

Community Health Workers “101” for Primary Care Providers and Other Stakeholders in Health Care Systems

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Abstract: Today’s ambulatory care providers face numerous challenges as they try to practice efficient, patient-centered medicine. This article explains how community health workers (CHWs) can be engaged to address many patient- and system-related barriers currently experienced in ambulatory care practices. Community health workers are frontline public health workers who serve as a trusted bridge between community members and health care providers. Among their varied roles, CHWs can educate and support patients in managing their risk factors and diseases and link these patients to needed resources. As shown in this overview (CHW 101), including CHWs as members of multidisciplinary care teams has the potential to strengthen both current and emerging models of health care delivery. **Key words:** *ambulatory care, community health workers, community workers, patient and provider communication barriers*

CURRENT CHALLENGES IN DELIVERING AMBULATORY CARE

Today, providers of ambulatory care face numerous challenges as they endeavor to

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practice efficient, patient-centered medicine (Institute of Medicine [IOM], 2001). Many of these challenges are patient- and system-related issues, such as difficulties in communicating with patients who have low literacy overall, low health literacy, or a poor understanding of spoken English; also challenging is caring for patients from diverse cultures who have unknown preferences for receiving health information (Healthy People 2020, 2010). Dealing with these and other challenges in communication is paramount during critical and stressful health crises, particularly for responding to the anxiety of patients and their families. Unfortunately, providers are frequently challenged by the multiple chronic medical conditions of their patients and what they perceive as their poor motivation to adhere to their treatment regimens (Chin et al., 2001). Providers want the best outcomes for their patients, but they often lack the time required to build partnerships with new patients and their family members and to teach the skills of home monitoring (Chin et al., 2001; IOM, 2001). Not surprisingly, providers are frustrated because they are unable to assist

patients in overcoming the barriers that they face (eg, their reluctance to disclose or change their lifestyle habits, their fears of side effects from medications) or the challenges posed by their inability to afford medications, supplies for home monitoring, healthy diets, and specialist services such as eye examinations (Chin et al., 2001; Crosson et al., 2010). Furthermore, a lack of the family (Crosson et al., 2010), environmental, and community supports needed to treat complex chronic conditions and diseases such as high blood pressure and diabetes (IOM, 2010) creates additional challenges in supporting patient health (Institute for Healthcare Improvement, 2010; IOM, 2001).

COMMUNITY HEALTH WORKERS: MEETING THE CHALLENGE

One promising solution to overcoming barriers faced by both patients and providers is to engage community health workers (CHWs) in ambulatory care settings.

This article is a brief primer for interested ambulatory care providers and other stakeholders. It provides basic guidance for implementing recommendations from the IOM (Smedley et al., 2002) to integrate CHWs into multidisciplinary health care teams to help in preventing and managing diseases, especially among medically underserved and disparate populations. We describe CHWs and the roles they play, and highlight evidence demonstrating the value and impact of these workers in preventive primary care. Examples illustrate the ways in which CHWs can contribute to improved health care delivery. Finally, we provide practical tips on methods to recruit, train, and supervise CHWs so that satisfactory health outcomes can be obtained consistently.

WHO ARE CHWs AND WHAT ROLES DO THEY PLAY?

Throughout the United States, CHWs work to promote health and prevent diseases, primarily in underserved communities. They are

known by a variety of job titles, including community health advisor, outreach worker, community health representative (for tribal governments), promotora de salud, and patient navigator. But regardless of what they are called, CHWs can help patients take steps to improve their health.

As noted in a 2009 policy statement by the American Public Health Association, as follows:

Community health workers are frontline public health workers who are trusted members of and/or have an unusually close understanding of the community served. This trusting relationship enables CHWs to serve as a liaison, link, or intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. Community health workers also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support, and advocacy (American Public Health Association, 2009).

Community health workers play important roles in strengthening communication between patients and providers; and in linking providers to community networks and linking patients to community resources (Israel, 1985; Smedley et al., 2002). Community health workers are uniquely qualified to be connectors to the community because they generally live in the communities where they work and understand the social context of patients' lives.

An evidentiary report for the Centers for Medicare and Medicaid Services from Brandeis University on cancer prevention and treatment among minority populations states that “community health workers . . . can offer linguistic and cultural translation while helping beneficiaries get coverage, develop continuous relationships with a usual source of care, understand current risk behaviors, motivate them to engage in risk management, and receive support and encouragement for maintaining these efforts” (Brandeis University, 2003).

