Highlighted Best Practices and Insights from Community Health Worker (CHW) Literature Review

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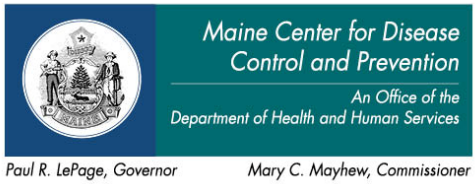

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Executive Summary

The following highlighted best practices are based upon a literature of recent CHW cost-effectiveness research. The purpose is to draw out CHW program elements that have been found important to success and, where available, to cost-efficacy. It should be noted that the research, particularly in the United States, is only recently emerging. Most of what is available is focused on populations who face health disparities due to racial, ethnic, immigration, and language barriers; often within urban contexts, as opposed to the low-income, rural populations such as comprise a large sector of potential need in Maine.

The literature review drew upon multiple sources. Identification of research articles were conducted through searches of the PubMed database, maintained by the National Library of Medicine. Searches for abstracts used the following key terms:

1) CHWs and the chronic disease topics (limited to last 10 years, and NOT including developing countries).
2) CHWs in general and cost studies (also 10 years, NOT developing countries).
3) Health literacy and cost studies.

Abstracts were reviewed to identify those most closely related to the focus and aims of the four CHWI pilot sites. This includes research on CHWs with relation to asthma, breast cancer screening, and falls prevention and more generally CHWs and older adult chronic disease self-management. Note that there are many terms for CHWs, including Promotores (who typically work within Latino communities), that frequently appear in the literature. The list of sources that speak directly to one of the topics were narrowed down to identify those indicating positive health outcomes associated with CHW interventions. To identify further findings on cost-effectiveness, overview reports of the Centers for Disease Control, MA Department of Public Health, Annual Review of Public Health, and Agency for Healthcare Research and Quality were reviewed.

Relevant research on some of the desired topics was not found; yet it may be emerging. We describe what is currently available, and in some cases describe benefits from similar programs that did not include CHWs but may offer insight into what the benefits of a CHW program may offer (falls prevention, adult asthma). Most of the studies on these health topics that cite positive health outcomes with community health workers do not analyze cost-effectiveness. Some refer to "reasonable costs" without going into detail, or being "more cost-effective" than another referenced approach. Those specifically about cost-effectiveness were largely found to be diabetes and mammography interventions, and also cost-effectiveness of employing CHWs broadly across an entire city (Denver and NYC).

Fifty studies were compiled into a matrix which summarized conclusions and indicated whether each of the selected studies demonstrated health outcomes, cost outcomes, and/or focused on non-English

speakers. The matrix was then used in order to pull out those studies that had the most relevant focus and these were reviewed in greater depth in order to compile the following summary findings to reflect upon key areas: a) linking to a primary care provider and b) referrals to services, c) patient self-management, d) appropriate Emergency Department (ED) use, e) patient satisfaction, f) successful CHW integration into care/service teams, g) replicating evidence-based models (EB) with fidelity, and h) elements vital to cost-effectiveness. Further findings specific to CHW services and older adults, asthma, and breast cancer screening are highlighted. Some areas of focus that were hoped to shed light upon were not observed, including details of impacts upon social determinants of health. Also focal areas on 1) patient self-management education specific to older adults and 2) medication reconciliation were not found; however these populations and activities are included within the general research on patient self-management and of medical management. Older adults or seniors were being served by 74% of the CHW programs across New England that were surveyed as part of the ICER review (Institute for Clinical & Economic Review, 2013).

Note that ICER did not find it possible to compare all studies in order to identify precisely which are the key characteristics of CHW interventions associated with positive results. Studies in their review, as in those we examined, simply did not include adequate descriptions of important aspects of CHW interventions. Those characteristics we have noted are simply a listing of what was gleaned from individual studies.

The review pulls key points and findings of interest from the full list of 50 articles reviewed. In some cases direct quotes from the research are used, and in others, key findings are summarized. Findings are bulleted in an attempt to make the review succinct and hone on key points.

