

The Evolution, Expansion, and Effectiveness of Community Health Workers

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Executive Summary

While attention focuses on insurance expansions under the Patient Protection and Affordable Care Act of 2010 (ACA), medical and public health services in the United States need to be improved to meet the goals of health care reform. One promising delivery-side innovation is greater reliance on community health workers (CHWs). The history of and research on CHWs shows that they can improve health access, improve health outcomes, and reduce health care costs for targeted subpopulations. CHWs are known by many names, including *promotores de salud*, health navigators, and community health representatives—and they can play many roles in health promotion, delivery of services, and coordination of care.

In the past decade, the CHW profession has increased its visibility, but its potential contributions remain underappreciated and more permanent financing is elusive. This paper describes the current state of knowledge about how and where CHWs can contribute effectively, where barriers inhibit efficient deployment of CHWs, and what business models could support change. Observations come from literature reviews, key stakeholder interviews, case studies of CHW initiatives, and a convening of practitioners, employers, advocates, policymakers, and other experts. This paper looks back at the development of CHWs in the United States and their roles and accomplishments to date.

I. Introduction

The Patient Protection and Affordable Care Act of 2010 (ACA) makes large changes to the financing of US medical services. Changes to the delivery of medical and public health services get less attention. In the long run, however, delivery-side changes are likely more important than new insurance financing for keeping Americans healthy and ensuring their access to quality medical services at affordable costs. One promising delivery-side innovation is greater reliance on community health workers (CHWs). CHWs are laypeople whose close connections with a community (especially disadvantaged communities) enable them to win trust and improve health and health services. Key new roles are emerging for them as large changes occur in American health care, reflected in and encouraged by passage of the ACA in 2010.

CHWs can bring about many positive changes because they may work for various employers in numerous different roles. CHWs educate patients, assist them in following prescribed treatment protocols, enroll them in coverage, and help them navigate a complex system. CHWs can help put increased focus on health in the holistic sense, as a complement to the usual focus on health services. They also have the potential to contribute to the “triple aim” increasingly reflected in private and state developments as well as in federal health reform—improving the experience of care, improving the health of populations, and reducing per capita costs of health care (Berwick et al. 2008, Bisognano and Kenney 2012).

CHWs have varied personal, health, and educational backgrounds and they receive training that can range from strictly on-the-job training to an associate degree. The jobs might also be time-limited and low paying or volunteer based (depending on the project or employer). This variety has often hampered clear understanding of CHWs’ roles and the value of their many contributions to the health of the populations they serve.

Once the province of public health subspecialists, the field has in the past few years increased its broader visibility. For example, articles about CHWs are appearing in leading journals (Rosenthal et al. 2010, Martinez et al. 2011, Singh and Chokshi 2013). The Bureau of Labor Statistics recently recognized CHWs as a separate occupation (BLS 2010, Office of Apprenticeship 2010), and both the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA) have been supportive (CDC 2011b,

2011e; HRSA 2007a, 2011). Numerous issue briefs have addressed state and national thought leaders (Sprague 2012, Goodwin and Tobler 2008, ASTHO 2012, New England Comparative Effectiveness Public Advisory Council 2013). The federal Department of Health and Human Services has launched a *Promotores de Salud* Initiative,¹ and key informants say that the Secretary's office has explored ways to do more.

Yet crucial barriers remain. In addition to often limited societal understanding of CHWs' potential contributions to better health and services, CHWs have had to cope with a fundamental reality of health financing: their contributions—improved patient understanding of health and health care, community-based lifestyle changes, greater patient engagement and self-management, higher overall individual and community wellness, and improved social determinants of health—have not traditionally been recognized by health care actors as a fundamental part of their roles.

The ACA creates new pressures and opportunities for transformation of the US medical care system, effecting important changes to serve those who will gain coverage under the ACA's provisions as well as those poorly served today. Fortunately, in the current economic climate, the needed changes to the medical care system imply significant new opportunities for health care workers, especially on the lower rungs of the workforce ladder where new CHWs would begin their careers. Many critical tasks could logically be assigned to CHWs, who are often economically vulnerable and with varied training levels and educational backgrounds. They provide a potential answer to improving care for chronic conditions and assisting in cost containment—both essential to the success of the ACA.

This paper looks back at the development of CHWs in the United States—their roles and accomplishments as so far observed. It reviews the current state of CHWs, the expansion of their roles and employment in recent years, and the business models that support their employment. The final section considers the evidence base on the effectiveness of past community health worker models in reducing health care costs and improving health. This paper draws on literature reviews, key stakeholder interviews, case studies of CHW initiatives, and a national convening of practitioners, employers, advocates, and policymakers. It draws together perspectives of the

¹ <http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlID=207>.

typically separated policy spheres of public health, health care financing and delivery, social services, and workforce development.

II. Who Are CHWs and What Roles Do They Play in the Existing Health System?

A. The Origins of CHWs

CHWs have served as part of the publicly financed health system for many years, often to address health disparities (HRSA 2007a, Berthold et al. 2009). In the mid-1960s, several programs used “neighborhood health aides” to improve the health of migrant farmworkers, the urban poor, Native Americans, and other underserved populations (Witmer et al. 1995). Early CHWs were primarily employed by government agencies that aimed to promote community well-being and alleviate poverty (HRSA 2007a). Community health centers, another form of outreach to the disadvantaged, were also primarily government run (Wright 2005). In the 1970s and 1980s, short term public and private funding supported particular uses of CHWs with targeted training in formally designed interventions.

The 1990s saw such community-oriented efforts transition to become part of health policy, along with stirrings of state and federal legislative activity to professionalize and regulate CHWs and incorporate them into the health care system. Texas enacted legislation to certify CHWs in 1999, and other state and local initiatives began seeking to identify CHWs as a profession and demonstrate their effect on health outcomes and reduction of health disparities. In 2001, the American Public Health Association recognized CHWs as public health professionals and helped win CHWs recognition by the Department of Labor as an occupation to be tracked. In 2010, the Bureau of Labor Statistics (BLS) added a Standard Occupational Code (SOC) for CHWs, although some disagreement still exists about its appropriate definition. The new definition is still being implemented (a final version is expected by the end of 2013), so CHWs are not yet tracked separately from other types of social service workers. Estimates of the number of working CHWs vary but, combining several sources of information, a DHHS agency estimated that there were 86,000 community health workers in the United States in 2000, of which about two thirds were paid and the rest were unpaid (HRSA 2007a). The existence of paid and unpaid workers both adhering to the CHW model complicates tracking CHW employment. Moreover, it represents a fundamental division within the profession, roughly between those who see their

work as a calling to serve their communities and those who see themselves as health professionals.

Over the last half century, the CHW workforce has expanded greatly, as have the target populations they serve and the types of entities employing them. A key driver of this growth was the population boom in the mid-20th century, during which population growth began to outpace the growth in medical provider capacity (Witmer et al. 1995, HRSA 2007a). A similar growth in demand for health care services is expected to accompany the aging of the ‘baby boom’ generation. Not only is the level of service demand growing, but the composition of needed services is also changing. The growth of the immigrant population has brought demand for delivery of services with greater cultural competence (Murdock et al. 2003). Since the recent Great Recession, the United States has seen an increase in families living in poverty, with one in five families at or near poverty level incomes (U.S. Census Bureau 2012). With increased poverty comes an increase in poverty-related diseases and a decrease in access to care. An additional change in service need follows from the increasing acknowledgement of the importance of factors not associated with medical care in promoting or maintaining the health of both individuals and the population.

Finally, within the medical care system, there is a strong push coming from multiple sources to improve the efficiency of care delivery through various means, including the expanded use of care teams. This change in approach is motivated by existing shortages in the primary medical care workforce and the expected increase in demand for care associated with expanded insurance coverage under the ACA. The traditional physician-centered model for primary care also keeps health care costs high and impedes access to primary medical care for those who cannot pay or are daunted by an increasingly complex system (Dower et al. 2006). These challenges are pushing government at all levels, providers, and third-party payers (insurance companies) to reconfigure how health services are delivered, increasingly looking to CHWs as a potential means to increasing access to health services while mitigating costs.

B. Community Health Worker Roles – Diverse, Multiple, and Expanding

The roles CHWs have played in the United States have been varied. They serve a broad range of populations in various settings, address many different health issues, and provide social services and case management. CHWs are traditionally chosen based on their connections to or affinity

with the target population. They may be members of the same community or have similar personal, socioeconomic, or health experiences. They must possess “hard” or occupational skills to conduct their work—for example, knowledge about the health issues they are addressing, the ability to conduct health screenings, and familiarity with the environmental and social determinants of health. These hard skills can be acquired through job-specific training. They also must have “soft” skills or personal attributes that make them effective as a CHW—for example, interpersonal skills, observational skills, and the ability to problem solve. One of the most important but intangible skills of an effective CHW is that he or she can relate to and demonstrate empathy with the population that is being served. Together with the community connection, these hard and soft skills allow CHWs to take on various roles, including educator, counselor, assessor, case manager, mediator, coordinator, and advocate.

