

Community Health Workers:

A REVIEW OF THE LITERATURE

Community Health Workers: A Review of the Literature

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Introduction

Cultural and linguistic barriers may contribute to health disparities for minority populations including interfering with the effective use of resources and lower quality of care. Integration of Community Health Workers (CHWs) into the healthcare system is increasingly utilized as a strategy to address health disparities experienced by various racial and ethnic populations (Roe & Thomas 2002). CHWs can contribute to improved quality of care by reducing barriers for community members to obtain timely and appropriate health care.

Approach: This paper reports on a narrative review of available literature to better understand the characteristics of CHWs and their contribution to healthcare services and equity. The review will address the following goals:

- **Goal 1:** To investigate and review the definitions, historical understanding of CHW workforce development, existing CHW models, roles, scope of practice and financing of CHWs.
- **Goal 2:** To investigate the effects of community health workers through assessment of quality, cost, satisfaction and equity outcomes.

Methodology

An initial review of the existing literature was used to identify keywords and phrases to use for this Literature Review. Keywords used in the review included the following categories: *CHW models*, *CHW roles*, *CHW effectiveness* and *CHW financing*. The final search strategies included using a combination of keywords/phrases and using community health workers as the target population. Synonymous terms for community health workers were also used, including the following terms or titles for CHW work: *lay health worker*, *community health advocate*, *community health advisers*, *community health promoter*, *frontline health worker*, *community health representatives*, *peer health workers*, *community health specialists*, and *promotores de salud*. The search for potentially eligible studies included a review of international and state documents and academic databases such as the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, Ovid MEDLINE, and Cochrane Collaboration published from 1980 through October 2015. Reference lists of included articles were scanned to identify additional relevant studies. Grey¹ literature available from on-line sources, thesis/dissertations, conference papers, discussion papers and reports on websites were also included in this Literature Review.

¹ *Grey literature* is defined by Wikipedia as “a type of information or research output produced by organizations, outside of commercial or academic publishing and distribution channels.”

Key Findings

Section I/Goal 1: CHW Definition, Workforce Development, Existing Models, Scope of Work, and Financing

This section summarizes highlights from studies focused on: CHW definitions, CHW workforce development, existing CHW models, CHW roles, integration into the workforce, and how CHWs are financed.

Defining CHWs

Various definitions of a *community health worker* have been offered by professional organizations. In 2009, the Community Health Worker Section of the American Public Health Association (APHA) defined a CHW as follows:

“Community Health Workers (CHWs) 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/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. CHWs 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.”

The World Health Organization (WHO) submitted the following definition:

“CHWs should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers” (WHO, 1989, as cited by Bhutta et al., 2010, p. 17).

A broader definition is provided by the US Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions (US Department of Health and Human Services, 2007) which defined CHWs as:

“Lay members of communities who work either for pay or as volunteers in association with the local healthcare system in both urban and rural environments and usually share ethnicity, language, socioeconomic status and life experiences with the community members they serve. CHWs offer interpretation and translation services, provide culturally appropriate education and information, assist people in receiving the care they need, give informal

counseling on guidance on health behaviors, advocate individual and community health needs, provide some direct services such as first aid and blood pressure screening” (US Department of Health and Human Services, 2007, p. 19).

Aspects of the selection of community health workers, including being endorsed by and embedded within the community, were considered in the definition provided by WHO (1989). Common elements of all definitions include a focus on the entire community or population, the goals of increasing access to health and related social services within a community context and the trust CHWs receive from their communities. In addition, the US Department of Health and Human Services (2007) definition encompasses the characteristics of the role in different settings and mentions working with multidisciplinary teams that include the community. It also identifies the need to involve people in self and community advocacy.

Global Understanding & Evolution of CHW Workforce

The following outlines the diverse history of community health workers around the world.

- **1960’s barefoot doctors in China:** One of the most successful and inspiring CHW programs was the Barefoot Doctors program started in 1960’s rural China. Thousands of peasants were trained in basic medical practices and preventive medicine including proper hygiene, diagnosing infectious disease, family planning, and maternal and child healthcare. The intent of the program was to evolve a new kind of rural health worker who would retain the closest links with the peasants and stay permanently in the countryside. In the end, the program was not successful, mostly because of its lack of integration into the health system as well as lack of ongoing follow-up training and supervision provided after initial training (Zhang & Unschuld, 2008; Sidel, 1972). However, this program served as a major inspiration to community-based primary healthcare, leading up to the international conference on Primary Health Care in Alma-Ata, Kazakhstan in 1978.
- **1975 WHO book on *Health by the People*** questioned the use of vertical hospital system-based approaches in community health in developing countries (Newell, 1975).
- **1978 Declaration of Alma Ata** was inspired by community-based horizontal thinking about healthcare and was an attempt to diverge from past failures to create real and lasting solutions to the health problems in developing countries. The declaration recognized that optimal health required developing strategies to integrate hospital-based programs with community-based programs, and acknowledged the value of a *community* as a key factor in planning and implementation of health care (World Health Organization, 1978). The conference in Alma Ata also brought international attention to the CHW workforce in the public health sector (US Department of Health and Human Services, 2007), the value of CHWs, and the critical role CHWs play in ensuring the health and well-being of communities. At the conference, the development of CHW programs was proposed as an important policy for promoting primary health care (World Health Organization, 1978, p.2).
- **1980s Large-scale programs develop:** This period coincides with a dramatic increase in number of health promotion projects using CHWs to improve community involvement and access to social and health services (Perry & Zulliger, 2012).

