

How should community health workers in fragile contexts be supported: Qualitative evidence from Sierra Leone, Liberia and Democratic Republic of Congo

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Abstract

Background Community Health Workers (CHWs) are critical players in fragile settings, where staff shortages are particularly acute, health indicators are poor and progress towards Universal Health Coverage is slow. Like other health workers, CHWs need support to contribute effectively to health programmes and promote health equity. Yet the evidence base of what kind of support works best is weak. We present evidence from three fragile settings - Sierra Leone, Liberia and Democratic Republic of Congo on managing CHWs, and synthesise recommendations for best approaches to support this critical cadre.

Methods We used a qualitative study design to explore how CHWs are managed, the challenges they face and potential solutions. We conducted interviews with decision makers and managers (n = 37), life history interviews with CHWs (n = 15) and reviewed policy documents.

Results Fragility disrupts education of community members so that they may not have the literacy levels required for the CHW role. This has implications for selection, role, training and performance of CHWs. Policy preferences about selection need discussion at the community level, so that they reflect community realities. CHWs scope of work is varied and may change over time, requiring ongoing training. The modular, local, and mix of practical and classroom training approach worked well, helping to address gender and literacy challenges and develop a supportive cohort of CHWs. A package of supervision, community support, regular provision of supplies, performance rewards and regular remuneration is vital to retention and performance of CHWs. But there are challenges with supervision, scarcity of supplies, inadequate community recognition and unfulfilled promises about allowances. Clear communication about incentives with facility staff and communities is required as is their timely delivery.

Conclusions This is the first study that has explored the management of CHWs in fragile settings. CHWs interface role between communities and health systems is critical because of their embedded positionality and the trust they (often) have. Their challenges are aligned to those generally faced by CHWs but chronic fragility exacerbates them and requires innovative problem solving to ensure that countries and communities are not left behind in reforming the way that CHWs are supported.

Introduction

Progress on Universal Health Coverage (UHC) will not be equitable or effective without specific action in Fragile and Conflict Affected Settings (FCAS). While definitions and figures vary, some 2 billion people are estimated to live in FCAS [1]. The share of extreme poor living in FCAS is expected to rise from 17% of the global total today to over 66% by 2030 as a result of shocks such as epidemics, earthquakes, and climate change [1]. In FCAS, access to equitable and quality health services is essential for rebuilding the social and economic fabric of countries [2]. However, health indicators are especially challenging in FCAS compared with the regional and global averages (Table 1). For example, over 60% of the world's child and maternal deaths occur in these settings [3].

Table 1: Health indicators in the 3 study countries, Africa Region and Global (2019)

	Sierra Leone	Liberia	Democratic Republic of Congo	Africa region	Global
Maternal mortality ratio (per 100,000 live births)	1360	725	693	525	211
Under 5 mortality (per 1000 live births)	110.5	74.7	91.1	75.9	38.6
Neonatal mortality rate (per 1000 live births)	33.5	25.1	28.9	27.2	17.7
Incidence of TB (per 100,000 population)	301.0	308.0	377.0	237.0	134.0
UHC tracer index (0-100)	49.5	51.4	43.9	N/A	N/A
SDG Global Rank (out of 162 countries)	155	157	160	N/A	N/A

Sources: World Health Statistics data visualizations dashboard [4]; SDG index and dashboards 2018 [5]

The health workforce is a key component of the health system that underpins the expansion of health services and UHC efforts. Most countries in the global South have a shortage of formal health workers and are increasingly looking to a range of community health workers (CHWs) to fill the gap, and in particular reach the poorest and most marginalised communities. CHWs are arguably critical players in fragile settings, where human resource shortages are particularly acute as health workers may have been killed or fled during conflict or died during disease outbreaks such as Ebola.

Our three countries, provide a unique opportunity to examine management of CHWs in fragile settings. In Sierra Leone and Liberia, the health systems were severely damaged by conflict and further weakened by the recent Ebola outbreak. Health systems responses during and post conflict emphasised the importance of CHWs' understanding of their communities in the management of the outbreak as well as in re-establishing trust with the health system [6-8]. In both countries, the Ebola epidemic has triggered an increased interest and investment in Community Health programmes, with new policies recently rolled out across the countries [9,10]. In Sierra Leone, a revised national Community Health Worker Policy was launched in February 2017 and rolled out nationwide with 15,000 CHWs trained to provide a basic package of services at the community level including: reproductive, maternal, newborn and child health; integrated community case management of sick children; and infection prevention and control. In 2016, the Ministry of Health in Liberia launched its Revised National Community Health Services Policy 2016-2021. It focuses on the development of Community Health Assistants (CHAs – a type of CHW) trained to deliver a package of preventive, curative, promotive, rehabilitative, and palliative services as well as surveillance. CHAs are supervised by Community Health Services Supervisors (CHSS) - a new cadre of health worker who have been formally trained e.g. as a nurse. Previous cadres of community health volunteers (CHVs), for example, traditional midwives and community drug distributors remain in operation and are supervised by CHAs.

