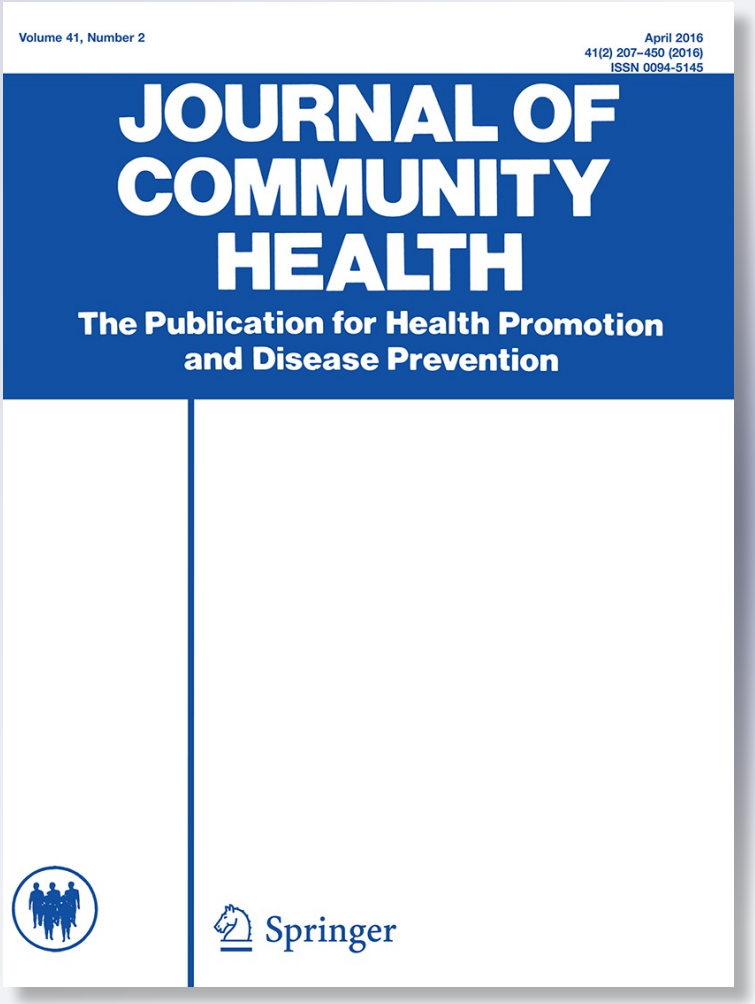
Do State Community Health Worker Laws Align with Best Available Evidence?

Colleen Barbero, Siobhan Gilchrist, Jamie F. Chriqui, Molly A. Martin, Ashley Wennerstrom, Jennifer VanderVeur, Kim Prewitt, et al.

Journal of Community Health
The Publication for Health Promotion and Disease Prevention

ISSN 0094-5145
Volume 41
Number 2

J Community Health (2016) 41:315-325
DOI 10.1007/s10900-015-0098-x



Springer

Your article is protected by copyright and all rights are held exclusively by Springer Science+Business Media New York (outside the USA). This e-offprint is for personal use only and shall not be self-archived in electronic repositories. If you wish to self-archive your article, please use the accepted manuscript version for posting on your own website. You may further deposit the accepted manuscript version in any repository, provided it is only made publicly available 12 months after official publication or later and provided acknowledgement is given to the original source of publication and a link is inserted to the published article on Springer's website. The link must be accompanied by the following text: "The final publication is available at link.springer.com".

Author's personal copy

J Community Health (2016) 41:315–325
DOI 10.1007/s10900-015-0098-x

ORIGINAL PAPER

Do State Community Health Worker Laws Align with Best Available Evidence?

Colleen Barbero[1] · Siobhan Gilchrist[2] · Jamie F. Chriqui[3] · Molly A. Martin[3] · Ashley Wennerstrom[4] · Jennifer VanderVeur[1] · Kim Prewitt[5] · J. Nell Brownstein[1]

Published online: 11 October 2015
© Springer Science+Business Media New York (outside the USA) 2015

Abstract Community health workers (CHWs) are expected to improve patient care and population health while reducing health care costs. Law is a tool states are using to build a supportive infrastructure for the CHW workforce. This study assessed the extent existing state law pertaining to the CHW workforce aligned with best available evidence. We used the previously developed Quality and Impact of Component (QuIC) Evidence Assessment method to identify and prioritize those components that could comprise an evidence-informed CHW policy at the state level. We next assessed the extent codified statutes and regulations in effect as of December 31, 2014 for the 50 states and D.C. included the components identified in the evidence assessment. Fourteen components of an evidence-informed CHW policy were identified; eight had *best*, three had *promising*, and three had *emerging* evidence bases. Codified law in 18 states (35.3 % of 51) pertained to the CHW workforce. Fifteen of these 18 states authorized at least one of the 14 components from the evidence assessment (maximum: nine components, median: 2.5). The most frequently authorized component was a defined scope of practice for CHWs (authorized by eight states) followed by a standard core competency curriculum and inclusion of CHWs in multidisciplinary health care teams (each authorized by six states). States could consider the components presented in this article when developing new or strengthening existing law.

