



Technical Brief
Number 34

Impact of Community Health Worker Certification on Workforce and Service Delivery for Asthma and Other Selected Chronic Diseases



Impact of Community Health Worker Certification on Workforce and Service Delivery for Asthma and Other Selected Chronic Diseases

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Key Messages

Purpose of Technical Brief

To explore and describe the state of the evidence on community health worker certification and its relationship with community health worker outcomes (such as recruitment, retention, and employment stability) and outcomes for people with asthma and other selected chronic illnesses.

Key messages

- A number of States are initiating efforts to certify community health workers practicing in their States.
- We did not find any studies evaluating the effect of community health worker certification on asthma, diabetes, cardiovascular disease, and maternal-child health outcomes.
- There are differing opinions about the usefulness and impact of community health worker certification.
- Additional research is needed to determine effect of certification on community health worker service delivery and workforce development and to identify best practices for instituting certification programs.

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None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help healthcare decision makers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of healthcare services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new healthcare technologies and strategies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

This EPC evidence report is a Technical Brief. A Technical Brief is a rapid report, typically on an emerging medical technology, strategy or intervention. It provides an overview of key issues related to the intervention—for example, current indications, relevant patient populations and subgroups of interest, outcomes measured, and contextual factors that may affect decisions regarding the intervention. Although Technical Briefs generally focus on interventions for which there are limited published data and too few completed protocol-driven studies to support definitive conclusions, the decision to request a Technical Brief is not solely based on the availability of clinical studies. The goals of the Technical Brief are to provide an early objective description of the state of the science, a potential framework for assessing the applications and implications of the intervention, a summary of ongoing research, and information on future research needs. In particular, through the Technical Brief, AHRQ hopes to gain insight on the appropriate conceptual framework and critical issues that will inform future research.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the healthcare system as a whole by providing important information to help improve healthcare quality.

If you have comments on this Technical Brief, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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In designing the study questions, the EPC consulted a panel of Key Informants who represent subject experts and end-users of research. Key Informant input can inform key issues related to the topic of the technical brief. Key Informants are not involved in the analysis of the evidence or the writing of the report. Therefore, in the end, study questions, design, methodological approaches and/or conclusions do not necessarily represent the views of individual Key Informants.

Key Informants must disclose any financial conflicts of interest greater than \$5,000 and any other relevant business or professional conflicts of interest. Because of their role as end-users, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any conflicts of interest.

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Impact of Community Health Worker Certification on Workforce and Service Delivery for Asthma and Other Selected Chronic Diseases

Structured Abstract

Background. Community Health Worker (CHW) certification has been proposed to promote the diffusion of the CHW model in healthcare organizations. However, the extent to which health outcomes vary as a function of CHW certification is unclear. There is also a need to clarify the landscape of CHW certification efforts in the United States.

Objectives. The objectives were to (1) determine the effects of certification on CHW recruitment, retention, scope of practice, reimbursement or employer liability; (2) ascertain the effects of certification on quality or consistency of care, health outcomes, or patient/family acceptance, trust, and use of community health workers; (3) elucidate the context of certification requirements and implementation in the United States; (4) identify potential positive and negative implications of requiring certification; and (5) identify future research needs.

Methods. We searched PubMed and CINAHL through October 2019 and handsearched relevant reviews. Our grey literature search focused on reports and presentations by national organizations, foundations, and institutes. We also reviewed the websites of State health departments which have CHW certification programs. We conducted interviews with Key Informants representing stakeholders in the CHW certification enterprise. We used these interviews to identify themes to contextualize findings from the published and grey literature searches.

Results. The evidence base for community health worker certification is sparse. Our published literature search identified a handful of studies examining correlates of certification (i.e., training, recruitment, and scope of practice) with health outcomes, but these were not linked to the broader issue of certification (n=4, 0 about asthma). We did not find any studies that evaluated the relationship between CHW certification and CHW retention, reimbursement, employer liability, or patients' and families' trust in and receptivity to CHWs. We did not find any studies suggesting that patients' outcomes differ as a function of intervention from a certified versus non-certified CHW, or that certification influences the quality or consistency of CHW-delivered interventions. We identified 37 documents through our grey literature search. Interviews with Key Informants identified four overarching themes: (1) the perceived utility of certification, (2) the philosophical/ethical considerations influencing certification, (3) its potential effects, and (4) recommended components and approaches. The majority of participants asserted that certification does not affect health outcomes. There were diverging opinions about the perceived and actual impact of certification on the CHW workforce, including recruitment, retention, career advancement, composition, and the financial viability of the CHW model.

Conclusions. In the absence of evaluations of the relationship between certification and outcomes related to patients' and families' health, and dimensions of CHWs' workforce development, the impact of CHW certification is more speculative than conclusive. Further

research is needed to determine if certification is linked to improved outcomes for people with asthma and other chronic illness outcomes.

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Introduction

Background

According to the American Public Health Association's Community Health Worker Section, a community health worker "is a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served... [enabling them] 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. A community health worker 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."¹ Community health workers are employed by State and local health departments, community-based organizations, healthcare systems, and public health organizations, and may work as volunteers for grassroots organizations, to serve as cultural mediators between communities and health and social service systems. They provide culturally appropriate health education and information as well as informal counseling and social support in urban and rural settings alike. They also link individuals and families to needed resources and advocate for individual and community needs.²

Despite the demonstrated effectiveness of using community health workers to reduce disparities observed among racial/ethnic minorities across a range of chronic and acute conditions, including asthma management, several factors have hindered the full integration of community health workers in healthcare settings and may threaten their optimal utilization. It has been suggested that community health worker certification or credentialing, a process that is present or currently underway in a number of States,³ may increase the diffusion of the use of community health workers in healthcare systems by standardizing the delivery of community health worker services and providing a sustainable financial pathway to reimburse services rendered by community health workers.⁴⁻⁷

Community health worker certification comprises two primary components: didactic training through a structured curriculum, and experience, measured as the length of time served as a community health worker.⁷ Thus far, the number of training hours, topics covered in the training, and the amount/level of experience as a community health worker deemed acceptable for designation as a certified community health worker has been determined on a State-by-State basis. Moreover, of the nine States that have instituted a formal community health worker certification process, six have incorporated a "grandparenting" element, which accounts for the length of time that community health workers have already served in that capacity either prior to, or in lieu of, formal certification. Certification typically occurs at the individual level, whereby community health workers who have demonstrated mastery of core competencies, and fulfill the requisite number of hours spent as a community health worker and/or level of educational attainment designated by the certifying bodies within States, may be certified.⁸ Another option is program-level certification, which confers certification on an institutional level for organizations that provide community health worker services and fulfill criteria for training and supporting community health workers.⁸ The majority of the certification efforts are voluntary in nature.

Community health worker certification is not without controversy. There has been considerable debate about its benefits and drawbacks. On the one hand, it is thought that certification could legitimize the role of community health workers and ensure consistency in the quality of care provided, confer opportunities for educational and career advancement, improve employment stability, assure that community health workers have a standard skillset and

knowledge base, and increase sustainable funding for services.^{4, 7, 9-11} On the other hand, there are important risks associated with community health worker certification.⁹ First, the cost of certification could prove to be prohibitive for existing and future community health workers. Second, the institutionalization of community health workers through certification or licensure processes may undermine the grassroots orientation that underpins the community health worker model. Third, certification may lead to the creation of hierarchies among community health workers such that uncertified community health workers are at a disadvantage, compared to their certified counterparts, in terms of employment. Fourth, it is unclear whether patients or community members ascribe any level of importance to community health workers being certified.⁹

Examining the extent to which differences in self-management and health outcomes may emerge as a function of community health worker certification, in a variety of conditions including asthma, is an important area of inquiry. For asthma specifically, there is strong evidence linking exposure to community health worker-delivered interventions with reduced asthma attacks, hospitalizations, and emergency department visits; and improved asthma management control, among vulnerable pediatric and adult populations.¹²⁻¹⁵ Indeed, the realities of a transforming healthcare system under strain, the varied needs of patients from vulnerable populations, and sweeping healthcare policy changes occurring at the State and national levels indicates that the use of community health workers may be an important strategy to reduce health and process of care disparities at large.^{16, 17}

Thus, the overarching goal of this project was to assess the current state of evidence of the processes, risks, benefits, and implications of community health worker certification and to identify future research or evaluation needs.

Guiding Questions

This technical brief was guided by the following questions:

1. How does community health worker recruitment, retention, scope of practice, reimbursement, or employer liability differ among U.S. programs, States, or territories requiring community health worker certification to deliver interventions for asthma and selected other topics or chronic conditions (i.e., diabetes, cardiovascular disease, maternal-child health), compared with those that do not require any community health worker certification for community health worker delivery of these services?
 - a. Do these results differ when only asthma interventions or programs are analyzed?
 - b. Do these results differ by demographics of the population served (e.g., age, sex, racial/ethnic background, income level, rural vs. urban area)?
2. Do quality or consistency of care, health outcomes (e.g., asthma control or asthma-related emergency department visits), or patient/family acceptance, trust, and use of community health workers differ among U.S. programs, States, or territories requiring community health worker certification to deliver interventions for asthma and selected other topics or chronic conditions (i.e., diabetes, cardiovascular disease, maternal-child health), compared with those that do not require any community health worker certification for community health worker delivery of these services?
 - a. Do these results differ when only asthma interventions or programs are analyzed?

- b. Do these results differ by demographics of the population served (e.g., age, sex, racial/ethnic background, income level, rural vs. urban area)?
3. What is the context of community health worker certification requirements and their implementation in the United States? This may include various community health worker certification models (e.g., State-run, employer-run, independent association-run, or community-based models; any training requirements, core competency curricula, or supervision or mentorship that might be involved; requisite infrastructure to establish various models of community health worker certification), examples of community health worker programs that do not require any certification, regulatory issues (i.e., regarding scope of practice), financing (including any training costs), and resources.
4. What are the potential positive and negative implications of requiring community health worker certification?
5. What future research is needed to close existing evidence gaps regarding community health worker certification?

Methods

Published Literature

We defined eligibility criteria, using refined Population, Intervention, Comparison, Outcomes, Timing, and Setting (PICOTS) criteria individualized to the guiding questions and with guidance from the interviews with the Key Informants (see Discussion with Key Informants on following page). Table 1 lists the eligibility criteria.

