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Chapter

Strengthening International Health Security by Embedding the Role of Civil Society Organizations in National Health Systems: Lessons from the 2014–2016 West Africa Ebola Response

Martin Hushie, Rita Suhuyini Salifu and Iddrisu Seidu

Abstract

Following the recent global health crises, such as the 2014 Ebola and 2016 ZIKA outbreaks, the international health community's ability to deal with such threats has been debated. Amid discussions of how international health security (IHS) and related national health systems should and could be strengthened, the potential of harnessing the role of civil society organizations (CSOs) for more effective responses has been frequently raised. Such participation is often based on the notion that CSOs by their grassroots presence can more effectively help to address health security and health systems challenges in affected populations and communities. Using the World Health Organization's (WHO) health systems' building blocks as an evaluative framework, this chapter examines CSOs' roles and responsibilities during the 2014–2016 West Africa Ebola Outbreak and how they can be further empowered to perform these functions. The chapter draws conclusions about the opportunities and challenges CSOs represent for strengthening IHS and national health systems during public health emergencies in low- and middle-income countries (LMICs).

Keywords: civil society organizations, health system, international health security, Ebola virus disease, West Africa

1. Introduction

Ebola Virus Disease (EVD) is recognized as one of the most fearful contagious diseases affecting mankind in recent times. The disease was first confirmed in 1976 in Zaire [now the Democratic republic of Congo (DRC)] near the Ebola River [1]. Following this, more than 25 outbreaks have been reported in the DRC, Gabon, Sudan, and Uganda with high mortality rates ranging between 25 and 90% [2, 3].

Towards the end of 2013, the West African Sub-region experienced the first case of the EVD in Guinea [4], which rapidly spread to Liberia and Sierra Leone with additional cases being reported in Mali, Nigeria and Senegal. This outbreak

was quite significant regarding its unparalleled high morbidity and mortality rates; longevity and size; and how it increasingly became a global public health problem, resulting in the WHO declaring it as Public Health Emergency of International Concern [5]. By March 27, 2016, Sierra Leone reported the highest cases of 14, 124, followed by Liberia (10,675) and Guinea (3811) [6].

It is widely recognized that strong, well-funded and well-staffed health systems are fundamental prerequisites in the fight against diseases such as Ebola. However, the three most affected countries, Guinea, Liberia, and Sierra Leone, had suffered years of devastating civil wars that led to widespread poverty, weak infrastructure and a lack of health professionals, especially in rural areas. Consequently, the Ebola containment efforts were severely hampered by already weak and fragile health systems, including poor surveillance preparedness and weak governance systems [7–9].

Increasingly, a wide range of studies of international health security (IHS) governance and health systems' functioning have drawn attention to significant shortfalls in prevailing institutional arrangements to deal with such pandemics [10–12]. Typically, much of the criticism has fallen on the WHO as the lead organization responsible for global health governance [10, 13, 14]. Problems such as not responding promptly or in an ad hoc fashion; creating panic among affected populations; limited lessons learnt from previous pandemics; bureaucratic and political barriers that constrain the establishment of appropriate communication and organizational systems and structures for responding more effectively-have all been cited [15, 16]. Overall, there is a perception that IHS governance is characterized by dysfunction. As a result, proposals for moving the IHS agenda forward have called for significant reforms, including better resourcing of the WHO to counter future pandemics as well as consolidating the global health community's commitment and knowledge to promote and improve IHS both nationally and internationally [17–19].

Central to these discussions of how IHS and health systems should and could, be strengthened have included considerations to adopt more joined-up approaches that harness the role and strengths of civil society organizations (CSOs) [20, 21]. Such participation is often premised on the assumption that CSOs' grassroots linkages and close proximity to the communities most affected by specific health challenges gives them comparative advantage in providing effective and targeted interventions that reflect local contexts, needs and realities, which add to promoting democratic and accountable governance processes in global health [22]. To date however, how CSOs' engagement enables or constrains the search for effective organizational arrangements in the IHS and health systems strengthening agenda, is not well understood. Greater clarity on CSOs' contribution is needed to guide action.

