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ABSTRACT

Background: Substantial evidence supports community health workers' (CHWs) contributions to improving health and reducing inequities. Common evaluation indicators can strengthen the evidence base and support the profession.

Objectives: We describe the development of a 6-year community–academic partnership to identify common CHW process and outcome indicators.

Methods: Methods include interviews, focus groups and a survey conducted in Michigan, a Summit in Oregon, consultations at national conferences, and regular conference calls.

Results: Using popular education as a primary strategy, we have honed our original goal, identified a set of 20 recommended constructs, developed a national constituency with international connections, and obtained dedicated funding.

Conclusions: Participatory identification, development, and uptake of a set of common indicators (CI) for CHW practice will allow data to be aggregated at multiple levels, potentially leading to more sustainable financing of CHW programs. Given that measurement drives practice, a set of common CHW indicators can help to preserve the flexibility and integrity of the CHW role.

Keywords

Community health workers, Popular education, Participatory evaluation, Measurement, Community participation

CHWs—trusted community members who promote health and advance justice in their own communities—have been essential members of the health and social service workforce in the United States for more than 50 years.[1] Since the passage of the Patient Protection and Affordable Care Act of 2010, CHWs (a title we use to include *Promotores/as de Salud* and Community Health Representatives, among others) have received unprecedented recognition and attention. Numerous states have developed policies to train and certify CHWs and some are working to sustainably finance their activities and services.[2] Building on existing statewide associations, the National Association of Community Health Workers was launched in the spring of 2018.[3]

The emergence of the novel coronavirus disease pandemic and the uprising for racial justice in 2020 have underlined the global necessity for well-supported CHWs, who can conduct outreach, share health education, provide support for marginalized individuals and communities, and address the social and structural factors that put individuals and communities at increased risk for a range of health issues, from violence to chronic and communicable disease.[3]

The body of peer-reviewed literature assessing outcomes of CHW programs is substantial and growing. CHW

interventions have been associated with improvements in perinatal and women's health and chronic disease prevention and management,[4–6] more favorable utilization of health services and reduced cost.[7–9] Increasingly, CHWs are recognized for their contributions to addressing the social determinants of health, both by connecting individuals to basic needs and by organizing communities to address inequitable social conditions.[1,10]

Despite progress in documenting CHW outcomes, the lack of standardized measures to assess CHW practice has made it impossible to aggregate data across programs and regions, impeding commitment to sustainable, long-term financing of CHW programs.[11] Lack of attention to the processes by which CHWs achieve outcomes has made it difficult to conclusively demonstrate the importance of particular CHW roles and characteristics.[12,13] Recent studies reporting contrasting results from programs employing CHWs,[14] demonstrate the need for common evaluation constructs and indicators for CHW practice that are thoughtfully developed and consistently applied through a process that directly engages those most affected.

OBJECTIVES

This article describes the first stage of a community participatory process designed to identify common process and outcome constructs and indicators for CHW practice, with broad buy-in from the field, to be used consistently by CHW programs, evaluators, researchers and employers throughout the country. It is the product of a community–academic partnership that was formed in 2015 and includes CHWs employed by community-based organizations, local health departments and clinical systems; university- and community-based evaluators and researchers; and CHW supervisors and administrators employed by a variety of organizations. Five of the original 16 partners (one CHW who is also a program administrator [L.R.A.], two university-based [E.K. and K.M.] and one community-based [N.W.] academics, one CHW program manager [G.P.]), and one additional CHW [K.R.] are co-authors of this article. The Michigan portion of the project (discussed elsewhere in this article) was deemed exempt by the Institutional Review Board of the University of Michigan. The remainder of the project did not require institutional review board approval because it did not involve data collection from research participants.

For the purposes of this project and article, "community" is defined primarily as the members of the CHW profession, who by definition are members of the communities they serve. Many CHWs have been "participants" in their programs before taking on the role of CHWs and some continue to be participants. Most are also members of communities most affected by inequities based on race/ethnicity, immigrant status, LGBTQ2I status, and other marginalized identities. A secondary community comprises stakeholders including CHW employers, funders, evaluators and researchers.

