



OCB EBOLA REVIEW SUMMARY REPORT

[April 2016]

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CONTENTS

ACKNOWLEDGEMENTS.....	3
ACRONYMS	3
1.0 INTRODUCTION.....	4
1.1 THE LARGEST EBOLA OUTBREAK IN HISTORY	4
1.2 THE OCB RESPONSE IN FIVE PHASES.....	4
1.4 METHODOLOGY AND LIMITATIONS.....	7
2.0 FINDINGS	9
2.1 OCB OPERATIONAL RESPONSE.....	9
2.2 ADVOCACY AND COMMUNICATION	15
2.3 HUMAN RESOURCES CHALLENGES	19
2.4 SUPPLY STRATEGIES.....	21
2.5 COORDINATION AND MANAGEMENT OF THE RESPONSE	22
2.6 INNOVATIONS AND GOOD PRACTICE	22
2.7 DIFFICULT EXPERIENCES	24
3.0 CONCLUSIONS.....	25
4.0 RECOMMENDATIONS	27
ANNEXES.....	33
ANNEX I: LIST OF INTERVIEWEES	33
ANNEX II: BIOGRAPHIES OF EVALUATORS	36

ACKNOWLEDGEMENTS

The response to the Ebola outbreak has been unprecedented in so many ways. It has pushed MSF as an organisation, and the people involved, directly or indirectly, to the limit. This review is part of a process by the Operational Centre Brussels (OCB) to learn from the experiences gained during the Ebola response.

The review team involved in the OCB Ebola Critical Review would like to express their heartfelt thanks to all who participated through interviews or through the online survey. The openness and willingness to support the process has helped the team collect the information required. Our thanks go to all OCB project and headquarters staff, national staff, members of other MSF sections or external organisations who contributed. A full list of interviewees is in the annex.

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ACRONYMS

CCC	community care centres
CDC	US Centers for Disease Control and Prevention
ETC	Ebola treatment centre
HQ	headquarters
HR	human resources
ICP	infection control protocols
IMC	International Medical Corps
INGO	international non-governmental organisation
MoH	Ministry of Health
MSF	Médecins Sans Frontières
OC	operational centre
OCA	Operational Centre Amsterdam
OCB	Operational Centre Brussels
OCBA	Operational Centre Barcelona-Athens
OCG	Operational Centre Geneva
OCP	Operational Centre Paris
PPE	personal protective equipment
VHF	viral haemorrhagic fever
watsan	water, sanitation and hygiene
WHO	World Health Organization

1.0 INTRODUCTION

The Ebola outbreak in West Africa was unprecedented in its sheer scale. The outbreak occurred close to the confluence of the borders between Guinea, Sierra Leone and Liberia, where movement of people between countries is regular and often not controlled.

1.1 THE LARGEST EBOLA OUTBREAK IN HISTORY

On 21 March 2014, the Ebola outbreak in Guinea was laboratory confirmed and MSF quickly dispatched experienced teams from Geneva and Brussels to set up case management facilities and start outbreak control measures. An MSF team in Sierra Leone with Ebola experience was directed across the border into Guinea and began setting up isolation facilities in Guéckédou, near the epicentre of the outbreak, as well as implementing outbreak control measures in the affected area.

By late July 2014, the epidemic had spread to major cities in Guinea, Liberia and Sierra Leone. By the beginning of October 2015, the World Health Organization (WHO) had reported more than 28,000 cases and 11,000 deaths.¹ With the rapid increase in cases and the lack of other humanitarian actors, MSF was stretched to the limit. Because of the high risk associated with responding to Ebola, and because previous outbreaks had been quite small in comparison, very few humanitarian actors had the experience or capacity to respond. In August 2014, during the peak of the outbreak, MSF increased its on-ground capacity fivefold.

The international community, including WHO, was slow to respond and reluctant to accept the scale and severity of the Ebola outbreak. Affected governments did not want to spread panic among their populations, while fearing the economic impact of declaring an epidemic. For the MSF response, this contributed to very limited access to important data, as well as little opportunity to engage the population in controlling the disease with safe practices, awareness raising and setting up networks of alerts. Soon the epidemic had become the largest Ebola outbreak in history. Finally, by late 2014, the outbreak showed signs of slowing.

1.2 THE OCB RESPONSE IN FIVE PHASES

March 2014 to mid-June 2014

Following the confirmation of the outbreak in Guinea in March 2014, MSF's Operational Centre Geneva (OCG), which was operating in the region, requested support from Operational Centre Brussels (OCB) to take the lead in the response due to OCB's Ebola experience and capacity. OCG continued to be involved in the intervention, especially through the presence of its national and international staff. MSF opened three treatment/transit centres within two weeks in Guinea. MSF quickly recognised the unprecedented nature of this outbreak and raised the alarm. WHO in West Africa considered this first call by MSF to be an exaggeration of the situation².

When the first cases were confirmed in both Liberia and Sierra Leone, the government of Sierra Leone declined offers of help. The OCB intervention was supported with human resources (HR) from the other operational centres (OCs). OCB began to support and train a small number of willing organisations in order to increase the capacity of actors on the ground.

¹ Ebola Situation Report - 7 October 2015- WHO

² MSF, Pushed to the limit and Beyond: One year into the largest ever Ebola outbreak, March 2015

Mid-June to end of July 2014

After an initial drop in May, the number of cases increased again in Guinea. In Sierra Leone and Liberia the increase was sharper. Sierra Leone called a state of emergency, while Liberia ordered quarantining of most of the affected areas. WHO, health ministers from 11 countries and representatives of a number of NGOs met in Accra, Ghana. MSF extended its support to the international non-governmental organisation (INGO) Samaritan's Purse in ELWA 2, Monrovia. Discussions regarding operational research trials in the affected countries and the use of experimental products in an emergency began taking place. An MSF decision was taken to start an OCB taskforce to oversee the three-country response. OCBA became active in supporting countries in proximity to the three most affected ones in dealing with suspected cases. OCA committed to intervene. A call for military assistance was first discussed but not made public. MSF repeated the call for the international community to intervene, stating it was already stretched to the limit.

August to October 2014

Eight months after the first suspected case, WHO declared Ebola an international emergency and gave its cautious blessing for the use of experimental drugs and vaccines. The number of reported cases rose from 926 in July to 2,708 in August and 4,641 in September. Cremation was used for the first time to dispose of the increasing number of corpses in Liberia. Samaritan's Purse withdrew from Foya and Monrovia in Liberia after two international staff became infected and were flown to the US. OCB stepped in and provided support in both locations.

In September 2014, MSF spoke at the UN General Assembly, where it warned that the world was *"losing the battle against Ebola"* and denounced *"a global coalition of inaction"*. At the UN Security Council, also in September, an MSF medical staff from Liberia explained that MSF had reached its limits and could not continue to respond alone to the epidemic. He appealed for international help. MSF also called for specialised military capacity in biohazards to be used in the response to the outbreak. In this period, OCA, OCBA and OCP become operationally involved in the intervention, initially through sending international staff.

MSF managed to increase its intervention capacity fivefold, despite being already severely over-stretched. ELWA 3 opened in Monrovia with 250 beds. Twelve million euros were committed to securing the production and supply lines of key items related to the personal protective equipment (PPE) used in the Ebola treatment centres (ETCs). Several MSF staff were infected and two medical evacuations were organised for infected international staff. The OCB taskforce became operational and provided support to other participating MSF sections. Training for *"first responders"* started for MSF and non-MSF staff in Brussels. In Kailahun, Sierra Leone, 700 community health workers were trained, and more than 400 were trained in Monrovia. Dozens of international and national staff of other organizations and foreign medical teams were also trained by MSF in the affected countries. Home protection and disinfection kits were distributed to 70,000 families and targeted communities in Monrovia. OCB's Gondama Referral Centre in Sierra Leone closed.

MSF's Investigational Platform on Experimental Ebola Products confirmed the preliminary selection of two drugs (brincidofovir and favipiravir) and agreed to be involved in a 'convalescent whole blood & plasma trial'. MSF also warned *"against the effects of forced quarantine of health staff"* returning from West Africa.