Table 1. Inclusion and exclusion criteria

PICOTS	Inclusion	Exclusion
Population	<ul style="list-style-type: none"> Studies conducted among CHWs.* Study addresses the use of CHWs for people with asthma, type 2 diabetes, CVD (heart failure, hypertension, or atherosclerosis), or maternal-child development (preconception to 5 years). 	<ul style="list-style-type: none"> Studies conducted in a mixed population (e.g., CHWs and other disciplines) and results are not separated for CHWs.
Intervention	<ul style="list-style-type: none"> Study evaluates the effects of CHW certification (training, core competency curricula, supervision, mentorship, standardization, scope of practice, formal recognition, knowledge, ethics, demeanor, background checks, tenure, experience, recruitment/retention, reimbursement, employer liability, payment mechanisms). 	<ul style="list-style-type: none"> Studies that do not evaluate an aspect of CHW certification.
Comparison	<ul style="list-style-type: none"> States, health plans, or programs that do not require CHW certification (either training or experience-based certification. We will also allow for historical controls. 	<ul style="list-style-type: none"> Studies that do not have a comparison group.
Outcomes	<ul style="list-style-type: none"> CHW recruitment, retention, scope of practice, reimbursement, employer liability, payment mechanisms. Quality or consistency of care, health outcomes, patient/family acceptance, trust, or use of CHWs. 	<ul style="list-style-type: none"> Studies that do not evaluate one of the listed outcomes.
Timing	<ul style="list-style-type: none"> We will include studies, regardless of timing. 	<ul style="list-style-type: none"> We will not have any criteria based on timing.
Setting	<ul style="list-style-type: none"> Study is based in the United States. 	<ul style="list-style-type: none"> Studies conducted exclusively outside of the United States.
Study design	<ul style="list-style-type: none"> Studies with a comparison group, such as randomized controlled trials, nonrandomized controlled trials, before/after studies, cross-sectional, or historical controls. 	<ul style="list-style-type: none"> No original data (e.g., editorials, letters, commentaries, review articles). Not written in English.

CHW = community health worker; CVD = cardiovascular disease

*We used the American Public Health Association’s definition for community health workers.¹ Other terms for community health workers are found in Appendix A.

We searched PubMed and CINAHL through October 2019. We also handsearched relevant reviews. Our search strategies are in Appendix B. We will update the search while the Technical Brief is posted for public comment.

Search results were screened independently by two team members at the abstract and then full-text level. Aided, where appropriate, by controlled vocabulary terms and text words, we tagged each eligible article with a limited amount of information (directed by the elements of the guiding questions), including population, setting and type of intervention. We developed a

conceptual framework that clarified connections between community health worker certification context and health outcomes, with an emphasis on pediatric asthma control and management.

The reviewers entered all information from the article review process into the Systematic Review Data Repository (SRDR). Reviewers entered comments into the system whenever applicable. We used the SRDR database to maintain the data and to create detailed evidence tables and summary tables. We contacted the authors of the included studies for additional data, if necessary. Although we describe results as reported in included studies, we did not critically evaluate the results or assess risk of bias.

Grey Literature

We searched reports and presentations published by the Association of State and Territorial Health Officials (ASTHO), the Centers for Disease Control (CDC), the Urban Institute, the Connecticut Health Foundation, the Progress Report of the Community Health Worker (CHW) Core Consensus (C3) Project, and the National Academy for State Health Policy, the Kaiser Family Foundation, Robert Wood Johnson Foundation, the Commonwealth Fund, California Health Care Foundation, and the Brookings Institute. In addition, we conducted a review of the websites of State health departments which have developed community health worker certification programs (e.g., Texas, Massachusetts, Minnesota, and Ohio). We also requested recommendations from our Key Informants for other sources of information. One team member conducted the searches and tracked screening and extracted data using SRDR.

In addition, we reviewed the websites of the department of health for each State to collect information on their community health worker certification program. We collected data regarding the statutory requirements for certification, the certifying body, the certification standards, and the requirements for continuing education. One reviewer entered all data into an Excel spreadsheet (Microsoft Corporation, Redmond, WA). We updated our grey literature search in October 2019.

Discussions With Key Informants

We identified Key Informants with experience and expertise across the spectrum of domains associated with community health worker practice, delivery, and certification, including community health workers, community health worker trainers and employers (including those from health systems, State health departments, and payors); patient advocates; stakeholders from national agencies/organizations; and researchers, policy makers, and national thought leaders in the community health worker arena. We selected Key Informants from States with and without certification. Representatives from AHRQ and the CDC reviewed the list of Key Informants.

We solicited input on the predominant community health worker certification models across the country as well as barriers and facilitators of community health worker certification program implementation. We asked Key Informants to share their perspectives on the utility of certification and its effects on recruitment and retention in the community health worker workforce, as well as community health worker scope of practice, core competencies, and recommended governance structures for community health worker certification processes. We interviewed patient advocates to determine how community health worker certification is regarded among direct recipients of community health worker-delivered services, in particular, its perceived helpfulness and desirability. Key Informants from community health worker employers helped us explore the long-term financial models undergirding community health worker certification initiatives. Our community health worker Key Informants were essential not

only in addressing the aforementioned issues, but also in illuminating the ramifications of community health worker certification on their everyday practice, impact on patient outcomes, entry and retention in the field, and the overall positives and negatives of community health worker certification. Taken together, these interviews allowed us to characterize the full complement of factors associated with community health worker certification that may not appear in either the grey or published literature.

We developed interview guides, separate for each type of Key Informant, as appropriate (Appendix C). Table 2 lists the full set of Key Informant interview questions.

Table 2. Key Informant interview questions

Question
To your knowledge, did we miss any key published or unpublished documents of interest (studies or reports)? Are there any on the horizon that we should be aware of? Are there any specific websites that we should search for additional information?
What are the prevailing sentiments about CHW certification among your friends/family members/colleagues/constituents? Do these differ for mandatory versus voluntary certification?
How might CHW certification influence the quality, delivery, and experience of care of patients with asthma? Among patients with multiple comorbid conditions?
From your perspective, to what extent does CHW certification influence CHWs' entry into the field, and their desire and capacity to remain in the field? Does this differ for mandatory versus voluntary certification?
From your perspective, what ways, if any, does certification contribute to patients' asthma-related outcomes, and/or outcomes of other chronic diseases?
Does it matter to you if the CHW you work with has been certified? Why? Why not?
What is the infrastructure needed to support CHW certification? What should the components of CHW certification be? Should there be maintenance or re-certification?
How do you attribute the work of CHWs to health outcomes? How would you measure the impact of a CHW?
Should CHWs' hiring and promotion require certification? How might certification efforts affect long-term, sustainable funding mechanisms to support CHWs?
What are the most important outcomes to consider when evaluating CHW certification?

CHW = community health worker

We conducted interviews either individually or in small groups on the telephone. Notes were drafted for each call. Calls were recorded to assist with ensuring complete and accurate documentation. Two team members reviewed the recordings and notes from the calls to identify themes.

Peer Review and Public Commentary

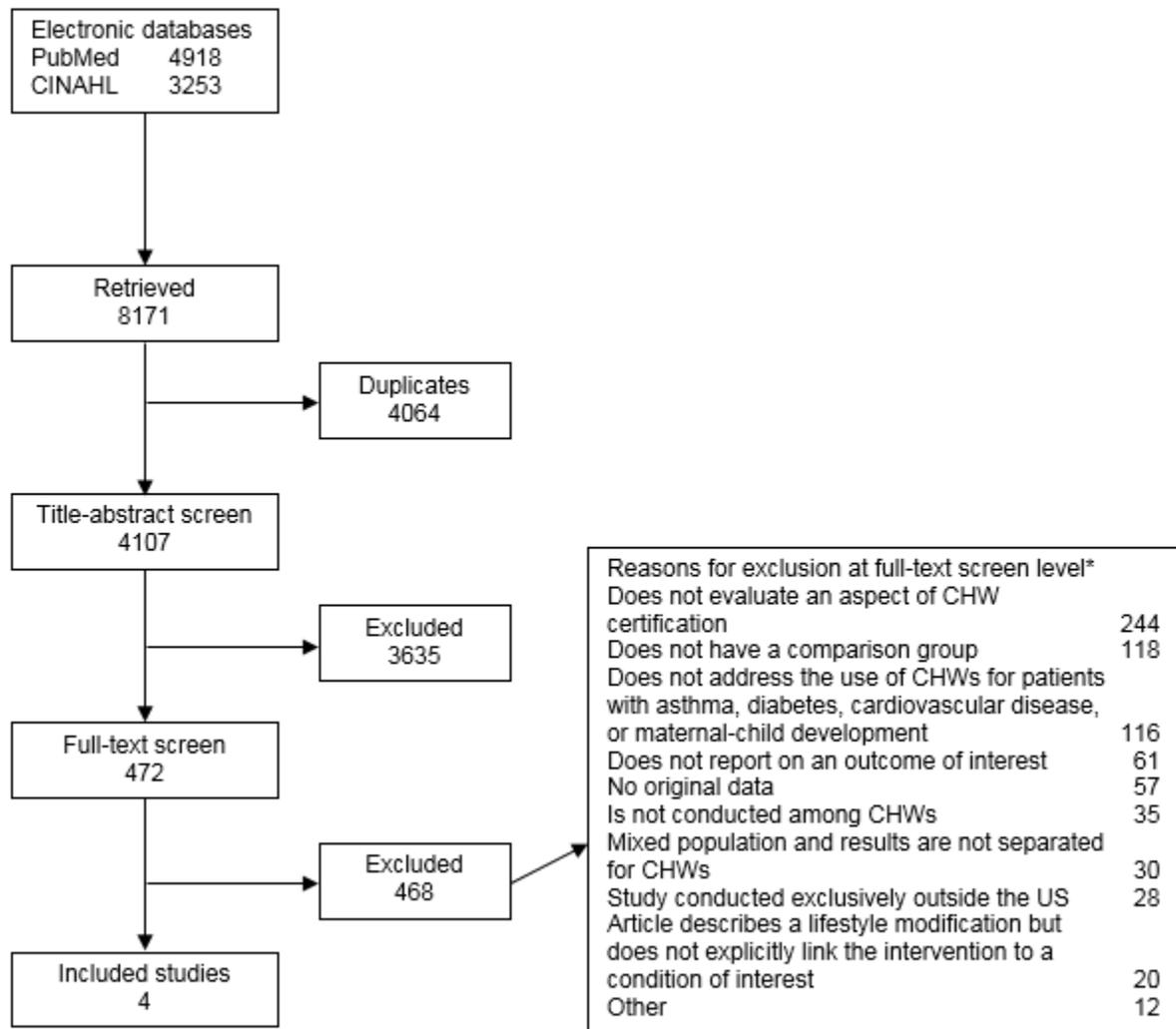
Experts in community health worker practice, delivery, and certification, and individuals representing stakeholder and user communities were invited to provide external peer review of this Technical Brief. AHRQ and an associate editor also provided comments. The draft report was posted on the AHRQ website for 4 weeks to elicit public comment. We addressed all reviewer comments, revising the text as appropriate, and documented everything in a disposition of comments report that will be made available 3 months after AHRQ posts the final Technical Brief on the EHC website.