A "construct" is defined as a concept related to a CHW program that members of these communities want to measure. For example, household food insecurity is a construct that CHWs may influence through their work. An "indicator" is defined as a question, measure, or set of measures that inform us about a construct.[15] For example, common surveys of household food insecurity include multiple indicators, such as, "In the past 30 days, did you worry that your household would not have enough food?" [16]

METHODS

This project has conducted four sets of activities, all guided by popular education methodology, to achieve our goal of identifying common process and outcome constructs and indicators through a participatory process. During each of these activities, which are described below, input was sought through an interactive, participatory process of gathering and processing information. All input was analyzed using a modified form of grounded theory. This method involves a line-by-line analysis of each transcript or document, initial identification of key themes and sub-themes, followed by a return to the input to verify and further refine themes.[17] Additional information about analysis will be provided in the context of each activity.

Initial Project Development (Michigan)

To help fill the evaluation knowledge gap in the CHW field, in 2014 the Michigan Community Health Worker Alliance (MiCHWA) launched the CHW Evaluation Common Indicators Project.[13] MiCHWA is an on-going partnership between CHWs, CHW program leaders and other allies (MiCHWA.org). The MiCHWA CI Project was co-led by a community partner and a university partner (G.P. and E.K.,

respectively), guided by MiCHWA's Evaluation Advisory Board. The goal was to create a common set of CHW program evaluation indicators and measures to capture the unique contributions of CHWs to successful program outcomes and their added value to health care and human services systems. The ultimate aim was to support efforts to achieve sustainability of CHW programs and systematic evaluation of their impact on the health of underserved populations. During 2014 and 2015, this project conducted a literature review, key informant interviews with national CHW evaluation experts, Michigan-based focus groups with CHWs, and, informed by the first three activities, developed and implemented a survey of CHW evaluation activities with Michigan-based CHW programs. The survey was intended to identify commonly used CHW process and outcome indicators and possibly develop a recommended tool that could be used by CHW programs nationwide to better characterize and evaluate the work and impact of CHWs.[13] Survey data were uploaded into Excel to generate descriptive statistics.

CHW CI Summit (Oregon)

Building on the work conducted by MiCHWA, members of the Oregon CHW Consortium organized a 2-day summit to convene a diverse, multi-state group of stakeholders to identify a preliminary consensus list of process and outcome constructs. Similar to MiCHWA, Consortium members included CHWs, CHW allies, and researchers. The summit, which was held in Portland on October 2 to 3, 2015, intentionally brought together 16 CHWs, CHW program managers, and CHW program evaluators from academic, health system, public health, and other organizations from five states (Michigan, Oregon, Texas, Washington, and Arizona), all of whom had an interest in CHW evaluation. The Summit was planned by a subgroup of the eventual participants representing each of these sectors, using a participatory approach.

Popular education was the philosophy and methodology used in the summit. Also referred to as "people's education," popular education creates settings in which people most affected by inequities can share what they know, learn from others in their community, and use their knowledge to create a more just and equitable society. Popular education and the CHW model grow out of many of the same historical roots and share key principles, such as the ideas that people most affected by inequity are the experts about their own lives, and that experiential knowledge is just as important as (and sometimes more important than) academic knowledge.[18]

Using popular education in the Summit meant that facilitators made an effort to create an atmosphere of trust, balance participation and power around the room, actively elicit all voices, and come out of the Summit with a consensus list of constructs and a workable action plan. To achieve these goals, facilitators used techniques such as *dinámicas* (social learning games), negotiation of group agreements, group evaluations, and shared meals. In advance of the meeting, MiCHWA sent Summit invitees MiCHWA's CI survey to complete so that the data available for discussion would extend beyond Michigan.

The summit began with an overview of the MiCHWA CI Project and its major findings. Common themes regarding the unique contributions of CHWs included their ability to provide social support, build empowerment, trust and relationships, and facilitate health promotion and system navigation. Summit participants emphasized the importance of conceptualizing contributions beyond the medical model, by incorporating an ecological framework and models of care and well-being that go beyond curing disease. This framing influenced deliberations that followed. Participants shared information about example programs from their states. Day 1 ended with a review of potential common process and outcome constructs and indicators based on a summary of the results of the MiCHWA survey completed before the Summit by participants. On Day 2, participants reviewed existing constructs and indicators and discussed possible additions useful in a variety of ecological levels, with an emphasis on the importance of measuring social determinants of health and the practice and policy context in which CHWs work. Participants then refined a list of proposed process and outcome constructs and developed an initial action plan for continuing the work of identifying promising common indicators for these constructs. MiCHWA leaders (E.K. and G.P.) invited Oregon participants (L.R.A., K.M., and N.W.) to co-lead the effort as it moved forward.

