Ebola: controlling the nightmare

G. L. Carson*, J. Dunning, K. S. Longuere and W. A. Brooks

International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC) Coordinating Centre, University of Oxford, Centre for Tropical Medicine, NDM Research Building, Old Road Campus, Roosevelt Drive, Oxford, OX3 7FZ, UK

*Corresponding author: Tel: +44 791 759 4328; E-mail: gail.carson@ndm.ox.ac.uk

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The unprecedented outbreak of Ebola virus disease (EVD) in West Africa is a true global public health emergency, requiring extraordinary measures and global cooperation. Throughout 2014 the world has observed a global health crisis unfold in a way that has never been seen before (Box 1). Multiple outbreaks of EVD have overwhelmed healthcare and humanitarian services in many areas, restricting the ability to perform contact tracing and efforts to limit onward transmission. Existing treatment centres struggle under the strain of large numbers of patients and the rapid and unchecked growth of cases witnessed in some areas means that new facilities reach their capacities almost as soon as they have opened. Tragically, scores of healthcare workers have died and affected countries are being stripped of their already limited medical workforce. Growing numbers of international workers who have helped to fill gaps are now being evacuated from affected countries, at the same time as calls are being made for more workers on the ground. Médecins Sans Frontières (MSF), an organisation with a deep understanding of this epidemic and previous filovirus outbreaks, has told the UN that military support is required and in response the military has begun to deliver support. Other interventions, viewed by some as last resort measures, include the introduction of ‘cordons sanitaires’ and countrywide lock-downs. These are clear warning signs of an impending humanitarian catastrophe. In response, WHO, the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC) and their partners are assisting with specific measures, but a concerted global effort is required if we are to win this battle.

Fadela Chaib (WHO) recently said that beds are required for 50 Ebola Treatment Units across Guinea, Liberia and Sierra Leone. There is currently 1126 beds, which is only 25% of what is needed.1 This level of demand for clinical care is unprecedented in the context of viral haemorrhagic fever outbreaks. The previously held view of Ebola—as a deadly infection that affects remote villages and burns out before dissemination occurs—is now obsolete. We have no choice but to change the way we attempt to control outbreaks of EVD and treat infected patients. Armand Sprecher of MSF Belgium articulates this well, “We [MSF] are being stretched thin by the multiplication of outbreak sites. Now it is a challenge of local scale. Monrovia will dwarf all our past experiences and require rethinking of what we do. For instance, we opened in Monrovia with insufficient medical staff before we were ready because patients were dying in the street and in cars outside our compound. We opened just to give them a bed to die in. Ordinarily, we would expect to bring up the level of care as our staffing levels increased. (A. Sprecher, personal communication, 2014).”

Hopefully, by the time this editorial has been published, the necessary beds will be available and there will be adequate numbers of healthcare workers to provide the level of care that patients require. If good clinical care is made widely available then patients may be more inclined to present and be placed in isolation, which ultimately will help to contain this outbreak.

The need for patients to present to treatment centres and be placed in isolation, as well as the reported mistrust within the affected communities, emphasises the importance of community engagement. Asiya Odugle-Kolev, community engagement specialist at WHO, Geneva, makes a number of key points; community engagement is critical to outbreaks, especially in areas where there is widespread transmission, it takes place when the clinical team or research team interacts with communities, for example through contact tracing, obtaining diagnostic samples, and through general contact with health care workers or social mobilizers (A. Odugle-Kolev, personal communication, 2014).

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Odugle-Kolev goes on to highlight that it is critical to address the emotions of response staff. If they feel safe then they are able to practice safer care. We know from earlier EVD outbreaks that the staff feel obliged to care for their patients despite the risks to their own health. As of 29 October 2014, the number of healthcare workers who have been infected is 523.

When responding to the severe acute respiratory syndrome (SARS) outbreak in Hong Kong, Lau et al. noted key factors that were significantly associated with healthcare worker safety: duration of training, perceived inadequacy of personal protective equipment (PPE) supply and the inconsistent use of PPE were significant risk factors for the acquisition of SARS. The sheer extent of the logistics required to ensure there is enough PPE for this EVD outbreak is staggering with estimates of two to three PPE changes per bed, per day (A. Sprecher, personal communication, 2014).

By the time this editorial is published, 4 weeks or so will have passed, but the challenges of breaking chains of transmission will probably remain. Therefore, it is hoped that the world’s first interventional study for EVD will have been launched. Practical interventional studies, such as those planned by ISARIC, working in partnership with WHO, MSF and the manufacturers of potential treatments, form an important part of the global response to this devastating outbreak.

There is a duty to ensure that standardised clinical data are collected for patients receiving any intervention, whether given compassionately or as part of a study. This will be a challenge, since data collection is likely to take place in a climate where there is a desperate need for healthcare workers and a widespread mistrust of healthcare workers in many communities. These factors need to be addressed before a study takes place or they at least need to be addressed in parallel.

In a bid to help the with outbreak response, ISARIC with WHO have already revised their clinical characterisation protocol to include EVD and have developed a tiered approach to clinical data collection (and biological sampling, if possible) that is appropriate to local resources. Considering the challenges we face with this outbreak and the current dearth of basic clinical data, it is quite possible that only limited, core data sets will be collected, but this will still be an important contribution to our clinical understanding of this disease, which in turn could improve its clinical management. All data collected by ISARIC, with the explicit approval of national governments, will be shared with WHO to aid with the outbreak response.

We have to act now and strengthen the response before the disease becomes a persistent and more widespread problem (Box 2). Other countries cannot ignore this outbreak, not least because air travel presents the risk of introducing imported infections, as recent events in the USA, with possible community exposure in one case, have shown. More importantly, countries around the world that are able to offer assistance have a moral obligation to intervene, providing practical ground-level support, in what undoubtedly will prove to be one of the worst infectious disease outbreaks of the century.

Box 2. Key steps to control this Ebola outbreak

- Standardised clinical care and documentation using a standard format.
- Systematic testing of interventions.
- Additional funding and resources.
- Improved communication with the communities.

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### References