2. The expanding role of CSOs in IHS and health systems

> *"Given the growing complexity of these health and security challenges and the response required, these issues concern not only governments, but also international organizations, civil society and the business community. Recognizing this, the World Health Organization is making the world more secure by working in close collaboration with all concerned."—Margaret Chan, Director General, WHO, World Health Day, 2007.*

CSOs have a long history as significant players in global health and development that is well-documented [23–25]. The growing prominence of CSOs, especially in the health systems of low- and middle-income countries (LMICs), is related to the fact that CSOs have increasingly constituted preferred conduits for external

donor funding based on the assumption that CSOs by their small nature, flexibility, empowering activities are more cost-effective and better options for reaching poor and vulnerable populations [26, 27]. This position increasingly used by donors to channel aid to and through CSOs became particularly important following the implementation of structural adjustment policies (SAPs) from the 1980s onwards. As part of the dominant neoliberal agenda to revamp the deteriorating economic conditions that engulfed these countries, SAPs were used to curtail budget deficits by reducing expenditures on social services such as health, housing and education. Moreover, privatization and reduced role of the state were made pre-conditions for financial assistance and debt rescheduling [28–30]. The prevalence of weak governments and declining economies increasingly left NGOs as the only alternative to implement health and development interventions, especially for poor and marginalized people [31–33]. This resulted in a dramatic increase in their number, diversity and the functions they perform in health systems around the globe—a development that is largely seen in positive terms.

Within the context of IHS, CSOs have played significant roles in supporting large-scale epidemics or pandemics such as HINI, Ebola and ZIKA that have constituted substantial threats to human security and public health around the globe [34]. Moreover, CSOs responses and contributions to fighting epidemics including HIV/AIDS, yellow fever, cholera and malaria have been widely acknowledged. Working on the frontline of public health responses, CSOs collaborate with public health authorities and local communities to provide primary health care and critical services, health education and shelter in affected communities that national governments will not or cannot provide for lack of resources [35–37].

Although the value of civil society participation as partners in global health governance processes and mechanisms is almost ubiquitously endorsed, there is paucity of evidence on the role CSOs play in the IHS and health systems strengthening agenda. What roles do CSOs play and are they appropriate? How well are these roles fulfilled? An emerging body of research from the recent Ebola epidemic in West Africa, reveals complex health systems challenges that have the potential to limit the extent of true participation [7–9]. However, little current literature engages empirically with CSOs' roles and the advantages and disadvantages coming along with their engagement. This paper aims to fill this knowledge gap through a synthesis of the evidence from individual studies on the nature of CSOs' involvement in the 2014–2016 Ebola outbreak and their positive and negative effects in strengthening the health systems of the affected countries. The findings contribute to understandings of CSOs' roles and functions when responding to public health threats in low resource settings with weak health systems. They are also significant for understanding how and where interactions between CSOs and the health system can be best leveraged to build more resilient health systems for containing large-scale epidemic outbreaks.

The chapter is organized as follows. First, we provide a review of the terms CSOs, IHS and health systems strengthening and their inter-relatedness to provide a conceptual framework for the study. Second, the methods utilized; and the results and discussions in relation to the contributions and challenges to CSOs' engagement in the EVD response are presented in the subsequent sections. Lastly, based on the findings, conclusions are drawn about how to better embed CSOs' roles in health systems in support of public health emergencies in LMICs.

## 3. Defining CSOs, IHS and health systems strengthening

Despite CSOs growing prominence, the term and its relationship to IHS and health systems strengthening is under debate. To better understand the CSOs' roles

in these global health governance arrangements, workable definitions of the terms are needed. CSOs have been defined in several ways, however, the WHO views Civil society as "the space for collective action around shared interests, purposes and values, generally distinct from government and commercial for-profit actors" [38]. CSOs include a wide array of organizations: community-based organizations, non-governmental organizations (NGOs), labor unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations.

