EBOLA: A nation in crisis

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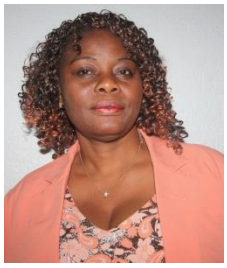

INTRODUCTION

At the end of December 2013, a two year old child living in the remote village of Meliandou, Guinea died from a 'mysterious disease'.[1] In March 2014 the Ministry of Health in Guinea reported concerns about the spread of this 'mysterious illness' which was eventually diagnosed and reported on the website of the WHO Regional Office for Africa on 23 March as Ebola Virus Disease (EVD).

By that time, the end of week 11 of the epidemic, there were 86 reported cases in Guinea and 60 deaths.[2] Mèdecins Sans Frontiéres (MSF) was the first international agency to respond establishing a base in Guinea in March 2014 within four days of the declaration of the epidemic in that country.

By epidemic week 25, on 23 June 2014, MSF warned the world that the epidemic was 'out of control' with 528 cases and 337 deaths being reported across 60 sites in Guinea, Liberia and Sierra Leone.[3] However it was not until the end of epidemic week 31, on 9 August 2014, that the WHO declared the Ebola epidemic as a "public health emergency of international concern".[4] By this time there were 1,171 cases and 932 deaths.

The WHO noted that the three countries most affected had fragile health systems with significant deficits in human, financial and material resources, resulting in a compromised ability to mount an adequate Ebola outbreak control response; they were inexperienced in dealing with Ebola outbreaks; there were misperceptions about the disease and how it was transmitted; there was high population mobility across borders; and a high number of infections had been reported among health care workers highlighting inadequate infection control practices.[5]

The international community was already aware the affected countries faced these challenges long before the outbreak of Ebola.

It was not until epidemic week 37, on the 18 September that the United Nations Security Council unanimously passed Resolution 2177 (2014) stating that the "unprecedented extent" of the epidemic "constituted a threat to international peace and security".[6]

Twelve months after the first epidemic was declared in Guinea in March 2014, there have been 24,282 cases and 9,976 deaths, 491 of them health workers[7] and the EVD epidemic in West Africa - in Guinea, Liberia, and Sierra Leone - is still not over. Many questions are now being asked the world over as to how and why this situation developed and what can we do to make sure it does not happen again?

THE INTERNATIONAL RESPONSE

In 2010, a WHO review committee was convened to evaluate the response to the 2009 H1N1 influenza pandemic and assess the level of global preparedness for similar events in the future. The committee concluded that, "The world is ill-prepared to respond to a severe influenza pandemic or to any similarly global and threatening public health emergency", however in November 2014, four years later, only 64 of the WHO 194 member states were assessed as having the essential surveillance, laboratory capacity, data management, and other health system capacities to respond to a public health emergency.[8]

Having faced the threat of H1N1 in 2009 and knowing in 2014 that at least 130 countries were unprepared for a public health emergency, why was nothing done?

Wilkinson and Leach[9] offer a set of explanations and contend that "structural violence" contributed to the epidemic. They define structural violence as "the way institutions and practices inflict avoidable harm … damage is done unequally and often in a manner which comes to be taken for granted" (p.1). Wilkins and Leach argue their case within three domains: the failure of outbreak response and global health governance; compromised health systems and development policy; and misleading assumptions and myths.

Failure of outbreak response and global health governance

Wilkinson and Leach maintain that from the outset, and despite warnings, the international response to Ebola was "disastrously ineffective", lacked leadership, funds, equipment and human resources and that it was an avoidable disaster.

While the WHO comes in for criticism, they point out that essential restructuring following significant budget and staff cuts in 2011 led to a re-focus of WHO priorities on NCDs and a shift to providing technical advice rather than taking responsibility for health as a global public good.