In addition, CHWs educate health care providers and administrators about the health needs of the community and the cultural relevance of interventions by helping them to build their cultural competence (Smedley et al., 2002; Witmer et al., 1995). Using their unique position, skills, and training, CHWs can help to improve outcomes and reduce system costs for health care by assisting community members in avoiding unnecessary hospitalizations and other forms of more expensive acute care (Smedley et al., 2002). According to the National Community Health Advisor Study, CHWs can play a large number of different core roles (Rosenthal et al., 1998; (Wiggins and Bórbón, 1998), as follows:

- Promoting cultural mediation between communities and the health care system;
- Providing culturally appropriate and accessible health education and information, often by using popular education methods;
- Ensuring that people get the services they need;
- Providing informal counseling and social support;
- Advocating for individuals and communities;
- Providing direct services (such as demonstrating and reinforcing use of glucometers by patients with diabetes) and administering health screening tests; and
- Building individual and community capacity.

In addition to these general roles, CHWs can provide support to multidisciplinary health care teams in the prevention and control of chronic disease through the following functions (Brownstein et al., 2007; Brownson and Heisler, 2009):

- Providing outreach to individuals in the community setting;
- Measuring and monitoring blood pressure;
- Educating patients and their families on the importance of lifestyle changes and on adherence to their medication regimens and recommended treatments, and finding ways to increase compliance with medications;

- Helping patients navigate health care systems (eg, by providing assistance with enrollment, appointments, referrals, and transportation to and from appointments; promoting continuity of health services; arranging for child care or rides and arranging for bilingual providers or translators);
- Providing social support by listening to the concerns of patients and their family members and helping them solve problems;
- Assessing how well a self-management plan is helping patients to meet their goals;
- Assisting patients in obtaining home health devices to support self-management; and
- Supporting individualized goal setting.

Community health workers work in both clinical and nonclinical settings and can be found working for public health organizations; in health care clinics, and in medical offices, hospitals, or schools. In addition, they can be seen in work sites, religious institutions, and community centers; and one might also encounter them in public housing, individual homes, neighborhoods, or on the streets. Their work may take place entirely inside a provider facility, in community settings, or in a blend of the two (Rosenthal et al., 1998). In a recent workforce study by the Health Resources and Services Administration, US Health and Human Services (Health Resources and Services Administration, 2007), employers reported that 21.0% of CHWs were employed by individual and family services; 14.2% by social advocacy organizations; 13.3% by outpatient care centers; 12.9%, education programs; 8.4%, “other ambulatory health care services”; and 5.3%, physicians’ offices.

Community health workers’ roles and activities are different from, and yet complementary to, those of other members of health care teams (Anthony et al. 2009). Community health workers offer a distinct category of nonclinical knowledge and skills based on life experience shared with the patient population that has been described as

“experience-based expertise” (Gilkey et al., 2011). This shared experience is highly relevant to the challenges in dealing with the health system that are faced by many patients, especially those who are poor and may have limited formal education.

EVIDENCE SUPPORTING THE UNIQUE ROLE OF CHWs AS HEALTH MEDIATORS

The effectiveness of CHWs in promoting the use of primary and follow-up care for preventing and managing disease has been extensively documented and recognized for a variety of health conditions, including asthma, hypertension, diabetes, cancer, immunizations, maternal and child health, nutrition, tuberculosis, and human immunodeficiency virus/AIDS (American Association of Diabetes Educators, 2009; Babamoto et al., 2009; Bloom et al., 1987; Brandeis University, 2003; Brownson and Heisler, 2009; Brownstein et al., 2005; Brownstein et al., 2007; Chin et al., 2007; Davis et al., 2007a; Davis et al., 2007b; Fernandez et al., 2009; Findley et al., 2009; Fedder et al., 2003; Gary et al., 2003; Gary et al., 2004; Gibbons and Tyus, 2007; Lewin et al., 2005; Norris et al., 2006; Satterfield et al., 2002; Thompson et al., 2007; Viswanathan et al., 2009; Witmer et al., 1995).

Evidence supporting the involvement of CHWs in the prevention and control of chronic disease continues to grow. For example, integrating CHWs into multidisciplinary care teams has emerged as an effective strategy for improving the control of hypertension among high-risk populations; included were improvements among patients in keeping appointments and complying with prescribed regimens, and in reduction of risk and related mortality (Brownstein et al., 2005; Brownstein et al., 2007). Significant improvements in blood pressure control were obtained by a nurse-CHW team (Becker et al., 2005). Studies of CHWs involved in the care of patients with diabetes, reported improved knowledge, lifestyle, and self-management behaviors among participants as well as de-

creases in the use of the emergency department (Norris et al., 2006). In a study set in Baltimore, after 2 years, African American patients with diabetes who had been randomized to an integrated care group consisting of a CHW and nurse case manager had greater reductions in A1c (glycosylated hemoglobin) values, cholesterol, triglycerides, and diastolic blood pressure than did a usual-care group or those led solely by CHWs or by nurse case managers (Gary et al., 2003; Gary et al., 2004). In addition, interventions incorporating CHWs have been found to be effective for improving knowledge about screening for both cervical and breast cancers; for improvements in asthma severity and in reduced hospitalizations (Findley et al., 2009; Fisher et al., 2009; Parker et al., 2008); for significant improvements in maternal and child health; and for diversion of patients from emergency departments and direction to more appropriate sources of care (Bone et al., 1989; Fedder et al., 2003; Viswanathan et al., 2009).