Results

Results of the Published Literature Search

We retrieved 4,107 unique citations (Figure 1). After screening abstracts and full-text, we included four studies.¹⁸⁻²¹ Appendix D provides a list of the articles excluded at full-text screen, sorted by the reason for exclusion. Most of the studies were excluded because they did not evaluate an aspect of community health worker certification. In a post-hoc change requested by our partner, we have listed the articles excluded at the full-text screening because there was no comparison group (n=30) with the geographical location (Appendix E).

Figure 1. Search flow diagram



CHW = community health worker; CINAHL = Cumulative Index to Nursing and Allied Health Literature

*Articles could have been excluded for more than one reason.

Results of the Grey Literature Search

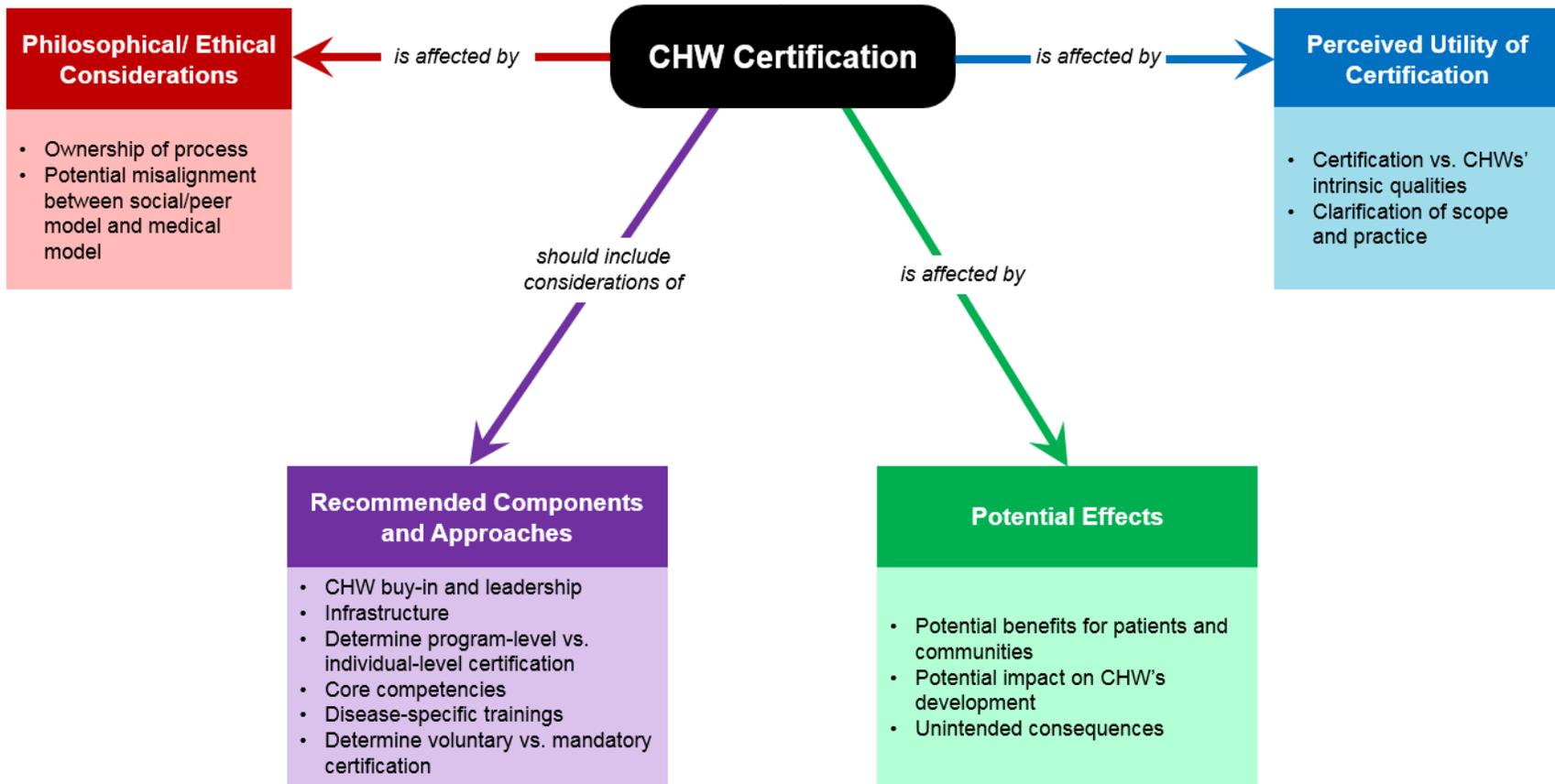
We searched 18 websites and found 37 documents that were relevant to community health worker certification. Most of the documents identified through the grey literature search were

commentaries, reports of activities, or surveys. Appendix F provides details on the results of the grey literature search.

Results of the Key Informant Interviews

We completed seven 1-hour interviews with nine Key Informants, including community health workers, community health worker trainers/employers, national thought leaders and policy makers, and patient advocates. We identified four thematic areas: (1) the perceived utility of certification, (2) the philosophical/ethical underpinnings of the community health worker model, (3) certification components and approaches, and (4) the potential effects of certification. The link between each thematic area, with their attendant sub-themes, and the concept of community health worker certification is displayed as a concept map in Figure 2. We also provide sample quotes in Table 3 as they relate to specific guiding questions.

Figure 2. Concept map of thematic areas and their subthemes



CHW = community health worker

Table 3. Themes and direct quotes from Key Informant interviews

Theme	Direct Quote
<p>Philosophical/ Ethical Considerations</p>	<p><i>“CHWs--as a profession--might worry that certification would dilute the grassroots identity of the field; they may view certification with concern if it “over-professionalizes” the field; but as individual people they might want that certification as recognition for their work”</i></p> <p><i>“The reach between CHW certification and patient outcomes is a huge leap with a myriad of factors in between. How do we, scientifically and rigorously, expect to standardize all those factors that might be impacting patient outcomes, other than CHW certification. Because the patient outcomes we are looking at are disease outcomes and CHW is not a disease model... a disease management model. So how do we make that connection?”</i></p>
<p>Perceived Utility of Certification</p>	<p><i>“So much of this is about qualities that people bring to the field: qualities of heart, qualities of cultural and personal background; qualities of passion and commitment; all of these things are very hard to establish in certification”</i></p> <p><i>“CHWs respond to the needs of the people they serve; and help those people to develop their strengths and abilities and capacities and hopes and dreams...I don’t know how you certify that, and I don’t know that certification is even really relevant.”</i></p> <p><i>“From our perspective and the work that we have done, I don’t know that certification of CHW is a pathway to get quality, quality in patient outcomes... Hiring is really more important than training. You can’t train people to have the really intrinsic qualities of relationship building and empathy that are important for CHW to do their job.</i></p>
<p>Recommended Components and Approaches</p>	<p><i>[Certification] “means statewide certification: you have been acknowledged by some legitimate entity for this sphere of activity...to attest to your meeting certain proficiency standards and core competencies in the field”</i></p> <p><i>“[CHWs] have to be key players in the whole process.”</i></p> <p><i>“I would steer away from individual certifications...and more towards the program level because it captures more of the elements that are outside of just the training bucket which is where a lot of problems can occur in terms of not emphasizing the right things and not getting us where we want to go in terms of patient outcomes...or workforce development”</i></p>
<p>Potential Effects</p>	<p><i>“Certification will allow CHWs to feel part of the team, rather than ‘the help”</i></p> <p><i>“Once you have that validation [from certification], it pushes that person further to do their job.”</i></p> <p><i>“[Certification] could potentially give CHWs a louder voice in some rooms.”</i></p> <p><i>“In the interest of standardizing this role, let’s not keep the people out that are going to be most successful in this role”</i></p> <p><i>“What does [certification] mean for this...force in public health that has community roots and origins? And how do you protect that? How does certification change the workforce?”</i></p> <p><i>“We are very excited to see this role become more formalized...my only concern is that we do not make the role so clinical or difficult to obtain that it eliminates that level of connection with the underserved.”</i></p>

Guiding Question 1: Effects of Certification on Community Health Worker Recruitment, Retention, Scope of Practice, Reimbursement or Employer Liability

Findings From the Published Literature Search

We did not find any studies that evaluated the effect of community health worker certification on community health worker retention, scope of practice, reimbursement, or employer liability.

We found one study that reported on community health worker recruitment, which is an aspect of certification.¹⁸ Balcazar (2006) reported that the number of promotoras recruited to the program, which took place in California, Illinois, and New Mexico, ranged from 73 percent to 100 percent of the proposed number of promotoras needed (Table 4). However, the study did not describe if the participating organizations required certification.

Table 4. Summary of the studies included in the published literature search

Author, year	Study design	Setting and State	Type of CHW, n	Patient population	Description of CHW certification	Findings
Balcazar, 2006 ¹⁸	Before/after trial	Urban locations in Illinois, California, New Mexico	Promotoras, 29	Adults with CVD	Lead promotoras received over 66 hours of training. Local promotoras received 62 hours of training.	Participating communities' success in recruiting and deploying promotoras through the training program ranged from 73% to 100% of number proposed before program implementation.
Tang, 2014 ¹⁹	Randomized controlled trial	Urban locations in Michigan	CHW, NR vs. peer leaders, NR	Adults with type 2 diabetes	CHWs had a mean 6 years of experience, high school diploma or GED, over 240 hours of training in diabetes education, community outreach, home visits, human subjects research, curriculum, behavioral modification strategies, motivational interviewing, community-based participatory research, and basic computer and internet skills. Peer leaders had diabetes and underwent 46-hour training program over 12 weeks. Peer leaders need to demonstrate competency in 4 domains: diabetes knowledge, active listening, empowerment-based facilitation, and self-efficacy.	There were no statistically significant differences between groups at any timepoint in terms of HbA1c, LDL or HDL cholesterol, systolic or diastolic blood pressure, or waist circumference. Participants assigned to a CHW initially had a greater decrease in BMI, but this affect was not maintained over time. Participants who had been assigned to a peer leader expressed more diabetes social support at 6 months and 12 months, but not at 18 months. There were no statistically significant between-group differences in the mean or percentage contacts.
Valen, 2012 ²⁰	Before/after trial	Minnesota, North Dakota*	CHW, 4	Adults with type 2 diabetes	CHWs received 6 2-hour sessions of basic education about diabetes and 16 hours of supervised planning before and between sessions with clients/patients.	There were no statistically significant improvements in HbA1c 3 months following the program.
Ferguson, 2012 ²¹	Before/after trial	Massachusetts*	CHW, 1198	Adults with type 2 diabetes	Community health centers either promoted existing staff or hired new CHW candidates using a job description to guide hiring of supervisors. Supervisors attended a 6-hour training course. CHWs received 48-hours of training in CHW core competencies and diabetes-specific competencies.	There was some confusion in the roles of CHWs, with some CHWs spending less time in the field than expected.