Below is a summary table from the ICER reports for the frequently-reported intervention characteristics in studies reporting positive outcomes. (Source of table below is ICER, 2013)

Table 2. CHW intervention characteristics described in studies reporting positive results.

	Element Present (% of studies)	Element Absent (% of studies)
CHW paid salary/stipend (n=22)	95%	5%
CHW matched to patient (n=28)	96%	4%
By Community By Ethnicity/Race By Disease State/Condition		
Formalized training (n=27)	67%	33%
Patient financial incentives (n=17)	100%	0%
Method of patient interaction		
Weekly Meetings (n=18)	44%	56%
In-person Home Visits (n=26)	73%	27%
Phone Calls (n=27)	48%	52%
Group Sessions (n=27)	33%	67%
Visit/Session Length ≥ 1 hour (n=18)	72%	28%
> 5 sessions (n=24)	50%	50%

Note: only studies reporting data specific to each element are included.

n: # of studies reporting on element; NR: Not reported

Linking to a Primary Care Provider (PCP)

- "Research has shown the CHWs who perform ongoing case management activities are more successful at engaging and helping sustain patients' relationships with providers than workers who make a simple one-time contact. Enrollment specialists stress that initial enrollment is only the first step of engaging and keeping previously uninsured people covered." (Anthony, 2009).
- In a study by Johnson using a control group, patients working with a CHW had lower utilization of inpatient services than a control group without access to CHWs. The researchers observe this as a positive outcome reflecting the impact of CHWs' assisting members in establishing with a medical home, and using appropriately primary care and specialty services for a range of needs from preventive services to chronic disease management. This emphasis on use of appropriate services, they conclude, may explain the significantly larger reduction in inpatient and prescription costs among CHW members than non-CHW members. The average inpatient cost per patient in the CHW group declined 82% six months after the intervention, compared to 61% for the control group. Average prescription costs per patient declined 64% within the CHW group, compared to 32% for the control group. (Johnson, 2012)

Referrals to services

- CHWs serve a particular need in referring patients to non-clinical, community resources or programs where physicians, may be less aware or less able to make referrals for non-institutional services (Felix, 2011).

Improving Crises to Thrive Scores: Improved patient self-management

- "Use of comprehensive, evidence-based educational material, supplemented by training of care coordinators in behavior-change and motivational techniques" was considered a key element to successful interventions by nurse case managers and was a component of many of the CHW interventions reviewed (ICER, 20, 2013).
- Combination of home visits, education and motivation by CHWs improved control of hypertension among African American men in Baltimore (Anthony, 2009). In this program, CHWs would be assigned a caseload of approximately 30 patients. (Anthony, 2009)
- Support groups led by CHWs and visual representations of clinical measures may improve patient self-management. (Balcazar, 2010).
- "CHWs also helped patients actively manage their diabetes and achieve glycemic control by providing them with resources or connecting them to community resources that could help them overcome barriers to diabetes management" (Collinsworth, 2014). This study did not document numerical changes in glycemic control, and improved control was based on patient report.
- CHW's have a role in patient education on nutrition. "On the topic of diet, one respondent said, "I have a better diet; I eat less rice now." The comment about eating less rice is notable because it indicates that patients are learning to manage their diabetes while still eating their culturally preferred foods, including rice and beans. Learning to make food choices that enable better blood sugar control while still allowing the consumption of cultural foods." (Deitrick, 2010)
- "Promotoras facilitated behavior change by motivating individuals through three interconnected elements: tools (e.g., pedometers); knowledge (facts and ideas transmitted within an interactional process); and emotional and social support." (Koniak-Griffin, 2014). Behavior change in this study was based on patient self-report.
- "Rather than creating dependencies among clients, the promotora increased adherence to chronic disease screening by fostering self-reliance in health seeking behavior among clients through the combination of support provided." (Reinschmidt, 2006 referencing Hunter JB, Guersney de Zapien J, Papenfuss M, et al. The impact of a promotora on increasing routine chronic disease prevention among women 40 years of age and older at the U.S.-Mexico border. Health Educ Behav. 2004 Aug;31(4 Suppl):18S–28S.)
- Certain degrees of program flexibility can lead to improvements without compromising fidelity and efficacy. In one intervention, "promatoras made the following changes in their interventions to improve process: Changed session order (e.g., medication and diabetes sessions) 2. Combined sessions (e.g., salt and cholesterol sessions) 3. Augmented materials (e.g., DASH [dietary approaches to stop hypertension] diet information, Spanish web video on heart attacks, online sodium tracker) 4. Modified or deleted some activities (e.g., did not conduct grocery store tours uniformly). The changes described represent more than surface changes to the intervention. Each is what others have described as "yellow or red light" changes, which can influence intervention fidelity and are highly discouraged when assessing program fidelity and participant outcomes (Hannah, McCarthy, & Chinman, 2011). Yet these changes did not appear to negatively influence outcomes." (Sanchez, 2014)"