IHS or global health security on the other hand, is viewed as those functions concerned with preventing, detecting and responding to infectious disease outbreaks, whether man-made or natural, to limit their socio-economic impact across national and international boundaries [20]. It is rooted in the International Health Regulations (IHR, 2005)—a legal instrument that provides guidance regarding how national governments should develop and maintain country-level systems and structures for containing diseases of public health importance [39]. Over the years, poor conformance of countries to the IHR resulted in an IHS agenda being launched in 2014 as a global partnership comprising over 64 countries, international organizations and NGOs to promote country investments in meeting the IHR's requirements [20].

The WHO defines a health system as all activities whose primary purpose is to promote, restore and maintain health [40]. Acknowledging the health strengthening systems agenda, the WHO also states that "a well-functioning health system working in harmony is built on having trained and motivated health workers, a well-maintained infrastructure, and a reliable supply of medicines and technologies, backed by adequate funding, strong health plans and evidenced based policies" [41]. This framework encapsulates what has become known as the WHO's health systems "building blocks" [42, 43]. These include: (i) service delivery, (ii) health workforce, (iii) health information systems, (iv) medical products, vaccines and technologies (v) health financing, and (vi) leadership/governance (**Figure 1**). Good service delivery entails the provision of services that are safe, cost-effective, of high quality, patient-centered and equitably accessible to all segments of the population that need them, when and where needed [42, 43]. A well-performing health workforce should be appropriately qualified, responsive, efficient and evenly distributed to provide the best possible health outcomes for the entire population within the limits imposed by available resources [42, 43]. Such providers include doctors, nurses, pharmacists and health management staff. A well-functioning health information system ensures the timely collection, analysis, and dissemination of vital information on health determinants, health system performance and health status [42, 43]. An effective health system ensures that essential medical products, vaccines and technologies of high quality, safety, efficacy and cost-effectiveness are equitably accessible and available for meeting the priority needs of the entire population [42, 43]. A good health financing system mobilizes adequate funds for health and ensures that people have access to the services they need without incurring any financial hardship or impoverishment in having to pay for them. Well-funded health systems are needed to support other health systems blocks, such as workforce recruitment, procurement of medical product and implementation of public health programs [42, 43]. A good leadership and governance health system ensures that planned policy frameworks exist, combined with effective oversight and coalition building; regulation and incentives, attention to system design and accountability [42, 43]. Strengthening health system thus means promoting effective interactions between these six health system building blocks to achieve more equitable and sustained improvements in the public's health.
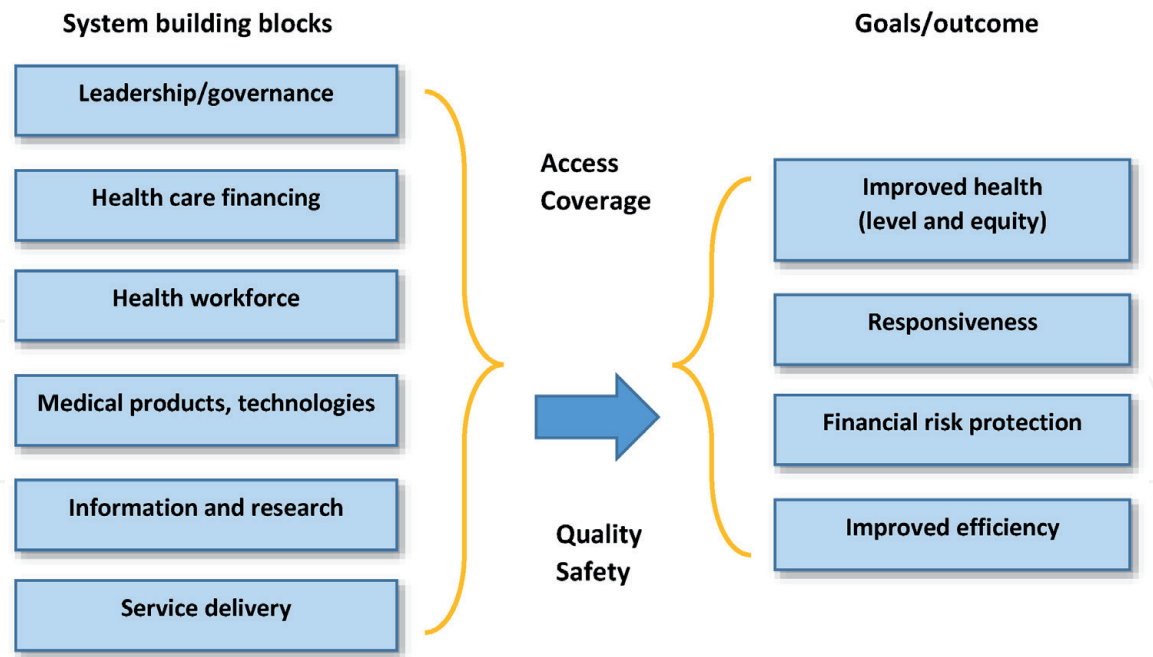
Figure 1.
The WHO health systems' framework.

