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Epidemics

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Introduction

An 'epidemic' is defined as an increase in cases of disease over and above what would normally be expected in a community or region during a specified period. War, displacement, poverty and natural disasters are frequently associated with epidemics, and it is not unusual for humanitarian agencies to be called upon to prevent or contain them, especially in resource-poor settings. Although there is a considerable body of literature critiquing the work of humanitarian agencies on epidemics, it would be misleading to generalize too readily from cases of failure. There are many instances in which they have prevented the occurrence of epidemics, but these achievements have rarely been recorded in any detail and they are hard to assess comparatively. This chapter does not, therefore, attempt to provide a comprehensive overview of humanitarian engagement with epidemics. Instead, the first part of the chapter presents three case studies from Zaire (now the Democratic Republic of the Congo – DRC), Haiti and Somalia. These case studies look behind the narratives of 'failure' and 'success' to explore salient issues which routinely arise for humanitarian agencies working in challenging circumstances. The second part of the chapter then turns to the largest humanitarian programme ever attempted to control an epidemic: the outbreak of Ebola in West Africa between 2013 and 2016. In so doing, it becomes evident that humanitarian programmes, which adapt and respond to the specific social, political and economic contexts in which they are working, tend to be more effective. It is also clear that the nature of humanitarian engagement with epidemics is increasingly being shaped by narratives linking infectious diseases with global security.

A mixed history of humanitarian engagement with epidemics

*The inability to prevent the transmission of *Vibrio cholerae* and *Shigella dysenteriae* in North Kivu region, Zaire (now DRC) in 1994*

One much publicized 'failure' concerns the reported inability of humanitarian agencies to prevent the transmission of *Vibrio cholerae* and *Shigella*

dysenteriae in North Kivu region, Zaire (now DRC) in 1994. By way of background, an estimated 500,000 to 800,000 Hutu Rwandans fled to the region during the period 14–17 July 1994. Some of these Rwandans were part of the *interhamwe* (Hutu militia) and had actively participated in the genocide of Tutsi Rwandans, but the majority played no such role. In all cases, they sought refuge from possible revenge attacks by the Tutsi-dominated Rwandan Patriotic Front who had come to power. The poorly resourced towns of Goma and Kibumba were overwhelmed by the influx of people, and thousands died on the streets of Goma during the last two weeks of July (Goma Epidemiology Group 1995). Large numbers of refugees were hastily moved to makeshift camps in the region, with the United Nations High Commissioner for Refugees (UNHCR) attempting to coordinate the humanitarian assistance provided by various UN agencies, non-governmental organizations (NGOs) and military forces from Zaire, the USA, Canada and France (Adelman 1999).

Tragically, almost 50,000 people died from *Vibrio cholerae* and *Shigella dysenteriae* during the first month of mass displacement. To put it another way, somewhere between 6 per cent and 10 per cent of the refugee population died during this period (Goma Epidemiology Group 1995) and it has been argued that ‘the disease effectively followed its natural course, as [if] no action was taken’ (Guha-Sapir and Salih 1995: 101). Others have taken a similar view, including a senior director at Save the Children Fund UK, John Seaman, who said that ‘the course of the cholera epidemic in Goma appears to have been at best only marginally influenced by massive international action’ (1994: 34). The Goma Epidemiology Group also recorded high rates of acute malnutrition among children living in camps who were less than five years old. The prevalence ranged from 18 per cent to 23 per cent from 4–14 August 1994, and these rates were contrasted with an estimated prevalence ranging from 5 per cent to 8 per cent in non-refugee populations in Africa at the time.

Explanations for the failure of humanitarian agencies to prevent these public health emergencies vary. It is, of course, hugely challenging to provide adequate shelter, food, water, sanitation and health care to hundreds of thousands of people with minimal warning in resource-poor settings. With respect to the prevention of *Vibrio cholerae* and *Shigella dysenteriae*, it is also important to note that both infections were already endemic in the region. Given the speed with which people arrived in Goma and surrounding areas, and the fact that the majority of them were initially reliant on untreated water from Lake Kivu for drinking, bathing and washing clothes, it could even be argued that epidemics were an inevitable outcome. Roberts and Toole (1995) take this view. They present data suggesting that as many as one-half of all cases of cholera had been contracted in Goma by 26 July (which was before the establishment of many of the camps by humanitarian agencies), and they also point out that there is no data demonstrating that the establishment of refugee camps contributed ‘substantially’ to mortality from cholera.