Appropriate ED use/visits

- CHWs reduce inappropriate use of Emergency Departments(ED) by enrolling uninsured in public insurance programs, connecting patients to primary care services, and managing chronic conditions. (Anthony, 2009)
    - "CHRISTUS Spohn Health System in Nueces County, Texas, has observed reductions in inappropriate ED usage based on the services their four full-time CHWs provide within the system's hospital and health centers. CHRISTUS Spohn estimates that the average savings to the hospital per ED patient assigned to a community health worker is $56,000 over the course of a year." (Dower, as cited by Anthony, 2009)
    - "In Baltimore, CHWs worked intensively with a Medicaid sample of 117 African American men with both hypertension and diabetes to help them manage both conditions. ER visits declined for the men by 40% compared to the period prior to the CHW intervention, and hospital admissions declined by 33%. These changes yielded an average cost-savings per patient of $2,245.89" (Fedder, as cited by Anthony, 2009)
    - "In Boston, the Prevention and Access to Care and Treatment program (PACT) has employed CHWs as key staff in their efforts to improve care delivery and health status among the most marginalized and least successfully treated HIV/AIDS patients. Unsuccessfully treated HIV/AIDS patients have been shown to be twice as costly to treat as patients who can sustain adherence to treatment. PACT has shown a decrease in MassHealth costs of 2.4% for a closely studied sample of such patients after they received CHW interventions." (Behforouz, as cited by Anthony, 2009)
- Multiple home visits by CHWs during 1-year follow-up reduced need for unscheduled/urgent medical care (ICER, 13, 2013)
- "One expert noted that when CHWs are embedded in the practice, they can help patients make same-day appointments and avoid unnecessary use of emergency room services." (ICER, 41, 2013)

Patient Engagement

- "What seems to make CHWs so effective is that they provide services in the communities in which they live while also being peers of the programs participants. Many CHWs in diabetes interventions had diabetes themselves" – (Brown, 2012)
- CHWs with outgoing personalities can support developing relationships with patients, and can contribute to patients sharing important medical information they might keep from doctors (Adair, pg 2012).
- A randomized study of African-American men with hypertension found that men who received intensive services from CHW/NP care team were more satisfied than those who received one-time education and referral. (Anthony, 2009)
- CHWs can increase satisfaction by being a cultural bridge for patients and can offer lived experience with a particular condition that patients can relate to. In Dietrick's study patients reported that the promotora was effective as a teacher because, "being a Puerto Rican, she understood them and their culture." Patients also reported that the fact that the promotora had diabetes made a difference. (Deitrick, 2010)
- In Martin et.al's study of reducing home triggers for asthma, authors calculated a composite asthma home trigger score for each patient based on patient surveys. The average score for children was 2.8 triggers, while the average score for adults was 3.2. The study attributes each CHW home visit with an average trigger score reduction of .32 in children and .41 for adults.

