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EDITED BY
Cüneyt Çalışkan,
University of Health Sciences, Türkiye

REVIEWED BY
Kerem Kinik,
University of Health Sciences, Türkiye
Ahmet Doğan Kuday,
Bezmialem Vakıf University, Türkiye

*CORRESPONDENCE
Cora P. Nally
✉ cora.nally@ugent.be

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Bridging the gap: community health workers as a vital link in humanitarian medical responses

Cora P. Nally[1]*, Patrick Van de Voorde[2], Marleen Temmerman[1,3], Adama Koroma[4], Monique Mitchell[5] and Mary B. Adam[6]

[1]Ghent University, Ghent, Belgium, [2]Ghent University Hospital, Ghent, East Flanders, Belgium, [3]Centre of Excellence for Women and Child Health, Aga Khan University, Nairobi, Kenya, [4]Public Health Consultant, Freetown, Sierra Leone, [5]Ministry of Health Bahamas, Nassau, Bahamas, [6]Kijabe Hospital, Kijabe, Kenya

Community Health Workers (CHWs) have proven essential in improving health outcomes and building community trust and their role in humanitarian emergency medical responses warrants further study. We illustrate this point with two case studies, the integration of community health workers into Mobile Medical Teams [MMTs] in both The Bahamas and Sierra Leone. CHWs in these examples came to the forefront of addressing community mistrust for external medical teams, health communication efforts and patient follow-up care. In Sierra Leone, this program resulted in a 32% rise in referrals to established health services. By exploring these contexts, the paper provides a new framework for enhancing humanitarian responses through CHWs, outlining the strategic, logistical, and cultural benefits of such an approach. This research suggests that integrating CHWs with MMT's can bolster health outcomes, especially in communities affected by political instability, natural disasters, and resource limitations. The paper ends by providing policy implications and recommendations for further research on the use of CHWs during a range of emergency contexts.

KEYWORDS

Community Health Worker (CHW), Mobile Medical Team (MMT), Sierra Leone Ebola database, Hurricane Dorian 2019, community based programs, humanitarian response

Introduction

Humanitarian emergencies often require rapid, large-scale medical responses, frequently provided by international organizations such as Mobile Medical Teams (MMT) or the WHO Emergency Medical Teams (EMTs). However, despite their critical role in saving lives, MMT/EMTs can face challenges in gaining the trust of local populations (1, 2). These external teams are deployed to affected areas to provide triage of patients and immediate medical care, while local healthcare systems are stressed or fractured. External teams can help to support local rebuilding of local healthcare systems during and after the immediate crisis. These external clinical teams often face numerous challenges in delivering effective healthcare services. Some of these challenges include: lack of language proficiency and other communication barriers, limited resources and supplies, fractured supply chains, lack of familiarity with culture, high workload and stress, broken or destroyed infrastructure, as well as fear and inadequate support from the surrounding community (2, 3).

Community Health Workers (CHWs) are recognized for their ability to serve as bridges between healthcare systems and local communities, particularly in under-resourced areas (4, 5). Although there is some research on the role of CHWs in

humanitarian medical responses, it is contextually limited. Consequently, despite their success in non-emergency settings, the potential of CHWs in these situations remains underutilized and insufficiently explored. This paper explores the integration of CHWs into MMT/EMT responses, demonstrating how this collaboration can improve patient trust and communication, resulting in improved outcomes.

Community Health Workers (CHWs) play a vital role in humanitarian settings, serving as a bridge between healthcare systems and affected populations. They are critical for engagement during crisis scenarios, drawing upon local knowledge and trust to implement health interventions and promote disease prevention (4). For example, during the West African Ebola epidemic, CHWs were instrumental in mobilizing communities, disseminating health information, and addressing cultural beliefs that influenced health behaviors (2). Additionally, CHWs contribute to the rebuilding of health systems post-conflict, as evidenced by their impact in Sierra Leone, where they helped restore health services and foster community resilience (3). However, the effectiveness of CHWs is often contingent upon the integration of health diplomacy and support from larger humanitarian frameworks, which can enhance their operational capacity during emergencies (1). Strengthening CHW programs is essential for improving health outcomes in humanitarian crises, as they not only provide immediate care but also empower communities to participate in their health governance.

Globally efforts have been made in the past decades to standardize these external medical teams to ensure they are delivering medical care ethically to the impacted communities. The WHO has a global emergency medical team program that sets standards for mobile medical teams and allows organizations and countries to be verified as World Health Organization Emergency Medical Team (WHO EMT) providers. Once verified, these groups affirm their commitment to provide services in a standardized, coordinated effort to support communities impacted by disasters (1).