- **End of 1980s/early 1990s:** Many CHW programs were discontinued because of poor planning and underestimating how much time and effort was required to implement and sustain them. The effectiveness of the programs was increasingly being questioned, resulting in less funding and political commitment (Perry & Zulliger, 2012).
- **1990s Large-scale programs:** Many countries, such as Pakistan, started to re-invest in large-scale CHW programs. The *Lady Health Worker* program was launched by the Government of Pakistan with 8,000 CHWs in 1992 (and now numbers 100,000 CHWs across the country). Aimed at raising health awareness among communities that were deprived of appropriate medical services due to social barriers and distance, the program provided training for female health workers to deliver primary health care, including antenatal care,² family planning and immunization services, in community settings (UNICEF, 2008, p.23). The program led to a reduction in perinatal and newborn mortality and served as an example of an effective CHW intervention program (Crigler et al., 2013).
- **2000s Renewed interests in CHWs contribution:** The United Nations' proposed Millennium Development Goals (MDGs) in 2000 challenged the global community to meet the following goals by 2015: eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality, improve maternal health, combat major disease such as HIV/AIDS and malaria, promote environmental sustainability, and develop a global partnership for development. The launching of the MDGs, as well as a growing body of empirical evidence supporting CHWs as an integral part of the workforce to achieve the United Nations' health-related MDGs, sparked the current renewed interest in extending and in finding funding resources to support CHW programs (Crigler et al., 2013).

Evolution of CHW Workforce in the US

The CHW National Workforce Study conducted by the Health Resources and Service Administration in 2007 described the evolution of the CHW workforce in four main periods:

- **1966-1972 Early Documentation Period:** This period is marked by efforts made to engage CHWs in low-income communities. However, the focus tended to be on anti-poverty strategies rather than on specific health promotion/disease prevention programs.
- **1973 - 1989 Utilization of CHWs in Special Projects:** This period is characterized by short-term, public- and privately-funded special projects, often linked to university-based research.

² Antenatal care refers to routine care (e.g. screening, information, education) provided to a woman during pregnancy.

- **1990-1998 State and Federal Initiatives:** In this period, training for CHWs received greater recognition. A number of bills were proposed for CHWs at national and state levels, but none passed.
- **1999-2006 Public Policy Options:** Some of the most important public policy actions were taken during this period. A wide range of interrelated and comprehensive policies, such as standards for specific credentials for CHWs and development of financing models for utilization of CHWs, were enacted. This included:
 - **Occupational Regulation:** State credentialing legislation addressing CHWs' training standards and certification was passed in Texas in 1999, and signed into Ohio law in 2003 (US Department of Health and Human Services, 2007).
 - **Utilization of CHWs:** Many bills were passed at the state level that mandated studies of the impact, status and utilization of CHWs in health services (New Mexico Department of Health, 2003; James Madison University, 2006).
 - **Emerging Financing Models:** A growing body of empirical evidence emerged supporting the effectiveness of CHWs interventions. Findings from a study on cancer prevention and treatment among minority groups by Brandeis University and the Center for Medicare and Medicaid Services clearly demonstrated that adding CHWs to the care team played a central role in addressing disparities in cancer prevention and treatment and had a beneficial effect on the quality of care for populations most in need of appropriate health services (Centers for Medicare and Medicaid Services, 2003). The findings of the study opened doors to additional funding opportunities for cancer patient navigator services to minority Medicare beneficiaries (US Department of Health and Human Services, 2007).
 - **The Patient Navigator Outreach and Chronic Disease Prevention Act (PL 109-18)** was signed into law June 29, 2005. The measure provided \$25 million for patient navigator services through community health centers over a period of 5 years (US Department of Health and Human Services, 2005). The law required that facilities receiving the grant agree to recruit, train, and employ patient navigators with direct knowledge of the communities they serve to provide healthcare services to individuals (PL 109-18, 2005).
- **Recent Efforts to Integrate CHWs into the Healthcare Workforce:** To be integrated into the delivery of healthcare means to find a professional place and to allow CHWs to function as full-fledged professional members of health systems and assume the full range of roles and duties of which they are capable of undertaking (APHA, 2009). The decade of the 2000s will be remembered as the time when CHWs became a defined and recognized profession. The growing need for primary health services, the expanding body of knowledge about the effectiveness of CHWs in high-priority health issues (such as chronic disease prevention and management) called for formal recognition of this emerging profession. Such identification also required CHW integration into the primary healthcare system, standards for training, and methods for reimbursement and funding (APHA, 2009).

An important step toward integration of CHWs into the health workforce occurred in 2009 when the Department of Labor, Bureau of Labor Statistics, created an occupation code for CHWs. In 2010, the Bureau of Labor Statistics officially recognized the roles of CHWs with their own Standard Occupational Classification (SOC #21–1094). Recognition of the CHW as a distinct occupation will likely contribute to creation of a professional profile for CHWs, attract more new recruits, encourage the development of courses by educational institutions and invite more funding opportunities to finance CHW programs (Bureau of Labor Statistics, 2010).

Another important stage in integrating CHWs into the healthcare system was reauthorization of the Patient Navigator Outreach and Chronic Disease Prevention Act under the Patient Protection and Affordable Care Act in 2010. **The Patient Protection and Affordable Care Act (ACA) of 2010** also contains elements that have provided more funding opportunities for community health centers and increased the number of CHWs and the number of people they serve in the US.

According to Katzen & Morgan (2014), three main ACA changes led to new community-based service options: 1) First, the ACA provides increased healthcare access through affordable health insurance. Recent Medicaid Essential Health Benefits rules clarify that states may reimburse non-licensed providers (i.e., CHWs) for preventive services; 2) Second, the ACA focuses on establishing a medical home for beneficiaries with chronic diseases, which gives states the flexibility in determining a range of eligible health home providers; and 3) Third, the ACA establishes funding for the State Innovation Models (SIM) Initiative through the Center for Medicare & Medicaid Innovation (CMMI), which provides \$275 million in funding for states to develop and test state-based models for multi-payer healthcare payment and service delivery models in accordance with the requirements of section 1115A of the Social Security Act. The SIM design and test awards offer a significant opportunity to increase the use of CHWs and better integrate them into healthcare delivery system. According to CMMI's guidance, the focus of the SIM Initiative is improving population health outcomes and reducing the cost of Medicare, Medicaid and Children's Health Insurance Program (CHIP). Round One was awarded to 6 states (Oregon, Vermont, Massachusetts, Arkansas, Minnesota and Maine), of which 4 have included CHWs in their models (Oregon, Arkansas, Minnesota and Maine) (Katzen & Morgan, 2014, p.2; Centers for Medicare & Medicaid Services, 2015).

CHWs in Minnesota

In the early 2000s, in addition to overall health care personnel shortages, the increasingly diverse population raised significant concerns about disparities in Minnesota's healthcare system. Various organizations and experts proposed the use of community health workers as an effective strategy to help eliminate the health disparities in terms of increasing access to care and utilization of healthcare services among underserved communities (The Institute for Clinical and Economic Review, 2013).