Developing a comprehensive and widely accepted definition of a community health worker is challenging. CHWs go by dozens of different titles—community health advisors, lay health advocates, “*promotores(as)*”, outreach educators, community health representatives, peer health promoters, and peer health educators (among many others) (HRSA 2007a). They work many settings—in homes, in health clinics and medical offices, in hospitals, in rural and urban settings, domestically and internationally, in community based organizations, and in churches and other faith based institutions. And they interact with individuals who have or are likely to have particular health issues and with their families; doctors, nurses, and other medical professionals; social workers and social service providers; insurance companies and other third-party payers; and community leaders.

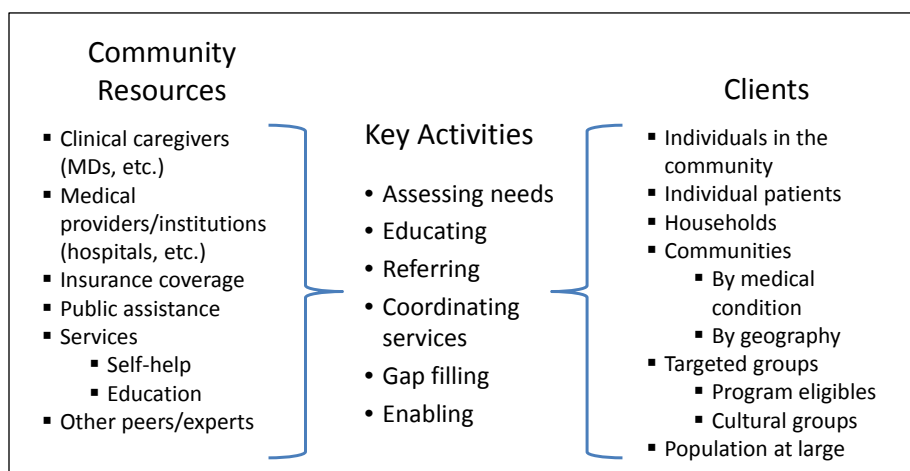
The BLS developed the following definition of what CHWs do (based on a recommendation from HRSA) in order to track the number of US workers in this occupation as well as forecast employers’ future demand:

Assist individuals and communities to adopt healthy behaviors. Conduct outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health. May provide information on available resources, provide social support and informal counseling, advocate for individuals and community health needs, and provide services such as first aid and blood pressure screening. May collect data to help identify community health needs (BLS 2010).

Notably, BLS distinguishes between a CHW and a health educator, who typically has more postsecondary education and training (although CHWs may have responsibilities that include forms of health education). Alternate but generally similar definitions exist. The American Public Health Association's definition² emphasizes CHWs' history as public health workers focused on both individuals and entire communities:

A Community Health Worker (CHW) is a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the CHW 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.

Figure 1. How CHWs Create Bridges between Clients and Community Resources



Source: Authors' construct from environmental scan; see especially Berthold et al. (2009).

A CHW also builds 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.

This definition has been adopted by other organizations such as the CDC (2011a) and the Office of Minority Health at the U.S. Department of Health and Human Services.³ The more recent focus of CHW on patient-centered medical care, quality, and cost containment may argue for a broader definition, but is somewhat controversial within the traditional CHW community.

² <http://www.apha.org/membergroups/sections/aphasections/chw/>

³ <http://minorityhealth.hhs.gov/templates/content.aspx?lvl=2&lvlid=207&ID=8930>

O*NET, a national database of skills and educational requirements for occupations as recognized and defined by BLS, delineated the specific tasks a community health worker may complete (O*NET 2013). These tasks outline the broad responsibilities that CHWs may have to train for and complete for various roles, from providing direct health services to advising patients and clients on self-care, child care, and home environment, to working with community groups and health care providers. (The list of specific tasks is provided in appendix A.) A common element in listed tasks is that CHWs not only provide direct educational and other services, but also serve as an important bridge between individuals and families in the community and the delivery systems for health care and social services.

CHWs, in their bridge role, help individuals understand and navigate an often confusing system and thus help the health care system provide care more effectively and efficiently. Figure 1 illustrates bridging functions that CHWs perform to better connect clients to community resource.

The Rural Assistance Center (2013) developed an alternative way of looking at how CHWs function, building on earlier definitions (Rosenthal et al. 1998, HRSA 2007a). This federally funded initiative that addresses health disparities in rural America identifies six models in which community health worker operate—lay health worker, member of a care delivery team, care coordinator/manager, health educator, outreach and enrollment agent, and community organizer and capacity builder (appendix B). These models are not mutually exclusive, according to the Center, and are often combined depending on the health issue being addressed.

C. Education and Training of CHWs

The soft and hard skills described above are just the starting point for training a CHW who can successfully accomplish the many roles and tasks in these definitions. On-the-job training allows the CHW to adapt these skills to the tasks at hand. In this way, CHWs are like many health professionals—such as licensed practical nurses, registered nurses, physician assistants, and medical doctors—in that they have a basic set of skills that they must learn to apply to the setting in which they work and the population they serve, in a sense becoming specialists. Formal training combines with experience within a well-managed team to allow CHWs to work to the “top of their training” or capacities.

The varied roles, tasks, populations served, and types of employers can be combined in multiple ways to create the wide range of CHWs that are working in the United States. Figure 2 is based on existing definitions and combines them in a matrix to illustrate the complexity of this field. An individual CHW is likely to be called on to function in many of these roles but is likely to specialize in only one or a few of them.

D. Skills and Training of Community Health Workers

Just as the roles of CHWs are varied, the requirements around their education and training are also wide ranging. In 2006, HRSA reported on a survey of 900 employers of CHWs nationwide (HRSA 2007a).⁴ The survey showed that only a little over half (53 percent) of employers of CHWs have an education requirement, 21 percent require a secondary school credential (high school diploma or GED), and 32 percent require a bachelor's degree. At the time of the HRSA survey, the majority of CHWs had less than a two-year college degree and 7.4 percent had less than a high school education. Paid CHWs were more highly educated than the volunteer force, but the median credential for both groups was "some college."

Many descriptions of CHW skills or competencies exist, and there is considerable overlap. For example, HRSA (2007a) lists 10 skills that might be possessed by a CHW. The National Community Health Advisor Study lists 8 core skill clusters (with 18 subsidiary abilities), along with 18 qualities of community health advisors (Rosenthal et al. 1998, adopted by many others, e.g., Berthold et al. 2009). The Massachusetts Department of Public Health (Anthony et al. 2009) recognizes 10 core competencies. A complete listing of these skills and competencies is provided in appendix C.

Some of these competencies are "hard skills" that can be taught—such as knowledge of community health resources or outreach strategies. Others are "soft skills" such as empathy, compassion, and an outgoing personality, which are typically integral to a person's nature and experiences and so are personal attributes that an employer would seek. Yet others, such as communications skills, are personal attributes that can be enhanced by training. Foreign language skills are important when the target population is non-English speaking. Most employers have offered training to CHWs after hire, either to reinforce CHW qualities that the employer

⁴ Responding employers were not a random sample of all employers of CHWs, since there is no list of all CHW employers. 2,500 CHW employers were contacted nationwide and invited to participate in the survey; 900 responses were received, a response rate of 36 percent (HRSA 2007a).

Figure 2. Roles for Community Health Workers in Preventive Health Care and Community Well Being

illustrative roles for CHWs	general wellness education encouragement, coaching facilitation of PH facilitation of self- help inspection of environs	education on risks facilitation of access screening for risks encouragement of follow up identifying envi- ronmental risks assess social determinants of health	identification of needs encouragement, coaching facilitation of access to health care facilitation of access to social services coordination of care compliance with regimen counseling, comforting
focus of activity	<u>primary prevention</u> (a.k.a. community prevention, operates at population level)	<u>secondary prevention</u> (a.k.a. clinical prevention)	<u>tertiary prevention</u> (among diagnosed patients)
definition of goals	protect from threats, promote healthy living, act before development of diseases/conditions to preempt them	identify risk factors and intervene or screen before clinical onset (e.g., for cancers), so as to intervene early and delay onset of conditions or mitigate their effects	prevent progression of manifest disease or condition, attendant suffering (e.g., chronic care)
client(s), targeted populations	people of similar ethnicity/experience as the CHW; may target whole community/ high-risk subpopulation (e.g., general outreach, ad campaign) or individuals/ households (e.g. prenatal services)	individuals/households of similar ethnicity/experience, especially for high-risks (may be entire community or a subpopulation); typically work one-on-one with clients	individuals/households of similar ethnicity/experience who have targeted condition(s) (e.g., men with known high cholesterol, women with gestational diabetes); typically work one-on-one with clients
types of likely employers	public entities, also population-oriented health plans/HMOs/MCOs, quasi-public CBOs/NGOs, foundations, charities, faith-based organizations	mix of population-oriented entities (left) & providers (right)	health care providers, especially where prepaid (e.g., capitation or bundling) or regulated (e.g., no payment for early return to hospital); also case-managing health plans
	departments PH CBOs/NGOs large self-ins'd workplaces HMOs/MCOs health plans ACOs	PH departments NGOs/MCOs workplace groups health plans ACOs prepaid providers medical homes	hospitals medical homes CHCs other clinics community care organizations hospices

Source: authors' construct from literature & interviews.