When a clinical medical team, MMT/EMT, is dropped into a response setting the government has invited them to come and deliver health care directly to the impacted population. While effective in delivering care, the model faces limitations in building trust with local populations and ensuring continuity of care post-discharge (3). They can also face difficulty coordinating within the local health system and with impacted communities (22). MMT/EMTs are typically composed of foreign medical professionals, which can inadvertently distance them from the communities they serve. In fragile settings, this gap can severely impact the acceptance of medical interventions, especially in the context of widespread misinformation or pre-existing distrust of international organizations (1, 14, 21). In such cases, the local knowledge and cultural competence of CHWs offer a potential solution to bridge this gap.

Context in which the innovation occurs

Disruption to systems emerge as a consistent factor in humanitarian response, whether triggered by infectious agents like Ebola or Coronavirus Disease, natural calamities such as earthquakes or hurricanes, or human conflicts. Such disruptions invariably lead to the breakdown of essential systems, resulting in scarcities of basic necessities like food and clean water, heightened healthcare demands due to the loss of routine medical services like midwifery, and the collapse of infrastructure. Consequently, medical services, supply chains, and infrastructure often suffer, leaving families bereft of loved ones and devoid of shelter and possessions. Amidst this turmoil, trust becomes a scarce commodity, with individuals grappling with uncertainty regarding whom to rely on.

In crisis situations, Community Health Workers (CHWs) and Mobile Medical Teams (MMT/EMT) hold complementary roles that are critical for effective health response and recovery. CHWs, traditionally embedded within local communities, serve as important pathways for health information and services, addressing immediate health needs while fostering community engagement and trust (4, 5, 14). During the Ebola epidemic in West Africa, for example, CHWs played a key role in educating communities about disease prevention and mobilizing local resources to combat the outbreak (2). MMTs and EMTs provide specialized medical care and logistical support, often deploying rapidly to areas affected by disasters to stabilize health systems and manage acute medical needs (7). The integration of these teams with CHWs enhances the overall effectiveness of humanitarian responses, as CHWs can facilitate the delivery of emergency care while ensuring that interventions are culturally sensitive and contextually appropriate (1, 16). Lessons learned from past crises, such as in Sierra Leone, highlight the importance of collaboration between CHWs and medical teams to support and rebuild health systems in these settings (3, 19). A coordinated approach that leverages the strengths of both CHWs and MMT/EMT teams is essential for improving health outcomes in humanitarian crises.

We propose that an option for mitigating this outsider status is to utilize community-based health workers and programming to support the clinics set up by the MMT/EMT's. Having a local voice in the medical team provides this vital link. This increases the public's trust in the care being offered (6), which in turn improves outcomes for patients and communities. A community health worker program set up in cooperation with these MMT/EMT's supports community members as they gain a complete understanding of the medical team's processes and clinic services (7, 8). These trusted community members serve as ambassadors in their communities where they explain and answer questions about the mobile medical team, it's services, as well as treatments being offered and the medicine being distributed.

Engaging the community in such a central way in these responses empowers them to actively participate in the response efforts and to share responsibility for their success. Community involvement can include many factors: information-giving, consultation, joint decision-making, acting together, and supporting independent community interests (20). The components of traditional Community Health programs naturally incorporate these elements and provide communities with their own voice in the design and implementation of response activities.

Establishing trust in such circumstances presents formidable obstacles. However, standardizing Community Health Worker programs to complement MMT/EMTs or other clinical

humanitarian responses bolsters trust in emergency healthcare systems. This, in turn, holds the potential to enhance outcomes for affected communities by fostering greater confidence in the healthcare services provided during times of crisis.

Detail to understand key programmatic elements

We examined two Community Health Worker (CHW) programs that supported clinical interventions during very different humanitarian responses. One case of a CHW program supporting clinical interventions was the natural disaster in the Bahamas post Hurricane Dorian in 2019 where mobile clinics were established using the EMT model. The other was an infectious epidemic in Sierra Leone, where at the height of the Ebola Epidemic in 2015 a standing clinic was established in cooperation with the Sierra Leonian government and staffed primarily by foreign clinicians. In these diverse contexts, the humanitarian response was enhanced by structurally aligning with CHW programs. These case studies demonstrate how CHW programs can rapidly build the efficiency and effectiveness of the humanitarian response, bridging the gap between external providers and the local context.

Community health workers in the Bahamas post Hurricane Dorian

After Hurricane Dorian struck the Bahamas in September 2019, the island of Abaco was left utterly devastated. Less than 20% of the buildings remained standing, and most were severely damaged or destroyed (8). One of the few buildings still standing was the largest health facility in Marsh Harbor, a key city serving a population of ~17,200. This facility acted as a central hub for smaller health centers on surrounding cays and islands. However, every health facility in Abaco was either damaged or destroyed, wiping out the physical infrastructure along with critical medical equipment and supplies (9, 10).

