Global Health Content for Local Solutions

Consultations Synopsis

March 2015

Acknowledgments

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Abbreviations

ASHA	Accredited Social Health Activist
CHW	Community Health Worker
FLHW	Frontline Health Worker
HEW	Health Extension Worker
HIFA	Healthcare Information for All
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MOH	Ministry of Health
mPowering	mPowering Frontline Health Workers
NGO	Nongovernmental Organization
SMS	Short Message Service
USAID	United States Agency for International Development
WHO	World Health Organization

Introduction

It is estimated that one billion people today will never see a health worker in their entire lives (Global Health Workforce Alliance 2011). In developing countries, most of those who do reach a health worker will be served by frontline health workers (FLHWs) such as nurses, midwives, and community health workers (CHWs). These workers represent, by far, the main way that most people in developing countries access health services (Frontline Health Workers Coalition 2014). Yet given the exceptional importance of these workers in health sectors in Africa and elsewhere, a critical question remains: why are so many still profoundly under-trained (Perry and Zulliger 2012; Redick and Dini 2014; Tran et al. 2014)?

It's not for want of attention to the problem. Billions of dollars are being invested in finding solutions to Africa's most pressing health needs. In particular there is a focus on the role of CHWs in providing greater access to health services—preventive and curative—to help decrease preventable maternal and child deaths. Evidence suggests that where CHWs are effectively trained and deployed, there is a reduction in maternal and child mortality, a reduction in the spread of HIV, TB, and malaria, and better management of chronic diseases (Perry, Zulliger, and Rogers 2014).

There's no shortage of donors from both public and private organizations pouring resources into projects aimed at helping governments achieve the 2015 Millennium Development Goals (MDGs) for health, including projects aimed at increasing the numbers of trained CHWs.[1] With only 12 months[2] to go before the MDG deadline, the pressure to enhance the knowledge and skills of the frontline health workforce is on, and the money invested in this effort continues to increase.

The evidence, however, highlights significant health care training deficiencies. Even when training is provided, it is routinely ineffectual, often in large part because of the location: hundreds of miles from where the health workers live (Knebel 2001; Lehmann and Sanders 2007). Refresher training, moreover, is infrequent or simply never happens (Bluestone et al. 2013; Lehmann and Sanders 2007; Redick and Dini 2014; Tran et al. 2014). The consequences of this severe under-training of FLHWs contribute to alarming yet avoidable medical situations, such as the fact that, annually, millions of children under five and their mothers continue to die (UNICEF 2013). Often all that is needed to save lives are simple services that FLHWs can provide, yet all too often, they are under-trained and unable to intervene appropriately. Training these health workers in a way that is appropriate, successful, and cost-effective promises to address this and a host of other health challenges in Africa and beyond.[3]

This report outlines a series of workshops convened by mPowering Frontline Health Workers ("mPowering"; see Appendix A) and partners to consider whether the global

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[1] For example, the One Million Community Health Workers Campaign and the Frontline Health Workers Coalition.

[2] At the time of writing.

[3] There is strong evidence, from China, Brazil, Iran, Bangladesh, Ethiopia, and elsewhere, that the use of CHWs can have a material effect on reducing child and maternal mortality and morbidity (Lehmann and Sanders 2007; Macinko, Guanais, and de Souza 2006). See also Caglia, Kearns, and Langer 2014; Perry and Zulliger 2012; Perry, Zulliger, and Rogers 2014; Viswanathan et al. 2009.

health community is following the most beneficial route to provide relevant and effective health training for FLHWs. Focusing in particular on CHWs, who work directly in the communities they serve, the forums explored the potential for a set of freely available, high-quality learning resources that could be adapted for use by Ministries of Health (MOHs), training institutions, nongovernmental organizations (NGOs), and others across multiple CHW projects in multiple countries to begin to address the skills gap.

Between December 2013 and April 2014, over 185 people from more than 100 organizations came together to discuss critical questions about the learning and information needs of CHWs and consider these in the context of the commitment at the 2013 Recife conference in Brazil to move toward CHW harmonization (World Health Organization 2013).

The workshops were hosted by mPowering partners and took place in five cities: Washington, D.C., London, Nairobi, Johannesburg, and Geneva. The aim was to bring together a wide range of players—policymakers, health professionals, academics, funders, implementers, and others—to draw on their expertise and experience to think with purpose to move toward solutions for addressing the skills gaps of CHWs. The intention was to share the ideas and recommendations emerging from the CHW discussion events to help to inform and shape the work of other CHW initiatives examining how to develop and strengthen their training programs at scale.

There were many common themes across the discussions, but there were also different issues, questions, and points of view brought out in each workshop. Detailed notes of each workshop can be found in Appendixes B–D. Appendix E contains resources sent to participants in advance of the workshops as well as resources participants shared with the group.

Workshop Discussion

This report represents a consolidation of the key points and recommendations that emerged across all five workshops.

What is a CHW?

The London, Johannesburg, Nairobi, and Geneva workshops opened with a brainstorming session on the definition of a CHW to explore the participants' perceptions and stereotypes of the CHW role. The aim was to form a common basis of understanding of what we meant by "CHW" over the course of the workshops.

The "Typical" CHW

A CHW was seen to be (more often than not) a woman working in a rural community, generally selected from that community, who provides initial health consultations and health information to community members. She is typically fluent in the local dialect, trusted by the community, and responsive to the community needs. Often she is a volunteer with minimal health training, although she may have significant practical experience.

A CHW is seen as a representative who serves as the connection between the community and the formal health sector. However, she may or may not be considered part of the formal health sector by either the community or the government. Some CHWs provide care that covers the full spectrum of health issues, although they may be restricted from giving certain medical advice or treatment by the health system or other regulations.

CHWs can also be men, and there are also examples of CHWs who are well-trained, paid, and part of the formal health sector. However, this is much less common than the scenarios outlined above.

CHWs were considered part of the FLHW community, which also includes trained nurses, doctors, and others with specialized skills or not working directly in the community. It was noted that CHWs can also serve a specific demographic group, such as people living with HIV/AIDS, or teenagers, or a group that is geographically diverse.

Two Notable Examples

Two examples of CHWs were highlighted in the discussions as exceptions to the norm and worthy of further consideration:

- In Ethiopia, CHWs are called Health Extension Workers (HEWs) and are part of the formal health sector. They are salaried and go through extensive training (around 14 months) on hygiene and environmental sanitation; maternal and child health, including nutrition and family planning; disease prevention and control; and health education and communication. This level of training and the fact that they are a salaried cadre within the health system is unusual for CHWs.

- In India, Accredited Social Health Activists (ASHAs), established under the National Rural Health Mission of the Union Ministry of Health and Family Welfare, work as part-time volunteers. There are approximately 890,000 ASHAs and their focus is primarily on making home visits to pregnant women and women who recently delivered. These home visits are designed mainly for health promotion and preventive care on topics such as nutrition, basic sanitation, birth preparedness, safe delivery, and breastfeeding. ASHAs reach around 70% of the population in rural areas. They do not receive a regular salary, but are financially incentivized to ensure that pregnant women receive antenatal care, for encouraging institutional deliveries, and for supporting healthy behaviors by pregnant women. ASHAs are encouraged to maintain records of their activities to improve their efficiency.

Workshop participants discussed the key characteristics that have helped to make the HEW and ASHA programs successful while so many others have failed to reach scale; these included: (1) government commitment; (2) a national curriculum with a focus on standards and quality; (3) engagement with key health stakeholders throughout the system (e.g., at state, regional, and district levels), and ongoing evaluation of the training and impact of the programs. For both programs, it was suggested that two gaps needed to be addressed (and these were not particular to the HEW and ASHA programs, but common across all CHW programs): refresher training and continuing professional development, and provision of better training of the trainers.

How are CHWs trained?

This area of the discussion explored CHW training, including pre-service and in-service training, the different kinds of training organizations responsible for training, and the variety of learning methodologies used. The overall consensus was that CHWs were trained using a variety of methodologies, but usually the training was not of sufficient quantity or high enough quality. Additionally, there is no globally agreed-upon set of competencies for CHWs, or a global strategic approach to training CHWs. Further information about this can be found in the literature review (Redick and Dini 2014) and the integrated analysis (Dini and Redick 2014) commissioned to inform the discussions in the workshops. Both reports are available on the mPowering website.

Pre-Service Training

Typically, CHWs receive some type of in-person pre-service training by a formal training organization. Training organizations can includes NGOs, the government, UN agencies, religious leaders, or (as is the case in India) private educational institutions. The training models employed are diverse, including:

- **Classroom training**, where formal teachers focus on theory with tests to evaluate knowledge
- **Health facility training** with peer educators focused on practical training and mentorship
- **Mobile-based training** leveraging mobile phones to deliver self-guided learning via Short Message Service (SMS)

This initial training may be augmented by on-the-job peer mentoring by more experienced CHWs.

Training duration of CHW pre-service training programs also varies widely. For example volunteer CHWs in Kenya receive 11 days of face-to-face training; in Nepal, CHW training is 15 days and in Pakistan it is 15 months.

In-Service Training

Formal in-service training was described as "almost non-existent" by participants in all of the workshops. Often, it is not possible for CHWs to leave their posts to go to training, or their posts are remote and travel times and costs can be significant. If NGOs provide in-service training, it is often "ad hoc" and dependent on availability of funds—and the CHWs who most need the training are not necessarily the ones who attend the training. For example, the per diem system may distort CHW selection for trainings.

In some countries (for example Ethiopia and Nigeria), CHWs work in the field for a set period of time (sometimes for up to a year) before they go to a training institution for additional training. Other countries, like India and Mexico, pair CHW trainees with experienced workers for in-service training.

Some participants mentioned the potential of online training, but this was considered inaccessible to the typical CHW, who would not usually have reliable (or any) Internet access or the digital skills needed to access and participate in an online course.

Training Components

For the purposes of the workshop discussion, training activities were segregated into three different components:

- **Content:** The information to be acquired by CHWs. This can be thought of as the text in a textbook.

- **Curriculum:** The structure and order in which content is to be acquired, including tests to confirm knowledge acquisition by CHWs. This is the order of chapters in a textbook.

- **Pedagogy:** The process by which trainers help CHWs absorb the content and construct their own understanding of it. This is how the teacher excites the learner to read and understand the textbook.

Participants discussed who was usually responsible for developing and implementing each training component and the current state of sophistication and effectiveness of all three components.

Training Content

Currently, there is no global repository that covers all CHW training content. This means that training organizations are often left to create their own training content. Repositories of content do exist, for example on an MOH website or on an organizational website such as those of the World Health Organization (WHO) or UNICEF. However, it is not always easy to access the content and/or the content is not always open source (meaning it cannot be adapted for local context). Participants cited examples they knew of where content is regularly downloaded and adapted from existing sources, such as (and this is not an exhaustive list):

- "Integrated Management of Childhood Illness (IMCI)," a standardization of locally adapted generic content (World Health Organization 2015)

- Hesperian's Where There is No Doctor, which is now available in digital formats ready for localization and adaptation (Werner, Thuman, and Maxwell 2013)

- "Caring for the Newborn at Home" are guidelines developed from the experiences of training CHWs in caring for the newborn at home (World Health Organization 2012)

- "Integrated Community Case Management of Childhood Illness" are resources, best practices, and tools for diagnosis and treatment of key childhood illnesses (CCM Central 2015)

- "Prevention of Mother-to-Child Transmission (PMTCT) of HIV" is a set of guidelines from over ten countries in Africa and Asia designed to assist health care providers (USAID; AIDS Support and Technical Assistance Resources, Sector I, Task Order 1; and U.S. President's Emergency Plan for AIDS Relief 2015)

- "Community Based Infant and Young Child Feeding" are generic tools for programming and capacity development on counseling for community-based infant and young child feeding (UNICEF 2015)
- Wikipedia (http://www.wikipedia.org/), which, while heavily used, is rarely cited as the information source

Training Curriculum

A training curriculum typically follows government-defined guidelines to cover required content including basic health education, treatment, and disease prevention. Participants mentioned Mozambique, Pakistan, Malawi, Nepal, Rwanda, Kenya, Tanzania, and Sierra Leone as countries where there is a government-mandated curriculum for CHWs, with Ethiopia and Zambia specifically mentioned as having an advanced curriculum.