Notes: "Facilitation" applies for screening and for care; it includes referrals, transportation, other services. "Health plan" includes self-insured workplace groups.

ACO = accountable care organization; CBO = community based organization; CHC = community health center; HMO = health maintenance organization; MCO = HMO like managed care organization; NGO = nongovernmental organization; PH = public health

appreciated or to teach skills needed for specific programs. Training could take many forms, occurring in classrooms, through mentors, or in the form of on-site technical assistance (HRSA 2007a).

Formal Certification and State-Recognized Training

Training of CHWs was first addressed formally in the 1990s when various states introduced legislation related to CHWs. Though these initial legislative efforts were ultimately unsuccessful, the increased attention to the role paralleled the creation of various CHW training centers and conferences across the country. In 1999, Texas passed the first state-recognized certification program for CHWs, setting off an era of successful legislative initiatives throughout the 2000s.

The roles of CHWs were codified to some degree, training efforts were increased, and many certification and licensing programs were introduced (HRSA 2007a). There is still no national standardized curriculum; indeed, some CHWs and advocates are wary of establishing standards that may not adequately reflect regional, local, and cultural differences in approach. Several states have adopted state-recognized credentialing standards. As of 2010, 14 states had certification programs in place, had state-level standards for training CHWs, or were exploring certification options (HHS 2011).⁵

In some states, certification can be obtained either through formal training or through equivalent field experience, while other states require classroom instruction (HRSA 2007a). Texas's state certification program focuses on eight core competencies: communication skills, interpersonal skills, service coordination skills, capacity-building skills, advocacy skills, teaching skills, organizational skills, and knowledge base. CHWs in Texas can be certified with either 160 hours in a "competency-based training program" or 1,000 cumulative hours of experience within a six year period (Texas DSHS 2012). Ohio's certification system requires at least 100 hours of classroom instruction and 130 hours of clinical experience in the areas of health care, community

⁵ Texas and Ohio were the first states with general state-level CHW certifications. Alaska and Indiana require state certification if CHWs conduct certain activities (clinical service delivery in Alaska and home visits in Ohio). North Carolina and Nevada have state-level training standards and provision. Arizona, Southern California, Massachusetts, and Virginia have a state curriculum for CHW training and offer programs at public community colleges. Hawaii, Kentucky, New Mexico, and Minnesota have certification programs that are not mandated by the state, or they are exploring such programs (HHS 2011, 9-11).

resources, communication skills, individual and community advocacy, health education, service skills and responsibilities, and needs throughout the span of a lifetime.⁶

On-the-Job Training

Traditionally, on-the-job training plus the natural attributes for which they were recruited has enabled CHWs to achieve the results seen in the past. Our scan found much less information about on-the-job training, sometimes formalized as apprenticeships, than about formal training and CHWs credentialing. Conceptually, it is possible to recognize existing and acquired skills and experience with some portable credential, but other than the one-time “grandfathering” provisions in Texas and Minnesota’s accreditation approaches, this seems little discussed. Unlike licensure, accreditation poses no bar to continued practice by CHWs. If the funding source is third party payment, the payer may as a practical matter impose some sort of credentialing requirement as part of agreeing to pay for CHW services. This is what appears to have happened in each state receiving a Medicaid waiver. Private practice appears undocumented.

E. Key Elements in Models of CHW Intervention

CHWs typically work as part of a multifaceted intervention; for example, as part of a medical team or alongside other public health or social workers. Moreover, the conditions of CHWs’ hiring and employment, how their tasks relate to their roles and goals, how they and their superiors measure and manage their work can all vary. Figure 3 lists major components of policy interest. Plausibly, variations in aspects of each element can influence the success of an intervention.

Employment and financing includes who employs the CHWs, on what basis, and with what incentives. The role or function played by CHWs is an amalgam of features and the usual focus of description in published articles and reports. How well those features can be expanded to a larger population is typically unclear. Workforce features also matter. Although articles typically provide some description of training, they do not always do so. How CHWs are recruited—and for what attributes—is also important. Moreover, those attributes may be difficult to describe and are not uniformly distributed within the pool of potential job seekers. Supervision and management also seem important. For instance, employers and researchers may not know

⁶ <http://www.nursing.ohio.gov/PDFS/CHW/CHW%20PROG%20Packet.pdf>.

Figure 3. Four key elements of CHW interventions

Workforce issues	Employers, payers, & financing	Roles & functions	Measurement & management
Employment pool	Employer	Clientele/target of work effort	Inputs, tasks, services that are tracked
Attributes ^a -- qualities or "soft" skills ^b	- public agency	- population-oriented	Outputs or outcomes tracked
- peer of clients, by, e.g.:	- non-governmental organization	* by neighborhood or community	Resource costs tracked
* geography, culture, experience	- medical provider	* targeted by health issue (e.g., diabetes)	Other important data
- personal qualities, e.g.:	* physician practice	- individual clients	How data are obtained
* mature, non-judgmental	* clinic	* found within community or referred	- self reported by CHW
* empathetic, friendly, persistent	* hospital	* targeted by health issue, severity	- administrative data
- work readiness, e.g.:	- health plan, integrated delivery system	- nature of benefit sought	- from payment system
* dependable, literate, sociable	Source of funds	Specific responsibilities ^c	- client survey
* honest, polite, dedicated	- public budget	- general health education, promotion, organizing, advocacy	- other exogenous source
Skills, ^b or "hard" skills, technical:	- institutional funds	- outreach & enrollment to health coverage	Data availability, real-time or retrospective
- literacy, basic education	- grant or other project funding	- screening and referral to care	How data are assessed & used
- understanding of conditions & care	- payment for care (FFS, bundled)	* may be primary or specialty care	How work is supervised
- understanding of delivery system	Payment method	- active care coordination/navigation	
- screening, 1st aid, other services	- paid or volunteer	* specific follow-up, e.g., post-hospitalization	
- counseling, communication	- full-time, part-time, project-specific	* ongoing, especially MCH & chronic care	
Training ^b (for expected scope of work)	- flat wage or per service	Work conditions	
Credentialing: before hire,	- may have bonuses or incentives	- solo/independent or part of a caregiving team	
earned on job	Costs of intervention	- in field, in office/clinic, or mixed	
Career ladders & retention	- start up, ongoing; fixed, marginal	- workload	

^aThe National Community Health Advisor Study report lists 18 qualities (Rosenthal et al. 1998, p.17); the NY report (Matos et al. 2011, p. 16) lists 29 within 8 categories.

^b Attributes or "soft" skills plus technical/job-specific or "hard" skills are terms frequently used to capture the types of capabilities and competencies needed to be successful in an occupation such as a community health worker.

^c The National Report lists 7 "core roles" (p. 12); Matos et al. also list 7 (similar) roles, with more than 50 subsidiary ones within those categories. N.B. Exogenous factors also affect roles, e.g. scope of practice rules, liability climate.

Source: authors' construct, based on literature scan and key informant interviews.

precisely what CHWs do during home visits. In many roles, CHWs are intended to follow their instincts in building trust with clients, drawing out from them what problems they have, and observing relevant health-related factors in the home.

Beyond such characteristics of a CHW intervention lie the characteristics of the area within which they work. Perhaps most obviously, successfully screening underserved people for disease can influence health outcomes only if treatment is available. Treatment availability is not a given, particularly in underserved areas historically typical of CHW interventions. Availability likely differs considerably across locations, which can affect the generalizability of interventions. Indeed, CHW interventions are often designed to help clients improve not only via their own health-related behaviors (challenges which may be similar across the country) but also via the specific strengths and limitations of the health, public health, and social services system of their areas. Such a focus poses additional challenges to aggregating information from interventions in different places, and to thinking about how to expand.