These are useful points to raise, but foregrounding the paucity of data does not disprove the point that humanitarian agencies may have helped to create

the conditions for *Vibrio cholerae* and *Shigella dysenteriae* to spread. If the accounts provided by the Goma Epidemiology Group (1995), Siddique *et al.* (1995) and Waterman (2004) are accurate, then it seems likely that moving large numbers of people into camps while simultaneously struggling to provide access to clean water, basic sanitation and effective case management did little to prevent transmission. Waterman (*ibid.*), for example, pointed out that by 12 August there were still up to 1,000 people sharing a single latrine in Mugunga camp, while the Goma Epidemiology Group stated that by the time humanitarian agencies were in a position to provide each person with one litre of purified water a day (which was significantly below accepted humanitarian standards of 15–20 litres a day), the epidemic had peaked. Siddique *et al.* (1995) also demonstrated that fatalities from *Vibrio Cholera* and *Shigella dysenteriae* in treatment centres were higher than anticipated due to unexpected resistance to antibiotics such as tetracycline and doxycycline; inadequate use of oral rehydration therapy; inappropriate use of intravenous fluids; and insufficient experience of health workers in responding to severe cases of these two diseases.

The challenges which faced humanitarian agencies in North Kivu region in 1994 foreground a number of crucial issues which remain important. First, a comprehensive approach to epidemic preparedness and management at times of conflict and mass displacement necessarily requires a highly coordinated and well-resourced set of interventions. With around 450 international humanitarian organizations arriving in Zaire in a short period, it took time to establish mechanisms to intervene successfully. Countering critiques of chaos, Stockton usefully points out that ‘If in Goma some agencies turned up unnecessarily, it is very important to consider carefully what might have happened if an insufficient number had turned up’ (Stockton 1998: 359). It is possible, for example, that Rwandan refugees might have ended up living in ramshackle shelters on the outskirts of Goma, without ever acquiring access to clean water or sanitation, and thus would have become indefinitely vulnerable to contracting and/or transmitting cholera. In other words, fatalities from cholera and shigella could have been even worse than those recorded in the camps.

The need for a comprehensive and coordinated approach raises two further related points: it is always going to be difficult to predict the nature and scale of resources that will be needed during a humanitarian emergency, and these difficulties are compounded by the fact that even if agencies are technically and logistically prepared, they rarely have any understanding of the socio-political and historical context in which they are working. In the case of North Kivu, this had catastrophic consequences. Thousands of *interhamwe* managed to take advantage of the chaos on the ground. They reasserted their authority over camp populations and highjacked mechanisms established by humanitarian agencies for distributing food. This undoubtedly contributed to the development of acute malnutrition among children in the camps (Passant 2009). The need to adapt interventions to specific social, political and

economic contexts in which humanitarian agencies are working remains important today.

The introduction of cholera to Haiti by UN peacekeeping forces in 2010

A second much publicized ‘failure’ concerns the introduction of cholera to Haiti, following an earthquake in 2010. This earthquake killed around 220,000 people, injured a further 300,000 and left 1.5 million people homeless (Disasters Emergency Committee 2015). Nine months later a cholera outbreak began north of Port-au-Prince, spreading across the country as well as to the Dominican Republic and Cuba. There had not been a single recorded case of cholera in Haiti before the earthquake (Jenson *et al.* 2011), and the genetic analysis of the bacterium, *Vibrio cholerae*, subsequently demonstrated that the disease was brought to the country by UN peacekeeping forces from Nepal (Hendriksen *et al.* 2011). By the end of 2015 754,373 cases and a further 8,964 deaths from cholera had been reported (WHO 2016b).

