UC Berkeley

UC Berkeley Electronic Theses and Dissertations

Title

It's important for us to get recognized and be somebody: Community health worker attributes, attitudes towards certification, and certification options in California

Permalink

https://escholarship.org/uc/item/65p5d8g5

Author

Kissinger, Ashley

Publication Date

2020

Peer reviewed|Thesis/dissertation

eScholarship.org Powered by the California Digital Library
University of California

It's important for us to get recognized and be somebody: Community health worker attributes, attitudes towards certification, and certification options in California

By

Ashley Kissinger

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Public Health

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:
Professor Claire Snell Rood, Chair
Professor Ann Keller
Professor Jane Mauldon

Summer 2020

Abstract

It's important for us to get recognized and be somebody: Community health worker attributes, attitudes towards certification, and certification options in California

by

Ashley Kissinger

Doctor of Public Health

University of California, Berkeley

Professor Claire Snell Rood, Chair

Community health workers (CHWs) are trusted members of the community who have an intimate understanding of the populations and communities they serve. They deliver culturally informed interventions to their communities and leverage their shared experiences and linguistic and cultural relationships to bridge their community to health care and social services. Historically successful in developing countries, CHWs promote chronic disease management, improve health outcomes, and reduce health care costs.

Despite the evidence, CHWs are not widely utilized within the health care system. The National Academy of Medicine declares barriers to working with CHWs, such as inconsistent scope of practice, variable training and qualifications, and lack of professional recognition by other health care providers. States are investigating ways to standardize the CHW workforce, such as certification, to set workforce entry standards and integrate CHWs into health care systems.

Currently, the CHW workforce faces a crossroads. One path leads to a standardized CHW workforce integrated into health care systems via formalized training and qualifications. The other path holds CHWs as part of the communities where they live and work, valuing their relationships and embodied knowledge. While both paths are options for the CHW workforce, CHWs and CHW stakeholders must determine if or how these two paths can coexist. California is the perfect case study because there is continued debate across CHW stakeholders about the stakes of certifying CHWs. California's diverse CHW workforce represents varying CHW types with contrasting ideologies of care, such as clinical and community-based CHWs and *promotores de salud*, a subset of CHWs who primarily serve Latinx communities and are grounded in a social, rather than medical, model of care. California's size and social characteristics pose implementation factors that are relevant for the diverse issues other states will have to address for their own CHW workforce.

This dissertation identifies the unique contributions offered by CHWs to fill health system gaps and challenges differently than other health care providers. The research then describes feelings of opportunity and exclusion related to CHW certification in California. Finally, this dissertation presents strategic options for California stakeholders to develop an appropriate CHW certification model.

Dedication

I dedicate this dissertation to my grandma, Maria Dolores Kissinger, who has shown me what it means to be a strong, determined, and passionate community advocate. Settling in a predominantly Latinx community outside of Los Angeles, called La Puente, my grandma raised six children with my grandpa, Robert Kissinger. Since I was a young girl, I have listened to my mom, dad, aunts, and uncles tell countless stories of Grandma and Grandpa Kissinger developing and leading community projects in La Puente, such as a baseball park where neighborhood children could play organized sports, later named "Kissinger Field." Over the years, I've absorbed my grandma's stories, recounting her involvement in the community and how she supported her family, friends, and neighbors. For example, after defeating breast cancer in 1968, Grandma Kissinger volunteered to outreach and survey Spanish-speaking Latina women for breast cancer screening for John Wesley County Hospital in Los Angeles. Grandma Kissinger is also a community leader who has served in local leadership positions, such as Campfire Girls, Cub Scouts, La Puente Native Daughters of the Golden West, and President of the La Puente Valley Women's Club and Wing Lane Elementary School Parent Teacher Association. To me, Grandma Kissinger is a community change agent who embodies the essence of a community health worker (CHW), or *promotora de salud*. She leads from the heart, passes on community wisdom, and helps her community and others achieve their highest potential. With parents from Durango and Poncitlán, Jalisco, Grandma Kissinger's sense of community is rooted in Mexico's history, where the *promotor de salud* model originated. Grandma Kissinger is selfless and industrious, qualities which I hope to carry on. I see Grandma Kissinger in the many CHWs and *promotores de salud* I have talked to and worked with across California. As I participate in conversations about the future of the CHW workforce and share stories of what I have learned from my dissertation, I think about Grandma Kissinger, what she would say, and how she would want to be treated. Grandma Kissinger is my North Star. Her voice stays with me and reminds me that our work is rooted in communities, community leaders, and a desire for positive change.

Acknowledgements

I would like to sincerely thank my dissertation committee for their support and guidance throughout the completion of this dissertation. My utmost gratitude to Claire Snell Rood for her brilliant mentorship and teaching me how to tell beautiful stories and highlight community voices in a meaningful way. I especially thank Celen and Aliana for sitting through our meetings and sharing their mom's attention with me. Many thanks to Ann Keller for her generous support, encouragement, and interest in my research and scholarly development. I especially thank Ann for her leadership and support when Claire was on maternity leave. My appreciation to Jane Mauldon for her investment in my work and guidance with policy analysis.

I appreciate several subject matter experts who helped shape my dissertation. Thank you to Jeff Oxendine for his feedback on how my research may impact California's workforce policies. Thank you to Maureen Lahiff for the statistics mentoring to teach me to code quantitative data. Thank you to Linda Neuheuser for taking me under her wing when I came to the DrPH program and encouraging my ideas for a dissertation that centered on community health worker voices.

Thank you to Stef Bertozzi and Jen LaChance for rooting for me. We are lucky to have DrPH leadership who believe in our work.

Thank you to my Undergraduate Research Apprenticeship Program students, Shakira Cordova and Urania Argueta, who spent countless hours coding transcripts and developing themes. I especially thank Shakira for working with me for two years and for her commitment to elevating CHW voices.

Thank you to my Synergistic 6 or "Syn 6" DrPH cohort. We are doing real public health, and I could not have survived this program without you.

Thank you to my fiancé, Travis Meyers, for believing in me and encouraging me to cross the finish line. I love you to the moon and back and am grateful you helped lead the way.

Thank you to Mom, Dad, Brittany, Carly, and Fred and Linda Meyers for constantly encouraging me to pursue my dreams and supporting me along the way. Thank you for pushing me up this hill and believing in me.

Thank you to my grandparents, and many aunts, uncles, cousins, and extended family for the never-ending support during these past four years. Thank you to my dad and Auntie Lorraine for the last-minute fact checks for my Dedication.

To my friends who undoubtedly listened to my highs and lows with the DrPH program, thank you.

Thank you to my California Department of Public Health coworkers for their encouragement and genuine support for me pursuing a doctoral degree. I especially thank Lori Copan for her generous support of my doctoral dissertation over the past four years. Thank you to Faith Raider

and Amy Smith for conducting focus groups and interviews and making my data collection possible.

Most importantly, thank you to all of the community health workers, program managers, system-level stakeholders, and subject matter experts who shared their experiences, struggles, hopes, and dreams with me. Thank you for bringing this dissertation to life. I hope this dissertation adds to the wealth of knowledge in the CHW community and paves the way for a brighter future for the CHW workforce in California.

Table of Contents

I.	Introduction	1
II.	*It's not just a job, you're a community health worker 24 hours*: Perspectives from community health workers (CHWs) and program managers on how CHWs address health care system challenges differently than other health care providers	8
III.	*Don't change who we are but give us a chance*: Exploring feelings of recognition and exclusion related to community health worker (CHW) certification in California	24
IV.	*Certification is not per se bad or good - whether it's bad or good depends on how it's done*: Developing strategic options for certification of California community health workers (CHWs)	38
V.	Conclusion	59
References		61
Appendices		78

I. Introduction

Who are community health workers and what do they do?

Community health workers (CHWs) are trusted members of the community who have an intimate understanding of the population and community they serve.[1–6] They leverage shared experiences and their linguistic and cultural relationships to bridge the community and health care and social services, and deliver culturally informed interventions to their communities.[1–6] CHWs build individual and community capacity through outreach, education, social support, or advocacy.[1,2,5] In 2009, the American Public Health Association (APHA) developed a CHW definition that has become the most widely adopted definition for CHWs:

> Community Health Workers (CHWs) are frontline public health workers who are trusted members of and/or have an unusually close understanding of the community served. This trusting relationship enables CHWs to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. CHWs also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support and advocacy.[2]

CHWs may go by other job titles, including but not limited to *promotor de salud,* lay health worker, community health advisor, patient navigator, peer educator, case manager, community health representative, and care coordinator, among others.[3,7] With nearly 35 job titles being applied to CHWs, federal agencies do not have an accurate number of how many CHWs work in the United States (U.S.).[7–9] The U.S. Department of Labor Bureau of Labor Statistics (BLS) reports nearly 56,130 CHWs are employed in the U.S.[10] However, in 2005, the Health Resources and Services Administration (HRSA) conducted the landmark CHW National Workforce Study and estimated approximately 121,000 CHWs work in the U.S.[7] The discrepancy in these CHW employment numbers may be due to BLS employment data only reporting workers under the formal CHW classification and may not capture individuals who are performing the function of CHWs under other occupation titles, or as volunteers.[11,12] At the time of the CHW National Workforce Study, the majority of U.S. CHWs identified as Non-Hispanic White, women, with a high school degree or equivalent.[7] The CHW National Workforce Study also reported that although the majority of CHWs were paid, their wages were low, job turnover was high, and job security was limited because of unpredictable funding.[7]

Promotor/a or *promotores de salud* are increasingly common in states with large Latinx* populations, including California.[8] The workers under these other job titles may perform similar roles for health promotion. However, each of these titles for CHWs stipulate radically different conceptualizations of care and provider-patient relationships. For the purposes of this dissertation, we will use the term CHW to include CHWs, *promotores de salud*, and others that fall under the CHW definition and will make distinctions where appropriate.

CHWs are indigenous to their communities, meaning they share social, environmental, experiential, and racial/ethnic qualities of the culture, and verbal and nonverbal language with

*Latinx is a gender-neutral term to refer to people from Latin America.

the community members they serve.[6,13] Born community leaders, their innate roles as community organizers and agents of social change separate them from other community residents.[14–17] CHWs are natural boundary spanners, or individuals within the community able to link their community to health services.[18,19] CHWs have a heightened sense of the community's health beliefs and barriers to health care services.[4] CHWs are change agents and respond creatively to community needs by identifying community problems, developing innovative solutions, and translating them into community practice.[4] CHWs value and respect the wisdom of cultural traditions, and are rooted in human rights, social justice, and "*servicio de corazón*," or "serving from the heart."[14,20] One of their many strengths is cultivating relationships based on mutual understanding, respect, and empathy.[14]

CHWs are distinguished from other licensed health care providers (e.g., physicians, nurses, social workers) and social support providers (e.g., home health aides, personal care attendants) by their community membership and services delivered.[21] Although some health care providers, such as social workers, may have similar community values, they may not come from the same community they serve, or share life experiences.[22] CHWs also carry out different roles and activities, such as delivering health education in the community, that complement the work of health care providers who work primarily in clinical settings.[4] CHWs do not hold a clinical license, as do physicians and nurses.[23]

Historically successful in developing countries, CHWs deliver health promotion in various clinical and non-clinical roles.[4,24] CHWs promote chronic disease management, such as breast cancer screening and medication adherence for people living with HIV/AIDS, and improve health outcomes, including self-management of diabetes, hypertension, and asthma, among others.[1] CHWs also reduce health care costs through fewer unscheduled health care provider or emergency department (ED) visits and have demonstrated a return-on-investment of nearly $4 for every $1 invested.[25–27] Because of their effectiveness in reaching high needs populations and ability to improve health outcomes, some states position CHWs to help achieve the triple aim: better health, better care, and lower costs.[28–30] CHWs currently provide health education and social support services in hospitals, health care organizations, health plans, health departments, and community-based organizations, and, in some states, are integrated into team-based health care.[5,28,31–34]

The CHW workforce has gained global and local momentum

CHW interventions exist at the global, national, and local level. Significant steps over decades have led to the development of the CHW workforce, as outlined in the CHW National Workforce Study.[7] We summarize their findings below.

The World Health Organization (WHO) recognized CHWs as integral workers within health care systems, and, in 1978, began to promote CHW programs to address primary care and prevention.[7,35] Many countries have had CHW-type workers in place for decades prior to the WHO's recognition of CHWs. For example, the Chinese barefoot doctor program started before 1950 and is one example of a number of cross-cultural traditions among CHWs.[7,36]

In the U.S., CHWs have worked in community and public health for decades, despite emphasis of CHW activities only after the 1960s.[7] Before 1970, CHWs engaged low-income communities mostly through anti-poverty strategies, including the Office of Economic Opportunity programs, and the New York City Health Department tuberculosis program as "neighborhood health aides."[7,37,38] The Community Health Representative (CHR) Program for Native American communities emerged from the anti-poverty movement, and later transformed

to the Indian Health Service.[7,39] In 1970, more than 500 CHWs and CHW advocates created the APHA New Professionals Special Primary Interest Group (SPIG) to oppose other titles used to describe them, such as non-professional, sub-professional, aide, auxiliary, and para-professional.[7,40]

In the 1970-80s, public and private funding opportunities expanded CHW interventions and demonstrated their potential to deliver health promotion and increase access to health services.[7] The Virginia Task Force on Infant Mortality developed the first CHW curricula, "Resource Mothers" in the 1980s, which was later used to model Indiana's state CHW program focusing on maternal and child health.[7,41,42] During this time, academic researchers began to investigate community-based "natural helpers" to improve community conditions through social networks and promoting positive behavior change.[7,43]

National agencies began to coordinate efforts to promote CHWs in the 1990s.[7,21] The Centers for Disease Control and Prevention (CDC), HRSA, and the National Advisory Committee on Rural Health and Human Services promoted CHWs through hosting conferences and distributing recommendations for developing CHW programs.[7,44–46] The U.S. General Accounting Office concluded home visiting by paraprofessionals, including CHWs, was an effective strategy to improve maternal and child health-related outcomes in vulnerable populations.[7,47] CHW interventions began gaining recognition in peer-reviewed literature, such as the American Journal of Public Health.[7,17] In 1998, the landmark National Community Health Advisor Study (NCHAS) engaged CHWs, employers, and stakeholders to define community health advisor roles and core competencies.[5,7,48] NCHAS was the first study to build nationwide consensus on CHW roles, skills, and competencies of community health advisors.[5,7,48]

Efforts to professionalize the CHW workforce started in the 1990s.[7] Two CHW training programs emerged in Boston and San Francisco, and the first CHW association was created in New Mexico.[7,49–51] These professionalization efforts continued in the 2000s, as CHW policy and legislation gained momentum.[7] Texas and Ohio were the first states to pass legislation to standardize CHW training and create state CHW certification.[7,52,53] New Mexico, Virginia, and Massachusetts passed bills mandating studies of the effectiveness of their respective state's CHW workforce.[7,54–56] Federal support followed in 2005 when the first federal CHW legislation, titled the Patient Navigator Outreach and Chronic Disease Prevention Act of 2005 (HR 1812), was signed.[7,57] National and federal agencies, such as the U.S. Department of Health and Human Services Office of Minority Health, HRSA, National Academy of Medicine (formerly the Institute of Medicine), the National Rural Health Association, and APHA, endorsed the CHW model to address racial, ethnic, and socioeconomic disparities.[7,58,59] In 2009, the U.S. Department of Labor recommended CHWs have their own occupation classification, separate from health educators, later integrated into the health care reform law.[7,60,61] Further, the Patient Protection and Affordable Care Act, commonly referred to as the Affordable Care Act (ACA), included CHWs as providers in health care reform and health promotion.[7,61] Finally, the APHA New Professionals section transitioned to the Community Health Worker SPIG, and, in 2009, became its own section within APHA.[7,40]

Professionalizing the workforce continues until present day. The CDC continues to document the effectiveness of the CHWs in chronic disease and supports policies to integrate CHWs into health care and community-based efforts to prevent chronic disease.[62] The CDC also gathers best and available evidence for CHW workforce policies, including certification, for states to advance and support the workforce.[63–69] National agencies, such as the Association of State and Territorial Officials (ASTHO) and the National Academy for State Health Policy,

develop resources for state health agencies to demonstrate evidence for the CHW workforce and also develop best practice resources for supporting CHWs through certification, training, and financing.[70,71] In 2019, the first national CHW association, called the National Association of CHWs (NACHW), was launched.[72] The CHW workforce continues to gain momentum as employers, managed care plans, health departments, and other health organizations recognize the potential of CHWs to impact health outcomes.

Despite momentum, health care systems do not adequately utilize CHWs

The U.S. health care system, which includes federally qualified health centers (FQHCs), hospitals, health clinics, and managed care organizations (i.e. health plans), lacks nearly 7,000 primary care health care providers to meet the current health care services demand.[73,74] Health care providers do not have enough time or resources to provide all recommended preventive services to their patients.[75] The demand for primary care needs continues to grow and health care systems project people in need of chronic disease management services will not have enough caregivers to match their needs, especially since expanding coverage under the ACA.[76,77] Similarly, the California health care system faces a health care provider shortage amounting to almost 4,100 primary care providers and 600,000 home care workers over the next 10 years.[78] California stakeholders anticipate they will not be able to meet the needs of California's diverse patients.[78]

Health care systems, health departments, payers, and, health care providers acknowledge CHWs may help address the health care provider workforce gap.[33,73,79] However, CHWs are not widely utilized within the health care system because of insufficient recognition by other health professionals, lack of sustainable funding, and little to no workforce standards, for example inconsistent scope of practice and training.[12,21,80] CHW qualifications, training, and educational requirements vary across states, cities, employers, and sectors, ultimately producing CHWs with different knowledge base and skills.[81,82] While the majority of CHWs have a high school diploma, supplemented with on-the-job training, there are no unified training standards.[81] Standardization, or "professionalization," of the CHW workforce may be warranted given the variability between CHW training programs and could assist in integrating CHWs into the health care system.[76]

Certification may facilitate CHW integration into health care systems

Standardized processes, such as certification, may provide consistent training, enhance credibility of the workforce, and increase the quality of services delivered.[66,83–85] Certification processes create a benchmark for consistent training standards and are usually overseen by an advisory board who administers a competency-based examination to certify qualified individuals who have achieved the skills and knowledge necessary to perform relevant tasks.[86] A certification is not the same as an educational certificate of completion.[87] Certification also differs from a licensure system under which a CHW cannot work without a professional license.[88] Currently, 19 states implement CHW certification,[89] with Texas being the first state to implement a state CHW certification more than 20 years ago.[90] Most states offer certification on a voluntary basis, except Texas and Ohio which require certification to work and be compensated as a CHW.[91]

Certification has different implications for the many different CHW stakeholders, such as current CHWs and those considering the field, health care providers, health departments, and health plans, among others.[12,34,76] For CHWs, certification could provide advanced training,

document experience or expertise in a given field, and create a career ladder.[12,92–94] Certification could guarantee employers and payers a standard skill set and knowledge base.[12,88] However, standardizing the CHW workforce could undermine community trust in CHWs.[9,12,76,95–97] While there is a desire to create a career ladder, and professional growth, there is also an equivalent desire to not exclude existing CHWs through formal education and certification requirements, such as cost, legal immigration status, or language.[8,11,76,97,98]

CHWs are at a crossroads

The CHW workforce is at a crossroads. One path leads to a standardized CHW workforce integrated into health care systems via formalized training and qualifications.[95] The other path views CHWs as part of the communities where they work, valued for their community relationships.[95] While both paths are possible options for the CHW workforce, health care systems, employers, payers, health departments, and CHWs must determine if or how these two paths can coexist.

California stakeholders consider CHW certification

In 2017, several California health foundations convened the California Future Health Workforce Commission, including experts in health care, community health, education, labor and policymaking, to create a strategy to close the California health care workforce gap.[78] The Commission recognized the potential for CHWs to fill health care system gaps and recommended health care systems "scale the engagement" of CHWs through training, certification, and financing mechanisms.[78] California employs approximately 6,160 CHWs, the largest number of employed CHWs nationwide[10] and is one of the few states that has not yet implemented state CHW certification. California stakeholders are in an exceptional position to cultivate knowledge from best practices in other states as there is continued debate across CHW stakeholders about the stakes of CHW professionalization.[9,98,99] California's size and diverse CHW workforce also pose factors not experienced by other states. California's size presents issues with scaling the model and the CHW landscape represents varying CHW types with contrasting ideologies of care, such as clinical and community-based CHWs and *promotores de salud*.[8,11] Ultimately, California CHW stakeholders, including CHWs, must decide what workforce opportunities are appropriate for the California CHW workforce.

Gaps in the CHW workforce literature

A review of the peer-reviewed and practice literature illustrates the varied evidence for integrating CHWs into the health care system and developing CHW certification. This research will address the following gaps in the CHW workforce literature:

1) The proposed research will provide critical insight to how CHWs work and address health care systems challenges differently than other health care providers. Evidence suggests local, tribal, and state health departments, community organizations, and health care systems lack data to describe who CHWs are, what they do, and how they work.[48,100] This information is necessary to understand the impact of CHW interventions on communities and individuals who benefit from their care, and how CHWs work differently than other health care providers.

2) The proposed research will focus on CHW perspectives about their work and workforce development, including certification. Evidence suggests CHWs have not been involved in leading their own workforce development, possibly due to being low wage earners and/or from marginalized communities.[7,101,102] CHWs should lead discussions to develop and define their own workforce as they can best anticipate and relay community needs.[32] In this dissertation, CHW perspectives will inform and drive appropriate strategies in California, and also identify key divergences in CHW identity and philosophy and how to preserve their work.

3) The proposed research will produce tangible and appropriate certification options for California stakeholders. This is timely given the California Future Health Workforce Commission's recommendation to develop certification as a means to scale CHWs in health care systems.[78] The Commission's report lacks evidence-based CHW certification options in order to address the recommendations.

The aims of the proposed research are: 1) describe how California CHWs address health care system challenges differently than other health care providers, 2) examine the perspectives of California stakeholders on possible state CHW certification in California, and describe contrasting ideologies between CHW perspectives on certification and the traditional CHW model of care, and 3) develop strategic recommendations for California state and local health agencies and community programs to develop a formal certification process for CHWs and *promotores de salud*. To achieve these aims, this research will employ a mixed methods approach.

To accomplish the first aim, we will conduct a secondary data mixed methods analysis of the California Department of Public Health's CHW Asthma Programs assessment to describe the asthma CHW workforce, how CHWs deliver interventions, and how they address gaps in the health care system. We will conduct a thematic analysis of how CHWs address health care system challenges and gaps differently than health care providers. This work will inform health care system stakeholders as to why CHWs should be integrated into health care systems, why they are effective in communities, and how they work differently than health care providers.

We will use qualitative research methods to achieve the second aim. We will describe perspectives of CHW certification in California through qualitative interviews with CHWs, program managers, and system-level stakeholders, including health care providers, payers, and health departments. There is controversy among California stakeholders about what CHWs do, where they work, and how they should or should not advance their work in communities and health care systems. Therefore, a second part of this aim is to describe contrasting ideologies or philosophies between what CHWs describe for their future, compared to traditional views of CHW philosophy of care. We will pay close attention to the differences within CHWs, and across CHWs and other CHW stakeholders. This work will be used to describe conflicting views of CHW certification in California and inform appropriate CHW certification strategies for California.

Last, we will conduct a policy analysis to develop appropriate recommendations for California's certification approach. We will assess certification models from Minnesota, New Mexico, Texas, and Oregon through qualitative interviews with CHW stakeholders. We will score certification models based on criteria important to California stakeholders, such as *simple to implement, attract diverse CHWs, CHWs are educationally qualified with a history of law*

abidingness, and *accessible*. This work will develop a path forward for California stakeholders to design an appropriate and evidence-based certification program for California CHWs.

To the best of my knowledge, this will be the first study to describe the California CHW workforce serving in asthma home visiting programs, investigate diverse stakeholder perspectives of California CHW certification, and offer subsequent evidence-based certification recommendations based on criteria important to California stakeholders. This research will provide the foundation for California stakeholders to integrate CHWs into the health care system and to develop appropriate CHW certification processes. This dissertation will impact the future design of California CHW certification and will inform other states looking to develop best practices for CHW certification in similar settings.

