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One Million Community Health Workers Campaign

mPOWERING
FRONTLINE HEALTH WORKERS

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

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Abbreviations

AMREF	African Medical and Research Foundation
ASHA	accredited social health activist
CBO	community-based organization
CHW	community health worker
FCHV	female community health volunteer
FHW	frontline health worker
GHWA	Global Health Workforce Alliance
HEW	health extension worker
HRH	human resources for health
IMCI	Integrated Management of Childhood Illness
LHW	lady health worker
MDG	Millennium Development Goal
MNCH	maternal, newborn, and child health
MOH	ministry of health
MVP	Millennium Villages Project
NGO	nongovernmental organization
PIH	Partners in Health
RDT	rapid diagnostic test
STI	sexually transmitted infection
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Purpose of Literature Review

The challenges to achieving universal health care in the developing world are well documented. An estimated 1 billion people will never see a health worker during the course of their lives (Bhutta et al. 2010). As a result of a health care workforce shortage, millions of people die or are disabled each year (Global Health Workforce Alliance 2008). One solution to this plight has been the introduction of community health workers (CHWs) to the health workforce. CHWs are lay members of the community who are trained to provide basic health services. They offer the first and sometimes only access to health services for people in the developing world (Frontline Health Workers Coalition n.d.), and they need resources (everything from training to supplies) to perform their duties. Unfortunately, research has shown that, despite heavy reliance on CHWs in places like sub-Saharan Africa and South Asia, CHWs are not effectively trained, remunerated, or retained.

Although CHW programs are prevalent, little formal research has been conducted on CHW training programs or their effectiveness. To begin to address this, mPowering Frontline Health Workers, through USAID, commissioned a literature review to identify, synthesize, and analyze research studies, gray literature, and project reports related to CHW training in sub-Saharan Africa and South Asia (specifically, India, Nepal, and Pakistan). The purpose of the literature review was to inform an mPowering Frontline Health Workers workshop, *Global Health Content for Local Solutions,* held on December 12, 2013, with the intent of beginning a conversation about core training materials for community health workers.

Methodology

The literature search was conducted by selecting published and unpublished articles and reports from a variety of sources, including the Cochrane Library, Google Scholar, PubMed, and ProQuest. Other sources included key international policymaking institutions and nongovernmental organizations (NGOs) such as CHW Central, the Frontline Health Workers Coalition (FHWC), the Global Health Workforce Alliance (GHWA), the Millennium Villages Project (MVP), Pathfinder International, USAID, and the World Health Organization (WHO). More than 100 articles and reports were selected and reviewed. The scope of articles and reports selected was confined to those that described, analyzed, or synthesized current practices in CHW training.

Conclusion

It is evident from sources assessed for this review that more research is needed on CHW training programs. The review found a variety of training providers in both regions, including governments, NGOs, and private-sector organizations such as community-based organizations (CBOs), although the latter operate at a smaller scale (iHeed Institute 2013; Minnesota International Health Volunteers 2004). CHW training occurs in a wide variety of settings and varies in duration. The literature points to a need for mandatory, consistent evaluation of training programs. Among the programs surveyed, only a small number actually implemented evaluation practices, and some of them did not implement the practices consistently. Even

fewer had data available to review. Although additional information may exist in non-public forms such as internal reports, the lack of readily available information about the programs hampers the ability to draw strong conclusions on optimal CHW training methodologies. A recent publication arrived at similar findings and recommendations (Tran et al. 2014).

Recommendations

The following recommendations are based on the literature review:

- Training program implementation and curricula should be coordinated among training providers, including NGOs, civil society organizations, and governments.
- CHW training curricula should be made more interactive to allow CHWs to engage with the content in practical ways that are similar to experiences they will encounter on the job.
- CHW feedback should be sought and acted upon to improve the quality of training content and delivery.
- CHW training providers should regularly monitor the competency of CHWs through the use of pre-tests, post-tests, and self-assessments.
- CHW training providers should share their training with the global health community so that ministries of health, NGOs, and CBOs can identify training gaps and differences or redundancies in training pedagogy, content areas, and content.

Introduction

mPowering Frontline Health Workers, through USAID, commissioned a literature review to identify, synthesize, and analyze research studies, gray literature, and project reports relating to community health worker (CHW) training in sub-Saharan Africa broadly and in the South Asian countries of India, Nepal, and Pakistan. The purpose of the literature review was to inform an mPowering Frontline Health Workers workshop, *Global Health Content for Local Solutions,* held on December 12, 2013, with the intent of beginning a conversation about core training materials for CHW. The scope of work for the literature review is included in Appendix A.

Background

It is currently estimated that 1 billion people will never see a health worker during the course of their lives (Bhutta et al. 2010), primarily because of insufficient human resources for health (HRH). As a result of the HRH shortage, millions of people die or are disabled each year (Global Health Workforce Alliance 2008). In low- and middle-income countries, many of those who do seek health care see a community health worker, the lowest cadre of health provider. Typically, CHWs are lower-skilled members of the community and are not based at a health facility. Because CHWs represent the primary means for people in the developing world to access health services (Frontline Health Workers Coalition n.d.), it is important to ensure that they are well trained and have the resources needed to perform their duties. Unfortunately, research shows that, despite heavy reliance on CHWs in places like sub-Saharan Africa and South Asia, CHWs are not effectively trained, remunerated, or retained.

Given the importance of CHWs in emerging health systems, why are so many CHWs undertrained (MDG Health Alliance n.d.)? CHW training is inconsistent and ineffectual across both sub-Saharan Africa and South Asia. Because pre-service training programs for CHWs in these regions are offered by a number of institutions, including national governments, local governments, nongovernmental organizations (NGOs), and community-based organizations (CBOs), they vary drastically in duration, content, and methodology (Friedman et al. 2007) In addition, they are often held in locations that are far—even hundreds of miles—from where health workers live and work (Knebel 2001; Lehmann and Sanders 2007). In-service training, refresher courses, and disease-specific training programs are infrequent or nonexistent (Lehmann and Sanders 2007; Long 2013).

In addition to being disjointed, CHW training programs are rarely assessed to measure the efficacy of training in terms of CHW competency (Friedman et al. 2007). When assessment does occur, it is primarily in the form of pre-testing and post-testing of CHWs, with no post-test follow-up (Friedman et al. 2007). Thus, the international community has received inconsistent information on the effectiveness of CHW training models, which has contributed further to undertraining or continuation of ineffective training.

The lack of cohesion across CHW training programs is thought to be a primary contributor to many developing countries' failure to achieve Millennium Development Goals (MDGs) 4, 5, and 6 (Bhutta et al. 2010; Friedman et al. 2007; Hall 2007). Severe

undertraining of CHWs contributes to alarming yet avoidable medical situations, leading to the needless deaths of millions of under-5 children and their mothers every year (UNICEF n.d.). Often, all that is needed to save a life is a simple intervention that an appropriately trained CHW could provide. Training frontline health workers in a way that is feasible, appropriate, and effective guarantees a remedy that will save lives.

Methodology

Our literature search was conducted by selecting published and unpublished articles and reports from a variety of sources, including the Cochrane Library, Google Scholar, PubMed, and ProQuest. Other sources included key international policymaking institutions and NGOs, such as CHW Central, the Frontline Health Workers Coalition (FHWC), the Global Health Workforce Alliance (GHWA), the Millennium Villages Project (MVP), Pathfinder International, USAID, and the World Health Organization (WHO). Additional articles were identified through recommendations by mPowering Frontline Health Workers and the One Million Community Health Workers (1mCHW) Campaign.

More than 100 articles and reports were selected and reviewed using search criteria such as the following: community health worker + training; Africa; India; Nepal; Pakistan; community health worker + pre-service training; initial training; in-service training. Search exclusion criteria included high- and mid-level cadres of health workers—physicians, nurses, pharmacists, midwives, and physical therapists, among others—and training programs that were not implemented in sub-Saharan Africa, India, Nepal, or Pakistan. (The search terms used with each database are presented in Appendix B.) The literature search was limited to readily available articles and reports printed in English and produced since the year 2000. The scope of the articles and reports selected was limited to those that described, analyzed, or synthesized current practices in CHW training.

Despite the prevalence of general information about CHW programs, there is little formal research about training programs for CHWs or about training effectiveness. The literature primarily discusses the effectiveness of CHWs in low-resource settings, both in the United States and abroad. When training is mentioned, the focus is on demonstrating that CHWs can implement certain types of primary care interventions, given a specific type of training. To derive more detailed information about CHW in-service training, the review was extended to include several studies that examine the effectiveness of specific training programs. To provide background and context, articles that address issues related to the HRH crisis more broadly were also included.

A bibliography of the literature reviewed, with annotations, is included in this report (see Appendix C).