Authors attribute the CHW approach facilitated behavior change of reduced reported home asthma triggers because it worked within the traditional Latino belief system. Current health care in the United States focuses primarily on the individual patient, while traditional Latino culture incorporates several very different concepts including familismo (family included in all decisions) and personalismo (information is more reliable coming from a trusted source) (37–38). CHWs are from the target community, they speak the same language, and are they culturally similar to their clients; thus they are a trusted source. (Martin, 2006)

Medication Management

- The CHW role of overseeing comprehensive medication management, including access to pharmacists and medical directors to triage issues was considered a key element to successful interventions by CHWs and nurse case managers (ICER, 21, 2013).

Successful CHW Integration

In addition to reviewing evidence on clinical impacts of CHWs, the review also focused on elements needed to successfully integrate CHWs into service provider teams. Elements to consider included CHWs' levels of training, roles within practices and the right-sizing the levels of supporting infrastructure.

- Adair found that it was important to hire CHWs culturally similar to patient population (Adair, 2012).
- The name or title of the CHW may benefit by being customized by the population they are serving. A focus group of patients chose the name "care guide" for their community health workers, with one patient saying "a guide shows you the way but doesn't do it for you." This same study found that locating "care guides" in clinic waiting room allowed the gap from community to clinic to be bridged (Adair, 2012)
- While custom names may be helpful for patient engagement, there is acknowledgement in the literature that the lack of standardization in names and titles of CHWs can also lead to confusion. A challenge to integrating CHWs into mainstream health care system is the acceptable use of the CHW term to describe the workforce. There are a variety of titles and descriptions for same role. (Anthony, 2009) Further standardization and acceptance of CHWs within clinical workforces is needed to effectively implement CHW-based interventions and track their impacts.
- CHWs in one study followed up with patients at least every three months to keep practice apprised of diabetic patients condition. Follow-up with patients was documented in patients' electronic medical record. The patient population of this study was primarily low-income and Hispanic. (Collinsworth, 2014)
- Another finding from Collinsworth's study was that some CHWs indicated it took a year of working together to establish trust with PCP. (Collinsworth, 2014)
- Additionally, Collinsworth found in the Diabetes Equity Project model, the roles of diabetes education, nutritional counseling, and patient activation and follow-up that typically fall to the PCP were shifted to the CHW. (Collinsworth, 2014)
- "Experts noted that a clear, concrete role for the CHW, even if that role eventually expands, helps signal to the rest of the care team how to make use of their position…. Stakeholder experts cited the importance of training not only the CHW for their position, but also training the entire care team on how to effectively work with CHWs." (ICER, 40, 2013)
- "Trained promotores working within an established clinic self-management infrastructure who are effectively managed by providers and nurses at the clinic may be effective teachers of

diabetes self-management" (Sixta, 2008). In this study, providers employed by the clinic oversaw the course design, quality control mechanisms, and outcomes, along with promotores' education and training. The combination of these factors led to more effective use of promotores in diabetes self-management.

- Findley and colleagues evaluated integration of CHWS into a Patient Centered Medical Home in the South Bronx, and found the following key lessons learned (Findley, et. Al, 2014):
    - **CHW functioning as care manager leaders** to ensure the patient's needs are being addressed by the team.
    - **Organizational commitment to the CHW program.** This included creating supportive infrastructure for these new positions and division of labor.
    - **Well-considered recruitment procedures and criteria** in particular, **"**focusing on identifying individuals with the attributes for being a good CHW: empathic, natural helper, communicator, and experienced in the community culture."
    - **Demonstration of improved outcomes and lower costs** including tracking and sharing preliminary evidence of cost-effective contributions to patient outcomes to hospital management and to the PCMH team.
    - **Train clinical teams on the CHW model** to foster widespread understanding of the mission and vision of the program.

Additionally, the need for stable funding and mechanisms to reimburse or otherwise cover costs has been found important to sustainable CHW programs. Anderson et al. (2013) emphasizes as the following as barriers:

- The separation of medical care from public health and fragmentation into provider "silos,"
- The lack of familiarity among many potential employers with "what CHWs can accomplish, for what types of clients, and under what circumstances. And many do not think of CHWs as a workforce category."