November to January 2015

Many other actors began setting up projects in the three affected countries, supported by the US and UK military. A gradual decrease in the number of cases was seen in Liberia and Guinea, but a sharp increase in western Sierra Leone. Two ETCs managed by OCB were handed over to other MSF sections

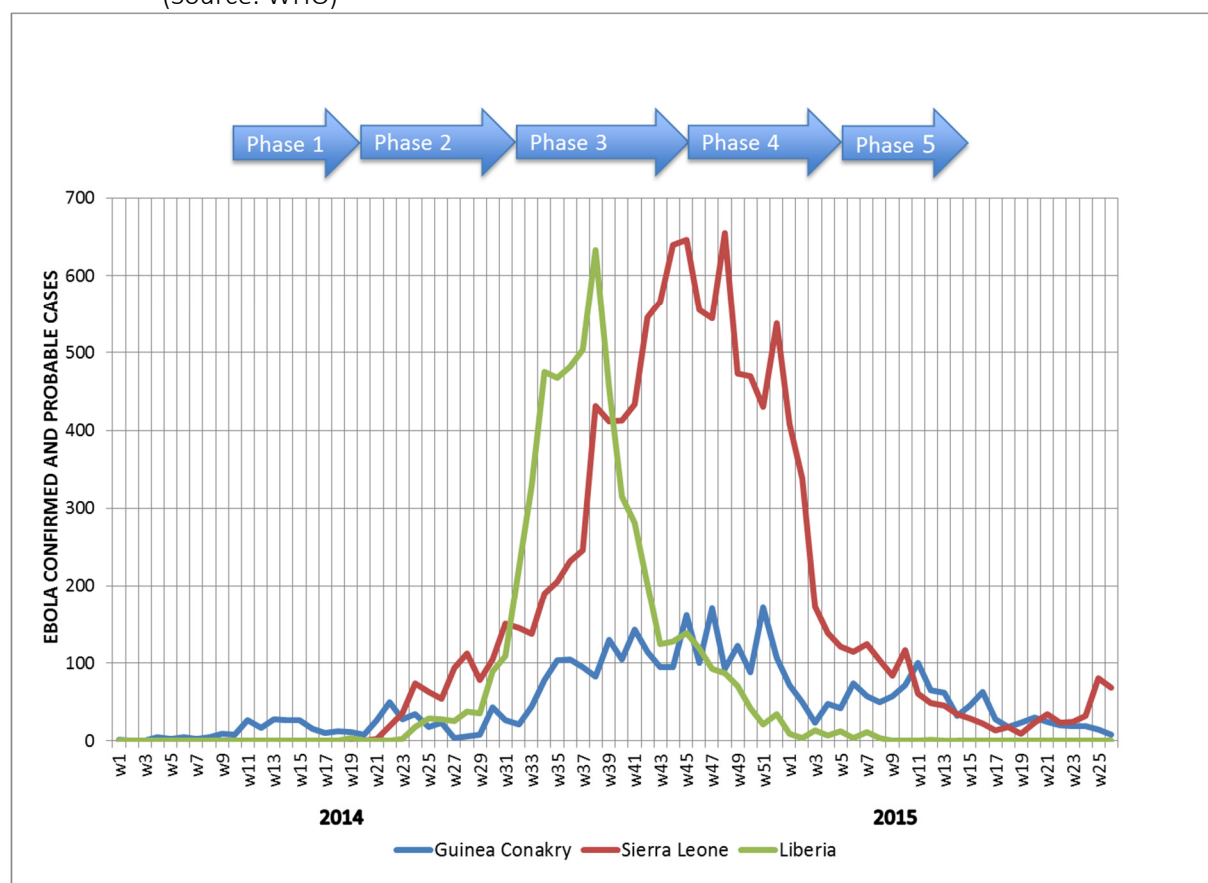
and one to the INGO French Red Cross. Rapid response teams were deployed in Guinea and Liberia. Trials started in two countries for treatment, vaccines and diagnostic research.

An internal MSF letter criticising some of the operational choices and strategies triggered strong reactions in the movement and had a demoralising impact on MSF field teams and the taskforce. It created significant and lasting tensions between OCB and the signatories of the letter.

February to March 2015

This is the final phase covered by the review (but not the end of the intervention). It was predominantly focused on the drug trials, the decreasing number of cases, the building of a new ETC in Nongo, Guinea, and the release of MSF's report one year into the Ebola outbreak, *Pushed to the limit and beyond*, marking the anniversary of MSF's involvement and criticising the slow international response.

Fig 1: New probable and confirmed cases per week, by country (January 2014- June 2015)
(Source: WHO)



1.3 SCOPE OF THE REVIEW

OCB commissioned an extensive multisectoral critical review of its Ebola intervention in early 2015. The sub-reviews covered medico-operational issues, human resource management, water and sanitation, supply, logistics, communications and advocacy, and governance. A review of treatment centre design and construction was included but was steered by OCA. Two archivists have supported the use of an information system (Knowliah) for quick and easy access to relevant documents and information.

The governance part of this review was limited to the internal and operational governance role of OCB. Other governance factors relating to the MSF organisation as a whole, and the role of the different platforms and shared intersectional taskforce, will be dealt with in a separate governance review commissioned by the MSF International Board.

This review is focused on assessing the appropriateness of the chosen strategies and analysing the effectiveness of the OCB intervention. It identifies key learning areas and makes recommendations for future improvements. The time period reviewed is from 1 March 2014 to 31 March 2015, as this was considered the most intense period, from which most lessons are to be learned.

The full terms of reference are available online at: <http://evaluation.msf.org/ocb-ebola-critical-review-work-page-1>

This report aims to highlight the key findings from the specific reports and to draw some global conclusions. Lessons identified are provided in the specific chapters. The most important recommendations are listed in the final chapter, while a complete list of recommendations from all nine reports is available in the annex.

The content and recommendations in this report reflect exclusively the views of evaluators, based on the information gathered throughout this process. It is NOT meant to be an evaluation of the entire MSF Ebola response.

1.4 METHODOLOGY AND LIMITATIONS

Data collection methods

All reviews used the MSF Knowliah database to search and review relevant documents and emails. Databases were accessed for statistics regarding staff deployments, training and finance.

Interviews, both individual and group discussions (N = 500) provided an essential part of the qualitative data. Interviews were conducted with national staff in Guinea, Liberia and Sierra Leone. International OCB staff who had been working either in-country or at OCB offices in Brussels were also interviewed, as were a number of representatives from other MSF operational centres and from external organisations.

An online survey was sent to all staff with active email addresses (N = 777) in September 2015. The overall response rate was 33%. The survey was designed in several parts. The first part aimed to obtain feedback on human resource and stress management issues, including training. The other parts directed people to specific questions depending on their area of work. It asked for respondents' experience in the use of guidelines and quality of care indicators, and sought their opinion of MSF's overall performance in the field. Response rates to the specific parts varied, with 51% for emergency coordinators, 43% for epidemiologists, 30% for water, sanitation and hygiene (watsan) staff and 25% for medical staff.

Limitations

Sourcing information during interviews relied on anecdotal accounts of events and people's ability to recall events that in some cases occurred more than a year earlier. It was also not possible to interview everyone involved with the response, and not all those invited for interviews made themselves available.

During the document review of OCB Ebola information stored electronically, many records had no dates and the authors were not clear, making it difficult to attribute them to a specific time or event.

Interviews in the field were mainly conducted with staff currently working with MSF, or staff willing to come and give time for the OCB review.

2.0 FINDINGS

2.1 OCB OPERATIONAL RESPONSE

OCB's response in the first months focused predominantly on the triangle of Guéckédou (Guinée Forestière, Guinea), Kailahun (Sierra Leone) and Lofa (Foya, Liberia). There was a hope of being able to control the outbreak in Guinea by the end of April, and there was a drop in cases in May 2014. At the same time the situation in Sierra Leone was unclear and the first MSF team was denied access to carry out an assessment. Training activities enabled other organisations – such as Samaritan's Purse in July – to take over the management of some ETCs.

The most challenging phase of the response was from August to October 2014, and was described by some staff as the “*apocalypse*”. Access to treatment in some of the ETCs had to be restricted due to limited availability of bed capacity and experienced staff.

In Sierra Leone, in Kailahun ETC, one in three admitted cases originated from outside Kailahun district (rising to 50% of cases from mid-September).³ People were travelling long distances due to limited access to ETCs elsewhere in the country. This made contact tracing, safe burial and disinfection measures more complicated to implement. There was no good model for spreading out Ebola treatment services in a safe and effective way. Overall, OCB was not able to develop ETC services closer to the epicentre of the epidemic in time, and there were no other actors to do so.