II. *It's not just a job, you're a community health worker 24 hours*: Perspectives from community health workers (CHWs) and program managers on how CHWs address health care system challenges differently than other health care providers

Introduction

CHWs are trusted members of the community who have an intimate understanding of the population and community they serve, leveraging their shared experiences and their linguistic and cultural relationships to bridge the community and health services, and deliver culturally informed interventions to their communities.[1–6] Historically successful in developing countries, CHWs deliver health promotion in various clinical and non-clinical roles.[4,24] For example, CHWs promote chronic disease management, such as breast cancer screening and medication adherence for people living with HIV/AIDS, and improve health outcomes, including self-management of diabetes, hypertension, and asthma, among others.[1] CHWs also reduce health care costs through fewer unscheduled health care provider or ED visits,[25] and CHW interventions have demonstrated a return-on-investment of nearly $4 for every $1 invested.[26,27]

Currently, the Department of Labor BLS approximates 6,130 CHWs employed in California.[10] However, this may be a vast undercount of actual CHWs working in California. Among the most comprehensive assessments conducted to date, the CHW National Workforce Study estimated California had more than 13,000 CHWs engaged by public and private health employers in 2005.[7] In a California health care clinic provider survey (of approximately 121 responses), respondents identified nearly 1,600 CHWs delivered services to patients and communities related to diabetes, nutrition/obesity, family planning, and mental health, among others.[103] While the majority of CHWs work in diabetes and obesity, nearly a quarter of CHWs work in asthma.[103]

California's health care system faces an urgent crisis because it lacks sufficient health care workers in the right places to meet the needs of California's diverse communities.[78] California's health care system needs diverse health care workers to reach burdened communities in culturally responsive and linguistically appropriate ways.[78] CHWs are becoming recognized and present an opportunity to address health care system challenges.[79,104] Existing evidence suggests that health care systems utilize CHWs to close health care system gaps because they are well equipped to deliver culturally-informed interventions and have local and experiential knowledge about community needs to appropriately tailor health interventions.[69,105]

In 2017, several California health-related foundations convened the California Future Health Workforce Commission, including experts in health care, community health, education, labor and policymaking, to create a strategy to close the California health care workforce gap.[78] Recognizing the potential of CHWs, the Commission recommended health care systems consider scaling the engagement of CHWs.[78] Despite evidence that CHWs are effective in their communities, the workforce is not yet scaled in the health care system.[2] In order for California stakeholders to adequately scale CHWs into health care systems, stakeholders will need to explore what make CHWs effective in their work, and how CHWs address health care system challenges differently than other health care providers.

This research study aims to add to the health care system stakeholder understanding of the contributions of CHWs. The research question guiding the current study is: What health care system gaps are filled by California CHWs as a workforce, and how do they work differently than health care providers?

Methods

Sampling and recruitment

Data for this study are drawn from a 2016 California Department of Public Health (CDPH) program assessment of California CHW asthma programs. CDPH utilized a mixed methods study design to describe CHW asthma programs, specifically how they employ and train CHWs, identify patients in need of health services, what services are provided in the asthma intervention, and how programs collaborate with clinical providers. CDPH collected three sources of data to describe these CHW asthma programs, including: 1) web-based surveys from CHWs and program managers, 2) focus groups with CHWs, and 3) in-depth individual interviews with program managers. All data were collected between April and July 2016.

As there are limited asthma programs offered in California, CDPH identified criteria to recruit as many programs as possible. CDPH recruited CHW asthma programs if they met one or more of the following criteria: 1) provided services to a medically underserved community, or community identified as a health profession shortage area; 2) one or more sites are in close proximity to a school-based health center funded by CDPH; 3) serves adults and children; or 4) receives insurance reimbursement for asthma services. In total, 10 CHW asthma programs participated in the assessment. Forty-nine CHWs completed the CHW survey and 10 program managers completed the program manager survey. CDPH staff conducted 10 focus groups with 46 CHWs, ranging from 2-11 participants per program, and 10 in-depth, individual interviews with 11 CHW program managers. CHW programs were located in Northern, Central, and Southern California, and represented managed care plans, local health departments, hospitals, clinics, and community-based organizations.

CHW staff and program managers from each organization were recruited by phone and email to complete web-based surveys and participate in in-person focus groups and interviews. All CHW asthma programs had one program manager. However, one organization had two asthma programs in the organization and two program managers. For this organization, only one program manager completed the survey and CHWs from both programs participated in the focus group. CDPH staff sent program managers web-based program manager survey links by email to complete. CDPH staff also sent each program manager web-based CHW survey links to deliver to their CHW team for completion. CDPH could not adequately analyze the response rate for CHWs, as program managers delivered the web survey link to their CHW teams to complete, and the researchers were not told how many CHW staff were asked to participate. All in-depth interviews with program managers and focus groups with CHWs were conducted at the respective organization's office. Each organization was offered a monetary incentive to participate in the surveys and focus groups.

Quantitative: Survey design, data collection, and analysis

CDPH staff developed separate web-based surveys for CHWs and program managers. The 19-question CHW survey asked CHWs to describe and report how they work with asthma patients and clients in their program (e.g., deliver education, make referrals or linkages), asthma intervention logistics (e.g., time spent with asthma patient during home visits, how often home visits occur), training, ranking of their skills, and professional development needs. The 59-question program manager survey asked program managers to describe their organization's asthma program, including the services provided, populations served, intervention logistics (e.g., number of home visits conducted by CHWs), and the program's funding sources. The program managers also reported CHW demographics, assessed CHW skills and competencies, and how

the organization integrates CHWs into programs. CDPH set up web-based surveys so participants could only submit the survey once. The CHW and program manager survey results were analyzed separately using Stata software version 13 (StataCorp, College Station, Texas). We used descriptive statistics to summarize the quantitative analyses. Survey results were anonymous, and participants cannot be linked to specific programs. CDPH received web-based survey responses from 49 CHWs and 10 program managers representing 10 CHW programs across California (Table 1). CDPH received a 100% response rate from 10 program managers, as only 10 California CHW programs were identified and included in the study. Program managers reported a total of 58 CHWs working across 10 programs. Therefore, CDPH received approximately an 85% survey response rate from CHWs working in these programs.

Qualitative: Interview and focus group design, data collection, and analysis

All of the CHWs who were invited to complete surveys were also invited to participate in the organization's focus group, and a total of 46 CHWs participated in focus groups. Therefore, approximately 80% of CHWs reported by program managers working in asthma programs participated in the focus groups. CDPH conducted focus groups with CHWs to gain more in-depth responses and attitudes about CHW roles and responsibilities, skills, and successes and challenges with the asthma intervention that may not have been captured adequately in the survey. CDPH staff developed a semi-structured focus group guide for CHWs, including questions about their journey to becoming a CHW, roles and responsibilities, challenges and successes, professional development, and certification. Focus groups with CHWs were conducted in both English and Spanish. All of the program managers who were invited to complete surveys were also invited to participate in an in-depth interview. In total, 11 program managers participated in in-depth interviews. One interview included two program managers from the same organization. CDPH conducted in-depth interviews with program managers to gather more information on organizational, funding, and CHW hiring characteristics. CDPH developed a semi-structured interview guide for program managers to expand on topics from the web-based survey, including goals of the asthma home visiting program, the responsibilities of CHWs, data collected in asthma intervention, how CHW performance is evaluated, supervision of CHWs, and opportunities for integration of CHWs into health care teams.

Interviews and focus groups were audio-recorded, with the participants' consent, and transcribed. Bilingual researchers listened to the recordings in English and Spanish, and then analyzed the recordings and transcripts in the original language to preserve the integrity of the English- and Spanish-language interviews and focus groups. We used a thematic analysis approach to identify, analyze, and report recurring patterns or themes within the data.[106] First, we re-read the interview and focus group transcripts, listened to the audio recordings, and identified preliminary analytic categories.[106] Second, we conducted focused coding to develop inductive and deductive codes, and divided these categories into a detailed codebook. We developed codes and code definitions in English, based on both English and Spanish transcripts and applied these codes to English and Spanish transcripts. We coded initial data separately, then compared and discussed coding to reach an agreement if codes or emerging patterns matched or did not match.[107] After developing coding consensus, we applied codes to the text through line-by-line coding to group data. We wrote memos about patterns within the data, and the process through which we applied the codes. We sorted codes into themes that emerged from these data.

Findings from the survey data

Program managers described the CHW asthma programs and reported a total of 58 CHWs working across 10 programs (Table 1). The smallest CHW program employed two CHWs and the largest CHW program employed 13 CHWs. The number of asthma patients served by the asthma program each month varied across programs. Some programs saw as little as four asthma patients or clients each month, while other programs saw as many as 400 asthma patients or clients each month. The majority (70%) of programs were located in Southern California, two programs (20%) were located in Northern California, and one program (10%) was located in Central California. All CHW programs, except one, served children (0-12 years) and adolescents (13-17 years). Approximately half of the CHW programs served young adults (18-24 years) and adults. Three CHW programs served seniors. CHW programs had an average of approximately six CHWs per program. The smallest program had two CHWs and the largest program had 16 CHWs. Six out of 10 programs had 4-6 CHWs in their program. Two programs had 2-3 CHWs in their program, and two programs had more than seven CHWs in their program. The number of asthma patients served each month by the program varied widely across programs. These 10 programs served an average of 53 patients each month with asthma. The lowest number of patients served by a program was four per month, and the highest number of patients served was 200 per month. Six of the 10 programs were created prior to 2010, and four programs were created after 2011.

Table 1. CHW Asthma Program Organizational Characteristics (as reported by program managers; N=10)

	N (%) [Min, Max]
Region	
Northern California	2 (20)
Southern California	7 (70)
Central California	1 (10)
Program setting	
Clinical	4 (40)
Not clinical	6 (60)
Total number of CHWs	58
Average number of CHWs in programs	5.8 [2, 16]
Average number of patients served by CHW program each month	53.1 [4, 200]

All 10 CHW programs had a CHW that spoke Spanish with asthma patients or clients. Two CHW programs had CHWs that spoke Cambodian, and one CHW program had a CHW that spoke Tagalog with asthma patients or clients. Four CHW programs were part of a clinical setting, meaning the program was located within a hospital, federally qualified health center, or clinic. More than half of CHW programs, approximately six, did not work in a clinical setting, such as local health departments, community-based organizations, or managed care plans. The oldest asthma program was created in 1999. At the time of the assessment, it had been serving patients and clients with asthma for 17 years. The newest asthma program was created in 2015. At the time of the assessment, it had been serving patients and clients with asthma for approximately one year.

Program managers reported demographics of the CHWs in their program. We used the program managers' information about their demographics to describe CHWs in this type of

setting (Table 2). Nearly all of the CHWs (91%) were females. Approximately 9% were male. CHWs represented various age ranges, from 20 years to 64 years of age. The largest majority of CHWs were 25-34 years (38%), 45-54 years (33%), and 35-44 year (22%). The majority of CHWs were Hispanic (81%). The remaining CHWs were Black (7%), White (5%), Asian/Pacific Islander (3%) and Mixed Race (3%).

Table 2. CHW gender, age, and race (as reported by program managers; N=58)

	N (%)
Gender	
Female	53 (91)
Male	5 (9)
Age range (years)	
20-24	1 (2)
25-34	22 (38)
35-44	13 (22)
45-54	19 (33)
55-64	3 (5)
Race/ethnicity	
White	3 (5)
Hispanic	47 (81)
Black/African American	4 (7)
Asian/Pacific Islander	2 (3)
Mixed Race	2 (3)

Forty-nine CHWs responded to the web-based survey and represent nearly 85% of the 58 CHWs described by program managers (Table 3). When asked which titles CHWs used in their programs, approximately 65% of CHWs identified the "Community health worker" title. Nearly one third of CHWs reported they used other titles in their organizations, including "Health navigator," "Social worker," and "Project coordinator," among others. Most CHWs reported working in their positions for many years. Nearly one third of CHWs worked in their position for 11 or more years, followed by almost 27% of CHWs working in their position for 2-5 years. Sixteen percent of CHWs reported working in the position for 5-10 years, and 16% of CHWs reported working in their position for 13-24 months.

Table 3. CHW work titles and experience (as reported by CHWs; N=49)

	N (%)
Title Used	
Community health worker	32 (65)
Case manager/worker	5 (10)
Community health outreach worker	4 (8)
Health educator	3 (6)
Community health educator	6 (12)
Promotora	6 (12)
Community outreach worker	3 (6)
Patient navigator	3 (6)
Other	14 (29)
Length in Position	
0-6 months	3 (6)
7-12 months	3 (6)
13-24 months	8 (16)
2-5 years	13 (27)
5-10 years	8 (16)
11+ years	14 (29)

CDPH asked CHWs to provide the top three responsibilities they conducted in their asthma program. For the most part, CHWs identified three responsibilities and of 49 CHWs, 29 CHWs reported three responsibilities, four CHWs reported four responsibilities, seven CHWs reported two responsibilities, three CHWs reported six responsibilities, two CHWs reported one responsibility, and one CHW reported 10 responsibilities. The top three responsibilities were conducting in-home visits (91%, 45/49), educating patients and clients on health promotion and disease prevention (57%, 28/49), and promoting access to health care and link patients or clients to care (41%, 20/49). CHWs identified a fourth responsibility that came close to the top three responsibilities, including providing community outreach and health fairs (37%,18/49).

Program managers and CHWs shared estimates of the length of time they work with patients and clients within the asthma intervention, and how many home visits the patients or clients received. Six program managers reported an estimate of the number of months CHWs work with patients and clients in the intervention. For the most part, program managers reported three months. One program manager reported 6 months and one program reported one year. These responses correspond to information provided by CHWs. Eighteen percent of CHWs reported they spent one month with patients and clients, 20% reported 2-3 months, 41% reported 3-6 months, and 5% reported 12 months. Sixteen percent of CHWs provided answers that could not be coded. Program managers also reported an estimate of the number of home visits each patient or client with asthma receives from a CHW. The most common answer was three visits. Three program managers reported four or 4.5 visits, and two program managers reported an average of fewer than three visits per patient or client. This information correspond to information provided by CHWs. Seventy percent of CHWs responded 0-3 visits, 27% reported 4-6 visits, and 2% reported seven or more visits.

Findings from program manager interviews and CHW focus groups

In interviews and focus groups, program managers and CHWs described attributes that make them effective and unique providers in the health care system. Four themes about what make CHWs effective in their programs and in their work with communities predominated

among program manager and CHW responses: 1) CHWs are from the communities they serve; 2) CHWs work with families, not individuals; 3) CHWs offer flexibility when working with families; and 4) CHWs have multi-directional flow of information between families, community stakeholders, and health care providers**.**

CHWs are from the communities they serve

CHWs, program managers, and system-level stakeholders identified CHWs as community members, intrinsically motivated to serve their own communities, and leverage their lived experiences in the community to connect with families.

CHWs are motivated to serve their own community

CHWs view themselves as a bridge between the health care system and their community. They are able to advocate for positive community change because of their firsthand knowledge of their community. A CHW commented, "Coming from the community, I feel that I can give back more to the community because I know some of the things that people go through." CHWs described a quality that they possess, which they refer to as "the heart," that enables CHWs to work effectively in their community. A CHW reflected, "You have to have a true heart to serve the community. People are designed different to do things, their calling, right? But a good community health worker, you can't fake it. It comes from the heart." Despite CHWs describing their ever-evolving work schedules and modest financial compensation, if any, CHWs are fulfilled by improving the lives of families in their communities. A CHW shared, "For me, it's not just a job. You're a community health worker 24 hours." CHWs do not shed their role at the end of the day. Their identity is intricately braided with being from the community and serving their community. Some CHWs even reflected that they could not imagine doing any other work.

CHWs are community members and share life experiences with the families they serve

CHWs, most often, come from the community they serve. CHWs shared that they shop at the same grocery and convenient stores, do laundry at the community laundromat, and see the families they work with at faith-based meeting spaces. CHWs position themselves centrally in their community's social network, affording them on-the-ground knowledge of community needs. CHWs' knowledge of the community sets them apart from other health care providers. They readily access communities that many health care providers deem impossible to reach, possibly due to mistrust of the health care system and power imbalances. A CHW reflected that where other health care providers ask how they get to the community, "To us, it's second nature. I'm not afraid to go into the community because I'm from the community." Program managers and system-level stakeholders shared that employers recruit CHWs that come from the community, in an effort to serve the community effectively. A program manager shared, "We look for people who have some sort of connection already with the underserved community, so it's not going to be new to them, or they're going to have already some sympathy or empathy for impoverished communities because it's easy to judge for some people. A lot of times, [the family] didn't grow up understanding the resources, or they didn't have good role modeling, and so that's what we're there to help, not judge." Program managers and system-level stakeholders shared that CHWs understand that most families they work with do not grow up with understanding or accessing the resources or services available to them. CHWs do not judge the families. CHWs work alongside them to implement positive changes.

CHWs leverage their own experiences with health, healing, and struggle to relate to families. A CHW shared, “When I go to the houses, I say, ‘I understand what you are going through, I know the frustration you feel, I went through that.’ People sometimes can’t believe, ‘Oh, you also have that?’ ‘Of course. I went through that, and I know how you feel and I know how angry you get when you go to the doctor and that they tell you: "Take the medicine", but they don't explain to you.”[†] CHWs empathize with the psychosocial situations of these families and are motivated to help others learn from their own experiences. They become the person the family can trust. A program manager shared, “The CHW really becomes a point person for anything that affects the child's health. The parents start to trust and put a lot of faith in the CHW. They've identified this person. They feel close to them. They feel like they're taken care of. They trust them.”

CHWs work with families, not individuals

Although CHWs are tasked with working with individuals with asthma, CHWs work with entire families to address their needs, in accessible and appropriate ways.

CHWs focus on families rather than individuals

In these 10 asthma programs, CHWs receive referrals of adults or children with asthma to enroll in the asthma intervention. Although they are assigned to work with an individual, CHWs rarely isolate their work to just the individual with asthma. Instead, CHWs described their work with “families,” rather than a “patient” or “client.” CHWs reinterpret their job as helping not just the individual but other family members as well. A CHW shared, “Going to the home, we don't just help members. We help the whole family that does not have insurance to connect them with community clinic resources.” CHWs and program managers reflected families must have their needs met in order to dedicate time and energy to manage their asthma. A program manager shared, “[CHWs] look at what are some of the other needs that the family may have. When you have a lot of competing priorities, you have to look at what are the other things that the family is challenged with. Is there domestic violence in the home? Is there need for basic things like food? Is this environment even livable?” CHWs ask these types of important questions to help families navigate what their needs are, in order for families to identify how they can best manage their asthma. CHWs are also aware their communities may mistrust the larger health care system or feel lost, overwhelmed, or disempowered when trying to navigate services. A CHW shared, “We get some members that do need a lot of the help. But they're the ones that are more skeptical because they've been running around, and nobody helped them. And they're having so much trouble. They don't trust anyone. So, they're the ones that really need the help.” CHWs and program managers understand the communities they serve may need more support or encouragement navigating the health care system, because of language, education, transportation, or financial barriers, and leverage their interpersonal skills like listening, communication, and relationship building. In addition, families may be intimidated by the health care system because it is set up entirely different than the health care system in their native countries, for example families immigrating from Central America. CHWs take it upon themselves to navigate the health care system with the families they serve, instead of placing the onus on the family to figure it out on their own.

CHWs ensure the families they serve access the services they need. A CHW shared, “With our community, they’re misinformed because in our community word of mouth just goes

[†]Quote, originally provided in Spanish, has been translated to English by the researcher.

'No, so and so didn't get it, so we don't qualify.' CHWs do not stop at the needs of the referred individuals and the families they serve. Program managers reflected that when CHWs find an issue affecting others, they help the surrounding community, contrasting how other agencies may continue to focus on the individual or stay within the scope of work. A program manager shared, "If we go into a unit, and if that unit is in bad conditions, we know that the rest of the building is going to be in bad conditions. So, we outreach to the whole building. I think that really makes a huge difference in the community when you outreach to everyone." The program manager continued by saying other health professionals or organizations, when doing similar work, may not address the needs of others in the building, since they were only referred the one unit. In contrast, CHWs demonstrate their community-driven approach to addressing their community's health, housing, and psychosocial needs.

CHWs understand family priorities and decisions

CHWs discussed that part of working with families is "meeting people where they are." CHWs learn about the family's priorities to better understand their capacity to manage their asthma. CHWs acknowledge families may not immediately manage asthma when they face competing priorities, like food insecurity, financial insecurity, or legal documentation status, among others. A CHW said, "Some patients, they're not interested in asthma. They want to know something else, like 'My child has this, but my other kid has this.' So, they're concerned in something else. So maybe try to get to them by where their interest is to target what the main issue is." CHWs are inclusive of families' competing priorities and help them to determine appropriate next steps, while still balancing the goals of the asthma intervention. CHWs tailor how they deliver information to each family, acknowledging many community members may not have more than an elementary school education. A CHW said, "You come in thinking you're going to teach it this way, and you learn that you can't do it that way. You've got to do it another way." CHWs described not expecting to work from a set agenda and constantly adapting to the needs of each family, which is very different from how most health education is structured.

CHWs offer flexibility when working with families

CHWs are flexible, with time and location, when working with families and their community.

CHWs work in the home

The majority of CHWs work with families in their home. Although asthma interventions vary across CHW programs, CHWs and program managers shared CHWs generally conduct similar asthma-related tasks, such as home visits, environmental assessments, and education, with their families in the family home. CHWs described that they learn more about their families by being in their home environment than working with them in a clinic or through administering questionnaires. CHWs observe firsthand the environments the families live in, helping them to more accurately understand the family's approach to managing asthma. A CHW shared, "When we go to enter a home for the first visit, we know right away if the family is using a strong household cleaner because of a scent. Sometimes they will clean before we get there. And we know the scent already because we're already used to it." CHWs leverage the information they learn and observe in the home visit to guide how they work with the family to manage their asthma. For example, CHWs tailor the education they provide to families based on what triggers,

or worsens, their asthma. CHWs then work with the family to address their specific needs in the home, needs that may not have been captured during the health care provider's visit.

CHWs and program managers reflected that some families do not feel comfortable accepting someone into their home on the first visit. CHWs acknowledge the family's vulnerability to accept a person from the health care system into their personal space. In fact, the CHW may be the first provider to ever enter the family's home. CHWs offer to work with families in varying locations within the community. In contrast with their experience meeting health care providers in a clinic or hospital, families feel safe, in control, and comfortable. A CHW said, "I do meet a lot of people at the library. I give them those options. I say, 'If you don't feel comfortable, it's okay,' because a lot of them are kind of embarrassed to meet at home. I say, 'You know what? I can meet you at the library. And then you can bring your kids. They'll read books in the meantime.'" CHWs and program managers understand that housing conditions may deter families from accepting outside people into their home. A program manager shared, "I think that slum housing comes with shame. A lot of the tenants tell us that they're embarrassed to have families over or friends over. Once they get control of the condition of their home, they feel better about themselves." CHWs recognize the immense responsibility of representing their organization within the family's home and are mindful of their facial expressions, dialogue, and how they approach sensitive issues, such as substandard housing conditions. CHWs understand and appreciate the time it takes to gain trust from families in order to work together within the home. Although they may initiate a first meeting in the community, the CHW's goal is to later meet in the home, which is crucial for the asthma intervention. CHWs and program managers described working within a family's home requires humility. A CHW shared, "It's a privilege to be able to enter the homes of the people and that they have trust in us."‡ CHWs and program managers reflected some families need more support than others. In order to meet the family's needs, CHWs offer more home visits than what the intervention requires.

CHWs work "after hours"

CHWs discussed that part of their flexibility is related to the time spent with families. CHWs and program managers reflected that they do not have the same time constraints as health care providers and are able to spend more time visiting with families, sometimes upwards of two hours at a time. Program managers described that CHWs never know what they will find with families and must be inherently flexible to adapt to the needs of the family. In contrast to the limited face-time families experience with health care providers, CHWs work at a pace that is convenient for the family. CHWs and program managers attribute CHWs' success working with families and gaining trust in the community to working outside of traditional work hours. A CHW said, "If we give that flexibility to our clients, they are more welcoming and being open to any time that we wanted to go visit them." CHWs acknowledge that their communities traditionally do not hold positions of power in the health care system, in terms of desired race/ethnicity, income, education level, and language, among others. CHWs take it upon themselves to represent their community in the health care system, and by doing so, reveal the barriers their communities face when trying to access and navigate health services. CHWs acknowledge that the health care system is built for people who can take time off work because they have more flexible professional privileges. CHWs described that families utilize the ED as a substitute for primary care because they are unable to schedule a medical appointment during traditional work hours. Knowing this, CHWs accommodate families' schedules and meet them

‡Quote, originally provided in Spanish, has been translated to English by the researcher.

outside of traditional work hours. A CHW said, “I have a few families that I have to do the home visit at 9pm, 8pm because they were busy the whole days.”

CHWs leverage their knowledge of these barriers and injustices to neutralize the power imbalance within the health care system for their families. They focus instead on treating each person, or each family, like a human being. A CHW said, “And just knowing how to treat the community and how to treat just people. I like to see them as a person, not as a number.”[§] CHWs treat their families for the humans they are, beyond their diagnosis or relation to the health care system. Their personal approach differs from some cultural competence training many health care providers receive, where they are encouraged to see patients as a representative of a population, and not as an individual person.

CHWs build relationships with families that continue even after the program ends

CHWs build long-term, trusting relationships with families that contrast the diagnosis-based relationship families have with health care providers. Program managers reflected how their teams skillfully built trust in the community, and how this skill facilitated their work with families. A program manager shared,

> “[Patients will] come to the front desk and just ask to talk to *Marina.*[**] They'll make it seem like there's a concern just so that they can have a moment to sit down and talk with one of the health workers. It's just a chance to reset, and feel safe, and get whatever they need to get off their chest or talk over whatever conflict is happening in their lives, or if there's something concerning happening at home. That's their chance to bring it up. I think that a lot of these things are under the surface of asthma, and we can't get to them no matter what we ask unless there's that trusting relationship where the parents want to volunteer the information to us.”

CHWs shared that they often sustain their relationships with families past the intervention end date. A CHW shared, “We have moms that call us after years have already passed and contact us to find out, ‘I have this question, and I can only ask you because I trust you.’” Despite the timeframe of the intervention, CHWs commit to being an ongoing community resource for families because they know their needs will not stop once the intervention ends.