Publications about CHWs often provide little information about the skills and training needed in order for CHWs to play particular roles. Similarly sparse are details about the design, operation, and context of implementation that were important to make a successful intervention work. One reason is the space limitations of conventional articles, another is that a scientific or policy-oriented focus may forgo the practical details needed by readers whose focus is operational and who must gauge whether the intervention can work under their own circumstances or what investments are needed to make it work.

Randomized controlled trials (RCTs) remain the gold standard for research, and so it might seem reasonable to expect that CHW research should feature ever more RCTs. Rigorous findings are particularly important for convincing medical decision makers. However, conducting a strong RCT may require so circumscribing the intervention that results will be of little interest to practical people. Emphasizing evidence from RCTs also could mean that much relevant information will be excluded by reviewers. Notably omitted from the published research record is the “marketplace” experience of health plans, providers, and public administrators acting pursuant to their own interests and missions. Innovations diffuse not only because of published research and evaluation but also because people observe the behavior and experience of analogously placed actors. Another valuable source of generally reliable information is the observed behavior of well-informed and well-motivated actors trying to achieve a desired result.

III. What Is the Evidence on Benefits and Costs of CHWs' Work?

A scan of the literature shows many case reports and some more careful studies demonstrating that CHWs can add value in health services and health promotion in many roles. Yet the few systematic literature reviews are far less positive, finding only limited support for the effectiveness of CHWs and little documentation on costs or cost effectiveness. As discussed below, this lack of rigorous documentation of CHW net value stems in large part from the nature of CHWs' work and from the types of organizations that employ them. One reason that CHW interventions have been hard to assess, especially with RCTs, is that interventions involving CHWs are frequently more complex than purely clinical interventions. CHW services are embedded within a structure of design and processes of implementation that have numerous other components, making it difficult to identify a control population. Any intervention faces the issue of confounding factors. In CHW interventions, the number of potential confounders is large, some are difficult to identify, and few are amenable to control. Figure 3 (on page 12) sets out one way of organizing important features of CHW interventions or models of services; all are potential confounders. This section provides first an overview of the findings on benefits and costs and then a discussion of the limitations of the available evidence for assessing CHW contributions to health and health care.

Benefits

Overall, the evidence on benefits is mixed. However, beyond systematic reviews lies a great deal of evidence that cumulatively raises confidence that many CHW interventions can be successful. Given the diversity of CHW roles and the settings in which they work, it is not surprising that the benefits of their work are difficult to measure. The strongest evidence is found for improving immunization rates and promoting breast feeding (Lewin et al. 2005), interventions with easily documented outcomes. Some support is also found for effectiveness in improving client knowledge (Viswanathan et al. 2009), helping clients manage childhood asthma (Postma et al. 2009), and managing client hypertension (Brownstein et al. 2007). The number of studies on CHW programs and initiatives has grown over time and the quality has increased. Results, however, remain inconsistent or mixed, with stronger findings generally associated with more targeted reviews (HRSA 2007a). Despite the lack of such formal evidence, there is a growing,

though informal, consensus that CHWs can effect change in the communities they serve (Witmer et al. 1996, Rosenthal et al. 1998, IOM 2003).

How well documented the benefits are of CHW services to communities and individuals served depends on the standards applied to the available information. Early publications on CHWs were largely descriptions of individual interventions, discussions of CHW concepts and potential roles, and presentation of informed opinions. It is only with later publications that attempts were made to impose a standardized framework for assessing costs and benefits. The most useful publications are articles that look across individual studies, comparing results of those with adequately rigorous evaluation standards.

Early review articles and overviews sought to assess the extent of reliable knowledge about the benefits from CHWs' services (Witmer et al. 1996, Rosenthal et al. 1998, and IOM 2003). Witmer et al.'s early literature summary examined 26 articles and concluded that CHWs have the potential to improve access, quality or cost in at least half a dozen roles. Rosenthal et al. conducted the first broad-ranging, national study on CHWs; it not only scanned the published literature on CHWs⁷ but also reached out to authors and administrators to assemble a comprehensive picture. This in-depth approach to the existing knowledge base led to substantial new information and a useful conceptualization of CHW roles, skills, and qualities. It highlighted some exemplary findings from individual CHW interventions that achieved positive benefits for the populations served or cost savings. The authors noted reductions in emergency room visits, hospital length of stay, and complications for certain illness, all of which represent both improved quality and potentially reduced net costs. They also noted the less tangible benefits of greater trust between the client and the health care system. The authors lamented the "lack of concrete data on program effectiveness" (Rosenthal et al. 1998, 18). The Institute of Medicine canvassed the literature through the 1990s and reached much the same conclusion: "Community health workers offer promise as a community-based resource to increase racial and ethnic minorities' access to healthcare and to serve as a liaison between healthcare providers and the communities they serve" (IOM 2003, 195). These words coming from the Institute of Medicine brought wider attention to the conclusion.

⁷ The study used the term "community health advisor" or CHA, also used in the 1990s by CDC. The American Public Health Association (APHA) section decided to promote the term CHW instead.

Rosenthal et al. (1998, 19–20) noted a serious limitation in the available research on CHWs: traditional CHW interventions were simply neither designed for nor capable of formal assessment. Barriers to assessment included a lack of expertise and resources among practitioners; the difficulty of measuring what CHWs do to teach self-help, coping skills, and empowerment; reluctance to document sensitive information about clients; and an inability to capture information on inputs and outcomes outside the intervention or distant in time. The study made strong suggestions for how to increase useful research, including more specificity about CHWs’ objectives, better tracking of costs and benefits, more education of CHW leaders in assessment methods, and improved qualitative methods. In 2007, stakeholders were convened to draft a national research agenda on CHWs to address some of these shortcomings (Rush and Rosenthal 2007).

More recent reviews of CHW interventions and programs have been conducted by the Cochrane Collaboration (Lewin et al. 2005, 2010), HRSA (2007a), Viswanathan et al. (2009), Postma et al. (2009), and the CDC (2011c). In addition, Lewin et al. (2010) updated their earlier (2005) review with a narrowed focus.

The HRSA (2007a) study included a review of nine literature reviews published during 2002–06. It discussed the focus, methods, and findings of the reviews, which covered 98 underlying studies. Overall, these studies more often measured changes in knowledge or behavior than in clinical outcomes. The studies were too disparate in topics, methods, and results to “provide a systematic evaluation of CHW effectiveness and best practices,” noted the report, but the collective body of work did present “valid—if fragmented—evidence of CHW contributions to the delivery of health care, prevention, and health education for underserved communities.”⁸ While some good individual studies supported the effectiveness of some intervention, the report identified no overall pattern.

It can be argued that the highest quality reviews are those that focus wholly or mainly on RCTs, the gold standard for medical research. Both the Cochrane Collaboration and an AHRQ-sponsored review focus on RCTs of CHW interventions. Results are not particularly favorable to

⁸ An accompanying annotated bibliography summarized the 45 publications and reports considered most consequential for the field, but drew no conclusions (HRSA 2007b). Among those, 10 were reviews or overviews, and 35 were individual program descriptions or analyses. The most commonly targeted health conditions were cancer, diabetes, and hypertension/cardiovascular disease, and the most commonly used approaches were health education, screening, and behavior changing interventions.

CHW interventions. One systematic review of “lay health advisors,” (an alternate title for CHWs) included 43 RCTs from 14 countries through mid-2001 (Lewin et al. 2005), 24 of which were from the United States. It found “promising evidence” for a few types of intervention—boosting immunization in children and adults, improving outcomes for malaria and acute respiratory infection in children, and promotion of breastfeeding, but insufficient evidence for other services. Evidence on what training or intervention strategies are most effective was also insufficient.

Viswanathan and colleagues (2009) conducted a systematic review of 53 studies on characteristics and outcomes of CHW interventions, 6 on cost-effectiveness, and 9 on training, including both RCTs and other high-quality studies that included appropriate comparison groups. “Limited evidence” (five studies) suggested that CHWs can improve client knowledge better than alternatives. “Mixed evidence” supports CHW effectiveness on behavior change (22 studies) and health outcomes (27 studies). “Low or moderate strength of evidence” suggests more appropriate health care utilization for some interventions (30 studies) but the evidence varied by clinical context and target condition. “Limited evidence” was available on characteristics of CHW training, and no studies tested the impact of CHW training on health outcomes.

The updated review by Lewin and colleagues (2010) looked at RCTs focused on maternal and child health and the management of infectious diseases. They found “moderate quality” evidence worldwide on CHW effectiveness in promoting immunization of children, breastfeeding, and tuberculosis cures but “low quality evidence” for reducing child morbidity and neonatal mortality. There was also low quality evidence of their effect on the likelihood that families seek care for childhood illness. Evidence was found insufficient to assess the effectiveness of specific training or intervention strategies.