Literature on Pre-Service Training Programs

The reviewed works on pre-service training for CHWs fall into two main categories: studies and reviews. Many of the programs reviewed were administered by either governments (local, regional, or national) or the private sector (almost exclusively NGOs and CBOs, rather than for-profits). Compared to research on CHW effectiveness, there is relatively little research on CHW training programs (let alone on the subcategory of pre-service training) in sub-Saharan Africa or South Asia. Further, few documents provide explicit details about the methodology, circumstances, or effectiveness of pre-service training for CHWs.

Pre-Service Programs in Sub-Saharan Africa

The literature reveals great diversity in training programs in sub-Saharan Africa. According to a study commissioned by the iHeed Institute (Funes et al. 2012), most CHW programs in sub-Saharan Africa are administered by NGOs, governments (local or national), or a partnership of the two. The authors of the iHeed study identified more than 20 NGOs that provide pre-service training for CHWs in sub-Saharan Africa; the main organizations are listed below in Box 1.

Box 1. Organizations Providing Pre-Service CHW Training Programs in Sub-Saharan Africa

- Abt Associates
- AIDSRelief
- AMREF
- BRAC
- CARE
- HEAT
- Family Health International (FHI) 360
- IntraHealth
- Jhpiego
- John Snow, Inc.
- Living Goods
- Millennium Villages Project
- Ministries of health
- Médecins Sans Frontières
- Malaria Consortium
- Management Sciences for Health
- UNICEF
- Partners in Health
- Pathfinder International
- Save the Children
- USAID
- World Vision

The sub-Saharan Africa countries identified as having government-run CHW training programs are Ethiopia, Gambia, Malawi, Nigeria, Rwanda, and Zambia (Africa Health Workforce Observatory 2009; Funes et al. 2012). In these countries, the ministry of health (MOH) provides all pre-service training, sometimes with the support of NGOs. Other countries, including Kenya, Niger, South Sudan, Tanzania, and Uganda, rely entirely on NGOs and other non-public entities for CHW training (Funes et al. 2012; Giwa and Shirazi 2011; Kawakatsu et al. 2012; Lehmann and Sanders 2007; Malaria Consortium 2014). Thus, the key players in CHW training in sub-Saharan Africa are national, regional, and local divisions of MOHs, international NGOs, and local CBOs.

With such a wide variety of pre-service training providers, training implementation and pedagogical methods in these countries are inconsistent. The duration of pre-service training for CHWs ranged from as little as five days (Millennium Villages Project 2012b) to as long as a year (Global Health Workforce Alliance Task Force on Scaling Up Education and Training for Health Workers, n.d.-a). The literature did not indicate any distinct associations between program duration and type of provider;

government agencies and NGOs both implemented training of various lengths. However, longer trainings were more comprehensive, covering a broader range of skills and health interventions (Bhutta et al. 2010; Funes et al. 2012; Millennium Villages Project 2012b; Partners in Health 2001).

Training for CHWs in Africa may be held in a local hospital or health facility or in the community, and training approaches vary from didactic to interactive. The most commonly used didactic techniques are lectures and readings (Funes et al. 2012; Millennium Villages Project 2012b). Trainers who adopt more interactive approaches favor role playing, simulations, brainstorming sessions, and case-based learning (Funes et al. 2012; Malaria Consortium 2014; Millennium Villages Project 2012b; Mtobesya and Rollins 2012; Partners in Health 2001). These interactive methods are often enhanced through the use of job aids, flip charts, posters, and slides (Partners in Health 2001).

These educational methods are used most often to train CHWs in either relevant theoretical knowledge or technical skills. The literature reflects much debate over the value of teaching CHWs theoretical knowledge versus focusing primarily on hard skills or skill-based care, such as the administration of rapid diagnostic tests (RDTs) or the delivery of integrated community case management. Many authors agree that there is a general movement away from theory-based training and toward skill-based training (Funes et al. 2012; Partners in Health 2001; Lehmann and Sanders 2007).

Inconsistencies are found in the content in addition to the pedagogy of pre-service training. Content varies widely and may cover a number of knowledge areas, including HIV/AIDS; tuberculosis; malaria; sexually transmitted infections; reproductive, maternal, newborn, and child health; nutrition; hygiene; water and sanitation; behavior change communication; integrated community case management; and record keeping (Funes et al. 2012; Giwa and Shirazi 2011; Lehmann and Sanders 2007; Malaria Consortium 2014). At the same time, there is often redundancy across programs, frequently caused by a lack of collaboration among organizations or between organizations and MOHs (Funes et al. 2012; Partners in Health 2001). As a result, CHWs may be trained by multiple providers on the same topics and interventions (Funes et al. 2012).

Case Study: Ethiopia's Health Extension Program
(GHWA Task Force on Scaling up Education and Training for Health Workers, n.d.-a)

Ethiopia's Health Extension Program is working to improve primary health care in rural Ethiopia through the use of health extension workers (HEWs). HEWs are required to participate in a year-long pre-service training program conducted by trained trainers in local technical and vocational education training centers. The HEW pre-service training has 16 modules on preventative and curative services that fall under four knowledge areas: hygiene and environmental sanitation, family health services, disease prevention and control, and health education and communication. Graduates of this program are hired by the government and then sent to work in communities in rural Ethiopia.

Pre-Service Programs in India, Nepal, and Pakistan

Based on the literature reviewed, it is evident that trends in the management and implementation of CHW pre-service training in the South Asian countries studied differs from those in sub-Saharan Africa. India, Nepal, and Pakistan have similar CHW programs that have been implemented at a national scale (Ariff et al. 2010; Global Health Workforce Alliance Task Force on Scaling Up Education and Training for Health Workers, n.d.-b; Shrivastava, Shrivastava, and Shrivastava 2012; UNICEF Regional Office for South Asia 2004). The scale of these programs has resulted in more centralized pre-service training that is provided by local governments either alone or in partnership with international NGOs. The national and local governments are the key drivers of CHW training, supported by local health facilities and a small number of NGOs such as CARE and Partners in Health (PIH). In India, pre-service training is supplemented by CHW training modules from other organizations (Partners in Health 2001; Lehmann and Sanders 2007).

Most of the literature suggests that a standardized training curriculum creates homogeneity across training programs. However, an assessment of programs in India and Nepal by UNICEF (2004) found that despite the use of a nationally standardized curriculum that was managed and implemented by governments, there were serious disparities in how CHW pre-service training was administered within each country. Certain materials were left out or taught inconsistently, and UNICEF argued that this would have a negative impact on CHW effectiveness in these countries.

Despite the similarity in management among programs in the South Asian countries, the duration of CHW pre-service training programs and the pedagogical methods used vary widely. Training duration ranges from 15 days (Nepal) to three months (India) to 15 months (Pakistan) (GHWA Task Force on Scaling up Education and Training for Health Workers, n.d.-b; UNICEF Regional Office for South Asia, 2004). Unfortunately, literature on the pedagogy used in these programs is scarce. However, we know that rote teaching methods are used in India and Nepal, whereas recruits in Pakistan's Lady Health Worker (LHW) Programme receive a combination of classroom and field training that balances didactic and interactive techniques (GHWA Task Force on Scaling up Education and Training for Health Workers, n.d.-b; UNICEF Regional Office for South Asia 2004).

Regarding training content, the available literature about this region of South Asia, like that about sub-Saharan Africa, indicates that CHW pre-service training programs cover a wide array of knowledge areas, including hygiene, sanitation, family planning, antenatal care, child delivery, newborn care, HIV/AIDS, diarrhea, malaria, acute respiratory infections, intestinal worms, patient and record management, and immunization (Ariff et al. 2010; Funes et al. 2012; Global Health Workforce Alliance Task Force on Scaling Up Education and Training for Health Workers, n.d.-b; UNICEF Regional Office for South Asia 2004; Lehmann and Sanders 2007). This content is comparable to that in sub-Saharan Africa, suggesting that these are the high-priority health issues in both regions.

Case Study: Pakistan's Lady Health Worker Programme
(GHWA Task Force on Scaling up Education and Training for Health Workers, n.d.-b)

Pakistan's Lady Health Worker (LHW) Programme was established to create an influx of 100,000 CHWs by 2005. LHWs must be local residents, be at least 18 years old, have a minimum of eight years of schooling, and be recommended by their community. They are required to participate in a 15-month training program where they spend three months of their time in the classroom and 12 months receiving experiential training in the field. LHWs are educated in maternal and child health, including family planning, HIV/AIDS, and the treatment of minor illnesses. They are trained to provide health education and health promotion, family planning services, patient record management, and basic curative care. After LHWs graduate from the program, they are assigned to a community through a local government health facility.