CHWs have multi-directional flow of information between families, community stakeholders, and health care providers

CHWs’ flow of information spans across families, community services, and health care providers. CHWs gain information from families that may not be shared with health care providers. They also deliver information to families and advocate on their behalf.

CHWs access family information other health care providers may not

Program managers and CHWs agreed CHWs acquire information from families because of their trusting community relationships, and gain information from families that health care providers may not. A CHW shared an example of when they worked alongside a doctor who became frustrated with an 11-year-old patient for not taking his medications. After little

[§]Quote, originally provided in Spanish, has been translated to English by the researcher.

[**]Name has been changed to protect participant identity.

progress, the doctor instructed the CHW to talk with the family. The mother opened up to the CHW telling them of her troubles with her own epilepsy diagnosis, and that her ex-husband did not accept their child's asthma diagnosis and encouraged him not to take his medications. When the CHW relayed this information back, the doctor more clearly understood the complexity of why the child was not taking their medication. CHWs ask the right types of questions and talk peer-to-peer with families which allows them to open up and speak honestly about their asthma. When appropriate, CHWs share this information back with health care providers in order to relay the true status of the family's asthma management, and to comprehensively address the family's needs. Program managers and CHWs shared that their findings usually surprise the health care providers and gives them invaluable insight into what is really going on in the family.

CHWs reflected that sharing the same race or ethnicity with families helped them learn more information from families. A CHW said, "The families know, because we're Hispanic, and most of our patients are Hispanic, so they open more to us. And they tell us something that they didn't tell the provider. Sometimes we gather more information than, actually, the doctor does." CHWs mirror the culture and identity of their community and understand how cultural norms and gender roles factor into health decision making. CHWs respect and preserve cultural health beliefs while also translating health information in a way that does not strip the family's cultural identity. CHWs discussed that families may not accurately relay to health care providers their true level of understanding of asthma, due to the historical power imbalance of class and level of education between patients and health care providers.

CHWs promote non-hierarchical relationships and reflected that they encourage the families they work with to share their own knowledge with them. A CHW said, "We're teaching but we're also learners. Parents have a lot they can teach us, so it's a two-way street." CHWs are active listeners to best learn about the family's assets, fears, and priorities. CHWs described that they may be the first provider to listen to the family, without time constraints or judgment. A CHW shared, "Sometimes when you go to the houses, and even though you go for asthma, the parents go on and on about their lives and their problems. Sometimes they just want somebody to hear them." By listening, CHWs demonstrate they value the families' time and energy to share their story. They encourage families to lead the conversation, which many contrast with experiences in the health care system. In a focus group, a CHW described that a family, without working electricity in their home, had come to the CHW for help. The CHW shared, "He did go to another center, and he was asking for help. But they didn't give him the time to actually sit there and listen to everything he had to say. I was sitting there for almost an hour and I felt like I did make a difference in the family, overall." CHWs are best able to serve their community because they listen to the community's needs. By listening, CHWs empower community members to lead the conversation, process what their needs are, and dictate how CHWs can help.

CHWs engender advocacy

CHWs support families throughout the asthma intervention and empower them to make positive changes in their lives. They acknowledge that some families have immigrated and are struggling to adapt to a new community. CHWs recognize their position to act as a support network and be the voice for their families. A CHW shared, "I do want to be their voice. If it's something that they told me, 'I need more information about this. How can I get information? How can you help me? How can you link me to a resource?' I can be that person for them." Program managers described CHWs as "born advocates" who naturally advocate on behalf of the families they work with, but also for changes in their community. A program manager shared, "If

I didn't let them advocate on issues in the community or other things, then they'd quit." CHWs teach families how to advocate for better living environments in the community, especially as renters. In many cases, families are not aware of, or do not understand the English language well enough to know, their rights as renters. A CHW shared an example of when they advocated for a landlord to make changes in the home so the family could better manage their asthma. The CHW showed the family how to request that the landlord change the carpet for tile, which was within their renter's right to a reasonable accommodation. CHWs empower families to know their housing rights and how to navigate landlord issues, so families can live in the healthiest environments. The ultimate goal is for CHWs to teach families how to self-advocate, so families can continue to do so long after the asthma intervention has ended.

CHWs discussed they teach families how to advocate for themselves within the health care system. A CHW shared an example of how they showed families to advocate for their children to manage their asthma at school. The CHW encountered families who wanted their children to carry their inhalers "on-hand" at school, in case of emergency, but the nurse said they could not without a doctor's note. The CHW knew these families did not request a note from the doctor and left the inhalers at home. The CHW continued by saying they told the family, "If you have a disease, they have to let you talk to the nurse, talk to somebody at school. And we empower them to, 'Speak up. You need it.'" CHWs understand how difficult it is for families to ask questions with health care providers. In some cases, CHWs accompany the families they work with to medical appointments or when talking to school staff. They teach these families how to constructively relay their fears and hesitations to health care providers. A CHW said, "You want to train them to do it by themselves. Once you leave, they should be able to continue to take care of their family." CHWs recognize their ability to build capacity within their community. They set up families to regain power in making informed, health-related decisions by teaching them how to identify available services, navigate the health system, and relay successes and challenges with health care providers. Program managers acknowledge that the impact CHWs make is largely due to their persistence. A program manager shared, "It's not like the CHWs have access to something magical that other providers or staff members wouldn't. It's just that they really diligently sit down and take the time to work through it. They will fight until the end, until they get these problems solved for the patient or they exhaust their capabilities for the patients."

Discussion

We set out to explore the unique contributions of CHWs and how they address gaps within health care systems and in their communities. This study is critical because California has a shortage of appropriate health care providers to address the needs of its growing, aging, and diverse populations.[78] This study is innovative because we focused on CHW perspectives which may not be included by researchers due to CHWs' community-based nature or non-traditional work hours.[48] Echoing peer-reviewed and practice literature,[12,108] we found CHWs work differently than health care providers because of their ability to bridge the health care system with their communities. We found CHWs work effectively because of their community membership, trusting relationships, and their innate motivation to serve their communities and empower community members to advocate for positive change. Most importantly, we found their flexible approach allows CHWs to focus on families, rather than individuals, work in homes, and build and maintain relationships over time. This study is timely as California stakeholders consider how to scale CHWs in health care systems to better address diverse population needs.

As much of the data from focus groups and interviews suggest, CHWs come from the communities they serve and leverage shared life experiences to build relationships within their community. Our findings extend peer-reviewed and practice literature that the most defining and important CHW characteristic is community membership.[4,5,12,109,110] Existing studies document that CHWs share race, ethnicity, socioeconomic status, disease condition, language, or other life experience with community members.[3,7] CHWs also have unspoken understandings that go beyond language[100] and their actions are rooted in their close understanding of community members' "histories, cultural norms and values, and health-related resources and needs."[111] In this study, CHWs and program managers discussed that coming from the community they serve, shared life experience, spending time with families, and humility and curiosity allow CHWs to build trusting relationships in the community. Our findings confirm existing scholarship that these relationships open doors that help the CHW navigate services for the families, by communicating with families in ways that health care providers do not.[61]

We found CHWs are both intrinsically and extrinsically motivated to serve their communities, beyond what is expected in the intervention. Our findings extend existing scholarship that extrinsic motivation, meaning receiving material awards or non-material opportunities, and intrinsic motivation, referring to personal motives and values, play a vital role in CHW work in their communities.[8,14,112–120] Echoing California-specific practice-based and technical literature,[14,120] our findings relay that program managers and CHWs identified the intrinsic motivators as "having the heart" or "the calling," and their extrinsic motivators as service to the community and feeling responsible to give back to their community. Our findings illustrate that community membership is the foundation of intrinsic motivation for CHWs, in that individuals enjoy the experience of engaging their community in a helpful way, with people they are close to, garnering respect in the work they do, improving health, and bolstering social and emotional relationships. Our findings are supported by a study in Zambia, where researchers found that focusing on skills or career incentives, rather than community service, displaced CHWs with desirable social connections and worsened the quality of services they provided.[20] Our findings suggest motivating factors, especially intrinsic motivators, are not as prevalent for individuals who come from outside of the community, and could lead to capturing people not appropriate for the work, inevitably leading to high CHW turnover.

We found that CHWs and program managers raised ideas that CHWs' flexibility in their work, such as serving families not individuals, working in the home, and without time constraints, allows them to be effective in their communities. Our findings extend existing literature that CHWs are best equipped to address community needs because of their flexibility.[100,121,122] We also add critical knowledge for flexibility needed among paid or employed CHWs, as the need for flexibility among volunteer CHWs is documented.[123] In this study, participants also described that CHWs do not limit their work to individuals and focus on addressing needs of entire families. Our findings add critical knowledge that even when CHWs are referred an individual, they work with the entire family. This approach contrasts with how health care providers generally treat patients on an individual basis. Our findings also extend knowledge that CHWs provide essential social support outside of what is required in the intervention, such as assisting families to open bank accounts, planting community gardens, or advocating to landlords for better living conditions.[122] We found that CHWs offer flexibility, such as working in the home, to help families regain power within the health care system. Our findings extend existing studies that suggest CHWs work in flexible ways because they are familiar with power structures, hierarchy, and lack of resources within the health care

system.[108,124] In this study, CHWs also described how they work mostly without time constraints, for example outside of traditional work hours and even after the intervention ends, to accommodate the family's schedule and evolving needs. These findings add to existing CHW literature that CHWs must have flexible or adaptive schedules to be effective in their communities.[17]

Implications for California stakeholders

Our findings illustrate CHWs are assets to the health care system. They address health care system challenges differently than traditional health care providers because of their community membership, motivation to serve their communities, and flexibility to bridge the community and health care system. Our findings indicate the value of scaling the engagement of CHWs within health care systems. Existing evidence suggests CHWs can help meet the increasing demand for primary and behavioral health care, drawing on their lived experience and experiential knowledge, to support better health outcomes for their communities.[2,78]

CHWs address health care system challenges differently than health care providers. CHWs address the social determinants of health, enhance patient care, and improve access to health care and social services.[28] In fact, existing technical literature suggests CHWs provide invaluable support to health care providers to operate at the top of their license, allowing them more time for direct patient care.[121] Our findings extend practice literature that describes CHWs as acquiring information health care providers cannot.[125,126] In this study, CHWs provided examples of how the family's home environment facilitated or impeded the family's health care and asthma management.

Building on the California Future Health Workforce Commission's recommendations, we recommend California stakeholders scale the engagement of CHWs in health care systems. To ensure California stakeholders adequately capture CHWs most appropriate for the work, health care systems must focus CHW recruitment on community membership, motivation to serve their communities, and shared lived experiences. As we learned in the Zambian study, if health care systems downplay community membership and/or intrinsic motivation in CHW recruitment, programs will not be as effective. Health care systems should also build flexibility and home visiting into their CHW programs so CHWs can continue to address health care system challenges.

Limitations

This study is not without limitations. First, we sampled only CHWs working in asthma programs. However, asthma CHWs present a unique opportunity to research CHW workforce development as nearly one quarter of California CHWs work in asthma.[103] Further, these CHW programs represent various sectors of the health care system, ensuring representation of diverse perspectives which may transfer to other CHW groups. Second, our surveys asked program managers to answer demographic questions (e.g., race/ethnicity, age, gender) for their CHW team. These responses cannot be entirely accurate since CHWs did not respond for themselves. Additionally, the lead author was interviewed as a program manager. To address potential researcher bias in data analysis, another member of the research team analyzed the program managers' responses and underwent rigorous consensus coding to ensure coding between researchers was accurate.

Conclusion

In spite of these limitations, this study has several strengths. This is the first study in which California CHWs described what allows them to be effective in their work with communities and address health care system gaps. This study adds to the literature by elevating the voices of CHWs to share insights into their cultural and role identities, that have a clear distinction from health care providers. This is particularly important as existing studies in California have focused on perspectives from health care providers,[103] or grassroots *promotores de salud*.[14] Findings from this study address the critical shortage of region-specific CHW program information, and contribute to the overall understanding of the California CHW workforce. Future research should focus on CHW recruitment and how to build effective CHW programs within health care systems in California.

III. *Don't change who we are but give us a chance*: Exploring feelings of recognition and exclusion related to community health worker (CHW) certification in California

Introduction

CHWs and *promotores de salud* are trusted members of the community who have an intimate understanding of the population they serve.[1–6] Their community membership, trust, and deep linguistic and cultural relationships allow them to bridge the community and health care and social services, and deliver culturally informed interventions to their communities.[1–6] With nearly 56,130 CHWs in the U.S., approximately 6,160 CHWs serve California communities by providing community outreach, care coordination, health education and support services within clinics, public health agencies, health plans, and community-based organizations.[10]

As California's population grows in size and diversity, the state lacks the primary care and community-level health care workers it needs, known as the health care workforce gap, which will largely affect communities of color and older individuals.[78] CHWs may help meet the increasing demand for culturally diverse workforce members as they come from the communities they serve and draw on lived experience and experiential knowledge to improve health outcomes.[78] In 2019, the California Future Health Workforce Commission, tasked with creating a comprehensive strategy to close the health care workforce gap, recognized the potential for CHWs to address California's health workforce challenges, and recommended to "scale the engagement," or expand the employment of CHWs and *promotores de salud* in health care systems through creating a system of CHW certification and training.[78]

One challenge in creating a certification process is the wide range in training and educational requirements. CHW training and educational requirements vary across states, cities, employers, and sectors.[71,81,127] While the majority of CHWs have a high school diploma, supplemented with on-the-job training, there are no unified training standards.[81] In an effort to create consistent training, some states have developed standardized processes, like certification, to enhance the credibility of the qualifying professional, increase the quality of services delivered, and assure patients of CHW competency.[83–85] Certification processes are usually overseen by an advisory board who administers a competency-based examination to certify any qualified individual with the skills and knowledge necessary to perform relevant tasks.[86]

Certification, if it were introduced, would have different implications for the many different CHW stakeholders, a group that includes current CHWs and those considering the field, health care providers, public health departments, and health plans, among others.[12,34,76] For CHWs, certification could provide advanced training, document experience or expertise in a given field, and lead to career pathways.[12,92–94] Certification could guarantee employers and payers a standard skillset and knowledge base.[12,88] However, standardizing the rules to become a CHW, considered an "emerging" profession, could undermine community trust in CHWs.[9,12,76,95–97] Emerging professions, including CHWs, doulas, community paramedics, and many yet-untitled roles, are not defined as a workforce, have more diverse backgrounds than traditional health care providers, and are uniquely positioned to fill health care system gaps.[128] While there is a desire to create professional growth opportunities, there is an equivalent desire to not exclude existing CHWs through formal education and mandatory certification requirements.[8,11,76,97,98] In short, CHWs, employers, and payers hold a wide range of views on the need for, drawbacks to, and benefits offered by certification.[76,129]

In California, stakeholders have debated certifying CHWs for over 20 years without reaching consensus.[8] Although some states, like Texas, have had certification programs in place for 20 years,[90] limited evaluations of these programs leave California stakeholders unclear how certification impacts the workforce.[58] California's size and diverse CHW workforce also pose factors not experienced by other states. California's CHW landscape represents varying CHW types with contrasting ideologies of care, such as clinical and community-based CHWs and *promotores de salud*.[8,11] The latter are a subset of CHWs, primarily serving Latinx communities, more grounded in a social model rather than a medical model, and are increasingly common in states with large Latinx populations.[8] Most importantly, CHWs have not been involved in leading their own workforce development, possibly due to being low wage earners and/or from marginalized communities.[7,101,102]

CHWs across the U.S. are at a crossroads. One path leads to a standardized workforce integrated into health care systems via formalized training and qualifications.[95] The other path views CHWs as part of the communities where they work, valued for their community relationships.[95] While both paths are possible, California stakeholders, including health care systems, employers, and CHWs, must determine if and how these two paths can coexist for the California CHW workforce and what may be applicable to other states. This study asks diverse CHW stakeholder[††] perspectives about CHW certification to understand the ways that certification could be more inclusive of the workforce as it currently exists. The research question guiding the study is: What are perspectives of diverse California stakeholders on potential state CHW certification?

Methods

Sample and recruitment

We employed a purposive sampling approach to identify and select participants from various organization types, that were knowledgeable about CHWs and CHW workforce issues.[130] We recruited CHWs, program managers, and system-level stakeholders[‡‡] from diverse organizations, such as community-based organizations, volunteer grassroots organizations, government, clinics, health plans, advocacy or policy organizations, and academic researchers, to gather robust perspectives of CHW certification across groups and stakeholder types in California. We also recruited national subject matter experts from the federal government, national coalitions, and national organizations, that have technical expertise in CHW workforce and certification. All participants were recruited by phone and email and were offered compensation (which was not always accepted) for participating in the interview or focus group.

Data collection

We used a combination of focus groups (with CHWs), interviews (with program managers and system-level stakeholders), and observation of public forums, to gather diverse

[††]For the purpose of this study, we define diverse CHW stakeholders in several ways: 1) stakeholder groups such as CHWs, CHW programs, and system-level stakeholders; 2) types of CHWs, which include clinical and community-based CHWs, and grassroots *promotores de salud*; 3) employment types, which include volunteer, part-time, and full-time employment; 4) types of organizations; and 5) the communities the stakeholders or organizations serve.

[‡‡]For the purpose of this study, we define system-level stakeholders as California-based executive directors and chief executive officers from the organizations that employ CHW programs, leaders from state and local CHW coalitions, academic or university-based researchers that have worked with CHWs, policymakers, and local and state health officers from agencies potentially responsible for implementing CHW certification strategies.

CHW stakeholder perspectives on CHW certification in California. We developed a semi-structured guide for focus groups and individual interviews that a) explored the definitions and core competencies of CHWs, and b) sought input and recommendations on CHW certification using examples of certification programs (one voluntary, one required) from two other states. Focus groups lasted up to three hours and interviews lasted approximately one hour. All interviews and focus groups were audio recorded and transcribed, with participants' verbal consent. Focus groups and interviews were conducted in English or Spanish, as participants preferred. Interviews and focus groups were facilitated by the author, except in cases in which the author had close existing relationships with participants, where another interviewer led groups and interviews to ensure participants' comfort in responding to questions. After each interview, focus group, or observation, we wrote memos to support initial coding ideas during analysis. The research team collected data until no new ideas or insights emerged in the data.[131,132] All data were collected from October 2018 – November 2019 and IRB approval was obtained from the UC Berkeley Committee for Protection of Human Subjects prior to beginning data collection.

In total, we conducted 44 data collection events, a mixture of focus groups, group interviews, and individual interviews, with 108 CHWs, program managers, and system-level stakeholders across Northern, Central, and Southern California. We conducted 11 focus groups and one additional individual interview with 66 CHWs; nine individual and group interviews with CHW Program Managers (N=11); and 22 individual and group interviews and one focus group with system-level stakeholders (N=31). Focus groups ranged from 3-9 participants, and group interviews included two to three participants. We conducted predominantly individual interviews with program managers and system-level stakeholders, but in some cases, program managers and system-level stakeholders offered to participate in a group interview when both worked at the same organization. All focus groups and interviews were conducted at the organization where participants worked. Nearly all interviews with system-level stakeholders were conducted in person, although some were conducted by phone due to limited in-person availability. In addition, we conducted observations in public forums, conferences, and coalition meetings, where CHW workforce and general California health workforce issues were discussed. Observations allowed the research team to better understand how stakeholders, including special interest groups, leveraged CHW work and plans for CHW certification, that may not have been discussed in individual interviews. We took detailed field notes to document how CHW workforce issues were discussed, the context in which certification was described, what types of stakeholders were present, which CHW stakeholders participated, and how future actions and recommendations for the CHW workforce should be prioritized.

Analysis

We used a thematic analysis approach to identify, analyze, and report patterns or themes within the data.[106] All focus group and interview recordings were transcribed in their original languages. We read the focus group and interview transcripts and observation field notes to identify preliminary analytic categories.[106]A bilingual research team member assisted in developing the codebook and coding the data. We developed codes inductively to develop a framework of the experiences evident in the data. We developed codes and code definitions in English, based on both English- and Spanish-language transcripts. We conducted focused coding and divided these categories into a more detailed codebook. The research team coded initial data separately, then compared, discussed, and reached an agreement if codes or emerging patterns matched or did not match.[107] After code testing and consensus coding, we applied codes to both

English- and Spanish-language transcripts using qualitative data analysis software, Dedoose (SocioCultural Research Consultants, LLC, Los Angeles, CA). We wrote memos about patterns in the data, and the process through which we applied the codes. Third, we examined how different codes could be sorted into themes, and combined the relevant coded data segments within the identified themes.[107] We refined those themes by checking how well the coded extracts illustrated the themes. We generated a thematic map of the analysis to tell the overall story about the data. We further refined the themes by identifying the essence of each theme and determining what aspect of the data each theme captured.

Results

In all, 108 CHWs, program managers, and system-level stakeholders shared their perspectives on CHW certification (Table 1). CHWs, program managers, and system-level stakeholders made up 61%, 9%, and 29%, respectively, of the study participants, and represented non-governmental organizations (NGOs), health care providers, health plans, government, academia, and foundations. Most of the study participants were employed full-time. Some part-time and volunteer CHWs also participated. Most of the focus group and interviews were conducted in English. Some CHWs elected to have the focus group in Spanish or a combination of both languages. Most participants served urban areas, or a combination of urban and surrounding rural areas. The majority of participants represented Southern California. Other system-level stakeholders represented statewide or national perspectives. Although we did not collect individual demographic data, we noted the heterogeneity of study participants. Participants were male and female, approximately 18-70 years old, represented various race/ethnicities (e.g., Asian, Black, Latinx, White), and had a range of work experience (less than one year to over 20 years of experience). In addition, some program managers and system-level stakeholders held clinical licenses (e.g., physician, registered nurse), and post-secondary education, including Doctorate and Master degrees.

Table 1: Characteristics of study participants

	CHWs N(%)	Program Managers N(%)	Systems-level N(%)
Number of participants	66 (100)	11 (100)	31 (100)
Type of organization			
Non-governmental organization	22 (33)	7 (64)	11 (36)
Government	5 (8)	1 (9)	10 (32)
Health plan	8 (12)	1 (9)	1 (3)
Health care provider	17 (26)	2 (18)	3 (10)
Academia	0 (0)	0 (0)	4 (13)
Foundation	0 (0)	0 (0)	2 (6)
*Not defined	14 (21)	0 (0)	0 (0)
Employment			
Full-time	39 (59)	11 (100)	31 (100)
Part-time	5 (8)	0 (0)	0 (0)
Volunteer	8 (12)	0 (0)	0 (0)
**Not defined	14 (21)	0 (0)	0 (0)
Language of Event			
English	12 (18)	9 (82)	31 (100)
Spanish	31 (47)	0 (0)	0 (0)
***Bilingual	23 (35)	2 (18)	0 (0)
Service area			
Urban	39 (59)	7 (64)	7 (23)
Rural	5 (8)	1 (9)	0 (0)
Urban and rural	22 (33)	3 (27)	4 (13)
****Not defined	0 (0)	0 (0)	20 (64)
Geographic Region			
Northern California	1 (1)	1 (9)	4 (13)
Central California	3 (5)	1 (9)	1 (4)
Southern California	62 (94)	9 (82)	6 (19)
Statewide	0 (0)	0 (0)	14 (45)
National	0 (0)	0 (0)	6 (19)

Definitions

Non-governmental organizations (NGO) include community-based organizations, community coalitions, advocacy organizations, and policy-related organizations.

Government includes local, state, and federal government.

Health care provider includes organizations providing clinical services, including federally qualified health centers, clinics, and hospitals.

Health plan includes managed care organizations and managed care plans.

*Two focus groups with 14 total participants included a mixture of NGO and health care provider organizations but data were not collected to identify the type of organization for each individual participant.

**Two focus groups with 14 total participants included a mixture of full-time, part-time, and volunteer CHWs but data were not collected to identify the employment status for each individual participant.

***When both English and Spanish languages were spoken during an interview or focus group, the primary language of all participants was labeled "bilingual."

****Stakeholder service area was labeled "not defined" when the stakeholders or stakeholder organization did not provide direct services to a specific geographic area.

Findings

CHWs, program managers, and system-level stakeholders described a wide range of views related to possible CHW certification in California. Participants described feelings of opportunity related to workforce recognition by health care providers and gaining compensation. Participants also warned of unintended consequences and possible exclusion of existing CHWs.

A number of themes emerged from focus groups, interviews, and observations. These included: 1) certification provides CHWs recognition from both health care providers and the communities they serve; 2) certification leads to upward mobility and professional growth, including establishing consistent training standards, a CHW career ladder, and financial gain; 3) certification threatens CHW identity by overmedicalizing the CHW role and creating unintentional hierarchies among certified and non-certified CHWs; and 4) certification excludes new and existing CHWs due to certification requirements.

Certification provides recognition of CHWs

Many participants concluded a certification would afford CHWs the opportunity to gain recognition from health care providers and the communities they serve.

Certification provides CHWs recognition from health care providers

As CHWs lack a unified approach to training, or a formalized description of their skills and knowledge areas in California, all participants reflected that certification could validate CHW work. CHWs described how certification would give them the level of recognition other health care professionals value, particularly in a hierarchical health care system where certifications and licensures are necessary and accepted. A CHW shared,

> "Right now, [other health care providers] see us like, 'Oh, a CHW.' The people that are up here, have better education, have better licensing and better certifications and stuff. They don't see us like we belong to where we are. They make us feel like we're not important, we're not capable of doing what we do. It's like they see us like *chiquita* [small] or the people that clean after me. They don't see we're capable of doing what we do. They just think that they're better than us because they have a title and we don't have a title, even though, in a way, I respect what they do. And good for them that they were able to go to school to have the *papelito* [certificate]."

