PHOTO ESSAY

Ebola: Experiences from the field – Liberia

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The experience of all those who have worked with Ebola during the current outbreak has been different, and varied by time and place. I worked with Médicins sans Frontières in Monrovia during October/November 2014. This was the first-ever outbreak of Ebola virus disease in the overcrowded and impoverished areas of a capital city; Ebola was spreading rapidly, and case management had to be upscaled on an unprecedented basis. It was also a time of many questions: for clinicians, these centred on how to optimise survival, and how to maximise care in a resource-limited environment.

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The Médicins sans Frontières (MSF) Treatment Centre, Monrovia

The MSF Ebola Treatment Centre in Liberia, ELWA 3, opened in August 2014 and was the largest treatment centre ever built. Its 240 beds far exceeded the 20-bed centres in previous outbreaks. ELWA 3 was a field hospital; wards were tents, and there were no actual beds, but mattresses on the floor. Hygiene facilities consisted of latrines and stand-pipes for water and chlorine. The 15-person tents opened into a large outside courtyard within the high-risk area, where the patients who could mobilise would sit, pass the time of day, support each other, and help the less able patients.

Ebola virus disease (EVD) affects people who are in close contact with one another, so affects families. We frequently had three generations of the same family admitted, including children and babies. Families arrived together, but often did not go home together. We often discovered that family groups were related when people died and there was widespread grieving. Mortality at ELWA was 60%, as for the average mortality this outbreak.[1]

The number of new cases in Monrovia peaked in September 2014, when the treatment centre was overwhelmed with patients, and was unable to admit everyone needing care.[2] People were dying outside the gates. When I arrived in October, a government-run treatment centre had opened, relieving the pressure on ELWA. People were no longer turned away at the gates. In November, the number of new cases was falling. However, the collective memory of these times convinced many staff that the respite would only be temporary, and that the tough times would imminently return.

At the peak of the outbreak there were around 70 international MSF staff and 700 Liberian staff. As doctors, we were a minority. Four of us were involved with patient care, each looking after 60 patients.

Drs Rosie Burton and Tom Boyles are infectious diseases specialists in Cape Town, who worked with the Ebola outbreak in West Africa in late 2014. They were involved in different aspects of clinical care, and worked in different health facilities. The two give accounts of their experiences.

We worked with Liberian physician assistants – there are few doctors in Liberia.

As international staff, we were there for the short term. The national staff were there for the long term, most remaining until the centre closed early in 2015. Many had not revealed to their families where they were working, fearing that they would be stigmatised and ostracised. Playing their part in eradicating Ebola was the reason many joined; economic isssues were also important. Many jobs disappeared during the outbreak, schools were closed, and salaries were no longer paid.

Medical care of Ebola patients

ELWA was a centre for both diagnosis and treatment. A Centers for Disease Control laboratory a few minutes' walk away performed Ebola polymerase chain reaction tests, with a turnaround time of a few hours. No haematology or biochemistry testing was available.

For patients with confirmed EVD, the clinical care was basic.[3] Oral rehydration fluid was the mainstay of fluid management. Intravenous fluids had been discontinued when ELWA was overwhelmed with patients, as the risk of staff being infected was considered too high. We had no means of assessing fluid balance – input or output. Many patients were too weak or confused to drink unaided, and would be helped by nursing or medical staff when inside the high-risk area, or often, more effectively, by other patients. Routine medication for both adults and children included analgesia, antiemetics, antidiarrhoeal medication, antimalarial treatment, and empiric antibiotics, all given orally.

Ward rounds in an Ebola treatment centre

The two physician assistants on duty and I did medical rounds twice a day. We went into the high-risk area as early in the morning and as late in the afternoon as possible, to avoid spending time in personal protective equipment (PPE) during the hottest time of day. We could spend between 1 and 2 hours in the high-risk area, depending on the heat, and had up to 60 patients to see. We would be dripping with sweat inside the PPE before we left the dressing station.

We started with the sickest patients, who would still be inside the tents, and worked our way to those who were relatively well, so that if we ran out of time, we would have seen those who needed the most care. In the tents it was extremely hot. Many patients had extensive diarrhoea and vomiting; despite regular cleaning, this was a difficult environment for sick patients. Clinical review largely consisted of assessing symptoms and functional status. Physical examination was very limited. Many patients were confused, and health workers in PPE would have been a cause of further disorientation.

Many questions, few answers

The major question we had as doctors was how we could improve survival. Most of the time, clinical practice is evidence based; with Ebola, evidence for best management was minimal. It was therefore difficult to know if our clinical care was of benefit, simply futile, or could even cause harm.

Some patients were barely responsive and severely dehydrated when admitted, and died soon afterwards. Others appeared relatively well, mobilising and eating and drinking, and then died unexpectedly. Some survived against all odds, when death had seemed inevitable. As clinical doctors we met together most afternoons to discuss our problem patients and how we could improve management. Every day discussion soon focused on what we did not know, the pathophysiology that could explain our patients' symptoms and clinical course, and how we could rapidly learn enough to make a difference.

A patient's experience of Ebola

Only a father and his 5-year-old son were going home. His wife had died shortly after admission. Their 9-month-old baby was initially cared for by another patient, who was recovering well and had lost her own baby.

I have a strong memory of the baby, dressed beautifully, happy and smiling, sitting on a mattress outside with his temporary mum. He was so admired by staff and patients alike. It could have been any relaxed family gathering; it felt incongruous this was the high-risk area of an Ebola treatment centre. Despite appearing well, the baby continued to have a high fever that paracetamol could not resolve.

The father recovered. He took care of the baby again, who continued to smile, until one morning he died suddenly in his father's arms.

A central issue was fluid and electrolyte depletion – how management could be optimised, and whether aggressive fluid replacement would improve outcomes. We were concerned that hypokalaemia contributed to mortality, and explained the unpredicted deaths. Many patients were tachypnoeic, not dyspnoeic, and were able to lie flat. We thought they were acidotic due to renal impairment, but had no means of verifying this. Thanks to excellent wi-fi, we read articles in the major journals as soon as they appeared, looking for data from elsewhere that would improve our management. Publications were appearing that argued that more intensive supportive care was both feasible in resource-poor environments, and would improve survival.[4,5] Diarrhoea of eight litres a day was reported; our fluid replacement was nowhere near this volume.[6] Hypokalaemia and renal impairment were common findings.

Intravenous fluid administration was reinitiated when it was clear that the decline in cases was real and sustained. We began routinely supplementing all adults with oral postassium, and there were plans for point-of-care biochemical monitoring, including of potassium, which finally became possible in December.

There will never be an Ebola outbreak like this again

For me, the hardest part of working with Ebola was not the physical exhaustion of working in PPE in the heat, the emotional impact of patients dying from a rapidly fatal disease, or personal concerns about becoming infected. It was instead the lack of knowledge about Ebola, and not knowing if we could have done more to prevent people dying. Now, nine months on, so much more is known about Ebola. The necessity for optimising supportive care and biochemical testing is acknowledged. Ebola priorities and clinical care evolved throughout this ever-changing outbreak.[7,8] I was there during a particularly historic time, and what I experienced is part of the process of this evolution.

There will be undoubtedly be further outbreaks of Ebola; however, it should never be like this again. Never again will so much be unknown in terms of diagnosis, clinical management and optimising survival, and never again should the global response be so inadequate for so long.

Forty percent of people survived Ebola. The patients in the photographs had been discharged from the high-risk area and were going home.

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