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BRIEF

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Introduction

Background

Improving progress in achieving the Sustainable Development Goals (SDGs) health targets will require dedicated investments in human resources. This is especially true in many countries with current human resources deficits—particularly low- and middle-income countries (LMICs). These countries increasingly find community health workers (CHWs) critical in the primary care continuum.[1] There is evidence of the benefits and cost-effectiveness of CHW programs in delivering essential health services, especially to hard-to-reach communities. Countries increasingly see CHWs as having an integral, and no longer peripheral, role within the healthcare system.

CHWs' potential to contribute to the progressive realization of universal health coverage (UHC) is underpinned by their ability to deliver a range of preventive, promotive, curative, and rehabilitative services related to reproductive, maternal, newborn, and child health; infectious diseases; HIV; non-communicable diseases; and neglected tropical diseases.[1] Adopting a task-shifting approach for deploying CHWs to improve equity is one strategy countries have used to expand the health workforce rapidly.[2]

Globally, there is great diversity in the use of evidence-based policies, the extent of support for CHWs, and their integration into formal health systems and communities within and across countries.[1] Challenges affecting CHW programs include:

- Uncoordinated recruitment and limited training

- Inadequate financing

- Poor coordination due to multiple partners with disease-specific interests and fund management mechanisms

- Weak supportive supervision

- Poor linkages with the formal health system

These challenges affect the recognition of CHWs and the quality and coverage of their work and lead to missed opportunities within their communities.

When countries and partners employ evidence-based policies, they can achieve the desired effect of deploying CHWs. These policies should address the governance of CHW programs, sustainable financing, recruitment, training, distribution, definition of roles, accountability, support, and supervision for CHWs, use of digital health innovations, and integration of CHWs into health systems and communities.[1] Many of these issues are reinforced as strategic priorities for investments across several countries' Community Health Roadmaps.

Noting countries' need for a stronger evidence base and innovative ideas, the U.S. Agency for International Development (USAID) and the Health Systems Strengthening Accelerator (the Accelerator) started a new program focused on recruiting and educating the future community health workforce. The program aims to "design and implement *socially accountable and more equitable health education and recruitment policies and practices.*" This effort reflects USAID's and the Accelerator's interests in applying an equity and systems-strengthening lens toward creating high-performing healthcare systems. It also aligns with the broader objectives of the United States Global Health Worker Initiative to advance equity and inclusion in the recruitment and retention of skilled health workers, utilize digital innovations for frontline workers, and perform other actions to ensure a more sustainable and responsive workforce.

Ahead of country-specific programming, the Accelerator drafted the following rapid landscaping briefs on CHW recruitment, training, financing, and utilization of digital innovations. The Accelerator conducted preliminary rapid desk reviews of global policy documents and gray and peer-reviewed literature on these themes.

Key stakeholder interviews complemented the reviews. Experts also made specific inputs to the rapid reviews and provided feedback on the overall global perspective of CHWs. The briefs provide a snapshot of the current major challenges under each theme and highlight some relevant best practices or innovations emerging in countries.

The briefs are intended as an accessible primer for country and global health leaders designing new workforce strategies. Draft versions of the briefs have already been used to guide a multi-country co-creation workshop at the 2023 Monrovia Community Health Worker Symposium and to inform ongoing actions in Côte d'Ivoire and Nigeria.

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Leveraging Digital Innovations for Transforming the Community Health Workforce in Low- and Middle-Income Countries

1

Background

Globally, several recent efforts have leveraged digital innovations to address health systems issues, particularly in low- and middle-income countries (LMICs). High mobile phone penetration (90 percent) and widespread internet connectivity across LMICs have contributed to this growth.[1] Additionally, the COVID-19 pandemic exposed significant gaps in access to essential health services in many communities, thereby accelerating the adoption of digital innovations.[2]

In LMICs, community health workers (CHWs) have implemented digital health solutions using mobile phones and simple technological solutions to enhance data collection and service delivery and strengthen supportive supervision and training mechanisms.[1] However, challenges such as fragmentation, duplication of innovations, and donor-driven pilot solutions, compounded by limited infrastructure resources, connectivity, and funding, influence the scalability and sustainability of digital innovations.[3]

Broader inequity issues related to CHWs, such as low digital literacy and skills, inadequate access to digital tools, and insufficient training and technical support for digital interventions (particularly in rural and disadvantaged communities) persist.[4] While these factors have contributed to widening equity gaps, there have been positive advances in implementing and scaling digital health innovations.[5]

Research Methods

The approach for this brief involved a comprehensive review of relevant literature, insights derived from the third International Community Health Worker Symposium held in Monrovia, Liberia, in March 2023, and interviews with key stakeholders.

The scoping exercise included scientific peer-reviewed papers and grey literature highlighting digital innovations CHWs used across various health system capacities. This aimed to understand use cases for these technologies and examine successes and challenges in their implementation. Our search, targeting digital innovations for CHWs, extended to applicable databases such as Google Scholar and PubMed, as well as digital health policy documents, country digital health reports, implementation reports, and published website articles. Beyond use cases, we explored challenges encountered during implementation, strategies to address these challenges, approaches for scale-up and sustainability, equity issues concerning digital innovations, and the enabling environments. We engaged relevant stakeholders to understand the community health digital innovation landscape regarding service delivery, training, supervision, use cases for these technologies, and the successes and challenges of their implementation. Ten virtual interviews were conducted with key stakeholders representing government, private sector innovators and entrepreneurs, donors, implementers, and multilaterals. The interviews solicited responses to address gaps identified during the literature review.

1. Current Use of Digital Innovations to Support CHWs

Many LMICs, including Nigeria, Kenya, Uganda, Ghana, Côte d'Ivoire, India, and others, have been exploring opportunities to leverage growing mobile phone penetration and internet access for digital innovations to support CHWs.[5] The digital innovations deployed to support CHWs range from training platforms and peer and supervisor communication platforms to tools that facilitate supportive supervision and provide CHWs with immediate feedback.[6,7] These tools have enhanced CHWs' productivity across various primary healthcare programs.

Training

Several tools supporting CHW training are primarily mobile phone-based and involve accessing course material in audio and visual formats.[1,8]
In many cases, apart from the COVID-19 pandemic era, training on new tools has been done face-to-face during the initial implementation stage. Subsequently, CHWs may be trained on how to use the tools continuously to refresh their knowledge and receive new curriculum updates during and after implementation to improve their skills and deliver better services to their communities.[9,10]

Key stakeholders corroborated these findings from the literature:

> "The COVID-19 pandemic forced everyone in the health system, especially at the community level, to think about e-learning and remote learning options for CHWs in order to maintain regular service delivery."
> —Digital Health Implementer

> "In many of our CHW programs, we use digital innovation tools to support a health system strengthening approach, look at health systems and see where the gaps are, and bring in digital innovation to address those gaps. For example, if there is a gap in training, we first work on advocacy, followed by development of guidance, and in the end, we conduct and put much focus on training the CHWs on how to use the tools to support them and improve their work."
> —Multilateral Stakeholder

Supervision

Digital tools are used as communication platforms between CHWs and their supervisors for information sharing and supervision. Tools like short message service (SMS) and software applications such as WhatsApp are currently being used to supervise CHWs remotely.[6] Similarly, other digital tools, such as interactive online visual dashboards, are used by supervisors, program managers, and other authorities to monitor the real-time performance of CHWs to inform decision-making.[7,11] As a result, supervisors find it easy to follow up remotely, provide real-time feedback, and support CHWs to perform better and deliver quality health services.

Service Delivery

In some instances, CHWs have been equipped with mobile phones and tablets, with digital tools, to support them in their routine health service delivery.[12] These range from decision support tools and job aids to simple data collection platforms using SMS, voice messaging for health education, digital megaphones for behavior change encouragement, remote data collecting, and health assessments.

Promising Examples of Digital Innovations Supporting CHWs

Themes	Examples	Region/Country
Training	The InStrat COVID-19 tutorial app was designed to provide CHWs with accurate information from WHO and Nigeria Center for Disease Control (NCDC) COVID-19 guidelines in local languages. The tool enabled CHWs to detect, screen, and manage people suspected of having COVID-19. The tool's features include training modules and pre/post-tests to validate acquired knowledge. By March 2020, InStrat had been deployed to over 20,000 CHWs across ten states in Nigeria.[13]	Nigeria
Supervision	**Communication** In a study conducted in Kibera and Makueni counties in Kenya, the WhatsApp platform was used as an effective communication channel between supervisors and CHWs to strengthen supportive supervision. Supervisors shared information with CHWs on updates and new guidance on emergency outbreaks (such as cholera), planning, training, and logistics. CHWs were equipped with near real-time information, enabling them to stay informed and support them with their day-to-day service delivery in their communities.[6] **Performance Monitoring** The Ministry of Health (MoH) Ghana, in collaboration with John Snow Inc (JSI), piloted a mobile application with a digital supportive supervision platform to improve the existing paper-based checklist. The platform offers supervisors in the Northern region with real-time feedback features. The features include scoring, feedback training messages, refresher training materials, in-brief videos, and graphics for the supervisor to share feedback with CHWs to enhance performance in areas that require improvement. Finally, the platform is integrated with DHIS2 so that MoH officers can monitor the performance of each CHW in their health facilities.[14]	Kenya and Ghana

Themes	Examples	Region/Country
Service Delivery	CHWs were equipped with a digital tool called Jamii ni Afya (Community Is Health) to deliver services, including child delivery assistance to skilled birth attendants at health facilities and an effective referral system for mothers, children, and adolescents to receive timely care. D-tree International and the government of Zanzibar designed and implemented the program. A comprehensive, government-led digital community health program links families, CHWs, and the healthcare system to guarantee everyone access essential health services. Zanzibar became one of the first global examples of a government-led digital community health system when Jamii ni Afya reached full national scale in August 2021. Over the years, CHWs under the Jamii ni Afya program have saved lives and improved the well-being of thousands of people.[15]	Zanzibar
	Ethiopia's MoH has prioritized the electronic Community Health Information System (eCHIS) as part of its information revolution initiatives. As of 2022, over 7,000 CHWs across 4,000 health posts utilized eCHIS as a tool for service delivery, data gathering, reporting, and household registration. This system also facilitates communication and referrals between health posts and health centers.[16] Since 2019, Living Goods has supported the governments of Burkina Faso, Kenya, and Uganda in piloting eCHIS to transform local community health systems digitally and in creating, developing, and implementing national eCHIS.[17]	Ethiopia, Kenya, Uganda, and Burkina Faso
	Kushi Baby is a mobile application tool for the community-level Accredited Social Health Activist (ASHA), midwives, nurses, and health facility medical officers. It offers different solutions, including COVID-19 communication, a disease outbreak feature, and a digital health census from the community and primary care levels and links them to the secondary healthcare levels. At community levels, ASHAs are equipped with a mobile application (with an offline feature) that helps them capture accurate population data and conduct follow-up on family planning, reproductive, maternal, and child health, and routine immunizations and referrals.[18]	India

2. Challenges and Gaps in Digital Innovation

Several CHW programs face coordination challenges because of short-term funding, donor-driven pilots, and lack of integration into local health systems. These challenges ultimately contribute to duplication and fragmentation of service delivery.[19] They have also contributed to the duplication of digital tools and interoperability and integration issues.