Much of the analysis of the Summit feedback occurred in situ through a constant comparative method, as insights developed in small groups were presented back to the larger group for discussion and refinement. Additional qualitative

analysis took place as organizers were preparing the Summit Proceedings, a draft of which was sent to participants for member checking and feedback, and then finalized.

APHA Pre-Conference Workshop (2016)

The CHW Section of the American Public Health Association (APHA) has served as a focal point for CHW organizing since the early 1990s. As many of the CI Project members are members of APHA and have been active in the CHW Section, we viewed APHA as an excellent venue to share the work of the CI Project and gather broader input on the list of process and outcome constructs and indicators. Pre-conference sessions are free, making them accessible to CHWs from the local area who could not afford to attend the conference. A community–academic group of 12 CI Project members from around the country planned and conducted the Pre-Conference Workshop. Of the seven principal facilitators, three were CHWs, who were also actively engaged in the planning.

Like the Summit, the Pre-Conference Workshop utilized popular education as the strategy for engaging and eliciting input from participants. After a brief introduction, the diverse group of more than 90 CHWs, CHW program supervisors and administrators, evaluators and researchers, engaged in a *dinámica* designed to build trust and balance power. Following an overview of the project in the form of a brainstorm and *sociodrama* and a review of the constructs from the Oregon summit, facilitators used the "World Café" method to gain input on the constructs. First, all the outcome constructs were divided between multiple stations in the large conference hall. We invited participants to choose one station and spend 7 minutes there, discussing the following questions: "What do you think about this construct? How should this construct be measured? What are the issues/concerns?" At the end of 7 minutes, they could stay at the same station or move on to another. After a break, we repeated the same process to gain input on the process constructs. The group then returned to the plenary to revisit the constructs, create a list of next steps, and evaluate the pre-conference session. Similar to the Summit, using popular education methods in the Pre-Conference Workshop meant that analysis and member checking occurred throughout. Afterwards, organizers further analyzed and synthesized information from the small and large group sessions while preparing workshop notes for attendees. Primary outcomes of the Pre-Conference Workshop were revisions to the construct list, multiple suggestions about potential indicators for these constructs, a major infusion of new people into the CI Project's Advisory Group, and a commitment to continue with indicator development and seek dedicated funding.

Regular Conference Calls with the CI Project Advisory Group and Conference Presentations

From November 2015 to the present, an Advisory Group that has grown to engage more than 180 people from around the country has met at least every other month by conference call to continue the work of the CI Project. The first task was to describe in a report both the process and the outcomes of the Portland Summit. A second major focus was further developing the constructs, including identifying existing indicators that had been or could be used to measure each one. One of the partners created a spreadsheet, to which others in the group contributed based on their experience and knowledge of the literature. This process is on-going. Careful notes have always been taken during meetings and shared with participants. More recently, an ethnographer on the Leadership Team (K.M.) has taken qualitative process notes and meetings have been audio-recorded. Information from meetings is organized and analyzed to identify necessary next steps.

During this same period, we sought input from CHWs and allies on the proposed construct and indicator list. For example, members of the team from Oregon conducted a workshop at the 2016 conference of the Oregon CHW Association that drew over 30 participants, most of whom were CHWs. In total, members of the leadership team have presented the CI Project and gained input at eight state or regional conferences, including the 2019 Unity Conference.

In sum, our methods have involved a collaborative process beginning with surveys and interviews in Michigan, followed by a series of knowledge-building interactions with stakeholders from a growing number of states, communities, and organizations. Importantly, our summits, workshops, and teleconference calls have been carefully planned and executed through very intentional agendas that used popular education techniques to balance power and voice amongst a diverse group of stakeholders. Input gathered in these interactions has consistently been organized and presented

back to participants for verification. At every stage of the project, we have sought to prioritize the knowledge, input, and leadership of CHWs.