The introduction of a new credit-based educational curriculum for CHWs can be considered a result of the Minnesota Community Health Workers Project (MNCHW). The project was part of the HEIP (Healthcare Education Industry Partnership) program, which was a multi-stakeholder coalition of CHWs, universities, nonprofit organizations and the healthcare industry (Dower et

al., 2006). The mission of the MNCHW was to create: 1) a process to standardize the profession for CHWs in Minnesota, 2) a process to standardize professional preparation through accreditation of CHW programs, and 3) a process for integrating CHWs into the healthcare workforce by exploring sustainable financing strategies and providing reimbursement for CHWs services (Dower et al., 2006).

Two statewide research studies conducted by Blue Cross Blue Shield (BCBS) of Minnesota in 2003 first brought attention to the need for standardized CHW training. The first study reported the key findings of a statewide employer survey and the outcome of a focus group discussion in which policymakers, educators and representatives from health organizations gathered to discuss effective CHW integration in Minnesota's healthcare system. The data from the second study were collected through a number of focused discussions with CHWs to better understand their professional development needs. The study of CHW employers revealed that more than 90 percent of CHW employers believed that finding trained and qualified CHWs was a significant barrier to providing culturally and linguistically appropriate services in health care. In the first study employers surveyed also indicated that standardized training would help ensure a better prepared, competent and qualified CHW workforce. In the second study CHWs stated that training would give them the opportunity to gain qualifications and develop professionally (Blue Cross and Blue Shield of Minnesota Foundation, 2010). The HEIP developed a statewide standardized educational curriculum that could be available through community and technical colleges, in part, based on the findings of the Blue Cross and Blue Shield of Minnesota's 2003 studies (Dower et al., 2006). This was the first and currently only standardized, competency-based curriculum for CHWs based in higher education in the United States.

The implementation of the new curriculum began in January 2005 at South Central Technical College in Mankato and at the Minneapolis Community Technical College in downtown Minneapolis, and later it became available to other Minnesota State Colleges and Universities (MnSCU) schools (Minnesota State University Mankato, 2006). Upon completion of this sequence of courses, individuals are awarded a certificate. The Minnesota standardized training curriculum for CHWs is presented in Table 1. There are no continuing education units required at this time.

Based on the recommendations from this project, in 2009, the Minnesota legislature approved the direct Medicaid reimbursement of CHW services, including care coordination and patient education. Although, the HF 1078 bill, Subdivision 49, allows Medicaid reimbursement for CHW services (The Office of the Revisor of Statutes, 2015), a CHW must meet at least one of the following conditions in order to be considered eligible for direct reimbursement under this bill: 1) the CHW must be certified by the MnSCU schools, or 2) be grandfathered in by having at least five years of supervised experience working with an enrolled physician, a registered nurse, an advanced practice registered nurse, or a mental health professional and completion of the certification program by January 1, 2010. (The Office of the Revisor of Statutes, 2015). Minnesota, therefore, became the first state to enact legislation providing Medicaid reimbursement for CHW services.

Table 1. Minnesota Standardized Curriculum for CHWs*

Phase	Components	Credit Hours
1—Role of CHW, Core Competencies	Role, Advocacy and Outreach	2
	Organization and Resources: Community and Personal Strategies	1
	Teaching and Capacity Building	2
	Legal and Ethical Responsibilities	1
	Coordination, Documentation and Reporting	1
	Communication and Cultural Competence	2
2—Role of the CHW, Health Promotion Competencies	Healthy Lifestyle, Heart Disease & Stroke, Maternal, Child and Teen Health, Diabetes, Cancer, Oral Health, Mental Health	3
3—Practice Competencies	Internship	2

*Minnesota Community Health Workers Alliance. (2013). Minnesota CHW Curriculum. Available at <http://mnchwalliance.org/wp-content/uploads/2013/05/EducationCurriculum.pdf>

CHW Roles in Organizations

In 2010, the United States Department of Labor, Bureau of Labor Statistics, officially recognized the role of CHW as a Standard Occupational Classification (21-1094). The Department of Labor definition of a CHW is slightly different than that of APHA:

“The term community health worker means an individual who promotes health or nutrition within the community in which the individual resides by 1) assisting individuals and communities to adopt healthy behaviors, 2) conducting outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health, 3) providing information on available resources, offering social support and informal counseling, advocating for individuals and community health needs, and providing services such as first aid and blood pressure screening, and 4) collecting data to help identify community health needs.”

The range of services provided by CHWs depends on various factors: the intervention setting (e.g., social services, health care) (O’Brien et al., 2009), the skill level and service competencies (e.g., communication skills, cultural congruence, training, and language concordance) (Lewin et al., 2006; Andrews et al., 2004; Ursua et al., 2014), geographic location (e.g., rural communities and general medical settings) (Parker et al., 1998), and the type of service they provide to their communities (e.g., case management, advocacy, screening, education) (California Health Workforce Alliance, 2013). For example, if CHWs are deployed in response to infectious diseases such as malaria or tuberculosis to prevent disease or improve health status of communities in rural areas, they may function as care manager or health education provider (Yeboah-Antwi et al., 2010; Mukanga et al., 2010). If, however, the intervention is designed to increase access to healthcare services and enhance the quality of coordination of health care services, the CHWs may perform care coordination as their primary role or in combination with

other activities such as community outreach, case finding, and community advocacy. As a result CHWs' roles may include but are not limited to:

- Acting as liaisons between vulnerable populations and the health care team (Kangovi et al., 2014);
- Assisting individuals with finding needed resources to manage their disease (Krieger et al., 2015; Cummings et al., 2013);
- Utilizing problem-solving techniques to detect and address barriers to care including financial & social factors (Cummings et al., 2013);
- Assisting patients/clients in setting patient-specific goals and supporting their progress (Spencer et al., 2011);
- Conducting outreach (e.g., in-home visits of community members with health needs);
- Conducting non-communicable disease screening tests (Hamer et al., 2012; Gaziano et al., 2015), providing immunizations (Lewin et al., 2005), giving injections to prevent disease and detect health problems at early stage;
- Providing cultural wellness and life coaching (e.g., eating habits, physical activities) (Cummings et al., 2013);
- Managing care through improving adherence to medications (Chang et al., 2010) and self-management (e.g., monitoring blood glucose) (Krieger et al., 2015; McDermott et al., 2015; Cummings et al., 2013; Prezio et al., 2013);
- Advocating for health needs of vulnerable populations (e.g., insurance coverage, informing providers of barriers to disease management) (Krieger et al., 2015);
- Providing culturally competent education on social skills (e.g., self-advocacy skills, coping skills) (Palmas et al., 2014; Krieger et al., 2015), self-management (e.g., culturally appropriate meal planning, medication use, smoking cessation) (Prezio et al., 2013);
- Providing informal health literacy appropriate counselling (Pere-Escamilla et al., 2014);
- Promoting family planning and distributing supplies (Bhutta et al., 2010; Simmons et al., 1988).
- Collecting vital statistics on community health status to help identify the health needs of a community (Bureau of Labor Statistics, 2010).

Models of Care

CHW programs are designed to improve health-related outcomes through better access to care (McElmurry, Park & Buseh, 2003), enhanced disease prevention (Islam et al., 2013), increased knowledge level (Spencer et al., 2012) and superior disease management (Cummings et al., 2013; Krieger et al., 2015). There are several categories of models of care, which vary primarily in CHW roles within healthcare teams and in the types of clients CHWs serve. CHW programs may overlap, and a program can, at the same time, fall into several categories. According to the U.S. Department of Health and Human Services (2011), the models of care engaging CHWs can be grouped into six categories:

1. **Member of Care Delivery Team Model**. In this model, the CHW may work with a lead provider, typically a physician, nurse, or social worker. Within this model, CHWs are trained to provide health education and informal counselling to patients/clients to improve their health through one-on-one and group sessions. Tasks being delegated are

generally specified by the lead provider. Some chronic conditions that CHWs address in their work include diabetes, high blood pressure, HIV/AIDS, and smoking cessation. An example of this model is a community empowerment intervention developed by McElmurry et al. (2003) that provided primary health care services to Latino immigrants in four Chicago community areas. The CHWs were trained to provide case management services under the supervision of a community health nurse. The primary roles of the team included linking participants to needed services, offering health information, and providing ongoing health education to promote healthy behaviors (McElmurry, Park & Buseh, 2003).

2. **Navigator Model/Care Coordinator.** In this model, the CHW may work with people who are not only culturally and linguistically different, but also face barriers in obtaining and seeking timely primary healthcare. As a navigator, the roles and responsibilities of CHWs include working with individuals and families that experience disparities in care and coordinating care for complex diseases (e.g., cancer) within a complex service system; therefore, performing this role effectively requires adequate knowledge about the health care system (Palmas et al., 2012; US Department of Health and Human Services, 2007).
3. **Screening and Health Education Provider.** In this model of care, CHWs use their social embeddedness and personal network to reach out to people who tend to be isolated from providers due to physical as well as economic barriers including lack of insurance (Prezio et al., 2013), geography, and immobility. CHWs deliver health education focusing on healthy behavior (e.g., physical activity, healthy eating) and prevention, administer basic screening instruments (e.g., rapid diagnostic tests) (Hamer et al., 2012) and measure vital signs (Yeboah-Antwi et al., 2012). The use of a screening and health education provider model of care can raise significant concerns. The training CHWs receive and the health education they deliver need to be tailored in terms of language and culture. In addition, although the evidence shows that that high-quality training can lead to improved performance and quality of services, training alone is not enough and other factors such as close supervision are critical to the effectiveness of CHWs (US Department of Health and Human Services, 2007). For example, a successful community-based outreach program (e.g., in-home visits) requires competent supervision and additional training to ensure that CHWs stay within the scope of their practice and understand what would be expected of them in an emergency situation (US Department of Health and Human Services, 2011).
4. **Outreach-enrolling-informing agent.** This model involves CHWs conducting intensive home visits to deliver psychosocial support, improve maternal and child health, perform an environmental health assessment, offer one-on-one counselling, and make necessary referrals (US Department of Health and Human Services, 2011).
5. **Community Organizer/Capacity Builder Model.** In this model of care, CHWs work as catalysts to encourage community action or as negotiators for creation of change. Many CHWs may work for agencies that support organizing and advocating for policy change. In this model, CHWs may be employed by a healthcare provider or may be acting as a committed volunteer (US Department of Health and Human Services, 2007; US Department of Health and Human Services, 2011).
6. In a more recent document, the U.S. Department of Health and Human Services (2011) identified one additional model for CHW programs: **Promotora de Salud/Lay Health**

Worker Model. Applied in the US and Latin America to reach mostly Hispanic communities, the promotora model enhances services for an underserved minority community through offering a link between service providers and community members (Palmas et al., 2012; Getrich et al., 2007; McElmurry, Park, & Buseh, 2003). In this model, most of the CHWs receive training based upon theoretical frameworks, including social support, social learning theory, empowerment model and/or health belief model, in which CHWs are empowered to create their own action plan regarding the community's perceived health needs (Rhodes et al., 2007). In a review of the literature on Lay Health Worker (LHW) Models, Rhodes et al. (2007) found clear evidence regarding six primary roles of a LHW: 1) being involved in recruitment of community members and data collection, 2) serving as traditional health advisors/educator and referral sources, 3) distributing health-related materials, 4) being role models, 5) serving as community advocates to ensure culturally and linguistically tailored interventions for their community members, and 6) being involved in relevant parts of community-based participatory research projects including designing research question, developing appropriate methodologies for data collection, and disseminating research findings.

7. **Community HUB Pathway Model.** Having been developed for use in Mansfield, OH, this model is now being used in at least 16 communities across the country. In this model, CHWs work as a part of an outcome-focused care coordination team that uses individualized care “Pathways” designed to achieve specific healthy outcomes. The approach involves three major principles that guide the team members’ efforts: 1) Find (identify those most at risk), 2) Treat (ensure their connection to evidence-based care), and 3) Measure the result (evaluate the final outcomes) (see Figure 1) (Agency for Healthcare Research and Quality, 2010). A pathway is considered complete after the desired outcome is achieved (Redding et al., 2015).

