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Research Article

Function, Collaboration and Challenges of Community Health Workers in the Congolese Health System: A Qualitative Multi-Stakeholder Study in the Health District of Dolisie

Fonction, Collaboration et Défis des Agents de Santé Communautaire dans le Système de Santé Congolais : Une Étude Qualitative Multi-Acteurs dans le District Sanitaire de Dolisie

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RÉSUMÉ

Introduction. The Republic of Congo, facing shortage and unequal distribution of the health workforce, is increasingly relying on community health workers (CHWs) to strengthen primary care. This research aims to analyze the organization, dynamics, and challenges of collaboration between CHWs and healthcare professionals in Congo. **Methodology.** A qualitative approach was adopted based on in-depth, semi-structured interviews and focus groups with community health workers (CHWs), health professionals, community leaders, and health authorities in the Dolisie health district. **Results.** A total of 22 interviews and three focus groups were conducted with CHWs, health professionals, community leaders, and health authorities. The most represented age group was the under 35 years of age with a feminine predominance (57%). Most of them were trained in the community's Minimum Package of Activities (MAP) and intervened within their own community. Almost all participants recognized the importance of community health workers (CHWs) in primary care. The results showed that CHWs provide a critical link between communities and health services, including awareness, prevention, and case referral. Collaboration, although hierarchically organized, is also based on informal and community dynamics. It is facilitated by proximity, shared goals, and local trust but is hampered by limited supervision, lack of continuous training, insufficient institutional recognition, and irregular financial incentives. **Conclusion.** Community health workers play a crucial role in linking communities with health services. However, their impact is hampered by precarious status, a lack of recognition, and resources.

ABSTRACT

Introduction. La République du Congo, confrontée à une pénurie et à une répartition inégale du personnel de santé, s'appuie de plus en plus sur les agents de santé communautaires (ASC) pour renforcer les soins primaires. Cette recherche vise à analyser l'organisation, la dynamique et les défis de la collaboration entre les ASC et les professionnels de santé au Congo. **Méthodologie.** Une approche qualitative a été adoptée, basée sur des entretiens approfondis, semi-structurés et des groupes de discussion avec des agents de santé communautaires (ASC), des professionnels de santé, des leaders communautaires et des autorités sanitaires dans le district de santé de Dolisie. **Résultats.** Au total, 22 entretiens et trois groupes de discussion ont été menés avec des ASC, des professionnels de la santé, des leaders communautaires et des autorités sanitaires. Le groupe d'âge le plus représenté était celui des moins de 35 ans avec une prédominance féminine (57%). La plupart d'entre eux ont été formés au Paquet Minimum d'Activités (PMA) de la communauté et sont intervenus au sein de leur propre communauté. Presque tous les participants ont reconnu l'importance des agents de santé communautaires (ASC) dans les soins primaires. Les résultats ont montré que les ASC constituent un lien essentiel entre les communautés et les services de santé, notamment en matière de sensibilisation, de prévention et d'orientation des patients. La collaboration, bien que hiérarchiquement organisée, est également basée sur des dynamiques informelles et communautaires. Elle est facilitée par la proximité, les objectifs communs et la confiance locale, mais elle est entravée par une supervision limitée, un manque de formation continue, une reconnaissance institutionnelle insuffisante et des incitations financières irrégulières. **Conclusion.** Les agents de santé communautaire jouent un rôle crucial dans l'établissement de liens entre les communautés et les services de santé. Cependant, leur impact est entravé par un statut précaire, un manque de reconnaissance et de ressources.

HIGHLIGHTS OF THE STUDY

What is known: Community Health Workers (CHWs) are deployed in many countries to address the shortage of healthcare staff and improve access to primary care, particularly in rural and peri-urban settings.

The question this study addresses: Function, collaboration and challenges of community health workers in the Congolese health system and factors that facilitate or hinder this synergy.