To understand how this situation came about, it is important to note that Haiti has a long history of political instability and economic impoverishment. At the time of the earthquake, there was a small wealthy urban elite living in Port-au-Prince and the majority of the population were living on less than US \$2 a day (World Bank 2009; Rencoret *et al.* 2010). The country was grappling with a complex array of socio-economic issues, including deforestation, land erosion and rapid urbanization. Prior to the earthquake, an estimated 46 per cent of the Haitian population were living in overcrowded, poorly built, ramshackle houses in urban and peri-urban environments, often with limited access to clean water, sanitation and health services (*ibid.*).

The combination of a weak infrastructure, chronically underfunded and fragmented health services, as well as the destruction of a large number of government buildings (including the government’s Emergency Operations Centre, courts and police facilities), the collapse of the UN headquarters in Port-au-Prince, and the death of almost one-third of Haiti’s civil servants, prompted a huge international response. In fact, more than US \$13.5 billion was allocated to Haiti by a variety of governments and humanitarian agencies (Knox 2015). The Office for the Coordination of Humanitarian Affairs (OCHA) and the UN Stabilization Mission in Haiti (MINUSTAH) attempted to coordinate humanitarian activities. This was no easy task: an estimated 2,000 NGOs offered assistance in the first year, 400 of whom provided health care. In addition, 26 countries provided military support (including the USA which sent 22,000 soldiers). Reflecting on these events, Kirsch *et al.* have argued that the situation in Haiti was an ‘atypical disaster response driven by the U.S. government and military’ (Kirsch *et al.* 2012: 200).

Whatever the driving force, a great deal was achieved in the immediate aftermath of the earthquake. This included the provision of food, water and health care to hundreds of thousands of people. Nevertheless, serious tensions emerged between those receiving international assistance and those

attempting to meet their needs. Some of these tensions reflect the fact that a considerable number of humanitarian workers had little or no understanding of the political, social and economic contexts in which they were working. Avoidable issues – such as flying in staff who did not speak French or Creole – hampered the relief effort. Resettlement programmes were delayed or never completed, in part because the relevant humanitarian agencies did not engage effectively with the complex legal issues surrounding the ownership of land, and there was widespread criticism at local, district and national level of high NGO overhead costs that reduced the amount of money available for direct relief (Elliott and Sullivan 2015).

The introduction of cholera by UN peacekeeping forces from Nepal exacerbated the growing tension and mistrust between Haitians and humanitarian workers, fuelling rumours and conspiracies about the ‘hidden’ motivations underpinning the work of humanitarian agencies. The situation was not helped by the fact that it took nearly six years for the UN to acknowledge that the infection had been brought into the country by its own peacekeeping forces (Katz 2016). These issues remain ongoing. For example, Haitians attacked UN convoys delivering ‘aid’ following a hurricane in 2016 (Brice 2016); and Twitter was used by members of the public to specifically ask for donations to be made to Haitian NGOs rather than to humanitarian agencies, such as the American Red Cross (Agerholm 2016).

It is also important to note that while the initial cholera epidemic was brought under control, there is every indication that it will not be eliminated in the near future. Cholera is a disease of poverty and local conditions favour transmission. In the first four months of 2016, for example, there were almost 14,000 reported cases of cholera, and these numbers exceeded those reported in the same period of 2014 and 2015 (Pan American Health Organization 2016). In other words, cholera has become endemic in Haiti as a direct, albeit unintended, consequence of humanitarian assistance with the earthquake. These troubling events do not negate the fact that hundreds of thousands of people received shelter, food and health care in the wake of the earthquake. They do, however, point to a very mixed picture of humanitarian engagement in Haiti.

Humanitarian interventions controlling epidemics among dispersed populations: polio in the Horn of Africa, 2013–2014

In contrast to the preceding case studies, this case study analyses why humanitarian agencies were able to ‘successfully’ contain the spread of polio in the Horn of Africa. This was particularly impressive, given that Somalia has suffered from protracted war and conflict for several decades, with famine, epidemics and mass displacement occurring on a regular basis. Indeed, at the time of the outbreak, humanitarian agencies faced major difficulties while operating in many parts of the country due to ongoing insecurity, a weak infrastructure and numerous communication and coordination challenges.

