

Training and Supervision of Community Health Workers Conducting Population-Based, Noninvasive Screening for CVD in LMIC

Implications for Scaling Up

Shafika Abrahams-Gessel*, Catalina A. Denman[†], Carlos Mendoza Montano[‡], Thomas A. Gaziano^{*,§}, Naomi Levitt^{||,¶}, Alvaro Rivera-Andrade[‡], Diana Munguía Carrasco[†], Jabu Zulu[#], Masuma Akter Khanam^{**,††}, Thandi Puoane[#]

Boston, MA, USA; Hermosillo, Sonora, Mexico; Ciudad de Guatemala, Guatemala; Cape Town, South Africa; Bellville, Republic of South Africa; Mohakali, Bangladesh; and Callaghan, New South Wales, Australia

Background: Community health workers (CHW) can screen for cardiovascular disease risk as well as health professionals using a noninvasive screening tool. However, this demonstrated success does not guarantee effective scaling of the intervention to a population level.

Objectives: This study sought to report lessons learned from supervisors' experiences monitoring CHW and perceptions of other stakeholders regarding features for successful scaling of interventions that incorporate task-sharing with CHW.

Methods: We conducted a qualitative analysis of in-depth interviews to explore stakeholder perceptions. Data was collected through interviews of 36 supervisors and administrators at nongovernmental organizations contracted to deliver and manage primary care services using CHW, directors, and staff at the government health care clinics, and officials from the departments of health responsible for the implementation of health policy.

Results: CHW are recognized for their value in offsetting severe human resource shortages and for their expert community knowledge. There is a lack of clear definitions for roles, expectations, and career paths for CHW. Formal evaluation and supervisory systems are highly desirable but nonexistent or poorly implemented, creating a critical deficit for effective implementation of programs using task-sharing. There is acknowledgment of environmental challenges (e.g., safety) and systemic challenges (e.g., respect from trained health professionals) that hamper the effectiveness of CHW. The government-community relationships presumed to form the basis of redesigned health care services have to be supported more explicitly and consistently on both sides in order to increase the acceptability of CHW and their effectiveness.

Conclusions: The criteria critical for successful scaling of CHW-led screening are consistent with evidence for scaling-up communicable disease programs. Policy makers have to commit appropriate levels of resources and political will to ensure successful scaling of this intervention.

Low- and middle-income countries (LMIC) have been bearing well-documented, disproportionate burdens of both rising morbidity and mortality from noncommunicable diseases [1–3]. Cardiovascular disease (CVD) is a major contributor to these burdens and directly affects the economies of these countries as mortality rates are highest among those between the ages of 35 and 64 years [3]. Risk factors for CVD include elevated blood pressure, being at an unhealthy weight, and use of tobacco products [4]. The World Health Organization (WHO) estimates that cardiovascular deaths attributable to these risk factors are as follows: 13% due to raised blood pressure; 9% due to tobacco use; and 5% due to obesity [5]. Early identification of persons with these risk factors has the potential to reduce the morbidity and

mortality associated with CVD through early intervention and treatment.

The WHO noted the importance of community-based screening in the prevention and management of noncommunicable diseases because it can be a cost-effective approach for screening large numbers of people and because building community-based models of care for disease management can help to ensure success in reducing and managing noncommunicable diseases [1,6]. Yet, 2 significant barriers to conducting population-based screenings remain: 1) a paucity of formally trained health professionals (e.g., physicians or nurses); and 2) inadequate fiscal and infrastructure resources to assess risk using laboratory-based testing.

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From the *Center for Health Decision Science, Harvard School of Public Health, Boston, MA, USA; †Centro de Estudios en Salud y Sociedad, El Colegio de Sonora, Colonia Centro, Hermosillo, Sonora, México; ‡Institute of Nutrition of Central America and Panama, Ciudad de Guatemala, Guatemala; §Division of Cardiovascular Medicine, Brigham and Women's Hospital, Boston, MA, USA; ||Chronic Diseases Initiative for Africa, Groote Schuur Hospital, Cape Town, South Africa; ¶Division of Endocrinology and Diabetes, Department of Medicine, University of Cape Town, Cape Town, South Africa; #School of Public Health, University of the Western Cape, Bellville, Republic of South Africa; **International Centre for Diarrhoeal Disease Research, Bangladesh, ICDDR, Mohakali, Bangladesh; and the

††Centre for Clinical Epidemiology and Biostatistics, School of Medicine and Public Health, Faculty of Health and Medicine, University of Newcastle, Callaghan, New South Wales, Australia. Correspondence: S. Abrahams-Gessel (Shafika_Abrahams-Gessel@Harvard.Edu).