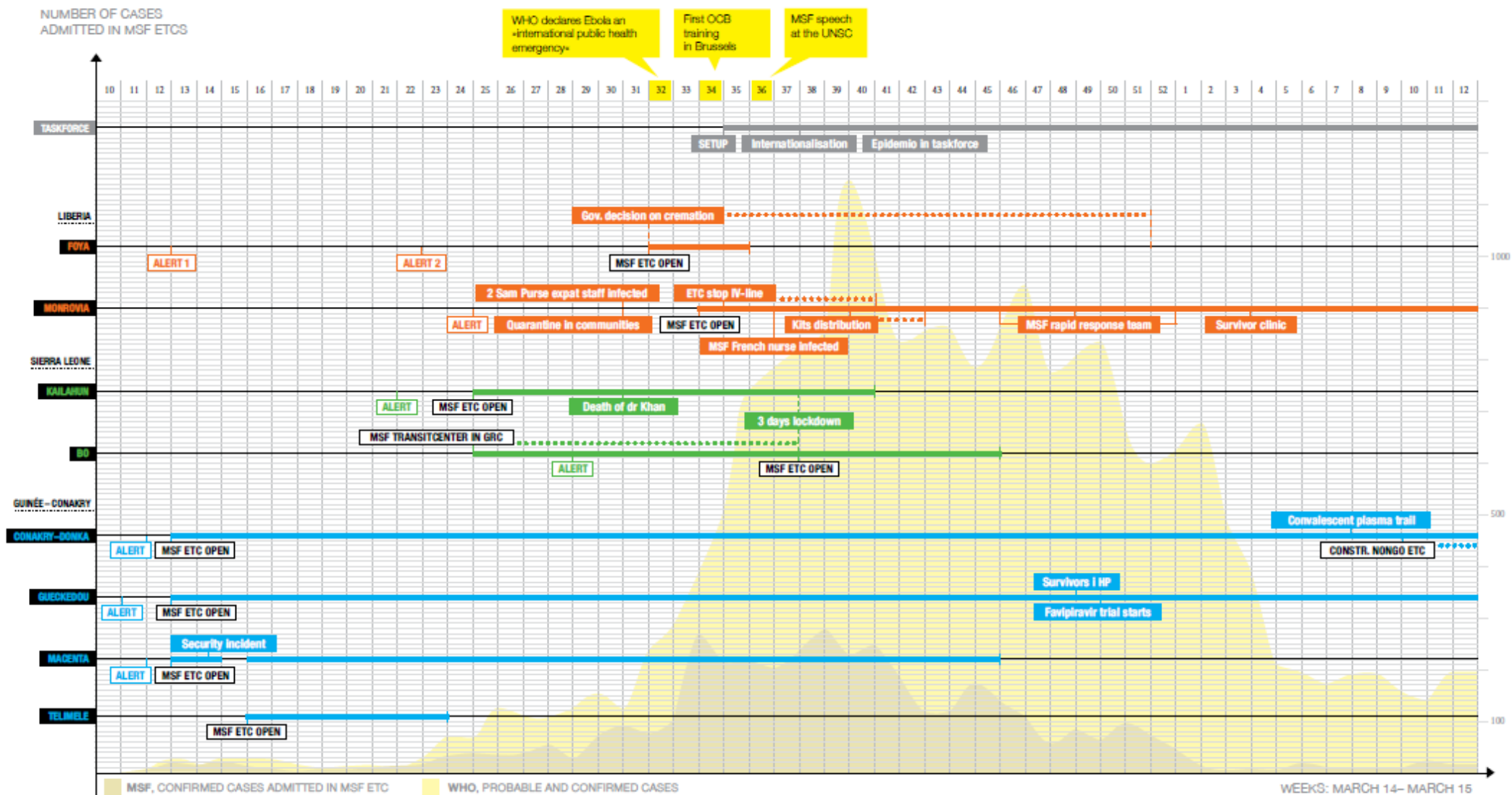
The slowing down of the epidemic in Liberia (and later in Guinea) finally allowed MSF to implement flexible strategies to address key priorities. These included early outbreak detection, assessment of community response and immediate isolation of potential Ebola cases through a coordinated response that included rapid deployment of staff and materials. By November 2014, the case management load in Monrovia was sufficiently reduced for OCB to propose and initiate a rapid response team.

The decline in patient numbers in late 2014 meant not only having sufficient bed capacity, but it also allowed improvement of patient care. This included the use of biochemistry to individualise fluid management, and the creation of more family and visitor-friendly ETCs. Finally, during the two last periods covered by the review (November 2014 to January 2015, and February to March 2015), MSF engaged in clinical trials in its ETCs.

Timeline of key events

The volume and magnitude of the intervention, its duration in time (March 2014-April 2015), its spread over three countries, and the different pillars of the response, together make it challenging to select key milestones. The evaluators have tried to present those milestones that facilitate an understanding of the response, the choices made and their evolution over time, focusing on the ones which made the greatest impact in operational terms.

³ Sierra Leone OCA Epidemiological Bulletin, Week 49 (30 November – 6 December)



Big achievements and major challenges in treating Ebola patients

OCB provided Ebola care for close to 4,000 confirmed patients (as of the end of March 2015). Protection of staff was the top priority, resulting in excellent biosafety guidelines and implementation. The level of care fluctuated depending on the number of patients, the number of beds and the number of healthcare workers available. Mortality rates in MSF ETCs was on average 51% in 2014 and varied according to place and time.

From the start, IV fluid provision was considered an essential element in the treatment of Ebola by OCB. However, at certain times – for example when ETCs were overwhelmed by patients, or during the first weeks of an ETC when staff were not sufficiently trained – no IV fluids were administered. When IV fluids were given, it was generally less than three litres per day and without monitoring electrolytes. I-stat was used at the start of the epidemic but later abandoned. Given the frequency of electrolyte abnormalities in patients with Ebola, this is regrettable. In regards to survival, it may be that providing only a limited amount of IV fluid in severely ill patients with Ebola, without being able to monitor electrolyte abnormalities, has little effect. The type of PPE used by MSF staff seriously limited the possibility to offer a high level of care without a large number of trained staff or frequent patient rounds by staff members.

From the onset, there was a clear strategy and clear protocols for paramedical care. This strategy was well implemented and followed up, adapted in a timely manner, effective and innovative.

The monitoring and documentation of clinical symptoms, vital signs and treatment received was generally poor at all OCB ETCs. This improved later on, when new ways of data transfer, such as walkie-talkies and secured local wireless networks, were put in place.

There was some reluctance to test innovative approaches to care during the peak of the epidemic. Nevertheless, involving survivors in patient care and certain health promotion activities were innovative advances.

OCB played a role in enabling other responders to provide care through different forms of collaboration and through investment in training, both in the ETCs and in Brussels (see more on training, page 20).

LESSON LEARNED: The experience gained and lessons learned throughout the response led to improvements and changes in the set-up and care at ETCs. It is important to swiftly update Ebola guidelines and integrate the new knowledge, but also to design guidelines in a way that takes into account the different needs and constraints at different scales of an outbreak. They should also address the pathway to swiftly restoring a higher level of care as soon as conditions allow, following a peak outbreak period when only a basic level of care could be provided.

Health promotion fragmented, but with clear results

Health promotion and awareness raising was partially integrated into the OCB intervention. Due to a lack of resources and contextual limitations at the start of the outbreak, not all components were addressed equally or in a timely manner.

Health promotion activities in the ETCs were considered to be both appropriately designed and implemented in a timely fashion throughout the period and across all countries. They followed the *2015 Draft Ebola Guidelines* in targeting patients, caretakers and health staff. Issues around acceptance by the community were experienced in some ETCs when restrictions were put in place on families contacting sick relatives or seeing their dead bodies. This resulted in rumours, negative perceptions and an increased mystification of ETCs. Although OCB recognised these barriers, it was difficult to correct the misperceptions.

Health promotion activities within the community demonstrated several weaknesses in strategic design, timely implementation, monitoring and evaluation. Collaborations with other actors on health promotion proved unsuccessful in several places due to the other parties being unable to deliver expected results. In many instances, health promotion activities proved to be an important mediation tool in contexts where there were tensions or insecurity within the ETC, during outreach or within local communities. Communities' lack of trust

in the government and in foreign agencies, combined with misinformation around the disease, created legitimate concerns for staff safety. Health promoters reportedly played an important facilitating role in improving security, for MSF teams and within communities.