Constant conflict, poor governance and infrastructure and an unfavourable business environment have left the DRC one of the poorest countries in the world, with the average Congolese resident living on less than \$US 0.75 per day [11,12]. The recent Ebola outbreak which has continued since 2018 has further weakened an already struggling health system [13]. DRC suffers from a severe shortage of health care personnel, with only 1.05 doctors, nurses and midwives per 1000 population [14]. Relais Communautaires or CHWs play an important role in providing health services to communities in insecure areas, and they are often the only health workers who stay. Supporting CHWs to continue providing services is an important issue. There is no overarching CHW programme in DRC, but CHWs are organised into three categories: Site CHWs (providing a minimum package of community activities, such as distribution of Ivermectin and contraceptives, case management of malaria, diarrhoea and respiratory infections; Promotional CHWs (providing health education to communities); and Disease-programme CHWs (providing specific services for the programme). We will use the term CHW to include CHWs in Sierra Leone and DRC and the CHAs in Liberia. None of these CHWs are salaried but instead receive allowances.

The role of CHWs in fragile contexts is emerging as critical but the evidence base of what kind of support works best is still weak. Like other health workers, CHWs need support to ensure that they contribute effectively to health programmes, health system strengthening and UHC Coverage [15-19]. Management challenges, similar to those of managing other cadres of health worker, relate to improving attraction, retention and performance. While there is some literature on the application of individual human resource management (HRM) practices for CHWs in fragile settings [20-22], there is little evidence on the coordinated HRM approach to support CHWs, whereby HRM practices are designed to not only address expectations but also ensure that the CHW programme meets its goals [6,23]. This paper will present qualitative evidence from three fragile settings on experiences of managing CHWs, and synthesise recommendations for best approaches to support this critical cadre.

Methods

Study design

We used qualitative research methods to explore the management of CHWs in the three settings. This generated in-depth and contextual information about CHWs', managers' and decision makers' experiences and perceptions as well as exploration of reasons behind their answers through probing questions [24,25]. We used three methods: document review, key informant interviews with decision makers and managers, life history interviews with CHWs in Sierra Leone; and document review and key informant interviews only in Liberia and DRC.

Study settings

In Sierra Leone, two districts – Kenema and Bonthe - were selected following discussions between the research team and the CHW Hub in the Ministry of Health and Sanitation. Kenema is in the Eastern Province, is large with urban and rural areas, and was heavily affected by the Ebola outbreak. Bonthe district is in the Southern Province, is hard to reach, riverine with several islands, and was less affected by the Ebola outbreak. We have worked in both districts before and have good working relationships with the District Health Management Teams. In Liberia, we selected two districts in Grand Bassa county: one district where international partners support CHW activities, and one district where there is no current support for programme delivery. The research team has worked in this county before and has good relationships with the health management teams. We also conducted key informant interviews with national level decision makers. In DRC, we worked in Ituri Province, a large province which is mainly rural and has experienced multiple inter-ethnic crises since 1999. As DRC is the second largest country in Africa and has decentralised health management to the provinces, we conducted the study at provincial level. Within Ituri province where our DRC co-author is based and has good relationships with the Provincial and District Health Offices, we selected two districts – Aru district (mainly rural), and Bunia district which (urban).

Data collection

Key informant interviews with decision makers and managers: Using country tailored topic guides, these interviews explored how CHWs are managed and supported. Decision makers and managers were purposively selected based on their involvement in developing community health policies, knowledge of community health programmes and managing CHWs. Table 2 provides an overview of the decision makers and managers included in the study in the three country settings. The research teams in each country conducted the interviews in the participants' workplaces, in English (Liberia), French (DRC), and English or Krio (Sierra Leone), lasting between 40 and 90 minutes. They were recorded following consent of the participants.