Training Effectiveness

Very little evidence exists about the effectiveness of CHW pre-service training programs. Although several programs noted that they perform pre- and post-training tests (Millennium Villages Project 2012b; Partners in Health 2001; Lehmann and Sanders 2007), little in the way of quantitative or qualitative analyses of these tests could be found. The scarcity of information is largely attributable to the absence of monitoring and evaluation frameworks in the CHW training space (Funes et al. 2012; Lehmann and Sanders 2007). The only relevant studies found in the literature were an analysis of a CHW pre-service training program administered by the Millennium Villages Project in Malawi; an assessment of the accredited social health activist (ASHA) training program in India; and an assessment of maternal, newborn, and child health (MNCH) training for LHWs in Pakistan.

In its assessment of one of its CHW pre-service trainings in Malawi, the Millennium Villages Project (2012b) found that CHW competency increased from 60% (pre-test) to 84% (post-test). On the other hand, in a cross-sectional study of 150 ASHA workers in India, the ASHAs tested competent in some areas—for example, institutional deliveries, vital records registration, breastfeeding practices, and best practices for postnatal checkups—but lacked acceptable competency in many high-impact areas—for example, the ability to identify severe cases of diarrhea, acute respiratory infections, malnutrition, postnatal breast infections, or reactions to immunizations (Shrivastava, Shrivastava, and Shrivastava 2012). The analysis of a public-sector MNCH training in Pakistan found that LHW knowledge was poor in the areas of neonatal resuscitation and basic MNCH (Ariff et al. 2010). Additional post-test data (at the quarterly mark) was not available for these cases.

The evidence presented in these studies is conflicting and less than convincing. There are several factors that could contribute to the lower scores of CHWs in India and Pakistan, compared to the CHWs in Malawi, including time elapsed since training and type of training curriculum. More research on CHW post-training competence is needed to determine the effectiveness of the wide array of training programs.

Gaps in Pre-Service Training

The literature revealed a number of gaps in CHW pre-service training across sub-Saharan Africa and India, Nepal, and Pakistan. The most widely cited gaps were inconsistencies in the types of training, use of training materials, and CHW role definition (Funes et al. 2012; iHeed Institute 2013; Millennium Villages Project 2012b; Rollins 2012; UNICEF Regional Office for South Asia 2004). Content gaps included MNCH—specifically, warning signs of major conditions—vitamin A supplementation, preventative medicine, interpersonal communication skills, and conducting meetings (Shrivastava, Shrivastava, and Shrivastava 2012; UNICEF Regional Office for South Asia 2004). It is clear that more pre-service training should include "soft skills" such as communication, organization, and relationship-building. The literature does not address the regularity with which pre-service CHW training is offered; however, it should occur on a regular schema, to replenish dropouts and to anticipate expansion in coverage.

Best Practices

The most commonly cited best practice in CHW training was the use of interactive methods of teaching (Funes et al. 2012; iHeed Institute 2013; Partners in Health 2001; Lehmann and Sanders 2007; Malaria Consortium 2014). This finding is directly linked to research that suggests that adult learners retain 30% of what they hear, 50% of what they read, and 70% of what they interact with (Partners in Health 2001). Other best practices noted included the incorporation of multimedia materials through blended learning, innovative methods to assess CHWs before and after training, and coordinating training approaches among providers (Funes et al. 2012; iHeed Institute 2013). Some of the literature also suggested that CHW training programs should (1) use CHW feedback to improve training, (2) continuously review and update training content to remain relevant, (3) be considerate of the socioeconomic and educational backgrounds of CHWs, (4) adapt training materials and health interventions so they can be understood in local languages, (5) spend more time on interventions that CHWs have difficulty learning, and (6) offer regular refresher trainings (iHeed Institute 2013; Malaria Consortium 2014; Partners in Health 2001). Implementing these practices could address the training gaps identified above and could contribute to a more cohesive training experience for CHWs across sub-Saharan Africa and South Asia.

Literature on In-Service Training Programs

There is considerably less literature concerned with in-service CHW training programs than with pre-service programs. The literature on in-service training programs falls into two categories: research studies on specific in-service training and NGO reports about implementation efforts. Despite its smaller volume, the literature on in-service programs is similar to that on pre-service trainings. In-service training providers, training techniques, content, and gaps in training are comparable to those in the pre-service training programs described above.

In-Service Programs in Sub-Saharan Africa

In sub-Saharan Africa, in-service training programs appear to be administered primarily by either NGOs or private-public partnerships. A study by the iHeed Institute (Funes et al. 2012) identified 20 in-service training providers. Our literature search produced another three, bringing the total to 23 (Box 2). Based on this group, it appears that NGOs are the key players in in-service training in sub-Saharan Africa.

Box 2. Organizations Providing In-Service CHW Training Programs in Sub-Saharan Africa

- Abt Associates
- AIDSRelief
- AMREF
- BRAC
- CARE
- Department for International Development (DFID)
- Family Health International (FHI) 360
- Grameen
- HEAT
- International Federation of Red Cross and Red Crescent Societies
- Jhpiego
- John Snow Inc.
- Living Goods
- Local Governments
- Millennium Villages Project
- Médecins Sans Frontières
- Partners in Health
- Pathfinder International
- Save the Children
- UNICEF
- USAID
- Wellstone International (formerly Minnesota International Health Volunteers)
- World Vision

The only sub-Saharan African country identified in which the government provides in-service training is Gambia. Gambia has a dedicated in-service training coordinator, who is responsible for organizing regular training sessions (Africa Health Workforce Observatory 2009). Unfortunately, details about the content and methodology of the training were unavailable.

Countries that have NGO-sponsored in-service training programs include Botswana, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, Rwanda, Senegal, South Sudan, Tanzania, Zambia, and Zimbabwe. NGOs provide training in these countries either independently or in partnership with local governments. (The countries that have public-private partnerships for in-service CHW trainings are Kenya, South Sudan, Uganda, and Zimbabwe.) The status of these relationships has been difficult to determine, as the literature is scarce. Because information about Gambia's government-provided in-service training was unavailable, a comparison cannot be made between government and joint-provider approaches to content and methodology.

Curricula for in-service training programs vary widely, partly due to the nature of the training. Two types of in-service training are provided to CHWs: refresher training (to review content) and new content (iHeed Institute 2013). Training may be comprehensive or focused on a specific disease or treatment method. The most common content areas identified in the literature are malnutrition, maternal and child health, family planning, infection prevention, malaria diagnosis, hygiene and sanitation, mental health, gender-based violence, female genital cutting, vaccinations, acute respiratory illnesses, diarrhea, HIV/AIDS, smartphone communications, record keeping, and referral practices (Asnake and Tilahun 2010; Blanas et al. 2013; Colton et al. 2006; Harvey et al. 2008; Joynes 2011; Minnesota International Health Volunteers

2004; Partners in Health 2001; Qurreshi et al. 2012; Lehmann and Sanders 2007; Mukanga et al. 2011; Millennium Villages Project 2012a).

The in-service training programs in sub-Saharan Africa vary in duration and methodology. Courses may be as short as three hours (Blanas et al. 2013; Partners in Health 2001) or as long as 10 days (Lehmann and Sanders 2007). Probably because in-service training programs are held so rarely, most of the studies reviewed did not indicate the frequency of the training (Funes et al. 2012; Msisuka et al. 2011). However, Lehmann and Sanders (2007) stated that Nigeria's in-service CHW training program occurs once per year, and Partners in Health (2001) indicated that in-service training in Malawi and Rwanda takes place once per month. With the diversity of programs and providers of in-service training in sub-Saharan Africa, CHWs may receive multiple, disjointed, and sometimes redundant training courses.

Among the programs reviewed, those that were shorter in duration focused primarily on teaching CHWs a single intervention, such as the use of RDTs for diagnosing malaria. Trainings that are longer in duration appear to be more comprehensive, covering a range of skills and techniques such as MNCH, HIV/AIDS, primary health care, record keeping, and communication (Minnesota International Health Volunteers 2004; Pathfinder International 2005, 2011). The programs utilize a number of teaching methodologies, all of which are similar to those used in pre-service training. Among the techniques identified were blended learning, lecture, simulations, role playing, job aids, and question-and-answer sessions (Asnake and Tilahun 2010; Blanas et al. 2013; Long 2013; Minnesota International Health Volunteers 2004; Msisuka et al. 2011).

The balance of didactic and interactive components was discussed in only one study, a review of *Implanon* training in Ethiopia. The authors reported that the five-day training was split between didactic and interactive techniques, with two days spent in the classroom and three days in a clinical practicum (Asnake and Tilahun 2010). Although this is the only study that addressed the balance of teaching methodologies, it is clear in the literature that integration of the two techniques is recommended as a best practice for most CHW training programs.

Case Study: Zimbabwe's Expanded Community-Based Distribution Program
(USAID, n.d.)

The Zimbabwe National Family Planning Council and the Zimbabwe Ministry of Health established a community-based distribution program to provide family planning services to communities in rural Zimbabwe. The program established CHWs as a new cadre of health workers who could help incorporate HIV/AIDS services within family planning services. With the assistance of USAID, this program was recently expanded, and CHWs now receive in-service training with up-to-date information on HIV/AIDS and STI prevention, referral practices, and community counseling methods.