Utilizing digital global goods—tools adaptable to different geographies—can help address these coordination challenges. These tools, categorized as free and open-source software, include platforms such as DHIS2, Surveillance Outbreak Response Management & Analysis System (SORMARS), mHero, and CommCare, among others.[20] These platforms are used for different programs, such as disease surveillance, data collection, and management. Despite the limited use of global goods that could integrate existing tools and facilitate linkage to some of the health systems, many CHWs are already using these global goods in their communities to carry out their regular service delivery.

While countries like Rwanda, India, and Ethiopia are progressing toward improving their digital architecture, many LMICs lack the requisite digital architecture for mHealth platforms on data management, electronic health records, and other elements.[21,22] Challenges include inadequate internet broadband access and limited power supply to scale digital innovations into their health systems fully. These issues ultimately affect the deployment and integration of tools, successful implementation, and scaling of many CHWs' day-to-day service delivery tools.[23]

> "Countries with better-equipped architecture and an underlying political will and commitment usually succeed. For example, Ethiopia, Rwanda, Mozambique, Senegal, Côte d'Ivoire, and Mali have made some investments to upgrade their digital health architecture. Scale-up can be slower or faster depending on the country's setup."
> —Digital Health Implementer

Fragmentation of programs implementing digital tools creates inefficiencies for CHWs by introducing multiple tools that result in duplications. This fragmentation increases CHWs' workload by increasing data collection (which may be similar) across various disjointed platforms. When CHWs must learn multiple systems, it can increase training needs and difficulties in learning new systems[2]. However, in some cases, the difficulty could be due to a gradual transition for CHWs to master the use of digital solutions. For example, in Mali, CHWs with tablets loaded with the DHIS2 platform reported an increased workload due to reporting duplication using paper-based and digital solutions.[24]

Digital innovations targeting CHWs in places like Bangladesh often lack a demand-driven approach, relying instead on donor-driven initiatives or insufficient evidence to showcase their impact. Additionally, these innovations tend to focus on specific programs, such as maternal, newborn, and child health (MNCH) or health promotion initiatives, falling short of addressing broader health system goals.[25] This limited scope hampers sustainability and the potential for widespread implementation. At the third International Community Health Worker Symposium in Monrovia, Liberia, in 2023, a speaker representing a funder discussed fragmentation in the Digital Health Ecosystem and highlighted that:

> "Digital health tools are crucial for improving access, expanding coverage, supporting equity, accountability, and transparency, as well as quality, and increasing efficiency at the community level. To avoid fragmentation and duplication, best practices, such as principles for digital development and digital investment principles, should be followed."
> —Funder

Enabling Environment

Many countries have developed policies and strategies on digital innovation related to governance, workforce, standards, and interoperability to support strengthening the larger health systems.[26] Similarly, international organizations and multilaterals have published community health digital innovation guidance documents, toolkits, and maturity models to assist countries in successfully implementing and scaling CHW tools.[27,28] However, policies specifically promoting the use of digital innovations for CHWs are limited.

> "For you to have a successful digital innovation implementation and scale-up for CHWs, we understood that we needed a sufficient enabling environment to engage in a country seamlessly. This means that community health transformation needs to be a priority in the health sector strategy of a country, including CHW compensation, commitment to have supervisors, and training in place for the workforce for an integrated service package. If these things are in place, you are sure there would be success."
> —Digital Health Implementer

3. Country Examples of Policies for CHWs on Use of Digital Innovations

Ethiopia's initiative, "Information Revolution," started in 2015, rose from the need to repair the fragmentation challenges that various digital health pilots brought about. The purpose of the Information Revolution was to bridge health data and services, establishing a harmonized country-wide architecture to support new digital systems.[22,29] Implementation research and learning centers contributed to the expansion of digital health systems during the initiative. For example, MoH, in partnership with local universities, developed a national bachelor-level curriculum on health informatics for all universities. This was an effort to equip graduates with the necessary knowledge and skills aligned with the demands and gaps of the health sector, particularly with the national vision of digital health. Some universities went beyond the in-class curriculum and supported onsite capacity-strengthenin activities for health workers. Local universities also researched using the findings to identify best practices for scaling and shaping health system policies and procedures. This research contributed to the success of the Information Revolution that sought to address sustainability and its impact on digital health systems.

A government representative during the 2023 third International Community Health Worker Symposium in Monrovia, Liberia, Digital Health Ecosystem session noted:

> "Successful digital health ecosystem strengthening efforts are inclusive, country-led, and facilitate collaboration across health areas and sectors. Governments should serve as the coordination point in the ecosystem and ensure policies are aligned with all stakeholders to scale CHWs' digital tools, improve service delivery, and digitize reporting, monitoring, and performance."
> —Government Representative

4. Equity Environment Relating to CHWs on Use of Digital Innovations

Digital Health Equity

Shortages in digital skills and insufficient training of CHWs on new digital tools pose significant challenges to the successful deployment and implementation of digital innovations in LMICs.[30] Many countries and programs have identified accessibility and equity issues as prerequisites to introducing digital tools. These equity challenges include low digital literacy and skills, increased staff workload, inadequate access to digital tools, and insufficient training and technical support of CHWs in places with access to digital tools, especially in disadvantaged rural locations.[31,32] A randomized controlled trial of CHWs in Mali pointed to the additional workload of CHWs and limited access to technical literacy training opportunities compared to physicians and nurses.[33]

In Ethiopia, this gap was addressed by using the Open Data Kit (ODK) platform.[38] CHW users were initially given unrestricted use of smartphones to ignite a sense of ownership and empowerment among the health workers.[34] These smartphones became their primary communication device, fostering trust and flexibility in the CHW. Ownership of the phones was a motivator for the CHWs and facilitated digital familiarity, effectively closing the gap compared to access to digital tools for nurses and doctors.

Poor infrastructure may cause or increase geographic inequity; however, effective and extensive use of digital technologies can potentially mitigate health worker and system limitations, thereby reducing geographic inequity.[35,36] Programs must improve health and digital literacy and monitor access, utilization, and impact across all societal groups. This approach can assist in ensuring that digital technologies operate to minimize existing health inequities rather than reproduce or exacerbate them.

5. Finance and Private Sector Funding for Digital Innovations

Recently, there have been efforts to enhance and accelerate digital health transformation in Africa through private-sector coordination. For example, in December 2022, during the second International Conference on Public Health in Africa (Kigali, Rwanda), the Global Fund partnered with private sector players, including Novartis Foundation, Orange, Zenysis, Dimagi, and Medic, to launch the Digital Health Impact Accelerator (DHIA) officially. DHIA is a $50 million catalytic fund designed to accelerate digital transformation in Africa, including scaling up digital health solutions, especially at the community level.[37] CHWs in African countries utilize DHIA to improve internet access, strengthen information systems, and utilize mobile technologies and patient-centric tools to enhance local capacity for technology-enabled innovations for stronger health systems in Africa.

"Google just launched a billion-dollar investment in Africa. Orange does some philanthropic work—some big tech involvement. Many countries in East Africa are tech clusters, so there might be more investment. Good potential in West Africa—Senegal, Côte d'Ivoire. Markets that are starting to emerge aside from Ghana and Nigeria, where there has been historic investment."
—Digital Health Implementer

6. Addressing Challenges and Paths to Scaling and Sustainability

The formation of public-private partnerships (PPPs) offers a promising avenue to address fragmentation issues. For example, Zipline, a private logistics innovator in health, is reshaping the supply chain by partnering with Rwanda and Ghana to deliver life-saving supplies and medicines to remote villages using drones.[38]

Integrations across many types of platforms enable technologies with differing capacities to coexist and lessen the burden of fragmentation on the health system.[19] To achieve optimal integration, LMICs must invest in building or upgrading their infrastructure, including broadband connectivity and data centers. Equally important for integration are the availability of interoperability standards and the tool's simplicity for CHWs' utilization.

NCDC partnered with the German Helmholtz Centre for Infection Research for more than six years and collaborated on SORMAS. Originally designed as a process-management tool, the program has evolved into a comprehensive health surveillance platform, drawing on the nation's experiences with Ebola and monkeypox responses. Deployed during the COVID-19 pandemic, SORMAS was integrated with several digital solutions both at national and sub-national levels. Its deployment in Nigeria expanded from 15 states in 2019, covering 75 million people, to 36 states in 2020, reaching all 206 million people in the nation.[39] SORMAS's ability to cover a large population and integrate several tools makes it a global good that can be used in other countries.

To avoid duplication, spark collaboration, and invest in technologies that work (global goods), countries could focus on policies and investments that enable digital innovations. There are collaborative approaches through public-private partnerships that can improve community health using smart data to deliver services. For example, Babyl provides telemedicine services in Rwanda, and Zipline drones offer life-saving medicines in some African countries.

These collaborations are being supported by foundations like the Novartis Foundation, which drive investments and fund entrepreneurs on innovations to improve health outcomes.[38] The East Africa Digital Health Initiative roadmap, comprising Kenya, Rwanda, Uganda, Tanzania, Burundi, and South Sudan, exemplifies a coordinated systems approach that facilitates collaboration.[40] The initiative aims to establish a strong, supportive environment for digital health that includes interoperability, strategic investments, a skilled workforce in the healthcare industry, and unified policies, standards, and laws across those countries.

Implementing and sustaining digital innovations and linking community health to national health systems would require strategic and coordinated financial investments by governments and partners. Recently, international donors have been aligning their investments in digital health innovations with national policies and strategies, considering country capacity, global goods, and the capacity for sharing and peer learning.[41]

In addition to global guidelines, frameworks, strategies, open source, and interoperable platforms designed by WHO, UNICEF, Digital Square, and others, several examples of successful CHW digital health innovations have been documented to help countries and programs with guidance and frameworks for peer-to-peer learning and regional collaboration.[42] For example, the Living Goods maturity model for CHWs programs, Digital Square, is increasing the availability, adaptability, and maturity of global digital health goods, including DHIS2, Uganda's mHero, and Nigeria's SORMAS, while encouraging their development, adoption, and reuse.[43]

7. Lessons Learned from the Evidence and Experience to Date

> "To successfully scale a digital tool nationwide, our experience in Zanzibar suggests that you must provide required devices to CHWs, immediate technical and training support to CHWs and government officers, and supportive supervision to CHWs with feedback. Also, there is a need for integration mechanisms to support existing global goods, adequate government support, including commitments, ownership, and coordination, and compensation for CHWs."
> —Digital Health Implementer

- Through PPPs and collaboration with key stakeholders, employing an ecosystem approach creates an opportunity to address issues such as fragmentation, which leads to duplication of digital tools, lack of transparency, infrastructure deficits, and uncoordinated funding. For instance, India benefits from a strong national effort to establish a national healthcare ecosystem and a thriving private sector of digital health. A thriving start-up ecosystem for digital health exists in the nation; between 2014 and 2018, healthcare technology start-ups in India raised a total of $504 million.[44] India's ecosystem is bolstered by government investment in digital infrastructure, fostering digital interoperability. This initiative positions India to coordinate and select digital innovations tailored to its workforce regarding training, service delivery, and supervision.