BMI = body mass index; CHW = community health worker; CVD = cardiovascular disease; GED = General Educational Development; HbA1c = hemoglobin A1c; HDL = high density lipoprotein; LDL = low density lipoprotein; NR = not reported

*Unclear if the study was conducted in a rural or an urban setting.

Findings From the Grey Literature Search

Of the 37 documents identified from the grey literature search, 15 documents described a relation between community health worker recruitment or reimbursement and certification. Nine of those documents cited improved statewide reimbursement as a benefit, or potential benefit, of certification.^{7, 22-29} A prominent example of this was the case of certified community health workers in Minnesota who are eligible for State Medicaid reimbursement once they have earned certification. Of note, however, actual reimbursement in Minnesota has lagged,³⁰ largely due to limited Medicaid coverage of services provided by community health workers. This has been attributed to a misalignment between the reimbursement model and the scope of community health workers' activities, and the cumbersome billing process).^{27, 30} Further, five of the documents indicated that statewide recruitment and job opportunity was improved as a result of certification.^{22, 26, 28, 31, 32}

Of the 14 documents, two described no effect of certification on recruitment or reimbursement. In a 2013 report of four case studies by The Urban Institute, the authors noted that, in Texas, there is no formal evaluation to determine the impact of certification on the workforce, no mechanism to track that information, and no "systematic comparison of the certified community health worker population to those who do not seek certification."³³ In a separate report, also by The Urban Institute, authors echoed that point more broadly with respect to the national context.³⁴ In noting the "undocumented" benefits of certification, Bovbjerg et al. stated: "Higher wages, more secure jobs, and better outcomes for patients also need to be empirically verified as effects of certification."³⁴

Findings From Key Informant Interviews

Input from the Key Informants contextualizes the underlying factors shaping the potential effects of certification on community health workers' recruitment and retention, as well as their scope of practice, reimbursement, and aspects of employer liability. The most relevant themes were the *potential effects of certification*, particularly, unintended consequences; the *perceived utility of certification*, especially the notion of certification as a mechanism to clarify the scope of practice of community health workers; and the *ethical considerations shaping certification*, namely, the philosophical (mis)alignment between the social/peer model and the disease management/medical model.

There was strong agreement among all the Key Informants that certification will influence the recruitment and retention of community health workers in the field, with different opinions on whether that will be a positive or negative influence. On the one hand, several key informants highlighted the potential that certification could change the composition of the community health worker workforce itself. One Key Informant proposed the idea of certification as a "perverse incentive," reflecting the pervasive concern that certification may create pathways for those who are not genuinely interested in the work typically associated with the community health worker role to nonetheless pursue employment as a certified community health worker, using the position for career advancement, rather than as a standalone role warranting investment and dedication in its own right. Certification, then, was regarded cautiously by several Key Informants as something that may threaten the workforce's authentic allegiance to the grassroots, community-based origins of the community health worker model.

On the other hand, a few Key Informants acknowledged that the community health workers they work with are, themselves, in favor of certification. They attributed this support for

certification to its perceived utility in standardizing the scope of practice of community health workers, elevating their stature in healthcare teams, and fostering a deeper sense of professional identity, factors which may support the recruitment and subsequent retention of community health workers in the field. Three of the Key Informants asserted that certification is essential for establishing core competencies and standardizing intervention delivery. Certification proponents and skeptics similarly conceived of the community health worker role as very broad, encompassing individual patient services through community-level advocacy. However, proponents tended to view certification as a means of amplifying the impact of their advocacy, whereas skeptics were more concerned that certification would make community health workers more beholden to financiers and less beholden to the communities that they intended to serve. The latter group identified this community orientation as both the central value of the community health worker model and the key ingredient that makes community health workers efficacious communicators and patient advocates.

The extent to which Key Informants endorsed certification as a vehicle for financial sustainability through Medicaid/Medicare reimbursement appears to be shaped by their direct personal and professional experiences. The Key Informants with extensive policy and research experience highlighted Texas as a prime example of a State with mandatory community health worker certification. They noted that certification there did not lead to sustained funding, improved wages, or employment prospects for community health workers. They suggested that this may cause community health workers to feel disillusioned. However, other Key Informants, who had past or present experiences as community health workers, indicated that, in the States they worked or work in, certification is directly linked to reimbursement strategies.

Guiding Question 2: Effects of Certification on Quality or Consistency of Care, Health Outcomes, or Patient/Family Acceptance, Trust, and Use of Community Health Workers

Findings From the Published Literature Search

We did not find any studies that evaluated the effect of community health worker certification on the health outcomes or the quality or consistency of care that community health workers provided to patients. Similarly, we did not find any studies evaluating the effect of community health worker certification on patient/family acceptance of, trust in, and/or use of community health workers. We found two studies that reported on health outcomes varying as a result of the type of training received by community health workers, which is an aspect of the certification process (Table 4).^{19, 20} Tang (2014) randomized adults with type 2 diabetes to a program led by community health workers, who had received extensive training or a program led by peer leaders who had received less training.¹⁹ This study reported no statistically significant differences between groups at any timepoint in terms of hemoglobin A1c, low density lipoprotein cholesterol, high density lipoprotein cholesterol, systolic or diastolic blood pressure, or waist circumference. Participants assigned to a community health worker initially had a greater decrease in body mass index, but this effect was not maintained over time. Participants who had been assigned to a peer leader expressed more diabetes social support at 6 months and 12 months than those who had been assigned to a community health worker, but this was not seen at 18 months. Valen (2012) provided additional diabetes-specific training and supervision to

community health workers and reported no statistically significant difference in hemoglobin A1c levels.²⁰

Findings From the Grey Literature Search

Of the 37 documents identified in the grey literature search, only six addressed the relationship between community health worker certification and its potential influence on quality of care, health outcomes or patient/family acceptance of community health workers,^{22, 23, 33-36} indicating scant evidence to suggest that certification influences the quality care delivered by community health workers or the extent to which they are accepted by patients and their families (See Appendix E). A 2016 survey of 440 certified community health workers in Texas indicated a perception, among community health workers, that certification may have improved the relationship between communities and workers: “It is important to have the community health worker certification, especially because the community members feel more confident when we communicate health education and resources to them.”²² This survey did not elicit responses from community members served by community health workers. Three documents published by the Centers for Disease Control categorized the evidence for community health worker Certification as “Best” and cited, among other benefits, improved glycemic control in diabetic patients.^{23, 35, 36} However, the studies referenced did not specifically seek to link statewide certification to the health outcomes of interest. A 2013 report from The Urban Institute contains the authors’ concern that patients could suffer injury from “inappropriate caregiving,” thus necessitating “standardized training and certification,” yet they did not cite any studies to support this contention.³⁴ A separate 2013 report of four case studies published by The Urban Institute features community health workers’ successful efforts to reduce low birth weight in Ohio.³³ The authors include a description of the history and process of statewide certification within the narrative of workforce development, but they did not draw a specific link between statewide certification and health outcomes. Importantly, the authors also mentioned that Ohioan community health workers used to address low birth weight had also undergone a program-based training specific to maternal-child health, which was not a requirement of statewide certification.

Findings From Key Informant Interviews

Two themes emerged as salient to the question of the relationship between certification and patients’ health outcomes, patients’ trust in and use of community health workers, and the quality and consistency of interventions delivered by community health workers. The predominant theme was the *perceived utility of certification*, especially as it relates to the importance of certification versus the importance of the intrinsic qualities of community health workers. The other theme was the *potential effects of certification*, specifically its perceived impact on patients’ health.

The majority of the Key Informants asserted that certification, in and of itself, is not related to patients’ health outcomes or their trust in, acceptance of, and use of community health workers. Those who subscribed to this belief endorsed the view that hiring the right community health workers is more important than the certification status of a community health worker. From their perspective, this entails employing those who are naturally empathic, possess strong communication skills, have caregiving experiences, and are members of the communities they endeavor to support. As one Key Informant stated, “*community health workers respond to the needs of the people they serve, and help those people to develop their strengths and abilities and capacities and hopes and dreams...I don’t know how you certify that, and I don’t know that*

certification is even really relevant...If you look at community health workers as a peer model, then I don't know that certification has any relevance at all. I think it's a relationship built on trust..."

The concept of community health workers as peers undergirded all the Key Informants' input regarding the perceived utility of certification and its implications for patients' outcomes. However, of our nine Key Informants, two of them drew an explicit link between certification and the potential for improved patient outcomes, as well as enhanced receptivity to community health workers. One Key Informant argued that certification has the potential to reduce patient harm insofar as it facilitates a standardized, trained workforce, allowing other care providers to work at the top of their scope of work and training. Another Key Informant suggested that, for patients and families who are unfamiliar with what community health workers do, certification may foster their initial sense of trust in a community health worker attempting to help them.

Notably, despite some divergence of opinions regarding the utility of certification with respect to patient's outcomes and perceptions of community health workers, and of the link between certification and quality and consistency of care delivery, none of the Key Informants believed that community health workers should be excluded from employment opportunities on the basis of their certification status. All of the Key Informants highlighted the importance of experience and personal characteristics as being at least as important as mastery of core competencies and disease-specific training for a community health worker.

Guiding Question 3: Context of Community Health Worker Certification Requirements and Their Implementation in the United States

Findings From the Published Literature Search

We did not find any studies that characterized the status of community health certification in the United States. However, we identified four articles – two literature reviews,^{37, 38} one report of a consensus process,³⁹ and one commentary⁹ – that described contextual considerations relevant to community health worker certification. Each of these publications reported wide heterogeneity in how community health workers are described, recruited and deployed. Each also acknowledged the absence of published comparative effectiveness studies that could guide program planning for community health workers. The contextual issues elucidated in these publications fell into four overarching domains: intended work setting, expected role, selection process, and institutionalization process.

Two publications, a commentary and a systematic review, discussed considerations related to the intended work setting and the roles intended for community health workers.^{9, 37} Both publications described community health workers as working across a spectrum of settings, ranging from hospitals and medical offices; to community-based health centers, such as health-oriented, non-profit organizations; to community members' homes or workplaces. They also described community health workers as having diverse role responsibilities ranging from serving simply as a channel for transmitting information from healthcare providers to community members, to actively promoting bidirectional communication and coordinating care among community members and healthcare providers. The systematic review generated a conceptual framework to guide community health worker training programs in aligning education content with community health workers' expected settings and roles.