In-Service Programs in India, Nepal, and Pakistan

The literature on in-service CHW training programs in the South Asian countries was even more limited than the literature on programs in sub-Saharan Africa. Only a handful of in-service programs were identified in this region. However, based on the

limited literature, it appears that in-service training programs are less homogenous than pre-service programs. In-service training in India and Nepal is provided by governments, NGOs, or a partnership between the two—a finding that is consistent with the trends in pre-service training. Because these countries have national CHW programs, the key players in CHW in-service training appear to be national and local governments.

Among the South Asian programs studied, training duration varies from two days (UNICEF Regional Office for South Asia 2004) to four days (Armstrong et al. 2011)—significantly shorter than the duration of programs in sub-Saharan Africa. The programs fall into two categories: refresher courses and instruction on new material. The duration of training does not appear to correlate with the type of program (new content versus refresher course). The shorter in-service programs were conducted in Nepal, as refresher courses for all CHWs, whereas longer training covering new content was found in India. Although this finding appears to be in contrast to in-service training in sub-Saharan Africa, it most likely reflects the general lack of literature on in-service CHW training.

Curricula for in-service training are highly variable in Nepal and India. According to a UNICEF report on CHW programs in South Asia (2004), Nepal's in-service training curriculum includes refreshers on Integrated Management of Childhood Illness (IMCI), acute respiratory illnesses, diarrheal disease, and vitamin A deficiency. On the other hand, the only literature reviewed on in-service training in India addressed training for support and treatment of mental health issues, predominantly depression. That training, conducted by Gramina Abrudaya Seva Samstha, a local NGO, included a review of mental health disorders, mental health first aid, mental health promotion, and practice-based skills (Armstrong et al. 2011).

Frequency of in-service trainings was mentioned in only one study, which noted that Nepal's training occurs once every six months (UNICEF Regional Office for South Asia 2004). No literature was found that addressed training facilities or where trainings are provided. Because of the limited evidence, it is not possible to analyze training implementation.

Based on the literature reviewed, training methodologies appear to be comparable across this region. In India and Nepal, training combines didactic and interactive approaches, including lecture, question-and-answer sessions, songs, skits, group discussion, and case studies (Paudel et al. 2013; UNICEF Regional Office for South Asia 2004).

Case Study: Nepal's Female Community Health Volunteer Program
(UNICEF Regional Office for South Asia, 2004)

Nepal's Female Community Health Volunteer (FCHV) Program was created to improve access to health care in Nepal. As of 2004, the program had trained more than 48,000 FCHVs and deployed them to all 75 districts in the country. After their initial training, the FCHVs maintain their competency through regular two-day in-service trainings twice per year. In these trainings, FCHVs receive a refresher on content they learned in their initial training. This includes areas such as hygiene, family planning, diarrheal disease, and IMCI.

Training Effectiveness

There is little evidence on the effectiveness of in-service training. A few programs perform pre- and post-training tests (Asnake and Tilahun 2010; Kawakatsu et al. 2012), but data from these tests are not available. The only evidence identified is from a handful of studies performed by independent researchers, which indicate that in-service training is effective and should be used more often.

A few studies show an increase in CHW competency after the completion of at least one in-service training program (Blanas et al. 2013; Msisuka et al. 2011; Mukanga et al. 2011; Nelson et al. 2012; Paudel et al. 2013). A study of an MNCH in-service training in South Sudan found that CHW competency increased drastically (Nelson et al. 2012). The authors performed pre-, post-, and three-month follow-up tests. Post-test data suggested that competency increased significantly (by approximately 60%), but the three-month post-test scores indicated that levels dropped by 20%. Another study of an RDT in-service training in Senegal yielded similar results: upon completion of training, CHWs scored well on post-tests, but by the three-month follow-up, their scores had decreased dramatically (Msisuka et al. 2011). This evidence, albeit limited, suggests that either training techniques or frequency should be adjusted to support CHW competency.

The initial evidence is promising. However, the dearth of research in this area prohibits drawing detailed conclusions. It is widely acknowledged that in-service training is effective (Amaya et al. 2011); however, it is unknown which types of training are most effective. More research on post-training CHW competency is needed to determine the effectiveness of the wide array of training programs and to establish an evidence-based curriculum.

Gaps in In-Service Training

The literature review identified a number of gaps in in-service training in the study countries. The most widely cited gap is the lack of training (Giri et al. 2012; Harvey et al. 2008; UNICEF Regional Office for South Asia 2004). Gaps in planning and implementation include the lack of adaptation of training to support local languages (Asnake and Tilahun 2010); inconsistent delivery methods and monitoring and evaluation practices (iHeed Institute 2013); failure to deliver training in communities where CHWs practice (Partners in Health 2001); and a lack of coordination with other service providers (Pathfinder International 2011). The only gap identified in teaching methodology was underuse of rote techniques (Msisuka et al. 2011). The only gap identified in curricula was a lack of emphasis on communication skills (Haq and Hafeez 2009).

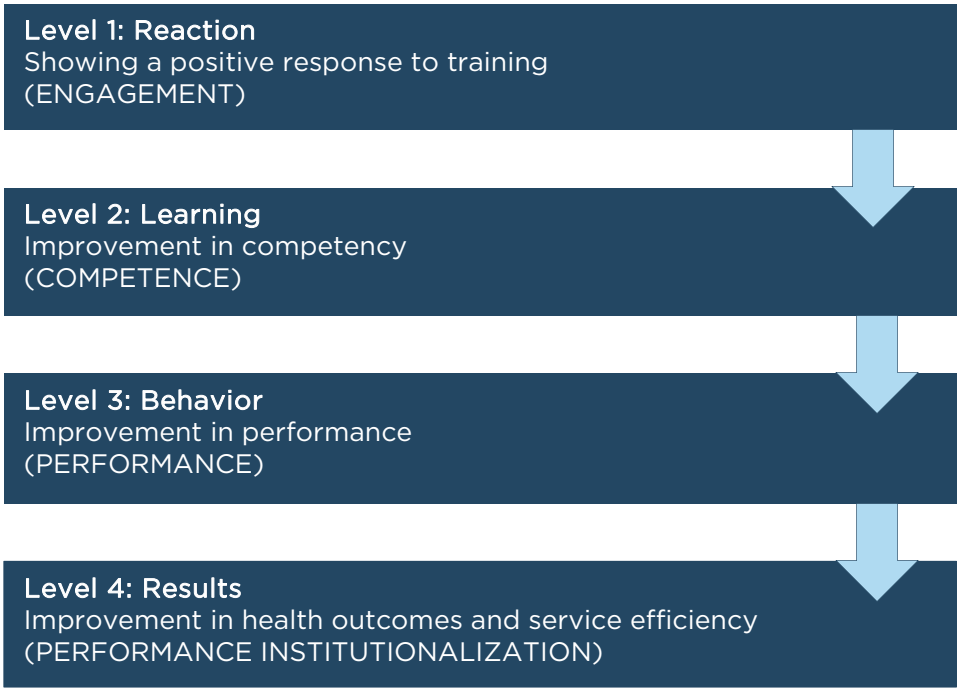
Best Practices

Numerous programs have published lessons learned and best practice recommendations based on their experiences. Best practices in teaching methodology included incorporating interactive methods, repetitive interventions (with or without the use of technology), case-based training, and blended training (or integrating technology into the training process) (Bluestone et al. 2013; Joynes 2011; Minnesota International Health Volunteers 2004). Another recommendation was that in-service

training providers could improve monitoring and evaluation practices by incorporating CHW feedback and using the Kirkpatrick model for evaluating effectiveness (see Figure 1 below) (Bluestone et al. 2013; Colton et al. 2006; Joynes 2011).

Regarding curricula, the only recommendation cited was to include communication skills in in-service training programs (Haq and Hafeez 2009). Finally, although training locality is not discussed in the in-service training literature, WHO recommends that training spaces should be both supportive of and attractive to students to encourage the learning process (Joynes 2011). Incorporating these best practices into new or existing in-service training programs could address some of the training gaps and ultimately enhance CHW competency.

Figure 1. Kirkpatrick Model for Evaluating the Effectiveness of Training Programs



Summary of Best Practices

Key Features

The literature review revealed a number of best practices that should be considered when creating or implementing CHW pre-service and in-service training. These practices can be broken down into three categories: *planning*, *teaching methodology*, and *monitoring and evaluation*.

The most commonly recommended best practices in *planning* were coordination of training approaches with other providers (Funes et al. 2012; iHeed Institute 2013; Millennium Villages Project 2012b; Msisuka et al. 2011) and incorporation of CHW feedback to improve training methods and curricula (Colton et al. 2006; iHeed Institute 2013; Joynes 2011; Partners in Health 2001).