The capacity of the WHO to respond to global health emergencies was also influenced by politicized appointments of staff and poor and disjointed coordination between head office and regional and country offices. WHO themselves see their role as "convener and conduit … providing information and services and mobilising partners to agree on standards and courses of action" in international health emergencies.[10] The policies of "new players with significantly larger budgets" than the WHO pursuing vertical programs relating to specific diseases such as HIV, tuberculosis and malaria, completely undermined commitments to horizontal health system strengthening.

Additionally, Wilkinson and Leach point out, international donations to the Ebola relief fund of the United Nations were poor from both governments and the private sector. They comment that the need for international governance systems that conceive of health as a properly funded global public good, enabling rapid responses to crises when they do emerge has been undervalued for too long.

Compromised health systems and development policy

A history of political stability, corruption, and civil wars in Liberia and Sierra Leone left essential infrastructure neglected or destroyed. Wilkinson and Leach note that in the three countries worst affected by EVD, there was a "pervasive" lack of resources, equipment, money, and health workers and what was there was likely to be inappropriate or inadequate.

The structural adjustment programs promoted by the World Bank and the International Monetary Fund requiring as a condition of loans that poor countries pursue deregulation, privatisation, market competition and wage suppression; and reduce public spending, government provided services and social spending meant that as a consequence, there were reduced resources for and capacity to strengthen health systems. Health became a commodity and an individual responsibility.[11] Countries relied heavily on donor aid to meet essential health services and were captured by the priorities of the donor rather than the needs of the community. The lack of services led to a loss of confidence in the system by the community who turned to tradition healers and tradition medicine to meet their health needs.[12]

Misleading assumptions and myths

The first misleading assumption on the management of the Ebola epidemic addressed by Wilkinson and Leach was that Ebola could be contained within national borders; that closing borders would be effective for a highly mobile population whose movement patterns reflected not just trade routes but social networks and kinship visits. The response by airlines in cancelling flights to the affected areas of West Africa, which Wilkinson and Leach describe as "hysterical", made it difficult for the international mobilisation of health workers and essential goods to the area.

The initial response from officials warning people against eating bush-meat was another myth that Wilkinson and Leach maintain was irresponsible in the extreme, depriving people of essential protein and suggesting that Ebola was transmitted animal to human rather than human to human. An opportunity was lost for education on the safe use of bush-meat and honesty about transmission of the virus.

Implementing a centralised treatment model and failing to work with communities was another misleading assumption that cost lives. The distances and the roads made it impossible for sick people to make the journey.

Community education, engagement and cooperation at the local level from the beginning would have done more to halt the spread, identify infected people, and trace contacts.

Working with communities to find solutions for dignified burials, Wilkins and Leach state, would have contributed to a greater understanding of the way the disease spread and allayed fears about the reason for decisions made and the dehumanising personal protective equipment worn by health workers.

THE COMMONWEALTH RESPONSE

The Commonwealth Nurses and Midwives Federation (CNMF) has a close relationship with the Sierra Leone Nurses association (SLNA) who advised the CNMF in late June of the deaths of three nurses from EVD. This was reported in the July 2014 issue of the CNMF e-News.[13] Messages of support from other CNMF members were sent to the SLNA and regular communication and support was established.

Could the CNMF have done more? Yes, of course. An attempt was made by diaspora nursing groups in the United Kingdom to enrol volunteer nurses and midwives from all Commonwealth countries to go to Sierra Leone under the auspices of the UK government.

Despite the fact that a positive response was received from nurses in Commonwealth countries outside the UK, the logistics of gaining permission from their own country to travel to Sierra Leone, the implementation of travel restrictions to West Africa, and the uncertainties by the UK program as to how they could ensure the safety of volunteers from other countries, meant that the program was limited to UK nurses only. Putting out a call for individual nurses from Commonwealth countries to donate personal protective equipment to send to Sierra Leone was not a feasible option with flights suspended to the region. Continuing to raise awareness and encouraging nurses to do the same at a national level was considered the only option available but it was grossly insufficient.

