

# Maintains



Research supporting social  
services to adapt to shocks

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## Rapid Literature Review: Community Health Workers

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COVID-19 Series

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## About Maintains

Maintains aims to save lives and reduce suffering for people in developing countries affected by shocks such as pandemics, floods, droughts and population displacement. This 5-year programme, spanning 2018-2023, will build a strong evidence base on how health, education, nutrition and social protection can respond more quickly, reliably and effectively to changing needs during and after shocks, whilst also maintaining existing services. Maintains will gather evidence from six focal countries — Bangladesh, Ethiopia, Kenya, Pakistan, Sierra Leone, and Uganda — to inform policy and practice globally. It will also provide technical assistance to support practical implementation.

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# 1 Introduction

Community health workers (CHWs) form the bridge between communities and health systems. In low- and middle- income countries, CHWs are often the first point of contact with the formal health system for many, particularly, in low resource or remote settings (Rowe, Savigny, Lanata, and Victoria, 2005). CHWs are central to the delivery of essential health services, including and in particular, reproductive, maternal, newborn, and child health (RMNCH) services (Vaughan, Kok, Witter, & Dieleman, 2015; Haines, et. Al., 2007).

CHWs are also indispensable to the health workforce during health emergencies, and play an important role in the prevention, screening and management of diseases (Lehmann & Sanders, 2007). This has been demonstrated in the past by their role in the outbreak of the Ebola Virus Disease (EVD) in 2014. Lessons from the EVD outbreak of 2014, and experience from previous communicable disease outbreaks indicate that CHWs carry out functions which focus on detection, prevention, and response to the pandemic (Perry et al., 2016; Frieden & Damon, 2015). CHWs are often responsible for the identification of affected people, and report, and refer them to seek care. In addition, they are expected to engage in communication and dissemination of information on preventive measures at the community level (Frieden & Damon, 2015), acting as educators and mobilisers, whilst engaging in routine service delivery.

CHWs were seen to significantly aid the EVD pandemic response and management efforts often braving several supply side and systemic challenges and eventually sustaining routine service delivery. Miller and others (2018) note that during the early months of the EVD outbreak, there was a sharp decline in CHW service provision across the three affected countries due to weak service delivery, confusion over policy, and the overwhelming nature of the outbreak. However, the majority of CHWs remained active in their communities, and were willing to continue providing services, and many did so in the early days of the outbreak without formal direction or remuneration. Pointing to critical support even in the face of challenging situations. When CHWs received clear directives to restart case management services, were trained on the “no touch policy,” and were provided with drug supplies, service provision rebounded (Miller et al, 2018).

As outlined by Boyce and Katz (2019), who draw upon lessons from the Zika Virus (ZIKV) and EVD outbreaks, CHWs play a critical role in pandemic preparedness. They are essential to building trust and relationships between the formal health system and communities, improving community access to health services, and communicating public health concepts.

However, several factors may limit their performance during outbreaks. In this rapid review, we refer to the literature to draw lessons from EVD, ZIKV, Marburg virus disease (MVD), and others, to discuss the barriers and facilitators affecting CHWs response to outbreaks, and opportunities to strengthen their role in building shock-responsive health systems. The factors are divided by those related to the role of CHWs in responding to a pandemic, and in continuing routine services during a pandemic.

## 2 Factors affecting CHW performance during pandemic response

### 2.1 Response to the pandemic

**Gaps in knowledge and skills** regarding appropriate response, diagnosis and prevention were observed among CHWs in the EVD crisis (Ameme et al., 2016). These gaps emerged primarily from CHWs' poor educational background, potential lack of information to engage in a timely response, and other challenges associated with their routine service delivery, thus creating challenges. When many regions of West Africa were ravaged in the course of the EVD pandemic, Niger appeared to benefit from their initial investment in training their health workforce, which aided rapid action in response to the EVD crisis (Oyemakinde et al., 2014; Ameme et al., 2016). Niger's experiential training module holds promise for building system resilience. Studies also point to the use of technology for rapid training which is associated with improved knowledge and skills of participants (Rohwer, Motaze, Rehfuess & Young, 2017). Studies (Ameme et al.2016; Mc.Kenna et al., 2019) provide evidence in the creation and rapid deployment of mobile based in-service training content, which could potentially address gaps in CHWs' knowledge. Pilots undertaken in Ghana and Sierra Leone point to marked improvements in CHW knowledge levels in EVD vaccines, public health surveillance, outbreak investigation, and response (Ameme et al.2016; Mc.Kenna et al., 2019).