Keywords Community health worker · Evidence-informed policy · Health policy · Health law

✉ Colleen Barbero
vrm5@cdc.gov

[1] Centers for Disease Control and Prevention, 4770 Buford Highway, Northeast Mail Stop F-75, Atlanta, GA 30341, USA

[2] IHRC, Inc., 2 Ravina Drive Suite 1750, Atlanta, GA 30346, USA

[3] University of Illinois at Chicago, 453 Westside Research Office Building, 1747 West Roosevelt Road, Chicago, IL 60608, USA

[4] School of Medicine, Department of Internal Medicine, Tulane University, 1430 Tulane Avenue, SL-16, New Orleans, LA 70112, USA

[5] Brown School of Social Work, Washington University in St. Louis, 700 Rosedale Ave CB 1009, St. Louis, MO 63112, USA

Introduction

In 2012, about half of adults in the United States (U.S.) had one or more chronic health condition with racial and ethnic minorities and the poor carrying a disproportionate burden of disease [1, 2]. One strategy to prevent and control chronic disease and reduce health disparities is to engage community health workers (CHWs) in community and health systems. "Community health worker" is an umbrella term referring to many types of lay health workers, including community health promoters, community advocates, and community outreach workers, among others. A member of the CHW workforce is defined by the American Public Health Association as:

> …a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community being 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

Author's personal copy

services and improve the quality and cultural competence of service delivery. [3]

The U.S. CHW workforce is engaged in a variety of prevention and health promotion activities: delivering culturally appropriate services and interventions; assisting at-risk or disadvantaged populations with managing chronic conditions; fostering healthier lifestyles; improving maternal and child health; increasing rates of preventive screenings; and improving access to and use of clinical and social services through outreach, enrollment, and patient education [4, 5]. Through these activities, CHWs are expected to help health systems achieve a triple aim of improving patient care, improving population health, and reducing health care costs [6].

The U.S. CHW workforce has significantly expanded and evolved over the last 15 years. From 2000 to 2005, the number of CHWs was estimated to have increased by 41 % from 85,879 to 121,206 [7]. In 2003, the Institute of Medicine (IOM) called for support and evaluation of CHW work and the integration of CHWs into medical teams to reduce health disparities [2]. In 2009, leadership within the American Public Health Association's CHW section created a common definition for the field and worked with the Health Resources and Services Administration and the Department of Labor to develop a standard occupational classification for CHWs. In 2010, CHWs received critical recognition as front-line public health workers when the Office of Management and Budget published its new classification, and the IOM recommended deployment of trained CHWs into high-risk communities to focus on hypertension [8].

Financing remains a major stumbling block for establishing and maintaining CHW programs. In 2013, the Centers for Medicare and Medicaid Services (CMS) issued a final rule that non-licensed persons including CHWs could deliver preventive services if recommended by a licensed provider [9]. Implementation of this rule for billing within CMS and other systems has been hindered by inconsistent credentialing and training practices for CHWs. Law to address issues of training, certification, and financing is a tool states are using to build a supportive infrastructure for the CHW workforce [5].

As more states consider legislative and regulatory approaches, identifying those core components expected to make up an effective law will be essential. To make timely decisions about policies targeting urgent public health issues, policymakers will need to make decisions based on "best available evidence" when "best possible evidence" does not exist [10, 11]. In 2005, the IOM noted that "absence of experimental evidence does not indicate a lack of causation or ineffectiveness… certain interventions may be proven effective even though their mechanisms for success are not known" (p. 111) [11]. To evaluate specific as well as potential interventions and to select a portfolio of policies, programs, and actions, the IOM considers relevant evidence and information including: experimental studies, observational studies, effectiveness analyses, economic analyses, program logic and theory, process evaluations, and informed opinion. While the IOM still gives traditional evidence (i.e., experimental and observational studies) preference for reaching consensus on concrete policy actions, it considers other types of evidence important for moving policy initiatives through the agenda setting process and for identifying resource implications and equity effects [11]. Other public health researchers have also expanded the evidence base for evaluating potential policy interventions [12–14]; for example, Spencer and colleagues include professional standards of practice as evidence to help identify best practices, and the Centers for Disease Control and Prevention (CDC) recognizes the need for sound theory underlying evidence-informed prevention strategies [13, 14].

Evidence-informed policymaking aims to ensure that decision making is well-informed by the best available evidence [15]. Best available evidence is necessary for comparing policy options because existing policy impact studies rarely measure the independent population effects of individual policy strategies; thus, experimental and observational studies of specific policy components are scarce [12]. To support the development of policy informed by the best available evidence, an interagency team of public health policy researchers developed the *Quality and Impact of Component* (*QuIC*) *Evidence Assessment* [16]. *QuIC* is a screening system for potential policy options and works by making evidence-informed, inductively derived predictions about which discrete activities and strategies will lead to a positive public health impact if they are included as part of a policy intervention.

Similar to other approaches, *QuIC's* best available evidence comes from research and practice and includes peer-reviewed and grey literature. However, since potential public health impact is anticipated in QuIC using more determinants of policy impact than just intervention effectiveness, QuIC utilizes the broader evidence base identified by the IOM and other researchers for evaluating specific and potential interventions. For example, *QuIC* utilizes expert opinion found in journal commentaries as well as policy logic developed by statements from professional organizations. Specifically, a best available evidence base in *QuIC* can include: journal articles; evaluation and technical reports; journal editorials, letters, commentaries, and perspectives; policy briefs, statements, recommendations, and guidelines; white papers; books and book chapters; conference papers and presentations; and dissertations and theses. To fill gaps in the policy evidence base,

Author's personal copy

QuIC also uses evidence deriving from programs and practices [16]. For example, evidence showing the effectiveness of a program utilizing certified CHWs would be included in the supporting evidence base for the inclusion of CHW certification requirements in a state CHW policy.

This study assessed the extent that existing state law pertaining to the CHW workforce aligned with best available evidence through execution of two steps. First, we employed *QuIC* to identify and prioritize the components that could comprise an evidence-informed CHW policy at the state level. Second, we coded each state and Washington, D.C.'s codified body of law in effect as of December 31, 2014 for the components identified in the evidence assessment. Ultimately, our results could help states make more informed decisions as they develop new or strengthen existing law to support the CHW workforce.

Methods

Evidence Assessment

In *QuIC*, policy components make up recommended or proposed policy interventions that aim to (1) directly impact individual or population health (e.g., smoke-free air laws) or (2) create a supportive infrastructure for public health practices and programs aiming to directly impact individual or population health (e.g., laws to regulate the CHW workforce).