Originally, the health systems framework was not developed as a research tool, but as a means of promoting investment of resources in health systems [44]. In this study, however, it was selected for its acceptability by the wider international health community as a set of agreed health priorities that can be used to frame an understanding of what a health system is and how it can be strengthened [45]. Moreover, given that health systems are characterized by a diversity of actors, interests, activities and relationships, the framework was found useful for categorizing the unique contribution of CSOs among the range of actors responding to the Ebola pandemic. A recent systematic review of the building blocks' importance for the Ebola Outbreak, as well, highlights their relevance in practice and as an evaluative framework [45].

4. Methods

This chapter draws on academic literature and other publicly available sources, including reports by international or non-governmental organizations to map out the roles played by CSOs during the 2014–2016 West Africa EVD outbreak. The authors reviewed articles published from 2013 to 2019 from electronic databases including, PubMed, Medline via EBSCOhost, Embase, Global Health and Cochrane library as well as relevant articles and Gray literature from Google Scholar, Scopus and relevant Internet websites (WHO, Médecins Sans Frontières (MSF, Doctors Without Borders) and Centers for Disease Control and Prevention (CDC). Search terms (Medical Subject Headings (MeSH) and Keywords such as Civil Society Organization, Non-Governmental Organization, Community-Based Organization, Ebola Virus Disease, West Africa, Health Systems, and Community Participation were used to identify articles.

The review included only studies focusing on CSOs' functions and challenges during the West Africa Ebola outbreak in Guinea, Liberia, and Sierra Leone as well as reports from international organizations such as WHO, CDC and MSF. Articles on Ebola Virus outbreak before 2014/2015 and those outside these three countries were excluded. Data extraction entailed initial screening of titles and abstracts for

eligibility based on the objectives of the study. Subsequently, potentially useful, full copies of the article were retrieved for further screening and inclusion in terms of its setting, aims and design; which aspects of the health systems building blocks being discussed and CSOs' role in this; major findings, limitations and future recommendations.

5. Results and discussion

There is a relatively small but growing volume of literature on the contributions and challenges of CSOs strengthening health systems while responding to the West Africa Ebola outbreak. This section presents findings pertaining to the six health systems building blocks. It cites some of the strongest examples where CSOs' roles can be particularly strengthened and better institutionalized in countries to more effectively respond to future epidemics in relation to: leadership and governance, health information systems, service delivery, medical products, vaccines and technologies, human resources and health financing.