Nevertheless, although the 2013–2014 outbreak of polio in Somalia spread to Kenya and Ethiopia, it was possible to interrupt transmission relatively quickly. This was not only because an effective vaccine was available, but also because detailed plans had already been drawn up to improve immunization coverage levels prior to the outbreak. Crucially, these plans involved ensuring that the immunization programme responded to the locally specific social and political issues shaping coverage levels.

According to Kamadjeu *et al.* (2014), the outbreak began in Mogadishu, and spread to 46 districts in South and Central Somalia, over a period of eight months. There was a total of 195 cases in Somalia, and a further 14 cases in Kenya and nine cases in Ethiopia. In contrast to the situations described in Goma in 1994 and Haiti in 2010, a coordinated body called the Global Polio Eradication Initiative, involving the World Health Organization (WHO), the UN Children’s Fund (UNICEF), the Centers for Disease Control and Prevention, the Food and Agriculture Organization of the UN (FAO) as well as international NGOs (such as the Catholic Relief Services and the American Red Cross), worked closely with local government officials from the Somalian Ministry of Health and the Ministry of Livestock to interrupt transmission (UNICEF Eastern and Southern Africa Regional Office 2014).

Containment in urban and suburban Mogadishu was rapid and effective. The outbreak was declared by the Ministry of Health within hours of the first case being confirmed, and radio commercials and NGO-led social mobilization efforts were up and running 72 hours later to inform populations of forthcoming immunization campaigns. These campaigns started five days after the first confirmed case (UNICEF Eastern and Southern Africa Regional Office 2014). Nevertheless, the outbreak presented considerable challenges in the rural areas of Puntland, north-eastern Somalia and the Somali region of Ethiopia. These places are inhabited by pastoralists, many of whom are mobile, difficult to reach, and distrustful of government and/or international agencies. It was, however, possible to design and implement interventions in the light of long-term, detailed social research among pastoralists as well as experiences acquired by international agencies.

Strategies for increasing the coverage of polio vaccination programmes included tracking nomadic groups and working closely with clan leaders. Pre-existing and predominantly trusting relationships had already been established by FAO’s animal health projects (Haydarov *et al.* 2016), and the Global Polio Eradication Initiative built on these networks by holding polio immunization days in places where people were already known to congregate with their livestock, notably watering points and markets. To encourage attendance, animal vaccination days were held at the same time (Kamadjeu *et al.* 2015). Participation was particularly effective because it was informed by ‘a thorough understanding of [pastoralist classification systems] and power structures; the spatial and temporal dimensions of their movement patterns; their beliefs and values; how to establish trust through respectful dialogue; and the services that they found most relevant’ (Haydarov *et al.* 2016: 14). In

short, it was possible to halt the transmission of polio by adapting the intervention to the local social and political contexts in which infection was occurring.

The changing nature of humanitarian engagement with epidemics: Ebola in West Africa, 2013–2016

The outbreak of Ebola in 2013–2016 presented unique challenges to humanitarian INGOs, multilateral and bilateral agencies, and the governments of the affected countries. The first reported case occurred in December 2013 in Meliandou, a small village near Guéckédou, in eastern Guinea (WHO 2015b). The virus subsequently spread to ten countries, with Sierra Leone, Liberia and Guinea facing the largest burden of cases. By 2016 there were 28,616 reported cases and 11,310 deaths (ibid. 2016c). These numbers are high, and far exceed the total number of cases and fatalities recorded in previous outbreaks in DRC, Uganda and South Sudan. This case study asks: why did Ebola spread so quickly in these three African countries? Why did the outbreak mobilize such a substantial response from humanitarian actors? What were the social and economic ramifications of such a large multi-agency international response? Is the involvement of military actors part of a broader change linking health and disease with global security?

Explanations for the rapid spread of Ebola are numerous and include the following: first, all three countries were recovering from protracted war and conflict, with economic impoverishment affecting the majority of the population. In 2014, for example, the UN Human Development Index ranked Liberia, Sierra Leone and Guinea 174, 177 and 178, respectively, out of 187 (UN Development Programme 2013). Related to this, the health systems in all three countries were characterized by limited resources, expertise and funding. As a result, surveillance systems were initially far too weak to detect unknown viral haemorrhagic fevers such as Ebola (McPake *et al.* 2015).

