



PLEASE HAVE A LOOK AT
BEFORE ENTERING



AN UNPRECEDENTED YEAR

Médecins Sans Frontières' response to
the largest ever Ebola outbreak

March 2014 to March 2015



Map of the region



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Introduction

On 22 March 2014, an Ebola epidemic was officially declared in Guinea. Over the course of the next year, the virus would infect more than 25,000 people in nine countries and claim more than 10,000 lives, dwarfing all previous Ebola outbreaks. For comparison, the biggest previous outbreak had a total of 425 cases.

The reasons this epidemic escalated so dramatically are varied, and still debated, but some facts are clear. Even very early on, Ebola cases were spread over a wide geographic area. Initial cases were recorded around Guéckédou, but within 10 days of the outbreak being declared cases had been confirmed in Liberia, and hundreds of kilometres away in Conakry, Guinea's capital. On 31 March, Médecins Sans Frontières (MSF) declared that the outbreak was “unprecedented” in terms of its geographic spread.

Previous outbreaks had mostly occurred in remote rural communities, where they could more easily be contained. This time Ebola quickly appeared in densely populated cities such as Conakry. The virus also emerged at the junction of Guinea, Sierra Leone and Liberia; an area where people regularly travel across the country borders.

“ This was Zaire, the most deadly strain of Ebola, spread out in an unprepared region, while the sick and their caregivers were moving on a scale we'd never seen before. Even the dead were being transported from one village to another... I had no doubt it was unprecedented.”

Dr Michel Van Herp, MSF senior viral haemorrhagic fever epidemiologist, quoted in *Pushed To The Limit*.

While Ebola has periodically erupted since the 1970s, an outbreak had never before been recorded in this region, leading to early misdiagnoses. The three most affected countries also had already weak health systems that were unprepared and ill equipped to deal with the crisis, fuelling further spread of the disease.

MSF's response to this outbreak was equally unprecedented. Although MSF has helped control Ebola outbreaks in nine countries over the past 20 years, the enormity of this global epidemic tested our

limits and prompted one of our biggest ever emergency responses. By the end of March 2015, MSF had spent 77 million euros in the three worst affected countries of Guinea, Liberia and Sierra Leone. In previous outbreaks, MSF had only ever needed to operate one Ebola management centre (EMC) at a time. During this epidemic, we set up and managed 15 EMCs and transit centres in the three most-affected countries, operating up to eight simultaneously. The largest EMC we had built before this outbreak had 40 beds; in this epidemic we established a 250-bed EMC, the biggest ever. We responded across the region, in Guinea, Sierra Leone and Liberia, but also in Mali, Senegal, Nigeria and an unrelated outbreak in the Democratic Republic of Congo. To scale up the response capacity MSF provided Ebola management training to thousands of people from within MSF, as well as from national governments, the United Nations and from other non-government organisations.

While MSF tried its best to reduce the spread of the virus, it was clear that much more assistance was needed. MSF repeatedly raised the alarm and called for additional support through public statements, media interviews, and stakeholder meetings. Yet the international effort to stem the outbreak remained inadequate, with MSF teams seeing gaps in all aspects of the response. In September MSF's appeals were escalated to the highest level when International President Dr Joanne Liu briefed the United Nations in New York, calling for more support from UN member states. Large-scale international assistance was finally deployed towards the end of 2014, when case numbers also began to decline.

Today, cases have plummeted and Liberia has remarkably been declared Ebola-free. However with new cases emerging each week in Sierra Leone and Guinea, the outbreak is not over. MSF teams are continuing to run EMCs and engage with affected communities to extinguish the final embers of this unprecedented epidemic. ■

For an analysis of the global response to the Ebola outbreak read MSF's *Pushed to the Limit and Beyond* report, available at www.msf.org/article/ebola-pushed-limit-and-beyond.

Figures at a glance

In the first year since the outbreak was declared

25,213 confirmed, probable and suspected Ebola cases worldwide, and 10,460 deaths¹

¹ Source: WHO. Data up to 29 March 2015.



Guinea

3,492 cases, 2,314 deaths



Sierra Leone

11,974 cases, 3,799 deaths



Liberia

9,712 cases, 4,332 deaths

MSF activities in the first year

8,534	5,062	2,403
PEOPLE ADMITTED TO MSF EMCS	PEOPLE CONFIRMED AS HAVING EBOLA	PEOPLE RECOVERED FROM EBOLA IN OUR CENTRES



MSF ESTABLISHED 15 EBOLA MANAGEMENT CENTRES AND TRANSIT CENTRES



ANTIMALARIAL MEDICATIONS PROVIDED TO

2.45 Million

PEOPLE IN HOUSEHOLD DISTRIBUTIONS IN MONROVIA AND FREETOWN

1/3 OF ALL CONFIRMED EBOLA CASES IN THIS OUTBREAK WERE CARED FOR BY MSF



MSF SHIPPED MORE THAN 1,400 TONNES OF EQUIPMENT TO THE AFFECTED COUNTRIES, INCLUDING 530,000 PROTECTIVE SUITS

- MSF employed more than **4,000** national staff from the affected countries and **1,300** international staff
- MSF trained at headquarters: **800** MSF staff; more than **250** people from other organisations including the US Centers for Disease Control, the World Health Organization, International Medical Corps and Save the Children. **Thousands more** people trained in the affected countries.
- Community awareness-raising activities reached **hundreds of thousands** of people, including more than **500,000** people in one campaign in Monrovia alone.
- Total sum of private donations received by MSF: **75,720,280** euros
- Total sum of institutional donations received by MSF **21,468,308** euros

MSF data up to 29 March 2015 for Guinea, Liberia and Sierra Leone.