RESULTS

By 2019, the CHW CI Project had achieved four notable results: recognition of the need to distinguish between constructs and indicators, identification of a preliminary set of process and outcome constructs, development of a US-based constituency around the issue of common CHW measurement with connections to similar efforts at the international level, and receipt of funding from a major national funder.

Constructs versus Indicators

After the 2016 APHA Pre-Conference Workshop, Project partners realized we needed to distinguish between CHW constructs and indicators. "Constructs"—characteristics of CHW programs involving various components—can also be thought of as "concepts." Indicators are specific questions or sets of questions that inform us about a construct.

We recognized that not all constructs apply in every setting. For example, while participant cost of care and utilization of services are extremely important and compelling constructs in clinical settings, not all CHW programs are clinically focused, and not all have access to cost and utilization indicator data. Even when a construct may be broadly applicable, the indicators used to measure it may need to change. A construct such as "participant knowledge, attitudes and behaviors" will necessarily be interpreted and measured differently in a program focused on diabetes compared to another program focused on violence prevention. For these reasons, we reframed our goal as the creation of a reduced set of specific indicators that are recommended for all settings, and a larger set of recommended constructs that can be measured in various ways (or not measured at all), depending on the setting.

Preliminary Set of Process and Outcome Constructs

Table 1, iteratively developed based on the methods described herein, presents our preliminary set of 10 process and 14 outcome constructs and definitions for those constructs. These constructs bring attention to what CHWs do, what they need to be successful, and the various benefits they can reasonably achieve at multiple levels, from individual participants to health and social service systems.

A fundamental process construct is the frequency of enactment of the 10 core CHW roles defined by the CHW Core Consensus (C3) Project in 2018.[19] Building on the roles identified in the 1998 National Community Health Advisor Study,[1] the C3 Project convened multiple stakeholders, particularly CHWs, across multiple US states, to update the definition of what CHWs do, and what they should do—according to evidence and a socioecological theory of CHW-mediated change—to be most effective at achieving health equity. Recent studies have called for a rigorous method for identifying and tracking the roles CHWs regularly perform.[20]

The other process constructs in our list highlight what CHWs need to be successful in all of their 10 core roles, including high-quality training based in popular education,[21] supportive and reflective supervision,[22] collaborative relationships with health and social service providers, policymakers, and community leaders, and fair and equitable pay and benefits.

The outcome constructs reflect a holistic understanding of the wellbeing of people and communities that participate in programs that employ CHWs, which includes social and structural determinants of health, self-perceived emotional and physical health, and quality of life. This list highlights outcomes that CHWs are uniquely suited to improve, such as social support and empowerment. The list also highlights policy and systems change, which is both a process that can enable CHW work, and an outcome that CHWs can mediate through their community organizing, advocacy, and coalitional activism work.[23]

Other Results

Since 2015, the CI Project has developed a US-based constituency around the topic of CHW measurement. We have brought together more than 180 people with an interest in CHW measurement approaches and raised the profile of the topic. We have created a space where advisory group members are able to contribute equitably, through the intentional use of popular education methodology and techniques. This has helped foster active engagement of CHWs, CHW program managers, and CHW program evaluators from academic, health system, and public health arenas. The amount of

