Learning from the Ebola Response in cities

Responding in the context of quarantine

ALNAP

ALNAP is a unique system-wide network dedicated to improving the performance of humanitarian action through shared learning. **www.alnap.org**

Acknowledgements

About the authors

Leah Campbell is a Senior Research Officer at ALNAP.

Christopher Adan and **Milimer Morgado** were Urban Response interns at ALNAP.

Contents

Executive Summary

The West African Ebola Virus Disease (EVD) outbreak in 2014/15 posed a number of urban-specific challenges to humanitarians responding to the crisis. One of these related to controlling the rapid spread of the disease across the urban landscape. Guinea, Liberia and Sierra Leone used quarantine at various points, which was by and large ill received, particularly in urban centres. This paper focuses specifically on the use of quarantine in urban environments during the humanitarian response to the Ebola Crisis.

As part of ALNAP's broader Ebola in Cities series, this paper identifies the following key messages to take forward into future public health crises in urban environments:

- Quarantine is a controversial and debated issue. While it has been used effectively to contain the spread of infectious disease, there are also significant risks related to human rights, creating fear and confusion as well as psychological impacts.

- International human rights law requires that quarantines, which restrict human rights in the name of public health or public emergency, meet certain requirements as laid out in the Siracusa Principle (Oxfam, 2014; Silva and Smith, 2015).

- Quarantine should be used as a last resort and, if possible, should be implemented in a partial and voluntary manner to minimise impacts on quarantined persons (CDC, 2014).

- Quarantine was used in a number of ways throughout the response in Guinea, Liberia and Sierra Leone. At times, entire areas were under quarantine, though often quarantine was applied just to individual households.

- Quarantines in urban areas are complicated by the size and density of their populations.

- Highly mobile populations make managing and enforcing quarantine more complex.

- Large-scale quarantines result in equally large waste disposal needs and other water, sanitation and hygiene (WASH) vulnerabilities.

- In a context where quarantine has been ordered, humanitarians have a role to address the basic needs of populations, including for food, water, hygiene items and information.

- Humanitarians also have a role in supporting the rights of quarantined people by monitoring the context, advocating for rights and reporting any violations of the Siracusa Principles.

1. Introduction

Quarantines have been employed for thousands of years as a strategy to reduce the spread of infectious diseases. More recently, quarantines have been used in a number of public health crises, including Severe Acute Respiratory Syndrome (SARS) outbreaks in Canada and China in 2003 and an incidence of Bubonic Plague in Yumen, China, in 2014.

In 2014 and 2015, the rapid spread of Ebola Virus Disease (EVD) led governments in Guinea, Liberia and Sierra Leone to impose quarantines in dense urban environments. This created a number of new challenges for humanitarian agencies working in these contexts.

As part of ALNAP's **Learning from the Ebola Response in cities**, this paper describes approaches to quarantine in urban Guinea, Liberia and Sierra Leone. It focuses in particular on how humanitarians navigated the context of urban quarantine, what worked and what didn't and what can be learnt for future public health emergencies in urban contexts. This paper does not seek to examine broader questions about quarantine, such as when/whether it is effective, when it should be used and other questions not specific to quarantine in urban environments or of direct relevance to international humanitarian organisations.

Woman in Sierra Leone living under house quarantine for 21 days after a person living in that house had been infected by Ebola; Photo: Julia Broska (2014)

2. What is quarantine?

Quarantine is a practice dating back to the 14th century, used today to describe the mandatory physical separation of people who have been, or are believed to have been, exposed to a contagious disease but do not show symptoms of the illness (Gensini, 2004). The goal of quarantine is to reduce public health risk (Koenig, 2015). It is similar to isolation, a practice whereby symptomatic individuals are separated, with the same objective (Day, 2006).

Table 2: Quarantine vs. isolation

Quarantine	Isolation
The separation and restriction of movement of healthy people who have been exposed to a contagious disease but do not (yet) exhibit symptoms.	The separation of people infected from a contagious disease from those who are uninfected.

When in effect, quarantines last the length of a disease's incubation period, which is the period of time during which an infection may appear in someone exposed to a contagious disease. For EVD, this period is 21 days.