Aims of the response

Through 20 years of experience in Ebola outbreaks, MSF has developed an Ebola response strategy with two key aims:

- to reduce the spread of the epidemic;
- to reduce the mortality and suffering of people infected with the virus.

More specifically, MSF's strategy is organised around six key activities that are normally implemented simultaneously to bring an Ebola outbreak under control. However given the enormous scope of this epidemic, the slow and initially inadequate international response, and MSF's own operational limits, MSF was at times forced to make difficult decisions between competing priorities.

The six key activities

1. Isolation and care for patients

MSF prioritised this pivotal component of the Ebola response, both to reduce the spread of the outbreak by isolating people with Ebola from their family and community, and to provide medical care for their symptoms.

MSF implemented this activity by establishing 15 Ebola management and transit centres in the three most affected countries. The EMCs provided patients with supportive medical care and psychosocial support for patients and their families. The transit centres allowed people who met the Ebola case definition to be tested in isolation, protecting their family and community from infection, before transfer to an EMC.

2. Safe burials

Funeral traditions in which mourners wash or touch the body of the deceased are a major means of Ebola transmission, because of the potential contact with infectious bodily fluids on the dead body. Providing and encouraging safe burials is therefore critical to control the spread of the disease.

During this outbreak, MSF directly provided safe burials in some projects, while in other areas MSF provided training and technical support to organisations providing this service. MSF also supported cremation services in Liberia after the Government legislated that deceased Ebola victims must be cremated.

3. Awareness-raising

Fear and misinformation remained significant challenges throughout the first year of the response, particularly in Guinea. Raising awareness about the nature of Ebola is critical, because behaviours such as not touching the sick and seeking care early can significantly limit the spread of

MSF hygienists safely place the body of an Ebola victim into a coffin in Foya, Liberia. © Martin Zingg/MSF



The six key activities (continued)

the disease. MSF supported community health promotion and awareness-raising in all projects, and in many cases took a leading role, implementing huge mass media and house-to-house campaigns to ensure communities understood the nature of the disease, how to protect themselves, and how to stem its spread.

4. Disease surveillance

Disease surveillance involves responding to alerts of possible Ebola cases to ensure that sick people are identified quickly and isolated from their family and community. MSF supported this pillar of the response to varying degrees throughout the first year. In some areas, such as Guéckédou at the start of the outbreak, and Freetown in recent months, MSF directly managed surveillance activities, but in other projects direct patient care took priority at the expense of this activity.

5. Contact-tracing

Finding and following up anyone who has been in contact with Ebola patients helps identify people at risk of infection. MSF provided direct contact-tracing in many projects, from Guéckédou to Foya. However, in some situations, MSF teams were stretched thin caring for patients and unfortunately did not have the capacity to undertake this activity.

6. Non-Ebola healthcare

Access to medical care for non-Ebola health conditions was severely compromised during this epidemic. Many health centres closed because of the risk of infection to staff and patients, while people were reluctant to seek care for fear of Ebola. Almost 500 health workers across the region lost their lives to the virus, further weakening already fragile health systems. MSF's own emergency paediatric and maternal hospital near Bo, Sierra Leone, was forced to close due to the strain of the outbreak. Nonetheless, MSF ran several activities to improve non-Ebola healthcare, particularly through supporting infection control and triage measures so that local hospitals could more safely admit patients. MSF also undertook huge antimalarial distributions in both Monrovia and Freetown, and opened a new paediatric hospital in Monrovia in March 2015. ■

An MSF staff member discusses Ebola with heads of villages from the Macenta region, Guinea, October 2014. © Julien Rey/MSF



MSF's response

“ We fully understand the fears of the local community. There had been no Ebola cases in Guinea before the current outbreak and seeing our workers in the protective dress must be quite shocking for people who are not used to it.”

Corinne Benazech, MSF Guinea Head of Mission, April 2014.

Key figures, end of July 2014

Number of probable, suspected and confirmed Ebola cases	1,440²
Number of deaths	826
Number of admissions at MSF EMCs	891³
Number of confirmed cases at MSF EMCs	459
Number of survivors at MSF EMCs	188

² WHO. Data up to 30 July.

³ MSF data up to 27 July, for Guinea, Sierra Leone and Liberia.

Initial phase: March to July 2014

After the Ebola outbreak was declared by the Guinean Ministry of Health on 22 March, MSF soon realised that it was dealing with an unusual situation, with cases scattered across hundreds of kilometres. There were more than 200 cases within the first month, but numbers then waned in late April and early May before resurging again. This unpredictable fluctuation would recur throughout the coming year.

By late July more than 1,400 people had been infected and 800 had died, in more than 60 separate locations in Guinea, Liberia and Sierra Leone.

Yet MSF remained one of the very few international aid organisations caring for people with the virus for most of this period. MSF established four main EMCs in this initial phase, plus smaller centres and transit units.