Key Findings

1. 22 CHWs were studied and most of them were aged 35 years or less with a feminine predominance (57%). They were trained in the community's Minimum Package of Activities (MAP) and intervened within their own community.
2. This qualitative research showed that CHWs provide a critical link between communities and health services, including awareness, prevention, and case referral. Collaboration, although hierarchically organized, was also based on informal and community dynamics.
3. While proximity and local trust are powerful facilitators, the absence of institutional recognition, adequate supervision, and stable incentives undermined this crucial partnership

Implications for practice and policies

Congolese policymakers must institutionalize the role of CHWs through an official status, continuous training plans, dedicated supervision mechanisms, and a sustainable incentive system. This is necessary to optimize their integration into the health system and maximize their impact on population health

INTRODUCTION

The global shortage of human resources for health (HRH) poses a critical challenge, especially in low- and middle-income countries. According to the WHO, approximately 18 million health workers are lacking worldwide, including 4.2 million in sub-Saharan Africa, exacerbating inequalities in healthcare access and hindering progress toward universal health coverage (UHC) and the Sustainable Development Goals (SDGs)[1, 2]. To address this, the WHO recommends strengthening the integration of community health workers (CHWs), who are trained to provide basic care and health education and serve as a liaison between communities and health facilities[1, 3]. Continuous collaboration and supervision by health professionals are essential to improve health outcomes[4, 5]. Successful CHW programs in Rwanda, Ethiopia, and Brazil have demonstrated significant improvements in maternal and child health and health equity, supported by adequate training, regular supervision, and strong institutional frameworks [6–9]. However, in the Republic of Congo, scientific literature on CHW-health professional collaboration remains scarce. Existing studies, primarily from neighboring contexts such as the DRC, highlight supervision and coordination challenges in fragile settings, but do not capture local specificities[10–12]. With a health workforce density of 1.0 per 1,000 people, far below the WHO recommendation of 4.45 [2, 13], the Republic of Congo faces a strategic imperative to strengthen its health human resources through sustainable, integrated solutions. Effective collaboration, defined as structured, continuous interaction characterized by two-way communication, functional coordination, mutual role recognition, and joint problem solving, could be a key organizational response[4, 5, 8]. In this context, this qualitative study aimed to explore the nature and functioning of CHW-health professional collaboration in the Dolisie Health District in the Republic of Congo, analyzing organizational modalities and determinants of partnership to inform more inclusive and efficient health policies. Specifically, it seeks to answer the following questions: What is the nature of the interactions and collaborative dynamics between community health workers and health professionals in the district? What factors facilitate or hinder effective collaboration between these two categories of actors?

PATIENTS AND METHODS

2.1. Type of study

This interpretive qualitative study used recognized methods in public health to understand the perceptions, experiences, and interactions of actors involved in the collaboration between health professionals and community health workers (CHWs). This approach aims to explore the relational and organizational dynamics in depth, making it possible to grasp the factors facilitating or hindering effective collaboration. The use of interpretive qualitative methods is common in social epidemiology and health sciences to analyze complex phenomena related to behaviors and practices in a real-world context[14].

2.2. Study setting, period and participants

2.2.1 Study Setting and Timing

This study was conducted in the Health District of Dolisie in the Department (Region) of Niari in the Southern Republic of Congo. The district has 12 integrated health centers and a predominantly rural district hospital, with an estimated population of 334,863, and includes the commune of Dolisie (the country's third largest city), the district of Louvakou, and the urban community of Makabana. In the context of limited human resources in Congo, community health workers (CHWs) play a crucial role in providing primary healthcare in this health district. The survey was conducted between March 30 and June 30, 2025. The study sites were selected to reflect the geographic, demographic, and organizational diversity of the districts. It covered four semi-urban health areas located in the commune of Dolisie: Bacongo 1, Bacongo 2, Dimebeko, and Moupepe, and a rural health area (Passi-Passi) located in the district of Louvakou. The choice of these sites was based on a combination of several criteria: their demographic weight (for example, the areas of Bacongo have an average of 6,365 inhabitants, compared to an average of 7,264.5 for the other health areas in the district), their geographical and financial accessibility, the need for human resources (the two areas of Bacongo have only two CHWs in total) and the availability of healthcare professionals and CHWs to participate in the study.

The same criteria guided the choice of the Passi-Passi, Integrated Health Centre (IHC), which serves a population of 1,321 inhabitants, slightly below the average observed in the rural areas of the district (1,505 inhabitants).

Population and sampling

Interest-based sampling was used to select community health workers (CHWs) (community relays and associative workers), health professionals (doctors, nurses, midwives, heads of centers), health officials, community leaders (health committee chairs), and representatives of technical and financial partners (TFPs). The participants were chosen based on their experience and involvement in collaboration between CHWs and health facilities. This method was used to ensure the diversity and relevance of the data collected [14]. The sample size was determined according to the saturation principle, which was achieved when new data no longer provided meaningful information. The study included five heads of integrated health centers, three health service managers, two health committee chairs, one representative of TFPs, as well as several CHWs and frontline health professionals.