5.1 Leadership and governance

Strong leadership and good governance practices, including multi-scale and cross-sector response are critical in responding to major public health threats such as EVD. It underpins the other health systems components and constitutes the backbone of any effort to secure sustainable, responsive health systems to out-breaks. However, the West Africa outbreak pointed out the lack of effective health governance, in terms of coordination, emergency preparedness and responsive-ness (including limited resources-financial, physical and human) in the affected countries, which adversely affected containment efforts and thus requiring urgent assistance from international actors [46].

Of the six the building blocks, this study found the leadership and governance block as the major entry point through which CSOs' distinctive roles become critical in responding to public health threats such as the West Africa EVD outbreak. This was found to be true at both the international and national levels. At the interna-tional level, while it is well-recognized that global health governing institutions such as the WHO and UN, bilateral and philanthropic donors were initially slow to respond to the EVD, [46] it is also well documented that NGOs such as MSF, were among the first to warn about the epidemic's unprecedented spread, which ultimately led the WHO to declare it as a 'public health emergency of international concern' on August 8, 2014. By early September, there was still no coordinated international response and again, it was MSF that called for the deployment of military biological teams as 'a last resort, in the hope of bringing about a rapid and concrete action at the field level' [47]. This eventually led to a launch of the global response beginning with the passing of the UN Security Council Resolution 2177.

At the national level NGOs contributed towards the establishment of multi-disciplinary rapid response centers and teams across affected countries, such as the Emergency Operations Centers, National Ebola Response Center in Sierra Leone and Guinean National Ebola Coordination Cell as overarching governance bodies for countering the epidemic. The coordination efforts of these teams and centers were rendered difficult by the large number of partners involved from the international community, each with different priorities, expertise and volume of resources [46]. To address some of these challenges NGOs fell on globally approved approaches and tools to formulate plans and strategies, mobilized their resources, outbreak response experiences and helped to establish

ownership and accountability mechanisms-which are often non-existent in the public sector of LMICs. These efforts thus supported improved stewardship of resources and promoted an effective coordinated cross-sectoral response to the epidemic [47–49].

5.2 Health information systems

One central pillar of the IHR (2005) is for countries to have in place some type of public health surveillance system that has the capacity to detect, verify and track diseases rapidly and to ensure timely data sharing and decision-making among various national and international stakeholders including the WHO [39]. However, the prevailing national-level EVD surveillance systems (comprising of reported cases investigation, telephone hotlines for reporting events, contact tracing, patient screening at health care facilities and swab testing of corpses)—usually based on health facility information in the affected countries—could not rapidly identify infected persons and respond to alerts until they had died [50]. The complex nature of the response required coordinated bottom-up approaches to EVD surveillance (involving local communities, districts and health facilities) to quickly detect and report new cases; and NGOs were the first to champion the establishment of such systems. Thus in Sierra Leone for instance, the International Rescue Mission initi- ated the creation of the Ebola Response Consortium (ERC) (consisting of a group of 15 NGOs with district-wide presence throughout the country) to supplement the national surveillance system and support the Sierra Leone's Ministry of Health and Sanitation (MoHS) for responding to the EVD pandemic. The ERC collaborated with the CDC and the MoHS to design and implement the community event-based surveillance system by training pre-existing networks of community health workers to identify unsafe burials and persons showing EVD signs and symptoms. This helped in quickly detecting, insolating, treating and preventing further spread of the disease [51].

5.3 Service delivery

Similar to most countries in sub-Sahara Africa, health care services in the affected countries were characterized by asymmetrical distribution with significant disparities in health equity and access, as well as diminished appeal for services [52]. Collectively, these factors contributed towards the unprecedented spread of the outbreak. As implementing partners in the emergency response, NGOs often adopted operational flexibility by tailoring their activities to address evolving local needs in support of the national response bodies and ministries of health of the affected countries through the provision of a wide range of health services with an ultimate goal of filling existing gaps in the health system.