The use and effectiveness of quarantine are a controversial and debated issue (Pandey et al., 2014; Barbisch et al., 2015). While they may help contain the spread of contagious disease, they often have negative connotations, evoking fear, confusion and resentment (Gensini, 2004). Research has found that quarantine 'can inflict significant social, psychological and economic costs without resulting in the detection of many infected individuals' (Day, 2006: 479). Guidance on quarantine can vary – each state determines its own protocols, which can create confusion (Jacobs, 2007; Barbisch et al., 2015). This inconsistency has led some to call for greater standardisation of quarantine approaches to ensure human rights and civil liberties are not abused (Barbisch et al., 2015).

3. Quarantine in practice

Quarantines are a measure of last resort and, used effectively, may reduce the spread of infectious diseases when facing a shortage of health personnel to support treatment centres and weak national health structures (Oxfam, 2014). However, careful implementation is important, as quarantines place physical, social and economic constraints on people, and, if not carried out in the least intrusive and restrictive manner possible, can risk violating human rights and lead to unrest, deception and noncompliance. Quarantined individuals need access to food, water for drinking and hygiene and daily health checks and may also require other support (Sustersic, 2015; WHO, 2015). International organisations have called for the application of a coordinated, rights-based approach to quarantines, with accurate and accessible data and information management systems, support for affected people and raised awareness of good quarantine practices (Oxfam, 2014).

The Siracusa Principles and the legal context for quarantine

State governments have the authority to enforce quarantine, where required and legal according to national and international law. To conform to international human rights law in the event of an infectious disease outbreak, states must satisfy certain minimum conditions before implementing quarantine. This is because quarantine limits some civil and political rights during a public emergency that threatens the life of a nation, in this case, public health.

The Siracusa Principles (AAICJ, 1985; see also WHO, 2005; CDC, 2015) state that:

- Quarantine must be enacted and supported in accordance with the law.

- Quarantine must be in the interest of a legitimate objective.

- Quarantine must be the lease intrusive and restrictive option available to reach that objective.

- Quarantine must be based on scientific evidence and be imposed in neither an arbitrary or nor a discriminatory manner.

- Quarantine must be in force for the shortest amount of time required and must respect human dignity and be subject to continuous review.

4. Quarantine in the West African EVD epidemic

The 2014/15 West African outbreak was the first time EVD had spread through an urban space. Previous outbreaks of EVD (such as Uganda 2000/01) had been concentrated mostly in rural areas (Sustersic, 2015). However, globally, other contagious diseases have affected urban centres, notably SARS (Gensini, 2005). During the EVD outbreak, quarantine was ordered at times on entire areas (e.g. West Point, Liberia; see below box) and at other times on individual households. The three countries most affected by the 2014/15 EVD epidemic had differing experiences with quarantine.

Table 2: Density and scale of urban areas

Country	Capital	Population (millions)	Area	Population density	Population share
Guinea	Conakry	1.936	450km²	4,300/km2	16%
Liberia	Monrovia	1.264	324km²*	3,900/km²	29%
Sierra Leone	Freetown	1.007	357km²	2,800/km²	17%

* Statistic unavailable. Calculated by dividing population by population density

Source: Developed from CIA World Factbook 2016 and Geohive 2015.

4.1. Liberia

A decade and a half of civil conflict in Liberia had decimated health facilities and left the country with high levels of poverty and displacement (UNDP, 2014). These conditions meant Liberia was poorly prepared for an outbreak of EVD. When the virus reached the capital Monrovia, the government instated a 90-day State of Emergency in combination with preventative measures. As part of its declaration, the government implemented quarantines in both rural and urban areas. At the time, media reports raised concern that large-scale quarantine would be difficult to manage and might infringe on human rights (Onishi, 2014; Hildebrandt 2014). Soon after enactment, and without sufficient local engagement, urban areas that had been ordered to quarantine en masse experienced confusion and violence. One well-publicised case is that of West Point.

4.2. Guinea

When EVD broke out, Guinea had been contending with internal conflict, political instability and limited health service capacity for some time. EVD first affected the Guinée Forestière region but then later spread to the capital city, Conakry. Having witnessed the negative ramifications of large-scale quarantine in Liberia, Guinea tried a different approach, trialling a 21-day micro-cerclage in certain neighbourhoods of Conakry. 'Micro-cerclage' is a small-scale quarantine approach, targeting a small number of households deemed to be areas of high risk.