Elements for Successful Replication of Evidence Based Models

- A challenge for successful replication is implementing models within different payment structures. In Collinsworth's study, PCPs felt that the Diabetes Equity Project model was successful because it placed CHWs within the clinics allowing the PCPs and CHWs to work together as a team to identify patient barriers to diabetes management. Embedding CHWs into primary care practices worked well in clinics with limited resources serving uninsured populations, but note that it is not clear if this model can be expanded to traditional fee-for-service practices. (Collinsworth, 2014)
- Intervention fidelity refers to participants receiving the intervention in the same way every time, 'faithful' to the proposed model with equal quality. Ford et al. evaluated an intervention program called "Kin KeeperSM Cancer Prevention Intervention." This program utilizes CHWs to deliver breast and cervical cancer education to African American, Latina and Arab women (Ford, 2014). The results of the study suggested that the Kin KeeperSM Model has strong intervention fidelity, consistency and quality for African American, Latina and Arab Women. "The intent underlying the use of visiting health workers is to engage and educate the community on the ground-level so that individuals who have little or no access to adequate healthcare can learn how to segue into a formal health system, ask for what they need, receive preventative care and in turn, reduce health disparities" (Ford, 2014)
- "Community health worker programs gain strength when CHWs are clinical team members

who are trained to take on multifaceted roles that also allow them to give out health information, to foster educated decision-making, and to overcome clients' barriers, thereby enabling them to make actual health behavior changes." Fidelity to this model and further knowledge of what makes CHWs successful may lead to more secure funding for CHW-based interventions. (Reinschmidt, 2006).

Elements vital to cost-effectiveness

- One study found that training and using lay "care guides" rather than professionally licensed workers was cost effective in treating hypertension, diabetes and congestive heart failure. Care guides attended a 2-week comprehensive training course led by Allina employees including pharmacists, diabetes educators, dieticians, clinical psychologists, physicians, nurses, and EHR trainers. The curriculum included physiology and treatment of the 3 study diseases, commonly used drugs and how to shop for inexpensive generic versions of them, behavioral change and motivational communication techniques, cultural and diversity training, the electronic medical record, patient confidentiality requirements, and roles of different health care employees. The average annual salary of the care guides was $34 000. The concurrent average salary of a registered nurse in Minneapolis-St Paul was $79 000 (Lerner & Chen, 2010). Care guide training was accomplished in 2 weeks, while licensed practical nurse or certified medical assistant training typically takes about 9 months, and registered nurse training about 3 years. Their recruiting experience suggests that there is a large pool of talented people with appropriate skills available in the job market for care guide work. (Adair, 2012)
- Pairing Nurse Practitioners and CHWs together in one study "demonstrated $157 reduction in per patient cost for every 1% drop in systolic blood pressure and $190 reduction in cost for every 1% drop in diastolic blood pressure"– (CDC Policy Brief, 2015)
- "A high number of visits or sessions may not be a consistent characteristic of successful interventions." The ICER review found that only half of successful programs had an average of more than 5 visits with each patient. (ICER, 19, 2013)
- "The Seattle-King County asthma intervention represents an example of a detailed economic evaluation from the provider perspective (Krieger, 2005). A total of 214 children with persistent asthma from urban, low-income households were randomized to receive a "high intensity" CHW intervention that featured an initial home environmental assessment resulting in a patient-specific action plan, 4-8 additional visits to implement action steps, educational and social support, and mitigation resources (e.g., mattress encasements, low-emission vacuums) or a low intensity intervention consisting of a single CHW visit and limited education. Health care utilization was assessed every 2 months during 1 year of follow-up. Multiple data sources were used to estimate costs; offsets from reduced use of emergent or urgent health care services were estimated to be $57-$80 lower per 2-month period for high-intensity vs. low-intensity patients, or $342-$480 annually (Krieger, 2005). Incremental program costs for the high-intensity intervention, including salary and benefits for 3 full-time CHWs, supplies, rent, travel, office expenses, and indirect expenses, were estimated to be $1,124 per child for the program year. The authors estimate that the program would become cost-saving after 3-4 years if cost offsets were to continue after the intervention ends." (Icer, 22, 2013)
- Similar to CHW programs, some organizations have implemented a patient navigator (PN) who is a specially trained person within the health-care setting who helps a patient move through the system to obtain medical care. Patient Navigation (PN) programs at Mount Sinai Hospital in New York City led to a Screening Colonoscopy adherence rate of 78.5% among a randomized cohort of African American and Latinos with public health insurance. The 395 completed