The approach of proactively engaging local communities and Ebola survivors in health promotion was empowering for those involved and helped restore their dignity. MSF anthropological assessments were introduced too late in the intervention to make a difference. Early complementary analysis and information could have supported the team in adapting approaches and tools.

LESSON LEARNED: When reducing transmission of a highly contagious disease is a programmatic objective, appropriate investment towards community acceptance and behaviour change is essential. Starting health promotion efforts early and linking them to local communication directly improves programme effectiveness. Socio-cultural assessments must be conducted and used timely.

Limited capacity for outreach

The definitions used for outreach differ within OCB. For the purpose of this review, the more narrow definition of outreach – including alerts, response and contact tracing – is used. There were differences in approaches between and within countries and over time. Outreach was not implemented consistently, and this is largely attributed to a lack of HR. However, interviews also reveal a lack of understanding about what constitutes effective outreach activities, and potentially a lack of understanding about the importance of outreach. There are references to outreach in various sections of MSF's 2008 *Ebola Virus Disease Guidelines*, but a comprehensive set of activities linked to outreach is not clearly defined.

Contact tracing was mostly done by other actors (Ministry of Health, WHO) during the reviewed period. MSF has been critical of the way in which contact tracing was performed, but many interviewees recognised that, given the number of cases and transmission chains, in many locations tracing contacts was an impossible task.

The limited capacity to invest in outreach impacted negatively on MSF's understanding of the development of the outbreak, especially as efforts to link up with other organisations were not always successful.

Disastrous state of non-Ebola healthcare

Although the *Infection Prevention and Control Guidelines* were very clear, OCB did not succeed in effectively implementing infection control programmes at the onset of the emergency.

At the Gondoma Referral Centre near Bo, Sierra Leone, OCB suspended activities that had pre-existed Ebola. Obstetric care closed in August and paediatric activities in October, depriving the local population of essential services. This action reflected both the belief among international staff that the working conditions were not safe enough and the dramatic drop in utilisation rates for paediatric services.

Given the intensity of this epidemic, the lack of experienced staff, and the high levels of stress in assuring staff safety, MSF did not get involved in non-Ebola care until late in the epidemic. Implementing infection control protocols (ICP), triage and diagnostics in peripheral health centres was tried and found to be ineffective and at times harmful. There were not always sufficient HR to effectively and safely implement and supervise those activities and at times staff safety could not be guaranteed.

LESSON LEARNED: In any future large-scale outbreak, a solution to ensure IPC at sufficient scale must be found (in parallel with patient isolation and care). This would have to include not only MSF structures but also health facilities in general. Some basic health care activities would not require the same HR profiles as those needed to run an ETC (e.g., they would involve WatSan specialists and more paramedicals), and would benefit from involvement of more national staff.

A limited and underused role for epidemiology

During any outbreak, epidemiological approaches are critical for adapting an intervention as the outbreak evolves. For months during this outbreak there was only limited MSF investment in epidemiological surveillance, due to competing priorities. Moreover, the usual Ebola epidemiological surveillance system described in MSF guidelines were devised for geographically limited outbreaks, whereas in this epidemic the need was for more capacity to assemble both a detailed picture and a global overview to inform decision-making. However, OCB was not set up to participate in surveillance activities at the central and regional levels, and therefore lacked data and insights that are key to adapting a response.

Due to its presence in the field OCB was at the heart of the outbreak, but had few routes to gain an understanding of events e.g. in Sierra Leone early in the onset. MSF relied heavily on WHO, CDC, and other organisations, while at the same time being sceptical about their performance. Given OCB's stretched resources, it is difficult to understand why they did not request support from other parts of MSF, especially Epicentre [the research arm of MSF specialising in epidemiology], as soon as the outbreak was recognised as being exceptional and unprecedented.

Monitoring and documentation of clinical symptoms and vital signs was generally poor in all of OCB's ETCs, even during clinical trials. There was no standardised way of collecting information from ETCs. The analysis of compiled data from the ETCs was not carried out until an epidemiologist was appointed to MSF's taskforce in October.

LESSON LEARNED: Investment in epidemiological follow-up as a specific activity—in relation to operations—with appropriate means and coordination should be a priority during outbreaks from the beginning.

Research planned late, but important results

Basic knowledge about EVD was limited at the start of this outbreak. Therefore, identifying the most crucial research questions and establishing mechanisms to collect and analyse information was critically important. Despite the vast potential for operational research on Ebola, there has been very little prospective planning.

The lack of standardised data collection was one factor hampering operational research and was considered to have started quite late. Despite the vast potential for operational research on Ebola, there was very little proactive planning for it. The publication of specific clinical findings, and lessons learnt of practical importance for the clinical management of Ebola, was slow to happen, resulting in research that will only be useful for future outbreaks. Though the option of experimental treatment and vaccination was discussed quite early in the outbreak, it was not properly explored until after the outbreak escalated in July-August.

Overall, there was a high scientific output, largely thanks to the initiative and involvement of returning field staff. Many papers, however, have still to be published, and many research questions remain to be addressed.

MSF collaborated in a ring vaccination trial that demonstrated the 100% (CI) efficacy of the rVSV-ZEBOV vaccine. Two treatment trials were successfully completed, but so far excellent supportive treatment remains the key to improved chances of survival.

Involvement in clinical trials, in particular in an emergency setting, was new to MSF, and several important lessons were learned. Consortia were formed with other MSF sections and with external partners in order to supplement the in-house knowledge and capacity on clinical trial management. Premature communications hampered community involvement and compromised perceptions of the trials. The field staff may have been insufficiently involved in the design of the trials, leading to frustrations when they were implemented. With the high staff turnover, this was unavoidable to some extent, but internal communication on the trials and their development should have been carried out.

LESSON LEARNED: If MSF wants to help fill critical gaps with scientific evidence, it is crucial to integrate operational and clinical research into its response from the beginning, develop plans to implement this research

alongside its operational response, and publish results rapidly to maximize the chance that they can impact an ongoing response, at least during longer outbreaks.

Few alternatives to big dilemmas

A number of proposals were put forward and requests made to adapt the response set-up, both within OCB and the other OCs. These included the need to reinforce strategic decision-making, the need for MSF to step back and look at the “*big picture*”, and the need to harvest high-quality reflections and contributions on critical issues such as advocacy and complementary medico-operational strategies.

The need to reflect on alternative strategies for tackling the epidemic was expressed by MSF staff and by other stakeholders, including national governments and WHO. At times OCB was perceived as reluctant to consider alternative models of isolation and care, for several reasons (staff security, ethical issues, lack of resources, etc).

Alternatives put forward by CDC, WHO and national governments did not convince OCB. These included basic forms of home-based care and so-called community care centres (CCCs). OCB was opposed to the establishment of CCCs. These centres raised many questions in terms of quality of care and as potential hubs for further EVD transmission.

Heated discussions took place between MSF and WHO/CDC on the subject of CCCs, with OCB remaining opposed. WHO/CDC pursued the strategy nevertheless, with limited success, for many reasons: delays, lack of flexibility, etc. OCB maintained its view that there were no feasible alternative strategies that would be consistent with MSF principles.

Support for survivors

Psychosocial teams visited survivors at their homes, and when home visits were not possible they communicated via telephone.^{4 5} They also conducted counselling sessions and performed psychosocial assessments using a standardised questionnaire. Based on the recovered patient’s condition and healing progress, some received more than one visit.

Medical care for survivors was not provided early in the outbreak⁶—the first MSF clinic for survivors was opened on 28 January 2015 in Monrovia, initially located outside ELWA 3 and then (as of April 2015) in the MSF paediatric hospital in Monrovia. Its services included a thorough history and physical examination using a medical assessment form, and provision of medical treatment. Patients with eye problems were referred to either a local ophthalmologist or a team of international ophthalmologists who visited Monrovia in April 2015.

The limitations of guidelines and protocols

The limited knowledge that exists on the management of Ebola is a particular issue in regards to the pathophysiology of Ebola; optimal symptomatic and anti-viral treatment; optimal PPE; and duration of infectivity. Knowledge gaps also existed for water and sanitation specialists, for example with regards to the optimal management of large numbers of corpses and cremation.

MSF’s 2008 *Ebola Guidelines*⁷ were appropriate to ensure an acceptable standard of patient care, but were not detailed enough in certain areas, and were not designed for an outbreak with such a large caseload and spread. They did not address the “*why*” of required actions, which is essential to allow for adjustment of protocols when circumstances change. They were also limited in technical and strategic content regarding health promotion.

⁴ Interviews with national staffs (2015).