Ethiopia curriculum: In 2011, the federal MOH launched a new Level IV Health Extension Program training curriculum, which significantly extended the existing Level III curriculum. The intention was to introduce a more proactive and managerial element to the HEW role. Specifically, the Level IV Program extends the HEWs' capacity to conduct needs assessments of health promotion and disease prevention services in their communities; develop and implement action plans; secure the commitment and participation of significant community members in service planning; manage service delivery more effectively; and evaluate the outcomes of interventions through systematic data collection, interpretation, and reporting. In addition, the intention of the Level IV Program is to extend HEWs' knowledge and practical skills into new areas of service delivery to fill gaps in their competencies and practical skills. Special emphasis is placed on maternal and child health, family planning, nutrition, immunization, prevention and control of communicable and non-communicable diseases, and adolescent sexual and reproductive health.

Zambia curriculum: Following extensive consultation, a new national training program for CHWs was launched in 2010. Training of CHWs now lasts for one year, and includes theoretical and practical training. These CHWs are intended to supplement and enhance the efforts of community health volunteers who typically receive two to five weeks of training from implementing partners in a specific health area.

One participant in the workshop related that the South African government is currently trying to formalize a training curriculum.

Almost all countries follow the WHO guidelines on CHW curriculum components, such as the need to teach about infectious diseases like malaria, diarrhea, and tuberculosis, but WHO does not have similar guidelines on other content areas or on pedagogy.

Training Pedagogy

Participants agreed that current training pedagogy for CHWs is based around a teacher/student model of classroom instruction, where the teacher reads from a text and the CHW students are expected to read or listen to the passage and accept the

text at face value. Often called "chalk and talk" or "sage on a stage," this teaching style is seen as boring, inflexible, and leading to sub-par learning outcomes.

Participants provided examples of instances of experiential learning, blended learning, peer mentoring, and other teaching approaches that engage the CHW student in the learning process. However, these processes (described below) were seen as the exception to the typical training program.

- **Experiential learning:** Where the students' own experiences are brought into the learning environment as the basis of their understanding of new information, and the teacher takes the role of a guide rather than an unquestioned expert. Typically, experiential learning pedagogy is very participatory, with each learning intervention shaped by the particular participants involved.

- **Blended learning:** A mix of in-person teaching and electronic teaching aids, including instructional videos, interactive content, and multimedia. Blended learning sessions are more standardized than experiential learning but more participatory than traditional teaching styles.

- **Peer mentoring:** Where inexperienced students are paired with more seasoned CHWs to learn on the job. The process can be formalized, though the teaching style is more often quite informal and highly variable, depending heavily on the skill and enthusiasm of the mentoring CHW.

Current Training Approaches: The Problems

The One Million Community Health Workers Campaign and mPowering conducted a literature review to assess the state of, and evidence gaps in, global CHW training in sub-Saharan Africa and South Asia (Redick and Dini 2014). The literature review found ample evidence to indicate that CHWs are not effectively trained, remunerated, or retained, and that the qualities of trainings themselves have not been well-studied. Overall, the evidence suggested a lack of standardized approaches to training, including:

- Many disparate groups conduct trainings of CHWs, including NGOs, governments, NGO/government partnerships, and private sector firms, which means that the same FLHW may receive training on the same content from multiple providers; the payment of per diems for training can create perverse attendance incentives.

- The training can be highly variable in topics and length, with little focus on the learning pedagogy or the use of team-based learning or training of supervisors to help them become effective trainers and facilitators. Training also tends to be a one-time event, rather than an iterative, ongoing process.

- There are few evaluative measures in place to assess compliance with curricula and there is very little ownership or direct management of CHW training by MOHs. South Asia and Ethiopia were notable exceptions to this generalization.

- There is very little use of digital tools for CHW trainings; where they were used, it was more likely to be for in-service training than for pre-service training.

Broadly, there is insufficient and poor-quality evidence regarding CHW trainings, from their occurrence, to their composition, evaluation, and effectiveness, with the exception of examples from Nepal, India, Bangladesh, and Ethiopia.

How can we improve training?

In each session, participants brainstormed on how to improve the three components of CHW training. Listed below are their different ideas, presented without bias as to which effort would be the most practical or effective in improving CHW training.

Improving Content

There was general agreement that training content could be improved, but there were varying opinions on how standardized it could be across countries. Participants agreed that the content could be improved by:

- Incorporating more case studies to give practical examples of diagnosis and treatment best practices, with the case studies as relevant as possible to the CHW experience in that country.

- Mapping content to the specific responsibilities and needs of CHWs in that country, noting that CHW roles and rules vary widely and what can be expected of a CHW in one country may not be allowed in another.

- Updating content on a regular basis to incorporate new learning and techniques as soon as they are accepted, to keep CHW skills and knowledge as current as possible.

- Increasing the interactivity of content by formatting it as audio, video, or visual content that can engage the CHW and potentially allow for self-directed learning or be broadcast via TV or radio.

- Adapting the content to make it easily translatable and localizable to different contexts and so that it could be optimized for use on feature phones, smartphones, and tablets.

- Opening the licensing of the content to make it Open Educational Resources— openly licensed documents and media—or at least adaptable without requiring lengthy or restrictive copyright negotiations.

Improving Curricula

There was widespread agreement that current CHW training curricula do not cover the full spectrum of skills or knowledge needed by CHWs to be efficient or effective. While there were many ideas proposed during the brainstorming sessions, the following topics were the most commonly noted (across all of the workshops) as being important parts of CHW training:

- Information and communications technology and digital literacy skills: so that CHWs would be knowledgeable about how to use technology both in their profession and as a lifelong learning tool.

- Monitoring and evaluation methodologies: to better understand the efficacy of their work and be able to communicate when treatments were, or were not, effective with their patients.

- Mental health needs, including social and psychological needs: training in this area is often omitted entirely from CHW curricula, and mental health needs have a major impact on patient health and capacity for self-care.

- "Soft" skills: including effective and empathetic communication skills to manage patients with dignity and communicate with them to achieve accurate diagnosis and ensure treatment adherence.

- Holistic health knowledge: to understand and communicate how health relates to other aspects of patients' lives, including education, employment, and community standing.

- The social and behavior change processes: including how to use different communication messages and media to achieve lasting behavior change.

- Work planning and time management skills: to be more efficient with given resources and caseload, and to be able to document activities to show time utilization.

- Issue and incidence mapping skills: to monitor and predict health changes in their catchment area.

Participants in all five workshops emphasized the importance of local ownership of the training curriculum. They also highlighted the need for CHW involvement in curriculum design and development, to ensure that the training is truly relevant to CHWs in a particular region.

Improving Pedagogy

Participants usually had the most to say around the pedagogy of training—the way in which CHWs are trained. The overall theme of the discussions was a recognition that the current pedagogy is focused on rote memorization that does little to inspire or truly educate CHWs. Below are the most popular recommendations, all of which were prefaced by the need to have the respective MOH's buy-in and approval.

- Pre-training assessment should be administered to understand the CHW skill set before the training. This is important to better tailor the activity, but also to identify the right people to train. This is especially true for in-service training, where per diems can distort incentives for participation.

- Trainers should be trained on how to be effective trainers, and motivated to organize and facilitate effective trainings.

- Effective trainers should be identified and should serve as role models for other trainers, as well as peer mentors, to improve the overall training skill set.

- Peer learning should be included wherever possible to bring in practical experience and form the social bonds between experienced and new CHWs that allow for informal mentoring later.

- The training should be minimalist—designed so that it can be given in a variety of resource settings, from "under a tree" to formal classrooms.

- Trainings should use the "flipped classroom" methodology, in which CHWs cover basic topics outside of the training experience, and use training time to deepen their skills and understanding of advanced topics.

- Technology, such as audio, video, and visual aids, should be utilized to make the training more interactive and engaging to CHWs.

- Training styles should be standardized across all providers in a given country to ensure a level of quality for CHW training.

- There should be more and higher-quality formal in-service training, which was seen as almost non-existent for most CHWs.

- Post-training evaluations should be employed to better understand the efficacy of training and the level of competence of the trained CHWs.

Which improvements are most needed versus easiest to do?

After each brainstorming session on the different improvements that could be made to content, curriculum, and pedagogy, participants then voted which of the three components had the *most need* for improvement. This gave participants a sense of which area should be prioritized. Then they voted on which of the three would be *easiest* to change.

In London, participants chose pedagogy as the component most in need of change, arguing that without good training and student support, CHWs would not retain their knowledge and skills and would not be able to apply them in practice. However, content was seen as easiest to change, because content is usually left up to organizations to develop without much intervention from government. Changing pedagogy would require a coordinated approach and retraining process across MOHs, NGOs, and training institutions. Changing pedagogy would also be expensive, and could take years to accomplish.

In Nairobi, participants agreed that pedagogical change was most needed, especially a move to blended learning, and agreed that content, since it was under control of the trainers, was the easiest of the three learning components to change.

In Johannesburg, participants also agreed that pedagogy was the aspect of training most in need of changing and, surprisingly, none of the participants identified content as needing change. However, they did agree that content was the easiest to change. Participants made the point that curricula could be easy to change if there was government approval, as the government dictates curricula in South Africa and many neighboring countries.

The feedback from all of the sessions was that content could be the easiest starting point for a global training standard for CHWs rather than curriculum or pedagogy, despite the recognized need for improving all three aspects of CHW training. One can make the point that this would be a natural conclusion of those brought together to investigate the feasibility of a global content standard; however, this agreement was

not reached quickly or without much debate. In fact, the voting was lively, was not unanimous, and the results were debated extensively during the sessions.

What about a global standard for training content?

Once the participants had reviewed the results of their voting, they then discussed the ramifications of developing a global set of freely available, standardized learning resources. Participants voiced their concerns about a focus on content versus curriculum or pedagogy, and discussed what would need to be done to ensure adoption of globally standardized training content.

When would standardized content be used?

Key concerns of participants were the conditions that would allow for the widespread adoption and use of the standardized content. The main concern was MOH buy-in.

All participants agreed that the MOH would be a key stakeholder and, depending on the country, may have sole power to approve or require the use of the training resources. The willingness of the MOH to endorse the content would be influenced by many factors, with WHO approval and endorsement considered highly influential, as well as the current status of MOH content efforts. If a country had recently adopted a set of standardized training content, participants believed its MOH would not be willing to change to a new set of content.

Participants also agreed that CHWs themselves would need to be convinced of the need for new training content, be open to training or retraining with the new content, and adjust their practices accordingly. Along with CHWs, local training organizations, be they government, NGOs, or private companies, would need to believe that changing content would improve training outcomes, especially if the national MOH did not usually prescribe specific training content for CHWs.

Participants envisioned the main user of global content would be training organizations. Therefore, they believed that the content should have a train-the-trainer component so that training organizations could use training guides to understand how to train CHWs with this content and improve their training processes as well.

The content itself should be developed in such a way that it is easy for training organizations to translate and adapt the content to the local context. This could include separate, editable files for text and images, centralized text dictionaries, and above all, licensing that allows for liberal reuse, such as Creative Commons or even outright issuance as public domain content.

One point of contention regarding the use of global content was the representations of people in training materials. Some participants felt that people depicted in the content needed to be localized to each visible ethnic group, while others pointed out the experience of organizations such as the Global Health Media Project and Medical Aid Films, both of which produce videos that are used by multiple organizations in multiple countries other than where the original filming took place. These organizations have found that as long as the setting in the video looks authentic, and the viewer can relate

to the same operating environment and level of infrastructure (or lack of it), the viewer will find the video relevant and useful.

Finally, participants felt that the training should both integrate and reinforce the existing community health system and further legitimize CHWs as an integral part of that system.

Who would benefit, or not, from standardized (adaptable) content?

Although the participants did not explore how to create a set of freely available, standardized training content, they did analyze who would be a beneficial partner in the development and adoption process and who might actively discourage or undermine the effort.

Possible Proponents

Participants first identified organizations and stakeholders that would benefit from global training content that could be reused and adapted, and recommended they be considered as possible proponents and allies in a standardized content effort.

Training organizations were seen as beneficiaries of freely available, standardized training content, as this content would reduce costs and resources required to develop training programs, and allow training organizations to focus on improving training skills, including pedagogy.