Two IOM reports in the last decade have relied on evidence drawn from the research literature in recommending greater roles for CHWs. The earlier of the 2, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Smedley et al., 2002), found that CHWs “offer promise as a community-based resource to increase . . . access to healthcare and to serve as a liaison between healthcare providers and the communities they serve” and recommended including CHWs in multidisciplinary teams to better serve the diverse US population and improve the health of underserved communities as part of “a strategy for improving health care delivery, implementing secondary prevention strategies, and enhancing risk reduction.” Additional evidence from the literature prompted the IOM to recommend in its more recent report, *A Population-based Approach to Prevent and Control Hypertension* (IOM, 2010), that trained CHWs be deployed “in high-risk communities to help support healthy living strategies that include a focus on hypertension.”

EXAMPLES OF CHWs' CONTRIBUTIONS TO AMBULATORY CARE SETTINGS

Community health workers complement the roles of clinical professionals in ambulatory care by facilitating the mutual understanding of provider and patient, which can lead to more efficient and accurate diagnoses and greater cooperation in implementing plans of care. Moreover, experience has shown that CHWs can profoundly touch the people they serve and make a real difference in their day-to-day lives. We offer 2 illustrative examples as follows:

- In an urban area in Massachusetts, a CHW working to support diabetes self-management was successful in lowering a patient's A1c, increasing his understanding of how to manage his diabetes, increasing his adherence to medication, ensuring follow-up with specialists (podiatrist, eye doctor), and helping the patient improve his record keeping, diet, and physical activity. When the patient was diagnosed with cancer, this CHW, based on her trusting relationship with the patient, was able to explain an upcoming surgical procedure and help alleviate the patient's fears. In addition, she was able to explain the preparation for the procedure and accompany him to the surgical facility. She also clarified his misunderstanding and insecurity about limitations on postsurgical visits by family members (G. Hirsch, personal communication, December 18, 2010).
- In a small coastal community in California, thousands of Spanish-speaking residents work in nearby agricultural fields. Two years ago, *Visión y Compromiso* (California's statewide CHW association) enrolled a cohort of Spanish-speaking community residents in its promotora training, with a focus on asthma. Eighteen graduating promotoras conducted a strategic asthma education campaign in partnership with an area clinic. The clinic leadership was so pleased with the contributions of the promotoras to increased community education and part-

nerships that it integrated CHWs into clinic areas that addressed other health issues (M. Lemus, personal communication, December 19, 2010).

COMMUNITY HEALTH WORKERS AS AN EMERGING OCCUPATION

Around the United States, CHWs are working to gain acceptance as a recognized occupation. Four states (Indiana, Minnesota, Ohio, and Texas) now have accepted standard definitions and qualifications for CHWs, and 1 of the 4 (Minnesota) has added CHWs to its list of providers eligible for Medicaid reimbursement (Rosenthal et al., 2010). As of this writing, credentialing for CHWs is under consideration in a number of other states. The US Department of Labor has established a Standard Occupational Classification code for CHWs (Bureau of Labor Statistics, 2010) as of 2010, and in 2007 the National Uniform Claim Committee added a CHW classification for billing purposes. In 2010, a CHW (Lisa Renee Holderby-Fox) was appointed to the new National Healthcare Workforce Commission.

In addition, CHWs have formed professional associations in a number of states (see CHW section list at <http://www.apha.org>) (Brownstein et al., 2011). Durrell Fox, a founding member of the Massachusetts Association of Community Health Workers, has 20 years of experience serving as a CHW in varied ambulatory care settings where he has worked to find clients who have been lost to care; to deliver medications, to assist with improving adherence to regimens; to provide referrals to food, housing, legal and educational programs, and resources; and to work generally to ensure that patients' needs are met. Fox shared, "The hospitals and health centers I work at understand the value and importance of the CHW role in facilitating access to needed, appropriate services and resources for their patient populations." In addition to his direct service, Fox has played a significant role in building CHW leadership and helping to shape legislation and other policies aimed at supporting CHWs. He shares his feeling that

“CHWs are working together at state and national levels to define our scope of practice and training standards. Our emerging national association, the American Association of Community Health Workers, has developed a CHW Code of Ethics and Core Values to help in promoting, defining, and guiding our workforce” (D. Fox, personal communication, December 18, 2010).