On 1 August 2014, the Secretary-General of the Commonwealth issued a brief statement expressing condolences to those whose families and friends had died as a result of the virus; expressing appreciation and encouragement to health workers 'treating the sick at personal risk to themselves'; and commending the response of the international community.[14] On 17 October 2014, the Secretary-General announced that the Commonwealth Secretariat had funded an expert to provide technical assistance in Sierra Leone to the government to prepare Ebola response plans at the local government level.[15] In January 2015, the Commonwealth Secretariat advertised a one year position for a Public Health Management Expert Adviser to be based within the Sierra Leone Ministry of Health and Sanitation to assist with strengthening the Sierra Leone public national health system post-EVD.

Could the Commonwealth Secretariat have done more? Yes of course. All international bodies could have done more. Sierra Leone is a Commonwealth country. The Commonwealth Secretariat should have been at the front, certainly from the end of May when Sierra Leone declared an epidemic, leading the mobilisation of support from the WHO and other international donors instead of waiting until August to make a public statement. The message from front line health workers in Sierra Leone was that they were dying because of a lack of personal protective equipment and a lack of knowledge about correct infection prevention and control procedures.

The Commonwealth Secretariat was in a unique position to mobilise the donation and delivery of personal protective equipment from other Commonwealth countries and to identify and support the delivery of infection prevention and control education and training. They did not use the networks they had; they missed an opportunity to demonstrate Commonwealth values, and they failed the government, the health workers, and the people of Sierra Leone.

Key: Patient database (light blue); Situation report (dark blue)
January 2014 to March 2015

WHO: http://apps.who.int/ebola/current-situation/ebola-situation-report-11-march-2015

Wilkinson and Leach state that it was the inherited inequalities from past policies that allowed a virus like Ebola to devastate three countries in the absence of fundamental public health and state capacities. They remind us that dramatic gains in life expectancy and reductions in the burden of disease come from improved living standards, sanitation, nutrition, prevention, and not from medicine alone but that this is consistently overlooked by international donors looking for a "quick fix" for particular diseases.[16]

The social disruption to families and communities cannot be measured or easily addressed: the death of the person in the family bringing in an income; the death of the mother, homemaker or carer; and children left without parents will push many people into dire poverty and reduce their opportunities to access education or make an economic contribution to their family, community or country. Overcoming the disruption to education, the economy, food supplies, agricultural production, and trade will take time, effort, and resources. Other health priorities which have been neglected while responding to the Ebola crisis will need to be factored into plans for recovery.

Wilkinson and Leach urge that the Ebola epidemic should be a "game changer" for development and that the inequalities that created and deepened the crisis are not sustainable. Rebuilding fragile health systems and states must be accompanied by tackling the inequalities so that health systems can be sustained with a sufficient home-grown health workforce and locally managed resources not just with donated goods and services linked to external priorities.[17]

The global community failed Guinea, Liberia and Sierra Leone and it will be a tragedy if too little is done to strengthen the fragile health systems in those countries to ensure that what happened in 2014 will not happen again or to prevent another crisis developing in another vulnerable country.

SIERRA LEONE: A case study

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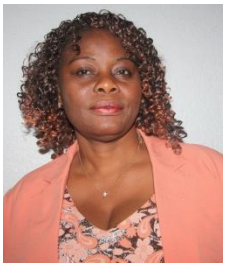

http://upload.wikimedia.org/wikipedia/commons/d/d9/Sierra_Leone_Districts.png

Sierra Leone was declared a British Protectorate in 1896 and on 27 April 1961 became an independent republic. Establishing a stable system of government after independence was difficult and a brutal civil war between 1991 and 2002 left 50,000 people dead and hundreds of thousands traumatised, destroyed infrastructure, delayed education, and disrupted economic development. A decade of relatively stable government did not given Sierra Leone sufficient time to develop resilient health or other systems or to develop or repair country-wide infrastructure that impacts on population health such as access to clean water and appropriate sanitation. For example, in 2014, only 42% of the population of Sierra Leone living in rural areas had access to improved drinking water and only 7% had access to improved sanitation.