Other systematic reviews have more positive findings for CHWs. Postma and colleagues (2009) systematically reviewed 7 randomized trials of home interventions delivered by a CHW to families with an asthmatic child. The studies consistently identified positive outcomes, including decreased asthma symptoms, daytime activity limitations, and emergency and urgent care use. However, expected changes in behavior to reduce exposure to asthma triggers—the focus of the interventions—were not consistently found, casting doubt on the expected mechanism of the change.

Costs and Cost-Effectiveness

Discussion of the cost of interventions is very often omitted from CHW publications, as it often is from medical assessments in general. Cost effectiveness studies are even rarer. Dower et al. (2006) lamented this dearth of information in the first careful look at CHW financing. The AHRQ review found only six rigorous studies with economic and cost information, and these yielded insufficient data to evaluate the cost-effectiveness of CHW interventions relative to other community health interventions (Viswanathan et al. 2009). In the secondary literature, one sees repeated mentions of the same few studies that address costs. CHW outreach and case management of adult males at the public hospital in Denver showed cost reductions more than double the cost of the program (Whitley et al. 2006); case management of Medicaid beneficiaries with diabetes in Baltimore reduced ER visits and hospitalizations yielding net savings (Fedder et al. 2003); and asthma management in Hawaii led to significant per capita cost declines (Beckham et al. 2004). Brown and colleagues (2012) estimated long-term, society-wide cost effectiveness for a CHW intervention among low-income Hispanic adults with diabetes.

Though these and other studies offer some evidence of cost effectiveness, they are subject to limitations regarding their generalizability to other health system settings; an issue explored in more detail below. Another limitation of the cost-effectiveness literature is the lack of information regarding key elements of the programs being studied. As with the evaluation of benefits, costs seem quite sensitive to the specifics of an approach, and key elements of those approaches or models of intervention may be omitted from published results. Even the simple point of whether the CHWs are volunteers or paid, an important component of costs and a likely determinant of sustainability, is omitted from numerous studies reviewed for AHRQ (Viswanathan et al. 2009). Such information could likely be gathered through direct contact with the studied programs, but its omission from published reports suggests that analysis of costs and cost effectiveness has been a relatively low priority for CHW researchers.

It is also reasonable to question how well formal research can truly study costs, as is the case with studies of benefits. Costs are not immutable, but rather context dependent and subject to management control. Anderson (2010) makes this point more broadly in his aptly titled review, "Systematic reviews of economic evaluations: utility or futility?" He argues that it is increasingly recognized in public health and health promotion that only asking whether an intervention "is effective" has limited value, because effectiveness is complex and contingent on the specific

combination of elements in an intervention and/or its interaction with different community and organizational contexts. Rather, he argues, it makes much more sense to ask "how and why" an intervention is or is not effective or cost-effective in different circumstances. Drummond and colleagues (2005) remark that "there is widespread recognition amongst economists, and possibly amongst decision makers, that whether or not a particular intervention is cost-effective depends on the local situation."

Drummond's observation is particularly applicable to CHW interventions, given their enormous variety of goals, settings, target populations, and implementation contexts, along with the different training and supervision of the CHWs themselves. As an instructive thought experiment, consider whether one would ask research to prove that nurses or doctors "work" as a means to improve health outcomes or lower costs. Any question so posed seems nonsensical. One asks instead more focused questions, such as whether hospital quality is higher or mortality lower in institutions with more nurses or with a higher share of baccalaureate-trained nurses relative to associate-degree or diploma nurses (Aiken et al. 2002, 2003; Needleman et al. 2006; Kane et al. 2007). Moreover, one expects to get a reliable answer only by having a very large number of observations and expects even then not to understand the conditions under which educational differentials matter more rather than less, or about the influence of pay levels and working conditions.

Where CHWs serve as members of a caregiving team; whether they operate alongside or in parallel with office- or hospital-based practice; and how they are trained, deployed, and motivated surely matters to how well they complement the efforts and extend the capabilities of that team. So too does the organization of the team itself, how it is trained, and how well members are motivated to accept a team-based approach to outreach and caregiving. In short, CHWs are only one part of a process for delivering well-functioning clinical services for a population, with the ultimate goal being production of better health outcomes. Asking whether they "work" as an intervention without considering complementary factors is not likely to yield useful policy information.

The Cochrane review of CHW interventions and programs seems to have come to a similar conclusion. After the 2010 review, the authors called for more qualitative evidence to be collected as part of RCTs, in order to understand factors that influence variation in impacts of

similar interventions across locations (Glenton et al. 2011). This suggestion is consistent with the general push toward the use of mixed methods in evaluation.

IV. What “Business Models” Support Employment of CHWs Today?

A. The Importance of Making a Business Case

Evidence of the effectiveness of particular health interventions using CHWs in various roles is a major element in considering how they can best be used going forward. Cost effectiveness may be even more important. However, a sustainable framework for intervention requires going beyond either of these to demonstrate to particular types of employers the business case for investment in hiring, training, deploying, and managing CHWs.

Two additional elements are needed to translate evidence on cost effectiveness findings into a business case: the benefits must accrue to the party bearing the cost and they must accrue within a reasonable time after the costs are incurred. As Leatherman and colleagues (2003, 18) explain:

A business case for a health care improvement intervention exists if the entity that invests in the intervention realizes a financial return on its investment [ROI] in a reasonable time frame, using a reasonable rate of discounting. This may be realized as “bankable dollars” (profit), a reduction in losses for a given program or population, or avoided costs.

Making this case can be a challenge because of externalities in time and actors involved. For example, if local health departments deploy CHWs to provide case management for Medicaid beneficiaries with asthma or diabetes, the benefits accrue to Medicaid—quickly in the case of asthma, more gradually in the case of diabetes. Unless decision makers take this interaction into account in budgeting for health departments and Medicaid, the former may find it difficult to make the business case for continuing the CHW programs.

Deploying CHWs to benefit the disadvantaged may be the right thing to do for promoting population health, or it may reduce disparities at lower cost than other social interventions. Yet that potential may provide insufficient motivation for many to take action, and even those with a mission to act may lack sufficient funding to take or sustain action. For CHW jobs to be sustainable, their employers need to anticipate and experience a financial return sufficient to cover the costs of employing CHWs to achieve desired benefits. The return may take the form of

an increase in revenues or an offsetting decrease in non-CHW costs. It is not enough to achieve benefits for the system or for a population in general, even for those whose mission is helping others; hence, the familiar expression “no margin, no mission.”

A business case may need to be made in private or public sectors and at different levels within a larger entity. A public health agency might need to convince budget makers that a higher appropriation is warranted, relative to other uses of such funds, or a hospital department might need to “sell” its superiors on new hires that can achieve more than offsetting savings elsewhere in the organization. The accounting must include both startup costs and ongoing expenses.

B. CHWs’ Traditional Funding Sources

Existing employment and funding patterns illustrate how today’s business models undergird traditional uses of CHWs. Evidence suggests that only a few mechanisms have provided stable funding; that is, other than time-limited or part-time employment for CHWs. From the perspective of CHWs and their employers, the limiting factor to expanded employment is not lack of productive roles but rather lack of financing, which has kept their numbers small compared with those of other health occupations (Rosenthal et al. 1998, HRSA 2007a, BLS 2012). Various programs employ CHWs, most often situated within public health agencies, schools, universities, and various community-based organizations (CBOs). An estimated two-thirds to three-quarters of CHWs work in paid positions while the rest are volunteers (Rosenthal et al. 1998, HRSA 2007a). *Promotores* appear to be more likely to serve as volunteer workers.⁹

The two major surveys, confirmed in other reports, suggest that by far the dominant source of funding is short-term grants or contracts, often condition specific, largely from governments or foundations. Some public health programs, medical providers, or other sources provide employment from longer term, stable funding. These include the Indian Health Service, which is the single largest employer of CHWs nationally (HRSA 2007a), and occasionally Medicaid. Unfortunately, published literature on CHW interventions provides very little detail on the financing arrangements under which the CHWs work.

⁹ See also http://www.migranthealth.org/index.php?option=com_content&view=article&id=41&Itemid=38.

The seminal assessment of financing (Dower et al. 2006) identified four forms of payment being used to fund CHWs. These were (1) government and private grants, (2) Medicaid, (3) government general funds (as distinct from grants), and (4) hospitals, clinics, health plans, or other private companies.¹⁰

Grants and Contracts

Grants and contracts from government agencies or private foundations funded "the vast majority of CHW programs in this country," concluded Dower et al. (2006, 12). Most were research or demonstration grants, so they generated substantial reporting and publication of descriptive information and some performance data. The HRSA report (2007a) reaffirmed the usefulness of published grant results and noted further that whereas early grants emphasized general support for CHWs, later ones focused on their use in caring for particular conditions, such as promoting vaccinations or maternal and child health.