Table 2: participants for key informant interviews

	Sierra Leone	Liberia	DRC	Total
Decision makers at national and provincial level	4 (2F; 2M)	3 (3M)	2 (1F; 1M)	9
District level managers	4 (1F; 3M)	3 (3M)	3 (1F; 2M)	10
Facility and community level managers	11 (3F; 7M)	4 (2F; 2M)	3 (1F; 2M)	18
Total	19	10	8	37

(F = female; M = male)

Life history interviews with CHWs (Sierra Leone only): CHWs provided a personal account using their own words of their life and career over time [26,27]. We selected CHWs from the two districts in Sierra Leone, ensuring that we had male and female CHWs, from different villages, and a range of ages and length of experience as a CHW (table 3). CHWs drew a lifeline illustrating their life from birth until the present day, with an emphasis on their jobs and major life events. The researchers used this to explore their career with probing questions around becoming a CHW, their experiences as a CHW, support and human resource management strategies, relationships and interactions with existing cadres in the health system and informal workers, and coping strategies. The interviews were conducted in Krio language and in private rooms in health facilities.

Table 3: Life history interview participants

	Gender		Age (yrs)			Experience (yrs)			Total
	Female	Male	20 -29	30 -39	40+	<5	6 -10	10+	
Kenema	4	4	2	3	3	5	3	0	8
Bonthe	5	2	0	3	3	1	5	1	7
Total	9	6	2	6	6	6	8	1	15

Document review: we reviewed key documents from the Ministries of Health in each country such as CHW policies, guidelines and training materials to answer key questions: What are the different types of CHWs? How are CHWs managed and supported in their work? What are the challenges to implementing CHW programmes? We extracted, summarised and synthesised text for each question.

Analysis

We transcribed all recordings verbatim and where necessary translated into English. We used the thematic framework approach to analyse the qualitative and document review data [28]. All authors participated in the analysis, which brought diverse perspectives and interpretations. Our analysis was informed by the HR and Community Health Worker frameworks (figure 1). We developed a coding index from the topic guides, research objectives, themes emerging from the data and the frameworks. We coded all transcripts, developed charts for each theme and used these charts to describe and explain the themes. The qualitative analysis software, NVIVO, was used to help manage and analyse the data. These themes were discussed and recommendations developed in a participatory workshop with CHWs, managers and decisions makers in Sierra Leone.

Results

We developed a framework to examine the HRM of CHWs in fragile settings (Fig. 1). This draws upon the CHW performance framework by Kok et al. [21] and the HRM approach defined by Armstrong [29] as “a strategic approach to acquiring, developing, managing, motivating and gaining the commitment of ... the people who work in [the organisation] and for it” [page 33]. The HRM processes of attraction and selection, training and development, supervision, provision of supplies and performance management are influenced by the hardware (e.g. policies, guidelines, structures) and software (e.g. values and norms of the actors, relationships between the actors) of the community and health system, and the broader context in which they exist. These influence the HR outcomes such as numbers and characteristics of CHWs and reported attrition. This framework provides the structure for reporting the results.

Figure 1: Framework to examine the human resource management of CHWs in fragile and conflict affected settings

HR outcomes

There were fewer female CHWs in Sierra Leone and Liberia. In Sierra Leone, 14935 CHWs were trained across the country: 10652 males (71%) and 3283 females (29%). In Grand Bassa County, Liberia there were 91 male (90%) and only ten female CHWs (10%). In DRC, Bunia district, there were 480 CHWs, of whom 288 (60%) were female, and in Aru district out of 840 CHWs, 403 were female (48%). In DRC, high attrition rates were reported, especially among younger and male CHWs who leave when they find better job opportunities. In Liberia and Sierra Leone, attrition issues were not reported, probably as the community health policies have only recently been implemented.

Attraction: wanting to serve their community

In Sierra Leone, most CHWs provided community health services before joining the new CHW programme, such as being a traditional birth attendant or contact tracer during the Ebola outbreak. They wanted to continue to serve their communities and save the lives of pregnant women and children. In DRC and Liberia, CHWs were attracted to the role in the expectation of remuneration and wanting to serve their community.

Selection: the tricky issues of literacy and gender

CHW literacy was a requirement in DRC and Liberia only. Fragility disrupts education of community members affecting literacy levels required for the CHW role. In Sierra Leone, some CHWs were unable to read or write which created problems with training, drug administration and reporting. Managers recommended that basic literacy training is needed. In DRC and Liberia, it was challenging to find people with reading and writing skills who wanted this role.

In Sierra Leone and Liberia, the policy states a preference for women, while in DRC, there are equal opportunities for men and women in the selection process. However, in all contexts policy ideals were mediated in practice by gendered community norms. In both Sierra Leone and Liberia, there were more male CHWs. Community-based selection processes, women’s limited voice and presence in community affairs, along with a culture of selecting men for paid work emerged as reasons for more male CHWs in Sierra Leone and Liberia. As one manager explained:

“When it comes to community affairs, only men show up, women don’t, they don’t even talk. Should they show up, then the community members would have selected them.” (District manager, male, Sierra Leone).