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It is almost impossible for people to observe strict hand washing procedures when there is no safe water supply or the only safe water is a one tap in the main street which services several thousand people. Electricity supplies are rationed on a daily basis particularly in rural areas which impacts on boiling water to provide safe water and maintain hygiene but also on maintaining communication.

The population of Sierra Leone is around 6 million with a median age in 2014 of 19 years of age; two thirds of the population in 2014 were under the age of 25 years however the literacy rate was only 43%.[1]

Health outcomes in Sierra Leone were already poor although Sierra Leone spends 18.8% of its GDP on health, the second highest in the world.[2] In 2014, life expectancy was 55 years for males and 60 years for females.[3] Sierra Leone has one of the highest rates in the world of under 5 mortality (160.6 per 1,000 live births); infant mortality (170.2 per 1,000 live births); and maternal mortality (1,100 per 1000,000 live births).[4] The density of physicians per 1,000 population in 2010 was 0.022 (by comparison the density in the United Kingdom was 2.79).[5] The density of nurses and midwives per 1,000 population in 2010 was 0.166 (8.826 in the United Kingdom).[6] Nurses comprise around 80% of the health workforce.

Ms Hossinatu Mary Kanu, the Chief Nursing Officer of Sierra Leone attached to the Ministry of Health and Sanitation said that Sierra Leone was not equipped to respond to such a virulent epidemic: the health system was still weak; there were insufficient human and infrastructure resources; there was widespread poverty; and they had only recently emerged from a long period of political instability and a devastating civil war.

The challenges included a limited capacity to provide and maintain a safe practice and care environment in health facilities; inadequate human resources both quantity and quality; maldistribution of the existing health workforce; weak disease surveillance and response systems which were not yet integrated across the country; a poorly developed emergency preparedness plan; inadequate health technologies including medicines, supplies and laboratory services; weak supply chain management; an ineffective referral system; and weak coordination across the country because of inadequate roads, transport and communication.

The most important and basic prevention strategy, hand washing, was infrequently or incorrectly practiced. Health workers had poor knowledge about infectious diseases and EVD in particular Their knowledge, skill and practices in infection prevention and control were inadequate and there were no national standards or guidelines.

Health workers lacked basic personal protective equipment (impermeable gloves, waterproof boots, goggles, fluid resistant mask or respirator mask, impermeable coveralls and aprons, head cover). Health facilities were poorly and inadequately maintained including water and waste management and wards were overcrowded with limited physical space.

Sierra Leone reported its first laboratory confirmed case of EVD on 25 May 2014 from the Kailahun District located in the eastern region of Sierra Leone near the shared border with Liberia.

The Ministry of Health and Sanitation responded quickly declaring an epidemic, implementing a national response, and seeking external support. Over the next nine months, confirmed cases totalled 11,610 with 3,629 deaths (1 March 2015).[7]

In addition to the external support, guidance, construction of isolation centres, provision of equipment, provision of laboratory services, the Nursing Directorate, with technical support from the WHO, developed guidelines on the use of personal protective equipment and around 1,000 frontline nurses were trained and deployed into Ebola facilities to support the response. A monitoring and supervisory team was formed using personnel from the Nurses and Midwives Board of Sierra Leone to visit all Ebola facilities. One hundred senior nurse supervisors were deployed to all health facilities across the country to monitor, mentor and supervise junior staff.

Two hundred and ninety six health care workers in Sierra Leone became infected with EVD and 221 died; a much higher proportion than in the general community. One hundred and fifty two of them were nurses (2 registered nurses; 3 midwives; 2 nurse anaesthetists; 1 student nurse; 76 enrolled nurses; 33 maternal child health aides; 26 nursing aides; and 9 traditional birth attendants).