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Task sharing from physicians to health workers without formal training, such as community health workers (CHW), offers a means to increase the levels of human resources available for screening. Such screening by CHW would allow them to capture persons at high risk and to refer them to a formally trained health professional for further assessment and appropriate management of disease.

Blood-based lipid testing (total cholesterol, low-density lipoprotein, high-density lipoprotein) is a significant component of CVD risk assessment. However, lack of adequate numbers of laboratories where these tests can be conducted, in conjunction with the human resource shortages makes laboratory-based testing impractical for population-level screening in LMIC [7]. An alternative non-laboratory-based, effective risk screening tool such as the CVD risk assessment chart developed by Gaziano et al. [8,9], has the potential to mitigate resource constraints by eliminating the need for laboratory testing to determine overall CVD risk. Together, task-sharing of screening responsibilities from physicians or nurses to CHW using this risk tool will offset both the human and infrastructure resource constraints that currently prevent effective population-based screening in many LMIC.

A trial conducted in Bangladesh, Guatemala, Mexico, and South Africa trained CHW to conduct screening in the community using this risk tool to determine the absolute risk for CVD events within the next 5 years. The trial's primary aims were: 1) to compare the level of agreement between the absolute CVD risk score calculated by the CHW, and a second score calculated by a physician or nurse; 2) determine whether those community members with a CVD risk score >20% used the referral letters provided by CHW to schedule a visit for a comprehensive risk assessment with a health professional; 3) to describe the training experiences of the CHW and identify issues that would influence scaling up this type of screening as part of redesigning primary health care using task-sharing. A comprehensive description of the training and fieldwork experiences of the CHW is provided elsewhere in this issue. This paper focuses on capturing the perceptions of key actors regarding the feasibility of scaling up this intervention at all sites, except Bangladesh, which elected not to participate in this part of the study.

METHODS

The methods for designing and executing the training of CHW, the assessments of their performance during training, and the assessments of their fieldwork experiences, are covered elsewhere in this issue.

Based on a combination of published evidence, trainers' detailed field notes from the training experience in South Africa, and detailed notes from supervisors' experiences during fieldwork, an interview guide of 8 questions was developed and used for key informant interviews (Table 1) [10]. Key informants were identified based on

their work with CHW at the government health clinics, supervision of CHW, clinic staff, clinic directors, and officials from the local departments of health who were responsible for implementation of health care policy. Where appropriate, permission was obtained from local departments of health to invite key informants to participate and those who agreed signed consent forms.

All key informant interviews were recorded onto digital audio recorders. Transcription of the audio sessions was completed at each of the 3 participating sites. Coded, deidentified transcripts of all audio sessions were provided to investigators for pooled analysis. Interviews were conducted in the native language of the respondents (English, isiXhosa, Spanish) and lasted approximately 60 to 90 min. All interviews were conducted in 2013, within 6 to 12 months of completion of the fieldwork for the trial.

Data analyses

Analyses were conducted using Atlas Software (Atlas Software Technologies, Chicago, IL, USA) or NVivo 9 (QSR International, Burlington, MA, USA) software, and manual coding techniques [11,12]. The software packages analyze the content in 3 stages: 1) coding to broad nodes (themes) based on the interview guide questions; 2) distinguishing more specific information to identify both common and divergent themes; 3) comparing and contrasting nodes that were cross-referenced with the type of informant. Manual coding involves replication of this process by hand (manually). Investigators reviewed transcripts in their entirety several times. The first time was to correct spelling mistakes and transcription errors and get a general sense of the data. The second time, the responses were grouped into themes. Finally, the output from both the software and manual analyses were combined to obtain an overall picture of the data. Selected quotes from participants are included to illustrate themes and are reported without identifiers to preserve the anonymity of respondents.

To promote trustworthiness during the course of the interviews, information was summarized and repeated back to the participants to ensure that it accurately reflected what they intended to communicate. Interviewers would also stop recording when participants wanted to share sensitive information off the record. To ensure rigor and validity, all transcripts were reviewed by a researcher who compared sections of the transcripts with the audiotaped interviews.

Ethics

The National Heart, Lung, and Blood Institute as well as the respective institutional or ethics review boards in each of the 3 participating country sites, approved the study protocol. All staff members associated with the study successfully completed the ethics courses through the Collaborative Institutional Training Initiative and provided appropriate documentation to the National Heart, Lung, and Blood Institute.