2.3. Data collection

The data collection combined several complementary qualitative methods. In-depth, semi-structured interviews were conducted with CHWs and healthcare professionals to explore their perceptions and experiences of collaboration. Focused discussion groups made it possible to bring out points of convergence and divergence in the practices, obstacles, and levers of the partnership. A literature review of the reports, directives, and protocols governing the work of CHWs completed the survey by providing institutional insights.

The tools used included interview guides, observation grids, SWOT matrices, and life story templates adapted to the participants' profiles. The exchanges took place in French, Kituba, and Lingala depending on the language of preference. Each session lasted between 45 and 90 minutes, was recorded with consent, and was enriched with field notes.

The principles of confidentiality, verbal informed consent, anonymity, and voluntary participation have been rigorously applied. The study received approval from the local health authorities and community stakeholders.

2.4. Data analysis

The interviews and focus groups were recorded, transcribed in full, anonymized, and analyzed using a thematic approach combining inductive and deductive methods, inspired by conceptual frameworks from the social sciences and work on interprofessional collaboration (1,2). Coding was performed both manually (using Microsoft Word) and NVivo software (version X.X) to ensure rigor, traceability, and organization of the data.

The analysis followed a three-step strategy:

1. Thematic analysis: All transcripts were coded according to categories aligned with the research objectives (functioning of the collaboration, roles and responsibilities, perceptions, and determinants). A color code was applied to distinguish the major themes.
2. Content analysis: The themes were grouped into units of meaning and interpreted according to the types of actors and geographical context (urban/rural).
3. Discourse analysis: Speech was examined in terms of forms of expression, level of language, and narrative structures to identify implicit and explicit perceptions.

A triangulation of sources was carried out between data from interviews, focus groups, documents analyzed, and field observations. Data saturation was considered to be reached when no new information emerged from successive interviews.

RESULTS

Profile of participants

The participants included 11 health workers, 21 community health workers (CHWs), six community leaders, and local health workers. The majority of the health professionals were male civil servants aged between 36 and 65 years. In contrast, the CHW group was characterized by a younger population, with 85.7% of individuals under 35 years of age and moderate feminization (57%). Most CHWs were engaged in other activities, such as market gardening or teaching. Most of them were trained in the community's Minimum Package of Activities (MAP) and intervened within their own community, thus strengthening the local anchoring of their actions. Organization and modalities of collaboration between CHWs and health professionals.The collaboration is based on hierarchical supervision by the head nurses and managers of the integrated health centres (IHCs), with field visits and regular meetings, which are more frequent in semi-urban areas than in rural areas.

Exchanges are based on periodic meetings, written reports, phone calls, and sometimes WhatsApp groups, although access to digital tools is uneven depending on the area. Joint visits promote mutual understanding and problem solving, but their organization remains irregular, mainly due to logistical constraints and a lack of resources in remote areas. Community involvement of community health workers

Almost all participants recognized the importance of community health workers (CHWs) in primary care. Their geographic proximity, knowledge of the environment, and door-to-door approach facilitate the link between the community and the health system. CHWs are involved in vaccination, HIV/TB follow-up tracing, awareness raising, case referral, and drug distribution. As C.E., head of CSI, puts it: "Today, we are proud to obtain results thanks to community health workers. They are the bridge between us and the people... »

However, several limitations were highlighted, such as the insufficient number of CHWs, precariousness of the means (often delayed and insufficient forfeits, inadequate equipment, irregularity of their presence, and low community involvement in their selection).

Roles and responsibilities of CHWs

Community health workers (CHWs) conduct five main missions: community awareness (HIV, malaria,

vaccination, antenatal consultations), screening (malaria, malnutrition, HIV, tuberculosis), treatment of simple cases, active tracing of lost women and unvaccinated children, as well as monitoring and monitoring in their community. This diversity of activities reflects their involvement in prevention, primary care, and community mobilization. Several CSI officials have indicated that CHWs are sometimes asked to contribute directly to the improvement of indicators, particularly in terms of vaccination coverage. One of them specifies: "Among the responsibilities of the CHWs... The centers sometimes ask them to increase vaccination coverage by 20% to 80%. F.O., 42 years old, head of the CSI. The CHWs interviewed reported carrying out these missions while carrying out other professional activities (market gardening, teaching, small businesses), which influences their availability and regularity of intervention in the field.