Mr Senesie Margao, the President of the Sierra Leone Nurses Association, spoke of the "thin line between care and fear". Nurses were not only concerned for their own health and safety in caring for people infected with EVD but they also experienced hostility from members of the community and often from their own family members concerned the nurses were spreading the infection. Many nurses were afraid to come to work. Many nurses who came to work were not permitted to return to their own homes and communities.

Ebola survivors, those people who tested positive and survived the illness and now testing negative for the virus, also faced discrimination and were frequently refused re-entry into their homes and communities. Certificates were given verifying that they were Ebola free, however often that was not enough.

Watching people suffer and die, watching their colleagues suffer and die, struggling with heavy workloads and inadequate equipment and resources, and fearing for their own safety was a heavy burden for the nurses to bear. Care was provided in an environment of mutual mistrust between patient and health care worker: is this person going to save me; is this person going to infect me.

The Sierra Leone Ministry of Health and Sanitation funded the SLNA to provide infection prevention and control education and training to 568 nurses and other health workers in all 14 districts in Sierra Leone. This took place 14-31 July 2014. The education and training covered:

- Information about EVD especially methods of human-to-human transmission,
- Signs and symptoms and identification of suspected cases,
- Appropriate treatment, management and care,
- Reinforcement of standard precautions and infection prevention and control,
- Practice in the use of personal protective equipment,
- Safe disposal of waste and safe burial, and
- Supportive care for care givers.[8]

Sierra Leone nurses, midwives and other health workers who attended the training identified the challenges they faced as: inadequate personal protective equipment; poor working conditions and environment; inadequate knowledge about EVD prevention and care; lack of isolation materials; poor communication; and delays in obtaining laboratory results. They sought adequate personal protective equipment to keep them safe; ongoing education and training; the necessary resources, including human resources, to be able to provide appropriate and sufficient care; and improved working conditions and environment.[9]

The Commonwealth Foundation has funded the SLNA to provide additional infection and prevention training and has indicated a willingness to work with the SLNA and the Ministry of Health and Sanitation in establishing infection prevention committees in all major health facilities both urban and rural.

Sierra Leone faces significant challenges in the future. The deaths of doctors, nurses, midwives and other health care workers as a result of EVD will require active intervention to rebuild the health workforce. The environment of mistrust between nurses and patients as a consequence of their experience with Ebola has affected the motivation of nurses to continue nursing. Mr Margao said that Sierra Leone needs nurses more than ever, but the number of nurses will make no difference if the system is not there to support them and they are not motivated to nurse and willing to care.

Many people who died are between 30-45 years old. There are families and communities who have lost the majority of their adult members, leaving many orphaned children and elderly people. In some communities there is hardly anyone left to cultivate the fields or provide for the family.[10] Overcoming the disruption to education, the economy, food supplies, agricultural production, and trade will take time, effort, and resources.

The Sierra Leone Ministry of Health and Sanitation has prepared a three-stage recovery and resilience plan for post-Ebola. Five pillars have been formed to address the challenges and gaps in the Ministry:

- Patient and health worker safety,
- Health workforce,
- Essential health services,
- Community ownership, and
- Surveillance and information.

The plan covers early recovery 6-9 months; recovery 2015-2018; resilience 2018-2020. Additionally, a national policy and strategy on infection prevention and control is under development along with standard operating procedures and training manuals. A national infection prevention and control coordinator has been appointed. Twenty five focal points have been appointed at every tertiary and secondary hospital and senior nurse supervisors have been trained alongside international partners and deployed. Plans are underway to incorporate infection prevention and control into all health worker curricula. Meeting infection prevention and control practices through continuing professional development will be a benchmark for the re-licensure of nurses and midwives.