A literature review of 44 articles reported on factors frequently considered when selecting community health workers.³⁸ The study found that the most commonly reported characteristics described in studies were personal qualities, such as interest in the subject material, willingness to learn, compassion, natural leadership qualities or community leadership experience. Sixty-eight percent of articles reported selecting for racial or ethnic concordance with a target patient population, but only 21 percent of articles involving Asian, Native American or Hispanic communities required bilingual language skills. The review found that few articles described experience with a target disease either as a patient or as a provider, a high school diploma or equivalent, or completion of a formal application and interview process as selection criteria.

All four articles described considerations related to institutionalizing community health workers into the existing healthcare delivery infrastructure.^{9, 37-39} Two literature reviews and one report from a consensus process described the delivery of a training curriculum as a key aspect of the institutionalization process.³⁷⁻³⁹

One review of 44 articles reported that the time required in published community health worker curricula varied between 5 hours and 6 months and covered content in three broad domains: *skilled-based knowledge*, such as interpersonal communication, relationship building, time management, documentation, and conflict management; *health knowledge*, such as information about targeted diseases; and *research implementation knowledge*, including content related to the protection of human subjects, conflict of interest, recruiting subjects for studies, and tasks required by the study protocol.³⁸

A second review qualitatively examined 20 documents, including peer reviewed articles, State documents, and published training competencies for community health workers.³⁷ In this study, an expert panel of 15 individuals representing community health workers and community health worker supervisors in southeastern Louisiana, academic researchers, physicians and public health practitioners generated 27 competencies. A panel of 58 community health worker educators in 22 States, mostly located in south and southeastern United States, then assessed the importance of each competency. The panel rated all surveyed competencies as important, but ranked competencies related to exhibiting culturally and linguistically appropriate communication, exhibiting inclusiveness, advocating for clients, and facilitating clients' access to health service as the most important.

Findings From the Grey Literature Search

Among the 37 pieces of gray literature identified, 30 contained some description of the context of community health worker certification in the United States. Descriptions of State-specific models varied in their degree of detail but were otherwise consistent in content. Among statewide certification pathways, two models were generally described: (1) certification based on a certain number of hours of experience (“grandfathering” existing community health workers),⁴⁰ an approach favored by eight out of 19 States with current or pending legislation for community health workers (as of 2018); or (2) certification based on the completion of didactic training and practical hours, where candidate community health workers are required to demonstrate selected core competencies. None of the statewide certification models described required comprehensive training for specific diseases or health conditions.

One of the items we identified is a report of a recent study undertaken by the Centers for Disease Control and Prevention (CDC) to explore various certification approaches and processes, as well as barriers and facilitators associated with certification.⁴¹ Case studies and extant document reviews from States with and without certification programs are used to illustrate the

impact of State legislation on the development and implementation of local community health worker certification programs, including strategies that have been used to advance community health worker workforce development through certification; community health worker-led approaches to initiate certification efforts and delineate appropriate pathways for conferring certification; and tactics that States have employed to determine financing mechanisms to support certification.

Four of the documents provided additional context with regards to the development of community health worker certification pathways. The 2018 Community Health Worker Assessment from Ohio mentioned the cost of training as an ongoing issue that may deter prospective community health workers,²⁴ a sentiment echoed by the CDC's Community Health Worker Certification Study.⁴¹ In a 2013 report on the community health worker workforce, authors from The Urban Institute summarized the fraught nature of standardizing the credentialing process for community health workers given the presumed influence of local context on community health worker efficacy.³¹ A 2014 policy statement by the American Public Health Association called for strong community health worker representation in the development of any certification process to ensure the preservation of core community health worker role functions and promote leadership capacity within the profession.⁴² This is consistent with the position adopted by the authors of the CDC's Community Health Worker Certification Study.⁴¹ Further, the aforementioned study describes several potential actions for stakeholders seeking to promote certification to consider, including establishing processes to assure that community health workers are members of the communities they serve, creating community health worker training standards that are aligned with certification requirements (or vice versa), and garnering State-level support for certification through partnerships with leaders in local State health departments.

Tables 5 and 6 summarize the status of community health worker certification in States that have a legal mandate or a pending legal mandate for certification. Formal advisory bodies were enacted per statute in four States: Delaware, Illinois, Maryland, and Nevada. These advisory bodies are charged with developing recommendations for community health worker certification to guide future legislative action.

Table 5. Status of community health worker certification – statutory mechanism for certification and certifying body

State	Year of authorization of certification process	If not currently required, last year that CHW certification law was proposed	Year of established CHW commission or advisory body	Current certifying body	Year statutory-defined scope of practice passed
Alaska	1993	N/A	1998	Community Health Aide Program Certification Board	1993
Arizona	2018	N/A	2001	Arizona Department of Health	NR
Connecticut	Pending*	2019	2016	Pending*	Pending
Maryland	2018	N/A	2018	Pending	Pending
Massachusetts	2012	NR	2010	Massachusetts Department of Health	2010
Minnesota	2009	NR	2007	Minnesota Department of Health	NR
New Mexico	2016	NR	2006	New Mexico Department of Health	N/A
Ohio	2003	NR	NR	Ohio Board of Nursing	2003
Oregon	2011	NR	2013	Oregon Health Authority	2013
Rhode Island	2016	NR	Community Health Worker Association of Rhode Island	Rhode Island Certification Board	N/A
Texas	2001	NR	2001	Texas Department of State Health Services	2001
Virginia	Pending*	2019	2014	Virginia Certification Board	2005

CHW = community health worker; N/A = not applicable; NR = not reported

*Pending indicates current active legislation that will be voted upon in 2019 or applies to values that are proposed or remain to be determined by legislators.

Table 6. Status of community health worker certification – certification standards and continuing education

State	Certification Standards (# Hours Required) - Core	Certification Standards (# Hours Required) - Web	Certification Standards (# Hours Required) - Clinical	Education Providers	Hours of Continuing Education Required	Frequency of Renewal
Alaska	NR	NR	200 hours village clinical experience	Private and public	24 hours	Every 2 years
Arizona	Pending*	Pending*	960 hours of experience in the past 3 years ("grandfather" pathway)	Pending*	NR	NR
Connecticut	Pending*	Pending*	Pending*	Pending*	Pending*	Pending*
Maryland	Pending*	Pending*	Pending*	Pending*	Pending*	Pending*
Massachusetts	80 hours+ clinical (or 4000 hours relevant work experience, "grandfathering" option)	Online option available	NR	State and private	15 hours	Every 2 years
Minnesota	14 credit hours (or 5 years supervised by enrolled clinician, "grandfathering" option)	NR	NR	Private	NR	NR
New Mexico	100 hours of core training (vs. 2000 clock hours, "grandfathering" option)	NR	NR	Private	30 hours	Every 2 years
Ohio	130 hours ("grandfather" option for CHWs active prior to 2005)	NR	100	Private	15 hours	Every 2 years
Oregon	80 hours training (or 3000 hours in past 5 years for "grandfather" option)	NR	NR	Private	20 hours	Every 3 years
Rhode Island	70 hours education	NR	1000 hours volunteer/ paid hours or 6 months full time work	Private (State Department of Health approved)	20 hours	Every 2 years
Texas	160 hours + clinical or 1000 hours relevant work experience within past 6 years	NR	NR	Private	20 hours	Every 2 years
Virginia	60 hours within 7 domains of education within the past 3 years (proposed)	Not defined	2000 hours or one year full-time within the past 3 years (with at least 50 hours spent under supervision) (proposed)	NR	30 hours	Every 2 years

NR = not reported

*Pending indicates current active legislation that will be voted upon in 2019 or applies to values that are proposed or remain to be determined by legislators.

Findings From Key Informant Interviews

It is important to note that, when asked to characterize the landscape of community health worker certification initiatives underway across the United States and to provide recommendations as to ideal models or core ingredients for a successful certification program, the responses the Key Informants provided ranged from strong support for certification, to ambivalence, to outright rejection of the necessity of certification. The sentiments expressed related to Guiding Question 3 are thus reflected in three overarching themes: the underlying *ethical/philosophical ramifications* of certification, including the ownership of the process and the potential for certification to perpetuate a separation between the community health worker workforce and its grassroots origins in community organizing around health; the *perceived utility of certification*; and the recommended *components and approaches* for the certification process.

One of the Key Informants stated that they had yet to hear any success stories about certification, citing unclear benefits; cautionary tales of the failure, in some States, to live up to the promises of certification; and the general sense that much of what community health workers do is not amenable to certification. They went on to describe how the peer support model, championed in substance use literature and practice, had been hampered by efforts to impose certification on peer support specialists and argued that certification may lead to similar regulatory constraints that would undercut community health workers' flexibility in supporting patients. Another key informant stated that they were not in favor of certification. Two Key Informants expressed mixed feelings about certification, acknowledging that it is favored by community health workers while questioning the premises underlying its growing ascendance throughout the country. However, one of the Key Informants proposed that certification could be a tool for formalizing the community health worker role and identity formation. They further argued that certification may serve to return the community health worker model to its roots, by divorcing community health workers from exclusive disease management models in favor of a broader community-based orientation. Two of the Key Informants addressed the financial implications of certifying community health workers and suggested that the costs incurred in establishing requisite infrastructure to support certification were often overlooked.

The following certification components and approaches were proposed by the Key Informants and should be viewed in the context of the aforementioned controversies surrounding initiating and implementing certification processes.

- **Ensure that the certification process engages community health workers as leaders driving the agenda for certification.** As noted by one of the Key Informants, the process of establishing a certification program should involve community health workers as equal stakeholders. This is consistent with a suggestion posed by another Key Informant that several others agreed with, which was to leverage the certification process to create opportunities for community health workers' self-determination.
- **Consider program-level certification rather than certifying individual community health workers.** Several Key Informants, irrespective of their opinions about the validity of community health worker certification, commended the approach adopted by the North Carolina Department of Health and Human Services. Their Community Health Worker Initiative comprises community health workers and other relevant stakeholders who have convened to determine the appropriate scope of work for community health workers, identify core competencies and training, and develop the process for community health worker certification.⁸ They are in the process of developing a multi-tiered approach to

certification that involves accrediting community health worker programs. Accreditation will be overseen and conferred by the North Carolina Community Health Worker Certification and Accreditation Board. Even those Key Informants who expressed ambivalence about certification at large acknowledged that North Carolina's approach attended to their concerns about ensuring that certified community health workers possessed the requisite qualities and experiences regarded as critical to their success in influencing patients' outcomes.