Assisting CHWs in pandemic response also calls for system level changes that **account for the threat of the outbreak to the worker**. A systematic review on exposure during EVD and MVD outbreaks found higher infection and mortality rates among health workers than the general population (Selvaraj et al 2018). The authors argue that given these trends, pandemic infections like EVD and MVD must typically be considered as occupational diseases when they occur amongst health workers. Therefore, protection of the frontline force must be of primary importance. Vaccinating the CHWs in time led the health system to swiftly respond to the EVD pandemic (WHO, July 24, 2019).

By extension, health workers must also be entitled to compensation and rehabilitation as acknowledgement of the occupational threat and as protection in the line of duty. There is a variation globally in how CHWs are remunerated, which affects how this can be done; in some contexts they are salaried (such as Lady Health Workers in Pakistan), in some they are paid just through incentives (such as ASHAs in India), and in some they are volunteers. CHWs in the three countries hit by Ebola worked as volunteers but received small travel allowances and some non-financial incentives such as boots, rain gear and flashlights. Improved remunerations and transport refunds offered to the CHWs for survey related activities were associated with improved, and more complete reporting during the EVD outbreak in Sierra Leone (Vandi et al., 2017). A similar trend was observed in Liberia, where improved remunerations (alongside training and supervision) were associated with increased maternal, and child services uptake, in spite of the EVD pandemic (Luckow et al., 2017).

These lessons have been incorporated in the current WHO guidelines that position protection and safety (from pathogen exposure but also psychological distress) of all health workers as a right (WHO, 2020 a). These also present compensation, rehabilitation, and curative services for health workers affected with COVID-19 in the line of duty as a right (WHO, 2020 a).

**Gaps in supply of personal protective equipment (PPE)**<sup>1</sup> were a central challenge in assisting CHWs in pandemic response. The most common reasons for heightened risk was inadequate personal protective equipment (Selvaraj et al, 2018). Although the results presented by Selvaraj et al (2018) primarily discuss infection and fatality amongst nursing, medical, and health facility-based staff, the findings also make a case for the timely provision of protective equipment for outreach health staff. PPE supplies are especially vital in remote geographies with fewer health staff.

**The role of gender** is an important consideration, as globally, over 80% of nurses and midwives are women (African Union Commission, 2017), and this is true for CHWs. This is particularly true for most LMICs where men tend to dominate the better-paying managerial positions (Witter et al., 2017a). With regard to pandemic response, Witter and colleagues (2017 a) find that gender was a determinant of whether a health worker received training, remained, or left service in the face of a pandemic. Given a majority of the frontline staff are women, it also makes women more vulnerable to the infection. We use the gender lens to identify gender-related barriers to effective CHW pandemic response. This is explored in more detail in the literature review on gender in this series.

Although the changes in service delivery are well documented, few studies examine changes in CHWs' personal and social lives. **Emotional toll on CHWs** is another critical area (albeit under-researched) to understand CHWs role in pandemic management. McMahon et al. (2016) discuss how CHWs felt that EVD destroyed social connectedness and *sense of trust* in health facilities, communities, and families. CHWs routinely described feeling alone, disrespected, and ostracised, and in the presence of restriction of physical touch, mobility, and contact prevented them from coping with these feelings. Studies also point to stigma and fear that health workers experience as a consequence of their work, especially at the onset of the pandemic where providers are viewed as 'carriers of the disease' (McMahon et al., 2016; Miller et al., 2018). The use of protective equipment also appeared to be a challenge in engaging in care work with the affected, which appeared to make the interaction inhuman (Cooper, 2015). Witter and others (2017b) discuss the shocks that health workers in the face of an outbreak under three categories: physical (threat to life), psychosocial (causing fear and stigma); and professional (disrupting provision of care, loss of remuneration). Findings suggest that the coping strategies reflect resilience of the health staff who were seen to rely on self-protection, familial support, and task shifting, and using own resources for patients to deal with outbreaks (Witter et al., 2017b). While health workers were resilient to the shocks, these findings also make a case for pandemic management programs to acknowledge the psychosocial contexts of care (Cooper, 2015; Witter et al., 2017b). Prevention efforts by offering support and guidance to cope with stress and to deal with protracted stigma as a longer-term effect of the pandemics (WHO, World Vision, UNICEF 2014).