Quarantine in West Point

West Point is a Liberian township within the capital of Monrovia. It is one of Monrovia's most densely populated informal settlements, home to approximately 75,000 people. The area suffers from persistent vulnerabilities including a lack of sanitation and public toilets.

On 15 August 2014, a week after a State of Emergency was ordered in Liberia, a school which had recently been converted into a holding centre (Onishi, 2014) for those with Ebola within West Point was attacked. Several patients suspected of having EVD escaped, and materials infected with the virus were stolen (MacDougall, 2014). Several days later, on 19 August, the Liberian government ordered the entirety of West Point to be quarantined (Associated Press, 2014; van Wagtendonk, 2014). President Ellen Johnson Sirleaf explained the decision to quarantine West Point was made because the attack on the health centre had 'put the entire community at risk, therefore we had to protect them from themselves' (MacDougall, 2014).

The quarantine, which encircled the area with razor wire, closed public spaces and restricted population movement, was met with immediate violence and resistance. Conflict between police and West Point residents erupted into violence. The military fired on protesting crowds, killing one teenager and wounding at least one other (News24, 2014; Onishi, 2014). Despite the 21-day period not having been concluded, the quarantine of West Point was lifted on 30 August as authorities became more confident that they could engage with residents and achieve the aim of quarantine (limiting further infections) through other means (Paye-Layleh, 2014).

4.3. Sierra Leone

As the spread of EVD progressed, shifting transmission patterns placed the majority of cases within Sierra Leone, in the capital city Freetown. During the epidemic, the government of Sierra Leone declared a public health state of emergency, limited public gatherings and enforced quarantines at multiple scales. District-level, government-imposed quarantines were the initial strategy, which at one point ordered over a million people under quarantine (ACAPS, 2015b). When transmission dynamics and response strategies were better understood, self-quarantines and quarantine at a household level were more common.

5. Humanitarian response in the context of quarantine

It is the responsibility of state governments to decide when quarantine may be necessary, and to comply with the Siracusa Principles to enact it according to national and international law. While humanitarians are not responsible for enforcing quarantine, there are a number of ways they can respond if they find themselves in a context where quarantine has been ordered.

Addressing the basic needs of quarantined people

When a quarantine has been imposed, the affected households will need support to access the food, water and hygiene and other basic items they require. They will also need information, and may require health and psychosocial support. Children may need educational support, where they are unable to attend school or schools are closed. The needs of young children, pregnant and lactating mothers and those with special dietary needs are also important to consider (Sustersic, 2015).

Humanitarians can address the basic needs of quarantined people by assessing the needs of quarantined households and working in a coordinated way to provide food, water for drinking and bathing and other basic necessities to those under quarantine. Humanitarians can also provide health screening and psychosocial services for quarantined households (UNDP, 2014; Sustersic, 2015). They can ensure quarantined households receive useful and relevant messages about hygiene and safety. Here, using a variety of approaches, including radio programmes, can be an effective strategy (IOM, 2016). Humanitarians can also support affected households to replace household items that have been destroyed for fear of contamination, such as bed sheets and towels, by providing new items and arranging for the safe disposal of contaminated ones (Oxfam, 2014). Items to prevent cross-infection, such as colour-coded plates, cutlery and toothbrushes may also be useful (Sustersic, 2015).

Supporting the rights of quarantined people

In a context of quarantine, affected individuals are restricted from moving freely and cannot conduct their normal livelihood activities. These restrictions contravene human rights, which emphasises the importance of the Siracusa Principles. They may also mean quarantined persons suffer social, economic and emotional effects.

Humanitarians can support the rights of quarantined people by monitoring the context of quarantine, looking out for any gaps or violations of the Siracusa Principles and then acting in the best interest of the affected individuals. In situations where humanitarian organisations perceive that quarantine restrictions are not being implemented in accordance with the Siracusa Principles, there is an important advocacy role for them to play.

6. Challenges of quarantine in urban areas

During the 2014/15 EVD epidemic in West Africa, organisations responding in urban areas faced several quarantine-related challenges, including those related to density, trust and pre-existing water, sanitation and hygiene (WASH) vulnerabilities. The following sections discuss these challenges, including how organisations approached them.