- A holistic digital community health ecosystem requires collaboration and coordination among stakeholders, including governments, donors, multi-laterals, implementers, innovators/ entrepreneurs, and voices of CHWs. This collective effort ensures that the ecosystem can accurately assess demand, identify appropriate digital tools for CHWs, and facilitate linkages between Community Health Systems and National Health Systems. By working together, these stakeholders can help create a more integrated and effective digital community health ecosystem that can improve community health outcomes.

  » The involvement of CHWs in the design and development stage of digital health solutions ensures their active participation in shaping the conversation. This approach creates training modules and curricula that reflect their needs, maintaining high-quality service delivery and appropriate supportive supervision. By involving CHWs in the process, digital health solutions can be more effectively integrated into the existing health system, leading to improved health outcomes for the communities they serve.

- Convening relevant stakeholders to discuss issues, lessons, and priorities among key ecosystem actors, such as government, international NGOs, private sector organizations, academics, start-ups, and representatives of CHW unions, could help trigger transparency and understanding across the ecosystem, which will help to avoid fragmentation. Such convenings can amplify a unified voice for shaping policies and strategies that correctly improve digital tools' design, deployment, and implementation, as evidenced by the third International Community Health Worker Symposium in Monrovia, Liberia, in 2023.[45]

  » Another promising approach involves peer learning, as exemplified by a regional collaboration between Southeast Asian countries through their national governments, digital innovation implementers, and academia. The Southeast Asia eHealth Information Network (with over 12,000 members from universities and governments) and the Global Digital Health Partnership are helping professionals understand the landscape via peer-to-peer learning and broader cross-country learning.[46] This has led to identifying shared challenges and proposing ways to address them.

- The lessons derived from digital use during the COVID-19 pandemic have escalated the deployment of digital innovations to CHWs. Digital innovation has improved access to care, supplemented primary healthcare systems, and reinforced data for public health decision-making. These lessons learned can be sustained and expanded beyond the pandemic.[47]

Conclusion

Digital innovation is significant in facilitating and enabling CHWs, governments, implementers, and other key healthcare ecosystem actors to strengthen health systems at the community, sub-national, and national levels in LMICs. While this role is evident, it is important for health ecosystems to provide a supportive enabling environment, sufficient training for CHWs, adequate digital infrastructure, and integration of existing technologies at the community level. This approach minimizes fragmentation and supports the successful deployment and scaling of digital innovations to address health system issues.

Summary of Key Findings

- In LMICs, CHWs have actively participated in implementing digital health solutions using mobile phones and simple technological solutions to enhance service delivery and strengthen mechanisms for supportive supervision and training. This surge has been triggered largely by the COVID-19 pandemic and the fast penetration of mobile phones.

- Several studies have noted issues related to CHWs and the use of digital innovations, such as fragmentation, inadequate digital infrastructure and connectivity, enabling environment, equity issues (in some places), scaling, and sustainability of digital innovations.

- Access (to digital tools, connectivity, and adequate training) and service provision (digital literacy) have been found to be the key equity issues for CHWs and the use of the digital innovations space. However, it was observed that when implementers consider these issues from the outset prior to deployment, CHWs find it easy to adopt the tools and use them to deliver essential services in their communities.

- Promising examples from India and Ethiopia, where governments have provided an adequate enabling environment and digital infrastructure upgrade, have yielded positive results in scaling and sustaining digital innovations for strengthening programs and the broader health system. To foster sustainability and the use of global goods, Nigeria's SORMAS scale-up across the country during the COVID-19 pandemic showed an effective way to solve fragmentation and avoid duplication. Additionally, Kenya's example of the use of the m-Tiba wallet platform by CHWs to enroll patients in the National Health Insurance is another example of cross-country learning in the journey to UHC.

- Despite these issues, it was observed that an ecosystem approach with ample coordination of partners and funding through engaging key stakeholders, including CHW representatives, via convenings could be an opportunity for stakeholders to coordinate sustainable funding and share implementation lessons and challenges that CHWs face. This approach could help shape the deployment of digital tools and increase the utilization of global goods, especially those tools familiar to CHWs, to mitigate the highlighted issues noted in this review.

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Global Community Health Worker Recruitment Practices

Background

Community health workers (CHWs) are important in expanding access to care and improving population-level health outcomes.[1–3] In resource-constrained settings, CHWs have proved useful in mitigating acute shortages of human resources for health.[4,5] They have been effective in addressing health issues, including community case management of serious childhood illnesses, reduction of under-nutrition, reduction of mortality in children under five, improvement of women's health, and access to HIV/AIDS treatment.[1,6]

Their expanding role and utility to healthcare systems call for a strategic recruitment approach to ensure gender equity, retention, efficient deployment, adequate motivation, and optimal community access to healthcare.

The purpose of this brief is to 1) document global processes and policies pertaining to recruitment of CHWs, especially in low- and middle-income countries (LMICs), 2) provide evidence of sustaining CHW recruitment, and 3) present proposed recommendations regarding motivation, retention, and service for use by policymakers, donors, implementing partners, and other relevant stakeholders.

Key Takeaways

- Eligibility considerations for CHW recruitment across different settings include literacy/education, gender, social relationships/kinship, character, residency, soft skills (e.g., communication, teamwork), age, and experience.

- In CHW recruitment, involvement of the communities they will serve is important for trust, acceptance, ownership, and uptake of services.

- Uptake of services may be significantly affected by whether or not the CHW resides within the catchment community.

- Although recruitment information is sometimes disseminated via emails, social media, and listservs, use of digital technology in CHW recruitment is not widespread. What is predominant is word of mouth, newspaper announcements, notice boards, and flyers.

Approach

We conducted a structured desk review of published and grey literature from government websites, the World Health Organization (WHO), CHW Central, and Exemplars in Global Health. We also conducted semi-structured key informant interviews with relevant stakeholders in the global CHW space who are knowledgeable in CHW recruitment processes, challenges, and prospects.

The information and insights gathered from the structured desk review and interviews were analyzed based on the following predefined research questions:

i. How are CHWs recruited and selected, and who ultimately enters the workforce?

ii. What are the strengths and challenges of the existing CHW recruitment process?

iii. How do programs ensure diversity within and across different CHW cadres?

iv. What policies are in place at national and sub-national levels around recruitment of CHWs?

v. What NGOs utilize promising approaches in recruiting diverse and competent CHWs? What are the barriers and enablers of these approaches?

vi. What digital technologies are utilized to support recruitment? What are the strengths and challenges of different technologies?

vii. What positive impact do recruitment processes have on CHW motivation, retention, and service utilization?

viii. What are the recommendations for CHW recruitment?

Although this review had a global lens, most of the articles focused on LMICs; the United States of America (U.S.) was the only non-LMIC from which we found relevant publications. We hope that including information from the U.S. will provide some contrast and insights into approaches used for CHW recruitment in high-income countries (HICs).

Challenges

The brief provides robust evidence of CHW recruitment practices across different countries and options available to other countries and partners in implementing their CHW programs.

What it has been unable to provide in equal measure is compelling evidence of what works and what doesn't in terms of sustainable CHW recruitment, motivation, job satisfaction, and retention and how all these affect efficiencies, access to services, and actual service utilization. Therefore, opportunities for research exist to extensively determine how CHW recruitment practices impact access and service utilization.

While the review admittedly has an LMIC focus, we attempted to include information on CHW recruitment processes in HICs, but only one was included.

Findings: Global Evidence and Insights on Processes, Steps, and Policies Involved in Selection and Recruitment of CHWs (emphasis on LMICs)

How CHWs Are Recruited and Engaged

The study found two broad types of CHWs:

1. Volunteer CHWs who are sometimes without remuneration and trained and engaged directly by implementing partners over short periods with a disease-specific focus[7,8]

2. Formally employed civil servant CHWs[8]

Community Involvement in CHW Recruitment

The study showed a preponderance of community-based CHW recruitment. This could sometimes be from the poorest community members to promote equity.[6,9] An additional equity factor was in the selection of CHWs from the lowest-performing districts regarding health outcomes.[10]

The community is usually involved to varying extents in the recruitment of CHWs. This could be nomination by community leaders,[11] actual selections by community leaders and/ or members,[12–15] nominations by community women groups, nomination by local health extension workers, selection and approval by the village council, selection by District Health Centre committees, and selection by community member voting.[16] In Liberia, this is evident as "The recruitment of CHWs is done with support and directions from the community. They identify people within the community who are trained using particular training manuals, then incentivized and supervised to work effectively."[32]

These findings conform with the provisions of the functionality matrix for optimizing community health programs, which gives high ratings to programs where the community is consulted in CHW recruitment, agrees with the recruitment process, and is also consulted on the final selection.[17]

The key reason why full community participation in CHW programs is thought to be important is that it will engender trust, ownership, and support.14 However, community participation in the selection process is not a guarantee that the process would be completely fair or free from nepotism, especially in cases entirely dependent on the community.[13] Faults like the possibility of nepotism in the recruitment process will eventually lead to a lack of community trust, with a consequent impact on the uptake of services.[16]

Eligibility Considerations for CHW Recruitment

Based on our study, we categorized recruitment eligibility criteria across different settings into eight considerations:

1. **Literacy/Education:** Literacy and educational criteria range from the ability to read and write in the local language in Uganda, having a high school diploma or equivalent in the U.S., possession of a Certificate of Secondary Examination in Botswana,[10] having secondary education in Tanzania, and 11 years of general education in Iran.[12] In Liberia, basic educational skills like performing simple mathematical additions, subtractions, and multiplications are criteria considered for recruitment.