Second, the initial index case of Ebola occurred in eastern Guinea, close to the border of Sierra Leone and Liberia, but a considerable distance from the capital cities of Conakry, Monrovia and Freetown. With a long history of people moving easily and regularly across borders for both social and economic reasons, day to day mobility facilitated the transmission of Ebola in the region. It also enabled the spread of the disease to densely populated urban and peri-urban areas (Flahaux and De Haas 2016; ECOWAS-SWAC/OECD 2006). A third and related issue is that the respective health systems in Guinea, Sierra Leone and Liberia were organized in different ways, and there was no collaborative history of addressing public health problems spanning borders. It thus took time to establish effective systems for sharing information between the different Ministries of Health in the three affected countries.

Fourth, at the beginning of the outbreak, fatalities from Ebola were high, with estimates ranging from 50 per cent to 70 per cent mortality in confirmed cases (Whitty 2017; Fitzpatrick *et al.* 2015). Understandably, this generated

fear, panic and anxiety, especially as there was no vaccine at the time, and the biomedical treatment available for people infected with Ebola was limited. Insufficient staffing and limited medical supplies did little to appease the situation. Although biomedical understandings of the aetiology, treatment and prevention of Ebola changed during the outbreak, with guidelines, directives and messages regularly being updated to accommodate new knowledge, these changes created confusion across the region. For example, Ebola Treatment Centres (ETCs) were built with a view to isolating and caring for suspected and confirmed Ebola patients. However, many people were reluctant to seek a diagnosis and/or present themselves for treatment. In part, this reflected the fact that many of the early messages to members of the public from Ministries of Health stated that Ebola could be fatal in 90 per cent of cases, and they did not emphasize that survival rates were higher with treatment. That said, the situation was far from stagnant. As expertise about how to treat people increased and as sick individuals were identified earlier in their disease course, survival rates improved. This, in turn, encouraged people to come to ETCs, but it took time to establish effective processes and secure trust (albeit partial) from the wider population.

Fifth, the imposition of bylaws to control and/or prohibit population movement, as well as the widespread use of quarantine measures, was very strict in some places. These measures did little to quell anger, fear and suspicion, with resistance to the response being openly expressed to both governments and humanitarian agencies, particularly in the early stages of the outbreak. One much cited example of resistance to the quarantine bylaws was the attempt to cordon off the entire West Point neighbourhood of Monrovia. Tragically, this led to violence between the residents and security forces and the death of a 15-year-old boy (Onishi 2014). Furthermore, those quarantined were often not provided with food or water in a timely manner, nor was there any mechanism to ensure that their livelihoods would be protected. Such issues help to shed light on why some people hid themselves away when they or their families got sick, while others (sometimes successfully) escaped their enforced confinement.

Sixth, humanitarian agencies were unprepared for the epidemic and they were quickly stretched to their limits in terms of both expertise and capacity. In contrast to previous outbreaks, which involved a smaller number of agencies with expertise in Ebola, the West African outbreak involved a large number of agencies, the majority of whom had no previous experience of Ebola. Initially, they had little, if any, idea about how to engage with people at a local level with regards to this disease, and this often led to disorganized and conflicting approaches and advice. The large number of foreign agencies and actors on the ground also meant that the governments of the affected countries struggled to coordinate their activities and lead the response, a point made by (McPake *et al.* 2015) when comparing Sierra Leone's Ebola response with that of northern Uganda. This also links to concerns about global health governance and the fact that key institutions, including WHO,

were far too slow to respond to the outbreak (Moon *et al.* 2015). Although some INGOs, such as Médecins Sans Frontières, reacted quickly to contain the outbreak, other organizations were completely unprepared to work in a setting with active Ebola transmission and responded by withdrawing personnel and closing down their operations.

Whatever the explanations for the transmission of Ebola within and between Guinea, Sierra Leone and Liberia, it is also the case that the epidemic mobilized considerable resources and personnel. According to WHO (2015a), 58 international medical teams deployed around 2,500 personnel to work in more than 60 ETCs. These teams came from Europe, the USA, Cuba, the People's Republic of China, Australia and several countries in the African Union (DRC, Ethiopia, Nigeria and Uganda). They worked alongside thousands of colleagues employed by Ministries of Health and NGOs in the three affected countries. The scale of the response is further exemplified by the fact that an estimated US \$3.75 billion was spent on containing the virus between December 2013 and August 2015 (DuBois and Wake 2015). Indeed, it is noteworthy that this figure is higher than the combined annual government budget of \$2.37 billion for the three countries prior to the epidemic (CIA 2013).