Given the damage to the health system infrastructure, mobile medical teams were deployed in the immediate aftermath to meet the needs of the remaining and returning residents. Even before the hurricane, there were significant gaps in healthcare services on the island: women were required to travel to Nassau to give birth, as Abaco had no capacity for surgical procedures and only two X-ray machines, both of which were damaged in the storm (23). Americares' lead staff on the ground, drawing on prior experiences from humanitarian responses in Sierra Leone, proposed a structure that had been successful there. This included the training and deployment of CHW's to improve community engagement. Based on direct observation of the benefits of CHWs during the Ebola outbreak response, a proposal was made to replicate and adapt this model for the Bahamas' unique context (7, 14, 21).

At the request of the Bahamian Ministry of Health, Americares provided two mobile medical teams to serve Abaco and the surrounding islands. One team, consisting of a doctor, two nurses, and a logistician, was based in Hope Town, one of the smaller cays off the coast of Abaco. The local clinic had been relocated to a private home due to damage to the original building. The second team, with a doctor, four nurses, a pharmacist, and a logistician, operated on the main island of Abaco, rotating through five communities to provide essential medical services while the local infrastructure was rebuilt.

A quantitative assessment of the affected communities was conducted, utilizing various needs assessment methods, including snowball sampling. This assessment informed the design and implementation of the CHW program. Six CHWs were selected, one for each of the five communities on Abaco and one for Hope Town. Following a three-day training session, these CHWs began their work under the supervision of a designated supervisor, who provided weekly in-person support and additional training as needed.

The CHWs had several primary roles. They informed their communities of the mobile medical team's weekly schedule and provided public health education, which evolved based on the community's needs. Early on, they focused on informing residents about the medical services available. Later, they shifted to hygiene education, emphasizing handwashing in areas with limited access to clean water, and educating about the importance of the tetanus vaccine, particularly as residents undertook reconstruction work (14, 21).

CHWs also acted as surveillance officers, alerting the mobile medical teams about specific needs in advance, such as shortages of the tetanus vaccine. They served as vital communication links between remote communities and the mobile teams, especially during a time when there was no ambulance service on Abaco (10). In one case, a CHW alerted the mobile medical unit to a mother in preterm labor. A nurse practitioner was dispatched to assess the situation and accompany the mother to the nearest functioning clinic in Marsh Harbor, where foreign doctors were also supporting the humanitarian response.

The value of the CHWs became even more evident as COVID-19 began to spread. They shared evidence-based information about the virus with their communities, helping to reduce fear and panic. Even after Americares had to demobilize its response team due to the pandemic and global travel restrictions, the CHWs continued to support their communities without pay. When asked why they persisted, many said they had always wanted to help and that the training they received from Americares had empowered them to continue, despite no longer being employed.

Community health workers in Sierra Leone at the height of the Ebola epidemic

In December 2014, Sierra Leone was in the midst of a severe crisis due to the ongoing Ebola epidemic. By that time, 9,446 people were confirmed infected, and 2,758 had died. Immediate emergency intervention was crucial to curbing the spread of the virus and saving lives (7). Alongside its efforts to establish an Ebola treatment facility in partnership with the Sierra Leonean government, Partners in Health also recognized the need to create a CHW program.

At that point, the fatality rate for hospitalized Ebola patients was 60%. Ebola test results took three days, during which

individuals were placed in "suspect" patient wards with others, drastically increasing the chance of contracting the virus if they were not already infected (7, 11, 17). The capacity of contact tracers was limited, with each able to track down only four contacts per patient, which was inadequate for the large family and community networks typical in the country. In some cases, the military was called in to enforce quarantines, with soldiers ordered to shoot those who violated the rules, intensifying public fear of both the disease and the treatment units (12, 17). Many healthcare workers had become infected, and the public was often too frightened to seek medical care.

In response, Partners in Health, together with the government, launched a CHW program to address these challenges (8, 11). A Rapid Quality Assessment (RQA) helped identify gaps in the humanitarian response, and the program was designed to fill those gaps (8, 13). The CHWs, chosen from within their communities, received training and were tasked with building trust in the health system, providing transparency about Ebola treatment, and facilitating communication between patients, their families, and healthcare providers (8). Supervisors supported CHWs through weekly meetings, ensuring strong communication and the ability to adapt as the crisis evolved.