Community health workers can be included as members of a variety of ambulatory health care teams. For example, the patient-centered medical home/primary care model has been identified as a model that provides “accessible, comprehensive, family-centered, coordinated, compassionate, and culturally effective care.” Close ties to the community, cultural competence, the engagement of patients in disease self-management, and continuity of communication between provider and patient are essential components of the model. Community health workers are uniquely qualified to meet these responsibilities and to complement other members of the health care delivery team, often freeing up the valuable time of clinicians. Furthermore, well-designed, evidence-based studies have demonstrated not only that the efforts of CHWs have significant impacts on patient behavior and outcomes but also that nurse-CHW teams are especially effective in significantly improving patient outcomes for diabetes and hypertension control in ambulatory care settings (Becker et al., 2005; Gary et al., 2003; Gary et al., 2004).

HOW CAN PROVIDERS INTEGRATE CHWs INTO THE DELIVERY OF AMBULATORY CARE?

Recruiting CHWs

Recruitment of CHWs should be based on the characteristics and attributes that CHWs can bring to their jobs, as follows: a desire to help the community; an ability to communicate with people; an outgoing personality; the respect of other community members; plans to remain in the area; and having a reputation as a natural leader in the community (Centers for Disease Control and Prevention,

2011). Some programs seek potential CHWs among community members or clinic patients who are in recovery or who are living successfully with chronic diseases. Community health workers are recruited through both formal and informal channels; in addition to publishing openings for jobs and distributing notices in the community, networking through CHW associations, local businesses, and faith communities can be extremely helpful. Ambulatory care providers may also consider recruiting their own current frontline staff, such as receptionists, who are often hired from the local community and may have the desired attributes, and supporting their training as CHWs (A. Herman, personal communication, December 19, 2010).

In addition to on-the-job training, entry-level CHWs should receive core training in areas such as interpersonal communications, outreach strategies, patient confidentiality, and collecting patient data. Basic training programs are often provided by local CHW training centers, community and technical colleges (see <http://www.chw-nec.org>), clinics, and hospitals, community-based organizations, religious institutions, state and local health departments, and Area Health Education Centers.

Supervising CHWs

Identifying a capable supervisor for the CHWs hired by the organization is an important first step. This role should not be underestimated in terms of its challenges; it takes commitment and understanding. A supervisor—typically a physician, nurse, health educator, social worker, case manager, or a senior, experienced CHW—should oversee recruitment, training, and evaluation efforts in addition to providing day-to-day supervision. The supervisor should help the CHWs manage their client loads and provide ongoing education, support, and job coaching.

Administrators and direct supervisors of CHWs can benefit from specific orientation and training about CHWs to help them realize the benefits of the full scope of CHW practice, and to avoid inappropriate use of their services (Baruck et al., 2009). A

variety of supervisory issues may arise in leading any health program; we now outline some of the unique challenges linked to leading CHWs (Rosenthal, 2005). One recurring issue is that CHWs are often called on to do medical interpretation even though many have not been formally trained in medical interpretation. Also, CHWs may be participating in the paid workforce or a structured program for the first time and may be unfamiliar with, and need to learn how to adapt to, the daily demands of work within an organization; given this, the supervisor's job coaching role becomes important. In addition, CHWs often face many of the same day-to-day personal challenges faced by those they serve, so they may need an extra measure of understanding and support from their supervisors. Community health workers' familiarity with the community makes them empathetic and gives them exceptional skill and insight when working with clients; however, supervisors may at times be called upon to strategize with CHWs about how to address client issues. Supervisors can facilitate teamwork between CHWs and other clinic-based staff members, especially for field-based CHWs who may have limited daily contact with other staff. Supervisors can foster CHWs' regular participation in staff meetings and build open and accessible communication channels. Finally, CHWs are often subject to burnout because they assist community clients when they are "off duty"; supervisors need to support CHWs in understanding their scope of practice and in creating appropriate boundaries between work and personal roles in the community.

Recommendations from a recent report (Baruck et al., 2009) that studied the integration of CHWs into chronic disease management teams include the following:

- Continue to provide training opportunities for CHWs and their supervisors;
- Enhance opportunities for CHWs to meet regularly, either in person or via telephone or internet;
- Increase efforts to have CHW supervisors monitor activities of CHWs in terms of setting boundaries, providing continuous performance feedback, and coaching;

- Ensure that CHW supervisors have training in the roles and responsibilities of CHWs as well as in techniques to support CHWs.