Guinea

MSF had been working in Guinea since 2001, and was asked by the Ministry of Health to investigate the spate of mysterious deaths occurring in southern Guinea in mid-March 2014. MSF's infectious diseases experts strongly suspected Ebola, and deployed four teams to the region within 10 days.

MSF built the first EMC in response to this outbreak, in Guéckédou, south-east Guinea. The centre officially opened on 23 March, one day after the outbreak was declared. In addition to medical care, MSF provided psychological support to patients and their families. The centre was a hub for other critical elements of the Ebola response such as health promotion, contact tracing and surveillance and referral of potential cases.

MSF also established a 10-bed transit centre in Macenta, east of Guéckédou. This enabled people with suspected Ebola to be tested safely in isolation, before being transferred to Guéckédou EMC.

MSF teams were faced with fear and sometimes hostility from local communities during this phase, with the Macenta centre forced to temporarily suspend activities due to protests in April. MSF supported community awareness raising activities in all projects, with health promoters going into communities to help overcome fear and increase their understanding of the disease. MSF also called for additional assistance with this critical activity at this time.

Key figures, end of July 2014, by country

Guinea

- **472** confirmed, probable and suspected Ebola cases, of which **126** survived
- MSF had cared for **259** confirmed Ebola patients, including **110** survivors

Liberia

- **391** confirmed, probable and suspected Ebola cases, of which **164** survived
- MSF had cared for **75** confirmed Ebola patients, including **31** survivors

Sierra Leone

- **507** confirmed, probable and suspected Ebola cases in Sierra Leone, of which **298** survived
- MSF had cared for **125** confirmed Ebola patients, including **47** survivors

Another key challenge of the early Ebola response was the vast spread of cases. MSF staff were shifted from place to place as activities were set up in new hotspots. MSF opened a 20-bed EMC at Donka hospital, Conakry, on 25 March. In addition to providing medical and psychological care, MSF teams in Conakry provided training to local hospital and Red Cross staff, and conducted outreach activities, including health promotion and surveillance to identify potential cases. When cases were reported in May in Téliimélé, in the north of the country, MSF established an isolation area in the local health centre and built an EMC nearby.

Liberia

Ebola was first confirmed in Liberia on 31 March in Foya, near the border of Sierra Leone and Guinea. An MSF team set up isolation units in health centres and trained health staff in Foya and Monrovia, but cases soon dwindled. By mid-May there had been no cases for more than 21 days (the maximum incubation period of the virus).

When cases re-emerged in June, most available and experienced MSF staff were already working in Sierra Leone and Guinea. MSF assisted Samaritan's Purse, an NGO, to take over management of the Foya EMC. MSF provided staff training and set up alert systems to refer suspected cases to the centre.

In Monrovia, MSF supported the construction of a new EMC (ELWA 2) with capacity for 40-60 beds, also to be run by Samaritan's Purse. The team also supported the Ministry of Health in overall coordination and provided technical support and medical staff training.

The situation in Liberia rapidly worsened in late July, when case numbers exploded and the only two EMCs in the country closed due to staff infection. Although already overstretched in Guinea and Sierra Leone, the catastrophic situation in Liberia prompted MSF to scale up the response (see next section).

Sierra Leone

Ebola cases were confirmed in Sierra Leone on 26 May, in Kailahun district, near the Guinean border. MSF's priority was to establish an Ebola management centre in Kailahun, which opened on 26 June with 32 beds. The centre was quickly overwhelmed with patients, and expanded to 65 beds. MSF prioritised patient care and community education, such as awareness campaigns to reduce fear and stigmatisation in the community. In this initial phase MSF also set up small transit centres in Koidu and Daru, and provided supplies to the Ministry of Health to construct management centres.

Peak emergency phase: August to December 2014

The Ebola outbreak spiralled out of control from August, with case numbers increasing dramatically, particularly in Sierra Leone and Liberia. MSF continued to take a leading role, even after the World Health Organization declared the Ebola outbreak an international public health emergency requiring a coordinated global response. It wasn't until October that international aid slowly began to be deployed in the affected countries. By this stage, there had been around 9,000 cases, half of which had been cared for by MSF.

MSF ramped up its response across the last few months of the year. Staff numbers increased from 1,900 at the end of August, to 3,800 by December. The overwhelming patient numbers and unpredictability of the outbreak required MSF to implement a flexible response, with protocols adapted and compromises made in the fight against Ebola.

Guinea

Huge challenges remained in controlling the outbreak in Guinea during the second half of 2014, as cases continued to fluctuate from week to week and emerge in new districts. The international response was slow and piecemeal with gaps in contact tracing, surveillance and community awareness. MSF remained the only aid organisation running EMCs in Guinea until November, more than seven months into the outbreak.

MSF's EMCs in Conakry and Guéckédou both reached capacity during this period, and were expanded to 85 beds and 110 beds respectively. In addition to providing isolation and patient care, MSF prioritised training to assist in scaling up the response. The two EMCs became important training centres for local MSF staff, as well as for the Ministry of Health and other organisations planning to run EMCs. International organisations such as the French Red Cross and Alima, both of which received training from MSF, started admitting Ebola patients to their facilities in December.