- **Consider integrating certification into community colleges**, so that community health workers can receive formal educational credits.
- **Certification efforts should include the development of core competencies that are aligned with the Community Health Worker Core Consensus (C3) Project.** Several Key Informants were involved with the Core Consensus Project, which endeavors to advance the community health worker field by galvanizing consensus around a community health worker scope of practice and core competencies.⁴³ There was strong agreement among several Key Informants that certification efforts should include training in standard core competencies that mirror those developed through the C3 Project.
- **Certification should emphasize core competencies and be supplemented by disease-specific trainings.** This belief is best captured by an argument posed by one of the Key Informants, who strongly asserted that certification is not equivalent to a certificate of completion. Rather, certification implies meeting a core set of competencies. Suggested core competencies include the ability to (1) communicate well (e.g., motivational interviewing), (2) ensure safety, (3) address challenging encounters, (4) share decision-making, (5) address barriers to adherence, and (6) evaluate patients' health and home environments. Other Key Informants (particularly those who had past experiences as outreach or community health workers) asserted that disease-specific trainings could be a part of the process to ensure that community health workers were abreast of evidence-based, up-to-date information about specific conditions.
- **Certification should occur at the State level.** There was strong consensus that certification should occur at the State level in partnership with a well-regarded certifying entity. Having a strong organizing entity at the State level was regarded as important to conferring legitimacy to the certification and preventing a fractured process. Several Key Informants also acknowledged the burdens imposed on State health departments in serving such a role, not only financially, but also, as a facilitator of the process of developing and maintaining a certification program (e.g., maintaining a registry of certified community health workers). Key Informants uniformly agreed that certification should not fall under the purview of employers.
- **Certification should be voluntary, not mandatory.** All the Key Informants were strongly against mandatory certification. The common rationale was that mandatory certification could potentially leave out promising community health workers who were unable, for a variety of reasons, to fulfill the requirements associated with the certification process. Several Key Informants were equally concerned that even voluntary certification of individual community health workers would become de facto mandatory and would therefore be equally problematic.

Guiding Question 4: Potential Positive and Negative Implications of Requiring Community Health Worker Certification

Findings From the Published Literature Search

We found no studies evaluating the implications of community health worker certification requirement. We identified one commentary that weighed the pros and cons of mandatory certification for community health workers.⁹ Considerations in favor of a certification process included increased potential for healthcare organizations to hire community health workers, potential for healthcare organizations to pay community health workers more, and increased access to opportunities for education and professional development. Considerations opposing a certification process include a lack of adequate training venues relative to potential demand for community health workers, financial costs associated with attending community health worker training programs, opportunity costs to individuals associated with attending training programs instead of working, challenges that individuals from targeted communities might face in navigating the educational system in order to complete the certification process, and the potential that the selection process generated by a certification process would eliminate the key features that make community health worker programs effective.

Findings From the Grey Literature Search

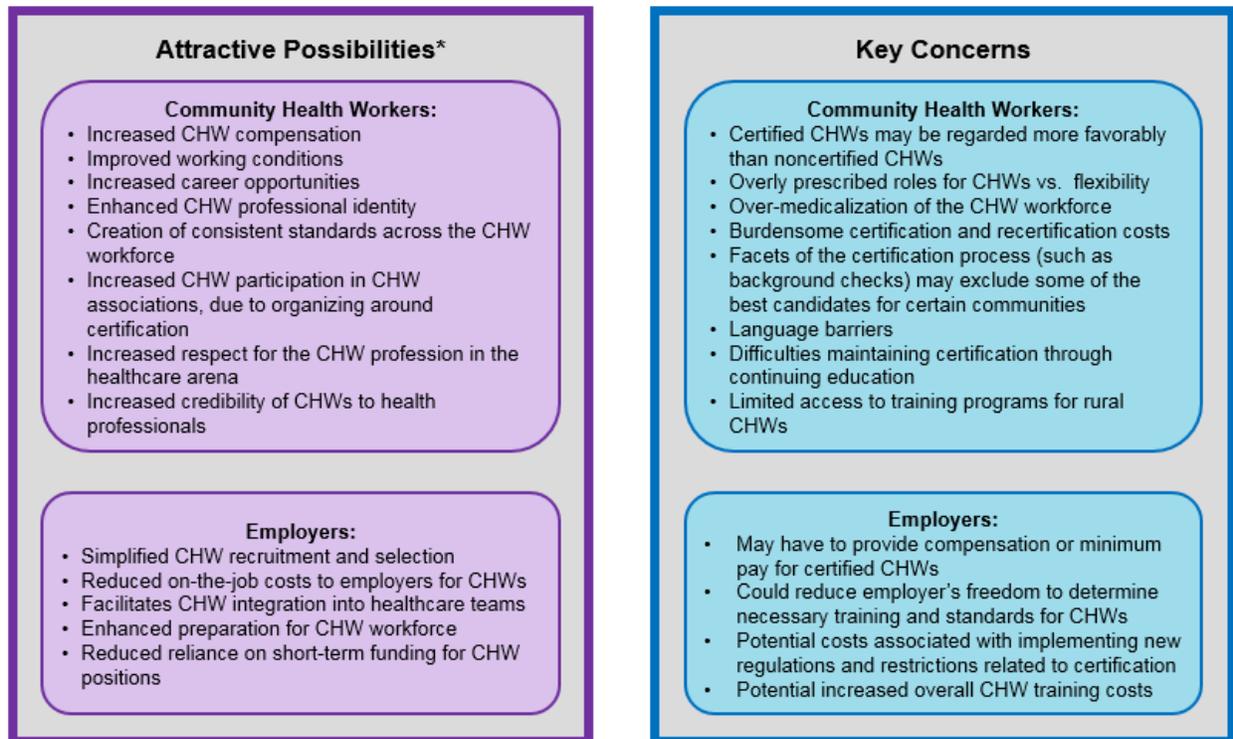
Nineteen out of 37 documents identified in the grey literature search included some discussion of positive or negative implications of community health worker certification and are consistent with the considerations highlighted in the commentary. The majority of those documents authored by State entities (e.g., Departments of Health) described expectations that certification would develop the workforce by improving formal recognition of the profession within the healthcare culture, resulting in evolved payment mechanisms that would allow community health workers more consistent, sustainable pay, and a higher magnitude of reimbursement. The authors of several of the documents published by foundations or professional organizations expressed hope that certification would also improve population health outcomes.

A significant majority of the 19 documents cited the potential to exclude prospective community health workers from joining the workforce as the greatest concern of certification. Another common concern was the fear that community health workers would lose their sense of ideological identity in the process of certification. This point was illustrated by some authors who emphasized that community health workers arise from the community and that their skills are not as easily amenable to certification as the clinical skills of physicians or nurses.^{25, 44} One report by the Robert Wood Johnson Foundation mentioned the possibility that healthcare systems may not be prepared to accept and employ certified community health workers despite increasing numbers of certification.²⁵ Finally, cost of certification/re-certification was mentioned in the context of a State like Texas, where renewal of certification is frequent enough that the process imposes a cost burden on certified community health workers.

The positive and negative ramifications of community health worker certification outlined above are congruent with findings from the CDC's Community Health Worker Certification Study,⁴¹ which explicated favorable and unfavorable conceptions of community health worker

certification from interviews with 40 stakeholders (community health workers, employers, State health officials, and payers). We present a summary of their results in Figure 3.

Figure 3. Summary of the results from the Centers for Disease Control and Prevention’s Community Health Worker Certification Study



CHW = community health worker

*The wording was modified from the report from the Centers for Disease Control and Prevention.

Findings From Key Informant Interviews

The potential positive and negative implications of requiring community health worker certification identified by the Key Informants are concordant with those mentioned in the grey literature. The primary theme capturing Key Informants’ perspectives is *potential effects*, whose sub-themes of unintended consequences and potential benefits reflect the wide array of beliefs about the ramifications of community health worker certification on the workforce. They are summarized in Table 7.

Table 7. Potential benefits and unintended consequences of requiring community health worker certification

	Potential Benefits	Unintended Consequences
CHW Integration into Care Teams and Patient Care	<ul style="list-style-type: none"> • Prevents other health professionals from dismissing CHWs as less valuable members of the care team. • Allows providers to have a better understanding of, and respect for, CHWs' contributions. • Grants CHWs "a louder voice in some rooms." • Could standardize intervention delivery, leading to patients and care team members having a greater sense of trust in CHWs. 	<ul style="list-style-type: none"> • Could adversely affect the CHW-patient relationship by "putting [CHWs] above" the people they're serving, as opposed to being their peers, undermining a key ingredient that makes them efficacious. • Could shift the CHW model to that of disease management rather than one of individual- and community-capacity building.
CHW Recruitment and Retention	<ul style="list-style-type: none"> • Could help retain CHWs who want to advance in the field. • May promote greater recognition among CHWs of the broad roles of CHWs in advancing individual and community health. • Could help build group identity/pride. 	<ul style="list-style-type: none"> • May attract those who are not philosophically adherent to the origins of the CHW model and/or are seeking certified CHW position as entry into employment. • May shift orientation of CHWs from being stewards of community health to being employees of healthcare payors. • Depending on the setting, may keep out candidate CHWs with extensive experience in the community who are not good test-takers. • Depending on the setting, may keep out candidate CHWs who cannot afford the certification process. • Barriers may create CHW shortage.
Funding and Reimbursement	<ul style="list-style-type: none"> • May lead to sustainable funding, employment opportunities, and reimbursement streams to support CHWs. 	<ul style="list-style-type: none"> • Certification may not lead to better pay or employment opportunities (<i>several Key Informants cited Texas as an example of this</i>), which may lead to disillusionment. • May lead to "de facto" mandatory certification, if certified CHWs are favored over those who have not been certified.

CHW = community health worker

Guiding Question 5: Future Research Needed to Close Existing Gaps Regarding Community Health Worker Certification

Please see Discussion.

Discussion and Implications

The purpose of this Technical Brief is twofold: (1) to describe the state of the evidence concerning the relationship between community health worker certification, community health worker service delivery, and subsequent impact on patients' asthma and chronic disease outcomes; and (2) to conduct a comprehensive appraisal of the processes, risks, benefits, and implications of community health worker certification on key aspects of community health workers' workforce development (namely, recruitment, retention, and financial sustainability), in order to clarify future research and evaluation needs. It is not intended to recommend or discourage certification as a strategy for credentialing community health workers.

We observed a paucity of inquiry into community health worker certification at large. The dearth of published literature about community health worker certification and its relation to patients' outcomes, and to aspects of community health workers' workforce development, suggests that the perceived positive impact of community health worker certification is not corroborated in the current evidence base. The grey literature search and discussions with Key Informants proved instrumental in our efforts to characterize the context of CHW certification in the United States, perceived positives and negatives associated with certification, and potential areas for future inquiry. Results from the grey literature search reveal a growing interest in the topic among national organizations and foundations. Key Informant interviews clarified reasons for an increased focus on certification as a strategy to promote community health workers' integration into healthcare settings.