**The lack of trust in the health worker and the health system at the community level** (Miller et al ,2018) cascaded into the spread and persistence of the EVD outbreak (Perry et al., 2016). Added to this, factors like widespread misinformation, gaps in disease surveillance, and cultural practices aggravated the spread. This also brought to the fore, that in addition to strong health workforce, **robust community engagement (CE)** is just as important to build resilient health systems (Armstrong-Mensah & Ndiaye, 2018; Barker et al., 2020). Barker et al. classify CE as (a) information provision; (b) for consultation, i.e. exchange of information

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<sup>1</sup> PPE includes masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies, etc.

between health officials and communities, (c) participation to collectively identify solutions, and empower communities to deliver; and, (d) community empowerment by consulting and involving communities in local health-related decision-making, and the use community structures for service provision. Meaningful CE has been credited with improved communication and trust with health and program authorities (Barker et al., 2020; McMahon et al., 2017; Ntumba et al., 2020). In addition to the health system support role, CE was also noted to lead community members to develop a sense of ownership and responsibility to the community, and the protection of the community against the pandemic (McMahon et al., 2017).

Though the advantages of timely CE are many, studies also identify lack of CE as a missing link in the EVD control efforts (Marais et al., 2015; Laverack, & Manoncourt, 2016). Lessons from the EVD outbreak highlight that health systems alone were inadequate in managing the outbreak, and that the lack of CE was a barrier to effective prevention and response strategies (Barker et al., 2020; Ntumba, Bompangue, Situakibanza, Tamfum, & Ozer, 2020). Studies illustrated the need for CE when health workers and systems could not address the issues of contact tracing, disease surveillance and information dissemination and awareness in a vacuum, but needed community cooperation towards it (Barker et al., 2020). Inadvertently, the pressure of CE typically fell on the CHWs leading to excess burden. This was also corroborated by WHO, reporting the growing distrust amongst community members at the onset of the outbreak, and the excess pressure of CE on CHWs (WHO, 2017). In response to this, WHO and partners instituted CE measures to close the 'distrust gap' in three EVD affected countries via policy focus, and by recruiting specific mobilisation staff (WHO, 2017). CE has since been actively used for awareness generation and prevention measures, particularly in encouraging behaviour change. Findings from a qualitative study in Côte d'Ivoire suggest that EVD sensitisation efforts led by respected community leaders led to behaviour change (Gautier, Hougbedji, Uwamaliya, & Coffee, 2017). Recognising this, WHO designed a social mobilisation and CE manual with key messages on critical behaviours and practices designed to align with the key interventions to stop EVD transmission (WHO, 2014). These learnings appear to be weaved into health policy as well – Sierra Leone acknowledged CE is critical not just for response to outbreaks, but also for pandemic preparedness. The country launched the Basic Package of Essential Health Services 2015-2020, highlighting the need for community members to volunteer to interface between the health facility and community in the aftermath of the EVD outbreak (McMahon et al., 2017).

## 2.2 Maintaining routine services

**Maintaining routine services is important to minimise secondary effects.** The EVD pandemic led to a sharp decline in service delivery by CHWs in Guinea, Liberia, and Sierra Leone, especially at the onset of the outbreak due to weak service delivery, confusion over policy, and the overwhelming nature of the Ebola outbreak (Miller et al., 2018; Vandi et al., 2017; Delamou et al., 2017; Plucinski, et al., 2015). Vandi et al (2017) discuss the break in the reporting and management of childhood malaria, diarrhoea, and pneumonia in Sierra Leone, where authors observed a marked spike in the number of reported cases post the outbreak, which resulted from a break in service delivery (mid-outbreak), potentially hinting at service backlog. This shift in focus also appeared to be seen within the health facilities - studies (Plucinski, et al., 2015) note a reduction in the delivery of malaria care because of the EVD response in Guinea potentially, leading to excess malaria mortality. Parpia, Ndeffo-Mbah,

Wenzel & Galvani's (2016) computational simulation model pointed to a 50% reduction in overall health care access due to EVD focus and in their narrative review Elston, Cartwright, Ndumbi, & Wright, (2017) find 80% reductions in maternal delivery care, and 40% national reductions in malaria admissions among children. This shift is in part due to changes in demand for health care, and partly due to a shift in health care focus. These consequences point to the potential secondary or indirect health system-level effects seen via a reduction in access to healthcare, lower trust in health systems, and death counts substantially exceeding those related to the pandemic (indirect mortality). The break in RMNCH service delivery led to lower respect and trust in the CHWs, and even lower demand for service (particularly at the onset of the outbreak) (Miller et al., 2018). Elston, et al., (2017) point to reduced community cohesion, and increased morbidity, mortality, and reduced life expectancy in the aftermath of the EVD outbreak. Further, Parpia, et al., (2016) find an increased higher death toll due to measles, TB, and HIV/AIDS and exceeding the death due to EVD.