Other activities during this period included continued support to the Macenta transit centre, which was scaled up to a 30-bed EMC, before being handed over to the French Red Cross in December.

Liberia

The number of new Ebola cases in Liberia had skyrocketed by August, rising from fewer than 10 in June to more than 1,000 in the space of two months. People were literally dying

Key figures, end of 2014

Number of probable, suspected and confirmed Ebola cases	20,206 ⁴
Number of deaths	7,905
Number of admissions at MSF EMCs	7,433 ⁵
Number of confirmed cases at MSF EMCs	4,674
Number of survivors at MSF EMCs	2,234
Number of MSF international and national staff	3,800

⁴ WHO. Data up to 28 December.

⁵ MSF data up to 28 December, for Guinea, Sierra Leone and Liberia.

MSF staff members help a woman get out of a vehicle at the EMC in Kailahun, Sierra Leone. © Sylvain Cherkaoui/Cosmos



Key figures, end of 2014, by country

Guinea

- 2,707 confirmed, probable and suspected Ebola cases in Guinea, of which 1,708 died
- MSF had cared for 1,703 confirmed Ebola patients, including 799 survivors

Liberia

- 8,018 confirmed, probable and suspected Ebola cases in Liberia, of which 3,423 died
- MSF had cared for 1,626 confirmed Ebola patients, including 672 survivors

Sierra Leone

- 9,446 confirmed, probable and suspected Ebola cases in Sierra Leone, of which 2,758 died
- MSF had cared for 1,363 confirmed Ebola patients, including 772 survivors

on the streets, unable to find an available bed. Liberia's healthcare infrastructure was already weak as a result of the long civil war, and was unprepared to cope with the explosion of cases. Already overstretched in Guinea and Sierra Leone, MSF ramped up its training activities to increase the pool of trained staff available to respond.

On 2 August, MSF took over management of the 40-bed centre in Foya, Liberia, and scaled it up to 100 beds. MSF implemented a comprehensive package of care in this area, prioritising community engagement alongside medical activities. Teams ran activities such as community education, contact tracing, safe burials, an ambulance service and an on-site laboratory. MSF withdrew from the area in December when there had been no cases for more than 21 days, and handed the centre back to Samaritan's Purse. Before handover, MSF invested in health promotion and staff training in nearby districts to ensure preparedness should Ebola reappear.

In Monrovia, MSF opened a centre known as ELWA 3 on 17 August. The centre was eventually expanded to 250 beds, making it the largest EMC ever built. Despite its huge scale, the facility was unable to keep pace with the overwhelming demand during the peak in August and September. Tragically, MSF teams had to turn people away, many of whom were clearly ill, because there were simply not enough beds. Those who were unable to be admitted were provided with a home protection kit to reduce the risk of infecting their families. Inside the centre staff were only able to offer the most basic medical care during this time, because of the huge number of patients.

The vastly insufficient bed numbers across Monrovia led MSF to distribute tens of thousands of family and home disinfection kits to provide some protection for household contacts of Ebola patients. This imperfect solution was an example of MSF adapting its strategy to respond to the dire reality. MSF also trained hundreds of community health promoters who visited 175,549 households by the year end with information about how to avoid infection.

The outbreak took a heavy toll on Liberia's health system, with many facilities closed, health workers infected and people reluctant to seek care for fear of Ebola. MSF established a 10-bed transit centre for triage of suspected Ebola patients at Redemption Hospital, allowing inpatient services to reopen safely after they had been forced to close due to the outbreak. MSF also supported 28 health centres with infection prevention and control measures to reduce the risk of contagion and restore confidence. MSF distributed anti-malarial tablets to more than 650,000 people in Monrovia, with the dual aim of preventing malaria and reducing the pressure on EMCs from people wrongly thinking they had Ebola.

MSF responded as new cases emerged in different parts of Liberia. In River Cess county MSF established a transit centre that referred confirmed patients to Monrovia. Teams provided contact tracing in conjunction with the Centers for Disease Control, health promotion, safe burials, training and distribution of protection kits. In Grand Bassa county MSF provided home-based care for suspected patients while establishing an EMC in the town of Quewein.

The number of Ebola cases declined almost as rapidly as they had increased, and by December Liberia was reporting the lowest incidence of the three main affected countries.

Sierra Leone

Ebola cases steadily increased in Sierra Leone from August, reaching a peak in November, by which time every district in the country had been affected by the outbreak. MSF's Kailahun EMC remained busy throughout most of the year and in November the centre was expanded to more than 100 beds. Most patients came from outside the district due to the insufficient EMCs in the country. Patients were transported for up to 10 hours, increasing the risk of cross-contamination and death within the ambulance. MSF trained and supported a team of 800 health promoters in Kailahun district who worked within the community as well as in public health units.

In September MSF opened another EMC near Bo that was expanded to 64 beds as patients were referred from across the country. MSF teams carried out health promotion and surveillance activities, and trained local staff. MSF teams in Bo and Kailahun offered training throughout the year for other organisations needing support in managing EMCs. Case numbers in Bo and Kailahun began to gradually decrease in December.