In DRC, there were more female CHWs where there were women’s associations. These associations advocate for women and influence husbands’ and relatives’ permission for women to join the programme. *“Here in our health district, where you find nearly half of community health workers are female, there are women associations, but where there are no women associations, you find that there are more male community health workers.”* (District manager, male, DRC)

Training and development – opportunities for learning and supporting each other

In all three settings, CHWs connect communities and the health system, providing basic health care services, health promotion, health surveillance and mobilising communities. In Sierra Leone and Liberia, initial training was done in modules over 1 year or 4 months, with each module focusing on different topics, for example household registration and surveillance, reproductive health, and diagnosis and treatment of common illnesses. Most key informants and CHWs described the training positively, specifically: the mix of classroom training and practical community experience, the provision of a manual, learning how to visit households, communication skills and developing a sense of a cohort amongst the CHWs. One participant in Liberia described: *“In the evening, they will sit in group, ask one another questions... when we were in the training today, what you didn’t understand? - The person will explain, they all put their minds together.”* (Facility manager, female, Liberia)

In Sierra Leone, CHWs with limited literacy found it difficult to use the manual, make notes and review what was learned during the sessions. In Liberia, managers wanted to be more involved in the training so that they could understand what was expected of the new health cadres.

In DRC, training was more ad hoc. It was organised by the district health authorities when new CHWs were selected, or when there were national health campaigns. Female CHWs were less likely to attend training because of their gendered responsibilities within families.

Supervision – complex and challenging

Supervision of CHWs is a complex process and is the responsibility of a variety of different actors within the health system (Table 4). There are some successes with this supervision but also significant challenges.

Table 4
key actors involved in supervision of CHWs in Sierra Leone, Liberia and DRC

<i>Sierra Leone</i>	<i>Liberia</i>	<i>DRC</i>
<p>Peer supervisor (CHWs with additional training): monthly visits to observe the CHWs work, check drug supplies and reports,</p> <p>coordinates monthly meeting of CHWs at Peripheral Health Unit.</p>	<p>CHSS: provides field-based supervision to 10 CHWs working in remote catchment communities, collates reports from CHWs and takes to the facility.</p>	<p>Chair of CHW group: organises monthly meetings, reports to the head nurse, who then reports to the District Health Office.</p>
<p>Peripheral health unit manager:</p> <p>regular visits to each CHW, attend monthly CHW meeting, provides advice and training to CHW, distribute drugs and supplies, compiles CHWs reports and sends to District CHW focal person.</p>	<p>Facility Manager: checks CHWs reports and clarify any issues, and report to the district health team.</p>	<p>Facility head nurse: regular visits to observe CHW work and records, provide training when needed such as implementing a specific programme or when a health problem increases.</p>
<p>District CHW focal person: provides training, visits the CHWs and the peer supervisors, collates reports from facilities and compiles district report for District Health Office and National Hub.</p>		

In Sierra Leone, many CHWs were positive about the peer supervisors, reporting frequent contact and help with completing reports. In DRC, head nurses reported linking their supervision visits to other activities and providing training and advice: *“.. for the supervision, we go on the ground, we see what they are doing ... at the facilities level, there are other orientations, we give them, for example organising census within the health catchment area.”* (Facility manager, female, DRC).

Peer supervisors and the District CHW focal persons in Sierra Leone and the CHSS in Liberia reported no bicycles or transport allowance as a significant barrier to their work. They often travelled long distances, sometimes at their own cost. One CHSS explained the challenges she faced:

"I have to walk on seven hours distance to go for supervision, and then I have to supervise the CHAs on two hours. Before I come back, darkness will catch me and I will sleep there. No compensation. I spend more time in the field, so they should see about compensating me for accommodation and feeding. These things can really affect performance". (Community manager, female, Liberia).

Workload was also cited as a key reason for supervision structures not working effectively. As one key informant in Liberia explained: *'In the policy it says that CHSS will visit the CHA twice a month. The reality is that, some of them have not been able to reach to the CHA to supervise them even once a month. This is because the CHSS must work 20% of their time in the clinic, but the clinic work takes up most of their time.'* (National decision maker, male, Liberia).

In Sierra Leone, the relationship between CHWs and health facility staff is strained in some areas: CHWs feel ignored, are not given drugs or supplies, and are not selected for other community activities despite this being a good income source. One CHW reported being threatened by a manager: *"He also told us that if he had known earlier, he would have removed our names from the programme because we're not cooperative - we don't give him any money from the incentive we are receiving."* (CHW, Sierra Leone, female). Some key informants explained that some health facility staff see CHWs as taking their work (which provides income that supplements their sporadic salary) and being given drugs that are in short supply.