⁵ Interview Counsellor ELWA3 (2015).

⁶ Interviews with expatriate staff (2015).

⁷ Sterk, Esther. “Filovirus haemorrhagic fever guideline (draft).” Médecins Sans Frontières, 2008.

During the epidemic, more detailed guidelines were developed and made available. The 2015 *Draft Ebola Guidelines* were more detailed, and there was a clear objective on the part of some contributors to explain why certain actions, activities and protocols were recommended. However, the new guidelines were not fully formulated and have still to be validated. Available only in digital format, they were not considered to be user-friendly. A CD for health promotion was made available, but was perceived to be insufficiently concise.

The way in which the 2015 *Draft Ebola Guidelines* and protocols were applied was observed to be dogmatic at times, which contributed, for example, to a narrow focus on clinical activity and a tendency to follow rules to the letter. The knock-on effect of this was that incoming staff repeated existing protocols without ever questioning them. One example cited describes how family visits in an ETC were put on hold due to an increased caseload. By the time operations returned to normal, the coordination staff had changed, and the incoming coordination staff maintained the ban on family visits simply because it was an existing protocol.

Over the course of the outbreak there was a clear capitalisation of tools, lessons learned, improved guidelines and technical notes, but the comprehensive reference library was only finalised towards the end of the epidemic.

2.2 ADVOCACY AND COMMUNICATION

Ebola had a significant impact on MSF in terms of advocacy and communications, catapulting it into the unexpected role of expert, advisor and information provider, with an influence over public opinion and external institutions and organisations.

A long effort to get the world to act

Despite efforts in public communication and lobbying⁸ the international community, it was only in the first half of September that the world started to engage with the Ebola crisis. This review identifies a list of important barriers to the advocacy efforts. For many journalists and institutional bodies, the warnings did not stand out in comparison to other MSF press releases and warnings.

The final wake-up call was a result of better coordination of all the advocacy and communication regarding the outbreak. A big game changer was the infection of international staff, which created huge media pressure that MSF communication departments managed very well. MSF's public messaging also built up over a period of months.

The historic speech made by MSF's international president at the UN General Assembly (including a call to deploy civilian and military biohazard assets) and the testimony of MSF's Liberian team leader at the UN Security Council were particularly powerful and triggered a response. Equally significant were the transnational threat when the outbreak spread to Nigeria, Mali and Senegal; the declaration of a Public Health Emergency of International Concern by the WHO (August 8); and the open letter from Liberian president Ellen Johnson Sirleaf asking for help. Any one of these individual actions might not have led to a meaningful international intervention, but together they served to raise awareness and prompt significant action.

WHO was reluctant to interact with MSF at a high level at the start of the outbreak. MSF's critique of WHO resulted in lack of trust from their side. MSF's interaction with institutional bodies was mainly handled by the Ebola specialist, but on reflection engagement from a more senior representative at an earlier stage may have been helpful. Engaging with regional health actors or AFRO was not seen as useful in helping to gain attention to the severity of the outbreak by MSF.

⁸The definition for lobbying used here is: "an act of attempting to influence decisions (e.g. bilateral meetings) of any other actor, not only a government."

A strong message

Overall the emergency was communicated by MSF as one big outbreak in one region rather than three separate outbreaks in three different countries. Strong analysis came out of Liberia which resulted in a strong focus on the needs identified in that country, but the analysis was generalised for the whole affected region. The call for more bed capacity was specific for Liberia, but the needs in Guinea and Sierra Leone were less visible. In order to be prepared for the worst case scenario the objective was to scale up. Although in November there were different problems in the three affected countries, MSF's main message remained constant: 'more beds and boots'.

For many interviewees the MSF messaging was too oriented towards isolation. The regular advocacy updates included other messages than about the one about scaling up, but those other messages were apparently not read or understood.

It was only after the field visit of the International President and the Operational Director that the messaging was adjusted. On December 2 MSF released a press statement and a briefing note pointing out 'a double failure': the international community's deployment response not only took too long, but it was also neither flexible nor adapted to the new situation.

Several interviewees remarked that MSF should have talked earlier about the absence of Research and Development (R&D), and the lack of tools and available therapeutics. But the analysis of OCB was that pushing harder and earlier for a vaccine would distract governments from the task at hand which was basically to scale up the response.

Need for analysis, reflection and strategy

An important lesson learned for MSF from the Ebola response is that in such an emergency the challenge is to maintain sufficient space for reflection despite the overwhelming management of the operation. A better capacity to reflect and inform strategies with a 'helicopter view' must be considered for the next large scale emergency. Similarly, more capacity is needed for dedicated analysis and to work alongside emergency operations on a roadmap towards expected change, i.e. an overall advocacy strategy for both lobbying and public communications.

MSF was quite alone in its appeal for action. To increase pressure, the organisation could have looked at partnerships; at building a sense of anger and dismay in order to mobilise civil society; and at making more use of the returning field workers to inform their home societies. In short, MSF could have made more use of its humanitarian power and set up a coordinated campaign to achieve the necessary changes.

Persistent advocacy towards the three affected countries, pushing them to mobilise other states did not happen enough, and when it did take place, it was too late. More advocacy, and earlier, would probably have been more efficient and effective because states are more likely to intervene if they receive a request from the country in need itself. Another option would have been to regularly consult between the three countries and the Task Force, working together on an overall communications and advocacy strategy, developing nuanced messages according to the different situations.

LESSON LEARNED: A better analysis and understanding of the functioning of national and international bodies, their sensitivities and their regulations (e.g. knowing about the international health emergency mechanism) could have accelerated the take up of MSFs message. In particular, targeting WHO at the right level earlier or using influential states or institutions as door openers might have helped a faster advocacy impact.

Huge media coverage

The Ebola emergency response has massively elevated the prominence of MSF as a global health actor both in terms of public awareness and perception and in terms of fundraising. Where press officers usually pitch heavily

for media attention, requests had to be turned down and all MSF media related records were broken. MSF was – for weeks and months – upfront in the news, resulting in an increased profiling.

Despite public communication efforts and lobbying of the international community by MSF, it was only in the first half of September that the world started to engage. For many journalists, but also for institutional bodies, the warnings did not stand out in comparison to other MSF press releases and issues.

The public messaging of MSF built up over a period of months. In particular the interventions at the UN General Assembly and the UN Security Council, and the lobbying efforts, triggered a response, but it was not big enough to be the only game changer. The final wake-up call was a result of coalescence of different elements. Another big game changer was the infection of the returning international aid workers. One without the other would not have led to a meaningful international intervention.

For almost the first time an MSF international president was prominently at the fore-front of the organisation. In this crisis, as rarely before, the role of the international president became visible to the world.

It is a new and interesting fact that MSF succeeded in having huge coverage by using interviews and short quotes to deliver its messages, rather than relying solely on official press releases.

LESSON LEARNED: For the most important messages, the gravity of an emergency must be stressed more clearly to the press. This will require a more individual approach towards journalists/editors, better follow up of press releases, the differentiation of press releases and organising simultaneous press conferences in key media.

A new level of trust

The epidemic gave MSF unprecedented access to the highest levels of governments, international institutions and scientific communities. This served to underline the importance of identifying and developing such relationships, in order to better understand how they function and to allow MSF to target them at the right level and the right time. This intervention has been a medium through which to build more trust at a very high level.

MSF's experience during the Ebola response demonstrated the necessity of prospectively investing in representation and networking. A lot of interaction with institutional bodies (such as WHO) was kept for too long to a very narrow technical level of Ebola specialists. In this outbreak it was necessary to go way beyond the technical people. Therefore, even if there are strong feelings about WHO's engagement with the crisis, it is important to have a good understanding about how WHO works, people's roles within the organisation, and where the power lies. It was only in the second half of 2014 that MSF engaged more at the highest levels. In addition to this, MSF's critique towards WHO would have been more credible if it was informed by (or based on) better knowledge of WHO and its emergency mechanisms.

Medical advocacy: a field to be developed

A lack of medical advocacy resources and medical leadership in the movement became apparent during this crisis. The latter can partly be explained by the fact that the international medical secretary position was not filled. Governmental bodies expressed in the interviews that they needed medical people to provide messages rather than advocacy people. The outbreak demonstrated that medical advocacy is a field that urgently needs to be developed.

Striking impact of local communication

Good practice examples in Liberia and Guinea demonstrate the immediate and striking impact of local communications. The experience also shows the importance of local communications being sufficiently integrated with health promotion. Local mass communications tools are an efficient support for health promotion.