MSF opened two new EMCs in Sierra Leone in December. One was established in Magburaka in central Sierra Leone, as Ebola cases were reported in this area. The medical activities were complemented by a laboratory, health promotion, surveillance and training of local health staff. In Freetown, an EMC was opened on the Prince of Wales school site on 10 December, and soon scaled up to 100 beds. This centre was also serviced by an on-site laboratory and outreach activities.

The Ebola outbreak devastated the regular health system in Sierra Leone, with up to 10 per cent of local health workers estimated to have died. People were scared or unable to find healthcare for non-Ebola diseases such as malaria, and many passed away from these conditions. In December MSF launched a huge antimalarial distribution campaign, training 6,000 people to distribute antimalarials to more than 1.5 million people in the Freetown area, in collaboration with the Ministry of Health.

“I’m horrified by the scale of the centre we’re constructing and the horrible conditions inside, what people are enduring. We’re struggling to deal with the number of patients. We’re trying to adapt and build as the need increases, but we’re not keeping up.”

Brett Adamson, MSF Field Coordinator in Monrovia, August 2014, quoted in *Pushed to the Limit*.

An aerial view of the ELWA 3 Ebola management centre, October 2014. © David Darg



“ The closures [of EMCs] have allowed us to reallocate our resources to community activities, including surveillance and health promotion activities. We also continue to focus on providing health services to survivors.”

Dana Krause, MSF Emergency Coordinator
Sierra Leone, March 2015.

Declining case numbers: January to March 2015

Although Ebola cases dropped in early 2015, the outbreak persisted, and several challenges remained in the response. Regional cooperation was limited, with affected countries sharing inadequate information despite the high mobility of people in the area. Weaknesses in contact tracing and surveillance also persisted, as new cases emerged without known links to existing cases.

As cases declined MSF was able to scale down or close many of its EMCs in early 2015, adapting its response to focus on community-based activities and non-Ebola healthcare.

Guinea

The unpredictability and geographic spread that defined this epidemic persisted in Guinea in early 2015. In mid-March there were 95 new cases in a week, indicating that the outbreak was still far from under control. Frustratingly, despite widespread awareness raising campaigns, many communities remained resistant to the public health messages, and attacks on aid workers continued.

Despite these difficulties, MSF expanded its response into new areas. In Faranah, a mobile team established a transit centre, supported local health structures and conducted surveillance and awareness-raising activities. In Forecariah, MSF provided training and support in triage and infection control to local health centres, as well as running outreach activities.

The EMC at Donka hospital, Conakry, marked its one-year anniversary on 25 March, by which time it had admitted more than 1,800 people. Patient numbers declined significantly in Guéckédou, the original epicentre of the outbreak. With no cases since January, MSF closed the centre on 31 March. In its one year of operation the centre admitted 1,635 people, of which 1,074 were confirmed to have Ebola and 456 survived.

Other activities in early 2015 included raising awareness and evaluating local health structures in Kissidougou. Further east, MSF supported the Kankan General Hospital on infection control, as well as running an EMC on standby.

Liberia

Ebola cases were low across Liberia during 2015, with fewer than 10 new cases reported each week. By the end of March there was only one person with Ebola in the country. MSF progressively reduced its activities, and shifted the emphasis from running large

▶ An Ebola survivor celebrates his discharge from MSF's EMC in Bo, Sierra Leone. © Anna Surinyach





An MSF rapid response team in Grand Bassa county, Liberia. © Peter Casar/MSF

EMCs to focusing on non-Ebola healthcare, health promotion and training.

With very few patient admissions from late January, the ELWA 3 centre in Monrovia was downsized, before being handed over to local health authorities in April. From its opening in August 2014, a total of 1,909 patients were admitted to ELWA 3 – more than any to other centre – of which 1,241 tested positive for Ebola and 514 recovered.

MSF ran several activities to support non-Ebola healthcare in Liberia. In January MSF established a survivors' clinic, providing psychosocial support, health screening and primary healthcare for Ebola survivors. In March, MSF opened a 46-bed paediatric hospital in Gardnersville, Monrovia, with the potential to increase to 100 beds. MSF also supported 40 other health facilities to safely provide general medical care by providing training on infection prevention and control. As measles cases emerged across Monrovia in March, MSF supported health facilities in case management.

Other activities in this period included a rapid response team that investigated a spate of cases in Grand Cape Mount county in January. MSF also ran a number of training activities for local health staff and community organisations.

Controlling the regional spread

Part of MSF's Ebola response strategy was to ensure that the epidemic did not extend any further within the region. MSF established a flying team to rapidly support governments in countries with confirmed cases. When cases were confirmed in Mali, Nigeria and Senegal, swift action from national governments supported by MSF ensured that the disease was rapidly contained. MSF prioritised the provision of technical support in these countries because teams were already overstretched.

Nigeria

The first Ebola case was recorded in Nigeria in late July, via an air passenger from Liberia. Ultimately this case resulted in 20 infections and 8 deaths, but the country avoided a more widespread epidemic. MSF deployed a six-person team to provide technical support to the Nigerian health authorities on isolation, contact tracing, training and public education. The team also helped establish an isolation ward in Lagos.