CHWs expressed their strengths and invaluable experience in the community are not understood or valued by many of the organizations they work for, especially in clinical settings. Despite many CHWs not having the opportunity to pursue higher education, CHWs are competent. They have been educated in a way health care providers and professionals have not. CHWs work intimately with the families they serve, often inside the family's own home, and have experienced the same issues. Even though CHWs may have different titles, they still want to be recognized for their skills and work in a way that resonates with health care providers and other professionals. A CHR stakeholder shared, "[CHRs] want people to know that 'we are not just lay workers.'"[§§] Some participants commented that recognition from health care providers should not require a credential, for example certification. A system level stakeholder shared, "In some ways, it's a little sad that this is how you see it's necessary to get the respect of other people, by doing that." Some stakeholders discussed that health care providers need more education about who CHWs are, what they do, and how they work best in the community—and that certification

[§§]The Community Health Representative (CHR) Program was created in 1968.[133] Across the U.S., more than 1,600 CHRs represent over 250 tribes.[133] CHRs bridge health care and their tribal communities by increasing access to services and improving the quality and cultural competence of health care services.[133] CHRs are trusted members of the community with a close understanding of their community's language and tribal traditions.[133] They provide transportation to health visits, social support, advocacy, conduct outreach, and deliver education and informal counseling, among other activities.[133]

would not necessarily achieve these ends. Some system level stakeholders reflected that institutional racism and discrimination has a role in the limited recognition of CHW work. "If you think about who the community health workers are," a stakeholder shared, "they tend to be women…[and] women of color." The participant described how the tendency to discount CHWs as "real healthcare providers" "justifies that they get paid less; they don't get regular hours, shoddy training. It reinforces gender discrimination and racial discrimination." Certification could validate CHW work. Systemic changes would have to be implemented in order to address institutional racism and systemic discrimination.

Certification provides CHWs recognition from the community

CHWs reflected that certification would further their legitimacy in their community. CHWs shared that families often ask them what organization they work for and why they are qualified to provide education, with the question, "*¿y tú quién eres?"* meaning "and, who are you?" CHWs speculated a certification that validates their skills could help them more effectively deliver information within their community. A CHW shared, "I think creating a certification gives the person who is receiving the information the confidence that you are saying things correctly."*** CHWs shared that certification would give them a backbone, or the support system, to demonstrate their skills and training. They felt that an organization speaking or vouching for them would have more weight with the families they're working with. Then, families they work with will have more confidence in their services provided. A CHW shared, "We don't have that support of saying, 'I have this certification, I know what I do, please pay attention to me.' We still don't have that support of being trained."†††

Certification leads to upward mobility and professional growth

Participants discussed that a certification could ensure consistent training and skills of CHWs and provide opportunities for establishing a career ladder and a pay rate.

Certification prepares CHWs with consistent training, skills, and knowledge

Participants reflected that certification could lead to consistent training, core skills, and knowledge across CHWs in the state, thereby creating the foundation for the professionalization of the CHW workforce. "Right now, [CHWs are] not all the same depending on who trained them and what they've got," shared one system-level stakeholder, with the result that it could be easy to observe among CHWs, "'Hmm, you're missing some basic skills, but yet you've been a CHW for 10 years.'" CHWs suggested that failing to unify training and skills through certification could have detrimental effects for the families with whom they work.

Certification establishes a CHW career ladder

All types of participants commented that CHW certification may result in career mobility. CHWs may be able to leverage certification to set guidelines and boundaries for an undefined workforce and distinguish their work from other providers, such as social workers. In California, CHWs do not have a career ladder. They laterally jump from position to position. A system-level stakeholder shared, "CHWs will get hired and trained for this one, specific job, and then that job ends. And then they literally have to start from scratch. And then they just have

***Quote, originally provided in Spanish, has been translated to English by the researcher.

†††Quote, originally provided in Spanish, has been translated to English by the researcher.

whatever job they can find." They continued, "certification would very much give them a better playing field when it comes to job searches." Professionalizing the workforce could enable CHWs to leverage better pay, better positions, and establish a career ladder through recognition of their skills.

Some California stakeholders were concerned that a career ladder for CHWs would threaten the roles of similar health care providers. Licensed health care providers (e.g., physicians, nurses) and their advocacy organizations feared "scope creep," meaning CHW certification would infringe on their professional scope of practice, thus diminishing their respective roles in clinical settings, and clinical support for their licensed professions. System-level stakeholders noted that fears of scope creep occur every time career ladders are built for emerging health care professions: "Other professions forget that established professions objected to them on the way up. Nurses had to struggle for recognition, scope of practice, professionalization. Midwives did. Health educators did. MSWs did. But they're really quick to turn around and say, 'But I don't know about you.'" Despite fears of scope creep, system-level stakeholders pointed out the symbiotic relationship between health care providers and CHWs, where CHWs reinforce key messages to families prescribed by the licensed health care provider, and CHWs provide patient health information to health care providers they may not otherwise have gathered from a patient medical history.

Certification provides CHWs opportunities for financial growth

All types of participants speculated that certifying CHWs could lead to higher compensation and an established pay rate. CHWs felt that certification may generate recognition of the value of their work, which is modestly remunerated (or, in the case of volunteer CHWs and *promotores de salud*, not at all). A CHW shared, "We would be able to earn money. It's not that money is important, I have 15 years of being a *promotora* and, believe me that all *promotoras*, yes, it is the love for the work, but we would be at a more recognized level."‡‡‡ Program managers and system-level stakeholders discussed that certification could open the doors for payers to integrate and cover CHW services. Certification would define CHWs' skills and knowledge base, allowing payers clarity of what they were paying for. A system-level stakeholder shared, "Those who pay for the services are confused. And since they are confused, they don't want to pay for something that they're not clear about." Certification could enable sustainable reimbursement models from federal payers, such as Medicaid, that include strict regulations on spending categories and service providers. Without certification, noted a system-level stakeholder, "I find it hard to imagine that community health workers' time is going to be reimbursed in the model and structure of the healthcare setting that we have now…These are federal dollars, there's rules." Yet others cautioned that certification alone will not guarantee Medicaid reimbursement. System-level stakeholders reflected that Medicaid reimbursement, or other sustainable financing mechanisms, for CHW services relies much more on CHW champions, state-specific legislative language, and payer systems.

Certification threatens CHW Identity

Participants expressed fears that certification may dissolve the identity of CHWs and *promotores de salud,* and overmedicalize CHWs into a more clinical role.

Certification encourages non-CHWs to become CHWs

‡‡‡Quote, originally provided in Spanish, has been translated to English by the researcher.

Certification could attract people who do not hold the values or motivation to serve their communities. CHWs specifically shared that CHW certification serves as a "stepping stone" into other health care positions, such as social work or nursing, demonstrating a lack of commitment to the CHW role. Evidence from states that have implemented CHW certification has validated these fears. Commenting on their experience with certification outside of California, a system-level stakeholder shared,

> "Institutions were under some pressure to get people into their program. And so, they were recruiting some people who might have been inappropriate for the work…they were certified, but they weren't really CHWs. They were not from the community. They didn't have anything in common with the community. But they had the training, and so they were entitled to call themselves certified CHWs, even though the community would probably look at them and say, 'You're not a CHW. You got a piece of paper, but you're not a CHW. You're not from here.'"

Certified CHW instructors may distinguish who in their class possessed "real CHW" qualities, and others who may eventually leave the profession, believing that individuals were motivated by the certification and possible CHW career ladder rather than being motivated to serve their community.

Certification pushes CHWs into a clinical role

As California CHWs represent diverse work environments and organizations, program managers and system-level stakeholders fear certification would benefit clinical organizations, for example hospitals, clinics, and health departments, over community-based organizations, pushing CHWs into a more clinical role. Clinical organizations place more emphasis on certifications and degrees, and participants anticipate all CHWs employed in these organizations would pursue certification. Since certifications are not a primary focus or required by community-based organizations, community-based or grassroots CHWs may not pursue certification. Participants speculated that certification could produce a disparity where primarily clinical CHWs would be certified and community-based CHWs may or may not be certified. A system-level stakeholder shared, "CHWs are not intended to do only clinical work, so in thinking about certification and reimbursement and all this stuff, [how does that change] what is a CHW role supposed to be?" Program managers from community-based organizations and other system-level stakeholders feared the clinically-oriented mechanism of certification would undermine CHWs' historic emphasis on impacting the social determinants of health. Certification could decouple CHWs from their historical identity of functioning in the community and overmedicalize them to look like traditional health care providers within the health care system.

Certification exacerbates differences between CHWs and promotores de salud

With no universal definition of CHWs in California, certification elicited debates surrounding CHW identity and the philosophical differences between CHWs and *promotores de salud*. Some system-level stakeholders described how private and public funding (categorical and disease-specific) separated *promotores de salud* and CHWs. *Promotores de salud* have historically served Latinx communities, working at the intersection of health and social justice, predominately as volunteers. CHWs were more recently employed by local health departments,

clinics, and hospitals, driven by single source funding opportunities. Other stakeholders described CHWs and *promotores de salud* as interchangeable titles, or the same position, but serving different populations. Volunteer *promotores de salud* were less likely to consider certification relevant for their work, citing the intrinsic motivation for their work. A volunteer CHW shared, "We have never thought of a certification because we never thought of receiving money for our service. It's always volunteer, we always do everything from the heart."[§§§] Volunteer CHWs view their work as service, outside of the potential of a career ladder, and certification deviates from their motivation to serve their own community and does not dictate who may work as a CHW. Conversely, certification did not challenge the identity of the CHW role. A CHW shared, "I don't think it applies to every community health worker. If you don't have that certificate, that doesn't mean you're not a community health worker." CHW identity goes beyond a certification process. It means more to CHWs to come from the community, want to serve or give back to the community, and make a difference in the community.

Certification produces a CHW hierarchy

CHWs and program managers expressed that certification may create a hierarchy between certified and non-certified CHWs. This hierarchy may lead to a hostile environment in which certified CHWs may feel more qualified for the work, exacerbating other existing inequalities between CHWs in payment and work settings (e.g., community or clinic). System-level stakeholders from states that have implemented CHW certification shared they have not directly observed a hierarchy among CHWs in their respective states. However, that does not mean a hierarchy does not exist. A system-level stakeholder shared, "I suspect there could be developing a culture where certified CHWs hold themselves to be better than, but I don't have any basis for predicting that. It would be unfortunate if it did." These system-level stakeholders suspect those states who have not opened a work experience pathway are contributing to a CHW hierarchy.

Certification excludes existing CHWs

Nearly all participants asserted that certification may exclude CHWs from working in their communities, whether they were existing CHWs or those considering the career path. A CHW shared, "When you're certifying people, you're limiting other groups of people getting the job done. You think it's best for them, but when you get the certification you have to be literate, able to learn, be multi-tasking. It requires a little bit more steps that other people are not willing to do." The very vulnerabilities and qualities that may make a CHW so effective in their capacity to reach their communities and to sensitively provide culturally and linguistically appropriate care are vulnerabilities that bureaucratic systems often exacerbate. Participants outlined how certification, as a complex bureaucratic process overseen by the state, posed multiple barriers to a workforce largely comprised of women of color from marginalized, multi-lingual communities. Potential barriers to obtaining certification were numerous, including training and application costs, availability of certification in languages other than English, requirements for prior education, and citizenship status requirements. Further, many CHWs lived in communities with geographic and technological barriers to accessing training sites and materials. This could have the effect of shutting out entire communities. For instance, a CHR stakeholder worried, "[Certification] is going to disadvantage our Indian people from having these jobs and being in

[§§§]Quote, originally provided in Spanish, has been translated to English by the researcher.

these places, and the barriers that are going to exist in rural Indian country are going to be too large for them to overcome."

Certification excludes undocumented CHWs

With the largest Latinx population in the U.S. and a border with Mexico, participants were particularly concerned about the implications of certification for undocumented CHWs in California since most certification processes require federal or state identification. System-level stakeholders worried that certification would prevent undocumented CHWs from continuing to work in immigrant communities. "They're already facing racism, and xenophobia, ICE raids, and they don't want to see this profession move along without remembering the unique contributions that they make in our state," explained one participant. "And they're worried particularly that certification will leave them behind."

Certification excludes formerly incarcerated CHWs

Some CHWs who faced prior incarceration work with individuals to navigate the psychosocial and structural struggles after "coming home" from prison. System-level stakeholders feared that background checks, including felon or criminal checks, included as certification requirements would exclude CHWs with prior felonies. "Society [holds] stigma against people who are incarcerated," noted one stakeholder, "'You don't want to put them in situations where you have vulnerable people, like patients.' That's just not true. There's some really great people there, who have had this experience, who can turn it around and really help others and, in fact, that's what makes them so successful." Excluding CHWs with past felony convictions could eliminate positions where CHWs leverage invaluable experiential knowledge to target this group. Essentially, this could erase a vital point of support for an extremely vulnerable population.

Certification excludes critical relational skills

Many feared that certification could exclude those CHWs who are most effective in their communities by placing more emphasis on state requirements rather than focusing on what CHWs do really well, for example connecting with people and serving their community. Participants questioned the extent to which certification could assess whether CHWs are equipped to do their work and cautioned relationship building skills, shared life experiences, and human connections are difficult, if not impossible, to quantify or evaluate through a state system. A system-level stakeholder shared, "But to make [CHWs] have to go through a university or a community college training and take an academic-type test, would actually knock a lot of people out of the workforce who actually demonstrated that they were great at connecting with the patient acting out in the waiting room, who was having a psychotic episode in the waiting room, who was not showing up for their appointments, who didn't know how to take their medication and didn't get their prescriptions refilled." State certification requirements may overshadow what CHWs do best, developing trusting relationships within their communities and advocating for positive change.

Discussion

We set out to explore diverse stakeholder perspectives on CHW certification in a state where CHW certification remains controversial for its potential to either advance or exclude members of the workforce. This study is critical and innovative to CHW workforce studies

because we focused on CHW perspectives about certification. Peer-reviewed CHW certification literature is limited, and existing scholarship largely omits CHW perspectives on setting their own workforce standards,[102] despite their deep knowledge of the organizational and systemic barriers and facilitators to implement CHW interventions and their expertise of the communities they serve. Echoing some of the technical literature on certification,[12,42,85,104,134,135] we found CHWs and California stakeholders have conflicting feelings regarding CHW certification. Some participants agreed certification offers financial and career opportunities, while others feared certification may inadvertently exclude key groups who might be best equipped to work in particular communities and downplay advocacy in the CHW model. We also learned certification does not address all challenges related to integrating CHWs into health care systems.

As much of the data from the focus groups and interviews suggest, California CHWs not only want to continue serving their communities but also want opportunities to grow. CHWs view certification as an opportunity to gain or increase compensation. CHWs want more career opportunities, and experienced CHWs reflected certification would benefit younger generations interested in CHW work, guaranteeing them a career ladder. Participants agreed certification may bring recognition from health care providers and the communities CHWs serve. Our findings extended literature asserting that health care providers feel more confident when CHWs are certified because they can ensure a standard of care.[136]

At the same time, certification provoked fears across all community-based participants – CHWs, program managers, system-level stakeholders – that CHWs will be become medicalized, shifting the role away from the tradition of advocacy, social justice, and community connection.[12,76,95,137] We found that CHWs feel they do a better job of addressing the social determinants of health than health care providers, who may be threatened if CHWs are brought under the medical model. By "professionalizing" the CHW workforce, certification threatens the qualities that make CHWs unique and effective, such as flexibility and gaining community trust (Section II).[138] Further, our study confirms *promotor de salud* stakeholders fear that certification washes away the "essence" of the *promotor* by attracting people without "the heart" for the work.[14] As existing research demonstrates, these fears are warranted. In other programs, individuals fulfilled certification requirements but did not demonstrate the intrinsic motivation to serve the community (Section IV). Our findings also demonstrate CHWs fear individuals will use certification as a "stepping stone" to other health professions, potentially resulting in high turnover of the CHW workforce. A national survey of CHW certification programs found many CHWs, after attending community college certification training programs, later advanced to nursing and social work professions.[58]

We identify emerging fears from CHWs and *promotores de salud* that certification creates unintentional hierarchies, or power dynamics, between clinical and non-clinical CHWs and between CHWs and *promotores de salud*. Certification could exacerbate a hierarchy between clinical and non-clinical CHWs. CHWs who work for clinical organizations would most likely become certified, since certifications are highly valued within the health care system. Over time, employers may prefer certified CHWs since they could ensure a skill set and knowledge base,[138] unofficially making the certification "required" for CHWs not already certified, in order to be competitive for CHW jobs.[139] Since volunteer *promotores de salud* or community-based CHWs have little need for certification in their communities, their work may become further marginalized.

Participants raised a number of other issues critical to the security of the CHW workforce that would not be addressed by certification. Our findings extended existing literature asserting that certification does not guarantee employment or Medicaid reimbursement for CHWs.[66,136,138,140] In fact, a Texas employer study identified funding streams and return on investment were the most important factors in whether to adopt the CHW model into their organization.[141] Certification also does not ensure quality of services delivered, as existing scholarship demonstrates that the majority of CHW training and certification programs have limited evaluations in place.[58] Unlike previous CHW studies, our participants argued that racism, xenophobia, and discrimination within the health care system have obstructed the scaling of CHWs. This insight extends evidence documenting racism towards health care professionals, particularly among structurally similar positions like certified nursing assistants who experience institutional racism, cultural insensitivity, and discrimination from supervisors and coworkers.[142–146] While national health care and public health institutions have supported the concept that CHWs are key to diversifying the health care and public health workforces,[59] their recommendations have not acknowledged the racism within the healthcare system that remains a critical barrier to this diversification.

"Responsive" CHW certification: A potential flexible, equitable alternative

Our findings suggest a certification process that is structured with multiple pathways is more likely to mitigate stakeholder opposition since that type of program may overcome potential barriers of traditional certification processes and prevent feared outcomes raised in stakeholder interviews. An example of a certification process based on multiple pathways is "responsive" CHW certification, endorsed by ASTHO and CHW workforce development subject matter experts, and includes a user friendly application process, education and training available in accessible settings and taught using appropriate methods, and respect for volunteer CHWs.[102,147] These mechanisms may preserve the unique work done by CHWs and the diversity at the heart of CHW efficacy. Although there is no evidence to suggest a responsive CHW certification does not result in a loss of traditional CHWs, we believe this model may preserve the work of various models of CHWs and *promotores de salud.* Multiple paths to entry enable CHWs to gain certification through training to learn required skills and knowledge, or through a work experience pathway, where existing CHWs certify based on experience.[102,147] A responsive certification offers required education and training in accessible settings, and teaches skills in ways adults learn best using, such as popular education,[87] that are appropriate for diverse adult learners.[102,147,148] A responsive certification system may remove barriers that could limit the workforce, including requirements of education, language, legal immigration status, history of incarceration, and cost.[102,147] Our findings confirm that legal immigration status and prior education requirements may exclude undocumented individuals and those with little formally recognized education from CHW work. Training and application costs remain significant barriers, and our findings support existing studies where CHWs experienced costs shifting to them, rather than employers.[148,149] Our findings also extend literature that criminal background checks could exclude the most equipped CHWs to serve vulnerable communities (e.g., formerly incarcerated individuals), especially as not all criminal violations are relevant to CHW practice.[102,138] Most importantly, a responsive certification respects volunteer CHWs by being voluntary and inclusive.[102] Our findings suggest California's CHW workforce demands a certification process that respects all types of CHWs and their choices to work in their communities as they wish.

Certification could address some aspects to scale the engagement of clinical and non-clinical CHWs within health care systems. Our study echoes existing CHW literature that CHWs are best equipped to lead certification discussions because they can better anticipate the needs and aspirations of their workforce and design a certification that does not exacerbate hierarchies, power dynamics, or drive CHW roles further from the historical CHW model.[32] Our study also adds that CHW certification does not guarantee Medicaid reimbursement or other financing mechanisms, which are more dependent on state politics than standardized training. Multi-level stakeholders must also address systemic, structural, and institutional elements, including racism, in order to scale CHWs in health care systems.

Limitations

This study is not without limitations. Scheduling logistics limited our ability to reach American Indian CHRs. We included CHR stakeholders to provide a perspective from the CHR field. Patient or community perspectives were not included in this study. Future research should include these perspectives in order to adequately assess how CHW certification may affect the people and communities CHWs serve. The author has worked within the CHW field for ten years and served as a workforce advocate. To limit bias, the author used strategic reflexivity to reflect on their position within the CHW research and worked with an additional team member on coding to increase confirmability. We collected qualitative perspectives that can only speculate about what certification might do for California CHWs. Future research should gather quantitative data to accurately assess stakeholder perspectives.

Conclusion

Despite these limitations, this study has several strengths and implications for public health practice. We included participants that represent diverse types of stakeholders and organizations and positioned CHWs to lead the conversation on certification. This study extends existing literature by documenting diverse perspectives on the perceived opportunities and risks of CHW certification and building a better understanding of the stakeholder climate surrounding CHW certification in California. This is particularly important as CHW certification remains controversial among California stakeholders, and California is in a unique position to cultivate knowledge from its diverse stakeholders. Future research should further explore certification issues across CHW, program manager, and system-level stakeholder groups and adequately assess race/ethnicity, age, gender, and education level of participants to ensure equity among participants. Future research should assess certification models without barriers to entry for new and existing CHWs.

IV. *Certification is not per se bad or good – whether it's bad or good depends on how it's done*: Developing strategic options for certification of California community health workers (CHWs)

Introduction

As the CHW profession grows in numbers and importance, California is considering whether to create a certification system for CHWs. The U.S. health care sector has a wide array of occupations, and is projected to grow 14% (or by 1.9 million new jobs) between 2018-2028, mainly due to the aging population demand for health care services.[150] In an effort to improve the health care system, governments, health care providers, and social services pursue the "triple aim:" better quality of health care, better health outcomes, and reduced health care costs.[30] One occupation that continues to grow is community health worker.[151] CHWs come from the communities they serve, leveraging their shared experiences and cultural relationships to deliver education, improve health outcomes, and assist community members to navigate health care, social support, and other community services.[1–6] Health care systems report challenges to working with CHWs, for example insufficient recognition by other health care providers and inconsistent scope of practice, training and qualifications.[80] To address this, some states standardize the workforce through certification.[85] California is an ideal place to investigate certification and try varied approaches as California stakeholders are considering CHW certification and cultivating best practices from certification models. This paper details options for California stakeholders to develop certification.

Background

CHWs are an important emerging profession within the health care system. Emerging professions, including CHWs, doulas, community paramedics, and many yet-untitled roles, are not defined as a workforce, have more diverse backgrounds than traditional health care providers, and are uniquely positioned to fill gaps in the health care system.[128] CHWs are trusted members of the community who have an intimate understanding of the population and community they serve.[1–6] They leverage shared experiences and their linguistic and cultural relationships to bridge the community and health care and social services, and deliver culturally informed interventions to their communities.[1–6]

As chronic conditions become more prevalent, CHWs are a growing part of the U.S. health care workforce.[151] Unfortunately, we do not have an accurate estimate of how many CHWs work in the U.S. Currently, the Department of Labor BLS reports 56,130 CHWs are employed throughout the U.S.[10] The CHW National Workforce Study estimated a far greater number of CHWs – 121,000 – working in the U.S. in 2005.[7] In California, the BLS reports 6,160 CHWs are employed to provide community outreach, care coordination, health education and support services within clinics, public health agencies, health plans, and community based organizations.[10]

CHWs are cost-effective in addressing needs of individuals with chronic disease and in preventing chronic disease among their communities. With a history of success in developing countries, CHWs deliver health promotion in various clinical and non-clinical roles.[4,24] CHWs promote chronic disease management, such as breast cancer screening and medication adherence for people living with HIV/AIDS, and improve health outcomes, including self-management of diabetes, hypertension, and asthma, among others.[1] CHWs also reduce health care costs through

fewer unscheduled health care provider or ED visits, and have demonstrated a return-on-investment of nearly $4 for every $1 invested.[25–27]

Despite the evidence, CHWs are not widely utilized within the health care system.[2] The National Academy of Medicine declares barriers to working with CHWs, such as inconsistent scope of practice, variable training and qualifications, and lack of professional recognition by other health care providers.[80] As CHWs work across diverse organizations and perform various tasks, states are investigating ways to standardize the occupation and integrate CHWs into health care systems.[102]

States are looking to CHW certification to standardize CHW training and set workforce entry standards. Nearly 20 states have developed CHW certification to standardize the workforce, address training variability, incentivize payment mechanisms, and integrate the CHW model into health care systems.[66,89] Certification is achieved when an authority (e.g., private entity, state health department) declares an individual has specific qualifications related to training and skills.[102,152] Certification does not regulate practice and is not equivalent to an educational certification of completion, although one policy approach is to restrict certification to CHWs who have completed specified professional training or attained a specific educational credential.[152]

California stakeholders are considering CHW certification. In 2019, the California Future Health Workforce Commission, composed of statewide senior leaders across education, employment, labor, and government sectors, released recommendations to improve the ability of California's health workforce to meet the health needs of the state's diverse population.[78] Recognizing CHWs' capacity and effectiveness to improve health outcomes, the Commission recommended creating a formal certification process for CHW training programs, which would involve establishing core competencies, a field practicum, and standardized CHW training requirements at the state level.[78] However, California stakeholders have not yet developed a path to CHW certification and have an opportunity to develop a CHW certification approach that is informed by the experiences of other states.