CHWs themselves would benefit from a consistent training experience and improved health knowledge and skills. In turn, communities would benefit from improved quality of care. Savings made through not creating new content could be allocated to other areas in the health system, including improving mentoring, supervision, and support of CHWs. Donors would also benefit, as they could focus efforts on expanding and localizing existing content resources and facilitate monitoring and evaluation efforts, instead of spending money for similar content to be created afresh, project by project.

Other potential supporters of global content would be technology companies and mobile network operators, who could host the training content on their sites and benefit from data fees associated with accessing the content.[4]

Finally, the lead organization(s) that created the initial training content would also benefit, both from the direct work of building the content, but also updating and localizing the content. This presented a dilemma for the participants, who recommended a consortium approach in developing the content and an unbiased approach to who updated or expanded the content.

Possible Opponents

Just as there would be stakeholders who would benefit from freely available, standardized training content, there would be those who would not benefit, i.e., stakeholders who benefit from keeping the status quo.

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[4] However, it should be noted that the aim is to make critical health information freely available, including no-cost data download, where possible.

Participants identified current training content developers as the main group who might oppose standardized content as it could reduce the need for their services, and the services of the organizations in which they work.

Training organizations, which often also produce training content, and see a competitive advantage based on the content they use/develop, could also oppose standardization. Trainers themselves might also feel a lack of ownership, as they could perceive the standardized content as a top-down approach devoid of local context, and a sense of commoditization as training differentiation would not rely on unique knowledge.

In addition, standardized content may leave out niche content that is locally relevant or not seen as core to CHW efforts, such as eye health, mental health, and non-communicable diseases.[5]

CHWs could feel challenged if they are required to change the way in which they are used to being trained.

Content publishers might sense a competitive threat from a source of free content, especially if the content were made easy for training organizations or the CHWs to download and reuse directly.

Participants also pointed out that donors and implementers often want to focus on developing "innovative" training content, rather than reusing existing content, and they may undermine efforts to reinvest in standardized content as it would not be seen as unique enough for their own marketing needs.

Finally, governments that are not aligned with standardized curriculum content, for whatever reason, would be difficult to convince to use the content and may actively oppose it in public forums under different guises.

Conclusions

After canvassing global health experts through five workshops in Washington, D.C., London, Nairobi, Johannesburg, and Geneva, it was clear that participants were in agreement that the current curriculum, pedagogy, and content used to train CHWs do not meet their needs, either in terms of quality or consistency of training. Improvements in all aspects of training are required to address the skills gaps and ensure that CHWs can effectively deliver services to their communities.

Improving pedagogy was seen as likely to have the greatest impact on training outcomes (and therefore health outcomes in communities), but it was also seen as the hardest component to change. The CHW training curriculum could be improved but as this is usually the domain of governments, this would also be difficult to change. CHW

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[5] Of course, having standardized content covering the key areas of CHW training would not exclude the potential of additional content being added as required by local context. The standardized content itself would also be adapted and contextualized to reflect local needs.

training content was seen as in significant need of improvement and under the control of health actors who could be influenced to adopt standardized content and work with local partners to adapt this for the needs of the CHWs in a given country.

Efforts to develop and adopt freely available, standardized training content are likely to have both champions and detractors. A shift from the current status quo, where multiple organizations create (and duplicate) training content, might disadvantage those who currently profit from developing unique content, as well as those who publish it and those who like to fund the unique content in the first place. CHWs themselves may oppose a new set of content as it may force them to change the way they are trained or do their work.

Benefits of a standardized package of training content could potentially lead to better CHW training, however, and communities would benefit from improved quality of care. Training organizations could benefit by shifting their resources from content creation to training improvements, including improved pedagogy, and government, donors, and the health system itself would benefit from better, more efficient training activities.

Participants were keen to point out that this would not be the first effort to introduce standardized content and that current examples of "open source" content should be studied:

- Hesperian, which has published *Where There Is No Doctor* (Werner, Thuman, and Maxwell 2013) and other health content for localization and use in both print and digital format in over 221 countries and territories, where each book is estimated to be used by 40–60 people.

- The Mobile Alliance for Maternal Action program, which distributes modular, generic content, approved by governments and localized by training organizations to teach maternal health to CHWs.

- The Open University (UK), a distance learning university, which develops and implements large-scale health and teacher education programs in partnerships with governments and local stakeholders, using generic content that is adapted locally to reach thousands of people in sub-Saharan Africa and South Asia.

- The Ethiopian government, which is delivering standardized content to more than 34,000 Health Extension Workers.

Participants were of the view that standardized training content could be adopted, adapted, and utilized to train CHWs on a global scale if the national MOH endorsed the content, if local training organizations were convinced of the need for new training content, and if the CHWs themselves were open to training or retraining with the new content, and adjusting their practices accordingly.

The content itself should be developed in such a way that it is easy for training organizations to translate and adapt the material to the local context, and above all, the content needs to be licensed in a way that allows for liberal use and reuse.

Additional Information on CHW Training

Alongside the CHW workshops, an online discussion on the learning and information needs of CHWs was facilitated by the Healthcare Information for All (HIFA) Campaign (http://www.hifa2015.org/). More than 50 people from 27 countries contributed to the debate, and the conversation thread can be visited in the HIFA Voices database (HIFA Voices 2015). A literature review on CHW training was completed by the One Million Community Health Workers Campaign and mPowering Frontline Health Workers (mPowering), which assessed the state of, and evidence gaps in, global CHW training in sub-Saharan Africa and South Asia (Redick and Dini 2014).

Since the workshops were held, a number of other papers and reports have been published that consider the training needs of CHWs and the potential for standardized training packages (Frontline Health Workers Coalition 2014; Tran et al. 2014). These resources, in addition to this report, will be shared with WHO to inform their thinking around curriculum, content, and standardization of CHW training and advance policy development around harmonization of training for CHWs.

Next Steps

Discussions are under way about establishing an expert review team to create a set of generic CHW learning resources (e.g., on handwashing, breastfeeding, antenatal care, danger signs in pregnancy and in children under five years old) and job aids that could be adapted and translated for use in any country. Additionally, there are discussions to increase advocacy, including raising donor awareness, and to promote support for the reuse and repurposing of existing high-quality CHW resources.

Appendix A: About mPowering

Mission

The mission of mPowering is to contribute to the elimination of preventable child and maternal deaths by accelerating the use of mobile technology to improve the skills and performance of frontline health workers (FLHWs).

Background

A key barrier to achieving Millennium Development Goals (MDGs) 4 and 5 is the severe shortage of trained FLHWs, who are often the first and only link to health care and preventive health services for millions of families in the developing world. They are critical in settings where overall primary health care systems are weak or inaccessible.

Although FLHWs form the backbone of health systems in these resource-constrained environments, they face numerous challenges: inadequate training, inability to make accurate and timely diagnoses, weak performance incentives, inadequate or insufficient data for decision-making, difficulty reaching remote populations, a lack of supportive supervision, and an inability to access health information in a timely manner.

Mobile technology can help expand the coverage and improve the quality of delivery of critical maternal and child health interventions. The proliferation of mobile devices (from basic phones through to smartphones, laptops, and tablets) and networks, particularly in low-resource contexts and rural areas, offers a revolutionary way to cost-effectively strengthen the capacity of FLHWs to deliver these services, reduce feelings of isolation, and improve overall job satisfaction.

mPowering is working with partners in sub-Saharan Africa and India to exploit this power of mobile technology. mHealth solutions that mPowering is working on with partners include those that support data collection and feedback, training, clinical decision support, referrals, supervision, and the promotion of healthy behaviors.

In addition to all of the above uses of mobile devices, health workers of course also use their mobile phones as a simple and convenient way to communicate directly with their peers, patients, supervisors, and health centers to address emergencies as well as general health needs.

Mobile money can also be leveraged to ensure timely payment of paid health workers and the delivery of incentives for volunteer health workers.

Objectives

- Build capacity of governments, organizations, and individuals to harness the power of mobile technology to strengthen maternal and child health services delivered by FLHWs.

- Support the scale-up of mHealth applications to improve the skills and performance of FLHWs in focus countries.

- Generate evidence and information on the use of mobile technology by FLHWs to mobilize resources and improve the design of mHealth applications.

Approach

Maximize Resources

We will focus on the strategic reuse of tools, technologies, and content and collaborate with multiple partners to strengthen health systems. We will promote the use of open architecture; industry-based standards; transparent, shared processes and methodologies; and open sharing of requirements and other technology knowledge components.

Design for Scale

We will respond to capacity development needs articulated and driven by local constituencies to ensure appropriate support, partnerships, and development of local capacities. We will be mindful not only of numbers reached but the quality of the experiences of stakeholders and end-users (FLHWs, their patients, and communities) as programs are supported to grow to scale.

Learn, Improve, and Grow

We will contribute to the body of knowledge that informs future investment through research and evaluation activities.

Activities

mPowering works closely with its partners and networks to deliver its objectives. We are doing this in four ways:

1. Through Our Online Content Platform

mPowering is developing an online platform that will link to and host high-quality, open source digital health content (e.g., Short Message Service [SMS], Interactive Voice Response, video, audio, images, animation). Mobile operators, NGOs, social enterprises, health training institutions, and governments will be able to download and integrate this content into technology applications to improve the effectiveness of hundreds of thousands of health workers around the world.

The content will be accessed via mobile devices (phones and tablets) as well as laptop or desktop computers; we aim for it to become the "go-to" place for up-to-date, relevant content.

A prototype platform was launched and evaluated in the last quarter of 2014. A Content Review Team and Medical Expert Panel have been established, with more than 35 organizations involved in ensuring the quality of the content on the platform. Over 80 organizations have expressed an interest in sharing their content on the platform and the first 10 are now in the process of sharing materials designed to train

and support FLHWs. Development of a fully functional platform will take place during 2015.

2. Through Our Partners and Wider Networks

mPowering works closely with 60+ organizations (via our Steering Committee, Task Forces, and other working groups) and has a network that extends overall to around 150 organizations in the United States, United Kingdom, Africa, and India. In this way, we are able to bring people and organizations together to collaborate and support projects, research, and advocacy. It is a powerful model which ensures that limited resources are maximized and duplication avoided.

mPowering is currently working with partners in several countries where there are mHealth solutions that demonstrate potential for scale-up (Ethiopia, India, Malawi, Nigeria, Uganda, and Kenya) and the potential to adapt content and mHealth models for other countries.

3. Through Linking with Programs and Global Health Initiatives

mPowering is also working closely with a number of programs and high-level global health initiatives such as the Every Woman, Every Child and Every Newborn Action Plans to help leverage existing funding, experience, and expertise to scale up mHealth solutions for FLHWs.

4. Through Research and Advocacy Efforts

mPowering is working with partners to help build the evidence base for mHealth applications for FLHWs. Evidence will be used to support advocacy efforts to mobilize resources from funders, investors, and governments and to help improve the design of future mHealth initiatives. Research completed to date includes

- a literature review on the current use of mobiles by FLHWs;

- a study on impact of training in local language; and

- development of an mHealth Register: a database of mHealth projects in mPowering and the United States Agency for International Development (USAID) priority countries (working with WHO and the Johns Hopkins University Global mHealth Initiative).

Appendix B: Washington, D.C., Consultation, December 12, 2013

Lesley-Anne Long, Global Director of mPowering, opened the forum. She outlined the overall purpose of the discussion series and introduced the three expert commentators who were invited to set the context for the discussion.

Expert Commentaries

Setting the Context (Hannah Sarah Dini)

The One Million Community Health Workers Campaign conducted a literature review to assess the state of, and evidence gaps in, global CHW training in sub-Saharan Africa and South Asia.

Key Points from the Literature Review

- Ample evidence to indicate CHWs are not effectively trained, remunerated, or retained. Qualities of trainings themselves have not been well-studied.
- Lack of standardized approaches to training:
  - Groups conducting trainings include NGOs, governments, and NGO/government partnerships.
  - The same FLHW may receive training on the same content from multiple providers.
  - Training can be comprehensive or narrowly focused.
  - Length of trainings is inconsistent and variable.
  - There is little focus on the learning pedagogy.
  - There is little evidence on team-based learning or training of supervisors to be effective trainers and facilitators.
- With some exceptions, there is very little MOH ownership of curricula. Training tends to be a one-time event, rather than an iterative process.
- There are few evaluative measures in place to assess compliance with curricula. South Asia is an exception to this generalization.
- Evidence indicated very little use of digital tools for CHW trainings. Where they were used, it was more likely to be for in-service than for pre-service training.
- Broadly, there is insufficient and/or poor-quality evidence regarding CHW trainings. Exceptions to this generalization are Nepal, India, and Bangladesh.