The unique feature of the model is its ability to track each identified health or social issue through measurable indicators, which help maintain a steadfast focus on improving patient outcomes. The model also requires confirmation that at-risk individuals have connected to evidence-based intervention is required (Redding et al., 2015). In this way, the model works as a tool for screening those at high risk for poor health outcomes as well as a tool for quality measurement to maintain successful connections to both health and social services. Under this model, the CHW functions as a community care coordinator of the care-coordination team, and assist individuals to overcome barriers they face in obtaining necessary health care or social services. Effective performance of CHWs implementing the pathway model requires a holistic understanding of clients which considers the social, environmental, psychological, and health needs of clients in order to impact health outcomes (Redding et al., 2015).

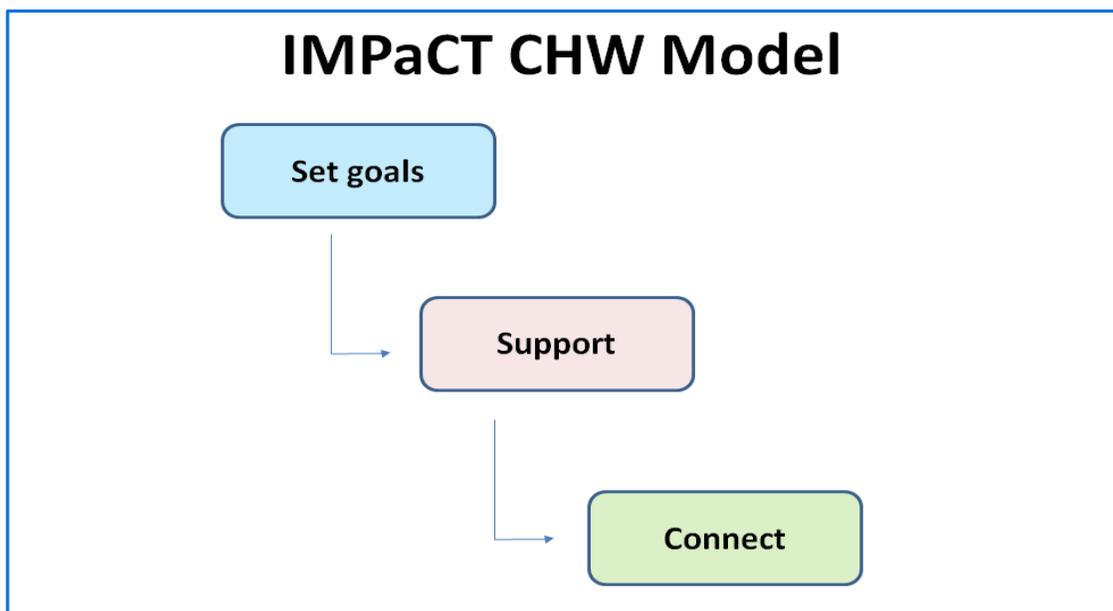
Figure 1. Three Principles of Pathways Community Model



Created by Redding, S. (2010). Score Card Pilot Results. Retrieved from <http://archive.ahrq.gov/news/events/conference/2010/redding/index.html>

8. **IMPACT™ (Individualized Management for Patient-Centered Targets) Model.** IMPACT™ was developed and tested by the Penn Center for CHWs, a community-academic-health system partnership. At the core of the IMPACT™ model is the concept of patient-centered care. In the IMPACT™ model, CHWs offer individualized support to high-risk patients in order to help them achieve their specific health goals and to establish primary care (Penn Center for Community Health Workers, 2015). In the IMPACT™ system, CHWs guide patients through three stages:
- **Set goals:** IMPACT CHWs help patients and their providers set achievable health goals. They can, then, help patients develop personally appropriate and effective action plans that will successfully accomplish these patient-centered health goals. Each plan includes 4 elements: 1) A measurable goal, 2) Patient confidence in achieving the goal, 3) Resources, and 4) A step-by-step plan for goal achievement (Kangovi et al., 2014).
 - **Support:** CHWs implementing IMPACT model provide tailored and ongoing support based on patients' goals. This support may include a wide range of activities from bringing patients to appointments to providing needed emotional support through a difficult time or enabling them to attend appointments by arranging transportation (Penn Center for Community Health Workers, 2015).
 - **Connect:** In this final stage, IMPACT CHWs connect patients to a source of primary care practice to keep patients motivated and engaged even after the intervention was completed (Penn Center for Community Health Workers, 2015).

Figure 2. IMPaCT™ CHW Model of Care



Created by Penn Center for Community Health Workers. (2015). IMPaCT™. Retrieved from <http://chw.upenn.edu/impact>

CHW Scope of Practice

Scope of practice is a legal term used by states to define permissible boundaries of practice for health professionals (Anderson, 2013). Therefore, the scope of practice rules can vary between states. In the State of Minnesota, the HF 1078 bill, which provided for Medicaid reimbursement of CHW services, did not officially define a CHW scope of practice. However, it does mention care coordination and patient education as CHWs services (The Office of the Revisor of Statutes, 2015). Several entities have developed a scope of practice for CHWs including, most recently, the American Public Health Association’s *C3 Project*, which seeks to update the scope of practice developed by the 1998 National Community Health Advisor Study. The C3 Project is a national effort to define CHW core roles as well as skills and qualities. The consensus scope of practice developed, which is still in early stages of release and endorsement, includes the following roles, skills and qualities (see Table 2) (APHA conference, November 2, 2015):

Table 2. APHA C3 Project CHW Scope of Practice.