The most frequently cited best practice in *teaching methodology* was the inclusion of interactive teaching methods in CHW training. Various interactive methods, from singing and skits to case-based scenarios, are acknowledged in the literature. It is clear that effective CHW training must have interactive components that are repetitive in nature, using more interactive than didactic approaches (Friedman et al. 2007; Global Health Workforce Alliance 2008; iHeed Institute 2013; Malaria Consortium 2014; Partners in Health 2001). The evidence supporting interactive training methods leaves room for increased use of technology in training. A number of authors suggested that the use of technology improves learning outcomes and should be used more widely in health worker training (Funes et al. 2012; iHeed Institute 2013; Long 2013). Examples cited included using smartphones as job aids and incorporating the use of computer-based training programs into the classroom (Funes et al. 2012; iHeed Institute 2013; Long 2013; Millennium Villages Project 2012a).

The most widely suggested best practice in *monitoring and evaluation* was the use of feedback from training participants—including pre-tests, post-tests, follow-up tests, self-assessments, and feedback forms—to improve the training curriculum and training delivery (Joynes 2011; Partners in Health 2001). When using tests to assess CHW knowledge retention and competence, trainers have a barometer they can use to monitor CHW uptake of content and gauge how uptake affects their performance, enabling continuous quality improvement within the training program. In turn, this will improve the volume and quality of service delivery, which ultimately will improve health outcomes. Furthermore, incorporating feedback encourages the CHWs to participate in the process and fosters a sense of ownership in their education, enhancing CHW engagement.

Recommendations

The following recommendations for improving the quality of CHW training programs are based on the key findings above:

- Training program implementation and curricula should be coordinated among training providers, including NGOs, civil society organizations, and governments.
- CHW training curricula should be made more interactive to allow CHWs to engage with content in practical ways that are similar to the experiences they will encounter on the job.
- CHW feedback should be sought and acted upon to improve the quality of training content and delivery.
- CHW training providers should monitor the competency of CHWs through the regular use of pre-tests, post-tests, and self-assessment.
- CHW training providers should be transparent with their training content areas and specific content, and share the training with the global health community so that MOHs, NGOs, and CBOs can identify training gaps and differences or redundancies in training pedagogy, content areas, and content.

Conclusion

CHW training programs in sub-Saharan Africa, India, Nepal, and Pakistan are conducted primarily by governments and NGOs. The literature also identified other private-sector training providers, such as CBOs, but their programs operate on a smaller scale (iHeed Institute 2013; Minnesota International Health Volunteers 2004). Lack of coordination among the diverse training providers has resulted in oversaturation of similar, uncoordinated CHW training programs, particularly in pre-service training.

CHW training occurs in a wide variety of settings, and it varies widely in duration, contributing to gaps in CHW competency (Joynes 2011). Training that is held far away from where CHWs live and work creates physical and socioeconomic barriers for CHWs, contributing further to problems with competency (Partners in Health 2001). Following global best practices would help standardize training duration and address issues with the location of training facilities (Joynes 2011).

The literature also points to a need for mandatory, consistent, and transparent evaluation of training programs and for regular assessment of program compliance with MOH and other government standards and policies. Only a handful of the programs surveyed actually implement evaluation practices. Some of them do not implement these practices consistently, and few have data available to review. A lack of consistent program monitoring and evaluation, coupled with the breadth of training programs and providers, has made it difficult to discern how training programs are developed, implemented, and managed. Thus, better implementation of and reporting on monitoring and evaluation efforts is needed.

There are definite gaps in the evidence about CHW training programs. For instance, despite frequent mentions in the literature that programs should ensure that trainings are offered at an appropriate literacy level, there was little discussion of how to implement this. The use of pictorial training for low-literacy audiences is not addressed; nor is the adaptation of curricula to local languages and cultural contexts.

The literature acknowledges a disconnect in the way training programs are managed, delivered, and monitored. Thus, a more cohesive approach in CHW training programs is recommended (Bhutta et al. 2010; Friedman et al. 2007; Global Health Workforce Alliance 2008; iHeed Institute 2013; Partners in Health 2001). Greater synergy among programs would provide a more consistent, evidence-based training experience for CHWs, wherever they reside. Improving CHW effectiveness through increased competency and improved service delivery would have a positive impact on the achievement of MDGs 4, 5, and 6. Organizations such as the World Health Organization have recognized and acknowledged this potential impact. The authors of the WHO Curricula Mapping Report recently published the findings of their mapping study, which are in unison with the recommendations of this review (Tran et al. 2014). Therefore, there is a strong case for the international community to take the recommendations of this literature review and the WHO Curricula Mapping Report into serious consideration when assessing global HRH needs.

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Appendix A. Scope of Work

Literature Review: What Do We Know about Community Health Worker Training?

Background

It is estimated that 1 billion people today will never see a health worker in their entire lives.[1] In developing countries, most of those who do will head directly to frontline health workers. These workers represent, by far, the main way that most developing country citizens access health services.[2] 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?[3]

It's not for want of attention to the problem. Between 2011 and 2012, at least four high-profile Alliances were launched in Washington, D.C., and New York to tackle the challenge of what can be done to recruit, improve the performance of, and retain frontline health workers in developing regions.[4] Between them, these four alliances have over a dozen high profile corporate, NGO, and charitable partners, and more than $1 billion to invest in finding solutions to Africa's most pressing health needs. In addition, USAID is committed to scaling up training for frontline health workers,[5] and there's no shortage of public and private organizations pouring resources into projects aimed at helping governments achieve the 2015 Millennium Development Goals (MDGs) for health.[6] With only three years 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. Indeed, even when training is provided, it is routinely ineffectual, in large part because of the location: hundreds of miles from where the health workers live.[7,8] Refresher training, moreover, is infrequent or simply never happens.[9,10] The consequences of this severe undertraining of frontline health workers contributes to alarming yet avoidable medical situations, such as the fact that annually, millions of children under five and their mothers

[1] Bhutta, Z., Lassi, Z., Pariyo, G., and Huicho, L. 2010. Global Experiences of Community Health Workers for Delivery of Health Related Millennium Development Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems. Global Health Workforce Alliance.
[2] Frontline Health Workers Coalition. http://frontlinehealthworkers.org/
[3] MDG Health Alliance. http://www.mdghealthenvoy.org/health-areas/community-health-workers/
[4] MDG Health Alliance; Frontline Health Worker Coalition; One Million Community Health Workers Campaign; and mPowering Frontline Health Workers
[5] See USAID's website: http://www.usaid.gov/what-we-do/global-health/maternal-and-child-health
[6] In 2012 the Norwegian Agency for Development Cooperation committed $9.9 million to the mHealth Alliance, founded in 2009 by the Rockefeller Foundation, Vodafone Foundation, and United Nations Foundation. See http://www.prweb.com/releases/mHealth/Alliance/prweb9254025.htm (accessed January 15, 2014). In September 2011 Merck made a half-billion-dollar commitment to developing proven solutions for maternal mortality. See http://www.womendeliver.org/updates/entry/merck-joins-global-fight-to-help-save-womens-lives-during-pregnancy-and-chi/
[7] Knebel E. 2001. The Use and Effect of Distance Education in Healthcare: What Do We Know? Quality Assurance Project Issue paper, vol. 2, issue 2. Retrieved January 28, 2014, from: http://www.hciproject.org/sites/default/files/Distance%20Education.pdf
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[9] Ibid.
[10] Long, L.-A. 2013. Health Education and Training: Using a Blended Learning Approach for Low-Resource Settings. Unpublished.

continue to die.[11] In sub-Saharan Africa in particular, little progress has been made.[12,13] Often all that is needed to save lives are simple medical interventions, yet all too often, undertrained frontline health workers are unable to intervene appropriately. Training frontline health workers in a way that is appropriate, effective, and cost-effective promises to address this and a host of other health challenges in Africa and beyond.[14]

Literature Review

The proposed literature review will focus on the current state of play in community health worker training in sub-Saharan Africa and India, Nepal, and Pakistan. It will include identification of both pre-service and in-service/refresher training and, where possible, information about the following:

- Particular educational techniques (e.g., lectures, simulations, problem-based learning, group work, distance education)
- Settings where instruction occurs (e.g., classroom, residential, workplace)
- Duration and/or frequency of trainings (e.g., number of days pre-service training
- Media used to deliver the training (print-based, eLearning, mobile)
- Whether there is a national curriculum (e.g., the HEW program in Ethiopia and the ASHA training in India) or other national/state strategies for continuing education and training for community health workers
- Key players in the community health worker training field (e.g., UNICEF? Save the Children? IntraHealth?)

Key sections are likely to include the following:

- Summary of the literature describing community health worker training in sub-Saharan Africa and India
- Examples from the literature (e.g., illustrative case studies) to highlight key messages
- Summary of gaps identified by the literature (e.g., lack of training pre-service and/or refresher training; quality/relevance of training resources; need to scale up rapidly to meet maternal, newborn, and child health MDGs)

Potential sources of information:

There are a number of reports and papers that could provide helpful information.