Recommendations

- Training approaches should be coordinated between providers and incorporate CHW feedback to improve training methods and curricula.

- Training should incorporate a wide use of interactive teaching methods, including mobile technology; evidence suggests that a blended approach to learning improves learning outcomes.
- There should be continual assessment of training curricula and programs incorporating feedback from CHWs.

Discussion

- The literature review made the point that the definition of CHW is a broad category—when we think about learning and information needs, we should remember that the CHW role can vary widely, for example, with respect to tasks they are expected/allowed to carry out, compensation, and career mobility.

- Assessment of the current landscape with regard to CHWs should be a process starting with the health MDGs and then identifying interventions, services, skills, and training needed for CHWs to help achieve them.

- NGOs, governments, and training institutions are devising curricula and creating learning resources on their own. If an external group defines a standard, everyone is still going to want to make their own modifications to it.

- Evidence was not granular enough to look at the difference between training paid and/or volunteer CHWs.

- Additional resources to look at include *A Global Improvement Framework for Health Worker In-Service Training* (USAID Applying Science to Strengthen and Improve Systems Project 2013) and USAID's *Community and Formal Health System Support for Enhanced Community Health Worker Performance: A U.S. Government Evidence Summit* (Naimoli et al. 2012) which address supervision of CHWs.

Summary

- There is a clear disconnect between CHW program delivery management and monitoring. A comprehensive CHW training approach should be pursued.

- Recommendations include:
  - Encourage coordination among training providers.
  - Develop more interactive pedagogy.
  - Improve quality of training content and delivery guided by CHW feedback.

1. A Model of Re-Usable Content (Sarah Shannon)

Known for its publication *Where There Is No Doctor* (Werner, Thuman, and Maxwell 2013), Hesperian has 40 years of experience in content development and local-level adaptation to support CHWs and CHW training. Intensive field-testing is used to draft content into a training module, typically involving sites in as diverse a geographic area as possible.

Key Points

Hesperian has developed several digital tools including:

- Health Wiki: Provides information in a lightweight, flexible format and is suitable for slow or intermittent Internet connectivity.

  - Is piloting integration of short procedure videos translated into multiple languages.

  - Enables timely updates of medical information and allows individuals to incorporate translated material, facilitating adaptation of content and serving as a repository of translated content.

  - Mobile-friendly version of wiki launched in February 2014.

  - It is easy to copy and paste content from the wiki.

  - Wiki content is currently in 11 languages, with more content in more languages to be added. Can be easily navigated across languages.

- Image Library: Provides images relevant to training curricula tagged by keywords to facilitate searches.

- Hesperian Mobile App: "Safe Pregnancy and Birth." Available in iOS and Android formats in English and Spanish, and can be used on smartphones, tablets, etc. It ranked among the top seven apps out of over 1,600 mHealth apps for providing empowering information.

- All content is adaptable and is available for download in pdf format, in the health wiki, and on e-readers.

- Source content is designed to be localized.

- There are clear guidelines on adaptation of content.

Discussion

- MOHs will frequently repackage and rebrand content, which is what the content has been designed for.

- Content is currently used in 221 countries and territories. Some countries provide better information about use than others.

- Hesperian is currently planning a major revision of *Where There Is No Doctor* (Werner, Thuman, and Maxwell 2013), informed by research on the topics CHWs want and use the most. Source content for CHW trainings is designed to be localized.

- Users adapting content include: national and international NGOs, Peace Corps Volunteers, some MOHs, and medical missions.

- Information in each print book is estimated to reach 40–60 individuals.

- Funding has traditionally been generated through book sales. With the transition to a digital platform, new sources of funding have to be identified.

Summary

- All Hesperian content is adaptable and designed to be localized and to support CHW training.

- Business models need to be created to support development and dissemination of open source content.

- Clear guidelines on adaptation are available but it has been difficult to track use because of the nature of open source guidelines.

2. Developing Content for Online Learning (Dr. Rishi Desai)

Khan Academy is a leader in online learning with a commitment to developing rich and engaging content on a platform incorporating text, wikis, videos (conceptual and procedural), and robust learning analytics.

Key Points

- A core curriculum, if adapted for a mobile device, should be developed on a rich and engaging platform.

- Every course has a learning dashboard. This helps learners assess their progress and maintain their competency by keeping training or knowledge at a certain level.

- For most learners, there is a "forgetting curve"; the analytics of a Khan Academy course can anticipate the individual memory loss curve and send questions to the learner in anticipation of memory loss.

- Content can be individualized and mixed and matched to meet the needs of the learner. Learners can incorporate the content of other learners into their courses and post their own content in their own personal corners.

Recommendations

- When creating course models for CHWs, we need to ask, "How do you continually engage with people?" and identify objectives.

- Develop a content heat map for common skills or domains of CHW competencies.

Discussion

- Development of a content heat map might be useful for piecing together a group of modules for effective localization because content needs are not going to be homogenous.

- Convincing someone to change [the way they learn and apply their knowledge to practice] is a difficult process. Institutional adoption is necessary to achieve scale. Content needs to be free of charge. You can use analytics to generate supervisor support and could potentially shift teachers and supervisors to a coaching role.

- Motivated CHWs will refresh their knowledge on their own. The advantage of a mobile platform is that it is more guided and allows for monitoring progress.

- A gaming approach or certification could be used as motivators. Badges could be awarded as CHWS work through modules.

- Attention should be paid to how this learning approach will interact with cultural norms. There can be universal content, but standardization might be difficult. Are there major pieces of information that are going to be customized? It might be easier to accomplish this with a modular approach in which you develop text content at the same time as you develop multimedia content.

Summary

- Khan Academy continues to explore ways to engage with users.

- Individual use cases point out to individuals what they need to know and later move onto institutional adoption.

- Consideration of evaluation criteria for existing curricula, how standardized core curricula would be deployed, and how integrity of the curricula will be maintained need to be considered. Trainings might end up focusing on protocols rather than pedagogy.

Discussion of Core Training Resources

Following the three expert commentaries, participants were asked to consider the case for a core set of learning and information resources for CHWs. Questions debated included the following:

- *Is there a role for a central, open-access web resource of core CHW resources in different languages, which may then be adapted, further translated, and re-used for different local contexts and different formats such as mobile devices—phones and tablets—as well as available as print-based resources?*

- *Is there a case for standardization of content, so that all CHWs are trained using the same learning resources?*

- *Is it possible to define a "minimum package" of knowledge and skills that every CHW should have in order to address common health issues in the community?*

- *Could a common set of learning resources make it easier for NGOs and MOHs to coordinate and evaluate programs more effectively?*

Ultimate Goal

Improve quality and consistency of CHWs' training so they are able to provide better health services in their communities, which will lead to improved health outcomes.

Questions and Key Points from the Discussion

- Is there a common set of goals that might be adopted in different countries?

- Would it be possible to standardize evaluation criteria of existing health content, instead of creating a core curriculum?

- Would there be any money directed at repurposing and reusing content (versus content creation)?

- Is standardization of effective methods for training CHWs (not just content) a key element to consider for a core curriculum?

- More research is needed to test the assumption that existing curricula could be used in more than one region.

- What are some of the advantages of a core set of learning resources?

- A set of core learning resources may offer a potential value-add to what the MOH is doing already.

- The content may change the way trainers train CHWs.

- Core resources could make trainings modular by time—1 week, 1 month, etc.

- Core resources could be localized and translated.

What are some of the challenges of a core set of learning resources?

- MOH desire to have their mark on content—they might not want to use generic resources

- Local demand for cultural relevance

- What to teach online vs. offline

- Hard to get content feedback from users

- Hard to localize video – but this can be managed through voice-over or sub-titles. Evidence suggested that where the health workers are filmed is less important than the setting being authentic.

The Funder's Perspective: What is important? Is standardized training needed to make an impact [and deliver better health services]? What are donors interested in funding?

- Common practice has been to fund content development and not content reuse.

- Who would be the "winners" and "losers" if there is a set of existing core learning resources that donors insist implementers use?

- What role does accreditation play in content development versus content repurposing?

- Is there research/evidence to show the same learning resources could be used in more than one country/region? More research is needed to answer this question.

If there is a common set of learning resources, what are the implications?

- Instead of paying for new content to be developed, should money go instead to initial and continuous training?

- Curriculum developers are funded to develop new content—will they be willing to shift to reusing existing content?

- If the purpose is to impact positively on health outcomes, what does it matter if money goes toward developing new content vs. reusing existing content?

- How much updating is needed in basic CHW training? In some countries, you see work silos—one health worker cadre is trained in maternal health, another is trained in HIV, another in neonatal, etc. How would a core set of resources help solve this issue?

- Donors' focus tends to be on content development. If focus shifted to content reuse, and evaluation of use of content, more stakeholders may put emphasis on repurposing existing content.

Can we actually create a core set of CHW learning resources? If yes, what needs to happen?

Core Curriculum

Challenges, Barriers, and Opportunities

- How would international agendas align on this topic?

- Who else should mPowering engage in this conversation as we take the conversation to London, Nairobi, and Jo'burg?

- How do we get MOHs (and Ministries of Education?) engaged?

- What other stakeholders should be part of the discussion?

- A core learning resources review panel and timeline should be created for both the series of workshops and beyond—if the idea of a core set of CHW learning resources is endorsed.

Key Players to Engage

Participants agreed that mPowering should continue with the discussion series to gain additional information and engage additional stakeholders on future topics. Stakeholders mentioned in the meeting included:

- Governments, including Ministries of Health and Education

- Mobile network operators

- CHWs, supervisors

- Training centers

- WHO

- Academia

- NGO content publishers such as Johns Hopkins Center for Communication Programs, BBC Media Action, etc.

Appendix C: The London, Nairobi, Johannesburg, and Geneva Consultations

Summary

Introduction

The facilitators—Wayan Vota and Lesley-Anne Long for London, Nairobi, and Geneva, and Wayan Vota for Johannesburg—gratefully acknowledged the supporters of the events. They then set the scene outlining the background to mPowering, which is a public-private partnership launched by USAID and the mHealth Alliance to help end preventable child and maternal deaths by accelerating the use of mobile technologies to improve the performance of FLHWs. See Appendix A.

The focus of the discussion series was not just mHealth, but more generally CHWs and how we can better meet their learning and information needs through multimedia content, including print-based as well as e/mHealth resources. The facilitators referred to previous CHW discussions that have drawn attention to the "super-saturation" of content (i.e., multiple versions of similar training resources) and the need for more collaboration and greater inter-agency cooperation, which could help save time and money as well as providing end-users with more focused programming (Macdonald 2013).

Discussion of Definitions

The discussion of all four consultations opened with a quick "go-round" on the definition of a CHW. Participants considered ways in which CHWs are trained, and how effective that training is, before discussing ways to support CHW learning and information needs globally.

Training Components: Content, Curriculum, Pedagogy

The discussion moved to consideration of the three main components of training: (1) content (the book or the store of the data); (2) curriculum (the way in which the content is put together); and (3) pedagogy (the way the curriculum is taught).

Participants were asked which of the three components most *needs* to change to support effective CHW training, and which of the components would be *easiest* to change. Overwhelmingly, they voted that pedagogy needs to change but that content would be easiest to change (see table). More detailed discussion notes follow, in the individual consultation sections.

Table 1. Content, Curriculum, Pedagogy: What needs to change and what would be easiest to change?

	London		Nairobi		Johannesburg		Geneva	
	Needs to change	Easiest to change	Needs to change	Easiest to change	Needs to change	Easiest to change	Needs to change	Easiest to change
Content	6	16	6	17	0	7	5	9
Curriculum	3	6	3	6	2	3	2	2
Pedagogy	16	2	16	2	11	3	13	2

Note: Not all participants voted.

CHW Training: What do we know about it? A Literature Review

mPowering commissioned the One Million Community Health Workers Campaign to do a literature review on the current state of play of CHW training in sub-Saharan Africa and three South Asian countries (Redick and Dini 2014). More than 100 published and unpublished pieces of literature were selected and analyzed to identify current CHW training practices.