Medicaid Payment

Medicaid payment as a model for CHW employment was pioneered by Alaska in 1999 as a way to help address the needs of its far-flung medically underserved populations. Community health aides have provided services to Native Alaskans since the 1950s. From 1999 a unique agreement with federal Medicaid authorities has made CHW services directly payable by Alaska Medicaid if the CHWs meet certification standards, work for the IHS or a tribal organization contracting with the IHS, and are supervised by a responsible physician who certifies medical necessity (Dower et al. 2006).

Other states have made arrangements to use Medicaid funds to pay for CHW services in other ways. California obtained a Section 1115 federal waiver to use CHWs for certain family planning services in 1999 (Dower et al. 2006); Minnesota filed a state plan amendment in 2008 to allow them to pay CHWs to provide care coordination and patient education services. New York's maternal and child health initiative, which the state calls simply "the CHW program," is also at least partly funded under Section 1115 waiver provisions (2012 Minnesota Statutes sec. 256B.0625, Subdivision 49, Community Health Worker). Most recently, Oregon passed legislation authorizing the development of education and training requirements for CHWs, as

¹⁰ It also suggested other potential ways of funding CHWs' employment, as discussed in the second paper in this series. On financing models, see also Public Sector Consultants (2007).

well as a formal description of their roles. These criteria will allow Oregon’s recently established Coordinated Care Organizations—which operate under a Section 1115 waiver and receive global payments from the state to oversee and manage care for all Medicaid enrollees—to deploy CHWs as part of their overall care coordination strategy (Oregon Health Authority 2013, CMS 2012a). Medicaid waivers must meet conditions of maintaining budget neutrality, meaning that the federal share of spending under the waiver will not exceed what it otherwise would have been.

Rather than obtain waivers, other states, like Massachusetts and New York, have used Medicaid administrative funds to pay for outreach and enrollment services (as described above). New York Medicaid also requires MCOs to offer new enrollees assistance in navigating available health services and make available seven health education classes. Health Plus, Inc., an MCO in New York City, uses CHWs (referred to as community health education associates) to help meet those requirements (Dower et al. 2006). Finally, Medicaid managed care arrangements may enable payment for CHWs to target certain populations for quality and savings improvements, also typically occurring within a closed-end framework of capitated payments (Johnson et al. 2012 [NM], Cook et al. 2010 [NC]).

Governments

Governments have sometimes supported CHW services through their regular budgets rather than via time-limited grants. The IHS operates this way, as does the San Francisco Department of Public Health. The latter is responsible not only for public health but also for providing safety net services in hospitals and associated community clinics, as well as for operating an insurance-like plan, Healthy San Francisco, for all otherwise uninsured low income residents.¹¹ Small numbers of CHWs work in the public health outreach division of Fort Worth, TX, and for the state of Kentucky delivering services in underserved rural areas (Dower et al. 2006, Anthony et al. 2009).

Private Employers

Private employers such as hospitals, clinics, and health plans employ CHWs but have not been major employers (Dower et al. 2006, Anthony et al. 2009). The literature here is poorly

¹¹ www.sfdph.org/

developed. It may be that private employers have employees who undertake tasks typical of CHWs but whose job title does not reflect this role. Whether these employees could be considered CHWs is part of the ongoing discussion within the profession about who is a CHW.

Among health plans, one Medicaid managed care plan uses CHWs in some locations to encourage more appropriate access to care among very high spending enrollees (Johnson et al. 2012). Kaiser Permanente of Northern California has used foundation grant funding to support CHWs' community outreach to families with asthma with reportedly good results (Legion et al. 2006, Palmer 2009).

Some hospitals also employ CHWs. For example, the CHRISTUS Spohn Health System in south Texas uses CHWs in some of its hospitals and clinics to provide indigent care, funded under a fixed-dollar contract with its county that reportedly falls well short of full cost (Dower et al. 2006). Among other services, these CHWs counsel high-utilizing patients and conduct patient outreach. New York Presbyterian Hospital has also employed CHWs to provide culturally appropriate community asthma management support (Peretz et al. 2012).

Duke Medicine, based in Durham, NC, employs CHWs in several roles using funds from a state Medicaid managed care/medical homes program, funds retained from the university system, and grants (Anderson and Bovbjerg 2013). Leadership there believes that it was important to be able to show a positive ROI (in the form of lower system spending) when CHW support was supplied to expensive patients. Overall, more information is needed about which interventions were done on a pilot or demonstration project and which are ongoing parts of an entity's overall business plan.

C. Implications of Existing Funding Arrangements

Reliance on short-term funding creates discontinuities in support and risks periodically redirecting the focus of CHW interventions in response to funders' changing grant support. Achieving relatively stable funding through a succession of short-term funding calls for the talents of an "individual champion" who can be persuasive "despite the limited data on the clinical or cost effectiveness of CHWs" (Dower et al. 2006, 34). Reliance on grants is thus less an ROI-backed business model than an extended series of projects, each of which must be separately justified to funders. The seemingly slow expansion of the CHW model suggests that

few funders or would-be employers have seen a strong business case to support CHWs; the CHW literature has routinely laments the impermanence of most CHW funding.

In effect, commentators suggest that a major problem nationally is the lack of evidence to support a true business model for CHW deployment alongside or integrated with mainstream health services. Almost all discussions of financing argue that CHWs add value for the health of the populations they serve and should receive more payment from health insurers, notably Medicaid. Such arguments have long been made for other practitioners and services in the context of coverage determinations and “mandated benefits” for insurance. In the cases where states have obtained payment, there have been limitations placed on it that are not present for hospital or physician care. The nature of those conditions, how they were determined, and what role was played (if any) by evidence of ROI are important aspects of the discussion of the future of CHWs.

D. Systemic Financing Issues

The key underpinning of the traditional CHW business model has been the level of public sector and grant support available. State governments have recently been under severe fiscal stress, even as demands on Medicaid and other safety net services have increased. Medicaid cost growth had been increasing its share of the state fiscal pie for many years. Public health activities have been particularly targeted for downsizing (Bovbjerg et al. 2011). Federal spending has recently been focused on economic stimulus generally, with some spent on CHWs in Texas, for example, although state Medicaid budgets and safety net providers have clearly benefitted. It is not implausible that better evidence about the contributions and ROI for CHW services might stimulate a change in the preferences of budget makers. So might the potential paradigm shifts under the ACA (Bovbjerg et al. 2013a, 2013b).

The clinical health sector, funded through health insurance, is the other big potential investor in CHW services. Despite the soft evidence available, the potential for achieving savings, especially in chronic care, seems great and could provide a positive ROI for caregivers or insurers. However, past employment patterns suggest that further change is needed to support the business case within most of traditional medicine. The professional culture of medicine is resistant to sharing responsibility, although this may be changing with the recent exploration of team-based care.

Just as crucial for making the business case is addressing three key components of the traditional model of insurance financing that limit the relevance of a CHW business case from the perspective of the clinical sector. First and most obviously, insurance payment remains clinician-centric, focused on paying for doctor visits and not for other members of caregiving teams—including CHWs—who contribute to improvements in care and mitigate disparities in access to care. With few exceptions, CHW-assisted services and other social supports that would benefit chronic disease patients and the disadvantaged lack the crucial procedure code needed to qualify for a traditional fee-for-service payment (the “CPT” codes).

Second, though the potential economies associated with better chronic care for expensive conditions might seem to offer a positive return on investment, fee-for-service savings often do not accrue to the entities that generated them; that is, they occur in different “pockets.” They also often come at much later times than the expenditures that generate them, especially in the case of chronic care management or attention to the social and environmental determinants of health. For example, a CHW’s efforts to help a client maintain healthy blood pressure costs money now for the CHW’s clinic, but may save much more in stroke-related costs at the hospital later. Who reaps those savings may depend on continuity of insurance coverage. Capitated payment changes that calculation, often ending the problem of different pockets; however, the issue of delayed return on such an investment remains.

Third and least obviously, the dynamics of insurance competition undercut the potential ROI from more efficient service for high-risk and expensive enrollees. Insurers dare not develop really good ways for taking care of expensive chronic patients lest they disproportionately attract expensive enrollees, for whom they are typically not paid more within Medicaid or most private sector arrangements. Risk selection is an endemic problem where individual enrollees have a choice of plan. A similar phenomenon can also affect clinics, physician practices, or hospitals that develop good care plans. If they attract too many demanding patients, insufficient resources will be generated from standardized payments to take competitively good care of other patients.