Roles	Skills	Qualities
<ol style="list-style-type: none"> 1. Cultural Mediation among Individuals, Communities, and Health and Social Service Systems 2. Providing Culturally Appropriate Health Education and Information 	<ol style="list-style-type: none"> 1. Communication Skills 2. Interpersonal and Relationship-Building Skills 3. Service Coordination and Navigation Skills 4. Capacity Building Skills 5. Advocacy Skills 6. Education and Facilitation Skills 	<ol style="list-style-type: none"> 1. Connected to the community 2. Strong and courageous 3. Friendly/outgoing/sociable 4. Patient 5. Open-minded/non-judgmental 6. Motivated and capable of self-directed work 7. Caring

Roles	Skills	Qualities
3. Care Coordination, Case Management, and System Navigation	7. Individual and Community Assessment Skills	8. Empathetic
4. Providing Coaching and Social Support	8. Outreach Skills	9. Committed/dedicated
5. Advocating for Individuals and Communities	9. Professional Skills and Conduct	10. Respectful
6. Building Individual and Community Capacity	10. Evaluation and Research Skills	11. Honest
7. Providing Direct Service	11. Knowledge Base	12. Open/eager to grow/change/learn
8. Implementing Individual and Community Assessments		13. Dependable/responsible/reliable
9. Conducting Outreach		14. Compassionate
10. Participating in Evaluation and Research		15. Flexible/adaptable
		16. Desires to help the community
		17. Persistent
		18. Creative/resourceful

Adapted from *C3 Project: the Journey Toward a United Consensus*. Presented at the American Public Health Association conference, November 2, 2015.

Another scope of practice and related skills are listed in Table 3. This table was created by the *Scope of Practice Working Group of New York State CHW Initiative* charged with developing a CHW scope of practice. The Scope of Practice recommended by the Working Group was influenced by an extensive body of literature as well as the results of community-based participatory surveys conducted by the CHW Network of NYC and Columbia University. The aim of the surveys was to build consensus between CHWs and their employers on CHWs’ scope of practice through a series of surveys. There was consensus on 7 major elements: 1) Outreach and community mobilization, 2) Community/Cultural liaison, 3) Case management/care coordination, 4) Home-based support, 5) Health promotion and health coaching, 6) System navigation, and 7) Participatory research (see Table 3).

Table 3. Scope of Practice.

Scope of Practice	Related Skills
OUTREACH & COMMUNITY MOBILIZATION	Preparation and dissemination of materials
	Case-finding and recruitment
	Community strengths/needs assessment
	Home visiting
	Promoting health literacy
	Advocacy
	Environmental assessment
COMMUNITY/CULTURAL LIAISON	Community organizing
	Advocacy
	Translation & interpretation
	Community strengths/needs assessment

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Scope of Practice	Related Skills	
CASE MANAGEMENT & CARE COORDINATION	Family engagement	
	Individual strengths/needs assessment	
	Addressing basic needs (e.g. food, shelter, etc.)	
	Promoting health literacy	
	Coaching on problem solving	
	Goal setting & action planning	
	Supportive counseling	
	Coordination, referral and follow-ups	
	Feedback to medical providers	
	Treatment adherence promotion	
	Documentation	
	HOME-BASED SUPPORT	Family engagement
		Home visiting
Environmental assessment		
Promoting health literacy		
Supportive counseling		
Coaching on problem solving		
Action plan implementation		
Treatment adherence promotion		
Documentation		
HEALTH PROMOTION & HEALTH COACHING	Translation and interpretation	
	Preparation and dissemination of materials	
	Teaching health promotion and prevention	
	Coaching on problem solving	
	Modeling behavior change	
	Promoting health literacy	
	Adult learning application	
	Harm reduction	
	Treatment adherence promotion	
	Leading support groups	
	Documentation	
SYSTEM NAVIGATION	Translation and interpretation	
	Preparation and dissemination of materials	
	Promoting health literacy	

Scope of Practice	Related Skills
	Patient navigation
	Addressing basic needs (e.g. food, shelter)
	Coaching on problem solving
	Coordination, referral and follow-up
	Documentation
PARTICIPATORY RESEARCH	Preparation and dissemination of materials
	Advocacy
	Engaging participatory research partners
	Facilitating translation research interviewing
	Computerized data entry and web searches
	Documentation

Created by Matos et al. (2011). Paving a path to advance the community health worker workforce in New York State: A new summary report and recommendations. Retrieved from <http://nyshealthfoundation.org/uploads/resources/paving-path-advance-community-health-worker-october-2011.pdf>

Factors Influencing Performance of CHWs

The performance of CHWs is influenced by a variety of factors, as shown in Table 4. These factors are the result of an extensive review of literature by Kok et al. (2014), which had the purpose of identifying intervention factors influencing CHWs motivation and performance. The main factors are as follows: 1) Trust, 2) Supervision, 3) Training, 4) Workload, 5) Clarity on CHW tasks/roles, and 6) Compensation.

Table 4. Determinants of CHW Performance.

Factors	Description
Trust	The helping relationship between CHW and community involves building trust on both sides of the relationship (Glenton et al., 2013). In a review of literature on effectiveness of CHWs programs to improve adherence to antiretroviral therapy, Kenya et al. (2007) reported that building trust is a key ingredient to successfully conduct CHWs programs. CHWs that serve communities in which they live in were reported to be more trusted by the community, which can affect their occupational performance tasks (Kok et al., 2014).
Supervision	The central purpose of implementing regular supervision is to ensure that roles and responsibilities are properly exercised by CHWs, and to enhance CHWs functioning. If correctly done, adequate supervision could result in high CHWs motivation, by helping them to reach the highest possible performance level (Hill et al., 2014). Martinez et al. (2008) found that effective supervision by health workers and support from community leaders leads to increased credibility and external recognition, as well as the feeling of being part of the team. On the other hand, if done poorly or conducted by inadequately trained evaluators, supervision may harm motivation and good performance of CHWs (Moetlo, Pengpid, & Peltzer, 2011; Chanda et al., 2011). It is clear from the existing literature that CHWs motivation depends on the quality of supervision; however, few studies have focused on elements of effective supervisory performance (Kok et al., 2014).