6.1. The size and scale of urban areas presented a challenge to containing the spread of EVD

In the urban centres of Guinea, Liberia and Sierra Leone, the large numbers of affected people meant there was a need for a large volume of services and a high degree of coordination between actors to respond to this requirement. When many people were quarantined, this had large-scale consequences. At one point in Freetown, nearly 50% of the population was under quarantine (ACAPS, 2015b). This meant a huge number of households in often logistically challenging areas required food and water transported to them.

The scale of the response required actors to work together, dividing up geographies to deliver food and water assistance to quarantined households. In some ways, this was an effective way to reach the large numbers of people. Organisations agreed to a minimum set of basic provisions and divided areas into zones. However, this led to inconsistencies: some organisations delivered water to drink but not to wash. It also meant several organisations each had to find solutions to the logistical challenges of reaching quarantined households, particularly in dense informal areas. Many quarantined households did not receive, for example, maternity and other health services, as not all responding organisations provided these.

6.2. The density of dwellings in urban areas complicated quarantine

The dense physical layout of the EVD-affected urban environments in West Africa, many of which were informal settlements with little clarity on household borders, further challenged the response. Where you cannot tell where one house ends and another begins, how can quarantine be managed effectively? The physical density of dwellings complicated the response logistically, particularly where large amounts of food and water needed to be transported across the city. One interviewee working in Freetown explained that often over 1,500 quarantined households had to be reached just in the area of the city they were operating in every day, with more added to the list each day.

6.3. Quarantine was a big ask of highly mobile urban populations

Urban populations are accustomed to a high degree of mobility. Quarantine restricts this, with significant impacts on people's daily lives. People were often reluctant or unwilling to remain confined in their homes and would leave. In areas where households could be monitored only once or twice a day for compliance with quarantine measures, there were ample opportunities for those unwilling to

comply to break these. For quarantined residents who did comply with movement restrictions, there was a high likelihood of suffering socioeconomic impacts and livelihood obstructions. Quarantined individuals were likely to lose employment or income sources (Sustersic, 2015). This was a particular problem for the poorest households, which depend on freedom of movement to earn money to pay for food each day.

6.4. Mass quarantine meant mass waste

The large scale of the outbreak also resulted in a huge amount of waste. Given the nature of EVD transmission, any clothing, bedding and other materials that came into contact with infected people had to be disposed of. While quarantined, households may not have had access to their usual waste disposal methods, such as taking waste to a central collection point. The concentration of waste occurred in an environment already suffering from solid waste disposal challenges.

A number of innovative solutions to address sanitation challenges in large-scale crises have emerged over the past several years. One such invention is Pee-Poo bags,[1] which can be used where other sanitation options are not possible. The challenge with Pee-Poo bags, however, is that they must be disposed of, and for quarantined populations unable to leave their residence for several weeks this, along with general daily household rubbish, meant a large volume of waste produced in a small area with few options for disposal. One response some humanitarians used was to provide large plastic bags and drive to collect waste, which was collected and burned (Oxfam, 2016).
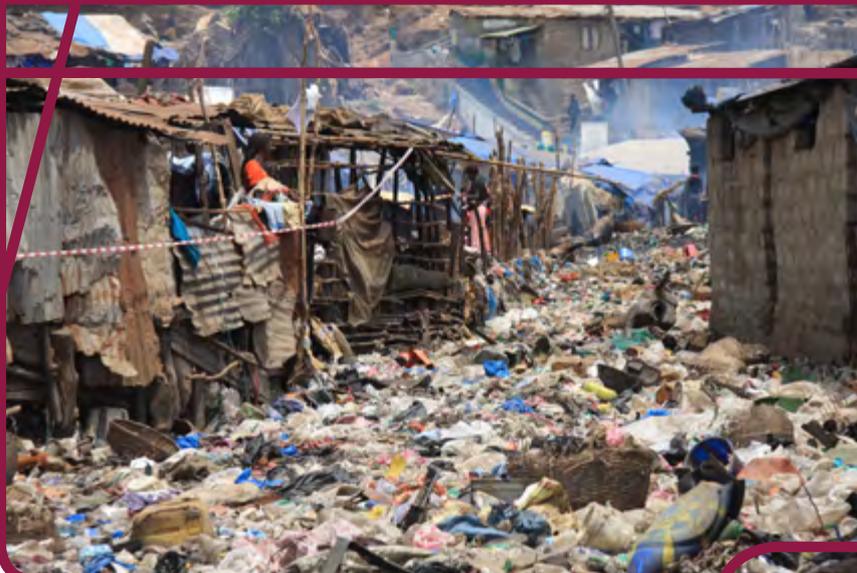
Mass waste produced due to quarantine in Moa Wharf, in Freetown, Sierra Leone; Photo: Anthrologica (2015)