Using best available evidence, *QuIC* anticipates the potential impact of each component that could comprise an evidence-informed policy through two dimensions: *evidence base quality* and *evidence for potential public health impact*. A component's best available evidence base is first scored on quality using four evenly weighted questions about *evidence type*, *source*, *practice-based evidence*, and *research-based evidence*. *Evidence type* assesses the highest level of rigor of methods used in the evidence base (e.g., systematic reviews and experimental studies are considered highly rigorous); *source* assesses the highest level of credibility of those reviewing and/or publishing the evidence (e.g., the U.S. Community Preventive Services Task Force is a highly credible source); *practice-based evidence* assesses the amount of evidence from practice (e.g., practice-based discoveries and wisdom); and *research-based evidence* assesses the amount of evidence from research (e.g., studies). An evidence base's Quality Score can range from 1 to 40 with 40 being the highest level of evidence quality.

A component's evidence base is also scored on evidence for potential public health impact using four evenly weighted questions about *health*, *equity*, *efficiency*, and *transferability*. *Health* assesses the highest level of impact on outcomes related to health and the behaviors and risk factors affecting health; *equity* assesses the highest level of impact on outcomes for groups experiencing disparities in health and social determinants of health; *efficiency* assesses the highest level of impact on outcomes such as cost-effectiveness and cost savings; and *transferability* assesses the extent health-, equity-, and/or efficiency-related outcomes occur across different types of settings. An evidence base's Impact Score can also range from 1 to 40 with 40 being the highest level of evidence for impact.

Last, *QuIC* uses the Quality and Impact Scores for each component's evidence base to determine its placement on a plane divided into quadrants representing four categories of components: *emerging*, *promising impact*, *promising quality*, and *best*. *QuIC's best* components have higher levels of both quality and impact (i.e., scores greater than the midpoint of 20); its *promising quality* components have higher levels of quality, but lower levels of impact; its *promising impact* components have higher levels of impact, but lower levels of quality; and its *emerging* components have lower levels of both quality and impact. A policy including *best* components could be considered well informed by best available evidence, a policy including *promising* components could be considered moderately informed, and a policy including *emerging* components could be considered somewhat informed [16].

In 2014, *QuIC* was employed to identify and prioritize components for inclusion in an evidence-informed CHW policy at the state level. Evidence collection began in 2012 using multiple search terms for a "community health worker" identified through literature review and with the help of CDC subject matter experts. The search terms (Table 1) were entered into *Pubmed*, *Google*, and *Google Scholar*. The evidence base collected was used to identify specific components that could comprise an evidence-informed state CHW policy. Specifically, policy recommendations developed through collaborations between CHW leaders with private, non-profit, and government stakeholders contributed to the identification of 14 potential CHW policy components (Table 2) [2, 17–19].

A second round of evidence collection adding search terms for each specific policy component (Table 1) was completed in March and April 2014. The iterative search process involved retrieving all original sources cited in systematic and literature reviews and commentaries. In total, 141 pieces of evidence were collected. Figure 1 provides evidence inclusion/exclusion criteria along with the number of pieces of evidence included after each criterion was applied. After completion of this step, 57 pieces of evidence remained for the evidence assessments. In April 2014, two members of our team—a public health policy analyst, who led development of the *QuIC* method, and a trained senior research assistant—read all evidence, classified evidence to each policy component, and completed evidence quality and impact review and scoring

Author's personal copy

Table 1 Evidence search terms

Policy	Search terms
Community health worker	"community health worker," "lay health worker," "promotor," "promotora," "community health advocate," "lay health educator," "community health representative," "peer health promoter," "community health advisor," "patient navigator," "lay health advisor," "neighborhood health advisor," "community care coordinator," "community health educator," "community health promoter," "case work aide," "community connector," "community health outreach worker," "family support worker," "outreach specialist," "peer educator," "peer support worker," AND/OR "public health aide."
Provision of chronic disease care services	"chronic disease," "cardiovascular disease," "hypertension," "heart disease," "stroke," diabetes," "asthma," AND/OR "cancer"
Inclusion of CHWs in multidisciplinary health care teams	"team"
Core competency certification	"core," "competency," "certification," AND/OR "credentialing"
Provision of health care services under supervision of a health care professional	"supervision"
Standard core competency curriculum	"core" AND/OR "curriculum"
Medicaid payment for CHW service	"Medicaid"
Specialty area certification	"competency," "certification," AND/OR "credentialing" AND "chronic disease," "cardiovascular disease," "hypertension," "heart disease," "stroke," diabetes," "asthma," AND/OR "cancer"
Involvement of CHWs in developing certification requirements	"certification"
Specialty area curriculum	"curriculum" AND "chronic disease," "cardiovascular disease," "hypertension," "heart disease," "stroke," diabetes," "asthma," AND/OR "cancer"
Defined scope of practice	"scope of practice"
Involvement of CHWs in developing standard curricula	"curriculum"
Private insurer reimbursement	"private" AND/OR "insurance"
Educational campaign about CHWs	"education" AND/OR "campaign"
Grants and other financial incentives to support CHW workforce development	"grants," "incentives," AND/OR "workforce"

according to QuIC protocol. The complete methodology for and list of evidence from this assessment can be found in the *Policy Evidence Assessment Report*, which was disseminated by CDC in September 2014 [20].

Law Assessment

We next assessed the extent that state law included the components identified through the *QuIC* assessment (Table 2). In January 2015, one senior legal researcher from our team collected codified state statutory (legislative) and administrative (regulatory) laws in effect as of December 31, 2014 for the 50 states and Washington, D.C. (collectively considered "states"), by conducting Boolean keyword searches in *Westlaw* using the community health worker search terms from the evidence assessment. We collected codified laws because this allowed for a standard approach to be used across states. While we focused on evidence relevant to chronic disease prevention and control in the evidence assessment, in the law assessment, we included law relevant to all health conditions because: (1) unless explicitly addressing or excluding a specific health condition, a state law could apply to chronic disease and (2) even law with a specific focus, on maternal and child health for example, could ultimately end up authorizing CHW services for patients with underlying chronic disease states or risk factors.