TABLE 1. Guide questions for key informant interviews

1. Please describe your current position and your experience working in health promotion or with CHW.
2. What do you think it means to be a CHW?
 - a. What is your opinion of the work done by CHW (both in the state health system and in the nongovernmental sector)?
 - b. What characteristics and skills do you think a good CHW needs?
3. How are the CHW you work with supervised and evaluated?
4. Based on your experience, what kind of training do CHW need?
 - a. Who trains them?
 - b. Formal or informal training?
 - c. CVD-specific training?
 - d. What would be their ideal training, and how does it differ from their current training?
5. How do you perceive the role of CHW?
 - a. How do you think they are perceived by the community?
 - b. How do you perceive their role within their organizations?
 - c. How do you think their working conditions can be improved (training, recognition, etc.)?
6. What do you think is the best way to integrate CHW into chronic disease prevention efforts?
 - a. Who would monitor and evaluate their activities, and how?
 - b. What kind of resources would be needed?
 - c. What conditions would be necessary for CHW and other health service providers to work in a coordinated way?
7. Is there any other topic you think is important that we have not discussed yet about the work of CHW or their contribution to chronic disease prevention?
Is there anything you would like to add?

CHW, community health workers; CVD, cardiovascular disease.

RESULTS

A total of 36 key informant interviews were conducted across all 3 sites. A summary of the main themes emerging from the interviews is provided in Figure 1. Please note that any differences in the color, shapes, and text sizes in this figure are for readability only and do not indicate any particular significance.

Ongoing training and competencies

Both supervisors and key informants at the study sites felt that constant training and retraining was needed, but acknowledged that the training currently offered to CHW was fragmented, driven by immediate or programmatic needs. The issue of core competencies also often entered the discussion, but there were few specific details offered on how core competencies should be defined. “It is probably good that each program trains the CHW, but then they are at the mercy of each program. Annual trainings are too over-encompassing, they need reinforcements throughout the year to retain all the information” (supervisor, Mexico). The lack of specifics also extended to an apparent agreement that training for CHW should be more holistic, teaching them to make connections between multiple aspects of health. Yet, the tension between the potential gains of training CHW to fill service gaps, and a strong belief on the part of formally trained health professionals that CHW were, by definition, limited in what they could be trained to do, argues against the apparent agreement. “They need to be able to link one health issue to another, such as mental health to chronic disease to HIV, and so on. They also need to understand how different patients respond to disease, if they are in

denial, or acceptance, or action, amongst other” (physician, Mexico).

Summary of main themes from fieldwork

Value and motivation of CHW. The CHWs’ expert knowledge of their communities’ norms and standards of

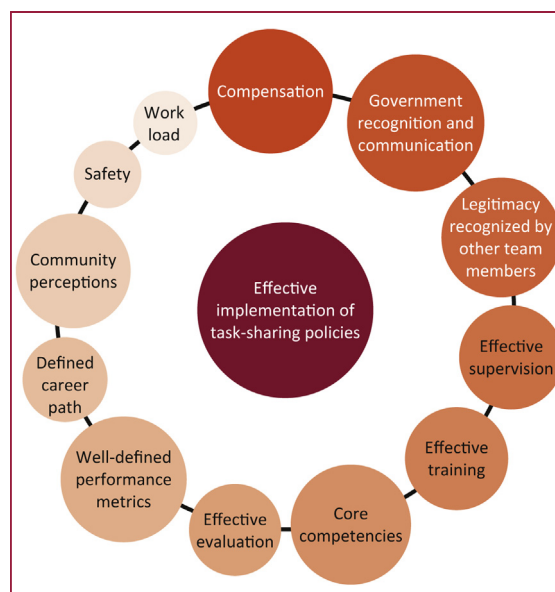


FIGURE 1. Main themes from key informant interviews. Please note that color, shape, or text size do not assign any significance to individual components.

behavior allowed them to navigate potentially difficult situations. Supervisors readily acknowledged the necessity of this community expertise. “They are a great help because it’s difficult for us to go out and see what’s happening out there... they play a vital role in helping us to make a decision with regard to treatment... People must be comfortable with them, they must be part of the community, they must be known within the area and uhm... they must be observant... they are my eyes... outside of the facility” (facility manager/nurse, South Africa). “They are our voice to the community. They... play a very important role because the cultures of the communities are different... they... show us the way” (coordinator, Guatemala).