Factors	Description
Training	The literature suggests that adequate training has significant effect on CHWs' motivation and sustainability of CHW programs. In a systematic review of literature regarding factors influencing performance of CHWs, it is reported that training in a friendly environment by highly qualified trainers enhanced CHWs' motivation, performance and job satisfaction (Kok et al., 2014).
Workload	CHWs' performance may suffer from low motivation due to high workload resulting from high CHW population ratio. Several studies indicated that excessive workload was significantly associated with increased loss to follow up and poor performance among CHWs (Alam et al. 2012; Rahman et al., 2010).
Clarity on CHW tasks and roles	A lack of clarity on CHW tasks often leads to unrealistic expectations (e.g., asking for goods or money, demanding treatment in spite of a negative test) especially from people in the community, resulting in lowered motivation and performance of CHWs (Kok, et al., 2014). Therefore, prior to intervention's initiation, efforts should be made to ensure that communities have realistic expectations about the scope and knowledge of CHWs (LeBan et al., 2014).
Compensation	There are pay models to compensate CHWs including volunteer-based and paid models. However, it is clear from the existing literature that fair compensation is one performance-influencing factor (Davis, 2013; Dower et al., 2009; Kok et al., 2014). A combination of financial incentives (e.g., fixed pay, regular and irregular allowances, performance-related pay) and non-financial incentives (e.g., tangible rewards such as continuous training, feedback, frequent supervision and supplies) can lead to better performance, accountability and quality of work among CHWs (Kok et al., 2014; Crigler et al., 2013).

Financing of CHW Positions

Financing for CHW programs may come from four main models: charitable foundation/government agency grants and contracts; public or private insurance; government general funds; and private companies (Dower et al., 2006). Each of these is described below.

- Government agency and charitable foundation grants and contracts:** This model is the most common form of compensation arrangement in the US. Under this model, government and charitable funds are allocated to CHW employers (e.g., community-based organizations, community clinics) to pay CHW salaries or administer CHW programs. The most important funding sources for CHW programs are government agencies and charitable foundations grants, according to a systematic review of literature by Dower et al., (2006), but they are often short-term and restricted to specific use.

Some of the provisions by the Affordable Care Act (ACA), including section 5313 that requires Centers for Disease Control and Prevention to award grants to eligible entities to promote positive health outcomes for underserved populations through the use of CHWs, may help enhance financing of CHW roles (Katzen & Morgan, 2014).

- Public or private insurance:** Under this model, CHWs' positions are financed by an insurance program or company. The ACA provides new opportunities to expand community-based services that were unavailable under Medicaid, Medicare, and the private insurance market. Under certain conditions, the law allows Medicaid to reimburse preventive healthcare services provided by non-licensed providers, including CHWs, as long as those services have been recommended by a physician or other licensed practitioner (e.g., public health

nurses, advanced practice registered nurses, dentists). The proposed rule change has major implications for transitioning from a hospital-based to community-based model of care (e.g., increased potential for utilization of CHWs) (Burton et al., 2013). In 2013, the Centers for Medicare and Medicaid Services (CMS) proposed revisions to this regulation that would give states more flexibility to recognize unlicensed providers in the delivery of preventive services (US Department of Health and Human Services, 2013, p.1).

In Minnesota, MHCP (Minnesota Health Care Programs) provides reimbursement for CHW services through eligible billing providers such as community health clinics, dentists, hospitals, physicians or advance practice registered nurses (APRN). MHCP covers diagnosis-related patient education services provided by a CHW; however, the CHW must meet the following criteria in order to qualify for the payment of compensation:

- *MHCP requires general supervision by an MHCP-enrolled physician or APRN, certified public health nurse, dentist or mental health professional.*
- *A physician, APRN, dentist, certified public health nurse or mental health professional must order the patient education service(s) and must order that they be provided by a CHW.*
- *The service involves teaching the patient how to self-manage their health or oral health effectively in conjunction with the health care team.*
- *The service is provided face-to-face with the recipient (individually or in a group) in an outpatient, home or clinic, or other community setting.*
- *The content of the educational and training program is a standardized curriculum consistent with established or recognized health or dental health care standards. Curriculum may be modified as necessary for the clinical needs, cultural norms and health or dental literacy of the individual patients (Minnesota Department of Human Services, 2015).*

MHCP, however, does not pay for the provision of social services such as enrollment assistance, case management, or advocacy provided by a CHW (Minnesota Department of Human Services, 2015).

- **State and local general funds:** Under this model, federal, state or local governments can employ or reimburse CHW services directly. Government general funds are often used to provide support for a variety of programs that may not be supported by other funding mechanisms. States may provide dedicated line item budgets for CHW programs that include CHW salaries or services (Dower et al., 2006; National Health Care for the Homeless Council, 2011). For instance, in 1994, Kentucky appropriated \$ 1.9 million from general funds to deal with health issues that affect low-income families. The program employs paraprofessional community health workers, called family health care advisors, to work with families in rural areas to navigate the health care system and help them get timely health care (National Health Care for the Homeless Council, 2011; Rural Assistance Center, 2015).
- **Private sector organizations:** Under this model, CHWs can be either directly employed by private organizations such as health plans and hospitals or indirectly through a contract with clinics or community-based organizations (Dower et al., 2006). One good

example of this category is Blue Ridge Area Health Education Center (AHEC), which is paid by healthcare providers to compensate CHWs' services for clients (e.g., interpretation) through health care providers (Sprague, 2012).

Section II/ Goal2

The remainder of this report is organized to address the Goal 2 described previously.

Effectiveness/Quality of Care

There is a growing body of evidence to suggest that CHW interventions are of major benefit to communities (Staten et al., 2004; Sue et al., 1991). There is also evidence that CHW interventions improve health outcomes; see:

- Arrosi et al. (2015) for information on uptake of screening for cervical cancer,
- Hamer et al., (2012) on case management of malaria and pneumonia,
- Mubi et al., (2011) on malaria treatment,
- Islam et al., (2013) and Spencer (2011) on diabetes management,
- Allen et al., (2011) on reducing cardiovascular disease risk,
- Peretz et al., (2012) on the management of asthma,
- Brownstein et al., (2007) on medication adherence and
- Kangovi et al., (2014) on post-hospital outcomes improvement.

In addition to increasing access to services (Palmas et al., 2012; Harris, 2001) , some evidence suggests that CHWs can help improve the quality of care (Hamer et al., 2012; Yousafzai et al. 2014; Rothschild et al., 2014) and reduce costs (Chang et al., 2013; Gaziano et al., 2015; Mubi et al., 2011) in primary and community health care.

There have been several systematic reviews of the literature examining the impact of CHW intervention programs (Mwai et al., 2013; Brownstein et al., 2007; Norris et al., 2006; Postma et al., 2009; Lewin et al., 2005; Gilmore & McAuliffe, 2013; Lehmann & Sanders, 2007; Viswanathan et al., 2010). The remainder of this section provides summaries of evidence on effectiveness of CHWs interventions according to the type of intervention.