Key Questions

1. How long do CHW trainings last?
2. How often are trainings held?
3. Where do trainings take place?
4. Who are the providers of these trainings?
5. How are CHWs taught?
6. How are CHWs assessed?
7. What content is used in the trainings?

Findings

- CHWs are not well-trained, and the quality of training for those who do receive it has barely been studied—there are large gaps in the evidence base.
- Duplication, inconsistency in the duration of training, and mixed methods were common features.
- Training was much more successful when there was close coordination between the MOH and NGOs.
- Use of technology is recommended to support delivery of more effective training.
- CHWs should be involved in helping to shape their training.
- There should be pictorial and/or audio-visual training for non-literate users and it should be available in different languages.
- Providers of CHW training should monitor what CHWs have learned.

- We know that there is a "disconnect" in the way that training programs are managed and monitored.
- Ensuring that CHW training takes place wherever the CHWs are would have a positive impact on the way they do their jobs.

Discussion

- In relation to assessment, training is evaluated by CHW attendance rather than competencies learned. Competency assessments and a link to certification would help to ensure CHWs reach a certain standard.
- Using film is important for CHW training. Little Fox Communications described how understanding who the target audience is and what message they need to learn will feed into the design of the video content.
- There is very little evaluation of training to measure compliance with the curriculum. One exception to this is in Nepal, yet even there it's not known whether what is being taught is being applied in practice.
- Video does not necessarily need to be filmed in the country in which it is used for teaching: the Global Health Media Project has filmed health workers in practice in Nepal and these films are being used in sub-Saharan Africa and South America. What's important is that the setting was authentic and that CHWs recognized this as being relevant to them.
- In Ethiopia, the Level IV Health Extension Program (print-based) is being adapted and supplemented with mobile content: video, self-assessment quizzes, and text content—blended learning using smartphones. It is building on existing information and using open source content from organizations such as the Global Health Media Project (http://globalhealthmedia.org/) and Medical Aid Films (http://medicalaidfilms.org/).
- Governments do not feel that materials developed outside their own country can be effective resources. If the government has ownership of the content development process, there appears a greater likelihood of content being used. There needs to be a platform to work with governments.
- Potentially, generic content can be adapted and localized and then taken to the MOH for approval for use in-country. Thorough research and accessible platforms are needed.
- The outcome [of using good content for CHWs] is a much better quality of care. The CHW, the community, and the Ministries will all benefit.
- If there is a core set of learning resources, would it be possible to produce a global CHW standard? Something like that needs to be built up over time. It requires relationship building with the relevant Ministry. One challenge is that "champions" move on and the relationship building often has to begin again.
- Advocacy with donors is vital; expectations on innovation/quick wins impact in a short time are not realistic.

The One Million Community Health Workers literature review fed into a broader piece of work that brought together the mPowering health content survey (mPowering Frontline Health Workers 2014) and the 2013 WHO expert consultation on CHWs. The integrated analysis of those reports was published in May 2014 (Dini and Redick 2014).

Next Steps

- A report capturing key points from the discussion will be circulated to all participants.

- The CHW training literature review (Redick and Dini 2014) will be posted to the mPowering website.

- Alongside the series of face-to-face meetings, the Healthcare Information for All Campaign is running a discussion forum. More than 50 people from 27 countries have already contributed to the debate (see Appendix D).

- There will be a final report, which synthesizes the key points and recommendations from all of the CHW discussion forums. This will be shared with WHO to inform their thinking around curriculum, content, and standardization of CHW training. The discussions and report will therefore make a contribution to policy development around harmonization of CHW training.

- Discussions are under way for an expert review team to be established to create a set of generic CHW learning resources (e.g., on handwashing, breastfeeding, antenatal care, danger signs in pregnancy and in children under five years old) and job aids, which could be adapted and translated for use in any country.

- Advocacy will be a key activity, including raising donor awareness and promoting support for the reuse and repurposing of existing high-quality CHW resources.

Closing Remarks

Finally, at the end of each workshop, the facilitators thanked everyone for their valuable contributions to the discussion and invited colleagues to stay engaged with mPowering through similar events, webinars, and other activities throughout the year. At the conclusion of the Geneva discussion, Lesley-Anne expressed particular thanks to Dr. Muhammad Mahmood Afzal (from the Global Health Workforce Alliance Directorate) for his opening presentation, which helped to set the context for the discussion, and to Dr. Kwesi Asabir (Deputy Director of Human Resources, MOH Ghana) and Mr. Foday Sawi (Deputy Minister of Health and Sanitation in Sierra Leone) for coming so far to share with colleagues their vision for health sector strengthening and the role of CHWs as a key part of their respective national strategies.

The following four sections present details of the discussions from the London, Nairobi, Johannesburg, and Geneva consultations.

London Consultation, February 6, 2014

Introduction

Opening the London meeting, Lesley-Anne Long, Global Director of mPowering, acknowledged Vodafone's generous hosting and support for this event.

Discussion of Definitions

Who is a CHW?

- May be paid a government salary, a volunteer (unpaid), or receive a stipend based on performance.
- Can be formal (i.e., part of the government system) or informal, or work for NGOs.
- The first person of contact for health care.
- Could be a professional on the front line, in rural and urban settings.[6]
- Usually someone from the community who is serving the community.
- Overburdened—sometimes only a volunteer with another job.
- Usually a non-specialist although in some countries a CHW will focus on one area of health care, such as nutrition or water, sanitation, and hygiene.

What training do CHWs receive?

- Training varies considerably: face to face; on the job via a mentor; through government training; through NGOs using a defined curriculum (but sometimes not).
- Integrated Management of Neonatal and Childhood Illnesses is a good example of standardization of (locally adapted) generic content, which has been successful in many countries.
- Some countries have a defined curriculum (e.g., Ethiopia, Mozambique, Pakistan, Malawi, Nepal, Rwanda, Kenya, Tanzania, and Sierra Leone).
- There are also examples of private institutions offering CHW training (e.g., India) although other countries have banned private institutions from providing training (e.g., Ethiopia).
- It is mainly pre-service training; in-service training doesn't happen as much. There are formal examples (e.g., the Level IV Health Extension Program in Ethiopia); Nepal, Nigeria, and Indonesia provide in-service training to some of their CHWs.
- CHW training is not adequate in all countries.
- It is not always possible to get people together from remote places for training. Some countries like Ethiopia and Nigeria have CHWs work in the field for a set period of time, and then the CHW goes to a training institution for additional training, sometimes for up to a year.
- "Ad hoc" trainings are provided by NGOs and are dependent on availability of funds.
- CHWs who need training are not necessarily the ones who get it; the per diem system may distort CHW selection for trainings (e.g., a CHW may attend the same training twice).
- There's no globally agreed-upon set of competencies for CHWs.

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[6] FLHWs include but are not limited to CHWs. Other FLHWs include doctors, nurses, community midwives, pharmacists, and others with professional training.

- There's no global strategic approach to training CHWs.

- Peer education is one model of training (e.g., in mothers2mothers [http://www.m2m.org/where-we-work/south-africa/], mothers living with HIV are trained to support other mothers living with HIV)

- Online training can reach more people—CHWs cannot always leave their posts to go to face-to-face trainings.

What would adequate CHW training look like?

- There are examples of good training but the infrastructure can make it hard to bring CHWs from remote areas to the training.

- One model of effective training is the Khan Academy program with its use of self-education with pre-recorded video, followed by group discussion about the content of the video.

- Adequate training should start with a local understanding of CHWs' information needs, including an understanding of their day-to-day work and resources. *"Every good project should start with a needs assessment."*

How can we better train CHWs globally?

- Hands-on mentoring is a massive gap.

- Video resources can be used to reach multiple CHWs.

- If there was a fixed sum of money, in-person training would be more favorable than online training.

- Blended learning is the most effective approach.

- If training is online it disadvantages CHWs who have limited Internet access.

- We need to consider what training could support CHWs who can't read or write.

- CHWs are better trained by governments, but more motivated when they report directly to NGOs.

- A functional health system is the overall goal.

Training Components: Content, Curriculum, Pedagogy

Content

- Content needs to change; even if the trainer is fantastic, if the content is not relevant or is out of date then it's not going to deliver effective learning.

- Content needs to be accessible and available in different formats that take into consideration the needs and learning styles of the CHW: for example, video, audio, text. Relying on just a manual isn't enough; flexibility and choice are needed.

- We need to think about how CHWs can "self-learn" and about the importance of role models and peer educators (for example, in mothers2mothers).

- Training shouldn't stop in the classroom. Continuing professional development is needed, but it doesn't happen very much.
- Content should be responding to demand—find out what health services the community needs and then train CHWs in those areas.
- It's critically important to link training to supervision and support.

What most needs to change to support effective CHW training?

The participants supporting pedagogy change argued that without good training and "student" support, health workers would not retain their knowledge and skills and would not be able to apply them to practice. The importance of a blended learning approach was noted, not just for the practical reasons of difficulties getting CHWs to trainings, but also because training on the job (in the workplace) is an important aspect of learning.

What would be the easiest to change?

Although the majority of the group felt that what needed changing most is the way in which CHWs are trained (pedagogy), participants also believed this would be the hardest to change. It would require a coordinated approach across MOHs, NGOs, and training institutions as well as ongoing support for training tutors to deliver effective learning and student support. This would be expensive, take years, and need monitoring and evaluation (M&E), as well as ongoing training programs for tutors as new ones replaced those leaving the sector. Content, which most saw as least likely to need changing, was viewed as the easiest to change. In fact, this is partly what leads to the "super-saturation" of content, with organizations all developing their own materials. Even where there is a curriculum framework in place, organizations are often allowed to create the content that fits within it rather than work from a generic resource.

What are the issues we need to think about in relation to CHW training and support?

- Coordinate training across providers—there should be more collaboration and more reuse of existing materials.
- CHWs drive training improvements—they should be included in the design of trainings and their feedback should be used to drive training improvements.
- Use more technology in training—online and mobile; this will support ongoing learning and also reach more CHWs.
- More pictorial/video content will help to overcome literacy issues.
- There should be more content in local languages.
- Link supervisors to CHWs in the training process—have supervisors invest time in CHW training and follow-up (through mentorship).
- Make better selections of who is trained: Are CHWs attending trainings they need or just trainings they are interested in (because it's easier)?

- Reduce distortion caused by per diem incentives. Could the money saved be used instead to incentivize learning in the workplace? Or completion of mobile assessments that demonstrate understanding?

- Carry out M&E on training effectiveness; there should be pre-training competency assessments and more post-training evaluations. This will help us understand better how CHWs have retained learning and are applying it in practice.

- Evaluate compliance with curriculum.

What should be core to CHW training and how should training be delivered?

- How to be a CHW—how to deal with patients (confidentiality, counseling, respect for patients, listening skills).

- Flipped classrooms: watching content on mobile devices and laptops at home and then using classroom time to discuss points with tutors and peers.

- Follow the HIV counselor model in Kenya, that is, peer-to-peer learning.

- Continued training is important; it should not be a "one off," which is frequently the current practice. There needs to be in-service training and opportunities to refresh learning; this is where mobile can help.

- Flexibility and choice—curriculum, pedagogy, content—we need to take into account people's different learning styles, their previous education experience and level, and the context in which they work.

- Film the trainer: a "trainer in the mobile" can reach many more CHWs than can be reached via classroom learning.

- Motivate trainers to be interesting; too many trainers are not taught how to be effective in facilitating learning. They need to move from the "sage on the stage" model to "coach on the side."

- Needs-based: ask what CHWs need—don't assume to know what they need to learn.

- For print-based learning, make it more interactive. Use case studies and activities; get the health workers to reflect on their own experience and on what they're reading (i.e., how does it apply to their own practice).

- Develop a modular curriculum that can be repackaged for different purposes.

What if the "perfect" content/set of learning resources existed (for pre- and in-service training)? What issues would still need to be tackled?

- Will the MOH allow the NGO, training institution, etc., to use the resources?

- Are the resources in the local language?

- Does the content represent "people like me"? For example, does a video have to show local people or is it more about the setting being authentic? Both Global Health Media Project and Medical Aid Films videos are shown in multiple countries and are used by hundreds of organizations other than where the original filming took place.

- Online barriers: power/connectivity/access to computers.
- Literacy: both the language and digital literacy.

If there is a core set of learning resources, who will champion these and who are the "winners"?