Table 1. Preliminary list of recommended constructs

Process Constructs	Definitions
CHWs' job satisfaction	The extent to which CHWs are satisfied with their overall job conditions.
CHWs' compensation, benefits and promotion	The salary paid to CHWs in relation to their FTE and local cost of living, in addition to the presence or absence of health insurance, retirement, disability, and paid leave within their benefit package. Opportunities for advancement/promotion are also part of this construct.
Acceptance/Value of CHWs to the organization	The extent to which CHW work is considered a regular and valuable component of the employing organization's services.
Supportive and reflective CHW supervision	The extent to which CHWs feel they receive supervision from clinical and non-clinical supervisors that is supportive, reflective, and trauma-informed, not disciplinary and paternalistic.
CHW enactment of the 10 core roles	How often (in the past week, month, or year) individual CHWs or a group of CHWs within a program or organization enacted or engaged in each of the 10 core roles defined by the CHW Core Consensus (C3) project.
Participants' trust/satisfaction with CHW relationship	The extent to which participants feel they can trust the CHW(s) with whom they work, including trusting that a CHW will keep their private information confidential, and that a CHW is genuinely dedicated to their care and wellbeing. Also, the extent to which participants are satisfied with their relationship with their CHW(s), in terms of feeling genuinely respected and understood by their CHW(s).
CHW-facilitated referrals	Completed referrals facilitated by the CHW, through which the participant successfully receives attention, care, and/or resources from a clinic, other healthcare or social service agency or public service. CHWs will not be held responsible when necessary services are not available.
CHWs' involvement in policy making	The extent to which a CHW is able to be involved in policy making both within their own organization and in the larger community on work time and/or as part of their volunteer commitment.
CHW integration onto teams	The extent to which CHWs are members of a collaborative and communicative "team" with other providers within a clinic, school, social service agency, etc.
Use of popular/people's education in CHW training	The extent to which CHW training is informed by popular/people's education, which values, draws out and builds on what CHWs know through life experience.
Outcome Constructs	**Definitions**
Participant self-reported health status	A participant's own assessment of their physical, mental, and emotional health.
Participant quality of life	A participant's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. (WHO)
Participant health and social needs	Health and social needs currently experienced by the participant, e.g., food, transportation, water, and housing insecurity.
Participant knowledge, attitudes and behaviors	A participant's knowledge, attitudes and behaviors related to specific health conditions.
Participant social support	The level of support (i.e., assistance/help) that participants perceive from others to deal with regular and emergent life challenges, including economic, social, health, and emotional challenges.
Participant empowerment	A composite measure assessing both actual and perceived empowerment. Includes the following domains: decision-making, self-efficacy, education/knowledge/skills, optimism, advocacy/activism, control, motivation, and social integration and support.
Participant cost of care	The total cost of a participant's health care in a given period of time, with a focus on high cost emergency services.
Participant utilization of health services	A participant's use of health services in a given period of time, for example, use of emergency versus routine primary care services.
Participant health outcomes	A participant's physical, mental and/or emotional health status, as assessed by a clinician.
Policy and system change	Policies and system changes that address CHW workforce development and sustainability as well as policies that promote population health and address inequities (i.e., many different policies at multiple levels of government, business, etc.).

interest our project has generated nationally demonstrates that the development of common indicators is an idea whose time has come. Although our coalition is based in the United States, we have established connections to international efforts to develop a standardized system to evaluate CHW programs, led by groups like the Frontline Health Project.[24]

In 2019, the CI Project received a contract from the Centers for Disease Control and Prevention via the National Association of Chronic Disease Directors. This funding has facilitated a new and much more active stage of the CI Project that will be reported in subsequent publications.

CONCLUSIONS

Using a collaborative process that relies on popular education and has engaged more than 180 people from around the country, Phase 1 of the CI Project produced a list of 20 constructs intended to facilitate measurement of both the outcomes CHWs achieve and the processes by which they achieve them. If reliable indicators for these constructs were regularly assessed, a state's or an organization's CHW program could better understand the ways in which CHWs in their jurisdiction are being trained or supported to play a full range of roles, and statistically connect and study the relationship between specific CHW roles performed, specific forms of support, and specific outcomes at the individual participant level and at the level of health and social system policy and practice. Such information, which could be enhanced through qualitative and ethnographic work specific to the culture and setting, could lead to improvements in practice, and added investments that are required to pay for better support for CHWs. Although similar to work is being conducted in low- and middle-income countries,[25] the participatory nature of our work and careful attention to CHW engagement mark our work as unique and valuable.

Phase 2 of the Project, now complete, included further systematic review of the literature to identify indicators that have been used to measure a prioritized set of 10 constructs, adaptation and development of indicators for those constructs, engagement to gain systematic input on these indicators from a broad range of stakeholders, and development of a plan to pilot the indicators. In the subsequent phase of the project, we intend to reach out to and elicit the input of current CHW program participants in a variety of ways.

The identification, development, and uptake of a limited set of specific indicators for CHW practice will allow data to be aggregated at state, regional and national levels, which will strengthen the science of evaluating CHW interventions and should lead to more sustainable financing of CHW programs. To the degree that measurement drives practice, use of a set of indicators chosen in a participatory way should help to preserve the integrity and flexibility of the CHW role and facilitate more thoughtful selection of outcomes, thereby supporting CHWs to make an optimal contribution to addressing systemic inequity and improving health.

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