Due to an issue of resource constraints, and assuming that other actors would take care of the sensitisation, local communication was not a priority in this response. There is no doubt that stronger local communications would have helped to counter the many rumours, misunderstandings and false information that were circulating. Good practices and successful strategies need to be documented, shared and applied.

There seems to have been appropriate set up and concepts for local communications at the field level in some instances, but it is not necessarily reflected in the departments at headquarters. This is an issue that needs to be addressed.

LESSON LEARNED: Where community fears of a disease are high, and acceptance of an intervention is at stake, MSF must integrate dedicated staff for local communications from the very beginning of a response. A proper analysis of the cultural understanding, needs and dynamics must take place and strategies be developed accordingly and in good interaction with health promotion.

Importance of lobbying on the ground

The Ebola response highlighted the importance of deploying field liaison officers for lobbying and representation, from an early point in an emergency. There is also a need to document and analyse context changes and experience in the field: the necessary resources need to be in place. Input from the field increased when dedicated liaison officers were deployed. More experienced advocacy and communications staff in the field to relay the issues directly from the field would have maximised MSF's voice and positioning.

Input from the diaspora could have been helpful in gaining a better understanding of the local situation and culture. Moreover, the diaspora could have been a very useful human resource to deploy on the ground, and in support of the Task Force. OCB also underused local capacity in the affected countries.

LESSON LEARNED: Advocacy needs in (large scale) emergencies can only be appropriately covered if sufficient advocacy and communications resources based on longer term assignments are available early on, both at HQ and field levels. In the field capacity it is particularly key to have capacity for analysis and documentation that will feed the Task Force.

2.3 HUMAN RESOURCES CHALLENGES

A total of 689 international staff from 70 countries, and more than 4,000 national staff, worked on 20 projects, run by OCB, during the review period. There were 949 international staff departures, with an average length of mission of 36 days. The high media attention on the Ebola crisis and MSF's response, as well as a strong dynamic in MSF's social networks, considerably helped mobilise staff who had previously worked with MSF. The maximum duration of six weeks in the field was to minimise risks due to exhaustion and diminishing attention. However, there seems to have been a tendency to compensate for the limited time by working long hours with few breaks.

National staff acquired a great deal of experience in Ebola response because of their longer presence in the projects. However, investments to increase their capacity or promote them to positions with more responsibility came late and were limited.

Overall, the workload was very heavy at times for all staff. HQ staff were overworked for months on end, and many recognised their own exhaustion. The level of responsibility was very high for some.

LESSON LEARNED: In a huge and complex emergency response, the support capacity for HR issues at headquarters level quickly becomes insufficient. The extra workload needs to be analysed at an early stage and positions adjusted in order to allow appropriate support and prevent exhaustion.

LESSON LEARNED: In a situation with critical health risks for staff, twenty-four hour availability for advice on staff health issues is essential. It is important to have a team who can take turns being on call to avoid burdening a few individuals.

Health and safety well managed, but not the same for all

The staff health unit played a key role in ensuring staff safety and support, with the development and implementation of policies such as pre-departure briefings, compulsory malaria prophylaxis and a no-touch policy in the field. There were a number of work-related incidents. In total, there were 28 Ebola cases and 14 deaths among staff. Of the 28 cases, three were international staff, all of whom survived. Each exposure incident was systematically investigated, and in most of these the source of the contamination was believed to have been outside the MSF working environment – though in many cases this remained unconfirmed. Compensation for the bereaved families was based on the likely source of infection identified in the incident reports.

While access to general healthcare during the Ebola outbreak was of the utmost importance for national staff and their families, often the implementation of this was delayed. Partly this was due to the workload of the medical coordinators whose responsibility this was. A major limitation of the non-regular “daily worker” and

sub-contracted staff contracts was their lack of access to MSF healthcare and the additional loss of income in case of illness, which was an unrecognised risk.

In interviews, international staff stated that they felt uncomfortable with the fact that MSF did not evacuate national colleagues infected with Ebola to countries that could have offered better care. No national staff expressed the view that they would have liked MSF to evacuate them. The disparity in access to healthcare for staff potentially infected with Ebola became less of an issue when the quality of care available in-country improved.

A complicated process for medical evacuations

Twenty-eight staff – 25 national and 3 international – became infected with the Ebola virus during the response. The medical evacuation of suspected staff cases to the capital cities was complicated, but MSF's decision to charter its own helicopter for this purpose in all three affected countries improved the situation. Medical evacuation of international staff was extremely difficult to secure at all levels. Despite considerable efforts and lobbying from OCB, the evacuation of staff was a complicated process.

The question of air transport was critical for operations far beyond medical evacuations. The closure of air spaces and the cancellation of commercial flights hampered the efficiency of the response to the Ebola outbreak. These restrictions resulted in supply shortages and delays in the arrival of staff. Through lobbying Brussels Airlines, OCB helped to convince them to keep air routes operating between Europe and the affected countries.

Knowledge around the medical evacuation process was held by a very small group of internal experts with an already high workload.

LESSON LEARNED: In such a situation of managing complicated processes that require high expertise, pairing up experts with an additional staff member would help to share the expertise. It would also ease the pressure on the key individuals.

An extremely stressful mission

The most significant stress factors for staff were the fear of infection of oneself, one's colleagues or one's families; stigmatisation; the unavoidable exposure to death and suffering; and the difficult working conditions. Stigma was an issue for all staff, resulting in isolation from family and friends, and bringing the risk of aggression towards national staff. However, there was very positive feedback from both national and international staff regarding the quality of the teamwork and the support received from headquarters.

Staff health clinics proved to be key to reducing mental stress and as a motivating factor for the early reporting of symptoms.

LESSON LEARNED: In an outbreak of a highly infectious and life-threatening disease, MSF staff and their families need to have access to care, and this needs to be part of any treatment facility planning from the start.

LESSON LEARNED: Appropriate working conditions are essential for all staff in a stressful environment. Different work standards for national and international staff are not justified. Facilities for staff need to be adapted to the context and include, for example, rest areas and prayer rooms.

The most extensive knowledge transfer in MSF's history

MSF became the "go-to" organisation for information and advice which resulted in, what one MSF staff called, the "most extensive knowledge transfer exercise in MSF's history". Training formed a key part of the OCB response to Ebola, with staff safety at the core of the programme. There was a significant sharing of Ebola-

specific information, as well as mentoring and advising other INGOs and members of the international community throughout the course of the epidemic.

An “*Ebola first responder training*” was launched in Brussels which ran from August 2014 to February 2015, while similar trainings with other organisations were initiated in the field. The decision to also hold it in Brussels and open it to other actors was key in this response. It enabled the scale-up of the response, both within OCB and MSF as a whole, as well as facilitating the deployment of other humanitarian actors. Due to delays caused by unsuccessful attempts at delegation and collaboration, this training in Brussels did not start until September, when the outbreak was already out of control.

The content of training delivered to national staff in the field was reliant on the experience and knowledge of international staff. With the constant turnover of staff in the field, and little understanding of the specific requirements for adult learning, this resulted in poor consistency in training and how procedures were interpreted. One attempt to address this was the production and dissemination of online training videos.

LESSON LEARNED: Training and knowledge transfer can at times become key strategies for scaling up response capacity and must be considered early in crisis response planning. A policy for the transfer of knowledge to external organisations might be of use for all types of emergency situations.

2.4 SUPPLY STRATEGIES

The lead of OC and one supply unit (MSF Supply) was perceived as an added value, although some suggestions have been proposed for adjustments in future outbreaks. It was the first time that MSF Supply had implemented an “*end-to-end*” supply chain in an emergency. Knowledge of the new supply chain project was good in Brussels, but the field supply staff’s familiarity with it was limited.

The deployment of specialised staff dedicated to supply management was a key success factor. By mid-2014 it had become clear that, with the rising demand, the supply from manufacturers of specific protective items was running out. In September 2014, MSF Supply and the OCB operation management committed 12 million euros to secure PPE supply until June 2015. At the last months of 2015 there were still more than 2 million euros worth of PPE in stock. Considering the 2014 monthly consumption and the projected needs in 2015, and compared to the risks OCB would have faced with a supply breakdown, the end result is reasonable.

Although this was a long-lasting response, the organisation did not get out of the emergency *modus operandi* and continued working reactively rather than proactively. The first priority was not to implement tools and procedures; however, this became an issue for supply management.