THE DISTINCTIVE ROLE OF CHWs IN MULTIDISCIPLINARY TEAMS: TIPS FOR A GOOD WORKING ENVIRONMENT

Although CHWs perform multiple activities and bring many skills and assets to their work, they are not clinical or social welfare experts, and thus understanding the complementary role they play to other health care providers is essential for everyone on the care teams. Providers, managers, and supervisors should provide a working environment in which CHWs feel respected as individuals and esteemed for their competence within their communities (Wilson et al., 1998). Care teams should capitalize on CHWs' unique strengths as connectors, facilitators, and advocates and rely on their deep understanding of the social and cultural contexts of patients' lives to improve provider-patient communication. There is also a need for effective communication protocols in the working environment that routinely keep CHWs informed of program results, encourage information sharing, and foster team building and mentoring of CHWs by other staff members (Wilson et al., 1998). After initial orientation has been completed, providing specific training and opportunities for continuing education is essential (Wilson et al., 1998).

Standard operating procedures that help CHWs to excel in their jobs should be people-centered. In all cases, a people-centered approach should be taken to the guidance of CHWs in the work setting. Thus, the skills of these valuable workers should be matched to appropriate tasks, and they should be offered flexible work schedules. In addition, they should be encouraged to set individual goals and offered opportunities for leadership whenever possible (Wilson et al., 1998). Important scope-of-work elements include clear expectations, meaningful work, a fair workload to prevent burnout, clear standards for performance with well-defined job descriptions, and opportunity for development

and advancement for those CHWs who desire it (Wilson et al., 1998). Unfortunately, CHWs are sometimes assigned tasks that are beyond the scope of their job and/or their skill set because of shortages of clinical or administrative personnel.

COMMUNITY HEALTH WORKER RESEARCH AND PROGRAM LIMITATIONS AND GAPS

It is important to acknowledge that the CHW field is naturally evolving and there is much yet to be learned. Reviews of research studies note various limitations and weaknesses as follows: heterogeneous study designs, variable quality, potential threats to internal and external validity, and relatively short interventions, which may affect the applicability of results to other settings or populations; more rigorous interventions and program evaluations are needed (Brownstein et al., 2007; Lewin et al., 2005; Norris et al., 2006; Rosenthal et al., 2008). Relevant details are often not provided about education of the CHWs, their experience, training, supervision, evaluation, or their attrition rates (Brownstein et al., 2007; Norris et al., 2006), and this makes it difficult to assess the link between CHW training and support and patient outcomes (Lewin et al., 2005; Viswanathan et al., 2009). Future studies should better describe these features. Brownson and Heisler (2009) suggest that systematic assessments be conducted to determine how best to identify and recruit CHWs, provide them with support and oversight, and create opportunities for their development.

Few incentives exist for those involved in programs that include CHWs but are not research or demonstration projects to publish details of the implementation of these programs or evaluations of the results obtained. Details of additional projects involving CHWs and documentation by the program management of how CHWs influence patients leverage the effectiveness of providers, and link patients with different components of the health care system and with community resources, will fill gaps in current knowledge. Data on

the perceptions of providers, the expectations of CHWs, and patients' expectations and satisfaction with CHW services would be invaluable (Brownstein, 2008); all of this will help inform the incorporation of CHWs into health care teams and medical homes.

To date, very few studies have dealt with the cost-effectiveness of CHW interventions (Brownson and Heisler, 2009; Brownstein et al., 2005; Brownstein et al., 2007; Health Resources and Services Administration, 2007; Lewin et al., 2005; Norris et al., 2006). Clearly, health care and other organizations are concerned about cost savings and cost-effectiveness; making the business case for CHWs, especially as it relates to patients' self-disease management, will require such data (Brownson and Heisler, 2009; Brownstein et al., 2005; Brownstein et al., 2007; Rosenthal et al., 2008).

Fortunately, a few states are making progress toward implementing comprehensive policy changes (including financing mechanisms to provide sustainable employment for CHW services, occupational regulation, workforce development, and guidelines for research and program evaluation) (Rosenthal et al., 2010), and a number of other states are following suit.

CONCLUSIONS

The Institute for Healthcare Improvement states, “Engaging with patients on a more personal level, and supporting them to help manage their own care, can have a dramatic effect on the experience of patients and the satisfaction of the entire team” (Institute for Healthcare Improvement, 2010). Community health workers have a natural place in medical (health) homes, working with other members of the care team to improve the satisfaction of both providers and patients and to deliver more effective care. In Massachusetts, in announcing an invitation to 46 primary care practices to participate in the state's Patient-Centered Medical Home Initiative in 2010, Dr JudyAnn Bigby, Secretary of Health and Human Services in Massachusetts, noted that the project “recognizes the value

of having . . . community health workers . . . as members of the medical home team” (Bigby, 2010).

Physician and scholar Allen Herman, who has worked with CHWs in many countries, has described the CHW as, “. . . an indispensable member of the primary health care team in a well-run practice. The CHW is the connector linking patients to practices and physicians and others to the community . . . This practice could enhance ambulatory care performance” (A. Herman, personal communication, December 19, 2010).