- Private sector would promote using and building on existing resources as being a cost-effective way to invest funding.
- M&E—it will be easier to evaluate programs if content is standardized.
- Tech companies that design platforms could be keen to host content on their sites.
- Directors of training—having access to existing content could make it easier to create training programs.
- CHWs will gain if current content gaps are addressed.
- Community will gain through CHWs trained to consistent standards through core learning resources.
- Health system will gain—better-trained CHWs at lower costs; investment can instead go into implementation and evaluation.
- Trainers will not have to develop new content.
- There will be economies of scale with reuse and adaptation of existing content.
- Ministers of Health and Finance, because they will not be asked to invest in developing new content (expensive).

If there is a core set of learning resources, who might be the detractors and the "losers" in that situation?

- Niche content might not be developed as it would not be seen as core to training—so it could miss out in investment (for example eye health, mental health, non-communicable diseases).
- Content creators could be opposed if it affects income generation for their organization.
- Funders and implementers who love innovation and pilots.
- Directorates and developers of training programs might feel loss of control?
- Trainers might feel lack of ownership?
- Who would assess standards?

What models or organizations can we learn from?

- Projects that use open source content and platforms.
- The Open University (UK): large-scale health and teacher education programs reaching hundreds of thousands of people, working with governments and local stakeholders.

- Mobile Alliance for Maternal Action: generic content that is localized and government-approved; modular content.
- Ethiopia: delivering standardized content to upgrade its 34,000 Health Extension Workers.

Nairobi Consultation, February 11, 2014

On February 11 in Nairobi, mPowering brought together 33 people from 27 organizations to discuss critical questions about the learning and information needs of CHWs.

Introduction

Opening the Nairobi meeting, Lesley-Anne Long, Global Director of mPowering, acknowledged Amref Health Africa's generous hosting and support for this event.

Discussion of Definitions

Who is a CHW?

- The term FLHW was considered to include CHWs, in addition to physicians, nurses, and other health workers.
- The term CHW was further defined as a health worker interacting with patients specifically at the community, or household, level.
- CHWs can be paid or unpaid, rural or urban, and recruited and employed by the national government or a non-profit organization.

What training do CHWs receive?

- Training varies considerably in method, including face to face, on the job via a mentor, and government trainings; the curriculum is sometimes prescribed by the government.
- CHW training is not adequate in all countries.
- Some countries have national curricula for CHWs (e.g., in Mozambique, Ethiopia, and Kenya).
- Integrated Management of Neonatal and Childhood Illnesses is a good example of (locally adapted) generic content, which has been successful in many countries.
- Some private institutions offer CHW training, although a number of countries have banned private institutions from training (e.g., Ethiopia).
- A majority of training is pre-service, with in-service training being rare and the quality poor.
- Often, it is not possible for remote CHWs to attend off-site trainings. In some cases (e.g., Ethiopia and Nigeria), CHWs work in the field for a set period of time and later attend off-site trainings.
- NGOs often provide trainings, depending on availability of funds.

- CHWs in most need of training may not have access to it due to per diem distortion.
- There are no globally agreed-upon CHW training standards; a global strategic approach does not exist.
- Online training can reach more people, especially CHWs at remote or poorly staffed health centers, which face significant barriers to off-site training.

What does adequate CHW training look like?

- Even adequate training programs are challenged by poor infrastructure, which can be a barrier to remote attendance at CHW training sessions.
- The Khan Academy's program of self-led learning through pre-recorded videos followed by group discussion is a good model of "student" engagement and learner-led activities.
- Training should be based on a needs assessment to understand CHWs' information priorities, their day-to-day schedule, and the resources they have to work with.

How can we better train CHWs globally?

- Improve mentoring opportunities.
- Utilize video resources to expand training reach.
- Prioritize in-person training over online training if resources are limited.
- Strive for a blended learning approach.
- Provide more online learning while being aware that CHWs without Internet will be disadvantaged.
- Cater training to non-literate groups.
- CHWs are better trained by governments, but more motivated when reporting to NGOs.
- Focus on achieving a functional health system.

Training Components: Content, Curriculum, Pedagogy

Content

- Content needs to change to ensure it is relevant and updated.
- Content needs to be accessible in different formats (video, audio, text) to take into account a variety of learning pedagogies.
- CHWs should be able to learn independently with the assistance of a supervisor and peer-to-peer mentoring.
- Continuing professional development should be considered standard practice.
- Content should respond to demand and be adapted to community health needs.
- It's critical to link training to supervision and support.

What most needs to change?

Participants supporting a change in pedagogy advocated a move to a more blended learning approach. This was thought particularly practical for on-the-job training and remote CHWs unable to attend off-site training.

What would be the easiest to change?

Pedagogy was identified as the most needed change, but hardest to do, requiring a coordinated approach across MOHs, NGOs, and training institutions. The process could be expensive and be difficult to evaluate. Content was identified as the easiest of the three learning components to change.

What are the issues we need to think about in relation to CHW training and support?

- Better training coordination and increased collaboration among stakeholders; encouraging reuse of existing materials.

- CHW-driven training improvements: design of trainings should represent significant input from CHWs.

- Appropriate integration of technology in training to support ongoing learning and expand program reach.

- Multimedia content: including pictures and videos is important in addressing literacy issues.

- Content should be adapted to local languages.

- Mentorship is an important element of training; supervisors should be linked with CHWs during training and encouraged to follow up with CHWs post-training.

- Identify those who actually need to be trained (i.e., ensure CHW interest is genuine rather than based on per diems).

- Could the "flipped classroom" provide a model: make content available on mobile devices and laptops for use at home, but use classroom time for discussion (but query about how many health workers would have access to mobile devices and laptops at home?).

- M&E of training effectiveness: pre/post-training competency assessments should be used to better understand retained and applied learning, as well as curriculum compliance.

What should be core to CHW training and how should training be delivered?

- How to be a CHW—that is, how best to work with patients in terms of confidentiality, counseling, respect for patients, and listening skills.

- Peer-to-peer learning.

- Continued/refresher training: providing in-service training and opportunities to refresh learning.

- Flexibility and choice: build more variability into curriculum, pedagogy, and content to take into account different learning styles and CHWs' previous education.

- Multimedia film training on mobile devices: these resources can reach many more CHWs than can be reached via classroom learning.

- Trainer motivation: trainers need to make the content engaging for CHWs.

- Needs-based: content should reflect CHWs' learning needs.

- Interactive, print-based learning: content should use case studies and activities; get the health workers to reflect on their own experience and reflect on what they're reading and how it applies to their own practice.

- Modular curriculum should be developed—this can be repackaged for different purposes.

What if the "perfect" content/set of learning resources existed (for pre & in-service training)? What issues would still need to be tackled?

- Would the learning resources be recognized and accepted by the MOH as suitable training content for non-profit trainings, and would it replace the MOH's own terminology (within the health system)?

- Are the resources adapted to local languages?

- Are visual aids adapted to local context? Is it more important for local health workers and patients to be in videos or is it enough to ensure that the setting is authentic? (Note: Global Health Media Project and Medical Aid Films videos are used widely outside the countries they are filmed in.)

- Sourcing of additional funding to address content gaps.

If there is a core set of learning resources, who will champion these and who are the "winners"?

- Private sector donors: using and building on existing resources could maximize funds and facilitate M&E efforts.

- Tech companies and mobile network operators: could be keen to host content on their sites.

- Directors of training: access to existing content facilitates creation of training programs.

- CHWs: improved knowledge when content gaps are addressed.

- Community: improved quality of care as CHWs are trained to consistent standards through core learning resources.

- Health system: better trained CHWs at lower costs allowing reallocation of funds to implementation and evaluation.

- Trainers: reduced need to develop health content; they would have a ready resource to go to for materials.

- Economies of scale through the reuse and adaptation of existing content.

- Ministers of Health and Finance: reallocation of funds from content creation to other needs of CHWs (such as mentoring, supervision).

If there is a core set of learning resources, who might be the detractors and the "losers"?

- "Niche" content might "lose out" as it might not be seen as essential training, and content may not be developed in these areas (for example, eye health, mental health, and even non-communicable diseases).

- Content creators may see a central repository of reusable content as a challenge to their source of income.

- Funders and implementers often want to focus on innovation rather than reuse and therefore funding does not necessarily encourage proposals to promote reuse and adaptation of content.

- Directorates and developers of training programs may feel they have less control/authority over the content.

- Trainers may feel challenged by lack of ownership.

What models or organizations can we learn from?

- Projects that use open source content and platforms. For example:
  - Open University (UK): has worked with governments and other partners/local stakeholders to develop large-scale health and teacher education programs reaching hundreds of thousands of people.
  - Mobile Alliance for Maternal Action: uses generic, localized and government-approved modular content.
  - Ethiopia: has shifted to standardized content to upgrade its 34,000 Health Extension Workers.

Johannesburg Consultation, February 13, 2014

On February 13 in Johannesburg, mPowering brought together 15 people from over a dozen organizations to discuss critical questions about the learning and information needs of CHWs.

Discussion of Definitions

Who is a CHW?

- Most CHWs are volunteers, not formally trained, and not recognized as FLHWs.

- Some may be part of the formal health system, trained, and receiving a low stipend.

- They are considered community representatives and a link between the community and the health system.

- Skill sets among field workers are segmented across HIV, maternal, and mental health content areas.

What training do CHWs receive?

- Zambia, great training curriculum

- Lack of support and supervision

- Mentoring by experienced community health educator

- Training by NGO (fragmentation of training)

- Training of trainers

- Aligned with national guidelines

- Create their own content

- Government outsourced to partners

- University-developed content

- South Africa is currently trying to formalize a training curriculum. Current training is variable and conducted by different organizations on different topics (for example, mothers2mothers is sending questionnaires to understand need and then will look for government-produced updates once a year).

Training Components: Content, Curriculum, Pedagogy

Content

- Enough content exists, but is not standardized. It is assumed better content is needed for some topics, but there has been no assessment of what exists and no centralized database of content.

- Content should be adapted to local needs, be available in local languages, integrate job aids, and be the larger focus of efforts rather than technology platforms.

- Help accessing and distributing content is needed.

Curriculum

- Should be structured, CHW-driven, and allow for refresher trainings.

Pedagogy

- The learning process should be interactive, experiential, and participatory.

- Peer mentoring and coaching support should be considered an integral part of the learning process.

Format

- Content could be made available in a variety of formats including: audio book, Short Message Service (SMS) on feature phones, diagrams and pictures, speaking books, printed books, and text.

What most needs to change?

A majority of participants identified pedagogy as more important to change than either content or curriculum. Participants argued that pedagogy should support an interactive and participatory model to engage learners. None of the participants identified content change as a need, while only a few identified curriculum change as needed.

What would be the easiest to change?

Contrary to what participants identified as most needing to change, pedagogy, content was identified as the easiest to change. Pedagogy is difficult to change as the MOH makes decisions about the learning process, including integration of peer mentors. Participants made the point that curriculum could be easy to change if they had government approval, as the government dictates curriculum.

What should be core to CHW training and how should training be delivered?

- Existing content includes integrated community case management of childhood illness; prevention of mother-to-child transmission of HIV; integrated management of childhood illness; infant and young child feeding; directly observed treatment, short-course and Engage TB; neonatal sepsis and meningitis; Helping Babies Breathe; and severe acute malnutrition.

- Content gaps include psychosocial training including gender violence and substance abuse, infant feeding and nutrition, context-appropriate mental health, catchment area mapping, child mortality drivers, HIV and TB, M&E, theories of behavior change, social determinants of health, and power dynamics.

- Participants suggested a bottleneck analysis for identifying content gaps.

What if the "perfect" content/set of learning resources existed (for pre- and in-service training)? What issues would still need to be tackled?

- Content would need to be adapted to a localized context, translated into a local language, be user-friendly for CHW use, and include simple job aids.

- Implementation should be cost-effective, materials should be open source and easily updated, and a training of trainers should be an integral component.

- Training should be participatory, experiential, and include tutorials and follow-up.

- The process should be government-endorsed, integrate with the existing community health system, and legitimize CHWs.

- CHWs would need to be convinced of a need to change current practices.

If there is a core set of learning resources, who will champion these and who are the "winners"?

- Donors, as reuse of content allows funds to be shifted to other needs

- Trainers over the short term as: (1) it would be easier to create training programs, and (2) they will not have to develop new content

- CHWs, given current gaps in content are addressed
- Government if accepting of standardized curriculum content
- The variety of health system stakeholders

If there is a core set of learning resources, who might be the detractors and the "losers'" in that situation?