Depending on the local context and needs, some NGOs focused on refurbishing existing public health care facilities (district hospitals and health centers), while others were engaged in the construction of new EVD treatment units (ETUs) for providing clinical care to patients and to ensure the safety of clinicians providing such care [46, 52, 53]. Apart from supporting with the establishment of ETUs, some NGOs engaged in social mobilization, community empowerment and public education activities to educate community members on how to recognize EVD signs and symptoms and refer potentially infected individuals to the nearest health facility. Significantly, these social mobilization and educational outreach efforts allow CSOs to maintain a continuous and integrated chain of functions that brings together the local communities, health centers and hospitals for more effective service delivery [46].

Moreover, while the international communities' approach to responding to such epidemics most often seek to halt or prevent new transmissions [54], most NGOs adopted a two pronged approach to service delivery in which the prevention of new infections and the improvement of clinical outcomes for infected patients were concurrently prioritized as mutually interdependent objectives in responding to the EVD outbreak [46].

In addition, due to the tendency for Ebola survivors to become susceptible to social, economic, psychological and clinical challenges, including the experience of stigmatization, economic deprivation and other health conditions [54], NGOs supported with the establishment of post-epidemic survivor programs and associations (e.g., Sierra Leone Association of Ebola Survivors) in the affected countries collaborating with ministries of health and other international agencies. Such programs have included the enrollment of survivors in vocational and literacy training, employing survivors to lead community mobilization and empowerment initiatives in Ebola affected communities as well as the provision of critical health care services to diagnose and treat the clinical sequelae of EVD that includes vision impairment, hearing loss, mental health and other physical ailments [55]. By providing these medical and socio-economic responses, NGOs were not only able to treat more Ebola patients and prevented further spread of the virus among family and community members but also helped survivors to revert to normal lives post-epidemic.

5.4 Medical products, vaccines and technologies

Another health system building block related to service delivery, including medical products (vaccines, drugs, medical devices) which are central in delivering an emergency response were lacking in the affected countries and severely hampered containment efforts. In order to fill some of these health system gaps, most CSOs considered developing new vaccines, rapid diagnostic and therapeutic tools to be critically important in fighting the epidemic. Thus, most sought to leverage the expertise and resources of governmental public health agencies, e.g., the CDC, UK's Public Health England and Chinese Center for Disease Control and Prevention that specialize in the development of vaccines and laboratory testing tools. Apart from supporting the development of these tools, local laboratory technicians and other health professionals were trained in their use for diagnosing Ebola [46].

5.5 Human resources

Effective emergency preparedness and responsiveness to public health threats such as EVD requires essential human resources for health in terms of numbers and availability, appropriate training, expertise and motivation, and deployment. However, the three affected West African countries lacked such well-trained and motivated health work force. Consequently, how to recruit, train, protect, and pay a health work force that included government employees, temporary workers, and many international volunteers of various expertise were central concerns in the efforts to contain the epidemic. Working in close collaboration with international actors and the health system CSOs supported the West Africa outbreak with a mix of health workforce including doctors, nurses, laboratory personnel, public health specialists and risk-communication professionals [56].

Additionally, since the success with which public health threats such as EVD can be contained depends on the knowledge, skills and experience of first responders in affected communities [57], many CSOs sought to strengthen the emergency Ebola response by training thousands of clinicians, non-clinicians, nurses and volunteers

in infection, prevention and control measures (IPC). This included triage and disinfection procedures, use of protective clothing, and safe disposal of waste in public hospitals and rural clinics to limit the risk of transmission [56]. Others also provided training to community health workers and community leaders in first aid, public hygiene promotion among the at-risk populations, EVD signs and symptoms identification and provision of psycho-social support and counseling for affected individuals and households. This way CSOs are able to mobilize the requisite local knowledge and skills, trust and bonds of solidarity that helps staff to rapidly detect and effectively respond to Ebola [46].