Next, the first and a second legal researcher independently reviewed and coded the body of law as a whole for each state, by assigning one of three potential codes for each of the 14 components: (1) *authorized* (i.e., component was authorized or required in part or without exception); (2) *prohibited*; or (3) *no law identified* (i.e., component was not addressed in state law). Coding discrepancies were addressed through discussion between the researchers until consensus was reached. Descriptive statistics for the final coding were

Author's personal copy

Table 2 Fourteen components comprising an evidence-informed CHW policy at the state level and states authorizing each component in codified law as of December 31, 2014

	QuIC category	Policy component	States authorizing component in law
More evidence-informed ⇑	Best	Provision of chronic disease care services (e.g., disease self-management education and blood pressure measurement)	New Mexico, Oregon, Rhode Island, and West Virginia
		Inclusion of CHWs in multidisciplinary health care teams (i.e., Medicaid or private insurance models)	California, Minnesota, New Mexico, Oregon, West Virginia, and New York
		Core competency certification	Massachusetts, New Mexico, Ohio, Oregon, and Texas
		Provision of health care services under supervision of a health care professional (e.g., a nurse practitioner)	Minnesota, Ohio, and Oregon
		Standard core competency curriculum	Massachusetts, New Mexico, Ohio, Oregon, Rhode Island, and Texas
		Medicaid payment for CHW services	Alaska, Minnesota, New York, and Washington
		Specialty area certification (e.g., certification in blood pressure measurement)	*No states*
		Involvement of CHWs in developing certification requirements	Massachusetts, New Mexico, Oregon, and Texas
	Promising quality	Specialty area curriculum (e.g., to promote heart health)	Alaska, D.C., Iowa, and Washington
		Defined scope of practice	Alaska, Massachusetts, New Mexico, Ohio, Oregon, Rhode Island, Texas, and Washington
	Promising impact	Involvement of CHWs in developing standard curricula	Massachusetts, New Mexico, Oregon, and Texas
	Emerging	Private insurer reimbursement	*No states*
		Educational campaign about CHWs (e.g., to promote their integration into health systems)	New Mexico and Oregon
		Grants and other financial incentives to support CHW workforce development	Alaska and Maryland

calculated in IBM SPSS v. 21.0. Coding for the subgroup of states that authorized at least one of the 14 components of an evidence-informed state CHW policy was descriptively analyzed to determine how often each category of evidence-informed components (i.e., *best*, *promising quality*, *promising impact*, or *emerging*) was present in state law.

Results

Evidence Assessment

We identified 14 components that could comprise an evidence-informed state CHW policy. As of April 2014, eight of these 14 (57.1 %) had a *best*, two (14.3 %) had a *promising quality*, one (7.1 %) had a *promising impact*, and three (21.4 %) had an *emerging* best available evidence base (Table 2).

As an example, a *best* evidence base supported *core competency certification* for CHWs. This evidence base included a quasi-experimental feasibility study and a randomized controlled trial. Both of these studies showed state-certified CHWs in Texas improved diabetes-related outcomes for populations experiencing health disparities (i.e., the uninsured and Hispanic Americans). The evidence base for *core competency certification* also included a program evaluation finding that employing state-certified CHWs in Texas was cost-effective when compared with usual care. Furthermore, multiple policy statements proposed that CHWs be certified on core competencies. These recommendations were made by subject matter experts, including policy scientists and practitioners representing professional organizations and state health departments, and some were published in peer-reviewed journals [20]. Similar summaries of the evidence for each of the 14 policy components we assessed can be found in the aforementioned *Policy Evidence Assessment Report* [20].

Law Assessment: Descriptive Statistics

Eighteen states (including D.C.) had codified law specifically pertaining to CHWs in effect as of December 31, 2014 (35.3 % of 51). We found most—15 out of these18 states—authorized at least one of the 14 components comprising an evidence-informed state CHW policy (maximum: nine components; median: 2.5 components). The three states with codified CHW law that did not authorize any of the 14 components were Illinois, Louisiana, and North Carolina. Illinois law established an advisory board to study and develop recommendations for