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[11] UNICEF. www.unicef.org

[12] Wakabi 2010

[13] The Earth Institute at Columbia University 2011 *One Million Community Health Workers: Technical Task Force Report*. Accessed on January 15, 2014, at: http://www.millenniumvillages.org/uploads/ReportPaper/1mCHW_TechnicalTaskForceReport.pdf

[14] 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. See, for example, Lehmann, U., and Sanders, D. 2007. *Community Health Workers: What Do We Know about Them?* Geneva: World Health Organization; Roudi-Fahimi, F., and Moghadam, V.M. 2003. *Empowering Women, Developing Society: Female Education in the Middle East and North Africa*. MENA Policy Brief. Washington, D.C.: Population Reference Bureau. Also Mackinko et al. 2006; Lehmann and Sanders 2007; Mennan et al. 2008.

Appendix B. Terms Used in Article Database Searches

DATABASE	SEARCH TERMS
Cochrane Library	Community health worker AND (training OR pre-service training OR initial training OR in-service training) AND/OR (Africa, India, Nepal, Pakistan) Terms searched as keywords. Results were limited to articles in English.
PubMed	Community health worker AND (training OR pre-service training OR initial training OR in-service training) AND/OR (Africa, India, Nepal, Pakistan) Terms searched as keywords. Results were limited to articles in English.
ProQuest	Community health worker AND (training OR pre-service training OR initial training OR in-service training) AND/OR (Africa, India, Nepal, Pakistan) Terms searched as keywords. Results were limited to articles in English.
Google Scholar	Community health worker AND (training OR pre-service training OR initial training OR in-service training) AND/OR (Africa, India, Nepal, Pakistan) Terms searched as keywords. Results were limited to articles in English.
CHW Central	Community health worker AND training materials* OR training* Terms with an asterisk are CHW Central subject headings. Other terms are keywords. Results were limited to articles in English.

Appendix C. Annotated Bibliography

Background/Contextual Information

Bhutta, Z., Lassi, Z., Pariyo, G., and Huicho, L. 2010. *Global Experiences of Community Health Workers for Delivery of Health Related Millennium Development Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems*. Global Health Workforce Alliance.

This report examines the impact of CHW programs on the health-related MDGs. The authors performed a systematic review of CHW programs and eight case studies. The focus of the report is on key program aspects, such as CHW typology, selection, training, supervision, monitoring and evaluation, performance, and impact assessment.

Friedman, I., et al. 2007. *Moving towards Best Practice: Documenting and Learning from Existing Community Health/Care Worker Programmes*. Durban, South Africa: Health Systems Trust and National Department of Health. Retrieved January 15, 2014, from: http://indicators.hst.org.za/uploads/files/chws_bestpractice.pdf

This report, released by the South African Health Systems Trust and National Department of Health, reviews the best practices of CHW programs in South Africa. The authors used a mixed methodology of snowball sampling and web-based searches to identify organizations in South Africa's nine provinces. They conducted qualitative interviews with five projects in each province and found that there were inconsistencies in CHW training programs and program management. Included among the authors' recommendations are providing CHWs with continuous training, creating a generalist class of CHWs, and using evidence-based monitoring and evaluation techniques to keep track of program progress.

Global Health Workforce Alliance. 2008. *Scaling Up, Saving Lives: Task Force for Scaling Up Education and Training for Health Workers*. Geneva: World Health Organization.

This report reviews the findings and recommendations of the GHWA Task Force on Health Worker Education and Training. Included in these findings are best practices in education, training, financing, governance, monitoring and evaluation, and innovative practices that are currently being used. These practices were extrapolated from case studies in sub-Saharan Africa, India, Southeast Asia, and Latin America. The task force provides a series of recommendations for developing country governments, primarily in sub-Saharan Africa, to guide the scale-up of education and training programs for health workers.

Hall, S. 2007. People First: African Solutions to the Health Worker Crisis. Retrieved January 15, 2014, from: http://www.popline.org/node/199480

This report AMREF outlines the current state of health worker programs, programming gaps, and recommendations for the health worker crisis in Africa. The author identifies poor training, motivation, and retention; a lack of skilled health workers in remote areas; and poor community engagement with health systems as

the primary issues that have led to Africa's health worker crisis. Recommendations are made for both international financers and African governments to successfully develop and scale-up solutions to the health worker crisis.

Naimoli, J., Frymus, D., Quain, E., Roseman, E., Roth, R., and Boezwinkle, J. 2012. *Community and Formal Health System Support for Enhanced Community Health Worker Performance*. Washington: USAID.

This is a report on one of a series of USAID Evidence Summits. The report summarizes the details of the CHW-focused evidence summit. USAID brought together a group of experts to explore specific questions about the interactions between CHWs, the community, and the formalized health system. The evidence summit culminated in a number of research, policy, and planning recommendations to improve CHW performance.

Pre-Service Training for CHWs

Africa Health Workforce Observatory. 2009. *Human Resources for Health County Profile: The Gambia*. Geneva: World Health Organization.

This report provides a detailed overview of Gambia's Human Resources for Health. Areas reviewed include country context, the overall health system, the health worker landscape, health worker production, and utilization and HRH governance.

Ariff, S., et al. 2010. Evaluation of health workforce competence in maternal and neonatal issues in public health sector of Pakistan: An assessment of their training needs. *BMC Health Services Research 10*(1): 319.

Ariff et al. conducted a needs assessment of MNCH training of health workers in Pakistan. The authors included health workers for all cadres—high, mid, and low—and assessed them on knowledge of breastfeeding, immediate postnatal care, management of newborn infects, and other key areas. The authors found that current training on MNCH was lacking for all cadres of health workers.

Funes, R., Hausman, V., Rastegar, A., and Bhatia, P. 2012. *Preparing the Next Generation of Community Health Workers: The Power of Technology for Training*. Cork, Ireland: iHeed Institute.

This report, commissioned by the iHeed Institute, reviews the current state of CHW training programs and the role of technology in CHW training. The authors performed a landscape analysis of CHW training programs to determine training gaps and identify how technology is currently being used. The authors assert that digital training can be effective and will aid the scale-up of CHWs in dub-Saharan Africa. The authors also conclude that up to 80% of CHW training can be standardized and shared, and that this process would be expedited and enhanced through the use of technology in CHW training programs.

Giwa, T., and Shirazi, N. 2011. *CHW Training Ruhiira MVP.* Ruhiira: Millennium Villages Project.

In this training report, Giwa and Shirazi describe a pre-service training session in which CHWs were trained on job aids. This training session was the first in a series of CHW certification trainings. Training participation, logistics, and materials are reviewed.

Global Health Workforce Alliance Task Force on Scaling Up Education and Training for Health Workers. n.d.-a. *Country Case Study: Ethiopia's Human Resources for Health Programme*. Geneva: WHO.

This case study, produced by GHWA's Task Force on Scaling Up Education and Training for Health Workers, provides an overview of Ethiopia's Human Resources for Health Programme. Included in this review is information about program implementation, HEW training, program effectiveness, and monitoring and evaluation efforts. The task force identifies important lessons learned and makes recommendations for program enhancement.

Global Health Workforce Alliance Task Force on Scaling Up Education and Training for Health Workers. n.d.-b. *Country Case Study: Pakistan's Lady Health Worker Programme*. Geneva: WHO.

This case study, produced by GHWA's Task Force on Scaling Up Education and Training for Health Workers, provides an overview of Pakistan's Lady Health Worker Programme. Included in this review is information about program implementation, LHW training, program effectiveness, and monitoring and evaluation efforts. The task force identifies important lessons learned and makes recommendations for program enhancement.

iHeed Institute. 2013. *mHealthEd 2013: New Digital Media Content and Delivery: Revolutionising Global Health Education and Training*. Cork, Ireland: iHeed Institute.

This workshop report provides an overview of discussions on mHealth education that occurred during the iHeed Institute's mHealthEd 2013. The purpose of these workshops was to foster discussion on and innovation in the use of digital content for blended learning within health worker training and programming. Each section reviews the different sessions of the summit, highlighting background, issues, and key recommendations.

Kawakatsu, Y., Sugishita, T., Kioko, J., Ishimura, A., and Honda, S. 2012. Factors influencing the performance of community health workers in Kisumu West, Kenya. *Primary Health Care Research and Development 13*(04): 294–300. doi:10.1017/S1463423612000138

Kawakatsu et al. studied CHW performance in Kenya. The authors used questionnaires to gather data on 750 CHWs throughout the country. They found that older CHWs were more likely to perform well because of their connection with their training providers.