We recommend the following as priority areas for additional research, with the caveat that investigations of community health worker certification must include community health workers as partners in designing, implementing, and evaluating these studies:

- **Conduct pragmatic randomized controlled trials to test the types and components of certification processes, and the impact of community health worker certification, on community health workers' service delivery, and on asthma, cardiovascular disease, and maternal child health outcomes.** Although individual-level certification is the predominant approach to credentialing community health workers, a few of the Key Informants endorsed program-level certification, citing its potential for standardizing documentation, work practices, evaluation practices, and supervisory structures. It may be worthwhile to explore which mode of certification influences community health workers' service delivery and whether or not, and to what degree, the type of certification influences patient-level outcomes. Examining the relationship between specific components of the certification process (namely, training and community health workers' experience) and patients' outcomes may shed light on which facets of the certification process lie on the causal pathways between patients' exposure to community health worker interventions and their health outcomes. Moreover, such evaluations may help to properly situate the certification process alongside other key ingredients that have been identified as necessary for initiating, implementing, and sustaining effective community health worker programs, including supervision, standardized workflows, and hiring practices.^{45, 46} We did not find any studies that systematically evaluated the impact of certification on health outcomes. However, this recommendation is consistent with findings from our grey literature search, wherein 6 of the 37 documents that addressed areas for future research suggested that further study should elucidate the impact of certification on patient or population health. Rigorously testing the extent to which patients' health outcomes are influenced by certification is necessary to establish if

community health worker certification improves patients' self-management of chronic conditions.

- **Use case study design to examine the impact of certification on community health workers' recruitment, retention, workforce identify formation, and financial viability among States with certification programs.** Findings from the grey literature search and the Key Informant interviews indicate significant heterogeneity in the parameters around community health worker certification (e.g., voluntary vs. non-voluntary; number of training hours and/or length of experience as a community health worker, etc.). Several Key Informants highlighted Texas and Ohio, who were among the first States to institute community health worker certification, as cautionary tales with respect to community health worker recruitment and retention. On the other hand, Arizona, North Carolina, and Massachusetts were cited as potential examples to follow. There is a strong need to discern the socio-historical contexts, processes, stakeholders, and governing bodies driving community health worker certification in these States in order to identify best practices and potential unintended consequences on the community health worker field.
- **Use mixed methods (semi-structured interviews, focus groups, and surveys) to explore patients' and care team members' perceptions of community health worker certification.** Given that some community health workers believe that certification may positively influence how they are regarded, inquiry into patients' and care team members' attitudes, beliefs, and awareness of community health worker certification is necessary. For instance, Siemon and colleagues surveyed nurses who worked with community health workers from multiple States using the Team Climate Inventory.⁵ The study compared nurses' responses in States with and without community health worker certification programs. They examined how well they work together, share a single vision, are open to new ideas, and if they feel safe and supported by other team members.⁵ No differences were found in overall or subscale Team Climate Inventory scores. However, nurses who worked in States with community health worker certification programs were more likely to report believing that certification improved quality of care delivered by community health workers. Gaining an understanding of how other care team members perceive community health workers and their certification is important in determining whether or not certification is a useful strategy to support community health workers' integration into care teams.
- **Characterize attitudes and beliefs about the utility of community health worker certification among relevant stakeholders within States and across the country.** The only suggested area for further inquiry that emerged from the Key Informant interviews was to evaluate whether or not certification is necessary. This may be attributed to the majority of participants' expressing skepticism of the utility of certification in advancing the workforce, enhancing community health workers' intervention delivery, improving patient outcomes, or influencing the long-term financial sustainability of the workforce. It is possible that differences in its perceived utility are rooted in one's type and level of engagement with the community health worker model. Notably, the beliefs expressed by the Key Informants are not exhaustive; rather, they provide a snapshot of some of the sentiments about certification for community health workers. Characterizing the prevailing attitudes and beliefs about community health worker certification, within States that have instituted formal certification processes, or have veered away from that

strategy, may provide some context to the preponderant perspectives on community health worker certification. The Centers for Disease Control embarked on such inquiry through their Community Health Worker Certification Study. We recommend that future investigations expand on this work, conducting studies that draw upon the core principles of community-based participatory research to foster collaborations with local, statewide, and/or regional community health worker associations, as well as the newly-formed National Association of Community Health Workers, to design appropriate data collection and evaluation strategies to ascertain these beliefs among community health workers, healthcare payers, leaders of community-based, health, and social service organizations, and other entities proffering community health worker services.

Conclusions

There is a significant gap in the evidence base concerning the relationship between community health worker certification and patients' health outcomes. There are similar gaps in our understanding of the role of community health worker certification in supporting the recruitment, retention, financial sustainability, and workforce development of community health workers operating in the United States. It is likely that deficits in our understanding of the relationship between community health worker certification, the development of the community health worker workforce, and patients' health outcomes can be attributed to the fact that the practice of certification for community health workers is in its infancy. Further research that evaluates the effect of certification on patients' outcomes, care team members' perspectives on the usefulness and desirability of community health worker certification, best practices for establishing certification programs, and community health workers' beliefs about certification, is necessary. In the absence of such inquiry, the role of certification on patients' and community health workers' outcomes is more speculative than conclusive.

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Abbreviations and Acronyms

ASTHO	Association of State and Territorial Health Officials
C3 Project	Community Health Worker Core Consensus Project
CDC	Centers for Disease Control and Prevention
CHW	Community health worker
CVD	Cardiovascular disease
SRDR	Systematic Review Data Repository

Appendix A. Terms for Community Health Workers

CHW

Community care worker
Community care coordinator
Community health aide
Community health advocate
Community health liaison
Community health navigator
Community health representative
Community Health worker
Community liaison
Community navigator
Community outreach worker
Community-based health worker
Consejeras
Dumas
Embajadores
Health advocate
Health ambassador
Health Extension Worker
Health liaison
Health navigator
Health paraprofessional
Lay health advocate
Lay health advisor
Lay health worker
Lay health volunteer
Outreach educator
Outreach worker
Patient navigator
Peer health workers/promoters
Promotores/promotoras de salud

Appendix B. Search Strategies

PubMed Search String, run on October 7, 2019

#	String
1	"Community Health Workers/legislation and jurisprudence"[Mesh] OR "Community Health Workers/organization and administration"[Mesh]
2	“CHW”[tiab] OR Community Care Worker*[tiab] OR Community health advocate*[tiab] OR community health aid*[tiab] OR Community health liaison*[tiab] OR Community health navigator*[tiab] OR community health representative* [tiab] OR Community Health worker* [tiab] OR “Community Health Workers” [mh] OR Community liaison*[tiab] OR Community navigator*[tiab] OR Health advisor*[tiab] OR Health advocate*[tiab] OR Health ambassador*[tiab] OR Health Extension Worker*[tiab] OR Health liaison*[tiab] OR Health navigator*[tiab] OR health paraprofessional*[tiab] OR Outreach educator*[tiab] OR outreach worker*[tiab] OR Patient navigator*[tiab] OR peer health worker*[tiab] OR consejera*[tiab] OR дума*[tiab] OR embajador*[tiab] OR promotor* de salud[tiab] OR promotora*[tiab]
3	(Early Intervention [mh] OR Community Health Workers/education*[mh] OR “Program Evaluation” [mh] OR Certification [mh] OR “program development” [mh] OR training [tiab] OR certif*[tiab] OR education [tiab] OR “Professional Development”[tiab] OR “program development” [tiab])
4	English[lang]
5	#1 OR (#2 AND #3)
6	#4 AND #5

CINAHL Search String, run on October 7, 2019

#	String
1	(MH "Community Health Workers/LJ/OG/AM")
2	AB (CHW or community care worker* or community health advocate* or community health aid* or community health liaison* or community health navigator* or community health representative* or community health worker* or community liaison* or community navigator* or health advisor* or health advocate* or health ambassador* or health extension worker* or health liaison* or health navigator* or health paraprofessional* outreach educator* or outreach worker* or patient navigator* or peer health worker* or consejera* or дума* or embajador* or promotor* de salud or promotora*) OR MH (“community health workers”)
3	MH (“early intervention” or “community health workers/ED” or “program evaluation” or “certification” or “program development”) or AB (“training” or certif* or “education” or “professional development” or “program development”)
4	LA english
5	#1 OR (#2 AND #3)
6	#4 AND #5

Appendix C. Discussion Guides for Key Informant Interviews

Discussion Guide for CHW Employers and Trainers

1. Introductions and overview
2. What is your understanding of CHW certification? What does certification involve or not involve?
3. What are the prevailing sentiments about CHW certification among your colleagues? Do these differ for mandatory versus voluntary certification?
4. How might CHW certification influence the quality, delivery, and experience of care of patients with asthma? Among patients with type 2 diabetes? Among patients with CVD? Among people receiving maternal-child care?
5. To what extent does CHW certification influence CHWs' entry into the field, and their desire and capacity to remain in the field? Does this differ for mandatory versus voluntary certification?
6. How does/might certification contribute to outcomes related to patients' asthma, diabetes, CVD, or maternal-child care?
7. What is the infrastructure needed to support CHW certification? What should the components of CHW certification be? Should there be maintenance or re-certification?
8. How do you attribute the work of CHWs to health outcomes? How would you measure the impact of a CHW, and what are the implications for the certification process?
9. Should CHWs' hiring and promotion require certification? How might certification efforts affect long-term, sustainable funding mechanisms to support CHWs?
10. What are the most important outcomes to consider when evaluating CHW certification?

Discussion Guide for Patients

1. Introductions and overview
2. What is your understanding of CHW certification? What does certification involve or not involve?
3. What are the prevailing sentiments about CHW certification among your friends/family members? Do these differ for mandatory versus voluntary certification?
4. Have you worked with a CHW? Do you know if they are certified?
5. How does/might certification contribute to outcomes related to patients' asthma, diabetes, CVD, or maternal-child care? How could CHW certification affect living with asthma?
6. Does it matter to you if the CHW you work with has been certified? Why? Why not?

Discussion Guide for Researchers, Policy Makers, and National Thought Leaders

1. Introductions and overview
2. What is your understanding of CHW certification? What does certification involve or not involve?
3. What are the prevailing sentiments about CHW certification among your colleagues? Do these differ for mandatory versus voluntary certification?
4. How might CHW certification influence the quality, delivery, and experience of care of patients with asthma? Among patients with type 2 diabetes? Among patients with CVD? Among people receiving maternal-child care?
5. To what extent does CHW certification influence CHWs' entry into the field, and their desire and capacity to remain in the field? Does this differ for mandatory versus voluntary certification?
6. What is the infrastructure needed to support CHW certification? What should the components of CHW certification be? Should there be maintenance or re-certification?
7. How do you attribute the work of CHWs to health outcomes? How would you measure the impact of a CHW, and what are the implications for the certification process?
8. Should CHWs' hiring and promotion require certification? How might certification efforts affect long-term, sustainable funding mechanisms to support CHWs?
9. What are the most important outcomes to consider when evaluating CHW certification?