**Adequate supervision can support CHWs to maintain routine service delivery.** Studies also point to instances of an ability to maintain service delivery or recover service delivery after its suspension. Miller et al (2018) suggest that when CHWs were provided with necessary directives, and were offered supervisory support, and convergence with other frontline staff (traditional birth attendants, community leaders, etc.) service delivery resumed. This was also aided by the 'no-touch' policy that allowed CHWs to engage with communities. Eventually, CHWs were also seen to be more effective to work with the community to carry out EVD-specific activities than outsiders, pointing to resilience in community-CHW relations. Drawing from these experiences, the WHO guidelines on pandemic management (WHO, 2020 b) clearly outline the need to maintain core service delivery, and recommend the creation of roadmaps for targeted delivery of certain services and systematic roll-back for others. These roadmaps attempt to arrest adverse secondary effects (higher morbidity, mortality, and lower trust in health systems) that are likely to arise from the break in routine service delivery.



## 3 Conclusions and recommendations

Considering the critical role of CHWs in pandemic prevention and mitigation, there are a range of entry points for Maintains:

### 1. Response to the shock

- Offering technical assistance in the creation and deployment of printed/ video **training packages** to support efforts to educate CHWs in knowledge and skills critical for pandemic management. Potentially relying on pandemic specific key message document (akin to the WHO EVD key messaging guide 2014) to inform the community and encourage CE.
- **Protection of field functionaries** via stronger design of special remuneration and compensation packages for CHWs for pandemic work. The design of the remuneration package can draw from best practices, and will account for occupational threat, and be offered through a simplistic remuneration disbursement channel.
- **Technical assistance in creating geography-specific protocols** that systematically roll-back specific routine services, and target providing other essential services would address challenges associated with service discontinuation. These protocols might allow CHWs to respond to the pandemic, and selectively perform critical routine outreach service more effectively.

### 2. Recovery from the shock

- Technical assistance in the development of strategic guidelines for **supportive supervision and peer support** for CHWs, using a gendered lens.
- Technical assistance with creation of manual for **sustained CE** offering guidelines for engagement of community leaders to offer support to CHW and health systems in recovering from the shock.

### 3. Reforming community health systems

- Technical assistance on design of **CHW pandemic preparedness training package** with key messages, critical behaviours (do's and don'ts) and an active CE maintenance channel.
- Technical assistance in design of a **supervisor's pandemic preparedness training package**, accounting for managerial and emotional support for CHW in times of pandemic.
- Undertaking research and policy advocacy on interventions to improve **trust** between communities, CHWs and the health system, including through revising remuneration packages, promoting supportive supervision, and developing training packages on transferable skills.

This should build upon OPM's long standing engagement with CHW programmes in the Maintains countries of focus: for example OPM have been supporting and evaluating the LHW programme in Pakistan since it was initially introduced over a decade ago; are evaluating initiatives to strengthen Health Extension Workers in Ethiopia under Maintains; and, have supported the refinement of community health service delivery packages in Bangladesh.

## References

African Union Commission. (2017). Two million African community health workers: harnessing the demographic dividend, ending AIDS and ensuring sustainable health for all in Africa. *Addis Ababa: African Union Commission*.

Ameme, D. K., Nyarko, K. M., Afari, E. A., Antara, S., Sackey, S. O., & Wurapa, F. (2016). Training Ghanaian frontline healthcare workers in public health surveillance and disease outbreak investigation and response. *The Pan African medical journal*, 25(Suppl 1).

Armstrong-Mensah, E. A., & Ndiaye, S. M. (2018). Global Health Security Agenda implementation: a case for community engagement. *Health security*, 16(4), 217-223.