Community health workers have the potential to contribute to the “triple aim” (Berwick

et al., 2008) of improving the experience of care, improving the health of populations, and reducing per capita costs of health care in the United States. The engagement of CHWs as members of multidisciplinary care teams with physicians, nurses, health educators, pharmacists, case managers, and social workers can help in reducing the frustrations of providers as they face the challenges of improving patient outcomes in a coordinated way. Community health workers perform a valuable service by assisting patients in overcoming personal and system barriers and in controlling chronic conditions and diseases and their costly health consequences.

REFERENCES

- American Association of Diabetes Educators. (2009). American Association of Diabetes Educators position statement: Community health workers in diabetes management and prevention. *Diabetes Educator, 35*, S48-S52.
- American Public Health Association, Community Health Workers Section. (2009). Retrieved May 3, 2011, from <http://www.apha.org/membersgroups/sections/aphasections/chw/>.
- Anthony, S., Gowler, R., Hirsch, G., & Wilkinson, G. (2009). *Community health workers in Massachusetts: Improving health care and public health*. Boston, MA: Massachusetts Department of Public Health. Retrieved December 10, 2010, from http://www.mass.gov/Eeohhs2/docs/dph/com_health/com_health_workers/legislature_report.pdf
- Babamoto, K. S., Sey, K. A., Camilleri, A. J., Karlan, V. J., Catalasan, J., & Morisky, D. E. (2009). Improving diabetes care and health measures among Hispanics using community health workers: Results from a randomized controlled trial. *Health Education and Behavior, 36*(1), 113-126.
- Baruck, C., Hargraves, L., Costanzo, T., Hirsch, G., & Karacek, R. (2009). *Evaluation of “integrated chronic disease management team utilizing community health workers” grants*. Shrewsbury, MA: Center for Health Policy and Research, University of Massachusetts.
- Becker, D. M., Yanek, L. R., Johnson, W. R. Jr., et al. (2005). Impact of a community-based multiple risk factor intervention on cardiovascular risk in black families with a history of premature coronary disease. *Circulation, 111*(10), 1298-1304.
- Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs (Millwood), 27*(3) 759-769.
- Bigby, J. (2010). Secretary of Health and Human Services, Massachusetts (statement). Retrieved December 20, 2010, from <http://publichealth.blog.state.ma.us/2010/12/reforming-primary-care-in-the-commonwealth-putting-the-patient-first.html>.
- Bloom, J. R., Syme, S. L., Pendergrass, S., Robinson, R. G., Gay, M., & Stroud, F. M. (1987). Improving hypertension control through tailoring: A pilot study using selective assignment of patients to treatment approaches. *Patient Education and Counseling, 10*, 39-51.
- Bone, L. R., Mamon, J., Levine, D. M., Walrath, J. M., Nanda, J., Gurley, H. T., et al. (1989). Emergency department detection and follow-up of high blood pressure: Use and effectiveness of community health workers. *American Journal of Emergency Medicine, 7*(1), 16-20. Retrieved May 3, 2011, from <http://www.ncbi.nlm.nih.gov/pubmed/2914043>
- Brandeis University. (2003). *Evidence report and evidence-based recommendations: Cancer prevention and treatment demonstration for ethnic and racial minorities*. Waltham, MA: Brandeis University.
- Brownson, C. A., & Heisler, M. (2009). The role of peer support in diabetes care and self-management. *The Patient: Patient-Centered Outcomes Research, 2*(1), 5-17.
- Brownstein, J. N. (2008). Charting the course for community health worker research. *Progress in Community Health Partnerships, 2*(3), 177-178.
- Brownstein, J. N., Andrews, T., Wall, H., & Mukhtar, Q. (2011). *Addressing chronic disease through community health workers: A policy and systems-level approach*. Retrieved March 9, 2011, from <http://www.cdc.gov/dhds/>.
- Brownstein, J. N., Bone, L. R., Dennison, C. R., Hill, M. N., Kim, M. T., & Levine, D. M. (2005). Community health