The question leading this paper is: What are the strategic options for CHW certification in California? Most states that have adopted CHW certification did not collect data that would allow researchers to study the outcomes associated with the policy change. To inform decision-making in California, this paper, using stakeholder interviews and document review, analyzes three certification models that have been used in other states and assesses their strengths and weaknesses. The three models we will review in this paper are: certification based on educational completion, certification based on training, and certification based on work experience. Each model is described and analyzed by the following evaluative criteria:

- Simple to implement – the extent to which the model is a cost or resource burden for the state system
- Attract diverse CHWs – the extent to which the model is accessible to non-English-speaking CHWs and undocumented CHWs

- CHWs are educationally qualified with a history of law abidingness[****] – the extent to which the model produces CHWs that are ethical (including law abiding) and able to perform CHW roles with a basic level of competence
- Accessible – the extent to which the model is easily accessed by CHWs seeking certification (e.g., how many places, how to access training)

We will use evidence from Minnesota, New Mexico, Oregon, and Texas to review the three certification models, as recommended by subject matter experts (Table 1). Minnesota offers a certificate of educational completion, and New Mexico, Oregon, and Texas offer both the training and work experience models. All four states have implemented CHW certification for at least five years, with Texas offering their certification models for 20 years, allowing adequate time for stakeholders to reflect on the impact of certification on their state's workforce (Appendix A) for certification model specifics by state). Finally, we will present the preferred solution in light of the four evaluative criteria.

Table 1. Overview of certification models and state examples

	Certification models		
Examples of states	Certificate by educational completion	Certification by training	Certification by work experience
Minnesota	X		
New Mexico		X	X
Oregon		X	X
Texas		X	X

Methods

We conducted 38 phone interviews with CHW stakeholders, including certified CHWs, certified CHW trainers, payers (e.g., health insurance companies, state Medicaid offices), health care providers, employers of CHWs (e.g., community-based organizations, clinics, hospitals, health plans), CHW associations and advocacy groups, and local and state health departments, from Minnesota, New Mexico, Oregon, and Texas (Table 2). We leveraged existing relationships to access diverse stakeholders associated with the CHW workforce or the certification programs of interest. We utilized a snowball sampling strategy to find other CHW stakeholders to discuss the impact of certification on their respective state's CHW workforce.

[****] We acknowledge several caveats with this criterion. The most efficient way to assess whether an individual is law-abiding is to conduct a criminal background check for past offenses. We recognize policing may be racist in its application and those who appear "law abiding" may have more to do with race/ethnicity than with actual behavior.[153,154] We also acknowledge individuals with felony convictions can be ethical. This criterion will mainly focus on the ability to screen those with criminal records to distinguish between severe and less severe offenses.

Prior to conducting interviews, we asked subject matter experts what criteria they would include to adequately evaluate CHW certification programs. We developed a semi-structured interview guide based on these criteria to explore stakeholder opinions on: what the demand is for CHW certification from employers, health care providers, and CHWs; how certification impacts CHW knowledge and skills; what costs and resources are needed to implement certification; how certification affects the level and distribution of health care spending; how certification creates access for diverse CHWs (e.g., cost, legal immigration status); and what types of stakeholders were in favor and opposed to developing the certification (Appendix B). We also asked stakeholders for factual information, including total certification and recertification numbers. All stakeholders received the same interview guide.

After the interviews, stakeholders sent programmatic reports, data on the state's aggregate numbers of certified CHWs, and other certification resources. All interviews were conducted in English, audio-recorded, with the participant's consent, and transcribed into English. We collected data from May 2019 – March 2020. IRB approval was obtained from the UC Berkeley Committee for Protection of Human Subjects prior to beginning the data collection. Table 2 describes the 38 participants that participated in this project. We talked to approximately equal numbers of participants from the four states. They represented a variety of professional perspectives. Their answers helped the research team better understand the three certification models.

Table 2. Characteristics of study participants (N=38)

	Minnesota N(%)	**New Mexico N(%)**	**Oregon N(%)**	**Texas N(%)**
Number of participants	12 (100%)	9 (100%)	9 (100%)	8 (100%)
Type of Organization				
Association/advocacy	1 (8%)	1 (11%)	3 (33%)	2 (25%)
Community health worker	3 (25%)	1 (11%)	1 (11%)	3 (38%)
Education/trainer	2 (17%)	1 (11%)	1 (11%)	2 (25%)
Employer	2 (17%)	0 (0)	1 (11%)	0 (0)
Government	1 (8%)	4 (44%)	2 (22%)	1 (13%)
Payer	3 (25%)	1 (11%)	1 (11%)	0 (0)
Health care provider	0 (0)	1 (11%)	0 (0)	0 (0)

To review the data we collected, we listened to the audio recordings, read the interview transcripts, and read 61 supplemental documents sent from the state certification programs (New Mexico [19], Oregon [11], Texas [12], Minnesota [12]) and seven federal and national case studies of CHW certification models. We developed an inductive and deductive codebook based on the evaluative criteria. For each criterion, we created four sub-codes: increase effect, decrease effect, neutral effect, or unclear effect. We coded initial data separately, then compared and discussed coding to reach an agreement if codes matched or did not match.[107] The process of coding interviews gave the research team a way to understand the CHW certification models and observe how the participants discussed each approach and its distinctive features. After developing coding consensus among coders, we applied codes to the text through line-by-line coding to group data. We wrote memos about patterns within the data, and the process through which we applied the codes.

Analysis

We analyzed and scored the three certification models based on the four criteria discussed earlier: 1) simple to implement; 2) attracts diverse workforce; 3) CHWs are

educationally qualified with a history of law-abidingness; and 4) accessible (Table 3). The *simple to implement* criterion assesses which certification model best uses state resources. Simple processes that require little to no state resources were scored high. Complex processes that require high state resources[††††] were scored low. The *attract diverse CHWs* criterion assesses how accessible the certification is to non-English-speaking CHWs and undocumented CHWs. Certification models in which non-English speaking or undocumented CHWs can become certified with few challenges were scored high. Certification models in which non-English speaking or undocumented CHWs experience challenges or cannot become certified were scored low. The *educationally qualified and law abidingness* criterion assesses whether certification requirements are designed to increase the likelihood that certified CHWs will be ethical, including law-abiding, and will perform well in a health care or community-based role. This criterion is separate from whether less-educated people can be CHWs. We will specifically look at the basic level of competence (e.g., high school diploma) and history of felonies or sexual offenses (e.g., criminal background check). Requiring criminal background checks is an effort to increase law-abidingness, especially since CHWs work with vulnerable populations and with people inside of their homes. Requiring individuals to have a certain level of education (e.g., high school diploma) is intended to assure a basic level of competence of reading, writing, and problem solving. Individuals without a high school diploma may be unable to master the most elementary skills. The *accessibility* criterion assesses how many places and how easily CHWs can access certification training, classes, and tests. Certification processes that are offered in many places or types of organizations were scored high. Certification processes that are not offered in many places or types of organizations were scored low.

We also considered other criteria identified by subject matter experts, such as the attractiveness of the approach to CHWs and to employers, price accessibility, legal immigration status, stakeholder acceptability, skills and knowledge, effect of certification on health care costs, and health care provider utilization. We excluded these criteria from scoring because they either did not produce differentiation across the models or were inconclusive in their findings and could not be scored (Appendix C).

We defined and scored the criteria using the definitions and rationales below (Table 3), scoring: “low” as 1, “medium” as 2, and “high” as 3.We identified our categorization as low, medium, and high in an effort to draw meaningful distinctions between the state models reviewed. The categorizations are relative rather than absolute.

[††††]State resources are defined as the time and resources state health department staff dedicate to certification programs. We made the judgment between low and high state resources used relative to what we saw in certification programs. Therefore, these estimations are not absolute. Low state resources would be less than or equal to one full-time equivalent (FTE, or little effort or oversight to implement the certification), signaling the certification program is simple to implement. For example, Minnesota has approximately 700 certificate-holding CHWs with no state health department oversight for certification since higher education institutions confer the certificate. High state resources would be defined as multiple FTEs needed to oversee certification processes (e.g., application review) deeming them complex to implement. In New Mexico, three FTEs oversee 378 certified CHWs; in Texas six FTEs oversee nearly 4,000 certified CHWs; and in Oregon two FTEs oversee 613 certified CHWs.

Table 3. Criteria scoring definition and rationale

Criterion	Criterion Definition	Scoring Rationale *High score= meets criterion well* *Low score= meets criterion poorly or not at all*
Simple to implement	To what extent implementing CHW certification is a cost or resource burden on state system	High (3 points): There is little or no cost and resource burden on state system to implement certification (i.e. simple implementation) Medium (2 points): There is some cost and resource burden on state system to implement certification (i.e. less simple implementation) Low (1 point): There is high cost and resource burden on state system to implement certification (i.e. complex implementation) 0 does not exist on scale
Attract Diverse CHWs	To what extent certification is accessible to non-English-speaking CHWs and undocumented CHWs	High (3 points): CHWs with diverse backgrounds, including non-English-speaking and undocumented individuals, may access certification Medium: Some undocumented or non-English-speaking CHWs can access certification. Low (1 point): Few or no undocumented or non-English-speaking CHWs can access certification. 0 does not exist on scale
CHWs are educationally qualified with a history of law-abidingness	To what extent certification requirements are designed to increase the likelihood that certified CHWs will be ethical (including law-abiding), and that those certified will perform well in a health care or community advocate role	High (3 points): Certification produces certified CHWs that are law-abiding (e.g., criminal background check) and have a basic level of competence (e.g., high school diploma). Medium (2 points): Certification produces some certified CHWs that are law-abiding and have a basic level of competence Low (1 point): Certification produces few or no certified CHWs that are law-abiding and have a basic level of competence 0 does not exist on scale
Accessible	To what extent CHWs can easily access certification training/classes/ tests, and in how many places	High (3 points): CHWs access certification opportunities (training, testing) at multiple types of organizations Medium (2 points): CHWs may access certification opportunities (training, testing) at different types of organizations Low (1 point): CHWs can access training at higher education (e.g., community colleges) institutions only 0 does not exist on scale

In this paper, we detail how the three CHW certification models scored across the four evaluative criteria (Table 4a).

Table 4a. Criteria scoring matrix

Criteria	Certification models		
	Certificate by educational qualification	Certification by training	Certification by work experience
Simple to implement	High: 3	Low: 1	Low: 1
Attract diverse workforce	Low: 1	Medium: 2	Medium: 2
CHWs are educationally qualified with a history of law-abidingness	High: 3	Medium: 2	Low: 1
Accessible	Medium: 2	High: 3	High: 3
Total Score	9	8	7

As this paper is specific to what certification models may work best for California, we weighted two criteria that are most important to California stakeholders. California stakeholders fear certification may exclude diverse CHW types, including grassroots CHWs or *promotores de salud*, and create barriers to entry for new and existing CHWs (Section III). Therefore, we placed higher weights on the *attract diverse workforce* and *accessible* criteria to address California stakeholder concerns (Table 4b). We weighted *attract diverse workforce* by 3 and *accessible* by 2. We weighted the *attract diverse workforce* criterion higher than the *accessible* criterion because there has been stakeholder opposition to certification in California for nearly 20 years due to fears that certain groups of CHWs, such as *promotores de salud,* will be excluded and left behind.[8] Further, we want to ensure certification processes attract diverse CHWs in order for the workforce to resemble and represent the communities they serve and not threaten the qualities that makes CHWs effective in their communities, such as language or community membership.

Table 4b. Criteria scoring matrix, with weights relevant to California

Criteria	Certification models		
	Certificate by educational qualification	Certification by training	Certification by work experience
Simple to implement	High: 3	Low: 1	Low: 1
Attract diverse workforce *Weighted *3 for California*	Low: 1*3=3	Medium: 2*3=6	Low: 1*3=3
CHWs are educationally qualified with a history of law- abidingness	High: 3	Medium: 2	Low: 1
Accessible *Weighted *2 for California*	Medium: 2*2= 4	High: 3*2=6	High: 3*2=6
Total Weighted Score	13	15	11

California stakeholders must also consider the benefits and tradeoffs for each certification model when contemplating which model to implement over another. One stakeholder shared, "Certification is not per se bad or good - whether it's bad or good depends on how it's done." California stakeholders will have to thoughtfully weigh the evidence, benefits, and tradeoffs of each certification model to choose a certification approach that best fits the needs of California CHWs (Table 5). We discuss the benefits and tradeoffs of each model after discussing each criterion's scoring.

Alternative 1: Educational completion model

Certification by educational completion is one potential certification model, recommended for consideration by CHW subject matter experts. The educational completion model consists of an individual completing an educational requirement at a higher education institution. The higher education institution assesses the individual's proficiency in skills and confers a certificate. The certificate differs from certification because an educational institution is not allowed to confer the title "certified CHW" unless the certifying body allows the educational institution to confer this title.[102] For the purposes of this study, we are considering the certificate by educational completion model a certification model. We gathered evidence from Minnesota for the below criteria.

The educational completion model is simple to implement because it is hosted within the community and private college system and scored high on the *simple to implement* criterion. For example, Minnesota offers the certificate in higher education institutions, for example community colleges. The Minnesota CHW Alliance (MNCHWA) developed the CHW certificate curriculum (approximately 14 college units) and sells the curriculum to colleges for $6,000. Each college purchases the curriculum for their respective programs. A Minnesota stakeholder shared that these colleges purchase the curriculum and pay their faculty to teach the

course. They continued to share that the CHW certificate is "supported by students paying for the program or employers paying for the program." Upon completion of the required 14 units, the higher education institution confers CHW students the certificate. Therefore, the certificate is simple to implement because the state has no cost or resource responsibility.

The educational completion model may not attract diverse CHWs due to the high school diploma or English language proficiency requirement and scored low on the *attract diverse workforce* criterion. Individuals without a high school diploma or test of general educational development (GED) equivalent would be excluded from this model. The educational completion model may not attract non-English-speaking individuals because the CHW certificate college-level courses, to the best of our knowledge, are delivered in English. Similarly, undocumented individuals, or those without legal immigration status, may not choose to participate in a formal college system. We learned from stakeholder interviews that individuals are not required to provide proof of legal immigration status to attend a community college or private college. A Minnesota stakeholder shared, "We don't care if they're documented or not. I know I've had a couple students go through that are undocumented. The problem is they can't get financial aid."

The educational completion model produces educationally qualified CHWs because individuals must present a high school diploma or equivalent to receive subsequent college-level education and scored high on the *educationally qualified* criterion. We project the same outcome in California since California community colleges also require a high school diploma or GED equivalent to register for courses. In some cases, California community colleges admit "individuals without a high school diploma or the equivalent who, in the judgment of the review board, is capable of profiting from the instruction offered."[155] The educational completion model may not produce CHWs with a history of law abidingness. Individuals do not provide a criminal background check to attend community college or private college. Therefore, hypothetically, individuals can earn a CHW certificate even if they have a criminal offense. Stakeholders shared that allowing people to get a CHW certificate even if they have a felony conviction makes searching for employment challenging. A Minnesota stakeholder shared, "There's employers who want to hire people to work with people doing re-entry from the prison systems. And those folks can't get the clear background check and so we want the option of being able to let people go out without that clear background check." However, this is a liberal, more flexible design choice of Minnesota's educational completion model. Hypothetically, the educational completion model could be designed to include a criminal background check to screen for severe felony convictions or assess less severe felony convictions.

The educational completion model may not be accessible to all individuals and scored medium on the *accessible* criterion. The curriculum course is only offered at higher educational institutions and only some of those choose to offer the CHW certificate curriculum. For example, in Minnesota, approximately seven colleges offer the CHW certificate training throughout the entire state. A Minnesota stakeholder shared, "There were seven physical schools within the state, some in northern Minnesota, some in the middle, and some in the Twin Cities. And then I think you could also do it online." CHWs shared they needed to drive long distances to attend the education courses, but that is the "commuting culture" in Minnesota.

The educational completion model offers many advantages for California, such as simple implementation, and the existence of California's community college infrastructure.[156] Existing evidence suggests that states find the education completion model attractive because it does not exhaust state resources, and places the burden to assess the individual's proficiency in required skills on the higher education institutions.[102]

The educational completion model may undermine diversity. The CHW workforce may lose diversity over time because non-English-speaking CHWs may not be eligible to participate in the educational completion model. At the time of this paper, we were not aware of any CHW certificate college courses delivered in a language other than English. The CHW workforce may also lose diversity over time since those with little formal education or training may be excluded from higher education institutions. The CHW National Workforce Study estimated 7% of CHWs in the U.S. have less than a high school education.[7] Since we know that the number of CHWs is underreported, and we expect that those without a high school education are less likely to be counted, we expect that the number of CHWs that would be excluded by educational completion would be at least 7%, if not higher.

The educational completion model brings up other factors from stakeholder interviews not included in the evaluative criteria. The educational completion model may create a career ladder for CHWs. Upon completing the certificate course, CHWs earn transferable college credit to other career programs or towards an associate or bachelor degree. A national CHW certification study found that many CHWs later advanced to other health care professions, such as nursing and social work.[58] Community colleges may not be the optimal place for certification training. Evidence suggests community colleges may over-medicalize CHWs rather than focusing on empowerment and social justice.[88] Another factor is Minnesota's educational completion model, which required the use of the MNCHWA curriculum. Minnesota CHWs reflected that having a standard curriculum was important because they had the same knowledge and skills as their peers. The standard curriculum also signaled to employers and payers a standard skill set and knowledge base. For California, offering one curriculum may signal a standard skill set and knowledge for employers and payers, but may present challenges to determining if the curriculum is high quality and if it fits the needs of diverse types of CHWs. Presumably, the MNCHWA curriculum is high quality. Offering one curriculum may make it challenging for California stakeholders to determine if the curriculum meets the needs of California's diverse CHW workforce.

The educational completion model, although ensuring CHWs have a high level of competence, poses many barriers to entry and may result in a less diverse workforce, which may ultimately decrease CHWs' defining quality - representing the communities they serve. The educational completion model may not be a realistic model for California CHWs.

Alternative 2: Training model

The training model consists of classroom training on state-approved core competency curricula, a practicum or internship experience, and an evaluation of skills and knowledge.[127] After the training requirement is completed, the individual applies for the certification. The certifying body, usually a state health department, will verify the individual has fulfilled the certification requirements. If all certification requirements are fulfilled, the certifying body grants the individual the certification and title "certified CHW." The training models we assessed require between 80-160 hours of approved training curricula, and approved training curricula are taught at community-based organizations, community colleges, and health departments, among others. We gathered evidence from New Mexico, Oregon, and Texas for the criteria.

The training model is challenging and resource intensive to implement because state health department staff must issue certifications for CHWs, instructors, and training sites and curricula. The model scored low on the *simple to implement* criterion. From stakeholder interviews, we learned that Oregon dedicates two full-time equivalent (FTE) positions or staff,

New Mexico dedicates approximately three FTEs, and Texas dedicates six FTEs to issue certifications for CHWs, instructors, and training sites. Stakeholders reflected that state health department staff spend a lot of time reviewing, verifying, and approving CHW Instructor and individual CHW certification and recertification applications. For example, in Texas, 421 new CHWs applied to become certified through training in 2018.[157]‡‡‡‡ New Mexico may spend even more time reviewing applications since CHWs can choose to either apply for a generalist certification or up to three specialist certifications. State health departments also develop training standards, and review, verify, and approve each training site's CHW certification training curricula to ensure it meets the state's CHW core competency requirements. Stakeholders described that state health departments oversee, on average, nearly 40 training sites, with each training site potentially developing their own training curriculum. Further, most state health departments track CHW recertification numbers. In some cases, state health department staff follow up individually with CHWs to inquire why they did not recertify in an effort to identify and understand the challenges and barriers of recertification. A New Mexico stakeholder shared, "There's so many man-hours of follow-ups and doing it manually."

The training model may attract undocumented or non-English-speaking CHWs and scored medium for the *attract diverse workforce* criterion. Certification requirements vary by program. Some certification programs require legal immigration status checks while others do not require legal immigration status checks. For example, a New Mexico stakeholder shared individuals must provide a color copy of a government-issued photo identification or Certificate of Indian Blood Card to become a certified CHW. In Texas, the Department of State Health Services does not require any type of government identification for certification. From stakeholder interviews, we found undocumented individuals can participate in certification training programs. Stakeholders acknowledged undocumented individuals may experience employment challenges thereafter. A Texas stakeholder shared, "[Undocumented individuals] go through the training and the only drawback of not being documented is not being able to go for the criminal check and being able to work in the hospital system. But there's a lot of other opportunities where they can do some phenomenal work." In the states we assessed, the training model would allow for non-English-speaking individuals to participate. For example, Texas offers certification training programs in Spanish. Similarly, Oregon training sites offer culturally and linguistically-specific trainings for various CHW groups, such as Russian communities, African continent communities, violence prevention communities, and Latinx communities. Likewise, in New Mexico, certification training has been adapted for some tribal communities.

The training model would produce educationally qualified CHWs with a basic level of competence because individuals would pass state-verified, core competency-based training curricula. The model scored medium for the *CHWs are educationally qualified with a history of law abidingness* criterion. The training model would not score as high as the educational completion model for this criterion because individuals in a training program may or may not have a high school diploma. However, most certification programs require a high school diploma or GED equivalent, either from the U.S. or from the individual's native country. A New Mexico stakeholder shared that *promotores de salud* were against the certification at first because they felt it would exclude those without a formal education. The stakeholder went on to share,

‡‡‡‡Stakeholders did not bring up the time needed to review individual CHW certification applications during interviews. If we assume the average state health department staff works 48 weeks per year at 40 hours per week, that equals 1920 hours per year. If it takes state health department staff one hour per applicant, then that is 20% of a state FTE. If it takes 2 hours per applicant, that is 40% of a state FTE. This estimation does not include the time needed to approve certification training curricula or reviewing recertification applications.

"[CHWs] need to have at least a GED. There has to be a standard. Then why do we need certification? Why do we need a law and the rule to guide us then? To let anybody in to do it? Well, people are realizing now the value of it and now they're knocking down our doors to get that training."

The training model allows for screening those with criminal records to distinguish between more and less severe offenses. With the exception of Texas,[§§§§] certification programs require criminal background checks to earn CHW certification. The certifying body discerns the severity of the prior felony or offense and decides whether or not the individual can be certified. A New Mexico stakeholder shared, "I think people who have gotten in trouble with a small amount of pot or weed, it's okay. But I think if it's going to be like armed robbery, murder, or child abuse, I think that's where a committee would draw the line. Because people, especially if they're going into a home, then we're liable for that." Most certification programs allow individuals to further explain the circumstances of their prior felonies or offenses that appear on the criminal background check. New Mexico and Oregon stakeholders shared that they have not observed a high number of individuals with prior felonies fail the certification because of the criminal background check requirement.

The training model is accessible because trainings are offered at various types of training sites and scored high for the *accessible* criterion. Stakeholders designed the certification programs to offer training at local health departments, community-based organizations, community health centers, community colleges, and other sites. CHWs can then choose where they feel most comfortable receiving training. A New Mexico stakeholder shared, "People who work in the community, they want community education. There's a few people who go to the community college for a community health worker program because they like the structure. The majority of the people that we have found do not want an institutional setting. They want community-based learning, adult learning."

The training model has benefits, such as delivering culturally- and linguistically-tailored trainings and offering training at various types of organizations. Choosing from a myriad of training organizations empowers CHWs, especially if they cannot access or do not feel comfortable in higher education institutions. California has the potential for offering certification training at various types of organizations. Currently, California has existing specialized CHW training organizations (e.g., health department, community-based organization, managed care organization, community college, private college) that could become CHW certification training programs. Another benefit of the training model is the flexibility for training sites to offer tailored curricula. In the Oregon example, trainers and CHWs were able to discuss in detail the needs of their communities, and CHWs received information in the languages they preferred. This may be of particular interest to California stakeholders as the California CHW landscape is culturally and linguistically diverse.

The training model, as reviewed for New Mexico, Oregon, and Texas, has tradeoffs, for example variability in training, and state resources needed for implementation. Despite developing competency-based curricula, certification training still produces CHWs with inconsistent skills and knowledge. A Texas stakeholder estimated they have nearly 40 training

[§§§§]The Texas Department of State Health Services (DSHS) initially required a criminal background check from individuals to become certified CHWs. The Texas DSHS no longer requires a criminal background check to earn the CHW certification because, as a Texas stakeholder shared, "It was more headache than it was really worth because the employers were going to have to redo it anyway."

programs in Texas, while Oregon oversees approximately 43 training programs. The high number of training curricula available produces variability of CHW skills and knowledge across training programs. Certified CHW trainers attribute the high number of training curricula to limited staff capacity and available funding. A Texas stakeholder shared, "It takes a whole lot of time and energy to create a curriculum. I'm not going to give it to another institution to then turn around and charge people and make money off of my work that I did. In Texas you have all these different curriculums because people didn't want to share it." Employers recognize the variability across training programs. From stakeholder interviews, we learned employers prefer certain training curricula knowing some curricula are focused solely for work in clinical settings, while others focus on community outreach and advocacy. A Texas stakeholder shared, "It's gotten to where employers know, 'I only want CHWs trained by this site or this site.' And so CHWs may pay and may go to the full 160 hours and do everything and then still not be as employable because employers have figured out, 'The skills I need are coming from these training sites. These, not so much.'" Texas stakeholders hypothesized a more standardized curricula may prepare CHWs better and reduce variability in training. However, limiting curricula too quickly may not be the best option for California. Referring back to the educational completion model, Minnesota's choice to design a single curriculum may present problems with limited opportunities for innovation or not being able to meet the needs of diverse CHW groups. If there is only one curriculum offered, it may take longer to determine whether or not the curriculum is high quality. Although the MNCHWA curriculum may be high-quality, there is the potential for a state to create a flawed curriculum. Ultimately, approving various curricula based on whether it meets the competency requirements is a design choice for the training model examples we reviewed. A training model approach may also choose to have the certifying body develop a standard training curriculum for all training sites to deliver in order to reduce training variability across sites.