Recent stats on chronic WASH vulnerabilities in West Africa

Pre-existing WASH vulnerabilities in EVD-affected countries in West Africa around the time of the EVD outbreak were as follows:

- 57% of Sierra Leoneans have access to safe drinking water (FUWC, 2013).

- Only 14% of Monrovia, Liberia, is covered by sewage systems (ACAPS, 2015b: 4).

- Only 40% of waste in Freetown, Sierra Leone, is formally collected and 47% of Guinea's urban population dispose of their waste outdoors (ACAPS, 2015b).

- Only 33% of urban households in Sierra Leone have hand-washing facilities and 37% of the urban population in Guinea use soap and water for hand-washing (ACAPS, 2015b).

- About 83% of residents in Liberia do not have access to toilets (Prabasi, 2014) and 25% of Liberians practise open defecation (ACAPS, 2015b).

6.5. Pre-existing inequalities within cities were amplified during the public health crisis

Crisis situations exacerbate existing vulnerabilities. In large, dense, informal settlements such as those in West African cities, poor infrastructure and urban services, particularly WASH services, further disadvantage residents and increase vulnerability to the spread of disease (WHO, 2015).

In many areas, quarantined households had limited access to WASH facilities before EVD spread. This access was further limited under quarantine, and in some cases households lost all access to water sources and were completely reliant on water being brought to them by aid agencies.

6.6. Public backlash to quarantine orders

'It's very hard if you're trying to build community engagement and then you have a military force threatening people' (interviewee).

Across the response, communication about quarantine and the reasons behind it was poorly handled. While communication and engagement are discussed in more detail in the third, forthcoming paper on Ebola in cities, it is important to note that top-down imposition of quarantine orders resulted in a public backlash and in some cases in violence during the West African EVD response (Hoffman, 2016).

It was the authorities that issued and managed much of the communication on quarantine. In future urban public health crises, humanitarians could advocate for governments to better explain their decisions around quarantine, which would improve compliance and reduce backlash (UNDP et al., 2015).

7. Conclusion

Despite quarantine's lengthy history as a public health measure to control the spread of disease, global experience has been predominantly in rural areas. Because of this, the urban context of the EVD outbreak challenged humanitarian workers, throwing up new obstacles to containment and areas for adaptation. Meanwhile, there are on-going debates within the medical and public health community about the effectiveness of quarantine (Delaporte et al., 2013; Pandey et al., 2014; Barbisch et al., 2015). While authorities may feel it is necessary to contain the spread of diseases such as EVD, quarantine does violate human rights. Even when executed legally, it can evoke negative feelings and consequences, especially in precarious urban environments.

The West African outbreak was the first spread of EVD in an urban context. Experience with quarantine varied across Guinea, Liberia and Sierra Leone. However, all three countries found it difficult to undertake quarantine, given the scale, density, mobility and inequalities of the urban contexts. Chronic WASH vulnerabilities across all of the affected countries complicated the response, as did mistrust and poor communication between government and local communities.

Across the response, mass approaches to quarantine were perceived as top-down and out-of-touch and often led to violence and disobedience. Approaches that effectively engaged communities were more successful, and in some cases communities self-isolated as an alternative to imposed quarantine. Where humanitarians provided support to quarantined households, this support was most effective when it was timely (so those quarantined didn't go without and break the quarantine to get what they needed), when it responded to multiple needs (including food, water for drinking and for bathing and hand-washing) and when it was well communicated.

Given the immense challenges the dense, mobile environment in urban contexts poses, as well as on-going debates around the usefulness of quarantine in any context, further research on the usefulness of quarantine, and potential alternatives to reach the same aims, would be useful additions to the current evidence base.