Barker, Kathryn M., Emilia J. Ling, Mosoka Fallah, Brian VanDeBogert, Yvonne Kodl, Rose Jallah Macauley, K. Viswanath, and Margaret E. Kruk. (2020) Community engagement for health system resilience: evidence from Liberia's Ebola epidemic. *Health Policy and Planning*.

Boyce, M. R., & Katz, R. (2019). Community health workers and pandemic preparedness: current and prospective roles. *Frontiers in Public Health*, 7, 62.

Cooper, J. L. (2015). Mental health and psychosocial support in the face of Ebola in Liberia: the personal and professional intersect. A personal account. *Intervention*, 13(1), 49-57.

Delamou, A., Sidibé, S., El Ayadi, A. M., Camara, B. S., Delvaux, T., Utz, B., ... & Shahabuddin, A. (2017). Maternal and child health services in the context of the Ebola virus disease: health care workers' knowledge, attitudes and practices in rural Guinea. *African journal of reproductive health*, 21(1), 104-113.

Elston, J. W. T., Cartwright, C., Ndumbi, P., & Wright, J. (2017). The health impact of the 2014–15 Ebola outbreak. *Public Health*, 143, 60-70.

Frieden, T. R., & Damon, I. K. (2015). Ebola in West Africa—CDC's role in epidemic detection, control, and prevention. *Emerging infectious diseases*, 21(11), 1897.

Gautier, L., Hounbedji, K. A., Uwamaliya, J., & Coffee, M. (2017). Use of a community-led prevention strategy to enhance behavioral changes towards Ebola virus disease prevention: a qualitative case study in Western Côte d'Ivoire. *Global health research and policy*, 2(1), 35.

Haines, A., Sanders, D., Lehmann, U., Rowe, A. K., Lawn, J. E., Jan, S., ... & Bhutta, Z. (2007). Achieving child survival goals: potential contribution of community health workers. *The Lancet*, 369(9579), 2121-2131.

Kruk, M. E., Myers, M., Varpilah, S. T., & Dahn, B. T. (2015). What is a resilient health system? Lessons from Ebola. *The Lancet*, 385(9980), 1910-1912.

Laverack, G., & Manoncourt, E. (2016). Key experiences of community engagement and social mobilization in the Ebola response. *Global health promotion*, 23(1), 79-82.

Lehmann, U., & Sanders, D. (2007). Community health workers: what do we know about them. *The state of the evidence on programmes, activities, costs and impact on health outcomes of using community health workers*. Geneva: World Health Organization, 1-42.

Luckow, P. W., Kenny, A., White, E., Ballard, M., Dorr, L., Erlandson, K., ... & Ly, E. J. (2017). Implementation research on community health workers' provision of maternal and child health services in rural Liberia. *Bulletin of the World Health Organization*, 95(2), 113.