Shared perceptions of collaboration

The health professionals interviewed expressed an overall positive assessment of the work carried out by the community health workers (CHWs). They highlight their essential contribution to the achievement of public health objectives, particularly in the areas of vaccination, monitoring of pregnant women, and the recovery of patients lost to follow-up. As C.K., a volunteer childcare worker, points out: "They are an extension of the health centers. Thanks to them, the loss of sight comes back, and the targets are reached. Several professionals believe that CHWs are an essential interface between health care structures and remote populations. Their local roots, mastery of languages, and ability to mobilize communities are seen as major assets.

However, frustration is emerging regarding the organizational limits of this collaboration. Professionals deplore frequent delays in the payment of lump sums allocated to CHWs, the precariousness of their working conditions, and a lack of clear statutory recognition. Some believe that this instability is detrimental to the motivation and availability of CHWs, thereby reducing their effectiveness in the field.

On the CHW side, there is a strong desire for institutional recognition and enhancement. Most of the agents interviewed wanted to be officially integrated into the health system with a formal status, a clear contract, and improved working conditions. As J.K. ASC says, "What motivates us is the love of work. But the packages are not much.... We deal with it. We want a real contract and a real status. They talk about their daily commitment to the population, often carried out in parallel with other income-generating activities and insist on the need to strengthen their social security, remuneration, and visibility.

Several CHWs acknowledge the quality of the coaching provided by the CSI Chiefs and District Managers but point out that it remains too ad hoc and often limited to the validation of activity reports. They are asking for more local supervision, more regular technical support, and adapted logistical means (transport, work tools, and protective equipment). These elements are essential for improving the effectiveness and sustainability of communities' actions.

Determinants of collaboration between community health workers (CHWs) and health professionals.

Determinants of CHW-Healthcare Professional Collaboration

Factors facilitating collaboration between CHWs and health professionals include, first and foremost, the initial and continuing training of CHWs, which ensures a certain homogeneity in practices and strengthens their technical skills. Regular supervision by integrated health centers (IHCs) and health district teams is also an essential lever, promoting the support of CHWs in the field and monitoring of activities. The perceived complementarity between health professionals and CHWs contributes to a better distribution of roles and the mutual recognition of skills. In addition, CHWs' mastery of local languages, combined with their community roots, facilitates social acceptance and accessibility of the services offered to the population.

Structural and Operational Constraints to CHW-Healthcare Professional Collaboration

The identified constraining factors include a marked disparity in professional status between the different actors in the health system, particularly between civil servants, volunteers, and CHWs, generating tensions in the dynamics of collaboration. Recurring delays and low levels of payments to CHWs are major sources of demotivation and instability. In addition, there is a chronic shortage of medicines, with available allocations covering, on average, only 20% of the needs expressed. Logistical shortcomings, including the lack of transport, basic equipment, and social security coverage, severely limit the operational capacity of CHWs. Finally, the residential mobility of some CHWs affected their availability and continuity of involvement in community activities.

DISCUSSION

The results of this study provide a better understanding of the dynamics of collaboration between community health workers (CHWs) and health professionals in the Dolisie Health District. They confirm the strategic importance of CHWs in the functioning of primary healthcare, while highlighting the structural limitations that hinder fully efficient collaboration. CHWs play an essential role in mediating between health services and population. Their sociocultural roots, accessibility, and knowledge of local contexts strengthen their capacity to raise awareness, detect cases early, refer patients, and monitor treatment within communities. This so-called "bridge" function has been widely documented in other contexts, notably in Ethiopia, Benin, and Uganda[5, 14, 15], and is a key lever for the performance of decentralized health systems. However, in case studies, this centrality remains under-exploited. The lack of a clear legal framework, weakness of material incentives, and lack of symbolic recognition create a precarious status that limits the mobilization of CHWs in the long term. This finding is in line with those of other studies conducted in West Africa, which point to

