
Client recruitment was addressed in level 2 (Treatment Specialist) training; content, method, # of sessions NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
Nicotine addiction

Training on Evaluation
NR

Other Training
5 days of training for each level of certification

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
Available through U of Arizona developed website; no separate curriculum developed for Tobacco Free El Paso--curriculum "borrowed" directly from U of A

Evaluation and Testing Results of Curriculum
Results from pre-posttest measuring self-confidence suggest that participants understood training material; however data NR.
Mean satisfaction scores (1 = definitely not confident to 5 = definitely confident) high for recipients of each certification: beginner: 4.8, intermediate: 4.7, advanced: 4.6

Certification
3 certifications offered: introductory (Basic Skills to Stop Using Tobacco); intermediate (Treatment Specialist); advanced (Leave Addiction)

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Navarro et al., 2007	**Title of CHW** Consejeras
Trial Name Por La Vida Cuidandome	**Relationship with Community** Part of local Latino community
Objective or Aim Train community health advisors to conduct interactive educational group sessions and train-the-trainer (through "learning partners"	**CHW (N)** 17 consejeras, 285 primary participants, 222 learning partners
Geography San Diego, CA	**Supervision of CHW** NR
Organization Latino communities	**Prior Training** NR
Type of Community Women with low level of acculturation in low socioeconomic Latino communities	**Type of Service** Interactive educational group sessions, recruiting women from local community to be primary participants in these sessions
Start Date 1996	**Type of Educational Materials Used** Manual to guide sessions
Health Condition of Interest Breast & cervical cancer	**Duration of Interaction with Clients** 12 weekly sessions
	Length of Follow-up 6 months after pretest

Training Characteristics

Eligibility for CHW Training
NR

Input of CHW in Curriculum Development
Developed over time & preveiously implement, so no

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
There were 5 2-hour sessions covering recruitment strategies and role playing practice to lead sessions

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
Manual had sessions for understanding female body, breast cancer, Pap test, breast health, risks

Training on Evaluation
NR

Other Training
Referral, communication skills

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
Por La Vida Cuidandomje, Taking Care of Myself: Women and Cancer

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Changes in knowledge & behavior pre/post test for primary participants; & learning partners
Names following test for breast/cervical cancer early detection:
BSE 58.6/74.7; 46.4/56.3
Clinical breast exam: 29.1/28.8; 28.8/20.7
Mammography: 49.8/71.2; 45.0/63.1
Pap test 84.6/91.9/79.3/85.1
Knows BSE: 90.5/99.3; 82.4/93.2
Knows mammography recs: 32.3/55.8; 27.4/38.1
Names ≥1 breast cancer symptom: 75.1/96.8; 70.3/94.1
Names ≥1 txt for breast cancer: 40.0/65.6; 27.9/45.0
Names ≥1 risk factor: 8.1/16.5; 6.8/7.2
Names ≥1 factor for cervical cancer: 30.9/59.6; 24.3/35.1
BSE in pasat month: 62.3/87.4; 55.9/71.5
Mammography ever: 63.3/70.0; 66.7/68.3
Pap test ever: 92.3/97.9; 88.3/92.8

Certification
No

Other Pertinent Information
14 program sessions (12 weekly sessions + 2 monthly session) plus 5 additional 2-hour sessions covering recruitment strategies and role playing practice to lead sessions

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Perez, 2006	**Title of CHW** CHW
Trial Name Northern Manhattan Community Voices Collaborative	**Relationship with Community** Live in community or a nearby neighborhood; share cultural & ethnic traditions with program participants
Objective or Aim To train community health workers, focusing on facilitating insurance enrollment, child immunization, and asthma management	**CHW (N)** # trained between 2000 & 2005: (1) 88 (2) 792 (3 624
Geography Northern Manhattan	**Supervision of CHW** NR
Organization Neighborhoods	**Prior Training** NR
Type of Community Northern Manhattan - Washington Heights, Inwood, and Harlem, comprising low income communities and/or racial and ethnic minorities (Dominican, African-American)	**Type of Service** Community-wide health promotion activities; serve as bridge to primary health care provider **Type of Educational Materials Used** NR
Start Date 2000	**Duration of Interaction with Clients** NR
Health Condition of Interest (1) health insurance (2) child immunizaations (3) asthma management	**Length of Follow-up** varied

Training Characteristics

Eligibility for CHW Training
Reside in community; shared culturual & enthic traditions with those they'll be serving; experience with programs offered by organization; good people skills; committed to community development

Input of CHW in Curriculum Development
NR

Training on Cultural Competency
Yes but not described

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
Yes but not described

Training on Protocol Delivery
Yes but not described

Training on Health Topic
Yes but not described

Training on Evaluation
Yes but not described (one of 7 core modules)

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Gains in competency and knowledge (pre/post):
(1) 24%/72% (gain = 48%; % change = 200; n tested = 61)
(2) 83%/96% (gain-48%; %change = 16; n tested = 472)
(3) 63%/83% (gain = 20%; %change = 32; n tested = 499)