Author's personal copy

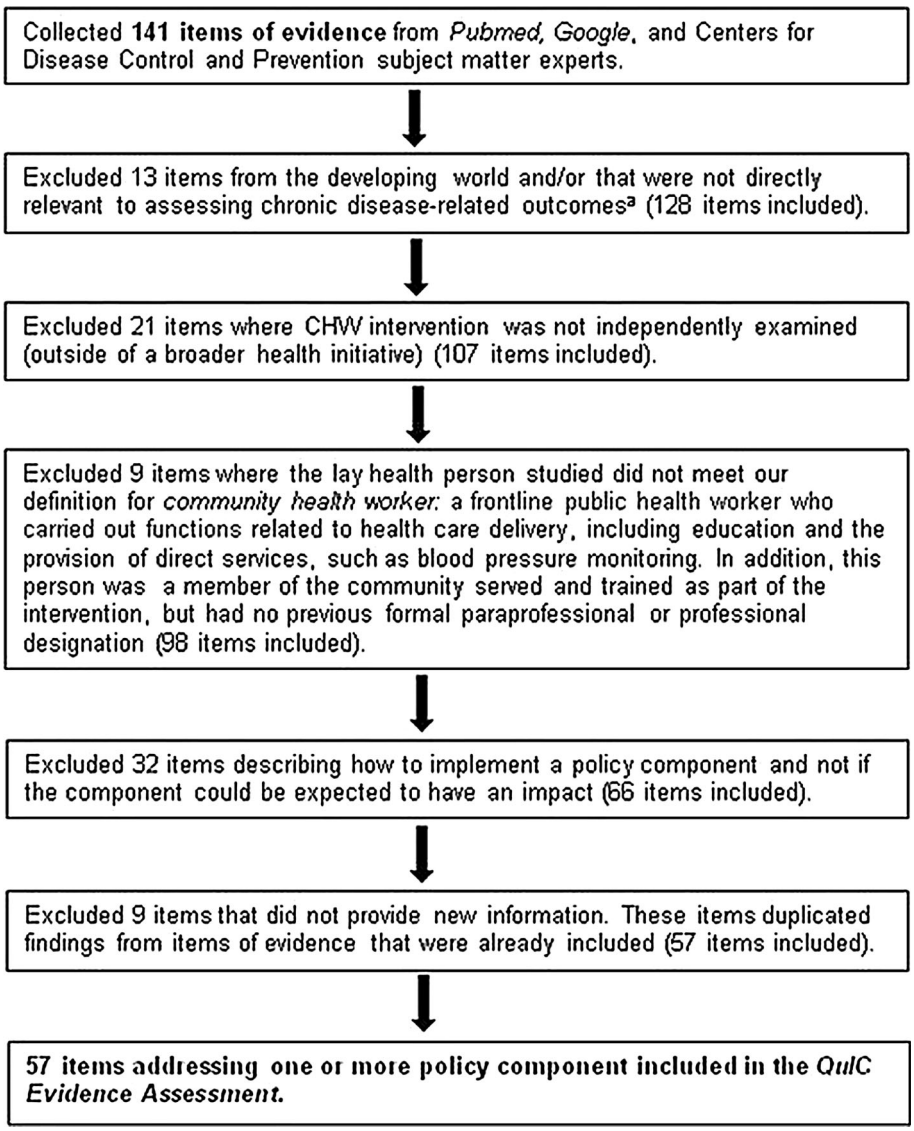


Fig. 1 Evidence inclusion and exclusion criteria ([a]included outcomes related to hypertension, heart disease, stroke, diabetes, asthma, and cancer)

CHW core competencies, training, certification, reimbursement mechanisms, and sustainable funding. Louisiana law established a program utilizing CHWs to provide health education to elderly patients. North Carolina law required local health departments involve CHWs with the planning and implementation of a program linking clients with preventive health services.

Table 2 lists those states authorizing each of the 14 components in codified law as of December 2014. Twelve of the 14 components were authorized by at least one state; only the components of *private insurer reimbursement* and *specialty area certification* had not been authorized in state law. No state prohibited any of the components.

The five states authorizing the most components of an evidence-informed CHW policy were: *Oregon*, who authorized nine components, six of which had *best* evidence bases; *New Mexico*, who authorized eight components, five of which had *best* evidence bases; *Massachusetts*, who authorized five components, three of which had *best* evidence bases; *Texas*, who authorized five components, three of which had *best* evidence bases; and *Alaska*, who authorized four components, one of which had a *best* evidence base. Additionally, *Ohio* and *Minnesota* authorized the same number of *best* components (three) as Texas and Massachusetts (Fig. 2).

Analysis of the 15 states that authorized at least one of the 14 components identified a total of 52 components authorized; 32 of these (61.5 %) were supported by *best* and 20 (38.5 %) were supported by *promising* or *emerging* evidence bases.

Author's personal copy

Law Assessment: Examples

States chose varied approaches to addressing evidence-informed components in law. The Appendix to this article includes reference information for the specific laws cited in this section.

1. *A defined scope of practice* (*authorized by eight states*) was addressed by including a codified definition for a CHW in law, although different terms were used, or by establishing specific roles for CHWs (e.g., *Massachusetts*).
2. *A standard core competency curriculum* (*six states*) was addressed in law authorizing CHW training and training requirements (e.g., *Oregon* and *Rhode Island*). Some states (e.g., *Ohio* and *Massachusetts*) authorized a curriculum to support *core competency certification*—another *best* component per our evidence assessment.
3. *Inclusion of CHWs in multidisciplinary health care teams* (*six states*) was addressed in law pertaining to Medicaid care teams and to team-based care pilot and demonstration projects. For example, *Oregon* authorized CHWs to be part of health care teams for Medicaid populations under some circumstances. *West Virginia* authorized CHWs to be part of interdisciplinary teams in a patient-centered medical home pilot, and *Minnesota* authorized CHW inclusion in a demonstration project to test alternative and innovative health care delivery systems including accountable care organizations.
4. *Core competency certification* (*five states*) was authorized to be undertaken by a state authority (e.g., *Oregon*'s Health Authority) or by a Board or other entity specifically formed to help develop and implement state CHW policy. For example, *Texas* was the first state to legislate development of a statewide certification program for volunteer CHWs in 1999. *Massachusetts* law authorized a Board to develop a CHW certification program including requirements for education, training, experience and qualifications, and continuing education.
5. *Provision of chronic disease care services* (*four states*) was authorized through law pertaining to patient-centered medical homes and other team-based models of care. For example, *Oregon* authorized CHWs to provide services to persons with chronic conditions or direct services such as blood pressure screening.

6-7. *Involvement of CHWs in developing certification requirements AND standard curricula* (*four states each*): *Texas*, *New Mexico*, and *Massachusetts* required CHW members on their certification boards. *Oregon* law required that CHW training programs demonstrate efforts to involve experienced CHWs as trainers.