- workers as interventionists in the prevention and control of heart disease and stroke. *American Journal of Preventive Medicine*, 29(5, Suppl. 1), 128-133.
- Brownstein, J. N., Chowdhury, F. M., Norris, S. L., Horsley, T., Jack, L. Jr., Zhang, X., et al. (2007). Effectiveness of community health workers in the care of people with hypertension. *American Journal of Preventive Medicine*, 32(5), 435-447.
- Bureau of Labor Statistics. (2010). *Standard Occupational Classification. 21-1094, Community Health Workers*. Retrieved December 10, 2010, from <http://www.bls.gov/soc/2010/soc211094.htm>.
- Centers for Disease Control and Prevention. (2011). *Part 1. Recruitment*. Retrieved January 31, 2010, from <http://www.cdc.gov/cancer/nbccedp/training/community.htm>.
- Chin, M. H., Cook, S., Jin, L., Drum, M. L., Harrison, J. F., Koppert, J., et al. (2001). Barriers to providing diabetes care in community health centers. *Diabetes Care*, 24(4), 268-274.
- Chin, M. H., Walters, A. E., Cook, S. C., & Huang, E. S. (2007). Interventions to reduce racial and ethnic disparities in health care. *Medical Care Research and Review*, 64(Suppl. 5), 7S-28S.
- Crosson, J. C., Heisler, M., Subramanian, U., Swain, B., Davis, G. J., Lasser, N., et al. (2010). Physicians' perceptions of barriers to cardiovascular disease risk factor control among patients with diabetes: Results from the Translating Research into Action for Diabetes (TRIAD) study. *Journal of the American Board of Family Medicine*, 23(2), 171-178.
- Davis, A. M., Vinci, L. M., Okwuosa, T. M., Chase, A. R., & Huang, E. S. (2007a). Cardiovascular health disparities: A systematic review of health care interventions. *Medical Care Research and Review*, 64(Suppl. 5), 29S-100S. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/17620403>
- Davis, K. L., O'Toole, M. L., Brownson, C. A., Llanos, P., & Fisher, E. B. (2007b). Teaching how, not what: The contributions of community health workers to diabetes self-management. *The Diabetes Educator*, 33(Suppl. 6), 208S-215S.
- Fedder, D. O., Chang, R. J., Curry, S., & Nichols, G. (2003). The effectiveness of a community health worker outreach program on healthcare utilization of west Baltimore City Medicaid patients with diabetes, with or without hypertension. *Ethnicity & Disease*, 13(1), 22-27.
- Fernandez, M. E., Gonzales, A., Tortolero-Luna, G., Williams, J., Saavedra-Embese, M., Chan, W., et al. (2009). Effectiveness of Cultivando la Salud: A breast and cervical cancer screening promotion program for low-income Hispanic women. *American Journal of Public Health*, 99(5), 936-943.
- Findley, S. E., Sanchez, M., Mejia, M., Ferreira, R., Pena, O., Matos, S., et al. (2009). Effective strategies for integrating immunization promotion into community programs. *Health Promotion Practice*, 10(Suppl. 2), 128S-137S.
- Fisher, E. B., Strunk, R. C., Highstein, G. R., Kelley-Sykes, R., Tarr, K. L., Trinkaus, K., et al. (2009). A randomized controlled evaluation of the effect of community health workers on hospitalization for asthma: The asthma coach. *Archives of Pediatric and Adolescent Medicine*, 163(3), 225-232. Erratum in: *Archives of Pediatric and Adolescent Medicine*, 163(5):493.
- Gary, T. L., Bone, L. R., Hill, M. N., Levine, D. M., McGuire, M., Saudek, C., et al. (2003). Randomized controlled trial of the effects of nurse case manager and community health worker interventions on risk factors for diabetes-related complications in urban African Americans. *Preventive Medicine*, 37(1), 23-32.
- Gary, T. L., Batts-Turner, M., Bone, L. R., Yeh, H. C., Wang, N. Y., Hill-Briggs, F., et al. (2004). A randomized controlled trial of the effects of nurse case manager and community health worker team interventions in urban African-Americans with type 2 diabetes. *Controlled Clinical Trials*, 25(1), 53-66.
- Gibbons, M. C., & Tyus, N. C. (2007). Systematic review of U.S.-based randomized controlled trials using community health workers. *Progress in Community Health Partnerships: Research, Education, and Action*, 1(4), 371-381.
- Gilkey, M. E., Rush, C. H., & Garcia, C. (2011). Professionalization and the experience-based expert: Strengthening partnerships between health educators and community health workers. *Health Promotion Practice*, 12(2):178-182.
- Healthy People 2020*. (2010). Retrieved December 18, 2010, from <http://healthypeople.gov/2020/topics/objectives/2020/overview.aspx?topicid=18>
- Institute for Healthcare Improvement. (2001). *Across the chasm: Six aims for changing the health care system*. Retrieved December 18, 2010, from [http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/ImprovementStories/Across the Chasm Six Aims for Changing the Health Care System.htm](http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/ImprovementStories/Across%20the%20Chasm%20Six%20Aims%20for%20Changing%20the%20Health%20Care%20System.htm).
- Institute for Healthcare Improvement. (2010). *Self-management and practice engagement: An opportunity to optimize outcomes*. Retrieved December 20, 2010, from http://www.ihl.org/IHI/Programs/AudioAndWebPrograms/WebACTIONSelfManagementandPatientEngagementAnOpportunitytoOptimizeOutcomes.htm?utm_source=email&utm_medium=blast&utm_campaign=ptengagementmb1
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press. Retrieved December 12, 2010, from http://www.nap.edu/html/quality_chasm/reportbrief.pdf.
- Institute of Medicine. (2010). *A population-based approach to prevent and control hypertension*. Washington, DC: National Academies Press.
- Israel, B. A. (1985). Social networks and social support: Implications for natural helper and community level interventions. *Health Education Quarterly*, 12(1), 65-80.