a persistent gap between the political discourse valuing CHWs and actual support and integration mechanisms [8, 16]. In the field, collaboration between CHWs and health professionals is based on practical relationships, which are often functional but not institutionalized. The collaboration model observed remains essentially vertical, based on a top-down logic of supervision, with marginal involvement of CHWs in the planning and evaluation of interventions. This contrasts with the principles of interprofessional collaboration in health, which require mutual recognition of roles, structured communication, and shared decision making [4, 17]. Research in other countries in the Global South, such as Bangladesh and Mozambique, has shown that more horizontal relationships between professionals and CHWs can lead to more effective interventions and better community adherence to health recommendations[18, 19]. In this context, strengthening the complementarity between biomedical and community knowledge appears to be fundamental. The tension between volunteering and professionalization is a structuring dimension of the experiences of CHWs. Their commitment, often motivated by community and social considerations, is tested by their lack of financial security and prospects for development. This ambivalence is widely shared on a continental scale, where CHWs are sometimes seen as volunteers and sometimes as providers without formal status [20]. This statutory indeterminacy contributes to the instability of the system, progressive demotivation, and frequent departure. The literature emphasizes that the performance and sustainability of CHW systems depend largely on their formal integration into national health human resource policies [1, 21]. Successful experiences, such as in Rwanda, show that clear contractualization and strong institutional support can strengthen the commitment [22]. Although existing, the supervision of CHWs remains heterogeneous in intensity and quality. In several areas, it is limited to administrative control without any real technical support. However, studies converge in underlining the importance of formative supervision, focusing on problem solving as a key determinant of the quality of community services [4, 5]Establishing regular feedback mechanisms between CHWs and health structures could significantly improve the coordination of actions in the field. In addition, the use of digital tools, although marginal in the context of Dolisie, appears to be a promising lever. Mobile applications for community monitoring (e.g., CommCare and mTRAC) have been shown to be effective in countries such as India and Kenya, facilitating data transmission, remote supervision, and case monitoring [19, 23]. However, generalization of these tools requires material investment, adequate connectivity, and continuous training. Finally, the involvement of CHWs in decision-making spaces (health committees and district meetings) remains low, limiting their ability to assert community needs and participate in the definition of local priorities. More inclusive governance based on the effective participation of CHWs could strengthen the legitimacy and effectiveness of community health policies [18]. The results of this research, although localized, present important elements of convergence with studies conducted in similar contexts, both in Africa and Asia. These convergences make it possible to envisage a certain external validity of the data, particularly in environments characterized by a high degree of precariousness of resources, low medical density, and dependence on international funding. To strengthen this validity, multi-site comparative research is necessary, including districts with different levels of institutionalization of CHWs, or French-speaking countries sharing similar configurations (e.g., Burkina Faso, Niger, DRC). Despite these interesting results, this study had several limitations that must be considered. First, the small size and localized nature of the sample, centered on the district of Dolisie, limits the generalization of the findings to other regional or national contexts. Second, the qualitative method, based mainly on semi-structured interviews, can introduce a social desirability bias, particularly in the declarations of community health workers concerning their supervision and working conditions. In addition, the lack of objective quantitative data (coverage rate and performance indicators) prevents direct correlation between the perceptions collected and health outcomes. Finally, partnership with a technical actor (CRS) during data collection may have influenced the observed modalities of collaboration, particularly in aspects related to funding and supervision. These limitations suggest the need for complementary studies in a variety of contexts, using mixed approaches and integrating a wider diversity of actors to strengthen the external validity of the results.

CONCLUSION

Community health workers play a crucial role in linking communities with health services. However, their impact is hampered by precarious status, a lack of recognition, and resources. Strengthening institutional integration and supervision is essential for improving collaboration and the quality of care. These findings call for clear policies and in-depth research to sustainably support CHWs.

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Ethical Compliance

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data Access Statement

Research data supporting this publication are available from the google drive repository at located at https://drive.google.com/drive/folders/1qWhBD6vrQR2VH6TgLWynKQsP6v_sz_qy

Conflict of Interest declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any

financial interest in the subject matter or materials discussed in this manuscript.

Author Contributions

Reiche Diauvani Massengo Nsongola (Rdmn) And Gilbert Ndziessi (GN), Joseph Axel Ngatse; Ange Clauvel Niama, Gerard Eloko Matangelo; Pascal Lutumba and Aline Labat contributed to the design and implementation of the research, Martin Yaba, RDMN, GN to the analysis of the results and to the writing of the manuscript. Elisabeth Paul reviewed the final version of the manuscript. RDMN and GN conceived the original and supervised the project.