8. *Medicaid payment for CHW services* (*four states*) was authorized in *Alaska* and *Minnesota* provided the CHWs were *certified*—another *best* component per our evidence assessment. *New York* authorized Medicaid payment to CHWs and entities providing

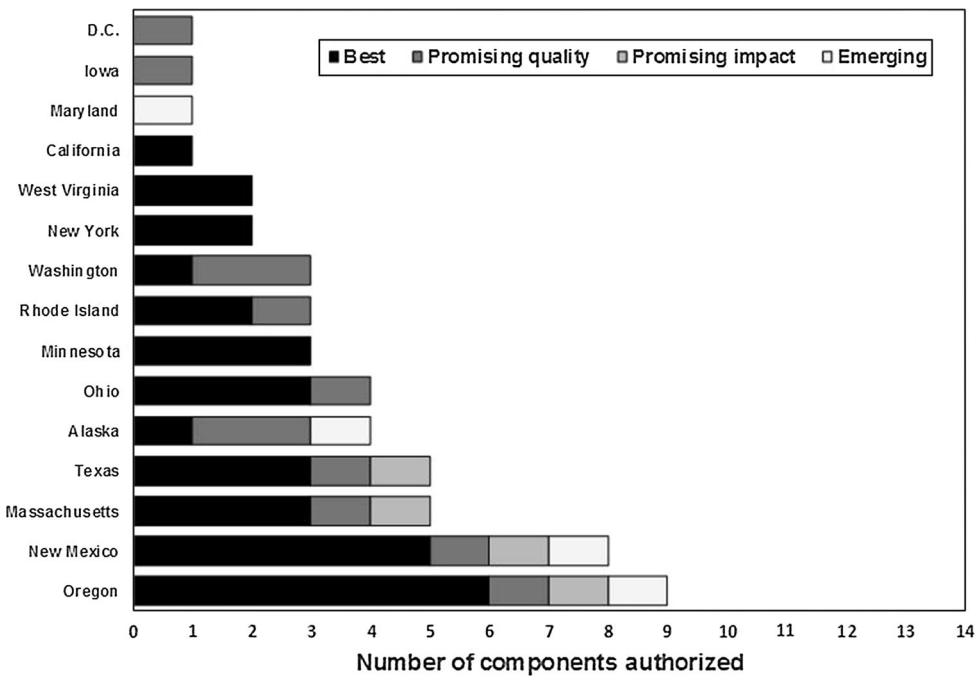


Fig. 2 Number of components (out of 14 possible) authorized by states as of December 31, 2014 and their alignment with best available evidence

Author's personal copy

services that help health systems meet medical home standards.

9. *A specialty area curriculum* (*four states*) was authorized to address heart disease, stroke, asthma, H.I.V./AIDS, or tuberculosis. For example, *Alaska* authorized CHW training in preventing heart disease and stroke; specifically, in providing assistance with self-administered medications and procedures for taking blood pressure.
10. *Provision of health care services under supervision of a health care professional* (*three states*) was authorized through law specifying the conditions under which CHWs could provide different types of health care services. For example, *Ohio* law allows CHWs to perform activities that require judgment based on nursing knowledge or expertise (e.g., administering medications) if they are supervised by a nurse.
11. *An educational campaign about CHWs* (*two states*) was authorized to increase awareness for CHWs in health care systems and in patient populations. For example, *Oregon* required that coordinated care organizations implement policies to inform members about access to CHWs.
12. *Grants and other financial incentives to support CHW workforce development* (*two states*) were authorized to finance CHW training and services. *Alaska* authorized grants for the CHW training and supervision, and *Maryland* authorized tax credits for CHW services.

Discussion

Unrealistic expectations for evidence could obstruct public health action that could occur in the absence of research [10] such as the development and diffusion of laws to support the CHW workforce. To support policy development, our team identified and assessed potential components of state CHW policy using best available evidence, and then analyzed the extent that state law in effect as of 2014 included these components. Overall, our study fills an important gap in CHW policy research because while there have been descriptive assessments of state CHW policies and legislation, none have focused on the extent that components of law align with evidence.

Ultimately, our analysis establishes a snapshot of evidence-informed state law pertaining to the CHW workforce, which state legislators, public health officials, and others can use as a baseline when planning to improve population health and reduce health disparities. The Community Guide to Preventive Services Task Force recently reviewed evidence from interventions engaging CHWs to prevent and control cardiovascular disease, and its findings help to validate the results of our evidence assessment. The review found strong evidence of effectiveness for interventions engaging CHWs in a team-based care model to improve blood pressure and cholesterol in patients at increased risk for cardiovascular disease. Furthermore, the summary report recognized the need to address CHW training and supervision, involve CHWs in the planning phase, have reimbursement mechanisms in place, and support state legislation and policies that define CHW duties, so CHWs have a clear scope of work [21].

Overall, we found less than a third of states authorized at least one of the 14 components of an evidence-informed state CHW policy in their codified law. Most states authorized no components, and no state authorized all 14. States choosing legislative and regulatory approaches to supporting the CHW workforce could use the components described in our Table 2 as a roadmap, potentially prioritizing *best* components. States may also consider the *promising* and *emerging* components from our assessment, especially those components expected to increase the effectiveness of *best* components. For example, a *defined scope of practice* for CHWs had an evidence base of *promising quality*, but this component is expected, along with *core competency certification*, to facilitate *Medicaid payment* for CHW services, which had a *best* evidence base.

It is noteworthy that no states authorized *specialty area certification*, despite this being a component we found to be well-informed by best available evidence. For example, research finds that CHWs certified in blood pressure measurement have improved detection and treatment of high blood pressure in African American populations [22, 23]. We also found that no states had authorized the *emerging* component of *private insurer reimbursement* for CHW services in codified law. While this option was discussed by the Massachusetts Department of Health in its community health worker policy report, ultimately, it was not recommended due to concern about payers limiting the scope of CHW services provided. However, the report noted that this option should be revisited as CHW *core competency certification* policy, another *best* component per our evidence assessment, could help address the aforementioned concern [18].