- Lewin, S. A., Dick, J., Pond, P., Zwarenstein, M., Aja, G., van Wyk, B., et al. (2005). Lay health workers in primary and community health care. *Cochrane Database of Systematic Reviews*, (1), CD004015.
- Norris, S. L., Chowdhury, F. M., Van Le, K., Horsley, T., Brownstein, J. N., Zhang, X., et al. (2006). Effectiveness of community health workers in the care of persons with diabetes. *Diabetic Medicine*, 23(5), 544-556.
- Parker, E. A., Israel, B. A., Robins, T. G., Mentz, G., Xihong, L., Brakefield-Caldwell, W., et al. (2008). Evaluation of community action against asthma: A community health worker intervention to improve children's asthma-related health by reducing household environmental triggers for asthma. *Health Education & Behavior*, 35(3), 376-395.
- Rosenthal, E. L. (2005). *Community health worker program assistance letter*. Unpublished manuscript. Developed for the Capacity Building Assistance Program of Migrant Health Promotion. Saline, MI.
- Rosenthal, E. L., Brownstein, J. N., Rush, C. H., Hirsch, G. R., Willaert, A. M., Scott, J. R., et al. (2010). Community health workers: Part of the solution. *Health Affairs (Millwood)*, 29(7), 1338-1342.
- Rosenthal, E. L., DeHeer, D., Rush, C. H., & Holderby, L. R. (2008). Focus on the future: A research agenda by and for the U.S. community health worker field. *Progress in Community Health Partnerships: Research, Education, and Action*, 2(3), 225-235.
- Rosenthal, E. L., Wiggins, N., Brownstein, J. N., Johnson, S., Borbón, I. A., & De Zapien, J. G. (1998). *A summary of the national community health advisor study: Weaving the future*. A policy research project of the University of Arizona. Summary coordination by E. Koch. Tucson, AZ: University of Arizona, Rural Health Office. Retrieved January 20, 2010, from <http://www.rho.arizona.edu/Publications/CAH.aspx>.
- Satterfield, D., Burd, C., Valdez, L., Hosey, G., & Shield, J. E. (2002). The "in-between people": Participation of community health representatives in diabetes prevention and care in American Indian and Alaska Native communities. *Health Promotion Practice*, 3(2), 166-175.
- Smedley, B., Stith, A., & Nebon, A. (2002). *Unequal treatment: Confronting racial and ethnic disparities in health care*. Washington, DC: Institute of Medicine. Retrieved January 20, 2010, from <http://www.iom.edu/?id=16740>.
- Thompson, J. R., Horton, C., & Flores, C. (2007). Advancing diabetes self-management in the Mexican American population: A community health worker model in a primary care setting. *The Diabetes Educator*, 33(Suppl. 6), 159S-165S.
- U.S. Department of Health and Human Services, Health Resources, and Services Administration (2007). *Community Health Workers National Workforce Study*. Rockville, MD. Retrieved March 9, 2011, from <http://bhpr.hrsa.gov/healthworkforce/chw/default.htm#preface>.
- Viswanathan, M., Kraschnewski, J., Nishikawa, B., Morgan, L.C., Thieda, P., Honeycutt, A., et al., (2009). *Outcomes of community health worker interventions (AHRQ Publication No. 09-E014 2007)*. Evidence Report/Technology Assessment No. 181 (prepared by the RTI International—University of North Carolina Evidence-based Practice Center under Contract No. 290 2007 10056 D). Rockville, MD: Agency for Health-care Research and Quality.
- Wiggins, N., & Borbón, A. (1998). Core roles and competencies of community health workers. In Rosenthal, EL, Wiggins, N., Brownstein, N., Johnson, S., Borbón, I.A., De Zapien, J. G. (Eds.). *Final report of the national community health advisor study*. (pp. 15-49). Baltimore, MD: Annie E. Casey Foundation.
- Wilson, K., Brownstein, J.N., & Blanton, C. (1998). Community health advisor use: Insights from a national survey. In U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Community health advisors/community health workers: Selected annotations and programs in the United States* (Vol. III). Atlanta, GA: Centers for Disease Control and Prevention.
- Witmer, A., Seifer, S.D., Finocchio, L., Leslie, J., & O'Neil, E.H. (1995). Community health workers: Integral members of the health care work force. *American Journal of Public Health*, 85(8, Pt. 1), 1055-1058.