5.6 Health financing

Lack of adequate funds invested in health system infrastructure such as local laboratory and diagnostic services; disease surveillance, purchase of supplies and training specialist work force were major obstacles in containing the West Africa outbreak. In order to address some of these investment gaps in the health systems of the affected countries, varied funding models were used by CSOs and philanthropic foundations and organizations to support the epidemic. These included: (1) foundations providing direct support to global health governing institutions such as the WHO and UN agencies, (2) international NGOs directly funding national governments, (3) foundations channeling funds through international NGOs, (4) international NGOs disbursing funds directly to local CBO implementing partners, and (5) foundations deploying funds through other foundations to support governmental public health institutions [58].

Funding through these varied mechanisms were deployed to strengthen the health systems of the affected countries whiles responding to the epidemic in several ways. These included: (a) building ETUs and community health centers for treating victims, (b) constructing and rehabilitating water supply for treatment centers, (c) providing medical equipment and supplies; (d) running mass media public health information campaigns to boost media awareness of preventative measures, (e) providing training and support for community health workers and (f) building the capacity of governmental public health organizations in the development of novel vaccines, diagnostic and therapeutic tools [59].

6. Challenges to CSOs engagement and lessons learnt

CSOs faced significant challenges in the countries affected by Ebola as the epidemic accelerated and valuable lessons were learned in the effort to address those challenges. While some emanated from factors intrinsically linked to the normative structure and functioning of CSOs, others can only be understood within the wider institutional frameworks through which national governments and transnational actors-with varying interests, degrees of power and ways of operating, currently respond to public health emergencies.

First, analyses of CSOs' engagement have identified issues including: (1) failure to take cognisance of the local socio-cultural and political contexts in implementing seemingly technical EVD interventions, (2) poor response coordination among CSOs themselves or with national governments, and (3) the slowness with which CSOs already working in the affected countries shifted from a development approach to an emergency humanitarian method for fighting the epidemic [60]. Related recommendations for more effectively engaging CSOs in public health emergencies of such a scale have included the need for CSOs to: (1) make their technical program activities politically and culturally sensitive to local contexts and needs, (2) support established

national government response coordination structures, rather than setting up parallel structures of their own, and (3) prioritize disease prevention, outbreak spread and saving lives over developmental activities during such health crises [61, 62].

Second, the WHO as the leading organization for global health governance faced significant challenges responding to the epidemic. Among several others, critics have cited politicization of the epidemic that compromised its ability to alert the global community, lack of skilled human resources and financial resources as barriers [60]. Suggested recommendations for enhancing the organization's performance have included the need to revamp its leadership and governance systems, including the establishment of a dedicated unit for outbreak response, supported by a strong technical capacity, budget and clear lines of accountability. Others have also suggested adequate resourcing of the WHO through untied funds for flexible deployment in times of global health crises as well as the need to establish independent and politically-protected Standing Emergency Committees among international and country-level WHO representatives. Such committees—it is argued—can quickly make declarations on infectious diseases of public health importance for the requisite emergency responses to be implemented [62–65].

Third, regarding national governments, weak health governance and management systems within the public health sector, including underdeveloped disease surveillance and alert systems, and other health systems challenges such as lack of financial, human and material resources have all been identified as hampering containment efforts of the epidemic [60]. Recommended changes for improving health governance in the affected countries have included the need for national governments to invest in detection and emergency response capacities within the framework of IHR regulations, assume local ownership in dealing with public health emergencies as well as working collaboratively with international partners to fight future epidemics [62–65].

Fourth, wider issues related to: (1) lack of reliable systems for sharing epidemiological, genomic clinical data and processes for developing accurate or adaptable and diagnostic tests, drugs and vaccine platforms, (2) lack of flexibility in donors' funding mechanisms and contracts and delays in disbursing funds and (3) the mounting of unnecessary trade bans and travel restrictions by outside governments' that restricted the flow of humanitarian workers and supplies have been cited as additional constraints that need to be addressed to facilitate CSOs engagement in future public health emergencies [60].