A first step for states considering CHW policy adoption could involve convening a task force, advisory group, or other body whose purpose is to develop state-

Author's personal copy

specific recommendations: seven states authorized such a group in codified law. For example, in 2014, Illinois authorized an advisory board charged with establishing a CHW scope of practice, core competencies, and best practices; however, by design this law will require additional legislation for substantive change to occur [24]. As another example, Texas law authorized a committee to help implement its CHW certification and training program, and to develop recommendations for this program's sustainability. It should be noted that if a state requires a policy advisory group to include CHWs as members, as Texas and Illinois do, this would later ensure CHW involvement in the development of certification requirements and standard curricula, which are *best* and *promising impact* components per our evidence assessment, respectively.

Limitations of our evidence assessment are related to *QuIC*'s best available evidence. First, all empirical studies in this assessment examined outcomes of CHW programs, not policies. While many public policies attempt to scale up core components of successful programs—CHW training, certification, and supervision, for example—it is possible that components might not work as well when implemented at the state level. Nevertheless, this limitation was mitigated by the many policy recommendations from scientists and practitioners in our evidence base; these recommendations provided important theoretical and logical support for components to be part of a state's policy framework.

Another limitation to our evidence assessment is the paucity of empirical studies where components were tested as independent, moderating, or mediating variables. This was expected based on past policy evidence assessment studies; for example, researchers have found childhood obesity prevention policy impact studies rarely measure independent contributions of specific policy strategies [12]. While we will seek to validate our evidence assessment results with modeling studies as more states adopt CHW laws, in the meantime, this study of evidence-informed policy provides valuable information *that can inform state policy development today.*

The first limitation of our law assessment is we analyzed codified law, which is only one type of policy. Several states are leading other efforts to support the CHW workforce. According to the Association of State and Territorial Health Officials (ASTHO), as of March 2015, Indiana, Nevada, Nebraska, New York, Mississippi, South Carolina, and Washington had not enacted a CHW certification law, but had developed state-led CHW certification/training programs [25]. However, it remains important to recognize that law can be used by states to ensure minimum professional standards are met by all CHWs, and that they all receive fair compensation, adequate supervision and support, and a reasonable scope of work [26]. In addition, any state with CHW law that was not in effect by December 2014 was not included in our assessment. We expect the excluded states to be few, based on our review of state CHW policy tracking websites maintained by ASTHO and the National Academy for State Health Policy [25, 27]. A second limitation of our law assessment is we described only law content, and not strategies to fully implement codified law. As more states enact law to support the CHW workforce, detailed implementation guidance for each component of law will be needed; for example, to inform the setting of certification requirements. At this time, a helpful resource on this topic is the CDC technical assistance guide for states implementing CHW policy [4].

As the CHW workforce continues to grow and new opportunities for funding and integration of CHWs into health care systems emerge, continued progress in establishing state policy is needed with attention to maintaining the flexibility of the CHW model, which is considered integral to its success. States could consider authorizing the components presented in this article when crafting new law, and as new laws are implemented, policy researchers should undertake evaluation studies to develop the policy evidence base.

Acknowledgments This project was funded by Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Funding Centers for Disease Control and Prevention (#11IPA1103219).

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflicts of interest.

Author's personal copy

Appendix

See Table 3

Table 3 Legal authorities by state

State	Statutes	Regulations
Alaska	ALASKA STAT. §§ 18.28.010 to .050, 18.28.100 and 18.15.395 (2014)	ALASKA ADMIN. CODE tit. 7 §§ 145.140, 155.020, 27.629,100.124 and 125.160 (2014); ALASKA ADMIN. CODE tit. 7 §§12.450 to 12.490 (2014)
California	Cal. Labor Code § 6332 (West 2014); Cal. Health and Safety Code §§ 106000 and 106005 (West 2014); Cal.Welf. and Inst.Code §§ 14127 and 16002.5 (West 2014)	–
Washington D.C.	D.C. CODE §§ 7–1631 to 1633 (2013)	–
Illinois	20 Ill. Comp. Stat. Ann. §§ 2335/1 to 2335/99 (West 2013)	–
Iowa	IOWA CODE ANN. § 135.106 (West 2014)	–
Louisiana	LA. REV. STAT. ANN. §§ 46:161 - 165 (2014)	–
Maryland	MD. CODE ANN., HEALTH-GEN. §§ 20-1401 to 1407 and MD. CODE ANN., TAX - GEN. § 10-731 (West 2013);	MD. CODE REGS. §§ 10.61.01.03, 05, 06 (2014)
Massachusetts	MASS. GEN. LAWS ANN. 6D § 15 (West 2013); MASS. GEN. LAWS ANN. 111 § 2H (West 2013); MASS. GEN. LAWS ANN. 112 §§ 259 to 262 (West 2013); MASS. GEN. LAWS ANN. 17 § 3 (West 2013); MASS. GEN. LAWS ANN. 13 §§106 to 108 (West 2013)	–
Minnesota	MINN. STAT. ANN. §§ 256B.0625 and 256B.0755 (West 2014); MINN. STAT. ANN. § 145A.17 (West 2014)	–
New Mexico	N.M. STAT. ANN §§ 27-2-12.13 and 27-2-12.15 (West 2013); N.M. STAT. ANN §§ 24-30-1 to 24-30-7 (West 2014)	–
New York	N.Y. Public Health LAW § 2959-a (McKinney 2015)	–
North Carolina	–	10A N.C. ADMIN. CODE 48B.0803 (West 2015)
Ohio	OHIO REV. CODE ANN. §§ 4723.01, 4723.06, 4723.07, 4723.33 to 35, and 4723.81 to 4723.88 (West 2014)	OHIO ADMIN. CODE §§ 4723-26-01 to 26-14 (2015)
Oregon	OR. REV. STAT. ANN. §§ 410.604, 413.260, 413.600, 414.018, 414.025, 414.625, 414.635, 414.665 (West 2014)	OR. ADMIN. R. §§ 410-180-0300, 410-180-0305 to 410-180-0380 (sunset 1/29/2014); OR. ADMIN. R. §§ 410-120-0000, 410-138-0060, 410-141-0000, 410-141-0860, 410-141-3015, 410-141-3180, 410-141-3320, 410-141-3260 and 410-146-0120 (2014)
Rhode Island	R.I. GEN. LAWS 1956, §§ 23-64.1-1 to 23-64.1-8 (2013)	–
Texas	TEX. HEALTH and SAFETY CODE ANN. §§ 48.001, 48.051 and 48.052, 48.053, 48.101 (West 2013); TEX. INS. CODE ANN. § 845.155 (West 2013); TEX. HUMAN RES. CODE ANN. § 32.071 (West 2013)	TEX. ADMIN CODE 1 § 351.20; TEX. ADMIN CODE 28 §§19.4001 - 19.4017; TEX. ADMIN CODE 25 §§ 146.1 through 146.12 (2014)
Washington	Wash. Rev. Code Ann. §43.70.725 (West 2014)	WASH. ADMIN. CODE §§ 246-170-011, 246-170-035 and 182-501-0065 (2014)
West Virginia	W. VA. CODE ANN. §16-29H-9 (West 2015)	–