CHW are perceived as being both highly motivated and unmotivated to do their jobs. “So we’ve got people that are coming in just to park, whilst they are waiting for a better job,...the first group of people... were driven by the passion... now... it’s about bread and butter, let me get this R1300 until I can move to the next phase” (health department official, South Africa). “Effective CHW are those that have a positive attitude, a spirit of service, and a motivation to advocate for their communities. The characteristics that are most important are those that address their ability to mobilize the communities. Some CHW do not know how to write well or express themselves perfectly, but are wonderful CHW because of their relationship to the people and their communities” (project supervisor, Mexico).

Safety concerns

Safety of the CHW was a major concern in South Africa and Mexico. Even though CHW work and live in the communities they screen, they often work in areas with high rates of crime. CHW are known in the community for their functions (e.g., delivering medication to patients) and are identifiable through their outfits (e.g., uniforms), making them targets for criminal attacks. “The big challenge is... safety... especially in these townships... because if they carry their bags with patients’ stock... these [thugs] don’t think that” (nurse, South Africa).

Workload, compensation, and respect from clinic staff

Professionally trained staff members agree with CHW that the workload and time allotted to meet their target goals are not realistic. “The government... stipulate that they should work for four-and-a-half (4 ½) hours a day... how will they render the integrated health care for only four-and-a-half (4 ½) hours? They can’t. It’s not possible... it’s really a challenge” (nurse, South Africa).

Compensation is a strong motivator in both South Africa and Mexico. “The other thing that bothers me very much is that; these people at least need a recognition as workers, they need to bring something home. Because some of them have families, some have husbands, parents etc. So they feel like though they offer so much, they

receive too little in return (haaaaa, she chuckles)... they are not satisfied with the stipend that they are getting” (nurse, South Africa).

CHW are also treated with varying levels of respect by clinic staff and the health professionals with whom they interact—from outright distrust to admiration. “If you were a doctor, would you accept that... I gave a vaccine in October, when it is still September? I don’t know how they do it, they are not doing a good job” (physician, Guatemala). “We met weekly at the community health center, there they handed in the completed surveys... they had a weekly goal of at least 10 interviews each, however most of the time they surpassed it. CHWS were open to share their experiences during the entire fieldwork, we also took their suggestions in consideration” (Coordinator, Guatemala).

Supervision of CHW

Supervision of CHW during fieldwork proved to be challenging. Some supervisors underestimated the additional workload that would be taken on by the CHW as part of this study and did not care to support them. “Some health center directors were very supportive, others did not really put their heart into the project... Sometimes the CHW were stressed with all they had to do and got tired, this happened to the more responsible ones who wanted to get the recruitment done on time” (supervisor, Mexico). Other supervisors felt they lacked the strong administrative skills and commitment to good record keeping that the study demanded. “They took good care of their materials, we never had anyone reporting that they had lost or misplaced their things. However, the CHW had not had the experience of recruiting and fulfilling a study like this one. They were inexperienced at doing things with a method. They thought it would be easier than how it really was, which meant a lot of work” (supervisor, Mexico).

There is also disagreement about who the best candidates are for effective CHW supervision. One notion is that the supervisor should be an employee of the nongovernmental organizations that employ the CHW, rather than nurses at the clinics, because they have the community expertise required to effectively assess the CHW’s performance. “They [nurses] will take time to gel in supervising the CHWs. The reason why I am saying this is because they are not used to our system... they do not know how we do it in the community... it will really take time for them to be able to supervise. They are not used to community health work” (project manager, South Africa). Supervision is further complicated because the relationships between CHW and clinic staff are often strained, largely due to the belief that CHW are not qualified to provide information to clinic staff.

Role of government

The role of government is critical in promoting the legitimacy of CHW beyond policy documents, and also in

preventing the effective use of CHW through poor communication with clinics and communities. The support and strong political will of government was seen as essential in legitimizing the CHW and their value in CVD prevention. “In order to scale up we need to have a national policy and political will to support the CHW in this type of preventive activity... if they learned what the study results could contribute in the prevention of CVD, then maybe they could be more supportive and the whole team, physicians, nurses and CHWs could be involved” (director, Ministry of Health, Mexico).

A complete disconnect between what is needed and what the government thinks is needed was also noted. “But the clinics out there... are doing what the government think we need and yet they don’t know what we need, they never ask us and that is why at the end of the day you find out there is a conflict between the communities and the clinics you see and there is no way of working through these problems and you just sit and let it pass” (nongovernmental organization director, South Africa). This disconnect can result in failure to set up programs for success. “The best way I think... that’s going to support any program of CBS is that they must have a link with the department of health personnel... there must be an assigned person who is going to be a link... so that they know how to communicate with the department of health even if the management and the running of the community-based services is still done by a separate institution... the lines of communication have to be clearly defined” (health department official, South Africa). Or, it can lead to policies being completely ignored. “Well we are getting all... kinds of policies... sometimes you just ignore them hahaha (laughs)” (clinic director, South Africa).