Remuneration – delays and repercussions for retention and performance

In Sierra Leone and Liberia CHWs should be given allowances: in Sierra Leone 100,000 Leones plus 50,000 to 80,000 Leones for transport and other logistics per month (equivalent of US\$18–24); and in Liberia 70USD is provided per month based on provision of a package of health care at the household level through a minimum of four hours work per day.

In both settings there were significant delays in CHWs receiving their allowances. In Sierra Leone, at the time of data analysis, CHWs had not received their allowance due to delays in setting up mobile phones and accounts to receive money. As a result, CHWs used their own money to travel around their community, attend meetings and training. Community members do not help CHWs with their farm work and so CHWs have less time to do health work. In Liberia, bureaucracy between the donor and the Ministry of Health led to payment delays.

In DRC, CHWs are voluntary roles without remuneration. However, they receive some financial compensation if they work for specific programmes, go on training, or from sales of health products such as bed nets. Despite being told about the voluntary nature of their work during the selection process, CHWs still expect to receive financial incentives. As this expectation is not met, they look for other work.

"...as they have to work voluntarily in context where finding a paying job is not easy. So, at the same they have to work for their survival and also for community. In a poverty context, their work is not easy". (District manager, male, DRC)

Provision of supplies - promised but not always received

In Sierra Leone and Liberia, the community health policies emphasise the provision of adequate and quality assured medicines and supplies. In all three countries, challenges in the drug supply chain have led to a delay in CHWs receiving medicines on time to treat patients, meaning their role has become predominantly to make referrals. In both Sierra Leone and Liberia, all supplies pass through the facility before reaching the community. However, most drugs were used at facility level, despite a percentage being allocated to CHWs. In addition, Sierra Leone CHWs reported spending their own money to travel to the health facility only to find either the drugs or the staff not there.

"The distance we cover from our own community to the PHU, we go for drugs and drugs are not available, they will inform us that they haven't received supply." (CHW, male, Sierra Leone)

Despite promises of equipment and materials such as uniform, torches, drugs boxes, stationery and bicycles, most CHWs have not received these items. These are critical to CHW roles and community recognition and trust. In Sierra Leone the lack of drugs led to mistrust between some communities and CHWs:

"Difficult when my child is sick and I need to look after her, and they come with a sick child. I'll take care of the sick child before dealing with my own problem because if you do not take care of the sick child first, their parent will say they brought their sick child to that CHW and she left the sick child to attend to her own child." (CHW, female, Sierra Leone)

Performance management – the challenges of rewarding and sanctioning volunteers

In the three countries, there is no written guidance on how to manage CHW performance. Managers found innovative ways to reward well performing CHWs but found it difficult to sanction poorly performing ones (Table 5).

Table 5
Rewarding and sanctioning CHWs

	Strategies	Challenges
Rewarding CHWs <i>"We think that the high performing CHWs should be recognised and awarded. This will make a big difference to how they feel appreciated".</i> (National decision maker, male, Liberia).	Selecting active CHWs for programme activities where they will be given a financial incentive	Not enough rewards and recognition
	Sharing food or small financial incentives during meetings	Create annual awards, certificates and radio announcement
	Providing verbal praise	Community recognition needs to be stronger in some areas: community members need to support CHWs with their farm work so that they can focus on their health work.
	Assuring CHWs that they have the community's and God's recognition	
Sanctioning CHWs <i>"You know, it is not easy in our context to manage someone who works voluntarily, and does not benefit from financial incentives. It is just too difficult to objectively manage them".</i> (Facility manager, female, DRC).	More closely monitoring the CHWs and providing encouragement	Difficult to dismiss poorly performing CHWs
	Providing additional training and support	Time and resource consuming to replace CHWs
	Talking with the community to try to resolve performance problems	
	Occasionally, threatening not to submit the CHW report to the facility which would prevent them receiving their allowance.	

Discussion

This is the first study that has engaged with CHWs, managers and decision-makers and documented their views and experiences of the CHW programmes in the three fragile settings of Sierra Leone, Liberia and DRC. All settings have experienced, and in the case of DRC are still enduring, conflict and disease outbreaks. All countries are now responding to

Covid-19 outbreaks and the learning here can inform these responses. In Sierra Leone and Liberia, the 2015 Ebola outbreak brought the impetus for change in community health with new policies in both settings, with substantial financial and technical support from international partners. This is in sharp contrast with DRC where there have been no new community health reforms. Resources are scarce and trickle down from central level to provinces and districts. CHWs play a critical role in providing services to communities and linking communities to the health system in these settings. However, there are challenges to managing this cadre of health worker to ensure that they fulfil this role. Here we discuss these challenges and synthesise recommendations for best approaches to support this critical cadre, which are summarised in Table 6.