REFERENCES

[1] WHO. *Global strategy on human resources for health: workforce 2030*. World Health Organization, 2016.

[2] WHO. *Health workforce requirements for universal health coverage and the Sustainable Development Goals. (Human Resources for Health Observer, 17)*. World Health Organization, https://iris.who.int/handle/10665/250330 (2016, accessed 6 August 2025).

[3] WHO. WHO guideline on health policy and system support to optimize community health worker programmes, https://www.who.int/publications/i/item/9789241550369 (accessed 6 August 2025).

[4] D'Amour D, Ferrada-Videla M, San Martin Rodriguez L, et al. The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care* 2005; 19: 116–131.

[5] Kok MC, Broerse JEW, Theobald S, et al. Performance of community health workers: situating their intermediary position within complex adaptive health systems. *Hum Resour Health* 2017; 15: 59.

[6] Musabyimana A RP Thomson DR. Evaluation of Rwanda's Community Health Worker Program: Impact on maternal and child health indicators. *Glob Health Sci Pract* 2021; 478-489.

[7] Binagwaho A, Scott KW. Improving the world's health through the post-2015 development agenda: perspectives from Rwanda. *Int J Health Policy Manag* 2015; 4: 203–205.

[8] LeBan K, Kok M, Perry HB. Community health workers at the dawn of a new era: 9. CHWs' relationships with the health system and communities. *Health Res Policy Sys* 2021; 19: 116.

[9] Etshumba L, others. Community Care Sites in the DRC: Analysis of Implementation and Challenges. *Health Policy and Planning* 2018; 33: 458–467.

[10] Raven J, Wurie H, Witter S. Health workers' experiences of coping with the Ebola epidemic in Sierra Leone's health system: a qualitative study. *BMC Health Services Research* 2018; 18: 251.

[11] Diaconu K, Witter S, Dakessian A, et al. Fragile, handle with care: refining a key concept for global health and development. *BMJ Glob Health* 2023; 8: e012956.

[12] Bitongwa Masumbuko Jacques1 2. Déterminants de la résilience des systèmes de santé: Cas des zones de santé post conflit de Bunyakiri et de Kalehe en province du Sud-Kivu, Est de la RDC. *Humanities & Natural Sciences Journal* 2025; 6: 329–339.

[13] Ministère de la santé et de la population. Plan national de developpement sanitaire (PNDS) 2023-2026, https://sante.gouv.cg/plan-national-de-developpement-sanitaire-2023-2026/ (2024).

[14] Patton MQ. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. SAGE Publications, 2014.

[15] Maes K, Closser S, Tesfaye Y, et al. Volunteers in Ethiopia's women's development army are more deprived and distressed than their neighbors: cross-sectional survey data from rural Ethiopia. *BMC Public Health* 2018; 18: 258.

[16] Perry HB, Zulliger R, Rogers MM. Community Health Workers in Low-, Middle-, and High-Income Countries: An Overview of Their History, Recent Evolution, and Current Effectiveness. *Annu Rev Public Health* 2014; 35: 399–421.

[17] WHO. *Framework for action on interprofessional education and collaborative practice*. World Health Organization, https://apps.who.int/iris/bitstream/handle/10665/70185/WH?sequence=1 (2010, accessed 17 June 2024).

[18] Gilson L, Lehmann U, Schneider H. Practicing governance towards equity in health systems: LMIC perspectives and experience. *Int J Equity Health* 2017; 16: 171.

[19] Agarwal S, Sripad P, Johnson C, et al. A conceptual framework for measuring community health workforce performance within primary health care systems. *Hum Resour Health* 2019; 17: 86.

[20] Uta Lehmann DS. 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. *CHW Central*, https://chwcentral.org/resources/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/ (2013, accessed 12 March 2023).

[21] WHO. Community health worker assessment and improvement matrix (CHW AIM), https://www.unicef.org/media/58176/file (2021).

[22] Ballard M, Westgate C, Alban R, et al. Compensation models for community health workers: Comparison of legal frameworks across five countries. *J Glob Health* 2021; 11: 04010.

[23] UNICEF. mTrac: Uganda's mobile health reporting system, https://www.data4sdgs.org/sites/default/files/2018-09/mTRAC%20CaseStudy_FINAL.pdf (2019).