Senegal

In April 2014, MSF conducted an Ebola training session in Dakar at the request of the Senegalese government. The trained team took care of an Ebola case that emerged in August. MSF also supported the Ministry of Health in establishing a 13-bed isolation unit in Dakar and trained staff in case management, contact tracing and social mobilisation. Nine at-risk regions of Senegal were also trained in outbreak response. Within a week, 100 per cent of contacts had been traced and no further cases were recorded in Senegal.

Mali

Mali confirmed its first Ebola case on 23 October, in a two-year-old girl who had crossed the border from Guinea. MSF took a more hands-on approach, due to Mali's weaker health system and insufficient resources. An MSF team helped construct one EMC in Bamako and one in Kayes, and managed these two centres. MSF also trained local staff in case management, surveillance and social mobilisation, as well as carrying out safe burials and surveillance activities. Mali recorded eight Ebola cases and six deaths before it was declared Ebola-free on 18 January.

Ivory Coast

In September 2014, Ivorian authorities asked MSF to reinforce the local capacity to detect and respond to Ebola, although ultimately no cases were recorded in the country. In Man region MSF provided support to community health workers, supported the construction of an EMC and trained health staff. MSF also set up an EMC in Abidjan, and trained health staff on early alert and triage.

Democratic Republic of Congo

An Ebola outbreak in the Democratic Republic of Congo, unrelated to the West African epidemic, infected 66 people and killed 49. Around 70 MSF staff responded, working with the Congolese government to establish two EMCs, as well as providing contact tracing, household disinfection, support for safe burials and community education. ■



© Adolphus Mawolo/MSF

“I felt that my life had begun again”

Salome Karwah is an Ebola survivor who worked as a mental health counsellor at MSF's ELWA 3 centre in Monrovia.

“It all started with a severe headache and a fever. Then, I began to vomit and I got diarrhoea. My whole family was sick so we made our way to the MSF centre.

When I was confirmed positive I was afraid, because we had heard people say that if you catch Ebola, you die. The rest of my family also tested positive.

After a few days, my condition became worse and I barely understood what was going on around me. The nurses had to bathe me, change my clothes, and feed me. I was vomiting constantly and I was very weak. I'd never felt pain like it in my life.

About a week later when I started recovering, the nurses told me that my parents had passed away. I was shocked and sad but I had to accept it.

After 18 days, the nurses took my blood for testing and later told me I had tested negative. I felt that my life had begun again.

Now, I am back at the centre, working as a mental health counsellor. I talk to patients and I encourage them. If a patient doesn't want to eat, I encourage them to eat. If they are weak and are unable to bathe, I help to bathe them. I tell them my story to inspire them, and let them know that they, too, can survive.” ■

Sierra Leone

Ebola cases dropped steeply in Sierra Leone at the start of 2015, but there were still more than 50 new cases reported each week throughout most of March. More EMCs opened across the country, reducing the pressure on MSF's facilities. MSF adapted its strategy to focus on community outreach activities, including health promotion, house disinfection and epidemiological surveillance.

MSF closed its EMC in Kailahun on 27 January, after more than 42 days without an Ebola case in the district. Before closing, MSF built an isolation unit at the local hospital and provided training to prepare for any recurrence of the disease. MSF's centre in Bo was closed in March, after discharging its last confirmed patient in January. Magburaka EMC remained open, but patient numbers were low throughout February and March.

MSF scaled up activities in Freetown as the capital became one of the key hotspots of the outbreak. In January, MSF opened an EMC in Kissy, Freetown, which included an isolation ward for pregnant women with suspected or confirmed Ebola. The Prince of Wales centre that was opened in December was downsized as patient numbers declined, with the last patient discharged on 23 February. In March, a clinic for Ebola survivors facing medical and psychological care as a result of the virus was established at the same site, seeing an average of 20 patients a day.

MSF strengthened its community-based activities in the first months of 2015. In Freetown, MSF managed surveillance and contact tracing in nine wards (sub-districts), as well as running health promotion, home disinfection and training activities. At the end of February, MSF launched a short intervention in Kambia, near the border of Guinea, aimed at reinforcing cross-border cooperation and surveillance.

MSF continued to support non-Ebola care by completing the second round of antimalarial distribution, reaching 1.8 million people. The campaign was supported by a large social mobilisation component including a mass media campaign and house-to-house awareness-raising. ■

Financial Accountability: donations and spending

Total sum of private donations received:

75,720,280 euros

Total sum of institutional donations received:

21,468,308 euros

Institutional donors that have contributed to fund MSF operations:

- ECHO
- DFID
- DGD Belgium
- DANIDA
- MFA Germany
- MFA Japan
- BUZA
- SIDA
- MFA Norway
- MAE Luxemburg
- MFA Czech Republic
- Government of Lichtenstein
- DDC Switzerland
- Canton de Geneve and Vaud – Switzerland
- DFATD-IHA Canada and Provincial Government of Ontario
- Provincial Governments of West Vlaanderen
- WBI
- Vlaams Brabant
- Internationaal Vlaanderen and Brussels capital - Belgium

The Ebola epidemic in West Africa deeply impacted public opinion at an international level. MSF raised some 76 million euros from private supporters, and 21 million from public institutional donors. We are very grateful for this massive financial support from donors all over the world.

These contributions allowed MSF to implement one of the biggest emergency responses ever carried out by the organisation, and to adapt its response to the needs of a continuously changing context.