   "Due to literacy levels and lack of educational facilities in the communities, we set criteria that accommodate their level of literacy, i.e., people who can read, do basic additions, multiplications, and subtractions, who are residents in the communities."[35]

Other studies reveal that academic requirements for recruitment are not prioritized, but fluency in the community's predominant language and the capacity to read forms and complete reports are essential.[11,13,18] In one systematic review of the use of CHWs as healthcare navigators in chronic disease management in the U.S., being bilingual was also identified as a recruitment requirement for some CHWs. Another specifies being bicultural.[19]

2. **Gender:** Though the WHO CHW guidelines do not specify gender (and age) as relevant to recruitment,[7] some CHW programs in Afghanistan, India, and Iran have been reported as deliberately selecting men and women for the workforce, while most of the other reviewed studies indicate that women are the focus of selection and recruitment.[6,20]

3. **Social Relationships/Kinship:** In the Afghanistan program, kinship was factored into the recruitment of male and female CHWs so that relatives could work together easily.[6] Other studies mentioned being indigenous, having pre-existing intimate social relationships, and cultural similarities between the CHW and the community as being important recruitment considerations.[9] In a South African study, Mentor Mother CHWs engaged in providing integrated maternal and child health and TB/HIV services had to have raised a healthy child despite poverty to qualify.[11]

4. **Character:** This seems to be a basic eligibility condition for several CHW programs. Studies mention high integrity and being a respected and trusted community member as eligibility criteria.[7,16] Other programs require CHWs to be part of a model family, be free from any criminal and behavioral records, and obtain endorsements for good behavior from community members as key criteria for a CHW to be considered for recruitment.[16]

5. **Residency:** Studies suggest that beyond social relationships and kinship, CHWs are considered based on living within the communities and being willing to serve their community.[12] This is meant to increase access, as CHWs living outside the target communities may be less likely to visit the poorest or people living in remote areas.[9]

6. **Soft Skills:** A South African study cites exceptional social skills, organization, and ability to bond with peers desirable in prospective CHWs.[11] A similar example from Malawi refers to good communication skills for relaying health education and the ability to relate with and support community members.[13]

7. **Age:** Two separate studies—one in the U.S. and another in Uganda—gave the age of CHWs in targeted chronic disease interventions as 18 years or older,[7] while another, also in the U.S., had men aged 50 years and above as CHWs because the target participants in the CHW program were similarly 50 years and above.[19]

8. **Experience:** One study stated the need, but not the necessity, of having health promotion experience to be recruited into a particular CHW program in the U.S. Another, also in the U.S., had previous experience as good to have but not necessarily a requirement for recruitment.[21]

How CHWs Are Recruited: Country Examples

Country Example	Features of the Recruitment Process
Liberia	A pilot CHW program in Liberia[22] outlined a relatively rigorous recruitment process, which involved: • Community nomination (according to the national policy on Community Health Services) • Completion of literacy test • In-person interview to assess motivation and communication skills • Training and skills assessment for those who passed the interview • Additional screening and assessment • Hiring of highest-scoring candidates • Follow-up competency test during first 90 days of engagement
South Africa	A South African study lists interviews, written assessments, and attitude during training (punctuality, empathy, attitude toward peers, social competence, engagement, and desire to help others) as hurdles potential Mentor Mother CHWs must cross to be accepted into the workforce.[11]
Iran	CHWs, also called Behvarzes, are evaluated on their ability to build and maintain good relationships with people. They also take a written examination, after which the District Health Centre committee interviews the candidates for a final selection.[12]
Malawi	A CHW program run in Malawi by the international NGO Partners in Health recruited CHWs using a community meeting for sensitization, a community nomination, and a literacy test.[13]
Ghana	The Ghana Health Service starts the recruitment process with a call for submission of applications within the community, nomination by a chief, queen mother, member of parliament, or other prominent community members, and interviews by community leaders.[13]

Strengths and Challenges of Existing CHW Recruitment Process: Country Examples

During our review, we identified strengths and challenges affecting the performance of CHWs, as well as the sustainability of the CHW programs.

Examples of CHW Programs with Varying Strengths & Challenges from Four Countries

Country	Strengths	Challenges
Uganda	Several stakeholders are involved in and support CHW programs, including the recruitment process.	• Limited opportunities for learning and sharing of experiences among the various stakeholders supporting CHW programs. • Lack of consistency in the selection process of CHWs, which creates distrust within communities.7 • High dropout rates, particularly among young and male CHWs, to look for better-paying jobs soon after recruitment and training. • High expectations despite the voluntary nature of the engagement.
Botswana	Policy documents on selection criteria stipulate entry-level educational qualifications, community membership/residency, and personal attributes as part of the selection criteria.	• Lack of policy guidance on community involvement in the CHW recruitment process (e.g., screening of candidates, use of personal attributes, and female gender prioritization as part of selection criteria).[10]
South Africa	For a home-based HIV care program, there was a feeling that CHWs recruited from other areas are only there to do their work and not to judge.	• Having CHWs as neighbors was seen as a barrier, which could erode confidentiality and trust in a sensitive and stigma-prone care situation like HIV.[23] • Poor interpersonal relationships between local health centers, the community, NGOs, and CHWs could result in less efficient CHW interventions.
Malawi	Working with stakeholders, including CHWs, helped ensure the selection processes' acceptability.[13]	• Recruitment of CHWs from areas outside their catchment communities resulted in fewer household visits for the poorest. CHWs were less likely to reside in the poor or more remote areas.[9]

Ensuring Diversity Within and Across Different CHW Cadres

We did not find clear evidence that programs deliberately set out to ensure diversity within and across CHW cadres. However, the presence of equity was seen in how some programs recruit from marginalized groups (e.g., poorer, or illiterate communities).

Others are deliberate about gender balancing rather than focusing on the female gender alone. Some programs also ensure no age restrictions as long as the prospective CHW is not a minor.

Recruitment from within the target/beneficiary communities, which itself is seen as a way of improving affinity and empathy, is also a means of embedding equity into the process.[9]

In stigma-prone programs like home-based HIV care, CHWs from outside the target communities have also been effectively used to ease beneficiary concerns about privacy.[23]

National and Sub-National Policies on Recruitment of CHWs

Country-level CHW policies need to provide specific guidance on CHW recruitment, among other things. During our review, we found CHW policies specific to the recruitment process in several LMICs. Community involvement in recruitment was identified as a common factor in the policies, as shown in the next page.

Country	Policy Name	Year	Highlights
Tanzania	Community-Based Health Program Policy Guideline	2014, Updated 2021	• CHW recruitment starts with a vacancy advertisement • Community members do screening and selection • Residency, literacy, good character, familiarity with the local language, and level of experience in community-based health and social welfare services are some of the selection criteria • Engagement of both male and female community health volunteers
Liberia	National Community Health Services	2016–2021 *National Community Health Program Policy (2023–2032), Strategy (2023–2027)*	• There is a specific emphasis on community engagement as a first step for the recruitment of and subsequent deployment of CHWs • Selection criteria are specified: permanent residency, trustworthiness, fluency in the local dialect, and interest in health and development • Females are given preference over males
Zambia	The National Community Health Strategy (2019–2021)	2019	• Community health assistants are nominated by the communities in which they will work • They are then trained in basic health care for 12 months, followed by registration with the Health Professionals Council of Zambia • Community health volunteers are a less formalized cadre of CHWs without clearly stipulated selection criteria • They are mostly engaged by implementing partners, often without clearly stipulated selection criteria
Kenya	The Community Health Policy 2020	2020	• The policy stated the desired profile of a community health volunteer • One of the recruitment criteria is a willingness to serve without charging • The volunteers can only be selected by the community at a community meeting called by the area leader or the community health committee

Approaches Utilized by NGOs in Recruiting Diverse and Competent CHWs

To understand the approaches utilized by NGOs in recruiting diverse and competent CHWs, we interviewed Partners in Health (PIH) Liberia, which believes it has a promising approach. We have provided relevant details of the interview below.

NGO: PIH is a nonprofit social justice organization. It works with the public sector in 12 countries globally to coordinate responses to Human Resources for Health issues, including CHW shortages.

Country Context: PIH has used the Ebola experience in Liberia to build a strong and standard CHW system. In 2015, it began working with the Liberia Ministry of Health to expand CHW capacity with training. The organization has also supported the country with the development of CHW policies and standardized recruitment strategies.

Approach: In recruiting CHWs, PIH works with the Ministry of Health and sets criteria that accommodate the low literacy and educational levels predominant in rural Liberia. Literacy and numeracy requirements are limited to the capacity to write, add, multiply, and subtract. Just enough to enable them to fill in simple forms and understand the uncomplicated illustrated job aids used for training.

The community leaders are fully involved in the recruitment process. All prospective candidates apply to the Community Health Committee (CHC), the primary link between the health facility and the community. The purpose of the CHC's involvement is to choose from a pool of candidates that the community knows and understands. They conduct a first-level screening and pre-qualify candidates before PIH in partnership with the government, administer a literacy test, and conduct interviews.

Most women are uninterested in joining the workforce because of cultural beliefs and low levels of education. This is why PIH considers gender balancing seriously and prioritizes the selection of women before men. Women are encouraged to be members of the CHC so they can participate in the recruitment process and be a voice for women.

As a further means of embedding equity into the process, forest communities, other hard-to-reach areas, and areas with specific disease risks are prioritized during recruitment. This is a way of boosting the economic status of those areas while increasing access to healthcare services.

PIH is currently contributing to the review of Liberia's CHW policy, which has clear sections on recruitment. It also advocates for the policy to include paid maternity leave for female CHWs.

Enablers

- **Close collaboration with the Ministry of Health**

- **Pragmatic literacy and numeracy recruitment standards**

- **Community involvement in initial CHW selection**

- **A deliberate attempt at gender balancing**

- **Embedding equity in selection**

Digital Technologies Used to Support Recruitment

We did not find evidence of the widespread use of digital technologies in CHW recruitment. We found that awareness for CHW openings is often created through personal networks, notice board posts, and word of mouth.[31] A study from the U.S. showed that, in addition to the above-mentioned methods, awareness is created through electronic and non-electronic advertisements.

According to the U.S. study, digital methods for distributing recruitment information about the referenced program include the use of social media, email listservs connected to healthcare jobseekers, and sponsored ads on Facebook.[32]

Evidence of Sustainable CHW Recruitment in Relation to Motivation, Retention, and Service Utilization

This paper detailed the eligibility considerations for CHW recruitment only to the extent to which they are utilized, not how they could enhance CHW motivation, retention, and service utilization by the community.