colonoscopies brought in a total contribution margin of $95,266.00 over a two-year period. The resulting net income after deducting $14,027.30 (the cost of PN) was $81,238.70. Among a predominantly minority population of low socioeconomic status, most of whom were covered by public health insurance, the PN program generated a profit for the institution. Through use of models, they also found a favorable comparison of the current PN program to the institution's first PN program and to the general population. Finally, they demonstrated that the cost of hiring a part-time dedicated navigator would likely be covered by the increase in profit to the institution. (Jandorf Cost Analysis, 2013)

- In a community-based group randomized trial by Larky et al. Promotoras were assigned to Latinas due for breast, cervical, or colorectal cancer screening. In comparing cost-effectiveness of group-based interventions versus individual interventions, the group-based promotora-led intervention produced a cost-per-participant level of nearly one quarter of the individual intervention ($392.38 versus $103.44 per participant) (Larky, 2012)

Culturally-Tailored Approaches

Several studies highlighted the importance of culture when designing effective CHW interventions.

- ICER, in its comprehensive review, emphasizes that "For populations whose interactions with the health system are challenged by stark differences in language and culture, an individualized approach proved crucial to improving the patient's experience and adherence to treatment." (ICER, 29, 2013)
- As an example, ICER cites that Khmer Health Advocates is able to serve older Cambodian-Americans, many of whom are refugees and victims of torture and trauma, by employing CHWs who are immersed in the community and who understand each patient's individual situation. These CHWs provide extensive support that may include accompanying patients to physician appointments and performing home visits. (KhmerHealthAdvocates.org, 2013, as cited by ICER, 29, 2013).
- Tailoring also needs to be made to marketing and materials employed in CHW initiatives. Interventions delivered via church setting, for example, were identified as particularly relevant for Koreans, while direct-mail campaigns worked better as a form of outreach among Chinese. (Hou, 2011)

Older Adult CHW services. Overall there has been limited research of the impact of CHWs specifically on the older adult population. Among the current research these are some of the key findings.

- Community health workers may be able to help these patients use resources they might not otherwise access. Community health workers can help states cost-effectively direct home and community-based long-term care services to disabled and elderly residents who face elevated risks of entering nursing homes. In a study by Felix et al. they found that populations that have difficulty using electronic information such as older adults, minority, and those with low literacy benefit from the assistance of someone like a CHW. – (Felix, 2011)
- "Another study reported that among a randomized sample of elderly people living alone, a CHW intervention was successful in improving self-perceived health status but not changes in 4aphysical status, morale, or the demand for medical and social services." (Hunter, 2004)
- Home care nurses "can become facilitators and trainers in assisting community health workers to conduct first-level risk detection for falls." (Scott, 2006)
- In a randomized parallel group study with 1-year follow-up, conducted 2008 through 2011 at homes of low-income adults aged 18 to 65 years with uncontrolled asthma living in King

County, Washington, the provision of in-home asthma self-management support by CHWs to low-income adults with uncontrolled asthma improves asthma control and quality of life but not unscheduled health care use. (Krieger, 2015)

- A study of home visits by CHWs to address asthma figures found that while the overall home asthma trigger scores were reduced for both children and adults with asthma, reductions in the individual triggers varied. "Caregivers of children with asthma reported a reduction in cockroaches in the home but this decrease was not seen as strongly among the adults with asthma. Perhaps the motivation to eliminate cockroaches is greater when a child's health is involved. Conversely, perhaps admitting cockroaches in the home is more difficult when discussing a child with asthma as compared to an adult with asthma. This explanation likely applies to the similar trend noted in smoking in the home." (Martin, 2006)
- Twenty-two studies reported described the effect of CHW interventions on participant behavior. The evidence of use of CHWs in programs to support the use of bedding encasements for asthma, from five studies, as well as for improved workplace safety and self-management of diabetes mellitus 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 (Vishwanathan, 2009)