Certification
NR

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Williams, 1996	**Title of CHW** Lay health educator
Trial Name NR	**Relationship with Community** Older adult community members
Objective or Aim To raise awareness of & increase participation of older African-Americans in health promotion activities	**CHW (N)** 47
Geography Atlanta & Fort Valley Georgia	**Supervision of CHW** Program outreach coordinators
Organization Older African-Americans	**Prior Training** NR
Type of Community large urban & small township	**Type of Service** Conduct or facilitate at least 1 health promotion session/month & disseminate health ed materials through at least 1 of grassroots channels
Start Date 1992	**Type of Educational Materials Used** Leaflets, brochures, pamphlets
Health Condition of Interest Health promotion & education	**Duration of Interaction with Clients** 1 group session/month
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Older (> 55) living in target communities; expected to be knowledgeable about community, have history of volunteering, demonstrate good communication skills & ability to establish rapport with target population; nonsmokers of moderate weight, have at least 8th grade education

Input of CHW in Curriculum Development
None

Training on Cultural Competency
NR

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Training divided into 3 categories: chronic disease education & self-care, lifestyle education, and consumer education. Topics for these categories developed into 12 training modules

Other Training Content; Instructional Method; Number of Sessions; Testing
NR

Name of Curriculum
NR

Availability of Curriculum
NR

Evaluation and Testing Results of Curriculum
Obtained score ≥80 on pre and posttest for hypertension & diabetes training sessions:
G1: 32%/60%
G2: 11%/72%
G3: 28%/93%

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

Evidence Table C-4. Key Questions 4 and 4a (continued)

Study Characteristics Setting	Community Health Worker
Author Year Yu et al., 2007	**Title of CHW** Lay health advisor (LHA)
Trial Name NR	**Relationship with Community** Shared language
Objective or Aim To inrease self-efficacy of HLAs in conducting breast cancer screening promotion	**CHW (N)** 79 (10 others were eligible but unable to complete training program)
Geography Southeast Michigan	**Supervision of CHW** NR
Organization Chinese communities	**Prior Training** NR with respect to breast cancer screening; however-- Graduate degree: 67.4% College degree: 30.3% High school education: 2.2%
Type of Community Chinese American women	**Type of Service** NR
Start Date	**Type of Educational Materials Used** NR
Health Condition of Interest Breast cancer	**Duration of Interaction with Clients** NR (Phase I only)
	Length of Follow-up NR

Training Characteristics

Eligibility for CHW Training
Adults bilingual in English & Chinese; at least a high school diploma; demonstrated enthusiasm for helping others

Input of CHW in Curriculum Development
Community leaders gave input to training materials; first-tier LHAs pretested training manual & Web site and provided comments for final version

Training on Cultural Competency
NR (but point out critical imporantance of a culturally competent program for this population)

Training on Recruitment/Retention Process
NR

Training on Intake/Assessment
NR

Training on Protocol Delivery
NR

Training on Health Topic
NR

Training on Evaluation
NR

Other Training
Training manual had 9 chapters + 5 appendices (1 was a bilingual glossary of medical terms); content includes socieodemographi characteristics & special health concerns, outreach strategies, effective communication skills for promoting screening. Also a web site, PowerPointslides and audio recordings available

Other Training Content; Instructional Method; Number of Sessions; Testing
3-month self-study of training materials. program included both on-site instruction and materials on paper as well as on Web sites or CDs for self-paced study.
Name of Curriculum

Name of Curriculum
Training manual: Helping Women Fight Breast Cancer

Availability of Curriculum
Through U of Michigan HAAP

Evaluation and Testing Results of Curriculum
Change in trainees' knowledge & self-efficacy
Knowledge-Mean # of correct answers pre (SD)/post (SD): 6 (1.4)/8 (1.1), $P < 0.001$
Self-efficacy-mean score pre (SD)/post (SD): 61.0 (11.5)/65.0 (9.2), $P = 0.016$

Certification
No

Other Pertinent Information
NA

Are Particular Training Characteristics Associate with Improved Outcomes?
NR

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Appendix D: Excluded Studies

CHW EXCLUDED STUDIES

Non-US population

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No health or economic outcomes

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Appendix E: Acknowledgments

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Technical Expert Panel

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TEP Member	Affiliation
Andrea Cherrington, M.D.	University of Alabama at Birmingham Birmingham, AL
Michael Gibbons, M.D., M.P.H.	Johns Hopkins Bloomberg School of Public Health Baltimore, MD
Susan Norris, M.D.	Oregon Health & Science University Portland, OR
Barbara Israel, Ph.D.	University of Michigan Ann Arbor, MI
James Krieger, M.D., M.P.H.	University of Washington, Seattle Seattle, WA
Ross Owen, M.P.A.	Minnesota Department of Human Services St. Paul, MN
Mary Pohl, M.D.	Minnesota Department of Human Services St. Paul, MN

Peer Review

Peer reviewers read and provided feedback on a draft version of the report. We revised the report as appropriate in response to their suggestions.

Peer Reviewers	Affiliation
Ross Owen, M.P.A.	Minnesota Department of Human Services St. Paul, MN
Lenore Coover, R.N.	Private consultant
Sally Findley, Ph.D.	Mailman School of Public Health Columbia University 60 Haven New York, NY 10032