An additional tradeoff of the training model is the resources and oversight needed to implement certification. Our findings extend practice literature that agencies implementing CHW certification programs are responsible for developing training standards, reviewing, verifying, and approving individual and instructor certification applications, and approving training curricula.[102] From stakeholder interviews, we learned this workload remains an issue and certifying bodies are looking for ways to simplify implementation. For example, in 2019, the New Mexico Office of the CHW invested $40,000 to launch an online application system to streamline the certification application and generate funds for the Office.

The training model, although challenging to implement, may increase the diversity of the workforce, is accessible, and can produce CHWs that are educationally qualified with a history of law abidingness. If measures could be taken to simplify the implementation and create a simpler implementation, the training model may be an appropriate model for California.

Alternative 3: Work experience model

Certification based on work experience recognizes CHWs' expertise and experience in the community, and counts it towards CHW certification.[127,158] When an individual has sufficient experience hours, they apply for the individual certification. In some cases, CHW supervisors are asked to verify that the individual meets the CHW core competency requirements. Many states elect to offer both the work experience and training models in an effort to acknowledge new and existing CHWs. For this paper, all of the states we discussed in the training model - New Mexico, Oregon, and Texas - also offer the work experience model (Table 1). The work

experience models we assessed require between 1,000 – 3,000 hours of volunteer or CHW work experience in the previous 2-5 years.

The work experience model is challenging to implement since certifying bodies, usually state health departments, must verify individual applications and supervisor information. The model scored low for the *simple to implement* criterion. Similar to the training model, state health department staff must verify that an individual has the required number of work experience hours to be eligible for certification. For example, state health department staff interview CHW supervisors to verify the individual applying for CHW certification meets the CHW core competency requirements. A Texas CHW shared, "The state called my supervisor, and they verified employment and everything." We anticipate this may demand significant time and resources from state health department staff. For example, in Texas in 2018, 483 new CHWs were certified through work experience.[157]

The work experience model may not attract diverse CHWs because undocumented or non-English-speaking individuals would be less likely to produce supervisor-verified work hours and scored medium for the *attract diverse workforce* criterion. The work experience model may favor individuals who have been employed, which usually requires social security numbers and multiple forms of government issued identification.[*****] Therefore, undocumented individuals may be less likely to gain the work experience necessary to apply through this model. In some cases, undocumented individuals may be able to verify work training if they were paid by organizations through stipends. However, this is not the norm. In contrast, some states observe the work experience model allows for more diverse CHWs to become certified. A New Mexico stakeholder shared, "A lot of the CHWs that grandfathered[†††††] in didn't have to provide proof of high school diploma with grandfathering, so a lot of the diverse CHWs came in that way."

The work experience model is less likely to produce educationally qualified CHWs because CHWs may have little to no documentation to demonstrate CHW core competencies, and competency standards may be interpreted differently across individuals and organizations. The model scored low for the *CHWs are educationally qualified with a history of law abidingness* criterion. A Texas stakeholder shared, "Well, in some ways, [grandfathering] puts the individuals at a little bit of a disadvantage because the person who completes a certified training program has that to show for it. The person who chooses to simply practice on the basis of experience may be extremely talented and effective, but they have no way of documenting that unless they have a really well-done resume." The work experience model may not produce educationally qualified CHWs because educational requirements vary across certification programs. In some cases, individuals who certify through work experience do not need to meet an education requirement, such as a high school diploma or GED equivalent, because they demonstrate proficiency in CHW core competencies through experience in lieu of training. In

---

[*****]There is a caveat to the *attract diverse CHWs* criterion because undocumented individuals can obtain unauthorized social security numbers. How undocumented individuals obtain these is unclear. In 2016, undocumented immigrants in the U.S. contributed $13 billion to Social Security[159] and $3 billion to Medicare.[160] In California, undocumented immigrants pay approximately $3 billion combined in state and local taxes.[161] For the purposes of this paper, we acknowledge this caveat but conservatively assume undocumented individuals may not gain employment due to a lack of government requirements, including a social security number.

[†††††]"Grandfathering" is a term commonly used to describe the certification by work experience model. We acknowledge grandfathering is a problematic term rooted in racist origins.[162,163] At the time of collecting data, stakeholders used grandfathering when talking about the certification by work experience model. Stakeholder quotes that mention grandfathering will stay in their original form. Our analysis will not use the grandfathering term.

other certification programs, individuals must provide a high school diploma regardless of certifying by training or work experience. The work experience model may also produce CHWs with a history of law abidingness since most certification programs require criminal background checks to earn CHW certification. As previously discussed in the training model, most certification programs screen individuals with criminal records to distinguish between more and less severe offenses, allowing those with prior felonies to further explain the circumstances of their prior offenses that appear on the criminal background check. Texas is the only certification program we assessed that does not require criminal background checks for CHW certification.

The work experience model is accessible because individuals do not need to access training or go anywhere to gain certification and scored high for the *accessible* criterion. Because of this, the benefit of the work experience model is that it has few barriers to entry. Individuals would not need to factor the time of training (usually weeks or months), or travel to and from training. This is key when individuals have competing priorities, such as employment or familial needs (e.g., childcare).

The work experience model may put CHWs at a disadvantage because CHWs may have little or no documentation to demonstrate required skills and knowledge. CHWs may experience difficulty demonstrating they have the required CHW core competencies if they do not have adequate documentation of job tasks. Since organizations may interpret CHW core competency definitions differently, we cannot accurately guarantee that work experience prepares individuals adequately in competencies necessary for CHW certification. The work experience model is also burdensome to implement. This is an implementation choice from the certification programs we assessed. A work experience model may choose to implement systems to reduce the burden of state health department staff to verify that CHWs have the required skills and knowledge for certification.

An important factor to consider, not included in the evaluative criteria, is that the work experience model acknowledges existing CHW experience and community expertise. Of the CHWs that participated in stakeholder interviews, most of them certified through work experience. CHWs and stakeholders shared, “Not everyone can be a CHW” and believed qualities and attributes like community relationships, shared lived experience, intrinsic motivation, and commitment to serve their community were more important than educational completion or training. Some stakeholders mentioned that personal and character-related qualities were most important, and education and training could come later. Although the work experience model may have trouble competing with the training or education model to demonstrate evidence of CHW required competencies, the educational model may produce more educated but less experienced CHWs. The work experience model may bode better because CHWs may learn skills on the job or in the community that simply cannot be trained in an educational setting. The work experience model may produce experienced but not formally trained CHWs. To ensure an equipped CHW workforce, California stakeholders must define appropriate support after certification. For example, CHWs with education but little experience may need an experienced CHW mentor while CHWs with little formal training might benefit from taking an assessment test or completing continuing education units.

Although the work experience model poses the fewest barriers to entry and leverages CHW experience, it may not guarantee uniform CHW skills and knowledge. If measures could be taken to simplify the implementation, the work experience model may be an appropriate model for California.

Table 5. Benefits, drawbacks, and points to consider of certification models

Certification Models	Benefits	Drawbacks	Other points to consider
Educational completion	• Simple for state to implement • California has wide network of community colleges – but need to ensure that most participate in CHW certification	• Lose diversity because of high school diploma or GED requirement and tuition costs	• Upward mobility • Credit towards career programs • Payer recognition • Does not ensure one standardized curriculum
Training	• Accessible, because various types of training organization possible • Can give culturally tailored, language-specific training	• Variability in skills and knowledge delivered through training; difficult to assure high quality • Resources needed to implement training, complex to implement	
Work experience	• Few application barriers	• Little documentation to demonstrate competencies • May not ensure competency	• Leverages existing CHW experience • Does not impose additional burdens on current CHWs

Across all three certification models, participants shared four recurring themes California stakeholders should consider when developing CHW certification: 1) position CHWs to lead certification planning and decision making; 2) create opportunities for recognition and credibility and acknowledge potential hierarchies; 3) design certification to be voluntary; and 4) integrate CHWs into health care systems.

CHWs should lead certification decisions to uphold and require essential CHW qualities

CHWs should be involved in certification decision making to ensure that the certification is driven by their workforce needs. A Minnesota stakeholder shared, "The certificate program curriculum was developed largely by CHWs, which I think is why it has held up so well." CHWs shared that CHWs should be intrinsically motivated to serve their own community. CHWs and stakeholders fear that individuals who are motivated by the certification and are not service-oriented will likely leave the CHW profession for another profession, potentially resulting in high CHW turnover. A CHW shared, "Anybody could go to school and show up every day and earn their certificate, and now they're community health workers. But people who really can't handle hearing bad stories every single day, they're going to X themselves out of this." Stakeholders reflected that employers and other agencies should not rely on CHW certification to ensure individuals are equipped to serve their communities. Instead, stakeholders encouraged certifying agencies to identify or require critical CHW qualities, such as community membership. An Oregon stakeholder shared, "If people lean solely on the certification, that's where I would be cautious because, really, the lived experience is a huge part of what makes a good community health worker. They're tapping into things that they have had to do in their lives to be able to support their community members. I think the certification piece is just an added

benefit because it helps give language to that lived experience. And it helps connect the systemic pieces that we may not be able to speak to without having that training or certification." CHWs are equipped to design certification processes that both uphold unique CHW qualities and advance the workforce.

Certification may promote recognition and credibility among health care providers but may also cause hierarchies within CHWs

Stakeholders reflected that certification would promote CHW recognition among health care providers and other health professionals. CHWs and stakeholders observed that certification in their states has resulted in more CHW employment opportunities in health care settings. A New Mexico stakeholder shared, "CHWs are being recognized much more now as valuable and not only within clinical settings. It's across all different facets of the community. Behavioral health centers, schools now are hiring community health workers." Stakeholders also shared that certification assured employers and payers that CHWs had standardized and verifiable skills in knowledge areas necessary for CHW work. Specifically, payers shared that CHWs are "new to the space" and newer professions are not easily defined or integrated into existing health care models. Payers also shared that they are required to conduct their own quality control. Certification is attractive to payers because it helps to ensure CHWs are well trained and provide quality services.

Despite the benefit of recognition and credibility, certification could come at a cost for CHWs. Stakeholders fear certification could exacerbate a hierarchy between certified CHWs and non-certified CHWs, creating "a kind of a class system or a caste system within the field." Stakeholders agreed health care systems place more value on people with credentials than people who are from the community with only life experience. Most stakeholders shared that although they had not directly observed a CHW hierarchy in their respective states, they anticipate the emergence of a hierarchy within CHWs as an unintended consequence of certification. A stakeholder shared, "I suspect there could be developing a culture where certified CHWs hold themselves to be better than, but I don't have any basis for predicting that. It would be unfortunate if it did. The states that have not sustained a grandparenting path are probably contributing to the creation of that two-tiered system."

Certification should be voluntary

Most states elect to make the certification process voluntary to avoid excluding undocumented CHWs and volunteer *promotores de salud*. The reason behind this, as a stakeholder shared, "[Certification] is going to leave a lot of people who do this work at the voluntary base then they will end up being mandated. A lot of documentation can result for them to be off the table." Texas is an example of a state that requires CHW certification for employment, meaning all individuals who work and receive compensation as CHWs must be certified. Texas stakeholders reflected that employers find loopholes to evade the required certification requirement, such as labeling CHW positions under other titles. A Texas stakeholder shared, "They might advertise it as a patient navigator, or health specialist, or community liaison, so there are so many different ways people advertise the positions. If it's advertised as community health worker, they're supposed to require certification." A required certification could result in an increase of similar CHW job titles across employment sectors. Stakeholders also shared that the required certification is based on the honor system. Since the Texas certifying body does not have the capacity to enforce the requirement, CHWs may be working or

compensated without the required certification. The required certification model may not be useful if the certifying agency does not have the resources to enforce the requirement.

CHW champions must advocate to integrate CHWs into health care systems

Certification does not ensure CHWs will be integrated into health care systems. Stakeholders reflected that employers and payers must be "CHW champions" that advocate for the integration of CHWs within health care systems. A Minnesota stakeholder shared, "Organizations thought that just by having their certificate that the CHWs would come to the organization and basically be able to tell the organization what a CHW does or what a best practice is or that the CHW could write the best practice for themselves." CHW champions must further demonstrate the evidence for adopting the CHW model, how it will work within health care teams and communities, and what certification offers the CHW position and health care system.

Recommendation for Action

We assessed the three certification models and the criteria scoring results are nearly indistinguishable, indicating all three CHW certification models are attractive options to implement (Table 4b). The certification models received more or less equal scores in different ways, with some models scoring high in different areas. The educational completion model may not be the best option for California stakeholders as it presents many barriers to entry for the existing CHW workforce. The training and work experience models have demonstrated utility in other states and may result in gains in CHW diversity, accessibility of training, and producing educationally qualified CHWs. Unfortunately, these approaches (as they have been implemented in other states) present implementation burdens and may exclude CHWs who cannot pass criminal background checks. Accordingly, we recommend California embark on the following steps:

1) Develop a voluntary certification and offer both the training and work experience models.

A voluntary certification will allow California CHWs to choose between non-certification or certification. A voluntary certification will also be least likely to exclude grassroots or volunteer CHWs and *promotores de salud* who may not need certification for their work.[139] A required CHW certification may pose too many barriers to entry for the California CHW workforce and/or force employers to find loopholes to evade the certification requirement, such as labeling CHW positions under other titles.

ASTHO and national CHW subject matter experts support offering both the training and work experience models, referred to as "responsive" CHW certification.[102,147] This approach acknowledges new and existing CHWs. Existing CHWs can certify based on experiential hours, while new CHWs must certify by training since they would not have the experiential hours required for the work experience model.

We recommend offering the work experience model for a limited number of years (up to five) to permit CHWs with sufficient work experience to certify. The training model guarantees a higher standard of quality. To ensure equity in the beginning stages of certification, we believe existing CHWs should have the opportunity to leverage their experience.

2) Establish training and work experience requirements based on the lessons learned from other state certification programs.

California stakeholders should determine certification requirements using existing certification models in other states. For example, California stakeholders can review Texas's CHW certification model, since its size and diversity of communities are comparable to California. Currently, work experience and training requirements vary by state. Work experience requirements range from 1,000 – 3,000 hours of supervisor-verified CHW volunteer or work experience within the previous 2-5 years. Training requirements range from 80-160 training hours based on approved training curricula.

California stakeholders should offer certification training at various types of organizations, such as community colleges, community-based organizations, local health departments, or health centers, to ensure CHWs from diverse backgrounds can access the training. To offset costs at community colleges, California stakeholders should ensure the number of certification college credit hours are eligible for financial aid.[139]

California stakeholders should identify core CHW competencies to develop competency-based training curricula. These competencies should reflect actual CHW experience, and address essential skills needed across clinical and non-clinical settings.[102] California stakeholders can adopt existing core competencies from states that have implemented CHW certification or from the CHW Core Consensus Project.[109,139]

California stakeholders should require a high school diploma or GED equivalent (either U.S.-based or from the individual's native country) to ensure employers and payers a basic level of competence in reading, writing, problem solving, and critical thinking skills. The educational requirement is a static measure and will not likely change over time. Employers and payers would not have to verify an educational requirement, entrusting the state to verify individuals meet the minimum educational requirement for certification.

Developing workforce standards will inevitably be met with stakeholder support and opposition. California CHW stakeholders should examine lessons learned by states outside of California, such as New Mexico, where people were wary of certification and the educational requirement at first but are now eager to adopt them. Learning that New Mexico's certification program gained more support once implemented may ultimately alleviate initial fears raised by California stakeholders.

3) Approve for certification purposes only a limited number (ideally about five, and no more than ten) of training curricula across the state. Evaluate the approved curricula within five years.

We recommend California stakeholders start the certification process with a limited number of training curricula (no more than ten). Approving for certification only a few different curricula will provide consistency, uniformity in training, and reduce state resources needed to approve, monitor, and evaluate curricula. We believe five training curricula allows for diversity across curricula but will not exhaust state resources. With some variation across curricula, California stakeholders will have more opportunities to see which curricula work best for CHWs,

employers, payers, and communities. Standardizing the curriculum too early in the certification process may produce problems, such as the curriculum not being innovative, and/or not meeting the needs of all types of CHWs.

We recommend California stakeholders monitor and evaluate which curricula CHWs, employers, and payers prefer within five years of implementing certification. We learned most states do not evaluate their training curricula. Evaluation will provide insight to whether the certification is doing what it set out to do. We recommend California stakeholders adopt up to five permanent CHW training curricula.

California has some existing CHW training curricula. The Community College of San Francisco (CCSF) CHW Certificate curriculum, the first community college CHW training curriculum, established in 1992, trains individuals, over 2-3 semesters, to work in community-oriented public health, health care, and social service fields.[50,165] CHW students participate in 20 units of core courses, a 128-hour internship placement, and a final performance-based exam.[165] Developed in partnership with CHW students, CCSF faculty, local employers, and public health leaders,[165] the CCSF curriculum could be adapted for training sites outside the community college system.

4) Defer criminal background checks to employers.

California stakeholders should defer criminal background checks to employers. First, a criminal background check may not be a helpful requirement since it is not a static measure. Criminal standing may change year to year and some criminal offenses are not relevant to CHW work. Second, a criminal background check may exclude individuals with a history of incarceration. This may be problematic for California stakeholders. California programs leverage CHWs with a history of incarceration to help increase access to health care services among high-risk, chronically ill people who have been formerly incarcerated.[28] Third, employers have their own employment requirements, which usually includes a current criminal background check. Therefore, certifying bodies should not duplicate resources by conducting their own criminal background checks.

5) Position CHWs as decision makers in the planning and implementation of certification processes.

CHWs should lead certification planning and implementation decision making and represent at least half of the workforce standard setting body.[32,139] CHWs have the ability to define the parameters of their own profession. CHWs possess deep knowledge of the organizational and systemic barriers and facilitators to implement CHW programs, and their firsthand expertise about the communities they serve (Section III). CHWs can also design workforce processes to be inclusive of different types of CHWs because they are best able to identify certification requirements that preserve CHW qualities and identity, especially as certification may attract individuals not appropriate for CHW work (Section III).

Conclusion

The educational completion, training, and work experience models are all attractive options for CHW certification. We leveraged lessons learned from Minnesota, New Mexico,

Oregon, and Texas to provide recommendations about which models California stakeholders should implement to develop CHW certification. California stakeholders must build consensus around the goals of certification for California, develop appropriate certification models, and monitor and evaluate certification outcomes to ensure certification is producing positive results. This paper is an important step to assessing appropriate certification models for California using criteria identified by subject matter experts and California stakeholders. Future research should recruit non-certified CHWs to share perspectives about the impact of certification on their work, assess certification models from other states, particularly those operated by private entities, and review quantitative data to adequately evaluate CHW certification models.

V. Conclusion

The goals of this research were to lay the foundation for integrating CHWs into health care systems and to develop appropriate CHW certification approaches in California. This dissertation identified how CHWs address health care system challenges differently than other health care providers, explored feelings of opportunity and exclusion related to CHW certification, and recommended strategic options for CHW certification in California, all of which are critical to integrating the California CHW workforce into health care systems.

The findings from the first paper suggest CHWs are assets to the health care system. CHWs address health care system challenges differently than traditional health care providers resulting from their community membership, motivation to serve their communities, and flexibility to bridge the community and health care system. CHWs' flexibility in their work, such as serving families not individuals, working in the home, and working without time constraints, allows them to be effective in their communities. CHWs also address health care system challenges differently than health care providers. They address social determinants of health, enhance patient care, and improve access to health care and social services. CHWs supply invaluable support to health care providers, affording them more time to dedicate to direct patient care and operate at the top of their license. Our findings reinforce the Commission's recommendation to scale the engagement of CHWs in health care systems to support better health outcomes in communities. Future research could leverage these findings to not only design effective CHW recruitment but also determine how health care systems can build effective CHW programs.

The findings from the second paper demonstrate that California stakeholders have conflicting feelings concerning CHW certification. While certification poses considerable financial and career opportunities for CHWs, it also provokes fears that key groups best equipped to work in particular communities would be excluded and that the CHW model will shift from its traditional focus on grassroots advocacy to fit clinical priorities. We also discovered additional concerns that certification creates unintentional hierarchies between CHW types, such as clinical and non-clinical CHW roles. Certification does not address all challenges of scaling CHWs within health care systems, especially as participants underscored that existing racism, xenophobia, and discrimination within the health care system have obstructed the scaling of CHWs. Our findings suggest that a certification process that is structured with multiple pathways is more likely to mitigate stakeholder opposition since that type of program may overcome potential barriers of traditional certification processes and prevent some of the feared outcomes raised in stakeholder interviews. An example of a certification process based on multiple pathways is "responsive" CHW certification: it has few to no barriers to entry and includes multiple paths to entry, a user-friendly application process, education and training available in accessible settings and taught using appropriate methods, and respect for volunteer CHWs.[102,147] Most importantly, our findings encourage CHWs to lead future steps because they are best equipped to lead workforce discussions and design a certification that does not exacerbate hierarchies, power dynamics, or drive CHW roles further from the historical CHW model.

The third paper makes strategic recommendations for California stakeholders to develop CHW certification. The current practice of implementing state CHW certification is informative. We assessed educational completion, training, and work experience certification models from Minnesota, New Mexico, Oregon, and Texas using criteria identified by subject matter experts

and California stakeholders. We found the educational completion, training, and work experience models are all attractive models for CHW certification, with each model scoring higher in areas different from the others. We recommend developing a voluntary certification that offers both the training and work experience models. In order to reduce variability in training, we recommend California stakeholders offer a limited number of training curricula and continuously monitor and evaluate these curricula. We also recommend positioning CHWs as decision makers in developing the certification process and deferring criminal background checks to employers. Ultimately, California stakeholders will be tasked with building consensus on the goal of certification, expected outcomes, and monitoring and evaluating certification outcomes to ensure the certification is producing positive results.

All three papers are timely, given the California Future Health Workforce Commission recommendation to scale the engagement of CHWs within health care systems. There is immense opportunity for California stakeholders to achieve this goal. An understanding of how CHWs address health care system challenges differently than other health care providers, conflicting perceptions of CHW certification, and appropriate certification models forms the foundation for California stakeholders to adequately integrate CHWs into the health care system and design appropriate CHW certification processes. It also provides the foundation for CHW stakeholders in similar settings to develop best practices for CHW certification in their respective states.

References

1. Kim K, Choi JS, Choi E, et al. Effects of community-based health worker interventions to improve chronic disease management and care among vulnerable populations: a systematic review. *American Journal of Public Health*. 2016;106(4):e3–e28.

2. American Public Health Association. Support for Community Health Workers to Increase Health Access and to Reduce Health Inequities. Published 2009. Accessed October 16, 2016. https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/09/14/19/support-for-community-health-workers-to-increase-health-access-and-to-reduce-health-inequities

3. Viswanathan M, Kraschewski J, Nishikawa B, et al. *Outcomes of Community Health Worker Interventions*. Agency for HealthCare Research and Quality (US); 2009. https://www.ncbi.nlm.nih.gov/books/NBK44601/

4. Balcazar H, Lee Rosenthal E, Nell Brownstein J, Rush CH, Matos S, Hernandez L. Community health workers can be a public health force for change in the United States: three actions for a new paradigm. *American Journal of Public Health*. 2011;101(12):2199–2203.

5. Rosenthal EL, Wiggins N, Brownstein JN, Rael R, Johnson S. *A Summary of the National Community Health Advisor Study: Weaving the Future*. University of Arizona; 1998. Accessed October 17, 2017. http://crh.arizona.edu/sites/default/files/pdf/publications/CAHsummaryALL.pdf

6. Love MB, Gardner K, Legion V. Community Health Workers: Who They Are and What They Do. *Health Education & Behavior*. 1997;24(4):510-522.

7. U.S Department of Health and Human Services, Health Resources and Services Administration B of HP. *Community Health Worker National Workforce Study*.; 2007. https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/communityhealthworkforce.pdf

8. Keane D, Nielsen C, Dower C. *Community Health Workers and Promotores in California*. UCSF Center for the Health Professions; 2004. http://calhealthworkforce.org/wp-content/uploads/2011/01/2004-09_Community_Health_Workers_and_Promotores_in_California.pdf

9. Davis A. *Leveraging Community Health Workers within California's State Innovation Model: Background, Options and Considerations*. California Health and Human Services Agency; 2013.