- Content developers who might lose income
- Government if not aligned with standardized curriculum content
- NGO who will lose ownership of content and grant money for development
- Publishers if content is in a downloadable format
- CHWs as they are challenged to change

Geneva Consultation, April 17, 2014

On April 17 in Geneva, mPowering brought together 27 people from 20 organizations to discuss critical questions about the learning and information needs of CHWs. This was the final session of a series of discussion forums that mPowering and its partners have hosted in five countries over four months, to align with and build on the CHW harmonization debate at the 2013 Recife conference in Brazil.

Discussion of Definitions

Who is a CHW?

- Living at the community level, CHWs are typically fluent in the local dialect, trusted by the community, respond to community need versus career goals, and passionate about their role. A "community" can be a geographic area or a demographic group.
- CHWs can be paid or unpaid, and are typically female. Religion can play an important role in their life and work.
- Depending on the MOH view, CHWs can be part of the informal health sector rather than the formal health sector.
- While receiving basic training, CHWs often desire specific training, such as in HIV counseling.
- Compared to CHWs, some FLHWs are better trained and members of formal associations.

What training do CHWs receive?

- Training curriculum typically includes basic health education, treatment, and disease prevention.
- Training models are diverse, including:

- Classroom training—focuses on theory rather than practical use, with knowledge evaluated by a test.

- Health facility training—provides opportunity for practical training and mentorship.

- Mobile training—delivers training content by SMS, resulting in self-guided learning.

- Chalk and talk—facilitates exploration of knowledge gaps, allowing needs-based training.

- Some countries have a well-developed national curriculum. For example, the Ethiopia Level IV national training curriculum is a country-wide blended learning model of classroom and field training resulting in a certificate and an upgrade in the workers' role and salary.

- Often, providing per diem payments distorts training representations, with those with more power and influence being trained rather than CHWs.

- Some countries (India, Mexico) pair trainees with experienced workers for in-service training.

- A variety of groups provide training, including NGOs, MOHs and at times Ministries of Education, other FLHWs, UN agencies, religious leaders, and/or private training programs.

Training Components: Content, Curriculum, Pedagogy

Content

- Ideal content is standardized, validated, and supported by evidence. It should be contextualized, localized, and personalized. It would be available anytime and anywhere, available in multiple formats, including electronic and paper-based, but appropriate to the workers' level of written and digital literacy.

- A variety of mixed content formats should be embraced:

  - Print-based modules, books, and eContent

  - SMS messages, including Interactive Voice Response messages, given literacy barriers

  - Decision trees and codes of content

  - Cue cards and posters

  - Online forums and blog posts

Curriculum

- Essential curriculum components include:

  - Core competencies

  - Learning objectives

  - Evaluation

- Expected outcomes
- Pre- and post-tests
- Refresher trainings
- Additional potential curriculum components include:
  - Modularized training
  - Training of trainers
  - Post-training action plans
  - Appropriate refresher trainings
  - Incorporation of local innovation
  - Sanctions and best practices

Pedagogy

- There are a variety of training methods, with relevance depending on context and content. Emphasis should be placed on methods that generate excitement around learning. Methods include:
  - Peer-to-peer review and feedback
  - Group and action learning work
  - Role play
  - Practical exercises and participatory learning
  - Self-assessment and self-paced learning
  - Online learning and gamification

Format

- Ideally, all CHW training would incorporate a pre-training assessment, provide payment and performance incentives, be integrated with the community and the formal health system, and be provided by local community members.

What most needs to change?

A majority of participants identified pedagogy as more important to change than either content or curriculum.

What would be the easiest to change?

Contrary to what most participants identified as *needing* change, pedagogy, content was identified as the easiest of the three to change.

What should be core to CHW training and how should training be delivered?

- A handful of topics were identified as examples of common training materials already being used by CHWs (and/or other health workers) across multiple

countries, including: integrated community case management of childhood illness, integrated management of childhood illness, Helping Babies Breathe, and at-home newborn care.

What if the "perfect" content/set of learning resources existed (for pre- and in-service training)? What would facilitate adoption?

- Government ownership and integration with national standards
- Standardized quality and agility for content update
- World Health Organization acceptance and validation
- Localization of content to social and cultural context
- Funding for content delivery to CHWs
- Expanded use of electronic and mLearning platforms for expanded reach

Appendix D: Online Consultations

Healthcare Information for All (HIFA) Campaign: http://www.hifa2015.org/

HIFA members are contributing to the CHW debate online. The following three questions were posted on the forum in early December 2013:

1. *What can be done better to meet the health information needs of CHWs so that they are empowered to learn, to assess and manage correctly, and to save lives?*

2. *Is there a role for a central, open-access web resource of core CHW resources in different languages, which may then be adapted, translated and re-used for different local contexts and different formats such as mobile devices – phones and tablets – as well as available as print-based resources?*

3. *Is there a case for standardization of content, so that all CHWs work from the same set of learning resources?*

The key points that emerged from the HIFA members' discussion were:

- There should be a "bottom-up" approach (i.e., starting from the context in which CHWs work); would it be possible for a team of people to visit several countries and talk to CHWs, asking them what they feel their learning needs are and the information they want?

- Efforts to avoid duplication and streamline content may help improve standards of care.

- Success in improving health outcomes means there needs to be a balance between curative and preventive care activities.

- Interventions [in India] could be best directed at encouraging better functioning Village Health Committees.

- CHW Central (http://www.chwcentral.org/) has over 300 resources including tools, research, policy briefs, and issue papers.

- A "minimum package" of information and skills is feasible.

- CHWs are diverse and have a wide range of educational levels; the challenge is to make the content relevant when developing learning resources. For example, some CHWs have low literacy and learn through songs.

- In February, four more questions were posted on the HIFA forum:

4. Mobile phones are becoming ubiquitous even in rural areas. Yet in community settings, frontline health workers are constrained by ICT [information and communications technology] infrastructure, costs, and access, and by national and local rules, regulations, and custom. In the main, they often just have basic or feature mobile phones (relatively few CHWs have smartphones).

5. How can these phones (basic phones and feature phones) be used to help deliver learning, provide job aids, and support case management?

6. Can you suggest examples where basic and feature phones are already being used to improve the performance of CHWs and supporting them in their day-to-day work?

7. Could members briefly describe any projects they know of where CHWs are using smartphones (android or iPhone) or tablets either for learning and information needs, or job aids (such as patient data forms, diagnostic toolkits) or for behavior change communication programs with their communities?

For full list of comments, visit the HIFA forum: http://www.hifa2015.org/sponsored-discussions/sponsored-discussion-meeting-the-information-and-learning-needs-of-community-health-workers/.

Appendix E: Global Resources List

This list of resources was developed to aid workshop participants in the discussions by creating a common framework and understanding of CHWs and their training needs and experiences. Participants were sent these links prior to the workshops and were invited to add resources both before and after the event to expand their body of knowledge.

Top Five Links

1. Rosenberg, Tina. 2011. "What Makes Community Health Care Work?" *New York Times*, February 18. http://opinionator.blogs.nytimes.com/2011/02/18/what-makes-community-health-care-work/?_php=true&_type=blogs&_r=0.

2. Details different key components including training, support, and government buy-in that make CHWs successful in the long term.

3. DuBoff MP, Futrell E. 2013. The mHealth Planning Guide: Key Considerations for Integrating Mobile Technology into Health Programs. Baltimore, MD: The Johns Hopkins University Center for Communication Programs. www.k4health.org/toolkits/mhealth-planning-guide.

4. "*The mHealth Planning Guide* helps individuals and organizations appropriately plan for mHealth deployments. This Guide:

   - Provides a thorough **orientation to the mHealth planning process** for anyone looking to learn more about integrating mobile technology into health programs in low- and middle-income countries.

   - Outlines **key considerations** and **resources** for planning an mHealth intervention, from concept development and technology design to preparation for implementation.

   - Helps you **build a strong foundation for your mHealth activity**, laying out the many facets of program planning that the mHealth pioneers wish they had known when they were starting out.

Working through the Guide and using the accompanying planning tools will help you build **a solid plan for developing and implementing your mHealth solution**."

5. U.S. Department of Health and Human Services, Health Resources and Services Administration. *Training Community Health Workers: Using Technology and Distance Education*. 2006. ftp://ftp.hrsa.gov/ruralhealth/TrainingCHW.pdf.

This paper provides a brief overview of some programs and issues related to the use of technology and distance education to train CHWs in frontier areas. Issues include the use of consistent definitions, the appropriate technology format for the learner and access to that technology, cultural competency/proficiency of faculty, support for faculty and students, and the assurance of quality.

6. Maternal and Child Health Integrated Program. 2014. "MCHIP Publishes Document on Community Health Worker Programs at Scale." May 7. http://www.mchip.net/CHWReferenceGuide.

The *Reference Guide* is meant to provide a framework for those in leadership positions in-country as they consider how to develop, expand, and strengthen their CHW program. It is MCHIP's intention to make this a "living document" that will be revised periodically as the experience and evidence grow in this rapidly expanding activity.

7. Lee, Seungyoon, Arul Chibb, and Jeong-Nam Kim. 2011. "Midwives' Cell Phone Use and Health Knowledge in Rural Communities." *Journal of Health Communication: International Perspectives* 16 (9): 1006–1023. doi: 10.1080/10810730.2011.571344. http://www.tandfonline.com/doi/abs/10.1080/10810730.2011.571344#.Uus25fRDvrc.

This study developed and tested a theoretical model that explains the underlying process through which the use of cell phones can facilitate the capacity of community health care workers in developing regions. Results of a study conducted on 223 midwives in rural regions of Indonesia showed that cell phone use was positively associated with midwives' access to institutional and peer information resources. Access to institutional resources was positively associated with midwives' health knowledge.

Blog Posts and News Articles

- Storer, Elizabeth. 2013. "Nursing a Nation: Community Health Workers in South Africa." *Think Africa Press*, February 7. http://thinkafricapress.com/south-africa/role-community-health-workers-against-hivaids.

Highlights some of the problems, history, and challenges that CHWs face and the dynamic between them and government-run programs.

- Merry, Paul. 2014. "*Community Health Care Practitioners: Extending Skills and Knowledge through Gamification.*" GSMA.com, January 29. http://alturl.com/grzpx.

This article discusses some of the biggest challenges to providing community health care, and how some of these can be addressed with technology.

- Gaye, Pape. 2013. "Human Resources for Health: Shifting the Paradigm." CHW Central, December 20. http://www.chwcentral.org/blog/human-resources-health-shifting-paradigm-pape-gaye-intrahealth.

This blog discusses the important role that CHWs are playing in health, the important role they will have in the future, and the shift toward greater acceptance and incorporation of them into health systems.

- McCord, Gordon C., Anne Liu, and Prabhjot Singh. 2012. "Deployment of Community Health Workers across Rural Sub-Saharan Africa: financial considerations and Operational Assumptions." *Bulletin of the World Health Organization* 91:244–253B. doi: 10.2471/BLT.12.109660. http://www.who.int/bulletin/volumes/91/4/12-109660/en/.

"This paper provides cost guidance for one adaptable configuration of a CHW 'subsystem': a provider system housed within a larger primary-health-care system that includes clinics and <u>referral</u> hospitals. Costing is done by function (e.g. diagnosing and treating malaria) and by local epidemiologic characteristics (e.g. each country's prevalence of HIV infection), so that components and assumptions can be easily modified."

Academic and Industry Research

- Perry, Henry B., Rose Zulliger, and Michael M. Rogers. 2014. "Community Health Workers in Low-, Middle-, and High-Income Countries: An Overview of Their History, Recent Evolution, and Current Effectiveness." *Annual Review of Public Health* 35:399–421. doi: 10.1146/annurev-publhealth-032013-182354.

"This review highlights the history of CHW programs around the world and their growing importance in achieving health for all."

- Strachan, Daniel L., Karin Källander, Augustinus H. A. ten Asbroek, Betty Kirkwood, Sylvia R. Meek, Lorna Benton, Lesong Conteh, James Tibenderana, and Zelee Hill. 2012. "Interventions to Improve Motivation and Retention of Community Health Workers Delivering Integrated Community Case Management (iCCM): Stakeholder Perceptions and Priorities." *American Journal of Tropical Medicine and Hygiene* 87 (S5): 111–119. doi: 10.4269/ajtmh.2012.12-0030.