A semi-quantitative analysis revealed that across the three chiefdoms served by the CHW program, there was a 32% increase in the number of referrals to Ebola treatment facilities (14, 15). Importantly, this did not lead to a proportional increase in confirmed Ebola cases, suggesting that the program's success lay in boosting community trust and engagement with the healthcare system. This resulted in greater participation in surveillance and early detection efforts without unnecessarily burdening the health infrastructure (8). This data was gathered by the CHW's as they went door to door each week in their communities, speaking with every person in their catchment area. They spoke with more than 17,000 people per week, and a lack of financial and human resources prevented a more detailed tracking of data. This unfortunately limits our abilities to parse this data further.

Results and recommendations

In both the Bahamas and Sierra Leone, the integration of CHWs into MMT/EMTs produced measurable improvements:

1. Increased trust: CHWs provided cultural competence and established trust with local communities, facilitating better communication and patient follow-up (13–15).
2. Higher referral rates: The presence of CHWs led to a 32% increase in the number of patients referred to healthcare facilities, as seen in Sierra Leone (7, 14).
3. Improved continuity of care: CHWs helped to ensure that patients, especially those with chronic conditions, received the necessary follow-up care MMT/EMT visit (7, 14).

The positive outcomes suggest that CHWs can be critical assets in addressing some of the key challenges faced by MMT/EMTs, particularly in gaining community trust and improving long-term health outcomes.

The following recommendations are proposed [see Nally et al. for more details (14, 21)]:

- Adopt a formal framework: Humanitarian organizations should develop standardized guidelines for integrating CHWs into MMT/EMT operations, ensuring that this collaboration is prioritized in future responses.
- Capacity building: Investment in CHW training for emergency settings should be a key component of preparedness strategies, particularly in areas vulnerable to recurring crises.
- Local partnerships: Strengthening partnerships with local NGOs and health authorities to recruit and train CHWs can improve the sustainability of humanitarian health interventions.

Acknowledgment of any conceptual or methodological constraints

These case studies highlight the potential for a systematic approach to integrating CHWs into international humanitarian health responses. The success in the Bahamas and Sierra Leone suggests that CHWs can enhance not only the effectiveness of EMTs but also their acceptability within local communities. More research in the field of Community-Based Interventions During an Emergency Response is desperately needed. Ramsbottom et al. states that "Public health emergency preparedness (PHEP) all too often focuses only on institutional capabilities, including their technical expertise and political influence, while overlooking community capabilities. However, the success of institutional emergency preparedness plans depends upon communities and institutions working together to ensure successful anticipation, response and recovery" (18). Biological crises vs. natural disasters do offer different contexts, but the same model could easily apply. "Now is the time to consider how to bring social science into the center of future pandemic surveillance, response, community preparedness, and health system strengthening" (2).

This integration is particularly relevant in low-resource settings, where political instability, climate change, and distrust in external organizations complicate health interventions. There are also external challenges to implementing and scaling CHW programs globally, such as financial constraints, political instability, and resistance within the existing health system. By leveraging CHW programs demonstrated strengths, humanitarian responses can be more culturally competent, sustainable, and effective. This provides a promising approach to addressing the trust and access barriers often encountered in humanitarian settings. Future research should explore the scalability of this model across different regions and types of emergencies, such as urban conflict zones or protracted crises. With further investigation, CHWs could become a cornerstone of more effective, culturally sensitive humanitarian health interventions.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

CN: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. MT: Supervision, Writing – review & editing. PV: Conceptualization, Formal analysis, Supervision, Writing – review & editing. AK: Methodology, Project administration, Writing – review & editing. MM: Methodology, Project administration, Writing – review & editing. MA: Conceptualization, Data curation, Formal analysis, Supervision, Validation, Writing – original draft, Writing – review & editing.

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Publisher's note

References

1. Miller NP, Richards AK, Marx MA, Checchi F, Kozuki N. Assessing community health worker service delivery in humanitarian settings. *J Glob Health.* (2020) 10:010307. doi: 10.7189/jogh.10.010307

2. Wilkinson A, Parker M, Martineau F, Leach M. Engaging 'communities': Anthropological insights from the West African Ebola epidemic. *Philos Trans R Soc Lond B Biol Sci.* (2017) 372:20160305. doi: 10.1098/rstb.2016.0305

3. Kallon LH, Raven J, Wurie HR, Mansour W. From policy to practice: a qualitive study exploring the role of community health workers during the COVID-19 response in Sierra Leone. *BMC Health Serv Res.* (2023) 23:1228. doi: 10.1186/s12913-023-10272-6

4. Perry HB, Zulliger R, Rogers MM. Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, current effectiveness. *Annu Rev Public Health.* (2014) 35:399–421. doi: 10.1146/annurev-publhealth-032013-182354

5. Lehmann U, Sanders D. *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. (2007). Available at: https://chwcentral.org/wp-content/uploads/2013/07/Community-Health-Workers-What-do-we-know-about-them.pdf (accessed January 6, 2025).