10. U.S. Bureau of Labor Statistics. Community Health Workers. Occupational Employment Statistics, Occupational Employment and Wages, May 2018, 21-1094 Community Health Workers. Published March 29, 2019. Accessed March 18, 2020. https://www.bls.gov/oes/2018/may/oes211094.htm

11. Chapman S, Onyi Okwandu, Jennifer Schindel, Jacqueline Miller. *Utilization of Community Health Workers in Emerging Care Coordination Models in California*. Healthforce Center at UCSF; 2016. Accessed October 15, 2017. https://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/BSCF%20CHW%20Policy%20Brief%20Final%201.4.17%5B1%5D.pdf

12. Malcarney M-B, Pittman P, Quigley L, Horton K, Seiler N. The Changing Roles of Community Health Workers. *Health Services Research*. 2017;52:360-382. doi:10.1111/1475-6773.12657

13. Giblin P. Effective Utilization and Evaluation of Indigenous Health Care Workers. *Public Health Reports*. 1989;104(4):361-368.

14. Latino Health Access, Vision y Compromiso, Esperanza Community Housing Corporation. *The Promotor Model: A Model for Building Healthy Communities*. The California Endowment; 2011. http://www.visionycompromiso.org/wordpress/wp-content/uploads/TCE_Promotores-Framing-Paper.pdf

15. Eng E, Young R. Lay health advisors as community change agents. *Family & Community Health*. 1992;15(1):24-40.

16. Farquhar S, Wiggins N, Michael YL, Luhr G, Jordon J. "Sitting in Different Chairs:" Roles of the Community Health Workers in the Poder es Salud/Power for Health Project. :10.

17. Witmer A, Seifer SD, Finocchio L, Leslie J, O'neil EH. Community health workers: integral members of the health care work force. *American Journal of Public Health*. 1995;85(8_Pt_1):1055–1058.

18. Lemus M, Vision y Compromiso. Promotores: Our Community Resources. Presented at the: National Conference of State Legislatures: Hunger Partnership; 2013. http://www.ncsl.org/documents/immig/promotora.pdf

19. Wallace C, Farmer J, McCosker A. Community boundary spanners as an addition to the health workforce to reach marginalised people: a scoping review of the literature. *Hum Resour Health*. 2018;16(1):46. doi:10.1186/s12960-018-0310-z

20. Maes K. Community health workers and social change: An introduction. *Annals of Anthropological Practice*. 2015;39(1):1-15. doi:10.1111/napa.12060

21. Anthony S, Gowler R, Hirsch G, Wilkinson G. *Community Health Workers in Massachusetts: Improving Health Care and Public Health*. Department of Public Health; 2009:121. http://www.mass.gov/eohhs/docs/dph/com-health/com-health-workers/legislature-report.pdf

22. Spencer MS, Gunter KE, Palmisano G. Community health workers and their value to social work. *Social Work*. 2010;55(2):169–180.

23. Bodenheimer T. Unlicensed Health Care Personnel and Patient Outcomes. *Journal of General Internal Medicine*. 2015;30(7):873-875. doi:10.1007/s11606-015-3274-x

24. Capitman J, Bhalotra SM. *Evidence Report and Evidence Based Recommendations: Cancer Prevention and Treatment Demonstration for Ethnic and Racial Minorities. Prepared for: U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services*. Brandeis University, Schneider Institute for Health Policy; 2003. https://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/downloads/cptd_brandeis_report.pdf

25. Krieger JW, Takaro TK, Song L, Weaver M. The Seattle-King County Healthy Homes Project: a randomized, controlled trial of a community health worker intervention to decrease exposure to indoor asthma triggers. *American Journal of Public Health*. 2005;95(4):652–659.

26. Johnson D, Saavedra P, Sun E, et al. Community Health Workers and Medicaid Managed Care in New Mexico. *Journal of Community Health*. 2012;37(3):563-571. doi:10.1007/s10900-011-9484-1

27. Felix HC, Mays GP, Stewart MK, Cottoms N, Olson M. Medicaid Savings Resulted When Community Health Workers Matched Those With Needs To Home And Community Care. *Health Affairs*. 2011;30(7):1366-1374. doi:10.1377/hlthaff.2011.0150

28. Chapman S, Jennifer Schindel, Jacqueline Miller. *Supporting the Integration of Community Health Workers into Health Care Teams*. Healthforce Center at UCSF; 2017. Accessed October 15, 2017. https://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/Supporting%20the%20Integration%20of%20Community%20Health%20Workers%20into%20Health%20Care%20Teams_2017_06_26.pdf

29. Community Health Worker Alliance. *Taking Innovation to Scale: Community Health Workers, Promotores, and the Triple Aim. A Statewide Assessment of the Roles and Contributions of California's Community Health Workers. Preliminary Findings, Observations, and Recommendations*.; 2013.

30. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Affairs*. 2008;27(3):759–769.

31. Brownstein JN, Allen CG. *Addressing Chronic Disease through Community Health Workers: A Policy and Systems Level Approach.* Centers for Disease Control and Prevention; 2015.

32. American Public Health Association. Support for Community Health Worker Leadership in Determining Workforce Standards for Training and Credentialing. Published November 18, 2014. Accessed February 8, 2017. https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2015/01/28/14/15/support-for-community-health-worker-leadership

33. Singh P, Chokshi D. Community Health Workers - A Local Solution to a Global Problem. *The New England Journal of Medicine*. 2013;369(10):894-896.

34. Bovbjerg RR, Eyster L, Ormond BA, Anderson T, Richardson E. The Evolution, Expansion, and Effectiveness of Community Health Workers. *Washington, DC: The Urban Institute*. Published online 2013. Accessed March 22, 2017. http://www.urban.org/sites/default/files/alfresco/publication-pdfs/413072-The-Evolution-Expansion-and-Effectiveness-of-Community-Health-Workers.PDF

35. Kahssay HM, Taylor M, Berman P. *Community Health Workers: The Way Forward*. World Health Organization; 1998.

36. Lehmann U, Sanders D. *Community Health Workers: What Do We Know about Them? The State of the Evidence on Programmes, Activities, Costs, and Impact on Health Outcomes of Using Community Health Workers*. World Health Organization; 2007. http://www.who.int/hrh/documents/community_health_workers_brief.pdf

37. Reiff R, Riessman F. *The Indigenous Nonprofessional, a Strategy of Change in Community Action and Community Mental Health Programs*. Behavioral Publications, Inc.; 1964.

38. Wilkinson D. Indigenous community health workers in the 1960s and beyond. In: *In RL, Braithwaite, SE Taylor, (Eds) Health Issues in the Black Community*. Jossey-Bass; 1992:255-266.

39. *Community Health Representative: Program History and Development [Internet]*. Indian Health Service https://www.ihs.gov/chr/aboutus/history/

40. American Public Health Association. Community Health Worker Section. CHW Section History. https://www.apha.org/apha-communities/member-sections/community-health-workers/who-we-are

41. Julnes G, Konefal M, Pindur W, Kim P. Community-based perinatal care for disadvantaged adolescents: Evaluation of the resource mothers program. *Journal of Community Health*. 1994;19(1):41-53.

42. May M, Kash Bi, Contreras R. *Community Health Worker (CHW) Certification and Training: A National Survey of Regionally and State-Based Programs*. School of Rural Public Health: Texas A&M University System Health Science Center; 2005. Accessed October 17, 2017. http://chwcentral.org/sites/default/files/CHW%20Certification%20and%20Training.pdf

43. Service C, Sabler E. *Community Health Education: The Lay Health Advisor Approach*. Duke University Health Care Systems; 1979.

44. Arizona Disease Prevention Center and Southwest Border Rural Health Research Center. Peer Health Education Community Based Programs: Mobilizing Resources for Practice, Policy, and Research: Conference Summary. In: ; 1993.

45. Ritchie D. *Community Health Workers: Building a Diverse Workforce To Decrease Health Disparities*. Transcultural Community Health Initiative (TCHI), Center for the Study of Race and Ethnicity in America at Brown University; 2004. http://chi-ri.org/wp-content/uploads/2010/11/TCHI-Roundtable-Monograph.pdf

46. National Advisory Committee on Rural Health and Human Services: Compendium of Recommendations by the National Advisory Committee on Rural Health. *Recommendation 93-11: Train Local Health Care Workers [Internet]*. U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Rural Health Policy; 1993. https://www.hrsa.gov/advisory-committees/rural-health/reports-recommendations/recommendations-by-year.html#1993

47. *Home Visiting: A Promising Early Intervention Strategy for At-Risk Families*. United States General Accounting Office; 1990. https://www.gao.gov/assets/150/149277.pdf

48. Sabo S, Allen CG, Sutkowi K, Wennerstrom A. Community Health Workers in the United States: Challenges in Identifying, Surveying, and Supporting the Workforce. *American Journal of Public Health*. 2017;(0):e1–e6.

49. *CHEC - Community Health Education Center [Internet]*. Boston Public Health Commission http://www.bphc.org/whatwedo/outreach-education-training/chec-community-health-education-center/Pages/CHEC-Community-Health-Education-Center.aspx

50. Love MB, Legion V, Shim JK, Tsai C, Quijano V, Davis C. CHWs Get Credit: A 10-Year History of the First College-Credit Certificate for Community Health Workers in the United States. *Health Promotion Practice*. 2004;5(4):418-428. doi:10.1177/1524839903260142

51. *New Mexico Community Health Worker Association - About Us [Internet]*. http://www.nmchwa.org

52. *Community Health Workers - Rules and Legislation*. Texas Health and Human Services, Texas Department of State Health Services; 1999. http://www.dshs.texas.gov/mch/chw/progrule.aspx

53. *125th General Assembly: Main Operating HB 95*. Ohio Legislative Service Commission; 2005. https://www.lsc.ohio.gov/pages/budget/prior/dynamicpriorbudget.aspx?GA=125&Budget=MainOperating&Version=contentFI

54. New Mexico Department of Health. *Senate Joint Memorial 076 Report on the Development of a Community Health Advocacy Program in New Mexico*. Department of Health; 2003. https://nmhealth.org/publication/view/memorial/546/

55. Virginia Center for Health Outreach. *Final Report on the Status, Impact, and Utilization of Community Health Workers*. James Madison University, Institute for Innovation in Health Human Services; 2006.

https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/communityhealthworkforce.pdf

56. Massachusetts Department of Public Health. *Community Health Workers: Essential to Improving Health in Massachusetts. Findings from the Massachusetts Community Health Worker Survey*. Division of Primary Care and Health Access, Bureau of Family and Community Health, Center for Community Health, Massachusetts Department of Public Health; 2005. http://www.mass.gov/eohhs/docs/dph/com-health/com-health-workers/comm-health-workers-narrative.pdf

57. *H.R.1812 - Patient Navigator Outreach and Chronic Disease Prevention Act*. 109th Congress; 2005. https://www.congress.gov/bill/109th-congress/house-bill/1812

58. Kash BA, May ML, Tai-Seale M. Community health worker training and certification programs in the United States: Findings from a national survey. *Health Policy*. 2007;80(1):32-42. doi:10.1016/j.healthpol.2006.02.010

59. US Department of Health and Human Services. *HHS Action Plan to Reduce Racial and Ethnic Disparities: A Nation Free of Disparities in Health and Health Care*. Office of the Assistant Secretary for Planning and Evaluation; 2015. https://minorityhealth.hhs.gov/assets/pdf/hhs/HHS_Plan_complete.pdf

60. Office of Management and Budget, Executive Office of the President. 2010 Standard Occupational Classification - OMB's Final Decisions; Notice. *Federal Register*. 2009;74(12). https://www.bls.gov/soc/soc2010final.pdf

61. Rosenthal EL, Brownstein JN, Rush CH, et al. Community Health Workers: Part of The Solution. *Health Affairs*. 2010;29(7):1338-1342. doi:10.1377/hlthaff.2010.0081

62. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. Addressing Chronic Disease through Community Health Workers: A Policy and Systems-Level Approach. Published online April 2015. https://www.cdc.gov/dhdsp/docs/chw_brief.pdf

63. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. State Law Fact Sheet: A Summary of State Community Health Worker Law. Published online July 2013. Accessed October 15, 2017. https://www.cdc.gov/dhdsp/pubs/docs/chw_state_laws.pdf

64. Centers for Disease Control and Prevention. *Policy Evidence Assessment Report: Community Health Worker Policy Components*. U.S. Department of Health and Human Services; 2014. https://www.cdc.gov/dhdsp/pubs/docs/chw_evidence_assessment_report.pdf

65. Centers for Disease Control and Prevention. *Promoting Policy and Systems Change to Expand Employment of Community Health Workers: An E-Learning Training*.; 2016. https://www.cdc.gov/dhdsp/pubs/chw_elearning.htm

66. Centers for Disease Control and Prevention. *State Law Fact Sheet: A Summary of State Community Health Worker Laws*. U.S. Department of Health and Human Services; 2016. https://www.cdc.gov/dhdsp/pubs/docs/SLFS-Summary-State-CHW-Laws.pdf

67. Centers for Disease Control and Prevention. *Policy Options for Facilitating the Use of Community Health Workers in Health Delivery Systems*.; 2017. https://www.cdc.gov/dhdsp/pubs/docs/CHW_Policy_Brief_508.pdf

68. Centers for Disease Control and Prevention. Division for Heart Disease and Stroke Prevention. *What Evidence Supports State Laws to Establish Community Health Worker Scope of Practice and Certification?* Centers for Disease Control and Prevention; 2017.

69. National Center for Health Statistics, Division for Heart Disease and Stroke Prevention. *States Implementing Community Health Worker Strategies*. Centers for Disease Control and Prevention; 2014:36.

70. Association of State and Territorial Health Officials. *Community Health Workers*. Association of State and Territorial Health Officials; 2020. Accessed June 22, 2020. https://www.astho.org/Community-Health-Workers/

71. *State Community Health Worker Models*. National Academy for State Health Policy; 2017. https://nashp.org/state-community-health-worker-models/

72. National Association of Community Health Workers - About. Accessed August 8, 2020. https://nachw.org

73. Kellermann AL, Saultz JW, Mehrotra A, Jones SS, Dalal S. Primary Care Technicians: A Solution To The Primary Care Workforce Gap. *Health Affairs*. 2013;32(11):1893-1898. doi:10.1377/hlthaff.2013.0481

74. Hofer AN, Abraham JM, Moscovice I. Expansion of Coverage under the Patient Protection and Affordable Care Act and Primary Care Utilization: Expanded Coverage under PPACA and Primary Care Use. *Milbank Quarterly*. 2011;89(1):69-89. doi:10.1111/j.1468-0009.2011.00620.x

75. Yarnall KSH, Pollak KI, Østbye T, Krause KM, Michener JL. Primary Care: Is There Enough Time for Prevention? *American Journal of Public Health*. 2003;93(4):635-641. doi:10.2105/AJPH.93.4.635

76. Bovbjerg RB, Eyster L, Ormond BA, Anderson T, Richardson E. Opportunities for community health workers in the era of health reform. *The Urban Institute*. Published online 2013. Accessed September 17, 2017. http://www.urban.org/sites/default/files/publication/32551/413071-Opportunities-for-Community-Health-Workers-in-the-Era-of-Health-Reform.PDF

77. Ormond BA, Bovbjerg RR. *Assuring Access to Care under Health Reform: The Key Role of Workforce Policy*. The Urban Institute; 2011:15. https://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf71704

78. Future Health Workforce Commission. *Meeting the Demand for Health: Final Report of the California Future Health Workforce Commission*. Public Health Institute; 2019:185. https://futurehealthworkforce.org/wp-content/uploads/2019/03/MeetingDemandForHealthFinalReportCFHWC.pdf

79. Ingram M, Reinschmidt KM, Schachter KA, et al. Establishing a Professional Profile of Community Health Workers: Results from a National Study of Roles, Activities and Training. *Journal of Community Health*. 2012;37(2):529-537. doi:10.1007/s10900-011-9475-2

80. Institute of Medicine. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. National Academies Press; 2003. doi:10.17226/12875

81. Health Resources & Service Administration Health Workforce, National Center for Health Workforce Analysis. *Allied Health Workforce Projections, 2016-2030: Community Health Workers*. Health Resources & Service Administration Health Workforce Accessed March 20, 2020. https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/community-health-workers-2016-2030.pdf

82. Rosenthal EL, Rush CH, Allen CG. *Understanding Scope and Competencies: A Contemporary Look at the United States Community Health Worker Field*. University of Texas, Houston School of Public Health, Institute for Health Policy; 2016. https://sph.uth.edu/dotAsset/28044e61-fb10-41a2-bf3b-07efa4fe56ae.pdf

83. Lysaght RM, Altschuld JW. Beyond initial certification: the assessment and maintenance of competency in professions. *Evaluation and Program Planning*. 2000;23:95-104.

84. Kleiner MM. Introduction and Overview. In: *Licensing Occupations: Ensuring Quality or Restricting Competition?*. First edition. W.E. Upjohn Institute; 2006.

85. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Background on Statewide Community Health Worker (CHW) Certification. In: *Community Health Worker Certification Study*. National Center for Chronic Disease Prevention and Health Promotion , Division for Heart Disease and Stroke Prevention; 2019. https://www.cdc.gov/dhdsp/pubs/toolkits/chw-ta-background.htm

86. Kleiner MM, Krueger AB. The Prevalence and Effects of Occupational Licensing: Occupational Licensing. *British Journal of Industrial Relations*. 2010;48(4):676-687. doi:10.1111/j.1467-8543.2010.00807.x

87. Kramer K, Rush C, Hirsch G, Mitchell K, Matos S. Certification and Licensure [Presentation]. Presented at the: Association of State and Territorial Health Officials Community Health Worker Call Series; 2016. http://www.astho.org/Community-Health-Workers/Call-Series/Certification-and-Licensure-Slides/

88. Miller P, Bates T, Katzen A. *Community Health Worker Credentialing*. Harvard Law School; 2014. Accessed September 17, 2017. https://www.chlpi.org/wp-content/uploads/2014/06/CHW-Credentialing-Paper.pdf

89. Association of State and Territorial Health Officials. Ever-Changing Picture: State Approaches to CHW Certification. Published online February 2020. https://www.astho.org/Programs/Clinical-to-Community-Connections/Documents/Map-of-State-Approaches-to-CHW-Certification/

90. Nichols DC, Berrios C, Samar H. Texas' Community Health Workforce: From State Health Promotion Policy to Community-level Practice. *Preventing Chronic Disease*. 2005;2(Spec No). Accessed September 17, 2017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1459466/

91. Toone K, Burton N. *Regulatory Frameworks for Community Health Worker Programs*. Leavitt Partners; 2016:14. http://leavittpartners.com/wp-content/uploads/2016/09/Regulatory-Frameworks-for-Community-Health-Workers-Programs.pdf

92. Carter SD. The growth of supply and demand of occupational-based training and certification in the United States, 1990-2003. *Human Resource Development Quarterly*. 2005;16(1):33-54. doi:10.1002/hrdq.1123

93. Eck A. Job-related education and training: Their impact on earnings. *Monthly Labor Review*. 1993;116(10):21-40.

94. Dower C, Knox M, Lindler V, O'Neil E. *Advancing Community Health Worker Practice and Utilization: The Focus on Financing*. National Fund for Medical Education; 2006. https://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/6.%202006-12_Advancing_Community_Health_Worker_Practice_and_Utilization_The_Focus_on_Financing.pdf

95. Weil A. What is the Future For Community Health Workers? Health Affairs Blog. Published November 2014. https://www.healthaffairs.org/do/10.1377/hblog20141125.042940/full/

96. Sprague L. Community health workers: a front line for primary care? *Issue Brief*. 2012;846:137–44.

97. Rush CH. Basics of Community Health Worker Credentialing. Published online 2012. http://www.michwa.org/wp-content/uploads/Basics-of-Community-Health-Worker-Credentialing-rev-07-23-12.pdf

98. Broderick A, Amaya K, Barnett K. *Community Health Workers in California: Sharpening Our Focus on Strategies to Expand Engagement*. Community Health Workforce Alliance; 2015. Accessed October 15, 2017. http://www.phi.org/uploads/application/files/2rapr38zarzdgvycgqnizf7o8ftv03ie3mdnioede1ou6s1cv3.pdf

99. Alonzo-Diaz L, Barnett K. *Advancing Community Health Workers to Improve Health Outcomes and Reduce Costs: Recommendations for the California State Health Care Innovation Plan*. The California State Healthcare Innovation Plan Workforce Work Group; 2015.

100. Arvey SR, Fernandez ME. Identifying the Core Elements of Effective Community Health Worker Programs: A Research Agenda. *American Journal of Public Health*. 2012;102(9):1633-1637. doi:10.2105/AJPH.2012.300649

101. Sabo S, Wennerstrom A, Phillips D, et al. Community Health Worker Professional Advocacy: Voices of Action from the 2014 National Community Health Worker Advocacy Survey. *Journal of Ambulatory Care Management*. 2015;38(3):225-235. doi:10.1097/JAC.0000000000000089

102. *Community Health Worker Certification and Financing*. Association of State and Territorial Health Officials; 2016. http://www.astho.org/Community-Health-Workers/CHW-Certification-Financing/

103. Broderick A, Harrier S, Barnett K. *Taking Innovation to Scale: Community Health Workers, Promotores and the Triple Aim/ A Statewide Assessment of the Roles and Contributions of California's Community Health Workers*. California Health Workforce Alliance; 2013. Accessed October 15, 2017. http://www.chhs.ca.gov/InnovationPlan/_Taking%20Innovation%20to%20Scale%20-%20CHWs,%20Promotores%20and%20the%20Triple%20Aim%20-%20CHWA%20Report%2012-22-13%20(1).pdf

104. Malcarney M-B, Pittman P, Quigley L, Horton K, Seiler N. *Community Health Workers: Health System Integration, Financing Opportunities, and the Evolving Role of the Community Health Worker in a Post-Health Reform Landscape*. George Washington University; 2015.

105. Islam N, Nadkarni SK, Zahn D, Skillman M, Kwon SC, Trinh-Shevrin C. Integrating Community Health Workers Within Patient Protection and Affordable Care Act Implementation: *Journal of Public Health Management and Practice*. 2015;21(1):42-50. doi:10.1097/PHH.0000000000000084

106. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101. doi:10.1191/1478088706qp063oa

107. Green J, Willis K, Hughes E, et al. Generating best evidence from qualitative research: the role of data analysis. *Australian and New Zealand Journal of Public Health*. 2007;31(6):545-550. doi:10.1111/j.1753-6405.2007.00141.x

108. Phalen J, Paradis R. How Community Health Workers Can Reinvent Health Care Delivery in the US. *Health Affairs Blog*. Published online January 2015. doi:10.1377/hblog20150116.043851

109. Rosenthal EL, Menking P, St. John J. *The Community Health Worker Core Consensus Project (C3) Project: A Report of the C3 Project Phase 1 and 2, Together Leaning Toward the Sky*. Texas Tech University Health Sciences Center El Paso; 2018. Accessed November 2, 2019. https://0d6c00fe-eae1-492b-8e7d-80acecb5a3c8.filesusr.com/ugd/7ec423_2b0893bcc93a422396c744be8c1d54d1.pdf

110. Matos S, Findley S, Hicks A, Legendre Y, Do Canto L. *Paving a Path to Advance the Community Health Worker Workforce in New York State: A New Summary Report and Recommendations*. Community Health Worker Network of New York City; 2011:28. https://nyshealthfoundation.org/wp-content/uploads/2017/12/paving-path-advance-community-health-worker-october-2011.pdf

111. Pinto RM, da Silva SB, Soriano R. Community Health Workers in Brazil's Unified Health System: A framework of their praxis and contributions to patient health behaviors. *Social Science & Medicine*. 2012;74(6):940-947. doi:10.1016/j.socscimed.2011.12.025

112. Greenspan JA, McMahon SA, Chebet JJ, Mpunga M, Urassa DP, Winch PJ. Sources of community health worker motivation: A qualitative study in Morogoro Region, Tanzania. *Human Resources for Health*. 2013;11:52. doi:10.1186/1478-4491-11-52

113. Karabi Bhattacharyya, Peter Winch, Karen LeBan, Marie Tien. *Community Health Worker Incentives and Disincentives: How They Affect Motivation, Retention, and Sustainability*. Published by the Basic Support for Institutionalizing Child Survival Project (BASICS II) for the United States Agency for International Development; 2001. Accessed November 3, 2019. https://www.ghdonline.org/uploads/Community_Health_Workers_-_how_they_affect_motivation_retention_and_sustainability.pdf

114. Kironde S, Bajunirwe F. Lay workers in directly observed treatment (DOT) programmes for tuberculosis in high burden settings: Should they be paid? A review of behavioural perspectives. *African Health Sciences*. 2002;2(2):73-78.