V. What Are the Dynamics of Supply and Demand Affecting CHWs?

The issues discussed above—insecurity of payment, mixed evidence of effectiveness, and credentialing of CHWs—may help explain why the growing demand for more affordable care

has not yet led to greater deployment of CHWs despite their many recognized contributions. From the perspective of CHW themselves, the issues of wages, need for or availability of training, and employment security and stability may determine supply. Social and business needs for CHWs' services are met through two relevant markets: the labor market and educational market. The more consequential one is the labor market, in which employers purchase CHW services in order to meet market or regulatory needs and serve their mission. The second and derivative one is the educational market, in which aspiring CHWs or their employers voluntarily or necessarily purchase educational services or training (and in effect certification as well). The educational market hence responds to the needs of employers and prospective CHW employees, and employers themselves provide considerable on-the-job training. Bottlenecks in supply or imperfect information can make markets work poorly in equilibrating supply and demand and hence in meeting social and private goals.

A. Demand

Exactly how many people work as CHWs is not entirely clear. The best estimate traditionally came from a large HRSA study in 2007. It estimated the shares of CHWs within various BLS and Census employment categories deemed likely to include CHWs. These categories included general counseling, substance abuse treatment, educational-vocational counseling, health education, and other health and community services (HRSA 2007a, chapter 3). The estimate for national paid CHW employment in 2000 was some 58,000 CHWs. Half again more were estimated to work as volunteers—some 28,000 additional workers—based on the project's own employer surveys. The national total was hence 86,000 CHWs. For 2005, CHWs were estimated to have grown to 121,000, using a BLS growth factor for the occupational codes deemed relevant (HRSA 2007a, 58, T. 7.2). Employers included government agencies and both nonprofit and for-profit organizations, most commonly family service organizations, advocacy organizations, and outpatient care centers of small or medium size; three quarters employed fewer than 50 people (HRSA 2007a, 39, Fig. 5.1).

BLS thereafter defined CHWs separately, as noted above. Using the new definition in May 2012, the national total was only some 38,000 for paid CHWs (BLS 2013). Surveyed employers' unfamiliarity with the new category may have led to an undercount. On the other hand, CHW experts in the HRSA project may have overestimated the share of CHWs within broader

categories in the earlier data. If the seeming trend toward certification of CHWs continues, their recognition by employers will likely increase over time and some jobs might be reclassified. The largest single category of employer in 2012 was the public sector. Exactly how many private jobs might have indirectly involved working with public entities but funded by grants or philanthropy is not clear.

In any case, employment survey data imperfectly estimate true demand for CHWs. Some employers may not be able to fund all the positions they would like to fill. As awareness of CHWs' potential contributions grows, the number of desired positions may also increase, especially if insurance rules and public health funding prove favorable to CHWs. It is also possible, depending on future job requirements and rewards for CHWs and alternative jobs, that too few qualified individuals will emerge to fill potential positions, as discussed in the Supply section below. Bottlenecks could also develop in training and education of CHWs, as occurs in nursing (Ormond et al. 2011).

Predicting future demand is challenging. Past behavior and surveys of current employers may insufficiently account for growth at a time when the ACA and private initiatives expand coverage of low income populations and strive to reduce growth in health care spending and promote effective prevention. Some areas of health care employment may contract while others create new job opportunities. Properly employed, CHWs hold promise for promoting access to care, for cost containment, and for promotion of health. Thus, for example, a large number of promising demonstration projects funded by CMS are seeking to validate new models that incorporate CHWs. Knowledge is also spreading about how CHWs can contribute to health and health care, which may also lead to different job patterns as changes occur in provider accountability and payment methods.¹²

B. Supply

Reliable data on the supply of persons qualified to fill CHW positions is similarly scarce. One way of gauging supply would be through the number of workers meeting minimum standards of CHW employment. But CHWs have traditionally faced few educational requirements, and formal credentials have seldom restricted supply. In 2006, some three quarters of CHW

¹² California planners, for example, expect large growth in demand under health reform (Office of Statewide Health Planning and Development and California Workforce Investment Board 2012). A companion paper addresses CHWs and health reform (Bovbjerg et al. 2013a).

employers either had no educational requirements for CHWs or required only a secondary school credential (HRSA 2007a).

Most employers surveyed in 2006 sought a broadly defined skill set. High priority was given to communication skills, interpersonal skills, and the ability to maintain confidentiality. Many also required some foreign language skills when the target population of CHW services was non-English speaking. Employers looked at linguistic status and understanding of underserved populations in potential hires, but did not necessarily require that CHWs live in the same neighborhood as clients (HRSA 2007a, 33). Given the low academic credentials required of CHWs and lack of specialized skills expected of them, the supply should logically be ample. Indeed, there are no notable reports of employers finding CHW recruitment difficult at the current level of demand.

Several factors could be hypothesized to affect the availability of workers to fill new positions, as already discussed. First, a key characteristic of CHWs is that they have insider status with the populations they serve. These populations are generally among the most at risk in many ways, including medically and socioeconomically, which may disadvantage them in holding regular employment. The full range of “soft” skills required to be a CHW—such as active listening abilities, organizational and record-keeping skills, and effectiveness in interacting with patients, health care professionals, and social workers—might be a more limiting factor. Literacy or cultural barriers to successful employment may also exist, which can be difficult to remediate through training. The recent recession’s high unemployment seems likely to have expanded the pool of entry-level job applicants who might be interested in becoming CHWs, and awareness of CHW as an occupation is likely growing given increased publicity about the profession.

Second, as noted above, there is a longstanding debate among CHWs as to the appropriate relationship of CHWs to the health care system. Some believe that CHWs should be volunteer positions to be effective, and that they must maintain allegiance (real or perceived) to patients and community members rather than the health care system. (A similar argument is made concerning certification of CHWs and the resulting “professionalization” of the field, as discussed next.) Therefore, some advocate that these positions should be unpaid or minimally paid (Cherrington et al. 2010). The supply of workers who would be willing to fill such

unremunerated positions is likely limited, particularly among the at-risk groups from which CHWs are drawn and where other paid employment opportunities may be scarce.

HRSA estimated that nearly one third of CHWs working in the United States in 2000 were volunteers (HRSA 2007a, 13). As of 2006, CHWs working in programs providing patient navigation, cultural mediation, or individual capacity-building were more likely to be volunteers than those in programs providing direct services, risk identification, transportation, or mentorship (HRSA 2007a, 24–25).¹³ Among paid CHWs, median wages for new hires was between \$11.00 and \$12.99 per hour; for experienced CHWs, median wage was between \$13.00 and \$14.99 (HRSA 2007a, 17).¹⁴ The majority received some benefits, a large majority including mileage reimbursement, health insurance, sick leave, and just more than half had pension or retirement benefits (HRSA 2007a, 18). BLS’s first broad national survey about CHW employment as of May 2012 found an average wage of \$16.64 (BLS 2013).

Third, there has been a growing movement toward requiring that CHWs be formally credentialed. Such an expectation could contribute to improve the credibility of CHWs within the health care sector and provide a minimum expectation of skills and abilities. To some unknown degree, however, it would necessarily limit supply. Credentialing can pose an entry barrier that can be expensive for the worker, employer, or whoever else assumes responsibility for the costs. Formal credentialing programs also raise the bar for literacy and academic achievement among CHWs in ways that may or may not be helpful to employers. A broader challenge is that, because the roles and responsibilities of CHWs vary so widely, full standardization that would prove broadly useful to CHWs and meaningful to employers may be hard. State by state, and waiver by waiver, some requirements are being set, so experience there will be important to understand.

Formal training and credentialing programs do have some positive potential outcomes. Kash, May, and Tai-Seale (2007) identified six: career advancement, enhanced earning capacity, enhanced CHW retention, better outcomes, higher CHW status, and improved CHW self-esteem

¹³ This list of services provided is not exhaustive. Other services measured in the HRSA study are: assist in accessing medical services/programs, assist in accessing non-medical services/programs, build community capacity, build individual capacity, case management, community advocacy, counsel, cultural mediation, interpretation, mentor, patient navigation, provide culturally appropriate health promotion/education, provide direct services, risk identification, social support, and translation.

¹⁴ “Experienced” is not given a specific definition in this study; workers were categorized as “experienced” by the responding employers.

and self-worth. Moreover, standardized credentials could increase the likelihood that Medicaid, Medicare, and other insurance providers will pay for CHW services, decrease search costs for employers due to standardization, and increase worker mobility.