Fifth, primary psychosocial and mental health impacts that are the direct and immediate consequences of the epidemic on human health have been recognized to potentially affect a wide group of people at the individual, community and international levels. At the individual level, such impacts have been attributed to the traumatic course of the infection, fear of death and experience of witnessing others dying, feelings of shame or guilt (e.g., from transmitting infection to others) and stigmatization and/or isolation from their communities. At the community level, a recurring pattern of anxiety ensues, with a loss of trust in health services, stigma and/or isolation, loss of support or coping resources resulting in disruptions of community and cultural life. At the international level, fear and anxiety (e.g., of infection), trauma (e.g., of international aid workers witnessing deaths caused by Ebola), stigmatization of health workers returning from affected countries all together, severely constrained the provision of resources (e.g., health workers and funding) in support of the epidemic. In order to address some of these primary humanitarian problems and impacts, it has been suggested that efforts should engage CSOs and communities, to rebuild health systems and trust and to limit stigma [66, 67].

Finally, beyond these primary psycho-social impacts, the literature also attends to secondary socio-economic impacts, including negative effects that are not caused by the epidemic itself but by its unintended consequences. Such secondary impacts, which can span a longer period than the outbreak itself and affect a wider group of people include effects on: (1) the healthcare system, (2) water, sanitation and hygiene services, (3) people's safety, (4) educational system, (5) food security and (6) household income [68, 69]. To better understand and develop policies to mitigate some of these impacts, recommendations have included the need to carry out comprehensive analysis of the wider social, economic and political impacts of the epidemic on the affected countries, communities and survivors as well as strengthening health systems and addressing the structural vulnerabilities that hampered containment efforts [70].

7. Conclusions: CSOs and the strengthening of IHS and national health systems

This paper has made an initial case for better embedding CSOs' roles in national health systems as a means of ensuring health security during public health emergencies such as EVD outbreaks. Using the WHO health system framework which comprises six independent but interrelated building blocks as an evaluative framework, this review finds that CSOs have played supplemental albeit critically important roles in filling health systems gaps in a manner that enabled national governments and global actors to contain the West Africa EVD outbreak. These roles have included: (1) support with the establishment of national Ebola response teams for coordinating the overall response, (2) developing surveillance and response systems to detect, track and treat disease, (3) provision and maintenance of safe health care services (e.g., ETUs for isolating patients) together with training of personnel on infection control procedures, (4) supporting the development and use of new vaccines, diagnostic and therapeutic tools, (5) mobilizing and training a wide-range of health workforce including clinicians, non-clinicians and community health workers, and (6) resourcing the epidemic response efforts through innovative funding mechanisms. Together these multiple functions of CSOs have been essential in containing the West Africa EVD outbreak and directs attention to specific areas at the backbone of any response to public health emergency, and where CSO-health system intersections can be particularly leveraged and better strengthened in LMICs. Moreover, this review has underscored several challenges intrinsic to CSOs' and other global actors responding to the epidemic and suggested various recommendations for improvements in their performance.

Finally, if we understand IHS and health systems strengthening as a complex constellation of power relations in which actors (e.g., national governments, multilateral organizations such as the UN and WHO, bilateral and philanthropic donors and CSOs) deploy different types of resources (e.g., knowledge, money or political authority) to pursue diverse organizational interests, then, it is critically important to identify the unique functions CSOs perform within this system. This review sheds more light on such functions drawing on lessons from the implementation of the West Africa EVD response. What is needed is more in-depth understanding of the respective roles played by these varied global health actors working in collaboration with CSOs during public health emergencies. Moreover, beyond this preliminary mapping of CSOs' roles using secondary data, systematic collection of primary data on the full range of global health actors responding to public health emergencies with CSOs as implementing partners is needed to provide a clearer understanding of how profitably CSOs might be better engaged in health crises that cross national boundaries.

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