6. Bani IA. Health needs assessment. *J Family Commu Med.* (2008) 15:13–20. doi: 10.4103/2230-8229.97058

7. Cancedda C, Davis SM, Dierberg KL, Lascher J, Kelly JD, Barrie MB, et al. Strengthening health systems while responding to a health crisis: Lessons learned by a nongovernmental organization during the Ebola virus disease epidemic in Sierra Leone. *J Infect Dis.* (2016) 214:S153–S163. doi: 10.1093/infdis/jiw345

8. Farmer P. *Diary*. London: London Review of Books. (2014). p. 18–21. Available at: https://www.lrb.co.uk/the-paper/v36/n20/paul-farmer/diary (accessed January 6, 2025).

9. Miller NP, Ardestani FB, Dini HS, Shafique F, Zunong N. Community health workers in humanitarian settings: scoping review. *J Glob Health.* (2020) 10:020602. doi: 10.7189/jogh.10.020602

10. Adolph C, Amano K, Bang-Jensen B, Fullman N, Wilkerson J. Pandemic politics: timing state-level social distancing responses to COVID-19. *J Health Polit Policy Law.* (2021) 46:211–33. doi: 10.1215/03616878-8802162

11. U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). *Service Assessment: Hurricane Dorian, September 1–6, 2019.* (2020). Available at: https://www.weather.gov/mhx/dorian2019 (accessed January 6, 2025).

12. Institute of Medicine and National Research Council. *Sustaining global surveillance and response to emerging zoonotic diseases*. Washington, DC: The National Academies Press. (2009). Available at: https://nap.nationalacademies.org/read/12625/chapter/1 (accessed January 6, 2025).

13. Adam MB, Donelson AJ. Trust is the engine of change: A conceptual model for trust building in health systems. *Syst Res Behav Sci.* (2020) 39:116–27. doi: 10.1002/sres.2766

14. Nally CP, Van de Voorde P, Temmerman M, Adam M. Germs, guns, and fear in disaster response: A rapid qualitative assessment to understand fear-based responses in the population at large: Lessons from Sierra Leone 2014-2015. *Disaster Med Public Health Prep.* 17:e86. doi: 10.1017/dmp.2021.358

15. Nally CP. *Data Set from Ebola CHW Program*. Port Loko: CHW Program (2015).

16. Campbell DT. "Degrees of Freedom" and the case study. *Comp Polit Stud.* (1975) 8:178–93. doi: 10.1177/001041407500800204

17. World Health Organization. *Ebola Situation Report.* (2015). Available at: https://reliefweb.int/report/sierra-leone/who-ebola-situation-report-23-september-2015 (accessed January 6, 2025).

18. Ramsbottom A, O'Brien E, Ciotti L, Takacs J. Enablers barriers to community engagement in public health emergency preparedness: a literature review. *J Community Health.* (2018) 43:412–20. doi: 10.1007/s10900-017-0415-7

19. Kuday AD, Özcan T, Çalişkan C, Kinik K. Challenges faced by medical rescue teams during disaster response: a systematic review study. *Disaster Med Public Health Prep.* (2023) 17:e548. doi: 10.1017/dmp.2023.217

20. O'Mara-Eves A, Brunton G, Oliver S, Kavanagh J, Jamal F, Thomas J. The effectiveness of community engagement in public health interventions for disadvantaged groups: a meta-analysis. *BMC Public Health.* (2015) 15:129. doi: 10.1186/s12889-015-1352-y

21. Nally C, Temmerman M, Van de Voorde P, Koroma A, Adam M. Using continuous quality improvement in community-based programming during disasters: lessons learned from the 2015 Ebola Crisis in Sierra Leone. *Disaster Med Public Health Prep.* (2024) 18:e316. doi: 10.1017/dmp.2024.270

22. Green A. The historical development of the health system. In: *London School of Hygiene & Tropical Medicine*. (2010). Available at: https://researchonline.lshtm.ac.uk/id/eprint/4882/1/The%20Historical%20Development%20of%20the%20Health%20System_GREEN%20AAM.pdf (accessed January 6, 2025).

23. BBC News. *Hurricane Dorian: Bahamas Facing 'Unprecedented Devastation'.* (2019). Available at: https://www.bbc.com/news/world-latin-america-49574900~ (accessed January 6, 2025).