By the end of March 2015, MSF had spent some 77 million euros on the Ebola response, almost all of it dedicated to operations in the three worst affected countries, Liberia, Sierra Leone and Guinea. A small portion of the donations received were also used to contain the virus in Mali, Nigeria and Senegal.

MSF estimates that another 17 million euros will be spent before the end of 2015. These funds will be used to support the continuing fight against Ebola and address the need to reconstruct the health systems of the three worst affected countries.

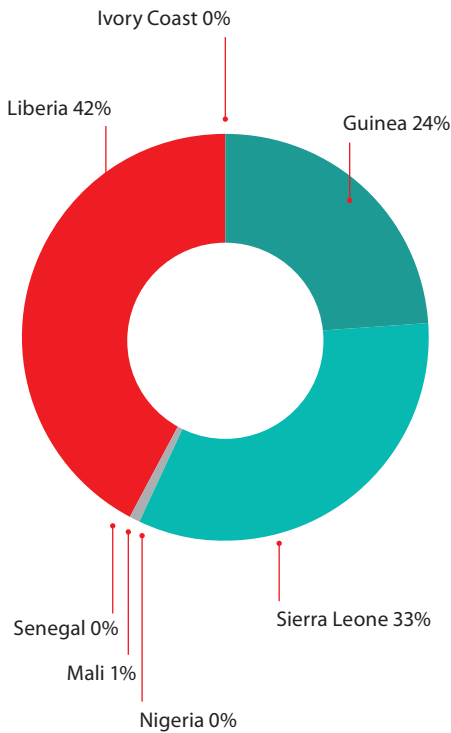
The fact that this outbreak started in an area bordering three countries in a region characterised by a highly mobile population, posed a significant challenge for MSF teams and required a complex logistical deployment.

MSF built 15 Ebola management and transit centres, including the biggest ever Ebola centre with a 250-bed capacity. Outreach activities such as contact tracing, health promotion and disinfection of contaminated houses also represented a fundamental part of MSF's activities, with teams working to detect and prevent the virus within the communities. MSF had to quickly adapt its strategies in the continuous fight against the virus, while maintaining strict infection prevention and control.

Correspondingly, 21 per cent of total expenses were dedicated to the purchase of non-medical items, such as construction materials for the centres, water and sanitation materials, and other logistical means.

A total of 18 per cent of expenses were used for the purchase of medical items. Given the lack of specific Ebola treatments, the drugs and laboratory materials required are not very costly. However a huge investment is required in terms of medical consumable materials such as personal protective equipment (suits, goggles, gloves, rubber boots, masks, etc). Due to the need of medical staff to frequently change outfits to avoid

One year expenditure by country
01/04/15 to 31/03/2015



© Kailahun EMC, July 2014. © Sylvain Cherkouvi/Cosmos

contamination, more than 300 protective suits were required each day for a facility that cared for 100 patients.

Transportation of medical and non-medical material as well as international flights for MSF staff accounted for 20 per cent of expenses.

Ebola responses are typically very intense in terms of human resources (30 per cent of expenses). The duration of frontline field assignments during this Ebola outbreak was much shorter than usual – at the height of the outbreak, assignments for international staff would last a maximum of six weeks. This was to ensure that staff remained alert and did not become too exhausted. Since March 2014, more than 5,000 staff have worked as part of the Ebola response. One year on from the beginning of the outbreak, many of the international staff have returned to the field, whilst the national staff are still there and have been there all along. All are fighting against Ebola and its consequences. ■

Summary by country of intervention	Total – EUR
Liberia	32,065,420
Sierra Leone	25,752,066
Guinea	18,505,678
Mali	534,985
Nigeria	202,665
Senegal	64,769
Ivory Coast	51,649



An MSF outreach water and sanitation team in Freetown, Sierra Leone, prepares to disinfect the home of suspected Ebola patients. © Fabio Basone/MSF



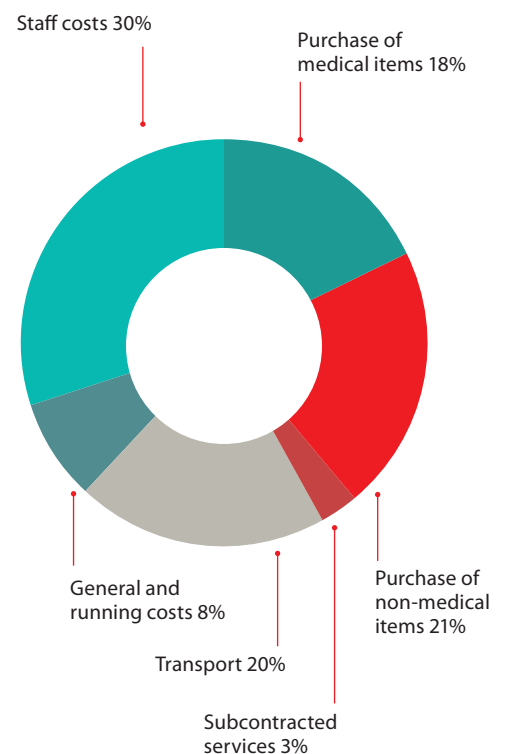
Rubber gloves dry after being disinfected with chlorine, Foya, Liberia. © Martin Zingg/MSF