Kitaw, Y., Ye-Ebiyo, Y., Said, A., Desta, H., and Teklehaimanot, A. 2007. Assessment of the training of the first intake of Health Extension Workers. *Ethiopian Journal of Health Development 21*(3): 232.

In this article Kitaw et al. review their analysis of the first training of Ethiopia's HEW program. The authors evaluated all but one HEW training center and conducted a survey of HEW training sessions. They found that training facilities were greatly lacking, HEW selection processes were flawed, HEW trainees did not have an adequate job orientation, and there were inconsistencies in HEW remuneration

policies. The authors recommended providing continuing education to HEWs, recruiting higher-skilled HEWs, and universal remuneration policies.

Lehmann, U., and Sanders, D. 2007. *Community Health Workers: What Do We Know about Them?* Geneva: World Health Organization.

In this report, Lehmann and Sanders outline the current state of CHW programs. Their analysis includes program development and governance, effectiveness, cost-effectiveness, training, and monitoring and evaluation. The authors reach four main conclusions: (1) CHWs can make valuable contributions to health systems; (2) for CHWs to be effective, they must be appropriately selected and trained; (3) CHW programs have been unnecessarily undermined by high expectations, poor implementation efforts, and a lack of governance; and (4) CHW programs are incredibly vulnerable and must be rooted within the community to be successful and sustainable.

Malaria Consortium (2014). *Implementing Integrated Community Case Management: Stakeholder experiences and lessons learned in three African countries.* London: Malaria Consortium.

In this paper, the Malaria Consortium provides an overview of the implementation of a CHW program focused on the use of integrated community case management for the treatment of malaria in South Sudan, Uganda and Zambia. The organization identifies key challenges and successes throughout the entire implementation process. Malaria Consortium also provides recommendations based on the best practices they identified.

Millennium Villages Project. 2012a. Report on Child Count+ and Job Aids Training. Unpublished.

This report reviews a health surveillance assistant training program in Malawi. The training was administered by MVP and covered new job aids and child count+ (CC+). The review includes training details, pre- and post-test data, and recommendations for ways to improve the training and job aids.

Mtobesya, J., and Rollins, P. 2012. Supervisory Skills Training for Senior CHWs in MVP Mbola Cluster. Unpublished.

In this report, the authors describe a pre-service training session for senior CHWs. Training participation, logistics, and materials are reviewed. CHWs were given a training satisfaction survey after the training and those results are reviewed as well.

Nelson, B. D., et al. 2012. Evaluation of a novel training package among frontline maternal, newborn, and child health workers in South Sudan. *International Journal of Gynecology and Obstetrics 119*(2): 130–135. doi:10.1016/j.ijgo.2012.05.019

In this study, Nelson et al. evaluate the effectiveness of a comprehensive MNCH training of FHWs in South Sudan. Through the use of focus groups and questionnaires during the pre-test, post-test, and 2–3 month follow-up period, the authors found that FHWs knowledge scores were the highest on the post-test and decreased by the 2–3 month follow-up. The authors concluded that the MNCH training can be successfully implemented in low-resource settings.

Partners in Health. 2001. *Unit 6: Improving Programs through Training.* Retrieved January 15, 2014, from: http://www.pih.org/library/pih-program-management-guide/unit-6-improving-programs-through-training

This unit of the Partners in Health Program Management Guide reviews best practices for training CHWs and other health workers. PIH makes a variety of recommendations on how to develop, implement, and monitor and evaluate health worker training programs. Drawing on their organization's experiences, PIH provides specific examples and details of CHW training programs and lessons learned.

Rollins, P. 2012. CHW Training in MVP Mbola Cluster. Unpublished.

Rollins describes a pre-service training session in which CHWs were trained on their role and new job aids. Training participation, logistics, and materials are reviewed. CHWs were given a training satisfaction survey after the training and those results are reviewed as well.

Shrivastava, S. R., Shrivastava, P. S., and Shrivastava, S. S. P. 2012. Evaluation of trained Accredited Social Health Activist (ASHA) workers regarding their knowledge, attitude and practices about child health. *Rural and Remote Health 12*(2099). Retrieved January 15, 2014, from: http://www.rrh.org.au/Articles/subviewnew.asp?ArticleID=2099

The authors performed a cross-sectional study of ASHA workers in Maharashtra, India, over a period of three months. The purpose of this study was to evaluate the knowledge, attitudes, and practices of ASHAs in the area of child health. The authors found that despite the thorough pre-service training the ASHAs received, gaps existed. The authors recommend regular in-service trainings to help address these gaps.

UNICEF Regional Office for South Asia. 2004. *What Works for Children in South Asia-Community Health Workers*. Kathmandu: UNICEF

This working paper, produced by the UNICEF Regional Office for South Asia, reviews a series of case studies and identifies best practices and programming gaps in CHW programs. UNICEF staff performed an internet search and reviewed both published and unpublished literature on CHW programs in South Asia. Program aspects reviewed were CHW selection, roles, training, incentives, sustainability, and monitoring and evaluation. Case study examples from Bangladesh, Bhutan, India, Nepal, and Sri Lanka are included.

In-Service Training for CHWs

Bluestone, J., Johnson, P., Fullerton, J., Carr, C., Alderman, J., and BonTempo, J. 2013. Effective in-service training design and delivery: Evidence from an integrative literature review. *Human Resources for Health 11*(1): 51.

In this literature review, Bluestone et al. describe different types of in-service training that are currently being used in the health professions. A literature review of various databases was performed to find information about the effectiveness of in-service training for health workers. Although the authors focus primarily on higher-level health professionals, their review emphasizes the necessity of in-service training for all levels of health professionals. They suggest that using a variety training techniques, such as case-based learning, clinical simulations, practice, feedback, and

repetitive interventions, improves the quality of training and learning outcomes for health care workers. Traditional didactic methods were shown to have no impact on learning outcomes.

Harvey, S. A., Jennings, L., Chinyama, M., Masaninga, F., Mulholland, K., and Bell, D. R. 2008. Improving community health worker use of malaria rapid diagnostic tests in Zambia: Package instructions, job aid and job aid-plus-training. *Malaria Journal 7*(1): 160. doi: 10.1186/1475-P2875-7-160

In this study, Harvey et al. analyze the effectiveness of CHW-administered RDTs in the treatment of malaria. The authors studied three groups of CHWs: one that used only manufacturers' instructions to perform RDTs, one that used job aids to perform RDTs, and one that went through a three-hour RDT training and used job aid to perform RDTs. The results showed a 92% accuracy rate for CHWs who received training and used a job aid, compared to 80% accuracy for the group that used only the job aid and 57% accuracy for the group that used the manufacturers' instructions. The outcomes of this study suggest that training, coupled with well-designed job aids, can ensure high performance by CHWs.

Joynes, C. 2011. *Distance Learning for Health: What Works*. London: London International Development Center. Retrieved January 15, 2014, from: http://www.lidc.org.uk/_assets/DL4H_Report_Full_reduced.pdf

Joynes provides a comprehensive review of distance learning for health (DL4H) initiatives across 57 low- and middle-income countries, with a primary focus on sub-Saharan Africa (36 of the 57 countries) due to language limitations. Joynes performed a global review, which included searching organizations and databases for information regarding DL4H policy and strategy, program design, training curricula, and training effectiveness. Joynes concludes that training is integral to the success of health care systems and asserts that health worker training can address health system challenges through scale-up initiatives and teaching effective practices to help provide higher levels of specialized care.

Long, L.-A. 2013. Health Education and Training: Using a Blended Learning Approach for Low-Resource Settings. Unpublished.

Long performed a literature review of various academic databases and international organizations to find information about distance learning as a training option for health workers in resource-poor settings. The author identifies and discusses three aspects of distance learning: the potential to use distance learning as a training tool for health workers in resource poor settings; best practices in distance learning; and ways to scale up distance learning so that it can be implemented in health care education systems.

Msisuka, C., Nozaki, I., Kakimoto, K., Seko, M., and Ulaya, M. M. S. 2011. An evaluation of a refresher training intervention for HIV lay counsellors in Chongwe District, Zambia. *SAHARA-J: Journal of Social Aspects of HIV/AIDS 8*(4): 204–209. doi:10.1080/17290376.2011.9725005

Msisuka et al. evaluated HIV refresher training provided to a group of CHWs in Zambia. The authors partnered with the district health office to provide a two-day refresher training course. Participants were tested before and after training. They

found that the refresher training was successful and recommended that more refresher trainings be offered to improve CHW knowledge and skills.

Qureshi, S., Kakama, A., Toko, E., and Barnard, G. 2012. *Case Study: CommCare Ruhiira—Training, Pilot and Implementation*. Ruhiira: Millennium Villages Project.

In this pilot study the authors implemented a pilot mHealth program, CommCare, at a Millennium Villages Project site in Ruhiira. The report details all phases of implementation and next steps for MVP.