Home Visiting

- "Interactions with patients could include weekly meetings in the clinical office, group sessions with other patients, and phone calls, but nearly three-fourths of successful programs also had in-person meetings set up at the patient's home." (ICER, 19, 2013)
- "Ultimately we found that the majority of participants in this study of African American adults participated in the group sessions and home visits, with slightly better adherence to home visits. Perhaps not unexpectedly, the greatest barrier to group session attendance was time, as participants frequently reported conflicts with work (qualitative data not detailed in this manuscript). The combination of group sessions and home visits allowed multiple venues for trust-building, education, and support."(Martin Improving asthma self-efficacy, 2009)

Breast cancer screening rates

- Culturally appropriate CHW case management activities were shown to result in three times the mammogram completion rate compared to rates of women receiving usual care in one study of 6 primary care practices in Rochester. (Anthony, 2009)
- In one study, it was recommended by the authors that individual counseling by CHWs for patients in communities with underuse of mammography could be a potentially cost effective strategy to promote use, though findings were not statistically significant. (Andersen, 2002)
- Community activities to promote mammography by CHWs such as showing videos, mammography bingo games, promoting events or posters and community meetings may be effective interventions. (Andersen, 2002)
- "One-on-one or small group approaches with culturally-sensitive and linguistically-appropriate educational materials are particularly effective at increasing screening rates." (Hou, 2011).
- Both individual interventions and group settings achieved a meaningful degree of screening adherence for participants who were either never screened or past due for screening. (Larkey, 2012)
- "Participation in home-based group educational interventions delivered by promotoras may be associated with improved breast cancer screening practices among Hispanic women."

(Livaudais, 2010)

- Of patient-targeted strategies to increase mammography utilization, it was found that "the most effective interventions were patient-targeted behavioral interventions (e.g., telephone reminders or letters of invitation), theory-based cognitive interventions (e.g., health education), and sociologic interventions (e.g., use of peer or lay support)…. The study demonstrates that the lay health advisor (LHA) intervention strategy was successful in a triracial, rural population. LHAs provide a personalized intervention, as well as navigation through the health care system, social networking, and social support." (Paskett, 2006)
- "A church-based program to promote the use of mammography screening is not only feasible but also cost effective with the use of volunteer labor and resources. Churches are ideal sites for health promotion, as they provide ready access to women between the ages of 50 and 80 from all socioeconomic and ethnic backgrounds. Finally, they can, at least in theory, provide the necessary physical resources and a pool of volunteers to serve as peer counselors and promote mammography screening" (Stockdale, 2000)
- "Both community and medical settings of recruitment were associated with increases in screening mammography related to a CHW intervention, but the effect was stronger in participants recruited from a medical setting." (Wells, 2011)
- Randomized Control Trials "that reported concordance between participants and CHWs on race or ethnicity indicated a stronger CHW intervention effect on screening mammography than studies where race and ethnic concordance was not described or conducted." (Wells, 2011)

Summary

This literature review highlights approaches used among CHW interventions that demonstrated effectiveness in terms of improving service quality, cost-savings, and/or improving health and quality of life outcomes. As CHW interventions are gaining greater recognition as a promising element of healthcare reform, the research summarized is hoped to shine a light on promising practices for implementation in the state of Maine. Given limited research, important elements for replication and the range of outcomes that may be expected are only starting to emerge. Some mixed findings exist that further research by the larger field of researchers may eventually help to illuminate. For example, the central importance of home visiting and other face-to-face interactions was emphasized in the ICER 2013 Report, specifically that 75% of successful CHW models they reviewed along with their expert review team came to consensus on the importance of home visiting. However this is not found consistently to be imperative across subsequent studies for all conditions. With such caveats in mind, the literature does point to models that can be drawn upon that may be relevant for advancing the Maine Community Health Worker Initiative and the pilot CHW programs the Initiative supports.

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