Endnotes

1. Pee-Poo bags are an emergency response option that can be used before latrines can be constructed. They are distributed to reduce high-risk defecation practices following an event and the transmission of faecal-oral disease in areas of high population density (Oxfam, 2016).

Bibliography

The following publications can also be accessed via the **Humanitarian Evaluation and Learning Portal (HELP)**: **www.alnap.org/resources/ebola-in-cities**

ACAPS (2015a) *Ebola outbreak, Sierra Leone: Communication: Challenges and good practices.* Geneva: ACAPS. Available at **http://www.urban-response.org/resource/22983**

ACAPS (2015b) *WASH in Guinea, Liberia, and Sierra Leone: The impact of Ebola.* Geneva: ACAPS. Available at **http://www.urban-response.org/resource/20612**

AAICJ (American Association for the International Commission of Jurists) (1985) *Siracusa Principles: On the limitation and derogation provisions in the international covenant on civil and political rights.* New York: UN. Available at **http://www.urban-response.org/resource/23796**

Associated Press (2014) 'Liberian soldiers seal slum to halt Ebola'. *NBC News*, 20 August. Available at **http://www.urban-response.org/resource/23751**

Barbisch, D., Koenig, K. and Shih, F.Y. (2015) 'Is there a case for quarantine? Perspectives from SARS to Ebola'. *Disaster Medicine and Public Health Preparedness,* 9(5): 547–53. Available at **http://www.urban-response.org/resource/23723**

CDC (Centers for Disease Control) (2014) *Understand quarantine and isolation.* Atlanta, GA: CDC. Available at **http://www.urban-response.org/resource/23725**

CDC (2015) *Legal authorities for isolation and quarantine.* Atlanta, GA: CDC. Available at **http://www.urban-response.org/resource/23801**

Day, T. (2006) 'When is quarantine a useful control strategy for emerging infectious diseases?' *American Journal of Epidemiology,* 163(5): 479–485. Available at **http://www.urban-response.org/resource/23727**

Delaporte, E., Wyler Lazarevic, C.A., Iten, A. and Sudre, P. (2013) 'Large measles outbreak in Geneva, Switzerland, January to August 2011: Descriptive epidemiology and demonstration of quarantine effectiveness', *Euro Surveillance* 18(6). Available at **http://www.urban-response.org/resource/24104**

FUWC (Freetown Urban WASH Consortium) (2013) *Final phase narrative report: January 2010 to March 2013.* Freetown: FUWC. Available at **http://www.urban-response.org/resource/23728**

Gensini, G. (2004) 'The concept of quarantine in history: From plague to SARS', *Journal of Infection* 49(4): 257–261. Available at **http://www.urban-response.org/resource/23730**

Hildebrandt, A. (2014) 'Ebola outbreak: Why Liberia's quarantine in West Point slum will fail'. *CBA*, 25 August. Available at **http://www.urban-response.org/resource/24365**

Hoffman, D. (2016) A Crouching Village: Ebola and the Empty Gestures of Quarantine in Monrovia. *City and Society,* 28: 246–264. Available at **http://www.urban-response.org/resource/24366**

Human Rights Watch (2014) *West Africa: Respect rights in Ebola response*. New York: Human Rights Watch. Available at **http://www.urban-response.org/resource/23799**

IOM (International Organization for Migration) (2016) *Guinea Ebola response: Situation Report 1–20 April 2016.* Geneva: IOM. Available at **http://www.urban-response.org/resource/23740**

Jacobs, L. (2007) 'Rights and quarantine during the SARS global health crisis: Differentiated legal consciousness in Hong Kong, Shanghai, and Toronto'. *Law Soc Rev*, 41(3): 511–552. Available at **http://www.urban-response.org/resource/23741**

Koenig, K. (2015) 'Health care worker quarantine for Ebola: To eradicate the virus or alleviate fear?' *Annals of Emergency Medicine*, 65(3): 330–331. Available at **http://www.urban-response.org/resource/23742**

MacDougall, C. (2014) 'Liberian Government's Blunders Pile Up in the Grip of Ebola'. *TIME Magazine*, 2 September. Available at **http://www.alnap.org/resource/24367.aspx**