Opportunities for selection

Conflict and fragility disrupts education of community members so that they may not have the literacy levels required for the CHW role, as seen in all contexts of this study. This has implications for the selection of CHWs, their role, training and performance. Policy preferences about selection need discussion at the community level, so that they reflect the realities of the communities. For example, community acceptability for certain services by a specific gender such as sexual and reproductive health [30–33]. To encourage selection of women there is a need to sensitise communities to encourage women to volunteer and be selected at the same rates as men. When financial incentives are offered, communities select men who they deem more deserving of paid work, but are more likely to leave the role [34, 35]. Further, a lack of visibility of women in public fora limit their selection opportunities as demonstrated in Sierra Leone. Ensuring women's active participation in community dialogue via the creation of spaces where women are listened to and feel comfortable to talk could support this. Women may also be empowered to volunteer when associated with community development programmes or women's groups, as demonstrated in DRC.

Changing roles of CHWs – the need for ongoing supportive training

CHWs are expected to undertake a wide range of activities including service delivery, health promotion and community mobilisation which reflects findings from other studies [6, 22, 36]. These areas will change over time as seen with the Ebola outbreak and the current COVID19 pandemic. For CHWs to work effectively across these areas, substantial pre and in-service training is needed. This study shows that the modular, mix of classroom and practical teaching, and locally based approach worked well in Sierra Leone and Liberia, which helped to develop a sense of a cohort of CHWs who support each other. Building a sense of camaraderie was also shown to be valuable to CHWs undergoing training in Mozambique [35]. Similar approaches should be applied for ongoing training - flexible, module-based approach close to CHWs homes to avoid long periods of time away from household responsibilities. Encouraging peer support is critical for CHW retention and performance. Mechanisms include peer-to-peer discussions at the routine CHW meetings at the health facilities, mobile messaging, and regular in-service training. In the study settings, a key role for CHWs is health surveillance. The new community health policies in Liberia and Sierra Leone were introduced after the 2015 Ebola outbreak, when preventing another outbreak was a national priority. This focus is reflected in the CHW training in Liberia and Sierra Leone, which emphasised household registration and monitoring for disease outbreaks. Critical to effective surveillance is the building of and maintaining trust so that communities are willing to disclose illnesses and seek care, and do not perceive this as "spying". This resonates with the recent Ebola outbreak in DRC where CHWs played an important role in allaying fears about Ebola and supporting the Ebola vaccination campaigns [37].

CHWs need a package of support

Training alone is not the panacea to effective community health programmes [6]. It is clear from this study that a package of supportive supervision, community support, regular provision of supplies, rewarding good performance and regular remuneration is vital to retention and performance of CHWs. But there are challenges with numbers of staff, limited transport and materials for supervision, scarcity of supplies at health facilities for the CHWs, inadequate recognition and support from some communities and unfulfilled promises about financial allowances. Supportive and responsive problem-solving supervision is critical. It should not be just top-down but capture local issues and solutions and inform health

system priorities [38]. Innovations in supervision such as the peer supervisors in Sierra Leone and the CHSS in Liberia take the burden of supervision away from already stretched facility health workers. But for these cadres to really help CHWs, they need adequate support and recognition themselves.

Regular supply of drugs and materials is critical to the role and reputation of CHWs and for securing community recognition and trust. Health systems in fragile settings struggle with ensuring adequate supplies to facilities at all levels and in particular to remote areas because of limited finances for these commodities, weakened infrastructure and unsafe travel [39, 40]. Resources can also be a source of tension between CHWs and health workers as we have seen in Sierra Leone. Perhaps this is a sign of a greater tension of how CHWs fit within the existing health system and how they work with facility health workers. Understanding this tension, and openly talking about this would be a start to addressing this important issue.

Remuneration challenges have been a source of discontent amongst CHWs. CHWs should not be required to spend their own money becoming impoverished through undertaking this role. Out of pocket payments by CHWs, linked to moral economies of care, adds increased financial pressure to those least able to afford it and are not unique to these contexts [41–44]. Clear communication of the incentive package, as well as any delays is needed, not just with the CHWs but with other health workers and communities, so that they understand the constraints under which CHWs may be working. Irrespective of remuneration, community support - helping with farm work, providing transport, and relieving them from other community duties - is needed [35]. Health system actors play an important role in encouraging community structures to support and value CHWs.