- Marais, F., Minkler, M., Gibson, N., Mwau, B., Mehtar, S., Ogunsola, F., ... & Corburn, J. (2015). A community-engaged infection prevention and control approach to Ebola. *Health promotion international*, 31(2), 440-449.
- Mc Kenna, P., Babughirana, G., Amponsah, M., Egoeh, S. G., Banura, E., Kanwagi, R., & Gray, B. (2019). Mobile training and support (MOTS) service—using technology to increase Ebola preparedness of remotely-located community health workers (CHWs) in Sierra Leone. *mHealth*, 5.
- McMahon, S. A., Ho, L. S., Brown, H., Miller, L., Ansumana, R., & Kennedy, C. E. (2016). Healthcare providers on the frontlines: a qualitative investigation of the social and emotional impact of delivering health services during Sierra Leone's Ebola epidemic. *Health Policy and Planning*, 31(9), 1232-1239.
- McMahon, S. A., Ho, L. S., Scott, K., Brown, H., Miller, L., Ratnayake, R., & Ansumana, R. (2017). "We and the nurses are now working with one voice": How community leaders and health committee members describe their role in Sierra Leone's Ebola response. *BMC Health Services Research*, 17(1), 495. doi:10.1186/s12913-017-2414-x
- Miller, N. P., Milsom, P., Johnson, G., Bedford, J., Kapeu, A. S., Diallo, A. O., ... & Kande, J. (2018). Community health workers during the Ebola outbreak in Guinea, Liberia, and Sierra Leone. *Journal of global health*, 8(2).
- Ntumba, H. C. K., Bompangue, D., Situakibanza, H., Tamfum, J. M., & Ozer, P. (2020). Ebola response and community engagement: how to build a bridge? *Lancet*, 394(10216), 2242. doi:10.1016/s0140-6736(19)32532-2
- Oyemakinde, A., Nguku, P., Babirye, R., Gitta, S., Nsubuga, P., Nyager, J., & Nasidi, A. (2014). Building a public health workforce in Nigeria through experiential training. *The Pan African medical journal*, 18(Suppl 1).
- Parpia, A. S., Ndeffo-Mbah, M. L., Wenzel, N. S., & Galvani, A. P. (2016). Effects of response to 2014–2015 Ebola outbreak on deaths from malaria, HIV/AIDS, and tuberculosis, West Africa. *Emerging infectious diseases*, 22(3), 433.
- Perry, H. B., Dhillon, R. S., Liu, A., Chitnis, K., Panjabi, R., Palazuelos, D., ... & Nyenswah, T. (2016). Community health worker programmes after the 2013–2016 Ebola outbreak. *Bulletin of the World Health Organization*, 94(7), 551.
- Plucinski, M. M., Guilavogui, T., Sidikiba, S., Diakité, N., Diakité, S., Dioubaté, M., ... & McElroy, P. D. (2015). Effect of the Ebola-virus-disease epidemic on malaria case management in Guinea, 2014: a cross-sectional survey of health facilities. *The Lancet infectious diseases*, 15(9), 1017-1023.
- Rohwer, A., Motaze, N. V., Rehfuess, E., & Young, T. (2017). E-learning of evidence-based health care (EBHC) to increase EBHC competencies in healthcare professionals: a systematic review. *Campbell Systematic Reviews*, 13(1), 1-147.
- Rowe, A. K., De Savigny, D., Lanata, C. F., & Victora, C. G. (2005). How can we achieve and maintain high-quality performance of health workers in low-resource settings? *The Lancet*, 366(9490), 1026-1035.
- Selvaraj, S. A., Lee, K. E., Harrell, M., Ivanov, I., & Allegranzi, B. (2018). Infection rates and risk factors for infection among health workers during Ebola and Marburg virus outbreaks: a systematic review. *The Journal of infectious diseases*, 218(suppl\_5), S679-S689.

Tierney, K. (2014). *The social roots of risk: Producing disasters, promoting resilience*. Stanford University Press.

Vandi, M. A., Van Griensven, J., Chan, A. K., Kargbo, B., Kandeh, J. N., Sheriff, A. A., ... & Mishra, S. (2017). Ebola and community health worker services in Kenema District, Sierra Leone: please mind the gap!. *Public health action*, 7(1), S55-S61.

Vaughan, K., Kok, M. C., Witter, S., & Dieleman, M. (2015). Costs and cost-effectiveness of community health workers: evidence from a literature review. *Human resources for health*, 13(1), 71.

Witter, S., Namakula, J., Wurie, H., Chirwa, Y., So, S., Vong, S., ... & Theobald, S. (2017a). The gendered health workforce: mixed methods analysis from four fragile and post-conflict contexts. *Health policy and planning*, 32(suppl\_5), v52-v62.

Witter, S., Wurie, H., Chandiwana, P., Namakula, J., So, S., Alonso-Garbayo, A., ... & Raven, J. (2017b). How do health workers experience and cope with shocks? Learning from four fragile and conflict-affected health systems in Uganda, Sierra Leone, Zimbabwe and Cambodia. *Health policy and planning*, 32(suppl\_3), iii3-iii13.

World Health Organization. (2014). Key messages for social mobilization and community engagement in intense transmission areas.

World Health Organization. (2017). *WHO community engagement framework for quality, people-centred and resilient health services* (No. WHO/HIS/SDS/2017.15). World Health Organization.

World Health Organization. (July 24, 2019). WHO applauds Rwanda's Ebola Preparedness efforts. News Release. Geneva. Retrieved from <https://www.who.int/news-room/detail/24-07-2019-who-applauds-rwanda-s-ebola-preparedness-efforts>

World Health Organization. (2020a). Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, 18 March 2020.

World Health Organization. (2020b). *COVID-19: operational guidance for maintaining essential health services during an outbreak: interim guidance, 25 March 2020* (No. WHO/2019-nCoV/essential\_health\_services/2020.1). World Health Organization.

Wurie, H. R., Samai, M., & Witter, S. (2016). Retention of health workers in rural Sierra Leone: findings from life histories. *Human resources for health*, 14(1), 3.