115. Robinson SA, Larsen DE. The relative influence of the community and the health system on work performance: A case study of community health workers in Colombia. *Social Science & Medicine*. 1990;30(10):1041-1048. doi:10.1016/0277-9536(90)90290-9

116. Kaphle S, Matheke-Fischer M, Lesh N. Effect of Performance Feedback on Community Health Workers' Motivation and Performance in Madhya Pradesh, India: A Randomized Controlled Trial. *JMIR Public Health and Surveillance*. 2016;2(2). doi:10.2196/publichealth.3381

117. Mpembeni RNM, Bhatnagar A, LeFevre A, et al. Motivation and satisfaction among community health workers in Morogoro Region, Tanzania: nuanced needs and varied ambitions. *Human Resources for Health*. 2015;13(1):44. doi:10.1186/s12960-015-0035-1

118. Gopalan SS, Mohanty S, Das A. Assessing community health workers' performance motivation: a mixed-methods approach on India's Accredited Social Health Activists (ASHA) programme. *BMJ Open*. 2012;2(5):e001557. doi:10.1136/bmjopen-2012-001557

119. Mlotshwa L, Harris B, Schneider H, Moshabela M. Exploring the perceptions and experiences of community health workers using role identity theory. *Global Health Action*. 2015;8(1):28045. doi:10.3402/gha.v8.28045

120. Lemus M, Cordero-Barzaga M. *A Survey of Promotores Training Programs in California: A Summary of Survey Findings 2012-2013*. Vision y Compromiso; 2014. http://visionycompromiso.org/wp_new/wp-content/uploads/2016/08/survey_report_2015revise.pdf

121. Lloyd J, Thomas-Henkel C. *Integrating Community Health Workers into Complex Care Teams: Key Considerations*. Center for Health Care Strategies, Inc.; 2017:7. https://www.chcs.org/media/CHW-Brief-5-10-17.pdf

122. Garfield C, Kangovi S. Integrating Community Health Workers Into Health Care Teams Without Coopting Them. *Health Affairs Blog*. Published online May 10, 2019. doi:10.1377/hblog20190507.746358

123. Cherrington A, Ayala GX, Elder JP, Arredondo EM, Fouad M, Scarinci I. Recognizing the diverse roles of community health workers in the elimination of health disparities: From paid staff to volunteers. *Ethnicity & Disease*. 2010;20(2):189.

124. Kok MC, Broerse JEW, Theobald S, Ormel H, Dieleman M, Taegtmeyer M. Performance of community health workers: situating their intermediary position within complex adaptive health systems. *Human Resources for Health*. 2017;15(1):59. doi:10.1186/s12960-017-0234-z

125. Gorman A. *Community Health Workers Reach Some Patients That Doctors Can't*. NPR; 2015. https://www.npr.org/sections/health-shots/2015/10/29/452653733/community-health-workers-can-reach-some-patients-that-doctors-cant

126. Sarah Klein, Martha Hostetter. *In Focus: Integrating Community Health Workers into Care Teams - The Commonwealth Fund*. The Commonwealth Fund; 2015. Accessed February 8, 2017. http://www.commonwealthfund.org/publications/newsletters/transforming-care/2015/december/in-focus

127. London K, Carey M, Russell K. *Community Health Worker Certification Requirements by State*. Connecticut Health Foundation; 2016. https://www.cthealth.org/wp-content/uploads/2016/02/CHW-Certificaiton-by-State-Final-Final.pdf

128. Minnesota Department of Health, Office of Rural Health and Primary Care. *Emerging Professions Guide for Professionalization: Tips for Stakeholders and Advocates of Emerging Professions to Professionalize and Integrate with the Health Care System*. Minnesota Department of Health; 2017:69. Accessed April 6, 2020. https://www.health.state.mn.us/facilities/ruralhealth/emerging/docs/2017emprofc.pdf

129. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Engaging the Community Health Worker (CHW) Workforce and Other Stakeholders. In: *Community Health Worker Certification Study*. National Center for

Chronic Disease Prevention and Health Promotion , Division for Heart Disease and Stroke Prevention; 2019. https://www.cdc.gov/dhdsp/pubs/toolkits/chw-ta-engaging.htm

130. Creswell JW, Plano Clark VL. *Designing and Conducting Mixed Methods Research*. 2nd edition. Sage Publications, Inc.; 2011.

131. Guest G. How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods*. 2006;18(1):59-82. doi:10.1177/1525822X05279903

132. Charmaz K. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. Sage Publications, Inc.; 2006.

133. U.S. Department of Health and Human Services. Community Health Representative. In: *Indian Health Service*. Accessed April 3, 2020. https://www.ihs.gov/chr/

134. Findley SE, Matos S, Hicks AL, Campbell A, Moore A, Diaz D. Building a consensus on community health workers' scope of practice: Lessons from New York. *American Journal of Public Health*. 2012;102(10):1981–1987.

135. Mason T, Rush C, Wilkinson G. Certification of Community Health Workers: Issues and Options for State Health Departments [Presentation]. Presented at the: 2016 ASTHO State Technical Assistance Presentation; October 2016; Association of State and Territorial Health Officials. http://www.astho.org/Community-Health-Workers/CHW-Certification-Presentation-Slides/

136. Siemon M, Shuster G, Boursaw B. The Impact of State Certification of Community Health Workers on Team Climate Among Registered Nurses in the United States. *Journal of Community Health*. 2015;40(2):215-221. doi:10.1007/s10900-014-9919-6

137. Goodwin K, Tobler L. *Community Health Workers: Expanding the Scope of the Health Care Delivery System*. National Conference of State Legislatures; 2008. http://www.ncsl.org/print/health/chwbrief.pdf

138. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Stakeholder Perceptions About Certification. In: *Community Health Worker Certification Study*. National Center for Chronic Disease Prevention and Health Promotion , Division for Heart Disease and Stroke Prevention; 2019. https://www.cdc.gov/dhdsp/pubs/toolkits/chw-ta-perceptions.htm

139. Ibe CA, Wilson LM, Brodine J, et al. *Impact of Community Health Worker Certification on Workforce and Service Delivery for Asthma and Other Selected Chronic Diseases*. Agency for Healthcare Research and Quality (AHRQ); 2020. doi:10.23970/AHRQEPCTB34

140. Eyster L, Bovbjerg RR. *Promising Approaches to Integrating Community Health Workers into Health Systems: Four Case Studies*. The Urban Institute; 2013. https://www.urban.org/research/publication/promising-approaches-integrating-community-health-workers-health-systems-four-case-studies

141. Richardson E, Ormond BO. The Texas Community Health Worker Certification System. In: *Promising Approaches to Integrating Community Health Workers into Health Systems: Four Case Studies*. The Urban Institute; 2013. https://www.urban.org/research/publication/promising-approaches-integrating-community-health-workers-health-systems-four-case-studies

142. Centers for Disease Control and Prevention, National Center for Health Statistics. *National Nursing Home Survey: 2004-2005 Nursing Assistant Tables - Estimates*. Centers for Disease Control and Prevention, National Center for Health Statistics; 2008. Accessed March 23, 2019. https://www.cdc.gov/nchs/nnhs/nursing_assistant_tables_estimates.htm#anchor_1551493791483

143. Squillace MR, Bercovitz A, Rosenoff E, Remsburg R. *An Exploratory Study of Certified Nursing Assistants' Intent to Leave*. U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy; 2008:29. https://collections.nlm.nih.gov/master/borndig/101617516/intent.pdf

144. Ryosho N. Experiences of Racism by Female Minority and Immigrant Nursing Assistants. *Journal of Women and Social Work*. 2011;26(1):59-71. doi:10.1177/0886109910392519

145. Jervis LL. Working in and around the "chain of command": Power relations among nursing staff in an urban nursing home. *Nursing Inquiry*. 2002;9(1):12-23. doi:10.1046/j.1440-1800.2002.00125.x

146. Dodson L, Zincavage RM. "It's Like a Family": Caring Labor, Exploitation, and Race in Nursing Homes. *Gender & Society*. 2007;21(6):905-928. doi:10.1177/0891243207309899

147. Kramer K, Rush C, Hirsch G, Mitchell K, Matos S. *Certification and Licensure*. Association of State and Territorial Health Officials and Health Resources & Service Administration; 2016.

148. Caricia E. C. Catalani, Sally E. Findley, Sergio Matos, Romelia Rodriguez. Community Health Worker Insights on Their Training and Certification. *Progress in Community Health Partnerships: Research, Education, and Action*. 2009;3(3):227-235. doi:10.1353/cpr.0.0082

149. Texas Department of State Health Services. *Community Health Worker Evaluation Survey 2015*.; 2016. Accessed April 4, 2020. https://www.in.gov/dwd/files/Texas%20CHW%20Survey%20Results%202015.pdf

150. U.S. Bureau of Labor Statistics. *Healthcare Occupations*.; 2020. Accessed May 22, 2020. https://www.bls.gov/ooh/healthcare/home.htm

151. Bureau of Labor Statistics. *Occupational Outlook Handbook, Health Educators and Community Health Workers*. U.S. Department of Labor; 2020. Accessed May 22, 2020. https://www.bls.gov/ooh/community-and-social-service/health-educators.htm#tab-6

152. Association of State and Territorial Health Officials. *CHW Certification: Overview and the Paths Taken in Different States*.; 2019. https://www.astho.org/Programs/Clinical-to-Community-Connections/Documents/CHW-Certification-Overview-and-Paths-Taken-in-Different-States/

153. Pierson E, Simoiu C, Overgoor J, et al. A large-scale analysis of racial disparities in police stops across the United States. *Nature Human Behaviour*. Published online May 4, 2020. doi:10.1038/s41562-020-0858-1

154. *Report of The Sentencing Project to the United Nations Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia, and Related Intolerance: Regarding Racial Disparities in the United States Criminal Justice System*. The Sentencing Project; 2018. Accessed July 10, 2020. https://www.sentencingproject.org/publications/un-report-on-racial-disparities/

155. CCCApply. Admission Requirements. Published online 2020. Accessed April 15, 2020. https://www.cccapply.org/en/colleges/requirements

156. California Community Colleges, CCCApply. California Community Colleges. Accessed July 1, 2020. https://www.cccapply.org/en/colleges

157. Promotor(a) or Community Health Worker Training and Certification Advisory Committee. *2018 Annual Report: 25 Texas Administrative Code, Section 146.3*. Texas Department of State Health Services; 2019. Accessed March 29, 2020. https://www.dshs.texas.gov/Legislative/Reports-2019.aspx

158. New Mexico Department of Health. Frequently Asked Questions about CHW Certification. Accessed May 15, 2020. https://www.nmhealth.org/publication/view/help/1764/

159. *Undocumented Immigrants*. New American Economy Accessed July 8, 2020. https://www.newamericaneconomy.org/issues/undocumented-immigrants/#economic-contributors,-not-criminals

160. Mnuchin S, Acosta RA, Price T, Berryhill N, Kouzoukas D. *Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds 2017*.; 2017. https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/reportstrustfunds/downloads/tr2017.pdf

161. *State and Local Tax Contributions of Undocumented Californians, County-by-County Data*. Institute on Taxation and Economic Policy; 2017. Accessed July 8, 2020. https://itep.org/wp-content/uploads/CA-UnDOC-State-and-Local-Taxes.pdf

162. Paybarah A. Massachusetts Court Won't Use Term 'Grandfathering,' Citing Its Racist Origins. *The New York Times*. Published online August 3, 2020. https://www.nytimes.com/2020/08/03/us/racism-massachusetts-grandfathering.html

163. *Henry W. Comstock, Jr., Trustee, & Another vs. Zoning Board of Appeals of Gloucester & Others*.(Massachusetts Appeals Court 2020). https://www.mass.gov/files/documents/2020/08/03/z19P1163.pdf

164. Pittman M, Sunderland A, Broderick A, Barnett K. Bringing community health workers into the mainstream of US health care. *Washington (DC): Institute of Medicine of the National Academies*. Published online 2015. Accessed April 22, 2017. https://nam.edu/wp-content/uploads/2015/06/chwpaper3.pdf

165. The Community Health Worker (CHW) Certificate Program. Published online September 24, 2019. Accessed April 30, 2020. https://www.ccsf.edu/en/educational-programs/school-and-departments/school-of-health-and-physical-education/health-education-and-community-health-studies0/CommunityHealthWorkerCertificate.html

166. Minnesota Department of Health, Office of Rural Health and Primary Care Emerging Professions Program, Minnesota Department of Human Services. *CHW Toolkit: Environmental Scan Report*. Minnesota Department of Health, Office of Rural Health and Primary Care Emerging Professions Program; 2016. https://www.health.state.mn.us/facilities/ruralhealth/emerging/docs/chwenv2016c.pdf

167. Ormand BA, Richardson E. The Minnesota Community Health Worker Training Program. In: *Promising Approaches to Integrating Community Health Workers into Health Systems: Four Case Studies*. The Urban Institute; 2013. https://www.urban.org/research/publication/promising-approaches-integrating-community-health-workers-health-systems-four-case-studies

168. Minnesota Department of Health, Office of Rural Health and Primary Care Emerging Professions Program. CHW Toolkit: Summary of Regulatory and Payment Processes. https://www.health.state.mn.us/facilities/ruralhealth/emerging/docs/chwreg2016c.pdf

169. New Mexico Department of Health. Office of Community Health Workers. Accessed April 7, 2020. https://nmhealth.org/about/phd/pchb/ochw/

170. Angus L, Cheney C, Clark S, Gilmer R, Wang E. *The Role of Non-Traditional Health Workers in Oregon's Health Care System: Recommendations for Core Competencies and Education and Training Requirements for Community Health Workers, Peer Wellness Specialists and Personal Health Navigators*. Oregon Health Authority; 2012. https://www.chwcentral.org/sites/default/files/Oregon%20Health%20Authority_Role%20of%20non-traditional%20health%20workers.pdf

171. Oregon Health Authority, Office of Equity and Inclusion. Community Health Worker (CHW). Published online 2019. Accessed March 29, 2020. https://www.oregon.gov/oha/OEI/Pages/THW-CHW.aspx

172. Promotor(a) or Community Health Worker (CHW) Training and Certification Advisory Committee. *2017 Annual Report: As Required by Chapter 48, Texas Health and Safety Code Section 48.101(c)*. Texas Department of State Health Services; 2018. Accessed March 29, 2020. https://www.dshs.texas.gov/Legislative/Reports-2018.aspx

173. Texas Department of State Health Services. Community Health Worker or Promotor(a) Training and Certification Program. Accessed April 7, 2020. https://www.dshs.texas.gov/chw.aspx

174. Texas Department of State Health Services. CHW Certification Requirements. Accessed August 7, 2020. https://www.dshs.texas.gov/mch/chw/chwdocs.aspx

Appendices

Appendix A: Description of Minnesota, New Mexico, Oregon, and Texas certification models

Minnesota

Minnesota offers a certificate through educational completion.‡‡‡‡‡ Currently, there are nearly 700 certificate-holding CHWs in Minnesota. Developed in 2005 by MNCHWA, Minnesota developed the CHW certificate based on educational completion. Minnesota is the only state that offers a standardized CHW certificate program based in higher education institutions (e.g., community colleges, private universities). The process is overseen by the Minnesota State Colleges and Universities System.[166] Most CHW certificate courses are completed in two semesters.[166] Over the course of 20 weeks, including four weeks of internship, the CHW certificate course requires individuals to complete 14 credits covering: CHW Role, Advocacy and Outreach, Organization and Resources, Teaching and Capacity Building, Legal and Ethical Responsibilities, Coordination, Documenting and Reporting, Communication and Cultural Competence, Health Promotion Competencies, and an internship (72-80 hours of supervised experience).[166,167] Higher education institutions offering the CHW certificate course may require additional credits in order for students to be eligible for financial aid.[168] Once CHWs complete the CHW certificate course, they receive a certificate from the community college, demonstrating their competencies. The CHW certificate is tied to state policies for Medicaid reimbursement.[168] In order for CHWs to be reimbursed by Medicaid, they must complete an approved Minnesota CHW certificate course.[168]

New Mexico

New Mexico offers a voluntary certification by both training and work experience models. Approximately 378 CHWs are certified throughout the state and many CHWs elect to remain certified, as 86% recertify after two years. In 2014, New Mexico passed Senate Bill 58, the Community Health Workers Act, which enabled the New Mexico Department of Health to offer voluntary certification for CHWs in the state.[54] Since then, the New Mexico Department of Health administers a voluntary statewide certification program for CHWs. CHWs may or may not choose to opt into individual certification.[169] Existing CHWs can become certified through work experience and must submit supervisor verification of proficiency in CHW core competencies, two letters of reference, and documentation of 2,000 hours of formal CHW work and/or volunteer CHW experience within the state-identified CHW scope of work and core competency field.[169] New CHWs are required to complete a 100-hour Department of Health approved core competency training program before applying for certification.[169] CHWs must be proficient in the nine CHW core competencies to earn the generalist certification, including CHW profession, effective communication, interpersonal skills, health coaching, service coordination, advocacy, technical teaching, community health outreach, community knowledge, and assessment.[169] New Mexico also offers an optional core competency, clinical support skills.[169] CHWs may choose to earn specialty certification in up to three areas.[169] CHWs must complete a certification or recertification application, provide supporting documents of high school diploma or GED equivalent, and a background check.[169] The Department of Health

‡‡‡‡‡An educational certificate is not the same as certification.[102] In general, an educational institution or program is not allowed to confer a title such as "certified CHW," unless the certifying body allows the educational institution to confer this title.[102]

requires certified CHWs to recertify every two years by demonstrating 30 hours of continuing education units approved by the Department of Health.[169]

Oregon

Oregon offers a voluntary certification by both the training and work experience models. In Oregon, stakeholders shared that although 1,600 CHWs went through the certification training, less than half of CHWs attained certification. Currently, there are 613 certified CHWs. Of these CHWs, 90% certify through the training pathway. Many CHWs elect to remain certified, with 70% recertifying after 2 years. The 90% that prefer certification through training may be misleading as Oregon's CHW certification was implemented in 2011. Perhaps CHWs have not had enough time to have worked or volunteered as a traditional health worker to gain the required 3,000 hours. In 2012, the Non-Traditional Healthcare Workforce (THW) Committee issued its recommendations regarding CHW training and certification for Oregon CHWs.[170] It recommended an 80-hour training program, 20 hours of continuing education every three years, existing CHWs certify based on work experience, limiting the cost of training programs, and creating an advisory panel that includes THWs.[170] The Oregon Health Authority's Office of Equity and Inclusion certifies THWs, which includes community health workers, peer wellness specialists, patient navigators, peer support specialists, and doulas.[171] To earn CHW certification, an individual must complete an approved 80-hour training course or demonstrate at least 3,000 hours of supervisor-verified CHW work experience.[88,171] Once certified with the Oregon Health Authority, CHWs are added to a state registry (a tool for employers to locate THWs working in Oregon).[171] Oregon certified CHWs must submit 20 hours of continuing education every three years to recertify.[127] Oregon's 1115 Medicaid waiver allows Community Care Organizations (CCOs), networks of health care providers, to employ CHWs and reimburse CHWs for their services.[88]

Texas

Texas requires certification by either the training or work experience model. In Texas, approximately 904 new CHWs were certified in 2018, and of these, 421 (47%) were certified through training.[157] The number of certified CHWs in Texas remains consistent. In 2018, there were 3,957 certified CHWs, compared to 4,033 certified CHWs in 2017.[172] The Texas DSHS established the CHW program, under Health and Safety Code Chapter 48, to implement a program designed to train and educate CHWs and *promotores de salud*.[173] Texas was the first state to develop legislation to develop and implement CHW training and certification in 1999.[90,127] Certification is required for CHWs to receive compensation for work as a CHW.[91] Texas has a 160-hour competency-based training delivered by an approved training program.[174] Texas also has an indefinite work experience pathway for CHWs with experience of 1,000 hours within the previous six years.[174] Texas established eight core competencies, including skills in communication, interpersonal, service coordination, capacity building, advocacy, teaching, organizational, and knowledge base on specific health issues.[141] CHWs must submit 20 continuing education units every two years to remain certified.[127]

Appendix B: Stakeholder interview guide

1. What is the demand for CHWs?
    a. Probe: What was the demand for CHWs before certification?
2. How are they integrated? How has certification played a part in this?
3. Are there more job or employment opportunities post-certification?
4. How has certification impacted the knowledge or skills of CHWs?
    a. Probe: How have CHW skills changed pre/post certification?
    b. Probe: How has CHW knowledge changed pre/post certification?
    c. Probe: What is the certification requirement for skills and knowledge for CHWs?
5. How are CHWs tested for skills and knowledge?
6. How have perceptions of (or relationships with) CHWs by providers changed?
    a. Probe: Have perceptions by providers improved? Why?
    b. Probe: Have perceptions by providers diminished? Why?
    c. Probe: As a result, have CHWs been more integrated into team-based care?
    d. Probe: As a result, have CHWs and providers worked together?
7. What are the costs of running a state certification?
8. What resources are needed to implement a state CHW certification?
9. Who pays for the certification costs?
10. How has certification affected the level and distribution of health care spending?
    a. Probe: Have there been changes in CHW salary? Is that viewed as a pro or a con?
11. How has the certification created access for diverse CHWs in the state?
    a. Probe: How does certification accommodate costs (e.g., application, training) for CHWs?
    b. Probe: How does certification accommodate different languages?
    c. Probe: How does certification accommodate distance learning?
12. How does certification accommodate documentation status?
    a. Probe: What are some of the arguments for?
    b. Probe: What are some of the arguments against?
13. What stakeholders were involved in developing the certification?
    a. Probe: What types of stakeholders were in favor? What were their arguments?
    b. Probe: What types of stakeholders were opposed? What were their arguments?
14. How did the state unite these stakeholders to develop certification?
15. Is there something else I should know to understand how the certification process impacted the CHW workforce in your state?
16. Is there anything you would like to ask me?

Appendix C: Evaluative criteria not included in scoring

We excluded the following criteria from scoring because they either did not produce differentiation across the certification models or were inconclusive in their findings and could not be scored.

Attractiveness of the certification model to CHWs

We did not include the *attractiveness of the certification model to CHWs* criterion, which assesses the "demand" for certification by CHWs. We could not identify an obvious certification model which is more attractive to CHWs. For the educational completion model, we could not identify the percentage of certificate-holding CHWs from the total number of CHWs in Minnesota. For the training model, we could not accurately estimate the percentage of CHWs that preferred the training model. In Texas, we learned 47% (N=421) of new CHWs certified through training.[157] In Oregon, 90% of CHWs certify through the training model. Oregon's high percentage may be misleading because Oregon's CHW certification was implemented in 2011 and CHWs may not have had enough experience to apply for the work experience model. We also learned that the training model may not be as attractive since only half of CHWs who participate in the certification training become certified. An Oregon stakeholder shared that 1,600 individuals went through the certification training, but Oregon only has 613 certified CHWs. For the work experience model, we learned CHWs may be variably attracted to certification through work experience. In Texas, 53% certified through work experience.[157] In Oregon, approximately 10% certify through work experience. However, we cannot accurately attribute these numbers since the time frames are so variable. Oregon has implemented their certification for less than seven years while Texas has implemented their certification program for twenty years. We did not have training or work experience certification numbers available for New Mexico. Stakeholders shared that since certification is voluntary, many CHWs don't get certified.

Attractiveness of the certification model to employers

We did not include the *attractiveness of the certification model to employer* criterion, which assesses the "demand" for certification by employers. We could not identify an obvious certification model that is more attractive to employers. We found employers' incentive to work with certified CHWs is primarily due to the certification and not due to the certification process they used. Further, we learned the demand for employers to work with certified CHWs is driven mostly by payers or Medicaid reimbursement policies.

Price accessibility

We did not include the *price accessibility* criterion, which assesses whether CHWs could afford to become certified. We could not adequately assess out-of-pocket expenses since all of the models offered financial assistance. For the educational model, we learned that higher education tuition costs in Minnesota ranged from $2,583 to $11,288.[166] However, Minnesota stakeholders designed the CHW certificate curricula to be 14 units so that the course could qualify individuals for financial aid. All of the Minnesota CHWs who participated in interviews qualified for financial aid. No out-of-pocket expenses were incurred. For the training model, we learned the cost of training programs ranged from $100 to $2,000. Similarly, many certification programs offered full or partial financial scholarships for CHWs to participate in the certification

training. Even when scholarships were not available, some certification programs allowed CHWs to pay a minimum amount, for example $100, or pay on a sliding scale. The work experience model would be excluded from this criterion as certification is based on experience rather than training, so CHWs would not incur out-of-pocket training expenses.

Legal immigration status

We did not include the *legal immigration status* criterion, which assesses whether undocumented CHWs may become certified. There was no differentiation across the certification models. We found undocumented individuals may become certified in all of the certification models.

Effect of certification model on health care costs

We did not include the *effect certification model on health care costs* criterion, which assesses how CHW certification impacts health care costs. We could not adequately determine if CHW certification contributed to the cost savings. Although some states did demonstrate positive return on investment, these studies did not focus on whether CHWs were certified. Similarly, states have yet to conduct experimental studies comparing services provided by a certified CHW and a non-certified CHW.

Acceptability of the certification model by stakeholders

We did not include the *acceptability of the certification model by stakeholder* criterion, which assesses to what extent stakeholders accept CHW certification. There was no differentiation across the certification models. Stakeholders indicated there were parties for and against the certification in their respective state.

Improvement of CHW skills and knowledge

We did not include the *improvement of CHW skills and knowledge* criterion, which assesses how certification training impacts CHW skills and knowledge. There was no differentiation across the certification models. Across all of the states, stakeholders expressed that the certification training improved CHW skills and knowledge.

Health care provider utilization of CHWs

We did not include the *health care provider utilization of CHWs* criterion, which assesses whether certification impacted how health care providers integrate certified CHWs in their health care teams. There was no differentiation across the certification models. Almost all stakeholders, including health care providers, indicated certification played a big part in health care providers working with CHWs as health care agencies largely rely on certifications and credentials of their health care workers. Similar to the *attractiveness of the certification model to employer* criterion, stakeholders shared that health care providers did not prefer one certification model over another, as long as CHWs were certified.