Table 6

Key findings and recommendations for management of CHWs in fragile contexts

	Attraction and Selection	Training and Development	Supervision	Remuneration	Provision of supplies	Performance management
Study findings	<p>Literacy and gender played out in selection of CHWs.</p> <p>Fragility disrupts education of community members - CHWs may not have the literacy levels required for role; implications for selection, role, training and performance of CHWs.</p> <p>Selection policy ideals are mediated in practice by gendered community norms.</p>	<p>The modular, local, and mix of practical and classroom teaching approach worked well in Sierra Leone and Liberia, helping to address gender and literacy challenges and develop a cohort of CHWs who support each other.</p> <p>Training in DRC is ad hoc.</p>	<p>Multiple actors involved in supervision.</p> <p>Peer supervision and some facility supervision seen as supportive.</p> <p>There are challenges with overloaded facility staff, limited transport, and limited support for supervisors.</p> <p>In Sierra Leone, relationships between facility health workers and CHWs are sometimes strained.</p>	<p>Delays in remuneration for CHWs in Sierra Leone and Liberia.</p> <p>CHWs use own money to do their work.</p> <p>Community think CHWs are paid and will not provide additional support.</p> <p>DRC CHWs still expect financial incentives, despite volunteer role.</p>	<p>Challenges in the drug supply chain have led to a delay in CHWs receiving medicines on time to treat patients, meaning their role is mainly to refer.</p> <p>Despite promises of equipment and materials most CHWs have not received these items. These are critical to CHW roles, reputation and community recognition and trust.</p>	<p>No written guidance on how to manage CHW performance. Managers use rewards such as selecting active CHWs for programme activities, sharing food or small financial incentives during meetings, and providing verbal praise.</p> <p>Challenging to sanction poorly performing CHWs. Managers used encouragement, closer monitoring, additional training and support, and talking with the community to resolve performance problems.</p>

	Attraction and Selection	Training and Development	Supervision	Remuneration	Provision of supplies	Performance management
Recommendations	<ul style="list-style-type: none"> - Sensitise communities to encourage women to volunteer and to be selected at the same rates as men. - Embed literacy training into CHW training - Support community development groups to create space for women's active participation in community dialogue 	<ul style="list-style-type: none"> - Provide training in a flexible, module-based approach with a mix of classroom and practical teaching - Develop sense of cohort so that CHWs support and learn from each other - Encourage mobile messaging or WhatsApp groups for ongoing peer support - Build ongoing capacity development needs into systems as CHWs roles may change e.g. during COVID19 pandemic. 	<ul style="list-style-type: none"> - Use innovative models e.g. peer supervisors, group supervision - Support the supervisors through training, recognition, and - Capture local issues and solutions to inform health system priorities - Encourage peer- to- peer discussions at the routine CHW meetings at the health facilities 	<ul style="list-style-type: none"> - Clearly and openly communicate remuneration package with CHWs, other health workers and community - Develop robust system for payment and clearly communicate 	<ul style="list-style-type: none"> - Provide drugs and other supplies on a regular basis - Ensure CHW supplies are allocated to CHWs - Encourage sharing of resources within health system 	<ul style="list-style-type: none"> - Reward good performance through recognition by peers and health system - Encourage community support and value - Develop a career pathway for both female and male CHWs

This study draws upon multiple countries and perspectives at different levels within the health systems, which allows the findings to be relevant for other fragile settings. Although the studies in DRC and Liberia were less detailed and did not include CHW voices, they involved key staff knowledgeable about the CHW programmes. By using a team approach to analysis, including people with differing professional and geographical backgrounds, we ensured that different perspectives were incorporated in the analysis. The participatory workshop in Sierra Leone enabled the findings to be validated with CHWs and key stakeholders, and recommendations for managing CHWs to be developed grounded in the realities of fragile settings. Engagement of key stakeholders in this workshop illustrated their willingness to use research findings to adapt the policy and its implementation.

Conclusion

In contexts of fragility and crisis, including disease outbreaks, CHWs interface role between communities and the health system is critical because of their embedded positionality and the trust they (often) have. Their role is further amplified due to severe human resource shortages particularly in rural areas. Common to all CHWs, they need support from an HRM perspective to make sure they can fulfil this role. CHWs, particularly in FCAS settings, have the most challenging of jobs and this is where HRM systems need to be built around them and respond to their particular evolving realities and contexts.