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EBOLA VIRUS DISEASE (EVD)

Ebola Virus Disease is a severe, often fatal illness. The origin of the virus is unknown however the WHO report that, based on available evidence, fruit bats (Pteropodidae) are considered the likely host of EVD.[1] In areas of Africa, infection has been documented through the handling (blood, secretions, organs and other body fluids) of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope, and porcupines either alive or dead.[2] In the current outbreak in West Africa, however the majority of cases have occurred as a result of human-to-human transmission. Infection occurs through direct contact of broken skin or mucous membranes with the blood or other body fluids (faeces, urine, saliva, semen, sweat) of infected people. Infection can also occur if broken skin or mucous membrane comes into contact with clothing, bed linen, needles, surfaces etc that have been contaminated with an Ebola patient's infectious secretions or body fluids.[3] There are five different strains of the Ebola virus. The Zaire strain of the Ebola virus was responsible for the outbreak in West Africa.[4]

The signs and symptoms of EVD include sudden onset of fever, intense weakness, muscle pain, headache, and sore throat. These symptoms can be followed by vomiting, diarrhoea, rash, impaired kidney and liver function, and in some cases, both internal and external bleeding (nose bleeds, blood in vomit, blood in bowel motions, bleeding from the conjunctiva and mucous membrane of eyes, nose and mouth).[5]

The incubation period for EVD is from two to 21 days. People are not infectious in the incubation period but become infectious once they start exhibiting symptoms.[6] People are considered free from infection once a blood test for EVD is negative. Recovery from EVD provides immunity to the strain of the virus that caused the infection.[7] The WHO however advise that the EVD virus can be isolated in semen for up to three months post infection and recommend abstinence from sexual activity during that period.[8]

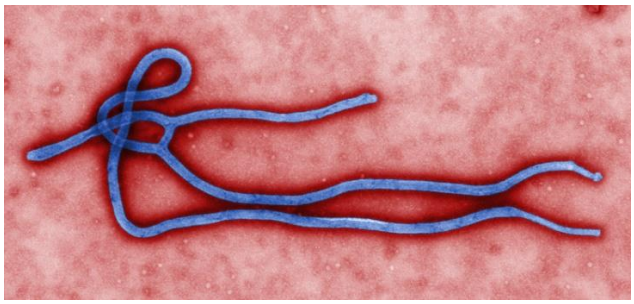
Transmission of the disease can be animal to human or human to human. In the current outbreak in West Africa, human to human transmission was the major mode of transmission. Those most at risk of contracting Ebola are family members or anyone in the community in contact with or caring for an infected person; health workers, and family members, mourners and others involved in the burial of infected persons who have subsequently died. Direct contact with dead bodies, for example at funerals, was one of the main ways the disease was transmitted. Funerals are a significant practice in the communities affected by the outbreak and involve people washing and touching the body, expressing their love for the deceased.

In the last hours before death the virus becomes extremely virulent and therefore the risk of transmission from the dead body is much higher. For these reasons, ensuring safe burials is a crucial part of managing the outbreak.[9] The Ebola virus took advantage of people's basic instincts when caring for an ill family member, that of touch and with the difficulty of transport and access to an appropriate health facility in rural areas, many family and community members were also infected.

There is no specific cure for EVD although several vaccines are under development.[10] Standard treatment is limited to supportive therapy, consisting of maintaining hydration with intravenous fluids or oral rehydration solutions that contain electrolytes; maintaining oxygen status and blood pressure; providing high quality nutrition; and giving antibiotics for any concomitant infections.[11]

The major strategies for managing an EVD outbreak are outlined in the WHO *Ebola Response Roadmap* released 28 August 2014 and include:

- Early identification of infection,
- Isolation until confirmation of infection,
- Confirmation by laboratory testing,
- Appropriate care and treatment including rehydration and strict infection and control and use of personal protective equipment,
- Contact tracing,
- Safe disposal of waste and safe burials,
- Ongoing surveillance, and
- Community education and engagement.[12]



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