We searched for evidence of sustainable CHW recruitment. We found that most of the available literature showed implied rather than explicit references to how the recruitment method *may* have contributed to CHW motivation, retention, and service utilization. Some referred to how a sense of ownership by the community, the selection of CHWs from within the community, and their embeddedness within the community could lead to better CHW motivation, job satisfaction, performance, and, ultimately, service utilization.[33,34]

On uptake of services, the importance of recruiting CHWs who are residents within the community and have existing social relationships with their clients has been found to contribute to more home visits to women (in cultural contexts where they are reluctant to seek care outside the home), the poor who reside in remote areas, and to the least educated.[9,34]

The type of service to be accessed also matters when recruiting CHWs. For example, in the provision of maternal and child health and family planning services, married and unmarried patients/clients preferred to speak with female CHWs because these matters were associated with women. Younger females, however, preferred to speak with male CHWs on access to and use of contraceptives because they felt the risk of being judged as promiscuous by the males was less. Again, in the engagement of young people, it was found that younger CHWs might be better positioned to provide youth-friendly services. Barriers to service utilization occasioned by linguistic differences have been documented.[7,19,34]

However, we found a study from South Africa from which a more direct connection can be inferred. It refers to how hospital deliveries went up from less than 50 percent to 88 percent and how perinatal mortality dropped by almost 50 percent after the initiation of a Mentor Mothers intervention, which recruited CHWs using a combination of community leader nominations, interviews, written assessments, and observation of commitment and attitude during training. Despite the improvement in health outputs, the paper was careful with attribution of success to the mode of recruitment and quickly acknowledged the presence of a strong referral system, health leadership support, and community support as key drivers of success.[11]

Proposed Recommendations from Relevant Publications on CHW Recruitment

Across the studies reviewed, recommendations were made on the CHW recruitment process. Some of the literature stated that there are no standard blueprints for designing and implementing CHW programs in terms of context, relativity, and applicability. What is important is to base the design on local realities; therefore, some of the recommendations may not be applicable globally.[33]

Community Consultation in CHW Selection Criteria Development: To enhance CHW performance and retention, stakeholders called for active community involvement in CHW recruitment and clear communication of CHW roles to avoid ambiguity.

Gender and Age Diversity: Some research revealed the need to ensure more males and young people are involved in CHW programs. The utility of male involvement was noted particularly in community mobilization and improvement in men's health. For the younger people, their engagement as CHWs would position them to get positively involved in youth-friendly services, including engaging their peers. Furthermore, considering relevant and responsive strategies for innovative recruitment of CHWs would cater to increasing gender and age diversity.

Institutionalization of the Community Health Workforce: Institutionalizing CHW programs within the health system would improve national coordination led and directed by the government, create mechanisms for standardized recruitment and sustainable funding of programs, and ensure local ownership rather than dependency on external donor-led programs.

Provision of Written Contracts: WHO recommends that CHWs be provided with written contracts specifying their role, responsibilities, working conditions, pay, and rights.

Inclusion of Illiterate CHWs: One of the papers reviewed recommended the inclusion of illiterate CHWs, particularly in areas where the availability of literate people is either low or non-existent. This would ensure that such communities are not unnecessarily disadvantaged.[9] Relevant stakeholders interviewed for this study also mentioned this as a practical solution to a contextual problem.

Engagement of Non-Resident CHWs in Contexts Requiring Confidentiality and Protection from Stigma: Having CHWs as neighbors is seen as a barrier, which could erode confidentiality and trust in some situations. Local clients in care for conditions that could potentially cause stigmatization may prefer CHWs recruited from other areas since they see them as being only there to do their work and not to judge.

Conclusion

Optimizing CHW recruitment is essential for improving the quality of their services and the health of the populations they serve. It will also increase the tendency to retain their services longer.

Community involvement in the CHW recruitment process is crucial and promotes acceptance of CHW programs. Other considerations, some of which are best evaluated by the community, such as gender, social relationship/kinship, residency, age, literacy/education, experience, character, and soft skills, will ensure that CHWs adequately reflect the communities they serve, thereby improving access to services. These considerations should, however, be based on overall local context, needs, and priorities.[14]

The community's involvement and interests need to be well-balanced with the interests of other stakeholders, such as the government and donors. This will contribute to the quality of recruitment decisions.

Policies are also essential. They need to be well thought out, developed in consultation with relevant stakeholders, and implemented to guide CHW recruitment and other aspects of CHW engagement.

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Community Health Worker Training

Background

Community health workers (CHWs) are pivotal in attaining universal health coverage, particularly in low- and middle-income countries (LMICs). Their integration into systems for health is crucial for delivering primary health care to underserved communities, thereby enhancing health equity. CHWs' significant role in responding to health system shocks, as demonstrated during the Ebola and COVID-19 crises, underscores their value in building a more inclusive and resilient community health workforce.

The indispensability of CHWs for engaging unreached and underserved populations has led to advocacy for their increased support and capacity building. Continuous education is one of several characteristics of CHW programs associated with positive program outcomes, along with supportive supervision, adequate logistical support and supplies, and community embeddedness.[1] CHW training influences knowledge, performance, motivation, and job satisfaction and increases community confidence in CHWs.[1] As health systems in LMICs continue to evolve, the role of well-trained CHWs is crucial to bridge healthcare gaps and improve health outcomes in their communities.[2]

This brief summarizes the characteristics of CHW training programs in LMICs, including considerations for program design and illustrative country examples.

Approach

The information draws from a rapid scan of gray and original peer-reviewed literature (using PubMed and Google Scholar databases) documenting emerging evidence on key characteristics and promising approaches to community health workforce training in LMICs. Key search terms used included "community health worker," "training," "capacity building," and "programs." Additional references were identified from snowballing and practitioner recommendations. Seminal documents included the 2018 World Health Organization (WHO) *Guideline on health policy and systems support to optimize community health worker programmes*[3] and *CHWs at the Dawn of a New Era: 6. Recruitment, Training, and Continuing Education in 2021*,[4] emphasizing literature published after the WHO guideline. The literature review was complemented by semi-structured key informant interviews conducted using purposive sampling of global experts with in-depth knowledge of large-scale CHW programs.

CHWs encompass a wide range of roles and programs. For this exercise, we included information on CHW cadres that range from part-time volunteers with minimal training who intermittently engage in health promotion activities to full-time employees who have undergone several years of formal training and are tasked with providing routine clinical preventive services and managing treatment for a select set of health conditions. This is consistent with the CHW typology in *Health for the People: National Community Health Worker Programs from Afghanistan to Zimbabwe*.[5] However, it is broader than the WHO definition for CHWs, placing an upper limit on training at up to two years.[3]

Key Findings and Program Considerations

The findings and associated program considerations are categorized according to the following themes: training content and duration, training modalities and digital tool use, pre-requisite education standards and gender, geographic access, program monitoring, training certification, and provision and funding of training.

Training Content and Duration

The content and duration of training for CHWs exhibit considerable variation across LMICs, corresponding with the scope of work, the specific cadre, the competencies required, the prerequisite educational qualifications, and the areas of intervention.[3,4]

A systematic scoping review of ongoing CHW training revealed that most programs focused on infectious diseases and child and maternal health. In contrast, there was a notable absence of studies focused on training for non-communicable diseases (NCDs). The review identified an urgent and growing need for training in preventing and managing NCDs at the community level, which is crucial for achieving progress on Sustainable Development Goal (SDG) 3 and 4. This goal aims to reduce premature mortality from NCDs by 30 percent by the year 2030.[6]

Expansion of CHWs' roles and corresponding training to include more treatment, particularly in hard-to-reach areas where referrals are challenging, has been linked to pro-equity outcomes.[7] The same systematic review also found equity effects associated with enhancements to CHW training and monitoring, and in adapting communication content to the local context. Training CHWs to address the needs of community members with disabilities and in advocacy to address underlying social, political, and structural determinants of health were also recommended to improve equitable outcomes.

The absence of standardized training content results in variability in CHWs' training across regions and contexts. A review focused on immunization found skills lacking in collecting, analyzing, and using data, attributed to outdated curricula and inadequately skilled instructors.[8] WHO is currently facilitating the development of a prototype CHW curriculum that employs competency-based learning intended for adaptation in different country contexts to address the need for a more standardized curriculum.[9]

Based on a review of 29 case studies of CHW programs from 27 LMICs, the duration of CHW training ranged from 11 days (Liberia and Uganda) to one year (Ethiopia), with the longest being three years (Nigeria).[4] Most countries in the low-income category reported between three and six months of pre-service training, and lower and upper-middle-income countries reported about three months to three years.[4,10] In general, shorter training durations are associated with lower-level CHW cadres. Insufficient training has been found to erode community trust and negatively affect the uptake of CHW services, underscoring the importance of training commensurate with the skills needed.[1]

Program Considerations

CHW programs and training should be forward-looking to the current and future needs of the population and health workforce and expect to complement pre-service education with refresher and new training modules to address changes in epidemiology and standards of practice.
The WHO guideline "suggests[1] that pre-service curriculum cover the following core competency domains, as applicable to the role: promotive and preventive services, identification of family health and social needs and risks; integration within the wider health system in relation to the CHW role; social and environmental determinants of health; providing psycho-social support; and interpersonal skills related to confidentiality, communication, community engagement, and mobilization; and personal safety.

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[1] WHO states that the certainty of the evidence around competencies in curriculum for pre-service training is moderate and the recommendation strength is conditional.

In addition, as applicable: diagnostic, treatment, and care in alignment with the expected role and scope of practice."[3] Intentionally training CHWs to understand the local context, to recognize and address the needs of disadvantaged groups (including those with disabilities), and to address local health beliefs and practices in CHW training curricula can help CHWs better serve their communities.

Training duration is generally recommended to correspond with the skills and competencies needed relative to prior education, the trainees' social, economic, and geographic circumstances and the institutional capacity to provide the training.[3,4] For sustainability, Training programs and tools should be hosted in a national institution.

Training Modalities and Digital Tool Use

Many CHW training programs in LMICs involve some combination of didactic classroom instruction, field application, and supervised, on-the-job learning.[4] A systematic review of reviews found limited evidence on the effectiveness of specific approaches to training and supervision. Nonetheless, it reported that for CHW training to improve performance, it must include a mix of knowledge and skills-based methods. Increased focus on practice-driven curricula, participant-centered training aligned with cultural norms, peer support, and adaptations during pandemics were all mentioned as beneficial to training.[3,11]

Training CHWs alongside health professionals can promote visibility, support referrals, and increase complex skill development, which is important for addressing diverse health needs.[12] Furthermore, training CHWs at interprofessional centers of excellence alongside doctors and nurses enables everyone, including doctors and nurses, to think and learn about community health issues and problems in context.[11] The pairing of stronger and weaker performing CHWs is another approach to capacity building that complements more formal training.[13]

The WHO CHW guideline calls for further research on specific approaches to competency-based CHW training.[3] Recent studies of low-dose, high-frequency training—a capacity-building approach based on short, simulation-based learning activities spaced over time and reinforced with structured, ongoing practice sessions on the job—have found the approach effective for skills-building and knowledge retention among health workers.[14,15,16] Unpublished findings from an NGO study in South Sudan suggest the benefits also translate to community-based health workers. They could inform CHW training design (personal communication, D. Shah, World Relief, November 2023).

Digital innovation has led to new means for training CHWs as well as digital tools used by CHWs to enhance the effectiveness of their work.[17] The WHO CHW guideline recognizes that e-learning can supplement other modalities of CHW training, especially for follow-up and refresher training. However, it advises against replacing face-to-face training.[4] Short videos, for example, can enhance content and consistency across training sites. Appropriate, digital-based curricula can improve access to knowledge-based innovations for skills development.[18,19] Text-based chat groups on mobile phones facilitate supervisory and peer support.