The unprecedented scale of the response created a variety of challenges for governments and humanitarian agencies. In particular, the rapid influx of large sums of 'Ebola money' distorted local economies and disrupted social relationships. In Sierra Leone, for example, young men, including motorcycle drivers, were recruited by INGOs onto burial teams. They were paid considerable sums of money for collecting and disposing of dead bodies, and their newfound wealth enabled them to set aside or challenge the views of their elders (Lipton 2017). Tensions were also evident among frontline health workers. ETC staff employed by INGOs received substantial salaries and weekly risk allowances of up to 500,000 Sierra Leonean leones (Le), which were paid swiftly and reliably. By contrast, staff who were employed by the Ministry of Health and Sanitation with similar qualifications in tertiary and secondary hospitals, received smaller salaries but similar risk allowances, but these salaries and allowances were frequently paid late, erratically or not at all. A further source of tension was that contact tracers and community surveillance officers were paid considerably less (Le 100,000), even though they were having to identify Ebola cases at a community level, often without access to protective equipment, while staff employed at Primary Health Units did not receive any ~~kind of~~ risk allowance (Sierra Leone Ministry of Health and Sanitation 2015).

The sudden and unexpected availability of 'Ebola money' filtering through governments and humanitarian agencies not only disrupted social relationships, fuelling rumours and accusations of witchcraft (Shepler 2017), but it also distorted local economies. As the US Department of State (2013) pointed out, shortly before the outbreak, an estimated 72 per cent of the population were living on less than US \$1 a day (or Le 4,200). With large numbers of

Sierra Leoneans engaged in the response, many of whom had no formal employment prior to the outbreak, ‘Ebola money’ contributed to a sudden rise in the price of primary products (FAO 2014) while simultaneously reducing the purchasing power of government employees (such as teachers and university staff) whose salaries often went unpaid due to the closure of schools, colleges and universities during the outbreak. Other occupational groups were also affected, including those employed by mining companies, due to the closure of many mines. Similar issues were reported in Liberia and Guinea, with all three countries reporting considerable disruption in the production of iron ore (World Bank 2016). Additionally, restrictions on the movement of people and goods, including border closures, reduced internal and regional trade for a wide range of other products. The impact on agricultural production is less clear but it is likely that the Ebola outbreak disrupted planting in many places, leading to reduced yields of rice and maize, and fuelling further increases in the price of primary products (ibid. 2015).

These issues aside, there is no doubt that a unique challenge facing humanitarian agencies during the Ebola outbreak concerned the militarized nature of the response. This took slightly different forms in each country. In Sierra Leone, for example, the Minister of Defence was appointed the director of the National Ebola Response Centre and the Sierra Leonean Armed Forces played a pivotal role coordinating the response. In Liberia, the Minister of Health and Social Welfare directed the national response, but the military was still influential, albeit in a more supportive way (Kamradt-Scott *et al.* 2015). In all cases, the governments deployed their armies to help to set up road-blocks, assist with ‘lockdowns’, identify new cases, control access to hospitals and ETCs and – in the case of Liberia – ensure that bodies were cremated, rather than buried (ACAPS 2015; Kamradt-Scott *et al.* 2015). In addition, 5,000 military personnel were deployed by China, Canada, France, Germany, the UK and the USA. These foreign militaries built more than 3,000 ETC beds (ibid.).