Médicins Sans Frontières (2014) *Ebola: Quarantine can undermine efforts to curb epidemic*. [Blog]. 27 October. Available at **http://www.urban-response.org/resource/23800**

News24 (2014) 'Last Ebola-free region of Liberia falls to virus'. *News24,* 22 August. Available at **http://www.urban-response.org/resource/23752**

Onishi, N. (2014) 'Inquiry faults Liberia force that fired on protestors'. *The New York Times*, 3 November. Available at **http://www.urban-response.org/resource/23753**

Oxfam (2014) *Quarantines in Sierra Leone: Putting people first in the Ebola crisis*. Oxford: Oxfam. Available at **http://www.urban-response.org/resource/23744**

Oxfam (2016) *Peepoo bags – 28,000 pce — equipment catalogue*. Oxford: Oxfam. Available at **http://www.urban-response.org/resource/23745**

Pandey, A., Atkins, K., Medlock, J. et al. (2014) 'Strategies for containing Ebola in West Africa', *Science* 346(6212): 991–995. Available at **http://www.urban-response.org/resource/24370**

Paye-Layleh, J. (2014) 'Liberian Ebola survivor calls for quick production of experimental drug'. *Global News,* 30 August. Available at **http://www.urban-response.org/resource/23754**

Prabasi, S. (2014) 'Overview: Water, sanitation, hygiene and communicable diseases in West Africa', Outside Witness Testimony for U.S. Senate Committee on Appropriations on behalf of WaterAid America. Available at **http://www.urban-response.org/resource/23804**

Silva, D. and Smith, M. (2015) 'Limiting rights and freedoms in the context of Ebola and other public health emergencies: How the principle of reciprocity can enrich the application of the Siracusa Principles'. *Health and Human Rights* 17(1): 52–57. Available at **http://www.urban-response.org/resource/23746**

Sustersic, L. (2015) *Quarantine in Sierra Leone. Lessons learned: On the use of quarantine in Sierra Leone as a support measure during the Ebola Epidemic 2014-2015.* Freetown: Welthungerhilfe. Available at **http://www.urban-response.org/resource/21963**

Thomas, T., Leander-Griffith, M., Harp, V. and Cioffi, J. (2015) 'Influences of preparedness knowledge and beliefs on household disaster preparedness'. *CDC Morbidity and Mortality Weekly Report*, 64(35). Available at **http://www.urban-response.org/resource/23739**

UNDP (UN Development Programme) (2014) *Assessing the socio-economic impacts of Ebola Virus Disease in Guinea, Liberia and Sierra Leone*. New York: UNDP. Available at **http://www.urban-response.org/resource/23747**

UNDP, World Bank and European Union (2015) *Recovering from the Ebola Crisis: A summary report*. Available at **http://www.urban-response.org/resource/21320**

UNICEF (UN Children's Fund) (2015) *Water, sanitation and hygiene: The case for support*. New York: UNICEF. Available at **http://www.urban-response.org/resource/23748**

UN Mission for Ebola Emergency Response (2015) *External situation report*. Available at **http://www.urban-response.org/resource/23749**

Van Wagtendonk, A. (2014) 'Liberian mob attacks Ebola clinic; dozens of patients missing'. *PBS News Hour*, 18 August. Available at **http://www.urban-response.org/resource/23750**

WHO (World Health Organization) (2005) [2008 ed.] *International health regulations*. Geneva: WHO. Available at **http://www.urban-response.org/resource/23797**

WHO (2015) *Factors that contributed to undetected spread of the Ebola virus and impeded rapid containment*. Geneva: WHO. Available at **http://www.urban-response.org/resource/23755**

Related ALNAP publications

Learning from the Ebola Response series

Communication and engagement

Population movement

Previous ALNAP reports on urban

Stepping back: Understanding cities and their systems

Humanitarian Interventions in Settings of Urban Violence

Meeting the Urban Challenge:
Adapting humanitarian efforts to an urban world

Other ALNAP publications

State of the Humanitarian System 2015

www.alnap.org/urban

ALNAP
Overseas Development Institute
203 Blackfriars Road
London SE1 8NJ
United Kingdom

alnap@alnap.org