Experience with digital platforms to support learning has evolved, especially in the context of the COVID-19 pandemic and Ebola responses, where additional barriers exist to in-person training. In Nigeria, health workers from 25 states, including but not limited to community health extension workers, participated in a study of e-learning using the InStrat Covid-19 training app.[20] Knowledge test scores increased pre-post. However, no comparison was made against other modalities.

Bangladesh began issuing tablet computers to all government CHWs, pre-loaded with e-learning toolkits, including videos demonstrating common scenarios. Tablets can be used offline, although low education is reported to have hampered their intended use.[21]

Digital solutions also have been found to help CHWs increase efficiency in service provision and program monitoring.[17] A study in Malawi found that with adequate training, CHWs can use technology to streamline their work, reach more patients, and provide better care, ultimately improving health outcomes in their communities.[22] However, attaining proficiency in the use of technology requires effective training on its use and access to electricity and mobile signals, which is especially challenging in remote areas.

Program Considerations

WHO "suggests[2] using the following modalities for delivering pre-service training to CHWs: balance of theory-focused knowledge and practice-focused skills, with priority emphasis on supervised practical experience; balance of face-to-face and e-learning, with priority emphasis on face-to-face learning, supplemented by e-learning on aspects on which it is relevant; prioritization of training in or near the community wherever possible; delivery of training and provision of learning materials in language that can optimize the trainees' acquisition of expertise and skills; ensuring a positive training environment; and consideration of interprofessional training approaches where relevant and feasible."[3]

CHWs work in complex and dynamic environments where they encounter challenges that may not have been fully covered in their pre-service training. CHWs also require continuous capacity development and practice-focused skills, with a priority emphasis on supervised practical experience for greater effectiveness.[3,8,23]

CHWs' familiarity with technology and education level are additional factors to consider when using digital tools to augment training and access to electricity and mobile signals. Digital tools should not be seen as standalone solutions to training needs but should be complementary and integrated with other training approaches.[3]

Pre-Requisite Education Standards and Gender
The prerequisite education level for pre-service training in LMICs ranges from none to primary and, at most, secondary education.[3,4] In Liberia, for instance, one of the requirements entails having previous training as a healthcare professional[24]. At the same time, Mozambique and Uganda require the ability to read and write in addition to basic numerical skills and volunteering experience.[3,4] Of the countries assessed, only Thailand required no formal education, and Guatemala had a cadre typically inherited from a family member irrespective of education.[4]

Educational standards for pre-service training can inadvertently counter the aim of selecting CHWs who are trusted members of their home communities, including women and members of marginalized groups. In Liberia, education standards for recruitment automatically disqualified many women, explaining at least in part why men constitute 70 percent of the country's CHWs.

A recent study in Kenya found that training and experience outperformed literacy and formal education as predictors of CHW knowledge and performance in a context where accommodations were made for non-literate CHWs.[13] It concluded that other design factors, such as frequent training and supervision, might overcome deficiencies in education. This contrasts with prior findings reviewed by Scott with "some evidence" that CHWs with higher levels of formal education are more effective but also more likely to drop out and that primary school completion should be a minimum requirement for pre-service education to meet the needs of communities far from health centers.[1]

Gender mainstreaming is frequently discussed with respect to equity for CHW training. WHO reported that women in the healthcare sector with equal experience, education, knowledge, and ability earn 24 percent less than their male counterparts.[25]

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[2] WHO states that the certainty of evidence on modalities of pre-service training is very low, and the recommendation strength is conditional.

[3] For more on digital tools please see the companion brief: Health Systems Strengthening Accelerator. (2024). *Leveraging Digital Innovations for Transforming the Community Health Workforce in Low- and Middle-Income Countries.*

Where CHWs are paid fairly, women's participation in the community health workforce and associated training opportunities can advance gender equity. In Afghanistan, where CHWs work in male-female pairs, women and men can take advantage of training opportunities.

Program Considerations

In setting educational standards for pre-service training, WHO "suggests using the minimum educational level that is appropriate to the task(s) under consideration."[3] While higher education standards may ease the integration of CHWs into the formal health system, they may also create a bias against the inclusion of women and marginalized populations in the community health workforce.[4]

Geographic Access

Geographic access to training is another factor affecting equity within the workforce and in the disadvantaged communities that CHWs in remote areas serve.[7] A study in Malawi found that rural CHWs received less training support than their urban counterparts despite a more challenging environment.[7,26] Additionally, CHWs in remote communities complained of fewer opportunities for feedback and training than CHWs located nearer to health facilities.

Program Considerations

CHWs in remote areas may need additional training and supervision, not less than their more urban counterparts, assuming that referral to a higher level of care is more difficult for populations in remote areas. Offering training closer to where CHWs live and on an accommodating schedule could enable a more diverse pool of CHWs. Furthermore, shorter training periods away from the community may be more accommodating to women.

Program Monitoring and Training Certification

Monitoring the implementation and effectiveness of CHW training programs and formally certifying the skills of CHWs who have completed pre-service education are considered important, though there is little extensive evidence of what works.

Examples of program monitoring come from Liberia, where training and skills are monitored as part of its Implementation Fidelity Initiative and where the WHO Monitoring and Accountability Framework was applied.[24] The Implementation Fidelity Initiative tracks whether CHWs have received training in all four training modules, whether they are equipped with job aids and data forms and are filling out forms correctly, and whether they can answer knowledge questions correctly.

The WHO Monitoring and Accountability Framework, as applied in one case study, measures training-related content under "Skills," with indicators for the existence of national standards for the duration, delivery methods, and content of CHW pre-service training and education, as well as the issuance of competency-based certification, among others.[24]

Program Considerations

Expert opinion suggested integrating training tracking tools with dashboards used by district and sub-national management teams. This would enhance the visibility and monitoring of CHW training progress. Additionally, it is recommended that countries establish and maintain a CHW master list and registry. Registries that encompass the contributions of donors and partners in supporting training initiatives can assist with coordination in addition to aiding program monitoring.

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[4] For more on CHW recruitment, please see the companion brief: Health Systems Strengthening Accelerator. (2024). *A Rapid Scan of Global Community Health Worker Practices.*

WHO "suggests using competency-based formal certification for CHWs who have successfully completed pre-service training," where certification is defined as "formal recognition awarded by relevant authorities to health workers who have successfully completed pre-service education and who have demonstrated meeting predetermined competency standards."[3] However, the certainty of the evidence is very low, and recommendation strength is conditional. The certification should verify that CHWs have completed their pre-service education and demonstrated the required skills.

Training Provision and Funding

Pre-service training received by CHWs may be delivered and funded by the government or provided in-kind through technical assistance by non-governmental organizations.[27,10,24] Securing adequate, longer-term funding is fundamental to CHW training support, though this can prove challenging.[5] Establishing a national CHW master list and registry supports the coordination of training provision and funding across the government and partners.

Program Considerations

Donors and partners should enter training efforts into country registries to support coordination. Budgets should include dedicated line items for training even if the funding source is not known upfront. Funding for community health and CHW training should be measured and monitored specifically to provide needed accountability.

Country Examples of Innovative Approaches to CHW Training

Countries have adopted various innovative approaches to support CHW training and advancement, as illustrated by the following examples.

Bangladesh: NGO Partnerships, Local Funding, and Advancement

In Bangladesh, the government has contracted and partnered with non-governmental organizations to train and employ over 130,000 CHWs who serve more than 100 million rural residents through an extensive patchwork of CHW programs.[21] CHW training and supervision and financial incentives are partly supported through locally generated income. CHWs, including Family Welfare Assistants and Female Health Assistants, who receive an additional six months of training, can become community-skilled birth attendants.[28]

Brazil: Primary Care Team Integration and Multi-Sector Engagement

In Brazil, CHWs, called community health agents, are well-integrated into primary care teams for family health. Though not required, many have college degrees.[29] A comprehensive curriculum, implemented in phases, prepares CHWs to perform tasks that span health education, community organizing, and assisting people in navigating government services beyond the health sector.[4,29] The 1,200-hour training program is standardized, though its implementation is irregular.[30] Nonetheless, frequent interaction with members of the Family Health Team supports skills development and progression within and to other roles. By leveraging their indigenous knowledge and technical training, CHWs are essential liaisons between other healthcare professionals and patients in primary healthcare settings.[31]

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[5] For more on CHW recruitment, please see the companion brief: Health Systems Strengthening Accelerator. (2024). *Financing Community Health Worker Programs.*

Ethiopia: Dual Cadres, Career Advancement, Government Leadership, and e-Learning

In Ethiopia, a dual cadre system is in place, comprised of full-time, professionalized CHWs called health extension workers, primarily responsible for essential curative and preventive care, and part-time volunteers in the women's development army focused on community education and health promotion. Though pre-requisite education is a barrier to progression from the volunteer to the professionalized role, for the latter, an additional year of training supports advancement to a higher level of CHW service.[32] The government overcame prior experience with fragmented in-service training by convening partners to develop an integrated refresher training curriculum in 2009. More recently, Ethiopia gained experience with a mobile learning app called Leap in its Covid-19 response.[33]

Liberia: Institutionalization, Field Practice, and Monitoring

Liberia has implemented a "one county, one donor, whole country" policy to ensure uniformity across all counties.[34] Training for its CHWs (called community health assistants) is organized into in-classroom modules about two weeks in length each, followed by four to eight weeks of field practice with supportive supervision.[35] CHWs take a written and skills test before advancing to the next module. Training and skills are regularly monitored through the previously mentioned Implementation Fidelity Initiative.[24] Liberia has also established a Community Health Technical Working Group at the national level to develop policies for the Revised National Community Health Services Policy and Strategic Plan, including CHW training curriculum and supervision.[35]

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Financing Community Health Worker Programs

4

Background

Community health worker (CHW) programs are critical to many low- and middle-income health systems' infrastructure. Meeting community members where they are, these programs provide essential primary healthcare services, helping to fill health service gaps. Many CHWs provide essential primary health services, including outreach, education, counselling, advocacy, and drug distribution. During the COVID-19 pandemic, CHWs played an essential role in providing services, including active case finding, provision of treatment, and the maintenance of other essential health services.[1]

Because they are often members of the communities they serve, CHWs also serve to build trust and understanding of formal healthcare services. However, worldwide, there is a systemic lack of funding for both primary healthcare (PHC) programs and, more specifically, CHWs.[2] Providing sufficient, long-term financing for CHWs and their work is critical for these programs' scalability, quality, and sustainability. Sufficient financing would ensure that adequate well-qualified workers could be recruited, receive quality training, and be appropriately deployed and compensated. Many CHWs are volunteers or are underpaid. Most lack long-term job stability and training and professional development opportunities across cadres. Disease-specific program funding for CHW programs also increases the challenge of ensuring that CHWs are appropriately paid and have the resources necessary to conduct their work.[3]

Objectives and Approach

To prepare this brief, the Accelerator reviewed existing evidence on priority themes, focusing on synthesizing key topic areas, success, and challenges related to financing of community health programs. The Accelerator searched peer-reviewed and gray literature and conducted four key informant interviews with community health experts to understand the community health landscape. The audience of this brief is targeted to those in government and program development and management who need an in-depth introduction to the community health financing space.