Use of resources through March 2015

Category	Euros	%
Purchase of medical items	13,773,716	18%
Purchase of non-medical items	16,364,225	21%
Subcontracted services	2,325,148	3%
Transport	15,400,113	20%
General and Running Costs	6,267,232	8%
Staff costs	23,046,699	30%
Total	77,177,232	100%

One year expenditure by nature

01/04/15 to 31/03/2015





A woman is discharged from MSF's EMC in Guéckédou after taking part in the Favipiravir trial.
© Peter Casar/MSF

Searching for a cure

The lack of specific treatment or vaccine for Ebola is a major contributor to the virus's high mortality rate. In August MSF made the exceptional decision to trial experimental treatments and vaccines during the outbreak, in partnership with the World Health Organization (WHO), research institutions, Ministries of Health and pharmaceutical companies. The trial protocols were designed to ensure that disruption to patient care was minimal, that internationally-accepted medical and research ethical standards were respected, and that sound scientific data would be produced and shared for public good.

- **Favipiravir drug trial in Guéckédou, Guinea.** This trial, led by the French National Institute of Health and Medical Research, was hosted at MSF's EMC in Guéckédou. Initial results suggest the drug can reduce mortality among patients with low levels of the Ebola virus in their blood, but is ineffective for patients with high viral loads who are very sick with the disease. The trial began in December and is still

running, but MSF doesn't enrol patients anymore due to the closure of the Guéckédou EMC.

- **Brincidofovir drug trial in Monrovia, Liberia.** Led by Oxford University, this trial was hosted at MSF's ELWA 3 facility in Monrovia. The trial began in January but was halted within a month due to the significant drop in Ebola patients and because the drug manufacturer pulled out of the trial.
- **Convalescent plasma therapy trial in Conakry, Guinea.** The Antwerp Institute of Tropical Medicine is leading this trial which is hosted at MSF's EMC in Conakry. The trial began in February and is ongoing.
- **rVSV-EBOV vaccine trial in Coyah, Guinea.** This trial of an experimental Ebola vaccine called rVSV-EBOV began in March 2015 in a village in Coyah, Guinea. MSF is focusing on one arm of the trial in which frontline Ebola workers are vaccinated. Another part of the trial in which the vaccine is administered to contacts of recently infected people, is led by WHO. ■

Conclusions and looking ahead

MSF has spent the past year on the frontline of the world's largest Ebola epidemic. Despite our 20-year history of Ebola response, the enormous scope of this outbreak tested the limits of our capacity.

MSF alone cared for 35 per cent of all confirmed cases in this outbreak; a heavy burden for one organisation. With no cure for Ebola, tragically, despite our best efforts, 2,954 of our patients died. This took a heavy toll on our teams, particularly on our West African staff, many of whom lost friends, family and neighbours to the virus. This sorrow was compounded by the fact that 28 of our staff members were themselves infected and 14 lost their lives.

The unprecedented nature of the outbreak forced MSF to prioritise some parts of our usually comprehensive Ebola strategy at the expense of others. While we focused on establishing EMCs that provided crucial isolation and supportive care, activities such as contact tracing and surveillance were not always possible due to lack of capacity. Protocols were adapted and compromises made as we worked to apply our finite resources most effectively.

One year on, the outbreak continues. While Liberia was declared Ebola-free on 9 May, new cases continue to emerge each week in Sierra Leone and Guinea. The outbreak cannot be considered over until the last contact of the last Ebola patient has been followed up. Until this time, MSF will continue to care for Ebola patients and engage with affected communities. At the one year mark, MSF continued to manage five EMCs and as of May 2015, three were still operational. Even after the outbreak has ended West Africa must remain vigilant against a re-emergence of the virus.

As the peak of the emergency passes, non-Ebola health needs must be addressed as an urgent priority. Health workers have died or been traumatised, and while many facilities have now reopened, people remain distrustful of health services. In addition to the more than 10,000 Ebola deaths in the past year, untold numbers of people have died from non-Ebola diseases such as malaria or diarrhoea, or during childbirth. The long period of interrupted health

services has led to significant gaps in preventive healthcare and chronic disease treatment. MSF is looking to focus on this non-Ebola healthcare in coming months and years through, for example, a paediatric hospital that has recently been established in Monrovia and a planned maternal healthcare project in Sierra Leone. The health systems in the affected countries need urgent support not only to recover, but to address some of the pre-existing weaknesses that allowed this outbreak to take hold.

Global pharmaceutical research and development needs to maintain its focus on developing Ebola treatments and vaccines, even as case numbers drop and media interest fades. MSF remains actively involved in three clinical trials in Guinea, each focused on a different aspect of the medical response: diagnosis, prevention and treatment.

To prevent future Ebola outbreaks from spinning so far out of control it is crucial that a robust surveillance system is developed, supported by strong global leadership that sparks swift action.

Ultimately, the needs of affected patients and communities need to be at the heart of any future response - to ensure that the tragic records set by this outbreak are never matched again. ■



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Front Cover: An MSF staff member checks their protective suit in the mirror before entering the ELWA 3 Ebola Management Centre in Monrovia, Liberia, September 2014. © Morgana Wingard

Back Cover: A Liberian staff member on outreach in Monrovia. © Agus Morales