Because of its recognised experience in dealing with Ebola, MSF became one of the major references for setting technical standards regarding PPE. With the call for other actors to intervene, their supply also became a necessity. Some 1.5 million euros worth of PPE was supplied to third parties (French Red Cross, International Medical Corps, Save the Children, Samaritan’s Purse etc).

An estimated 90 percent of all supply was acquired in-country and was expected to be delivered within 24 hours. Low levels of control and procedures over a long period of time increased the risk of fraud in countries where it is relatively common.

LESSON LEARNED: MSF went unusually far in its cooperation with other actors, by not only training them but also supplying them with the necessary equipment. This added another burden on the existing challenge of managing MSF’s own PPE supply. In the anticipation of future epidemics, a planned collaboration with other actors to identify and validate alternative sources might be a way to sort out the monopoly issue.

2.5 COORDINATION AND MANAGEMENT OF THE RESPONSE

The Ebola outbreak occurred during a very difficult period for OCB. The abduction of MSF staff in Syria from March to mid-May 2014 resulted in a very intensive period for the organisation. As a result, a certain emotional fatigue had set in by the summer of 2014 which, when combined with the holiday period, meant there were significant gaps in senior and middle management representation within the office. This lack of management representation has been identified as one of the reasons for some of the shortcomings of the response, for example the delay in reflection on external advocacy strategies to other actors, and the delay in a systematic mobilisation of resources within MSF itself.

The request to MSF's other operational centres to mobilise was discussed at several levels within MSF during the intervention and appear in the minutes, including at the International Board (IB), the platform of the Operational Directors (RIOD), the Executive Committee of General Directors (Excom) and discussions between emergency units. However, certainly during the early months of the epidemic, the impact was limited and did not result in the anticipated response. The whys and wherefores of this will be looked at in more depth during a governance review requested by the IB.

The decision to transfer management from the emergency unit to a taskforce set-up was taken late. In hindsight, the deployment was delayed by one to two months and affected the response during the peak of the outbreak in August 2014. The governance structure of the taskforce was streamlined and centralised by choice, which had both positive and negative impacts. While it allowed for fast and complex decision-making, it limited the amount of organised strategic reflection space.

Within the emergency unit and taskforce, there was insufficient reinforcement of the key management positions and of some support functions in the initial phases of the response. This was also a factor at department level, where certain positions were not sufficiently divested from their day-to-day responsibilities in support of the taskforce.

At a national taskforce coordination level, OCB played an important role in the three affected countries, but this stopped in Sierra Leone when OCB handed over its projects. The support and coordination provided by OCB to other organisations was commended by most of them and played a crucial role in their operational reactivity.

LESSON LEARNED: During an extended emergency, there is a need to reinforce coordination positions managing the response. This is crucial to ensure that focus can be put on the bigger picture and not the administrative or basic implementation issues.

2.6 INNOVATIONS AND GOOD PRACTICE

Biosecurity

Biosecurity protocols guiding all infection control measures and activities implemented to reduce the risk of contamination were seen as adequate in the initial phase of the response. However, the scale of the outbreak demanded adjustments to protocols, such as with cremation and incineration. The duration of the epidemic implied a structural and HR "*fatigue*" which led to a weakening of the implementation of protocols. The lack of expert watsan staff also resulted in a relaxing of safety precautions. The ETCs were mostly temporary facilities that had been in use for a long period and which eventually became structurally weak, requiring a lot of maintenance. They also constituted a source of infection risk. Following an incident in Monrovia in which an MSF international staff member was infected, there were recommendations to initiate biosecurity checks in all ETCs. The development of biosecurity checklists and expert visits to ETCs was a strategic innovation arising from experience in this outbreak. The fact that these checks were implemented by non-project staff is a recognition of the need for periodic external checks on operations. The eventual fatigue of infrastructure and HR in a prolonged emergency must be kept in mind.

MSF and WHO protocols on biosafety – and in particular on PPE – were different, which led to some tensions between the two organisations.

LESSON LEARNED: In an emergency of this duration, eventually a fatigue sets in, in terms of both infrastructure (in this case temporary ETCs) and human resources. This must be kept in mind during the coordination of such a response.

Ebola treatment centre design and construction

The design and construction of ETCs evolved dramatically during the period March 2014 to March 2015. In the initial phase, ETCs were established in a rapid and effective way, either close to existing health facilities or using existing buildings, following the *Ebola Guidelines*. During the peak of the outbreak, with case numbers jumping from tens to hundreds, the small temporary centres were extended and new macro centres with semi-permanent structures appeared. This included the use of big tents, which presented significant technical challenges. In the final phase, the design and construction of ETCs was firmly based on innovation and lessons learned.

Because of the many challenges and critical factors, there was a considerable amount of design adaptation implemented in the ETCs, as well as technical and procedural innovations (eg dressing protocols, heat and ventilation in large tented facilities, improvements in patient care) arising in response to the increase in duration and scale of the outbreak.

The length of the outbreak allowed MSF to improve, innovate and adapt as the situation evolved. This involved a process of research and development in both formal and informal ways.

LESSON LEARNED: ETC designs must be based on a philosophy of flexibility and adaptability, both in terms of scaling up size and number of beds, and in terms of adjusting to the contexts and characteristics of different sites. To achieve this kind of flexibility in the midst of an emergency, work needs to be done on various aspects (technical solutions, equipment provided, types of materials available) in advance of the next Ebola outbreak.

Mass distribution of home protection and disinfection kits

One of the outstanding measures implemented by OCB was the organisation of a mass distribution of home protection and disinfection kits in Monrovia, in an attempt to slow down the epidemic. In Liberia, a major challenge was posed by the sheer scale of the outbreak, particularly in densely populated urban settings like the capital. The kits (which included items such as chlorine, gloves and soap) were distributed to households in the poorest and more densely populated areas of the city. The aim was to give people a chance to protect themselves at home in the case of a family member becoming ill or dying, and to safely handle dead bodies while waiting for the ambulance. The distribution involved two strategies:

- A targeted distribution to priority groups, taking into consideration their actual or presumed potential exposure, alongside a general distribution.
- A specific health promotion strategy, developed to ensure that the kit was used safely and efficiently, through tools such as leaflets, films and demonstrations. To ensure the optimal use of the kit, the health promotion activities were reinforced by follow-up phonecalls to the recipients.

OCB distributed approximately 70,000 home protection and disinfection kits in Monrovia, reaching a total of approximately 600,000 people.

According to a post-distribution survey, almost all of the 325 respondents found the kit to be complete and reported that they had received training and understood the instructions. Use of the kits was very high in households with a sick or dead person (95%) and reasonably high (55%) in other households.

LESSON LEARNED: Home protection kits can be an appropriate strategy to enable people, in a situation out of control and in combination with strong health promotion messages, to disinfect their homes in order to reduce the risk of transmission.

Malaria chemoprevention conducted by other OCs

The large-scale distribution of malaria treatment by OCP (in Monrovia) and OCBA (in Freetown) provide an interesting experience as an alternative for non-Ebola care. The aim of the mass distribution of malaria treatment was to reduce mortality during the malaria peak. The preventive treatment also reduces morbidity, including fever, which is one of the generic Ebola symptoms, therefore facilitating differential diagnosis. It was an interesting initiative that needs to be evaluated and considered for future guidelines.

2.7 DIFFICULT EXPERIENCES

Turning patients away

“The end of August was the worst. We saw people dying in chairs, in front of the gate. Families were begging us to take their patient... We all had grey faces.”

MSF teams faced a terrible dilemma when confronted with an overwhelming number of cases in the period August to October 2014. Not only did this result in the suspension of certain activities, but teams had to turn away sick patients and send them back to their communities or have them wait outside the ETC until a bed became available.

The psychological impact of this period cannot be over-emphasised. The collective trauma incurred was felt across the whole organisation and contributed to galvanising the response, both within and outside MSF.

Incineration and mass cremation

“I can accept that my family member has died. But I cannot accept that there is no grave.”

The Liberian government ordered mass cremations to be carried out in Monrovia when the bodies of people who had died of Ebola began to accumulate in unmanageable numbers. The bodies were completely burned, so no ashes were returned to the families. As public awareness on the use of cremation grew, rumours began to circulate about bodies and body parts being stolen. In turn, this led to people hiding the occurrence of deaths and dead bodies in their communities, rather than making them public or delivering them for cremation.