Financing of CHW Programs and Compensation of CHWs

This section reviews key themes related to CHW programs and CHW financing. It reviews the current trends in program financing and CHW remuneration and their implications for the scalability of these programs and the equitable treatment of health workers. It also reviews how much is spent on CHW programs globally and regionally, the sources of this financing, and examples of worker remuneration.

Key Points

- Estimated **current funding is $1.1 billion, which equates to a $2 billion funding gap.**

- Between 2007–2017, **$5.3 billion was spent on CHW programs** ($307 million in 2017).

- This accounts for **2.5% of total development assistance** for health.

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* Earth Institute/1MCHW campaign, One Million Community Health Workers, Technical Task Force Report (2013).

** Lu, C., Palazuelos, D., Luan, Y., Sachs, S. E., Mitnick, C. D., Rhatigan, J., & Perry, H. B. (2020). Development assistance for community health workers in 114 low-and middle-income countries, 2007–2017. Bulletin of the World Health Organization, 98(1), 30-39. https://doi.org/10.2471/BLT.19.235499

** Masis, L., Gichaga, A., Zerayacob, T., Lu, C., & Perry, H. B. (2021). Community health workers at the dawn of a new era: 4. Programme financing. Health Research Policy and Systems, 19(3), 1-17.

Current Trends of Overall Financing for Community Health Programs

CHW programs in low- and middle-income countries (LMICs) are financed from external and domestic sources. A landmark report developed by USAID and the Financing Alliance for Health found that while an estimated $1.1 billion is spent on community health programs worldwide, this still falls $2.1 billion short of meeting the needs of these programs.[4] A meta-analysis of 114 LMICs also found that total development assistance for CHWs was $5.3 billion between 2007 to 2017, only 2.5 percent of the $209.3 billion total development assistance for health.[5]

The top three donors (the Global Fund to Fight AIDS, Tuberculosis, and Malaria, the government of Canada, and the government of the United States) provided a total of $4.4 billion (82.1 percent) of development assistance for CHW programs. In the same period, countries in sub-Saharan Africa received a total of $3.7 billion, the largest regional investment in CHW programs.[6]

In sub-Saharan Africa, external funding accounts for about 60 percent of CHW health expenditures. Despite this investment, the global funding gap for community health programs is estimated at $2 billion.[7]
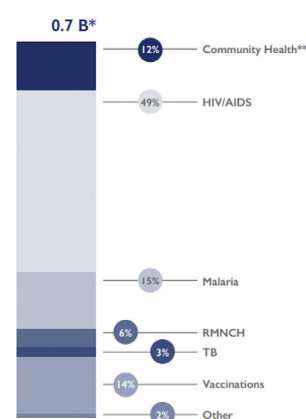
Some noted reasons for the funding gap include:

- Lack of political prioritization
- Lack of supportive policies, strategies, and investment case documents
- Ineffective, fragmented existing donor funding structure
- Suboptimal impact of CHW programs

While CHWs are often considered a high-value, cost-effective investment in primary health care, this funding gap has contributed to a shortage of these workers across sub-Saharan Africa. This funding shortage helps to contribute to a staffing shortage across the region. Regionally, there are only 5/10,000 health professionals compared to a global standard of 23/10,000.[8] Even for cadres in which CHWs are unpaid, many non-labor-associated costs must be covered. Like other health programs, the main costs in community health are salaries, management, supervision, supplies, training, transport, and infrastructure, and these resources may not be sufficient if programs are not fully funded.[9]

Most funding for CHW programs is from donors and is programmed for vertical disease-specific work. Between 2007 and 2017, only 2.5 percent of external donor funding was targeted to CHW programs; most were for vertical programming (see image right). While the Global Fund for AIDS, TB, and Malaria, the United States President's Expanded Program for Emergency AIDS Relief (PEPFAR); and the President's Malaria Initiative (PMI) have contributed substantial amounts to community health programs in LMICs, disease-focused financing can sometimes lead to inequitable funding for health system needs and either gaps or duplications in programming efforts.

Ballard, M., Bancroft, E., Nesbit, J., Johnson, A., Holeman, I., Foth, J., Rogers, D., Yang, J., Nardella, J., Olsen, H., Raghavan, M., Panjabi, R., Alban, R., Malaba, S., Christiansen, M., Rapp, S., Schechter, J., Aylward, P., Rogers, A., Sebisaho, J., ... Palazuelos, D. (2020). Prioritising the role of community health workers in the COVID-19 response. *BMJ global health, 5*(6), e002550. https://doi.org/10.1136/bmjgh-2020-002550 USAID. (2018). *Strengthening Primary Health Care Through Community Health Workers: Closing the $2 Billion Gap.* https://www.usaid.gov/sites/default/files/2022-05/USAID_FAH_Report_digital_version_nov21-508.pdf

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12% Community Health**
49% HIV/AIDS
15% Malaria
6% RMNCH
3% TB
14% Vaccinations
2% Other

Current Trends in Remuneration of CHWs

CHW programs in low- and middle-income There are a wide variety of payment structures and incentives for CHWs. These include fixed salaries, stipends, performance-based payments, and material incentives (e.g., health insurance and supplies). Incentives can vary both across countries and between different CHW cadres within a country.[10] On the African continent, only 14 percent of CHWs have a regular salary. CHWs provide various essential preventive and curative health services, and there has been an ongoing debate regarding payment models.[11] Historically, many national cadres of CHWs have been unpaid due to the assumption that they should be intrinsically motivated to do their work.[12] However, an emerging consensus has arisen that CHWs should be paid for their work because it is the most equitable approach and because it would likely have a more positive impact on work outcomes.[13]

In the 2018 report, "WHO Guidelines on Health Policy and System Support to Optimize Community Health Worker Programmes," the World Health Organization (WHO) recommends that CHWs be remunerated with a financial aid package commensurate with job demands, training, and roles that they undertake. The report highlights that the incentives provided to CHWs directly impact the sustainability of the health program, particularly employee motivation and attrition.[14]

As described above, monetary incentives include salaries, stipends (including transportation), bonuses, or income from selling commodities. Non-monetary incentives involve motivators such as respect, trust, and opportunities for growth and advancement.[15] Studies have shown that satisfaction with monetary and non-monetary incentives is critical in the motivation and performance of CHWs, though many CHWs are dissatisfied with the incentives provided to them.[16,17]

Many national cadres of CHWs have been unpaid due to the assumption that their work should be intrinsically motivated.

Emerging consensus is that CHWs should be paid for their work because this is the most equitable approach and likely positively impacts work outcomes.

One of the major factors influencing retention is lack of remuneration. It is estimated that between 60–85 percent of CHWs are not paid, and for those that are paid, the average monthly salary is $35 a month.[18,19] The regularity of payments and the extent to which CHWs must pay out-of-pocket expenditures, such as patient or worker transportation, food during training sessions, cellular airtime, patient medication, and supplies, also has impacted the motivation of workers.[20,21]

Implications of CHW Remuneration Models

The literature review identified a range of models for motivating and compensating CHWs across contexts. While some volunteer CHWs, such as those in Kenya, Nepal, and Bhutan, felt motivated by non-material and intrinsic incentives, some authors raised questions about the ethics of relying on a volunteer workforce cadre, particularly because many volunteer CHWs are low-income women. The lack of fair compensation does little to address the material needs of these workers.[22]

The cadres in each country differ in the hours worked, job demands, remuneration, and whether their remuneration meets WHO guidelines. There are a variety of remuneration models available for CHWs. One case study highlights five models: 1) public (Brazil); 2) volunteer-based (Ghana); 3) private (Nigeria); 4) cooperatives with performance incentives (Rwanda); and 5) hybrid public/private (South Africa). The study looks at types of compensation models, payment types, salary/minimum wage floor, provision of CHW volunteers, and legal protection in each model. The findings are summarized in the table below.

Ballard, M., Westgate, C., Alban, R., Choudhury, N., Adamjee, R., Schwarz, R., Bishop, J., McLaughlin, M., Flood, D., Finnegan, K., Rogers, A., Olsen, H., Johnson, A., Palazuelos, D., & Schechter, J. (2021). Compensation models for community health workers: Comparison of legal frameworks across five countries. *Journal of global health, 11*, 04010. https://doi.org/10.7189/jogh.11.04010

Table 1. CHW Compensation Models by Country

Country (cadre)	Type of compensation model	Payment type	Salary floor/minimum wage	Provision for CHW volunteers	Legal Protection
Brazil (ACS)	Public sector	Salary	Yes	Yes (through NGOs)	Basic (varies by jurisdiction)
Ghana (CHVs)	Volunteer-based	None	No	Yes	None
Nigeria (CHEWs)	Private (with minimum wage floor)	Salary	Yes	Yes	Dependent on individual contracts
Rwanda (Binômes)	Cooperatives with performance-based incentives	Performance-based incentives via cooperatives	No	Yes	None
South Africa (CHWs)	Hybrid: Public sector & private (sub-contracting)	Salary (only state employed CHWs)	Partial	Yes (through NGOs)	Basic (varies by province)

ACS – agente comunitário de Saúde, CHW – community health worker, CHEW – community health extension worker, CHV – community health volunteer

One review examined the relationship between incentives and motivation for CHWs in Ethiopia, Kenya, Indonesia, Malawi, and Mozambique. The study found that financial incentives (salaries or allowances) and material incentives (food, transportation, uniforms, and other goods) were very important for workers in all the countries. However, many CHWs felt that they were insufficiently paid, and programs that lacked material incentives were thought to hinder worker performance.

While non-material incentives (desire to help community members, feeling of trust and importance with work) were also found to be important for all country settings, they did not make up for insufficient financial or material incentives that workers expected for their roles.

Ormel, H., Kok, M., Kane, S., Ahmed, R., Chikaphupha, K., Rashid, S. F., Gemechu, D., Otiso, L., Sidat, M., Theobald, S., Taegtmeyer, M., & de Koning, K. (2019). Salaried and voluntary community health workers: exploring how incentives and expectation gaps influence motivation. *Human resources for health, 17*(1), 59. https://doi.org/10.1186/s12960-019-0387-z

Leaders who wish to design policies for CHW remuneration should consider several dimensions, including payment amounts, regularity of payment, sustainability of programs to pay workers, and the legal framework that ensures the institutionalization of CHWs within the country.