Abbreviations

CHW
Community Health Worker
CHSS
Community Health Services Supervisors (CHSS)
DRC
Democratic Republic of Congo
FCAS
Fragile and Conflict Affected Settings
HR
Human Resources
HRM
Human Resource Management
UHC
Universal Health Coverage

Declarations

Ethics approval and consent to participate

Ethical approval for the study was obtained from the Liverpool School of Tropical Medicine Research Ethics Committee (17–044), the Sierra Leone Ethics and Scientific Review Committee, Ministry of Health and Sanitation, the DRC Ministry of Research Multidisciplinary Centre for Development Bunia (024/2017), and University of Liberia Pacific Institution for Research and Evaluation Review Board (16-09-009). Rigorous informed consent processes and mechanisms to assure confidentiality in data collection, analysis and storage were followed.

Consent for publication

Not applicable.

Availability of data and materials

The datasets are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

JR conceptualised and designed the study, coordinated the data collection, supported the analysis and interpretation of the data and drafted the manuscript. HW, AI, AJB contributed to the design of the study, collected analysed the data in Sierra Leone, and reviewed drafts of the manuscript. GN, KK, LD contributed to the design of the study, collected and analysed the data in Liberia and reviewed drafts of the manuscript. AB, RS contributed to the design of the study collected and analysed

the data in DRC and reviewed drafts of the manuscript. TM contributed to the analysis and interpretation of the data, and reviewed drafts of the manuscript. ST contributed to the conceptualisation and design of the study, analysis and interpretation of the data, and reviewed drafts of the manuscript. All authors read and approved the final manuscript.

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Figures

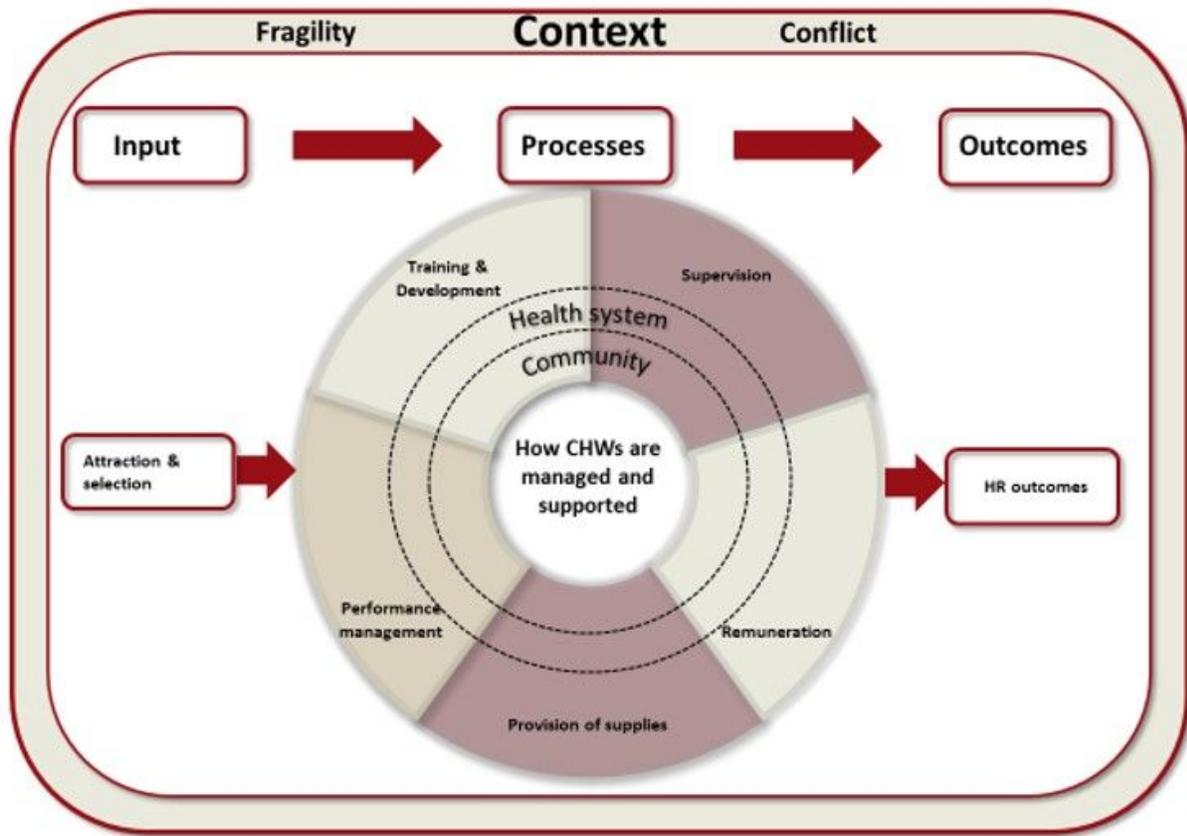


Figure 1

Framework to examine the human resource management of CHWs in fragile and conflict affected settings