Treatment-/Issue-/Disease-Specific Training for CHWs

Armstrong, G., Kermode, M., Raja, S., Suja, S., Chandra, P., and Jorm, A. F. 2011. A mental health training program for community health workers in India: Impact on knowledge and attitudes. *Int J Ment Health Syst 5*(1): 17.

Armstrong et al. studied the effectiveness of mental health training administered to a group of CHWs in India. The authors assessed mental health literacy at three different points—pre-training, post-training, and three month follow-up. The authors found that the training improved CHWs' ability to recognize mental disorders, but they noted the course could be improved further.

Asnake, M., and Tilahun, Y. 2010. *Scaling Up Community-Based Service Delivery of Implanon: The Integrated Family Health Program's Experience Training Health Extension Workers*. Watertown, MA: Pathfinder International.

Asnake and Tilahun describe the training methodology and outcomes of a scale-up pilot of Implanon injections in Ethiopia. Pathfinder International piloted the initiative as part of the Integrated Family Health Program (IFHP) in eight *wordeas* in 2009–2010. During the pilot, Pathfinder trained trainers and HEWs, and provided post-training follow-up. After the first two months of training, HEWs had administered more than 4,500 Implanon injections. This scale-up effort was so successful that the IFHP expanded the program into 43 additional *wordeas* across four regions of Ethiopia.

Blanas, D. A., Ndiaye, Y., Nichols, K., Jensen, A., Siddiqui, A., and Hennig, N. (2013). Barriers to community case management of malaria in Saraya, Senegal: Training and supply-chains. *Malaria Journal 12*(1): 95.

The authors of this study evaluated community perceptions of community case management (CCM) and the effectiveness of CHWs' CCM training. Using a mixture of quantitative and qualitative methods, the authors found that most CHWs had acquired the skills to use CCM, but they did not understand the CCM algorithm. The authors conclude that barriers to implementation of training and access to care should be further investigated.

Colton, T., Dillow, A., Hainsworth, G., Israel, E., and Kane, M. 2006. *Community Home-Based Care for People and Communities Affected by HIV/AIDS: A Handbook for Community Health Workers*. Retrieved January 15, 2014, from: http://www.pathfinder.org/publications-tools/pdfs/Community-Home-Based-Care-for-People-and-Communities-living-with-HIV-AIDS-A-Comprehensive-Training-Course-for-Community-Health-Workers-Entire-Trainers-Guide.pdf

This CHW community home-based care (CHBC) curriculum was developed by Pathfinder International to address HIV/AIDS care in communities in sub-Saharan Africa. The CHBC model was piloted in Kenya and focuses on community mobilization and participation in care and support as a means to prevent the spread of HIV/AIDS. This specific curriculum was pre-tested in Tanzania and Mozambique and underwent peer review internally and externally. The training curriculum has 14 units and five advanced units. The units cover topics such as CHBC basics, HIV/AIDS basics, family planning, prevent of mother-to-child transmission, and others.

Gennaro, S., Thyangatbyanga, D., Kersbbaumer, R., and Thompson, J. 2001. Health promotion and risk reduction in Malawi, Africa, village women. *Journal of Obstetric, Gynecologic, and Neonatal Nursing 30*(2): 224–230.

The authors of this study analyzed the effects of a train-the-trainer intervention on health promotion in Malawi. The authors surveyed training in 15 villages in Chimutu, Malawi. During the study, 76 village women were trained in health promotion and risk reduction in pregnancy. The village women then performed training sessions with more than 20,000 villagers. The authors found that the train-the-trainer model is sustainable and has produced positive results in community knowledge of health promotion and risk reduction in pregnancy.

Minnesota International Health Volunteers. 2004. *Uganda Family Planning Programs: Lessons from the Field*. Minneapolis: CORE Group.

This report reviews two case studies of family planning programs implemented by Minnesota International Health Volunteers and the Adventist Development and Relief Agency in Uganda. Both programs trained nurses, health facility workers, and community health workers in planning family practices to help improve family planning in two regions of Uganda. Through the use of five principle strategies, both organizations were able to increase community knowledge of family planning practices.

Mukanga, D., et al. 2011. Can lay community health workers be trained to use diagnostics to distinguish and treat malaria and pneumonia in children? Lessons from rural Uganda: Training CHWs to manage malaria and pneumonia. *Tropical Medicine and International Health 16*(10): 1234–1242. doi:10.1111/j.1365-3156.2011.02831.x

Mukanga et al. studied the use of RDTs by CHWs to determine whether or not CHWs can correctly assess, diagnose, and treat children with malaria and pneumonia. The authors trained CHWs in RDT methods and then observed their implementation of the RDTs. The authors concluded that CHWs can and should be trained to use RDTs in the community case management of fever.

Pathfinder International. 2005. *Community-Based Reproductive Health Care Creating Demand in Ethiopia*. Watertown, MA: Pathfinder International.

This report provides an overview of Pathfinder International's community-based reproductive health care program. Pathfinder International details the process for becoming a community-based reproductive health agent in Ethiopia, including candidate qualifications, training details, and job previews.

Pathfinder International. 2011. *Integrating Family Planning and HIV in Ethiopia: An Analysis of Pathfinders Approach and Scale Up.* Watertown, MA: Pathfinder International.

This brief analysis of Pathfinder International's Family Planning Services and HIV prevention services in Ethiopia reviews Pathfinder's approach to family planning, the impact of large-scale family planning and HIV programs in Ethiopia, the impact of Pathfinder's training curriculum, and the policy implications of their work. Pathfinder International cites curricular reform, task-shifting, staff sensitization, supportive supervision, and monitoring and evaluation as reasons for the success of their integrated family planning program in Ethiopia.

Paudel, S., et al. 2013. Impact of mental health training on village health workers regarding clinical depression in rural India. *Community Mental Health Journal.* doi: 10.1007/s10597-013-9630-6

Paudel et al. performed a study of mental health training for village health workers (VHWs), which was implemented by the Comprehensive Rural Health Project in India. The authors used a cluster sampling of all VHWs trained in mental health. VHWs were assessed on their knowledge of risk factors, symptom identification, case identification, management options, operational skills, and practice attitudes. The authors concluded that the training was effective and VHWs can be successful and useful in identifying and assisting individuals with depression.

USAID. n.d. Integrating HIV Services in Local Family Planning: The Expanded Community Distribution Model and Zimbabwe Experience. Washington: USAID Extending Service Delivery Project.

This briefing paper details the best practices of the Extended Service Delivery (ESD) program in Zimbabwe. USAID, along with the Zimbabwe National Family Planning Council (ZNFPC) and the MOH, implemented the ESD program to address Zimbabwe's HIV/AIDS crisis and integrate family planning and HIV services. Advance Africa, in partnership with ZNFPC and USAID, launched the program, trained health care workers, and developed and trained a new cadre of community health workers called *depot holders*. This brief outlines best practices in training, systems strengthening, and program sustainability.

Monitoring and Evaluation of Training Programs

Amaya, K., Alezuyo, C., Bainomugisha, B., Wando, L., and Ehrlich, L. 2011. *Community-Based Family Planning Best Practices Manual*. Minneapolis: WellShare International.

This manual was commissioned by USAID and WellShare International in an attempt to combine the knowledge and experiences of WellShare International and USAID in implementing the Uganda Child Spacing Program. The success of the program is attributed to four main implementation strategies: community-based distribution, community empowerment and leadership, partner-based programming, and quality assurance. WellShare International developed this manual to be a practical implementation guide for community-based family planning programs.

Recommendations

Giri, K., Frankel, N., Tulenko, K., Puckett, A., Bailey, R., and Ross, H. 2012. *Keeping Up to Date: Continuing Professional Development for Health Workers in Developing Countries* (Technical Brief No. 6). Washington: CapacityPlus.

In this technical brief, Giri et al. address the need for and importance of continuing education for health workers. The authors review the various types of continuing education and how continuing education systems should be developed for the health workforce. The authors make recommendations and identify best practices and lessons learned from other continuing education programs.

Haq, Z., and Hafeez, A. 2009. Knowledge and communication needs assessment of community health workers in a developing country: A qualitative study. *Human Resources for Health 7*(1): 59. doi:10.1186/1478-4491-7-59

Haq and Hafeez performed a needs assessment of CHW programs in Pakistan to determine how CHWs perceive their training and knowledge levels. The authors conducted focus groups with CHWs and their supervisors in all four provinces of Pakistan. The authors found that 80% of respondents found their skills adequate, but they wanted to improve. Knowledge of emerging health issues was found to be inadequate and respondents requested continuous in-service training.

Millennium Villages Project. 2012b. Learnings from CHW Training. Unpublished.

This report by MVP reviews lessons from CHW trainings in Mbola villages. Lessons learned about job aids, training timing, training manuals, training methods, and evaluation/certification are reviewed. Recommendations for future trainings are made.

mPOWERING
FRONTLINE HEALTH WORKERS