While some scholars and humanitarian agencies welcomed the contribution of both national and international armed forces, albeit in a limited way (Médecins Sans Frontières 2015; Dizard 2014), others have been more sceptical (de Waal 2014; Kamradt-Scott *et al.* 2015). The primary justification revolved around the point that there was no choice other than to impose states of emergency and to use the military. All three countries had weak health systems, lacked the civil resources and personnel to respond effectively, and required broad-based strategies involving restrictions on movement, the imposition of quarantine (to varying levels) and the ‘safe’ disposal of bodies. Given that international armed forces were largely willing to restrict their role to the construction of ETCs, the transportation of goods, and supporting the coordination of the response; and given that local populations appeared to have more trust in their national armies than the police – at least in Sierra Leone – then one might reasonably ask: why not draw on these resources in an emergency? The counter-arguments include the fact that the international

armed forces were expensive and inefficient. On occasion, they took months, rather than weeks, to build ETCs compared to some of the INGOs doing similar work (Kamradt-Scott *et al.* 2015). A further issue is that all three national armies fostered an atmosphere of intimidation and fear which hindered efforts to interrupt transmission. Indeed, at a time when it was vital for local populations to comply with wide-ranging public health measures, there were numerous indications (particularly in Guinea and Liberia) that the militarization of the response may well have exacerbated fears, diminished trust in biomedicine and, ultimately, had a counterproductive impact.

Irrespective of the advantages and/or disadvantages of militarizing the response, the fact that national and international armed forces were thus engaged reflects a broader shift in the increasing militarization of global health more generally. This has been made possible by the emergence of a strong narrative linking disease outbreaks to the failure of states, as well as to regional and global security. It is epitomized in UN Security Council Resolution 2177 which states that ‘the outbreak is undermining the stability of the most affected countries ... and unless contained, may lead to further instances of civil unrest, social tensions and a deterioration of the political and security climate’. The Resolution also states that ‘the unprecedented extent of the Ebola outbreak in Africa constitutes a threat to international peace and security’ (UN Security Council 2014). Undoubtedly, the reference to ‘international peace and security’ is a way of referring to fears and anxieties of resource-rich nations. After all, in 2013, the year immediately prior to the Ebola outbreak, an estimated 21,000 people died from malaria and a further 8,000 children under the age of five years are reported to have died from diarrhoeal diseases in Liberia, Guinea and Sierra Leone (WHO 2016a). Such high fatalities have not elicited anything like the same response. It is also striking that a few months before the outbreak of Ebola, polio was declared a Public Health Emergency of International Concern by WHO, but received far less international attention (McInnes 2016). In short, humanitarian engagement with the outbreak of disease is now profoundly shaped by a narrative linking health and disease with global security.

Conclusion

This chapter has presented a series of contrasting case studies to reflect on the ways in which humanitarian agencies have engaged with epidemics. While not purporting to present a comprehensive overview, the cases foreground some of the complex issues that routinely arise. These include the challenges of preventing the spread of infectious diseases in countries with a long history of war, conflict and mass displacement. In such places, the infrastructure is usually weak; sanitation facilities and supplies of clean water limited or non-existent; Ministries of Health are under-resourced; and international staff with an understanding of the social, political and economic contexts in which they are working are often scarce. The arrival of hundreds of international

organizations, all with slightly different but overlapping expertise, adds to the challenges of providing an appropriately resourced and coordinated set of interventions.

Other issues are unique to the particular setting and outbreak: the failure to prevent the transmission of *Vibrio cholerae* and *Shigella dysenteriae* in North Kivu in 1994, for example, raised different social, political and logistical issues to those occurring in Haiti following the earthquake and the introduction of cholera by UN peacekeeping forces from Nepal in 2010. These issues were different again from those occurring during the outbreak of polio among dispersed and nomadic populations in Somalia, or the outbreak of Ebola in West Africa. Here, the absence of a vaccine, high levels of nosocomial infection, partially effective treatment, high fatality rates and the spread of the disease to urban areas within West Africa as well as to Europe and the USA triggered a large and unprecedented response, involving international humanitarian agencies, bilateral agencies, and national and international armed forces. In contrast to previous military engagements during outbreaks of disease, some of the armed forces were involved in more than the provision of logistical support and controlling the movement of people. In Sierra Leone, for example, they were closely involved in the design and implementation of policy with civilian partners. This reflects the increasing tendency for humanitarian engagement to be ever more linked to the securitization agenda. Above all, this chapter demonstrates that in such instances where interventions pay close attention to both the coordination of activities by diverse agencies while simultaneously adapting to the unique and differing social and political contexts in which epidemics occur, assistance tends to be more effective.

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