DISCUSSION

The primary goal of this study was to illuminate the issues that key actors believe are relevant for successful scaling up of primary care interventions using task-sharing approaches that involve CHW. Hermann et al. identified several key criteria of successful infectious disease programs in Sub-Saharan Africa that incorporate CHW into delivery of care [13]. Many of the themes in our results line up with these criteria. Community involvement in the selection of CHW candidates, education about the programs the CHWs are selected for, CHW’s motivations, and quality of training have been shown to be critical in improving birth outcomes in Nigeria and Nepal [14]. This is consistent with our findings, which indicate that there is agreement that CHW should be selected from the communities that they serve and that the community should have some input into the selection process. Communities will in turn seek CHW services because of the trust that inclusion in the process engenders [15]. We also found agreement that training should aim to be integrative in terms of the health topics rather than restricted to single disease programs. In our study sites, implementing approaches that meet this goal have been severely limited. The redesigned Iranian primary

health care system integrates health care services with health education and serves as a model for successfully integrating CHW into programs [16]. Our findings related to community involvement, training, and CHW motivations overlap with this model. CHW serving in rural areas must be approved by the local councils, commit to residing in their communities for 4 years after training, and successfully pass an interview for admission. Training occurs over a 2-year period and includes practical skills, communication skills, and clinical placement in rural areas. Additional factors that facilitate success include CHW being directly employed by the government, altruism and community appreciation, and clear definitions of roles and expectations. Similarly, barriers identified in the Iranian model overlap with our study findings: poor supervisory structures, lack of administrative support, overall workload, the influence of sex on task assignments, and the capacity to deliver certain services.

A study of the management of childhood diseases in Malawi highlighted the importance of the nature of supervision and assessment of CHW’s performance [17]. The practical limitations of direct supervision of CHW by formally trained health professionals were mitigated to different degrees, depending on the tasks being evaluated. There was little difference between supervision under direct observation, compared with supervision not under direct observation when the required protocols implemented by the CHW were simple. For more complicated protocols, the CHW’s performance degraded to a much greater extent. This explains why the level of agreement between CHW’s and health professionals’ CVD risk scores in our parent study exceeded 95% (unpublished data) — the screening protocol was simple and the risk tool easy to use. Task-sharing with CHW are most effective when the responsibilities involve uncomplicated tasks.

There is agreement that evaluation and assessment of CHW’s performance is important for not only effective service delivery but also for determining the effectiveness of training. The Zambian Defense Force used a comprehensive checklist to obtain feedback about ante-natal care at military clinics and found that they were useful to determine areas of weakness in services delivery that could, in turn, be targeted for consequent strengthening [18]. This kind of tool would provide a systematic approach to evaluation and also inform the need for retraining.

Weak supervisory mechanisms can also exacerbate the lack of respect that health professionals can have for CHW who are already expected to function with minimal training, supplies, and poor administrative support in many cases [19,20].

Key policy makers and health officials need to champion programs that use CHW as a way to build credibility for the CHW both within the communities that they serve, as well as the health systems in which they are expected to function. Again Hermann’s work bears this out by identifying a strong policy framework and political support as a critical element in successful scaling efforts [13]. These efforts will serve as deterrents to health professionals setting up barriers to CHW’s

functioning in programs, as seen in our data. In addition, the community expertise of the CHW need to be acknowledged and incorporated into plans to scale up successful programs, especially in the area of interfacing with health clinic staff and health professionals. In addition to these factors, defining clear career paths along with improved remuneration will increase the rates of retention of trained CHW. There is currently not a lot of evidence for the critical remuneration thresholds for CHW in programs in LMIC [21–23].

Our data also illustrate the real concern that prohibiting CHW from using their newly acquired skills to conduct noninvasive screening, such as measuring blood pressure, also sends mixed messages about the value assigned to their services and will ultimately increase the number of patients that clinics will need to manage, directly contrary to the efforts to relieve the burden on trained health professionals at these clinics.

CONCLUSIONS

Overall, our findings are consistent with previous evidence, but these findings need to be replicated in larger trials in LMIC settings, along with more in-depth explorations of the development of effective evaluation instruments, how CHW can be incentivized in lieu of increased remuneration, and how career paths that enhance acceptance and integration into existing health care systems can be defined.

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