This work reports the results of semi-structured interviews with 15 international stakeholders, selected because of their experiences in CHW program implementation, to elicit their views on strategies that could increase CHW motivation and retention.

- Redick, Cindil, and Hannah Sarah Faich Dini. 2014. The Current State of CHW Training Programs in Sub-Saharan Africa and South Asia: What We Know, What We Don't Know, and What We Need to Do. One Million Community Health Workers Campaign and mPowering Frontline Health Workers. http://mpoweringhealth.org/media/report_docs/140664465801305.pdf.

The purpose of the literature review was to inform an mPowering workshop, Global Health Content for Local Solutions, to begin a conversation about core training materials for CHWs.

- Colleran, Kathleen, Erika Harding, Billie Jo Kipp, Andrea Zurawski, Barbara MacMillan, Lucie Jelinkova, Summers Kalishman, Denise Dion, Dara Som, and Sanjeev Arora. 2012. "Building Capacity to Reduce Disparities in Diabetes: Training Community

Health Workers Using an Integrated Distance Learning Model." *Diabetes Educator* 38 (3): 386–396. doi: 10.1177/0145721712441523. http://tde.sagepub.com/content/38/3/386.short.

The purpose of this study is to determine whether an innovative interactive distance training program is an effective modality to train CHWs to become members of the diabetes health care team.

- Gilkey, Melissa, Cezanne Cochran Garcia, and Carl Rush. 2011. "Professionalization and the Experience-Based Expert: Strengthening Partnerships between Health Educators and Community Health Workers." *Health Promotion Practice* 12 (2): 178–182. doi: 10.1177/1524839910394175. http://hpp.sagepub.com/content/12/2/178.short.

The authors discuss the ways that health educators and CHWs differ in their orientation toward professionalization and employ the concept of the "experience-based expert" to highlight what they believe to be the unique contributions of CHWs. Finally, considerations important for health educators and CHWs as they work to advance supportive and complementary practices are discussed.

- Standing, Hilary, and A. Mushtaque R. Chowdhury. 2008. "Producing Effective Knowledge Agents in a Pluralistic Environment: What Future for Community Health Workers?" *Social Science & Medicine* 66 (10): 2096–2107. doi:10.1016/j.socscimed.2008.01.046.

This paper considers some of the 21st-century challenges of providing access to appropriate health expertise, particularly in the context of pluralistic health systems characterized by many types of provider operating as private or semi-private agents in unregulated markets. The term "unregulated" here derives from the literature on the development of markets in low-income countries and refers to the lack of state enforcement of formal laws and regulations.

- Earth Institute, Columbia University. 2013. *One Million Community Health Workers: Technical Task Force Report*. http://1millionhealthworkers.org/files/2013/01/1mCHW_TechnicalTaskForceReport.pdf.

"The recommendations of the report suggest the key ingredients of a locally adaptable CHW subsystem that can scale to 1 million CHWs, at a ratio of 1 CHW per 650 rural inhabitants in Africa, along with the primary health care system by 2015."

- Lehmann, Uta, and David Sanders. 2007. *Community Health Workers: What Do We Know about Them?* Geneva, Switzerland: World Health Organization. http://www.who.int/hrh/documents/community_health_workers.pdf.

"CHW programs have been revered as a panacea and decried as a delusion in the past. A sober view reveals today, as it did in the late 1980s, that 'with political will,

however, governments can adopt more flexible approaches by planning CHW programmes within the context of overall health sector activities, rather than as a separate activity. Weaknesses in training, task allocation and supervision need to be addressed immediately. CHWs represent an important health resource whose potential in providing and extending a reasonable level of health care to undeserved [sic] populations must be fully tapped' (Gilson et al., 1989)"

- D'Adamo, Margaret, Madeleine Short Fabic, and Saori Ohkubo. 2012. "Meeting the Health Information Needs of CHWs: What Have We Learned?" *Journal of Health Communications* 17 (S2): 23–29. doi: 10.1080/10810730.2012.666626. http://www.tandfonline.com/doi/full/10.1080/10810730.2012.666626#.VN5eE_nF-So.

"The three studies of health information needs in India, Senegal, and Malawi . . . validate these information challenges and describe innovative strategies to improve knowledge and information sharing. . . . The results provide important new evidence about health workers' needs for and sources of information, communication channels used to share information, and barriers to accessing and using health information. They also point to ways existing networks, technologies, and tools could facilitate better knowledge and information sharing, and point to a lack of comprehensive strategic planning."

- Onadipe, T. O., M. A. Onafowokan, and A. A. Adegbite. 2013. "Information and Communications Technology (ICT) and Health Workers Proficiency as a Determinant of Health Information Management: A Case Study of Health Facilities Ogun Southwestern Nigeria." *American Academic & Scholarly Research Journal* 5 (4): 54–69. http://aasrc.org/aasrj/index.php/aasrj/article/view/1438.

"The study investigated the application of ICT for health information management (HIM) in the health facilities and the proficiency of the health workers in the geopolitical east zone of Ogun State."

- Chib, Arul, and Vivian Hsueh-Hua Chen. 2013. "Midwives with Mobiles: A Dialectical Perspective on Gender Arising from Technology Introduction in Rural Indonesia." *New Media & Society* 13 (3): 486–501. doi: 10.1177/1461444810393902. http://nms.sagepub.com/content/13/3/486.short.

"Mobile phones were introduced to rural midwives in tsunami-affected Indonesia, allowing them to contact medical experts and communicate with patients. . . . We find that midwives engage in legitimization strategies, develop peer support, and focus on strategic issues to develop the capacity for agency and autonomy, despite socio-organizational barriers. Specific recommendations are offered, focusing on the resourcefulness and desire of women."

- Little, Alex, Araya Medhanyie, Henock Yebyo, Mark Spigt, Geert-Jan Dinant, and Roman Blanco. 2013. "Meeting Community Health Worker Needs for Maternal Health Care Service Delivery Using Appropriate Mobile Technologies in Ethiopia". *PLoS ONE* (9) 1: 10.1371/annotation/fedf94d2-cf4e-494c-8828-85861ce282a5. doi:

10.1371/annotation/fedf94d2-cf4e-494c-8828-85861ce282a5.
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0077563.

"Our aim has been to meet the technical needs of Health Extension Workers (HEWs) and midwives for maternal health using appropriate mobile technologies tools."

- Karim, Ali Mehryar, Kesetebirhane Admassu, Joanna Schellenberg, Hibret Alemu, Nebiyu Getachew, Agazi Ameha, Luche Tadesse, and Wuleta Betemariam. 2013. "Effect of Ethiopia's Health Extension Program on Maternal and Newborn Health Care Practices in 101 Rural Districts: A Dose-Response Study." *PLoS ONE* 8 (6): e65160. doi: 10.1371/journal.pone.0065160. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065160.

The national Health Extension Program aims to provide universal access to primary health care services through more than 34,000 government-salaried female Health Extension Workers. This article reports the effect of the project's community-based newborn survival interventions on changes in maternal and newborn health care practices.

- Freytsis, Maria. 2013. "Mobile Tools for Health Workers Targeting Neonatal Health in Low-Resource Settings." Presentation given at meeting of mHealth Working Group, Washington, D.C., December 12. http://www.mhealthworkinggroup.org/resources/mobile-tools-health-workers-targeting-neonatal-health-low-resource-settings.

Maria Freytsis, CNM, MPH, Director of Global Initiatives, Maternity Neighborhood, gave this presentation covering her review paper of mHealth tools for neonatal health and Maternity Neighborhood's work in global health.

- Naimoli, Joseph F., Diana E. Frymus, Estelle E. Quain, Emily L. Roseman, Rebecca Roth, and Jill Boezwinkle. 2012. *Community and Formal Health System Support for Enhanced Community Health Worker Performance: A U.S. Government Evidence Summit*. USAID. http://www.usaid.gov/sites/default/files/documents/1864/CHW-Evidence-Summit-Final-Report.pdf.

"Despite many years of empirical inquiry on CHWs, the Summit found that the relationship between support—from both community and formal health systems—and CHW performance is still not well understood. Experts participating in the Summit identified different kinds of technical and social support as well as different forms of recognition that moderate to strong opinion suggests are likely to improve CHW performance at scale in a sustainable manner."

- USAID Applying Science to Strengthen and Improve Systems Project. 2013. "A Global Improvement Framework for Health Worker In-service Training: Guidance for Improved Effectiveness, Efficiency and Sustainability." https://www.usaidassist.org/resources/global-improvement-framework-health-worker-service-training-guidance-improved.

This framework provides guidance to training program providers, professional associations, and regulatory bodies on what practices are important to improve sustainability, effectiveness, and efficiency of training to develop and maintain health worker competencies.

Training Materials

- Health Horizons International. 2011. *Community Health Worker Handbook: Community Health Worker Course.* http://hhidr.org/wp-content/uploads/2012/01/HHI%20-%20CHW%20Handbook.pdf.

This handbook, with text in Spanish, is the training guide that is given to CHWs who work with the Health Horizons International organization.

- Basic Support for Institutionalizing Child Survival and the Prevention of Postpartum Hemorrhage Initiative. 2009. *Training Community Health Workers to Give Maternal and Newborn Health Messages: A Guide for Trainers*. Arlington, VA: United States Agency for International Development. http://www.basics.org/documents/CHW-training-guide-Final-1.pdf.

The training manual provides an overview of the roles and responsibilities of CHWs in meeting the health needs of the population, as well as key information and skills the CHWs require.

- Knowledge for Health Project. 2015. "Community-Based Access to Injectable Contraceptives Toolkit." Last updated January 05, 2015. http://www.k4health.org/toolkits/cba2i.

This curriculum from Zambia to train CHWs to provide injectable contraceptives can be used as a sample curriculum that other programs can adapt to suit their own needs.

- World Health Organization. 2012. "Caring for Newborns and Children in the Community: Caring for the Newborn at Home." http://www.who.int/maternal_child_adolescent/documents/caring_for_newborn/en/.

See specifically the *Community Health Worker Manual* at http://www.who.int/maternal_child_adolescent/news/events/2012/CHW_Manual.pdf?ua=1. "The training materials draw on experiences of training CHWs in caring for the newborn at home in several research studies, particularly the SEARCH study in India and the NEWHINTS study in Ghana. The materials provide guidance for community health workers to conduct home visits in the antenatal period and the first weeks after the baby is born."

- United Nations Children's Fund (UNICEF) Regional Office for South Asia. 2004. *What Works for Children in South Asia: Community Health Workers*. Kathmandu, Nepal: UNICEF Regional Office for South Asia. http://www.unicef.org/rosa/community.pdf.

"The paper looks at national, large-scale programs in five countries of South Asia (namely Bangladesh, Bhutan, India, Nepal and Sri Lanka) and reviews the existing policies, practices and lessons learned within the overall context of primary health care in these countries, hoping that it will help the community health practitioners, program managers or policy makers of the countries in the South Asia region to adapt, replicate and/or scale up the best evidences and learn from the mistakes."

Related Organizations

- One Million Community Health Workers Campaign

http://1millionhealthworkers.org/

- Health Horizons International

http://hhidr.org/what-we-do/community-health-workers-program/

- Amref Health Africa in the USA

http://amrefusa.org/usa/en/what-we-do/health-worker-training/

- Knowledge for Health

http://www.k4health.org/

- mHealth Working Group

http://www.mhealthworkinggroup.org/

- Global Brigades

http://www.globalbrigades.org/medical-chw

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Caglia, Jacquelyn, Annie Kearns, and Ana Langer. 2014. *Health Extension Workers in Ethiopia: Delivering Community-Based Antenatal and Postnatal Care*. http://www.mhtf.org/wp-content/uploads/sites/32/2014/09/HSPH-Ethiopia4.pdf.

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Frontline Health Workers Coalition. 2014. *A Commitment to Community Health Workers: Improving Data for Decision-Making*. http://frontlinehealthworkers.org/wp-content/uploads/2014/09/CHW-Report.pdf.

Global Health Workforce Alliance. 2011. "Press Pack: Second Global Forum on Human Resources for Health; Bangkok, 25-29 January 2011." http://www.who.int/workforcealliance/forum/2011/SecondGlobalForumHRH_Presspack.pdf.

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