As of 2010, 14 states had certification programs in place, had state-level standards for training CHWs, or were exploring certification options, according to one review (HHS 2011, 9–11). Some certifications can be obtained through either formal training or equivalent field experience, while others require classroom instruction (HRSA 2007a, 35–36). Texas and Ohio, both of which have formal state credentialing systems, are illustrative of the variation. Texas’s certification program focuses on eight core competencies: communication skills, interpersonal skills, service coordination skills, capacity-building skills, advocacy skills, teaching skills, organizational skills, and knowledge base. CHWs in Texas can be certified with either 160 hours in a “competency-based training program” or 1,000 cumulative hours of experience within a six-year period (Texas DSHS 2012). Ohio’s certification system requires at least 100 hours of classroom instruction and 130 hours of clinical experience in the areas of health care, community resources, communication skills, individual and community advocacy, health education, service skills and responsibilities, and needs throughout the span of a lifetime (Ohio Board of Nursing 2009).

VI. Conclusion

CHWs have made substantial gains in recent years, culminating with their recognition in the ACA as contributing health professionals. As the implementation of that act continues, along with parallel efforts in the private sector to promote better value for health, a more complete understanding is needed of just how CHWs add value in various contexts. Past experience makes quite clear that when trained, targeted, and managed appropriately, CHWs can add value in several ways, in a range of settings, and for different types of patients.

The challenge going forward is to identify more precisely which CHW roles create value that exceeds the costs of their implementation and operation, so that payers and providers are willing to finance CHW employment. This paper’s retrospective look at available evidence suggests general areas of their contribution: improvement in the social determinants of health and in personal health behaviors, better connections between high-need people and appropriate health

insurance and health care, chronic disease prevention and treatment, and helping high-usage individuals learn to use care in ways that lead to better outcomes for individuals and the population while reducing the burden on the health care system.

Past experience suggests a somewhat contentious division between CHWs who work largely independent of conventional clinical health care delivery—in public- or population-oriented health—and those working within mainstream medical financing and delivery. The two spheres differ in approach and perhaps even more in their business models. Funding has been a challenge in both spheres. CHWs' public health function overlaps with social services and other efforts to address environmental hazards, social determinants of health, health-promoting behaviors, and individual needs of disadvantaged subpopulations. Other CHWs are more integrated into clinical health care delivery, where there seems less information about their roles. The business models under which these different approaches operate appear quite different. Building a strong business model in either sector has proven problematic, which seems a major reason that CHWs are less numerous than other health providers.

The available information on CHWs' employment suggests that most CHWs work for government agencies or for community-based organizations, generally focusing on disadvantaged populations and often supported by time-limited or grant-based funding. Some are salaried employees of operational units of public health departments or the Indian Health Service. Under conventional fee for service practice, there appear to be very limited ways in which health care providers or other employers of CHWs can be paid by third party payers, absent some special provision, such as a Medicaid waiver.

In the increasingly cost conscious world of public health and health care, it is becoming important to know not simply that CHWs add value but also how much value they add, under what circumstances, and how their contributions compare with others'. Costs include not just CHWs' remuneration (if any), but also the costs of training, deploying, monitoring, and managing them on the job. Here, evidence is becoming stronger, although it still falls short of the indicators of return on investment often sought by those who control the funding, whether in the public or private sphere. Some uses of CHWs are known to be cost-effective, at least as designed and implemented in particular cases. Having a business model, however, requires not merely that CHWs' costs be reasonable in relation to benefits but also that they contribute, directly or indirectly, to a positive cash flow over time for those employing them. Very often the benefits of

CHWs' services are reaped by some entity other than the employer and often not until well into the future. Consequently, the cash flow needed to pay up front for training and wages is more difficult to mobilize.

Further developments seem possible as accountability and financing change within health care after health reform. Good business cases within health care have in the past required new services that patients and payers want or ways to deliver services more efficiently. It is harder to make the case that funders should finance broad, long term improvements for a population. That has been seen as the province of public health, which generally has not fared well in budgetary competitions with other public priorities. Past winners have been the large entitlement programs of Medicaid, CHIP, and Medicare that mainly pay for episodic curative services.

Clinical health care has yet to be made sufficiently accountable for adding value rather than simply adding services delivered by licensed practitioners. There are reports of “win-win” CHW business models where payers and patients both benefit, notably in Medicaid-managed care and care for the uninsured in hospital systems. A leading example is a New Mexico Medicaid MCO (Johnson et al. 2012). There, the use of CHWs has sufficiently reduced inpatient and specialist spending for high-utilizing patients to justify employing them to help educate the selected patients and improve their navigation through care delivery, which has promoted both good health outcomes and good fiscal management. Building a better understanding of all of the relevant aspects of such successful CHW interventions is important, and requires more in-depth information than is often available in the written record. Much progress remains to be made through such interventions.

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Appendix A. O*NET Listing of Community Health Worker Skills

O*NET is a national database of skills and educational requirements for occupations as recognized and defined by the Bureau of Labor Statistics. It delineates the specific tasks a community health worker may complete.¹⁵ It is maintained by the North Carolina Department of Commerce under a grant from the US Department of Labor/Employment and Training Administration.¹⁶ The tasks are as follows:

- Administer immunizations or other basic preventive treatments.
- Advise clients or community groups on issues related to diagnostic screenings, such as breast cancer screening, pap smears, glaucoma tests, or diabetes screenings.
- Advise clients or community groups on issues related to improving general health, such as diet or exercise.
- Advise clients or community groups on issues related to risk or prevention of conditions such as lead poisoning, human immunodeficiency virus (HIV), prenatal substance abuse, or domestic violence.
- Advise clients or community groups on issues related to sanitation or hygiene, such as flossing or hand washing.
- Advise clients or community groups on issues related to self-care, such as diabetes management.
- Advise clients or community groups on issues related to social or intellectual development, such as education, childcare, or problem solving.
- Advise clients or community groups to ensure parental understanding of the importance of childhood immunizations and how to access immunization services.
- Advocate for individual or community health needs with government agencies or health service providers.
- Attend community meetings or health fairs to understand community issues or build relationships with community members.

¹⁵ See <http://www.onetonline.org/link/summary/21-1094.00>.

¹⁶ See <http://www.onetcenter.org/overview.html>.

Appendix B. Community Health Worker Roles

Table B.1. Community Health Worker Roles

Community health worker model	Role of community health worker
Promotoras de salud/lay health worker	Usually part of the community they serve; serve as a bridge between the community and health care system; provide culturally appropriate services; and serve as a patient advocate, educator, mentor, outreach worker and translator
Member of care delivery team	Collaborate with medical professionals including nurses and physicians; render health services such as measure blood pressure and pulse, first aid care, medication counseling, health screenings, and other basic services; and work alongside a medical professional to deliver health education or basic screening services while the provider conducts a medical exam
Care coordinator/manager	Help individuals with complex health conditions to navigate the health care system; liaise between the target population and different health, human, and social services organizations; support individuals by providing information on health and community resources, coordinating transportation, and making appointments and delivering appointment reminders; develop a care management plan and use other tools to track their progress over time (e.g., food and exercise logs)
Health educator	Deliver health education to the target population related to disease prevention, screenings, and healthy behaviors; teach educational programs in the community about chronic disease prevention, nutrition, physical activity, and stress management; and provide health screenings
Outreach and enrollment agent	Provide similar services to the health educator model with additional outreach and enrollment responsibilities; conduct intensive home visits to deliver psychosocial support,

	promote maternal and child health, conduct environmental health and home assessments, offer one-on-one advice, and make referrals; and help individuals to enroll in government programs
Community organizer and capacity builder	Promote community action and garner support and resources from community organizations to implement new activities; motivate their communities to seek specific policy and social changes; build relationships with public health organizations, grassroots organizations, health care providers, faith-based groups, universities, government agencies, and other organizations to develop a more coordinated approach to serving their target population; and participate in local groups and committees to network, increase their knowledge about the program, and strengthen their professional skills

Source: Rural Assistance Center 2013.

Appendix C. Skills and Qualities of Community Health Workers

Table C.1. Skills and Qualities of Community Health Workers

Skills			
advocacy	bilingual ability	capacity-building skills	communication skills
computer literacy	confidentiality	interpersonal skills	organizational skills
service coordination	educational skills		
Qualities			
caring	committed/dedicated	compassionate	connected to the community
creative/resourceful	dependable/responsible/reliable	desiring to help the community	empathetic
flexible/adaptable	friendly/outgoing/sociable	honest	motivated and capable of self-directed work
open/eager to grow/change/learn	open-minded/non-judgmental	patient	persistent
respectful	strong and courageous		
Massachusetts Core Competencies			
application of public health concepts and approaches	client and community assessment	community capacity building	culturally based communication and care
effective communication	health education for behavior change	outreach methods and strategies	special topics in community health
support, advocacy and care coordination for clients	writing and technical communication skills		

Sources: HRSA (2007a); Rosenthal (1998); Anthony et al. (2009, 31).