Mental Health: Regarding mental health, relatively few studies have been conducted on the effectiveness of CHWs interventions, but available data suggest that CHWs offer health benefit to clients who need mental health care. According to a systematic review of literature by Mutamba et al. (2013), CHWs have the potential to impact on the psychosocial and psychological health of communities. This review included 15 studies, of which 11 studies were RCTs. CHWs provided a wide range of services such as providing psychosocial stimulation and nutritional supplements to children, improving education and awareness as well as providing emotional support across different studies included in the review. Significant improvements were found in symptoms of MNS disorders (mental health, neurological, and substance use), prevalence or mean scores of depressive symptoms or PTSD (post-traumatic stress disorder) symptoms. However, most studies included in the review by Mutamba et al. (2013) were for

secondary prevention, and the impact of CHWs interventions on primary prevention was less clear.

Pediatric Asthma: A systematic review of seven randomized controlled trials of CHWs interventions for children with asthma, (Postma et al; 2009) concluded that CHWs interventions consistently were effective in decreasing asthma symptoms, daytime activity limitations, visits to the emergency room, and urgent care use. However, the effectiveness of these interventions in reducing exposure to asthma triggers and allergen levels was inconclusive due to inconsistent results across the studies included in the review.

Maternal and Child Health: A systematic review of 43 randomized controlled trials (RCTs) examining the effectiveness of CHWs in a broad range of interventions asserted that CHWs interventions were more effective for specific health issues (e.g., promoting immunization uptake, reducing childhood morbidity, promoting exclusive breastfeeding and improving outcomes of tuberculosis treatment) compared to usual care. However, the existing data were insufficient for drawing strong conclusions on the effects of CHWs for other health interventions (Lewin et al., 2005).

HIV/AIDS: A systematic review to assess the effect of CHW interventions on antiretroviral treatment adherence for HIV-positive people was conducted by Mwai et al. (2013). Twenty one studies were included. The authors found that CHWs interventions significantly improved retention in care through defaulter tracing, adherence counselling, mobile reminders and collecting drugs from clinics. CHWs interventions can also successfully reduce patient wait time and reduce workload on health care workers, according to Mwai et al. (2013). Further, the findings support that CHWs interventions help people with AIDS live a life of dignity and quality by reducing stigma and developing a sense of belonging within their communities. As a result, the authors concluded that CHWs can perform a variety of roles related to HIV prevention, treatment and care without comprising patient outcome and quality of care.

Hypertension: A systematic review that set out to gauge the effectiveness of CHW interventions was undertaken by Brownstein et al., (2007). Using 8 randomized controlled trials on effectiveness of CHWs interventions in providing care for people with hypertension, the authors found improved appointment keeping, adherence to medication, and blood pressure control through interventions delivered by CHWs.

Diabetes: A systematic review of 18 trials on the CHW effectiveness in the care of persons with diabetes provided preliminary support for improving participant knowledge, lifestyle and self-management behavior, as well as decreases in the need for emergency department visits (Norris et al., 2006). Effects on physiological measures and health-related quality of life, and healthcare utilization were less conclusive compared to interventions provided by other health professionals, however. Such disparate findings should not be surprising, as the mixed evidence may stem from variation in study design, varying research methods and insufficient data across various studies. The results of the review by Norris et al. revealed that the inconsistency across studies might be due to differences in methodology or design and inadequate reporting of study methodology (e.g., recruitment strategies, training, supervision and evaluation of program). Studies also vary in the choice of methods for measuring outcomes, recruiting control groups (e.g., no intervention, usual care or other health professionals), defining CHW

and implementing interventions (Durano, 2013; Viswanathan et al., 2010) that clearly make the comparison of findings across studies very difficult.

Patient Satisfaction

Most of the studies examining patient satisfaction have been conducted outside the U.S., but Heisler et al. (2014), in a randomized controlled trial, showed patients found medical information provided in a session with a CHW to be more helpful and have improved clarity. Anecdotal evidence supports improved patient satisfaction with CHW interventions, but there is very little empirical evidence in peer-reviewed literature to support this, particularly in the U.S.

Cost of Care

There have been few peer-reviewed studies examining economic data (typically reported as incremental cost-effectiveness ratio [ICER] per quality-adjusted life year [QALY]) related to CHW interventions, with most having insufficient design or power to provide conclusive evidence (Viswanathan et al., 2010). One recent study (Schuster et al, 2015) does show improved cost-effectiveness, but only after program development costs are excluded. Prezio et al. (2014) used a statistical model to show an ICER of \$355 per QALY for a CHW-led diabetes management program. Gaziano et al. (2014) also used cost-effectiveness analysis to evaluate CHWs interventions on improving medication adherence among patients with hypertension compared to standard intervention group. The ICER, compared with standard care, was \$320 per DALY averted which falls well below the threshold of \$2154, the WHO-CHOICE standard for a cost-effective intervention in South Africa. Another study, using a longitudinal repeated measure design, showed a return on investment of 2.28:1.00 with a costs savings on \$95,941 annually in an intervention with CHW outreach to underserved men (Whitley et al, 2006).). Molina Healthcare's Community Connector Program assigned CHWs to reach members with complex health issues or high utilizers. The program, originally implemented in New Mexico, showed a cost savings of \$2,044,465 between pre and post intervention, with a cost of \$521,343 to manage the program over 25 months (Johnson et al, 2012).

While the evidence is limited by lack of published reviews, there is a growing amount of unpublished data that does indicate a positive return on investment for CHW interventions. Wilder Research showed a 2.3:1.0 return for CHW services provided for cancer outreach (Diaz, 2012). Several other unpublished studies and anecdotal data have led entities as the Centers for Disease Control, the U.S. Department of Health and Human Services along with numerous states to view CHW interventions positively (Rush, 2012).

In summary, the effectiveness of CHW interventions across different health issues in improving community health has been well supported by a growing body of literature. Given the heterogeneity in designs and variability in the quality of evaluations, however, it is not surprising that studies have not reached similar conclusions. Further research is needed to understand the effects of CHW interventions on patient satisfaction and cost-effectiveness, particularly in the U.S.

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