Appendix D. List of Excluded Studies

Studies are sorted by the reason for exclusion. A study is listed multiple times if it was excluded for multiple reasons.

Does not address the use of community health workers for patients with asthma, diabetes, cardiovascular disease, or maternal-child development

1. Agha AZ, Werner RM, Keddem S, et al. Improving Patient-centered Care: How Clinical Staff Overcome Barriers to Patient Engagement at the VHA. *Med Care*. 2018;56(12):N.PAG-N.PAG. doi: 10.1097/mlr.0000000000001007. PMID: 132824973.
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Does not evaluate an aspect of CHW certification (e.g., training, core competency curricula, supervision, mentorship, standardization, scope of practice, formal recognition, knowledge, ethics, demeanor, background checks, tenure, experience, recruitment, retention, reimbursement, employer liability, payment mechanisms)

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Mixed population of community health workers and other disciplines and results are not separated for community health workers

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No original data

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Study conducted exclusively outside the United States

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Study describes a lifestyle modification related to diet, physical activity, or other lifestyle behavior, but does not explicitly link the intervention to a condition of interest

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Appendix E. State Tagging

Description

1. Boutin-Foster C, George KS, Samuel T, et al. Training community health workers to be advocates for health promotion: efforts taken by a community-based organization to reduce health disparities in cardiovascular disease. *J Community Health*. 2008;33(2):61-8. PMID: 105734719. **Conducted in New York.**
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6. Edgren KK, Parker EA, Israel BA, et al. Community involvement in the conduct of a health education intervention and research project: community action against asthma. *Health Promot Pract*. 2005;6(3):263-9. PMID: 106498564. **Conducted in Michigan.**
7. Elkins T, Aguinaga MdP, Clinton-Selin C, et al. The Maternal Infant Health Outreach Worker Program in Low-income Families. *Journal of Health Care for the Poor & Underserved*. 2013;24(3):995-1001. doi: 10.1353/hpu.2013.0143. PMID: 107968527. **Conducted in Tennessee, Kentucky, West Virginia, Mississippi, and Louisiana.**
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9. Farquhar SA, Wiggins N, Michael YL, et al. "Sitting in different chairs:" roles of the community health workers in the Poder es Salud/Power for Health Project. *Educ Health (Abingdon)*. 2008 Jul;21(2):39. PMID: 19039738. **Conducted in Oregon.**
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11. Findley SE, Matos S, Hicks AL, et al. Building a Consensus on Community Health Workers' Scope of Practice: Lessons From New York. *Am J Public Health*. 2012;102(10):1981-7. doi: 10.2105/ajph.2011.300566. PMID: 104421896. **Conducted in New York.**
12. Fitzgerald TM, Williams PA, Dodge JA, et al. Program Implementation Approaches to Build and Sustain Health Care Coordination for Type 2 Diabetes. *Health Promot Pract*. 2017 Mar;18(2):306-13. doi: 10.1177/1524839916643705. PMID: 27178837. **Conducted in Wyoming, Tennessee, Texas, Illinois, and New Jersey.**
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15. Heisler M, Spencer M, Forman J, et al. Participants' assessments of the effects of a community health worker intervention on their diabetes self-management and interactions with healthcare providers. *Am J Prev Med*. 2009 Dec;37(6 Suppl 1):S270-9. doi: 10.1016/j.amepre.2009.08.016. PMID: 19896029. **Conducted in Michigan.**
16. Held RF, Depue J, Rosen R, et al. Patient and health care provider views of depressive symptoms and diabetes in American Samoa. *Cultural Diversity & Ethnic Minority Psychology*. 2010;16(4):461-7. doi: 10.1037/a0020089. PMID: 104941506. **Conducted in American Samoa.**
17. Larkey LK, Staten LK. The Lay Advocates' Communication Assessment Tool (LACAT). *J Cult Divers*. 2007 Fall;14(3):135-40. PMID: 18314815. **Conducted in Arizona.**
18. Lebron CN, Reyes-Arrechea E, Castillo A, Carrasquillo O, Kenya S. Tales from the Miami Healthy Heart Initiative: the experiences of two community health workers. *J Health Care Poor Underserved*. 2015;26(2): 453-62. doi: 10.1353/hpu.2015.0033. PMID: 25913343. **Conducted in Florida.**
19. Lemay CA, Ferguson WJ, Hargraves JL. Community health worker encounter forms: a tool to guide and document patient visits and worker performance. *Am J Public Health*. 2012 Jul;102(7):e70-5. doi: 10.2105/ajph.2011.300416. PMID: 22594753. **Conducted in Massachusetts.**
20. Malcarney MB, Pittman P, Quigley L, et al. The Changing Roles of Community Health Workers. *Health Serv Res*. 2017 Feb;52 Suppl 1:360-82. doi: 10.1111/1475-6773.12657. PMID: 28127766. **Conducted in Minnesota, Michigan, Massachusetts, California, Texas, New York, New Mexico, and Ohio.**
21. May KM, McLaughlin F, Penner M. Preventing low birth weight: marketing and volunteer outreach. *Public Health Nursing*. 1991;8(2):97-104. PMID: 107509400. **Conducted in Arizona.**

22. Njeru JW, Ridgeway JL, Asiedu GB, et al. Evaluating a Community-Placed and Clinically Integrated Community Health Worker Program: A Realist Approach. *Journal of Ambulatory Care Management*. 2019;42(2):116-27. doi: 10.1097/jac.0000000000000268. PMID: 135201162. **Conducted in Minnesota.**
23. Rhodes D, Visker J, Cox C, et al. Level of Integration of Community Health Workers in Missouri Health Systems. *J Community Health*. 2017;42(3):598-604. doi: 10.1007/s10900-016-0294-3. PMID: 122727661. **Conducted in Missouri.**
24. Richardson BS, Willig AL, Agne AA, et al. Diabetes Connect: African American Women's Perceptions of the Community Health Worker Model for Diabetes Care. *J Community Health*. 2015 Oct;40(5):905-11. doi: 10.1007/s10900-015-0011-7. PMID: 25773991. **Conducted in Alabama.**
25. Sabo S, Ingram M, Reinschmidt KM, et al. Predictors and a framework for fostering community advocacy as a community health worker core function to eliminate health disparities. *Am J Public Health*. 2013 Jul;103(7):e67-73. doi: 10.2105/ajph.2012.301108. PMID: 23678904. **Conducted in 22 states and the District of Columbia.**
26. Shepherd-Banigan M, Hohl SD, Vaughan C, et al. "The Promotora Explained Everything": Participant Experiences During a Household-Level Diabetes Education Program. *Diabetes Educ*. 2014 Jul;40(4):507-15. doi: 10.1177/0145721714531338. PMID: 24793637. **Conducted in Washington.**
27. Tang TS, Nwankwo R, Whiten Y, et al. Training Peers to Deliver a Church-Based Diabetes Prevention Program. *Diabetes Educator*. 2012;38(4):519-25. doi: 10.1177/0145721712447982. PMID: 104478354. **Conducted in Michigan.**
28. Visker J, Rhodes D, Cox C. Community Health Workers in Health-related Missouri Agencies: Role, Professional Development and Health Information Needs. *Health Educator*. 2017 Spring2017;49(1):2-9. PMID: 125339065. **Conducted in Missouri.**
29. Wells KJ, Valverde P, Ustjanauskas AE, et al. What are patient navigators doing, for whom, and where? A national survey evaluating the types of services provided by patient navigators. *Patient Education & Counseling*. 2018;101(2):285-94. doi: 10.1016/j.pec.2017.08.017. PMID: 127871722. **Conducted nationwide.**
30. Wennerstrom A, Hargrove L, Minor S, et al. Integrating Community Health Workers Into Primary Care to Support Behavioral Health Service Delivery A Pilot Study. *Journal of Ambulatory Care Management*. 2015;38(3):263-72. doi: 10.1097/jac.0000000000000087. PMID: 108394798. **Conducted in Texas.**

Appendix F. Grey Literature Search Results

Organization	Site	Date of Search	# of Results	# Included
American Public Health Association (APHA)	apha.org	10/14/2019	-118 pages -52 pdf -0 doc	2
Association of State and Territorial Health Officials (ASTHO)	astho.org	10/9/2019	-234 pages -178 pdf -0 doc	2
Brookings Institution	brookings.edu	10/21/2019	-59 pages -41 pdf -0 doc	0
California Health Care Foundation	chcf.org	10/21/2019	-83 pages -64 pdf -0 doc	2
Commonwealth Fund	commonwealthfund.org	10/21/2019	-85 pages -60 pdf -0 doc	2
Kaiser Family Foundation	kff.org	10/21/2019	-138 pages -0 pdf -0 doc	0
Massachusetts Department of Public Health	https://www.mass.gov/orgs/department-of-public-health	10/21/2019	-911 pages -289 pdf -140 doc	4
Minnesota CHW Alliance	mnchwalliance.org	10/21/2019	-278 pages -104 pdf -9 doc	3
Minnesota Department of Health	health.state.mn.us	10/21/2019	-226 pages -170 pdf -0 doc	5
Ohio Department of Health	odh.ohio.gov	10/21/2019	-82 pages -81 pdf -1 doc	2
Ohio State Board of Nursing	nursing.ohio.gov	10/21/2019	-163 pages -148 pdf -0 doc	1
Robert Wood Johnson Foundation	rwjf.org	10/21/2019	-119 pages -0 pdf -0 doc	3

Organization	Site	Date of Search	# of Results	# Included
Texas Department of State Health Services	dshs.texas.gov	10/21/2019	-493 pages -226 pdf -32 doc	3
The Centers for Disease Control (CDC)	cdc.gov	10/14/2019	-1814 pages -673 pdf -4 doc	8
The Connecticut Health Foundation	cthealth.org	10/21/2019	-161 pages -59 pdf -0 doc	4
The National Academy for State Health Policy	nashp.org	10/21/2019	-188 pages -81 pdf -0 doc	1
The Progress Report of the Community Health Worker (CHW) Core Consensus (C3) Project	Search reference list http://chrllc.net/sitebuildercontent/sitebuilderfiles/c3_report_20160810.pdf	10/21/2019	-5,596 pages -755 pdf -3 doc	8
The Urban Institute	urban.org	10/21/2019	-106 pages -72 pdf -0 doc	4