References

1. Ward, B. W., Schiller, J. S., & Goodman, R. A. (2014). *Multiple chronic conditions among US adults*. A 2012 update. Preventing Chronic Disease, 11, E62.
2. Institute of Medicine. (2003). *Unequal treatment*. Washington, D.C.: The National Academies Press.
3. American Public Health Association. (2009). *Support for community health workers to increase health access and to reduce health inequities*. Retrieved from http://www.apha.org.
4. Centers for Disease Control and Prevention. (2014). *States implementing community health worker strategies*. Atlanta, GA: Centers for Disease Control and Prevention.
5. Centers for Disease Control and Prevention. (2015). *Addressing chronic disease through community health workers*. Atlanta, GA: Centers for Disease Control and Prevention.
6. The Institute for Healthcare. (2015). *Triple aim*. Retrieved from http://www.ihi.org.
7. United States Department of Health and Human Services. (2007). *Community health worker national workforce study*.

Author's personal copy

Washington, D.C.: United States Department of Health and Human Services.
8. Institute of Medicine. (2010). *A population-based policy and systems change approach to prevent and control hypertension*. Washington, D.C.: The National Academies Press.
9. United States Department of Health and Human Services. (2013). Medicaid and children's health insurance programs. Final rule. *Federal Register*, *78*(135), 42160.
10. Viehbeck, S. M., Petticrew, M., & Cummins, S. (2015). Old myths, new myths. *American Journal of Public Health, 5*(4), 665–669.
11. Institute of Medicine. (2005). *Preventing childhood obesity*. Washington, D.C.: National Academies Press.
12. Brennan, L., Brownson, R. C., & Orleans, C. T. (2014). Childhood obesity policy research and practice. *American Journal of Preventive Medicine, 46*(1), 1–16.
13. Centers for Disease Control and Prevention. (2014). *Understanding evidence*. Retrieved from http://vetoviolence.cdc.gov/apps/evidence.
14. Spencer, L. M., Schooley, M. W., Anderson, L. A., et al. (2013). Seeking best practices. *Preventing Chronic Disease, 10*, E207.
15. Oxman, A., Lavis, J. N., Lewein, S., & Fretheim, A. (2009). SUPPORT Tools for evidence-informed health policymaking. *Health Research Policy and Systems, 7*(S1), 1–7.
16. Barbero, C., Gilchrist, S., Schooley, M. W., Chriqui, J. F., Luke, D. A., & Eyler, A. A. (2015). Appraising the evidence for public health policy components using the Quality and Impact of Component (QuIC) Evidence Assessment. *Global Heart, 10*(1), 3–11.
17. Centers for Disease Control and Prevention. (2013). *State law fact sheet. A summary of state community health worker laws*. Atlanta, GA: Centers for Disease Control and Prevention.
18. Massachusetts Department of Public Health. (2009). *Community health workers in Massachusetts*. Boston, MA: Massachusetts Department of Public Health.
19. Initiative, The New York State Community Health Worker. (2011). *Paving a path to advance the community health worker workforce in New York state*. New York, NY: The Community Health Worker Network of NYC.
20. Centers for Disease Control and Prevention. (2014). *Policy evidence assessment report. Community health worker policy components*. Retrieved from http://www.cdc.gov/dhdsp/pubs/docs/chw_evidence_assessment_report.pdf.
21. Community Guide to Preventive Services. (2015). *Cardiovascular disease prevention and control. Interventions engaging community health workers*. Retrieved from http://www.thecommunityguide.org.
22. Krieger, J., Collier, C., Song, L., & Martin, D. (1999). Linking community-based blood pressure measurement to clinical care. *American Journal of Preventive Medicine, 89*(6), 856–861.
23. Levine, D. M., Bone, L. R., Hill, M. N., et al. (2003). The effectiveness of a community/academic health center partnership in decreasing the level of blood pressure in an urban African American population. *Ethnicity and Disease, 13*, 354–361.
24. Bate-Ambrus, V. M., Castillo, A., Martinez, E., et al. (2015). Many ingredients, one sublime dish. *Journal of Ambulatory Care Management, 38*(3), 236–243.
25. Association of State and Territorial Health Officials. (2015). *Community health workers. Training/certification standards*. Retrieved from http://www.astho.org.
26. Brownstein, J. N., Bone, L. R., Dennison, C. R., et al. (2005). Community health workers as interventionists in the prevention and control of heart disease and stroke. *American Journal of Preventive Medicine, 29*(5s1), 128–133.
27. National Academy for State Health Policy. (2015). *State community health worker models*. Retrieved from http://www.nashp.org.