International best practice for labor rights suggests that financial (as opposed to non-financial) incentives will better promote equity.[23]

Out-of-pocket expenditures, such as transportation, should also be considered when designing financial packages for CHWs. Additionally, WHO recommends that CHW compensation not be exclusively or predominantly performance based.[24] These types of incentives can distort the care provided by encouraging a focus on certain activities rather than holistic care. They also do not provide CHWs with financial stability.[25]

In their review, Colvin, Hodgins, and Perry developed a typology of the incentives CHWs receive. These can include financial incentives, such as salary, pension, performance payments, and other financial support, as well as non-financial incentives, such as job satisfaction, professional development, and formal and informal recognition.

The authors also cited health systems and community-level incentives, such as policies and legislation that support CHWs, funding for CHW activities, and community organizations that support CHWs, among others.

Colvin, C. J., Hodgins, S., & Perry, H. B. (2021). Community health workers at the dawn of a new era: 8. Incentives and remuneration. *Health research policy and systems, 19*(Suppl 3), 106. https://doi.org/10.1186/s12961-021-00750-w

The following are all variables that have been identified as influencing CHW motivation and should be considered when developing a compensation package/CHW profile:

- **Financial incentives** include salary, pension, performance payments, and other financial support.

- **Material incentives,** such as health insurance, clothing, or tools of the trade, such as boots and backpacks.

- **Nonfinancial incentives** include job satisfaction, professional development, and formal and informal recognition.

- **Health system and community-level incentives,** such as policies and legislation that support CHWs, funding for CHW activities, and community organizations that support CHWs, among others.

Ormel, H., Kok, M., Kane, S., Ahmed, R., Chikaphupha, K., Rashid, S. F., Gemechu, D., Otiso, L., Sidat, M., Theobald, S., Taegtmeyer, M., & de Koning, K. (2019). Salaried and voluntary community health workers: exploring how incentives and expectation gaps influence motivation. *Human Resources for Health, 17*(1), 59. https://doi.org/10.1186/s12960-019-0387-z

Ballard, M., Westgate, C., Alban, R., Choudhury, N., Adamjee, R., Schwarz, R., Bishop, J., McLaughlin, M., Flood, D., Finnegan, K., Rogers, A., Olsen, H., Johnson, A., Palazuelos, D., & Schechter, J. (2021). Compensation models for community health workers: Comparison of legal frameworks across five countries. *Journal of Global Health, 11*, 04010. https://doi.org/10.7189/jogh.11.04010

Integration of CHW Programs Across Broader Health System

Vertical interventions can be defined as those that focus on specific health areas and disease priorities, such as maternal and child health, malaria, or HIV, whereas horizontal interventions cross multiple disease priorities. There has been increased emphasis on program integration among governments, NGOs, and international health organizations, which means that program priorities and goals are linked to the broader healthcare system and strategy.[26] Integration has many advantages, such as the ability for CHWs to collaborate with other healthcare staff more readily and for all cadres of the health system to share knowledge. Integration can also improve the acceptability and credibility of CHW programs.[27] For integration to be successful, it is critical that national and regional health workforce policies and operational plans support CHWs, and that the priorities of specific disease programs are aligned with broader health system aims. USAID's report "Closing the $2 Billion Gap" highlights the benefits of integrating the community health workforce, including more efficient and effective programming, in which programs avoid duplication and gaps in

efforts, increase their cost-efficiency and cost-effectiveness, and provide responsibilities to CHWs across multiple disease areas.[28]

When scaling and integrating CHW programs, countries should ensure that programs are supported with the necessary funding, human resources, and infrastructure.[29] Because many CHW programs support discrete, disease-specific work, it is critical that these efforts are not diluted as the program expands. WHO advises that countries, when considering integration, conduct "an assessment of the scope and scale of the CHW program, how CHW functions can be rationalized within the PHC team, and a trend analysis of the resources required to support the program compared with available fiscal space."[30]

Increased and sustainable funding is also required for CHW programs and community health innovations to be scaled across countries and regions. One review noted that program integration, when done effectively, "can bolster program sustainability and credibility, clarify CHW roles, and foster collaboration between CHWs and higher-level health system actors."[31]

There is a reciprocal relationship between the political support for CHW programs and integration into the broader health system. The more CHW programs are integrated into other governmental agendas, the more support they incur. Integration of CHW programs can be a cornerstone of strengthening health systems. To be successful, respectful relationships between all CHW programs and other facets of the health system must be facilitated.[32]

Scaling and sustaining community health programs require thoughtful program design, with key considerations in supervision, funding, acceptability, and political support.[33] For integration to succeed, programs must be designed with the local context in mind, and there must be alignment between the various program stakeholders, including donors and governmental and non-governmental organizations.[34] The roles and responsibilities of CHWs must be well-defined in relation to other clinical counterparts to avoid duplication and gaps.[35] Integration must also consider many aspects of the health system (and their funding mechanisms), including the supply chain, remuneration, contractual agreements, training, and competencies, among others.[36]

To design financing arrangements for CHW programs, it is essential to know how many community health workers there are in the country, in what cadres they work, how many are needed for program priorities, and what it will cost to fill any gaps.

Countries can use existing CHW frameworks, such as Community Health Impact Coalition's "Community Health Worker Assessment & Improvement Matrix" or "The CHW Coverage and Capacity (C3) Tool" to answer these questions.[37,38]

The extent to which a CHW program is integrated into the broader funded health system will also impact worker remuneration and other incentives.

Strategies to Address Challenges in CHW Financing and Remuneration

To increase financing for CHW programs, it is important to make the case for their value, the impact they make on the health of the communities they serve, and the need to sustainably invest in them. Building political will, or sustained support of government leadership and the broader community for health program improvement, is essential for long-term and sustainable success. This can include incorporating key stakeholders to support these programs, developing national and regional investment cases to create the financial case for CHW programs, and using CHWs to advocate directly on behalf of their work.

Key Equity Considerations for CHW Program Integration

- **Does diversifying funding sources allow for more sustainable and equitable compensation of CHWs?**

- **Are CHW priorities reflected in investment cases?**

- **Are resources going to be equitably distributed across programs?**

- **Do programs afford legal protection to CHWs?**

- **Are measurement and evaluation practices in place to support advancing health equity in the workforce?**

Key Points

- **Utilize champions for the work within government and establish dedicated teams for community health within MoH**

- **Integrate community health programs into the existing broader health system of the country**

- **Develop strong investment cases for community health**

- **Position community health worker programs alongside primary health care**

- **Align country engagement with key community health workforce priorities**

Building Political Will and Advocacy

Building political will for reform is always necessary to expand health coverage. The politics around resource allocation is often a key barrier to scaling CHW programs. One review recommended building strong political commitment for CHWs through a key "champion" in the government, developing strong investment cases to support the programs' advancement, establishing a dedicated community health team within the MoH, positioning it alongside a broader primary health agenda, integrating CHWs into the greater health system, and exploring new funding models.[39]

It is necessary to mobilize political will to develop the community health program and sustain funding for it.[40] For instance, while CHW programs have been employed in Ethiopia for over four decades, the government made a concerted effort to expand CHW through its Health Extension Program in the early 2000s. This effort, which was also aimed at promoting and expanding primary health care, involved stakeholders across the government, including federal ministries of health, education, labor, finance, and capacity building.[41] Since then, the Ethiopian Health Extension Workers Program has been a cornerstone of primary care across family health services, disease prevention and control, hygiene and environmental sanitation, and health education and communication.[42]

In Liberia, key reformers, such as then-president Ellen Johnson Sirleaf, prioritized the use of CHWs to respond to the 2014 Ebola outbreak.[43] The community health assistant program was in the process of piloting at the time, and the support from diverse government leaders, including at the highest levels, allowed for sustained growth of the program. By highlighting the critical work of CHWs, this effort propelled the establishment of a national community health services policy and plan for 2016–2023, which expanded community and primary health across the country. By 2020, CHWs covered 80 percent of those living outside 5km of a health facility in 14 of the 15 counties in the country, and CHWs were well-positioned to respond to the emerging COVID-19 crisis.[44]

CHWs are the largest grassroots employees in Liberia. As of 2022, there were 469 community health services supervisors (CHSSs), 4,331 community health assistants (CHAs), and 5,060 community health volunteers (community health promoters, or CHPs) in the country.[45] The program has seen such success that Liberia was chosen to host over 800 international government and non-governmental representatives for the third Annual Community Health Symposium in March 2023 in Monrovia. Liberia's 2023–2032 National Community Health Policy and the Monrovia call to action were launched during the symposium. This brief focuses on areas of financing that were reviewed at the symposium and supported in the national policy supported in the national policy.[46]

Creating Investment Cases and Generating Data for Decision-Making

Strengthening investment cases is an important tool for increasing political will and funding to support CHW programs. These investment cases should highlight how scaling CHW programs can lead to short—and long-term cost savings in other parts of the health system. In addition, they can show the financial value of other societal benefits, such as empowering women, reducing patient costs, enabling data collection on civil registration and vital statistics, and enabling additional service delivery.[47]

Financing Alliance for Health's financing curriculum outlines how to build an investment case, conduct a financial gap analysis, identify funding sources, and develop an investment plan for sustainable financing, among other items. It notes that key enabling elements for health financing for CHW programs include: 1) MoH and MoF leading the effort to mobilize and coordinate resources; 2) CH finance plan aligning domestic and external funding; 3) effective coordination structures in place for financing; and 4) implementing actors aligned on strategy and well-coordinated execution.[48]

Conclusion

Although CHWs play a critical role in providing essential primary healthcare services and addressing health service gaps, as shown during the COVID-19 pandemic, there is a global shortfall of $2.1 billion in funding for CHW programs. This significantly impacts program scalability and addresses the shortage of health professionals. Poor compensation for CHWs, lack of integration into the broader health system, and weak political support are key factors influencing the success of CHW programs. WHO recommends fair remuneration for CHWs while also being mindful of design and alignment with local context. As case studies from Ethiopia and Liberia show, strong political commitment is essential for program expansion and success.

It is crucial to build strong political will and investment cases to address the funding gap. Advocating for the value of CHW programs and demonstrating their impact on primary and community health can drive sustained funding. Strengthening investment cases, conducting financial gap analyses, and aligning domestic and external funding are crucial steps outlined in the investment plan for sustainable financing. Overall, unlocking the full potential of CHW programs necessitates strategic financing, sustained political support, and seamless integration into broader health systems, ensuring improved health outcomes in communities worldwide.

Key Steps to Building a Strong Investment Case

- **Build a muti-sectoral team,** including those from finance, health, planning, and budgeting.

- **Determine need,** including the number of CHWs required at full scale and a number of years required to scale up the system.

- **Cost out program** year by year.

- **Break down costs** by sources of funding.

- **Identify funding mechanisms.**

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The Health Systems Strengthening Accelerator

Results for Development
1111 19th Street NW, Suite 700
Washington, DC, 20036, USA

Project Director:

Nathan Blanchet: nblanchet@r4d.org

@AccelerateHSS

https://www.facebook.com/accelerateHSS

accelerateHSS@r4d.org

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