Cremation activities in Monrovia started in August 2014. At first, the process involved the use of altars, modelled after the Indian cremation altar design and adapted for large numbers of bodies. Cremation on the scale needed in Monrovia prompted OCB to purchase incinerators to increase capacity. No protocols were in place for workers to use this system, and design flaws resulted in a number of practical problems. However, protocols were soon developed. Other organisations observed MSF’s use of these incinerators and used them as a reference for their own operations.

While protocols for safe burial ceremonies were adjusted according to local traditions (eg using white sheets in a Muslim population), the issue of cremation is much more sensitive. It seems almost impossible to adapt mass incineration of bodies to cultural sensitivities.

3.0 CONCLUSIONS

After reflecting on the entire review and based on the outcomes documented in the different reports, the evaluators draw the following, overall conclusions:

In the West Africa Ebola outbreak, MSF – and OCB in particular – played an exceptional and hugely important role. MSF was instrumental in raising the alarm, and was the first responder to provide care. Through providing training and support, MSF subsequently enabled many other actors to intervene. In August, OCB quintupled its human resource capacity for both international and national staff, which was a tremendous achievement, but at the same time a real issue, as the majority of staff had no previous experience of responding to Ebola.

Evaluators recognise that the sheer scale of the outbreak meant that bringing it under control could not have been the responsibility of MSF alone. Its massive spread points to the collective failure of national health systems, local politics and the global health system. For the epidemic to have been controlled earlier, there would need to have been reliable infection control protocols in health facilities; proximity to and use of isolation facilities; the ability to do contact tracing and carry out safe burials; and comprehensive health promotion activities.

When priorities needed to be made with the expertise and resources available to OCB, the focus was on case management. Obviously this was at the cost of broader public health strategies to control the epidemic. At times during the response, certain aspects of broader public health strategies were implemented, but in most places this was not systematically enough to impact the evolution of the epidemic.

OCB was able to rely on its previous experience and existing know-how in Ebola interventions, and this led to its lead role in the response. Probably due to the pressure of this overwhelmingly difficult operation, OCB's approach remained principled, with, at times, a perceived conservatism and reluctance to change direction or look into new ideas.

In this particular response, MSF not only set the standard for itself, but also for many others. Though the bulk of knowledge about Ebola has increased tremendously, there is still a lot that remains unknown about the virus in regard to care and protection. More research is needed, for example to support biosafety measures (evidence of the duration of infectivity, etc). It is now crucial to integrate all the lessons learnt, both inside and outside MSF, in order to update guidelines and protocols and to define a research agenda.

Two lessons stand out for the evaluators in regards to dealing with a health crisis for which much is unknown. One is the importance of collecting and analysing information from the very start, and engaging sufficiently with other actors not only to better reflect on MSF's immediate outcomes, but also to share the responsibility for understanding the evolution of a situation and reacting accordingly. This applies to medical data and epidemiology, but in a similar way to the required analysis for communications and advocacy, neither of which happened sufficiently in this response.

The other lesson which stands out is the need to establish a space for reflection in an extended complex emergency, whether on strategy, set-up, resource requirements or advocacy and communication. While the need for reflection when there are so few experienced actors creates something of a conundrum, not all reflection requires Ebola experience. In the case of this emergency, many decisions were taken quickly out of necessity, often during *“corridor conversations”*. While this has its positive aspects, more could have been done to challenge the existing strategies.

The level of care provided to patients fluctuated during the epidemic. Only minimal clinical care was provided for patients during the peak of the outbreak between August and October. The improved practices in the late phases of the response should have come earlier. However, there is not yet enough available data to show if there were significant differences in outcomes between patients who received better care (including more IV fluids) and those who did not. More research and analysis is required.

Looking at HR management, the astonishing mobilisation of international staff and the achievements in staff health management must be commended. However, attention should be drawn to national staff issues that will matter in the next big emergency. The existing capacity, knowledge and experience of national colleagues could be used much earlier and better, if policies, tools and practices are revised accordingly. There needs to be more recognition of the pressure on, and the potential of, people working while their own livelihoods are in crisis.

The priority given to the safety of staff has been criticised at times, but it was considered to be essential, not only because of the duty of care that MSF has towards its staff, but also because it was a key condition to be able to continue to provide care to patients. OCB's strategy of encouraging other actors to intervene would have been ineffective if it could not provide a safe working environment for its own staff. Duty of care for national staff must be better defined.

The availability of a vaccine against Ebola, and the possibility of using favipiravir as a prophylactic agent, will allow different working conditions for staff in future outbreaks, and therefore will allow the response to be deployed in a different way, with better staff capacity for a comprehensive and effective approach.

The role that MSF played and the activities it implemented for other organisations was appreciated, and was instrumental in ensuring that other actors had the capacity to intervene. In retrospect it is worth considering if MSF could have gone further, mentoring organisations on the ground to take charge of ETCs.

Many of lessons identified in this review are not entirely new, but their importance has been strongly accentuated by the extremity of this health crisis. OCB can prepare for and further improve its response to future health emergencies by working on the issues identified. In particular by reviewing its role in the medical humanitarian sector and by strengthening its links with key actors.

4.0 RECOMMENDATIONS

While some recommendations drawn from this review are specific to the Ebola response, most will be applicable to other large-scale emergency interventions. The complete list of recommendations contained in the nine individual reports is available below.

1. **Update and finalise Ebola response guidelines using the lessons identified.** The process should include consultation and reflection with other key actors. Guidelines should include strategies that are adaptable according to the magnitude of the epidemic. Specific resources need to be allocated to oversee and manage the process.
2. **Develop more research capacity within the organisation** and collaborate with other MSF sections and research organisations, so as to be prepared for any future outbreak of emergent or unknown diseases such as Ebola. MSF should establish a research think tank for clinical and operational research.
3. **Define policies for national staff in emergencies** and allocate resources for implementation, including support positions within the emergency coordination structure.
4. **Review the training strategy for national staff and align it with the one for international staff.** Invest in “*training of trainers*” for potential international staff trainers, to ensure adult teaching methods are understood. Define the potential role of MSF in mentoring and coaching other organisations in an emergency, with the possibility of establishing agreements, including supervision and follow-up.
5. **Define the profiles, roles and expectations for health promotion and field communication positions;** develop local communication tools and strategies; and document good practices in different emergency situations.
6. **Develop and maintain a better network** with, and a better understanding of, the functioning of governments and institutional bodies, including at higher levels, and deploying MSF offices and other MSF entities to lobby more frequently and in a more timely manner.
7. **Define a set-up for adequate reflection moments during a long and complex emergency,** whether at an operational or strategic governance level. This should include the timing of when a taskforce is to be mobilised and an evaluation of the necessary resources.
8. **Organise a roundtable with key actors from the humanitarian emergency sector** to discuss their visions, future response capacity and availability of resources.

RECOMMENDATIONS	Addressed to
MED-OP and WATSAN	
<p>1. Finalise all draft guidelines developed during the epidemic. Guidelines for future epidemics should include strategies that are adaptable according to the scale of the epidemic and the available resources:</p> <ul style="list-style-type: none"> ⇒ Specialised expert teams addressing different aspects of patient care should be established. ⇒ There should be more emphasis on guidelines concerning IV fluid administration and monitoring of electrolytes using the i-STAT or another point-of-care test. ⇒ Include clear guidance on health promotion with corresponding tools. ⇒ Clarify the roles of outreach, watsan and health promotion. ⇒ Integrate biosecurity checks and the reasoning behind them (see watsan report). ⇒ Appoint an editor (full or half-time). 	Medical department
<p>2. Improve the tools for collection and management of data, both to ensure the availability of qualitative information and retrospective analysis and to obtain clear evidence justifying operational choices at an epidemiological level and with respect to treatment outcomes, follow-up of patients, model of care, health promotion strategies etc.</p>	Medical department
<p>3. Develop more research capacity within the organisation and collaborate with other MSF sections. MSF should establish a research think tank for clinical and operational research. Research capacity needs to be built for investigating outbreaks of emergent or poorly understood disease such as Ebola.</p>	Medical director
<p>4. Design new trials with antiviral drugs and prepare to evaluate different supportive treatment strategies. These plans should be ready to implement at the start of a new outbreak.</p>	Medical director
<p>5. Develop a pool of medical anthropologists or similar profiles that can provide expertise in setting up socio-cultural assessments and health promotion during outbreaks.</p>	HR department
<p>6. Define a potential role for MSF in mentoring and coaching other organisations and with the possibility to establish agreements that could include supervision and follow-up in the field.</p> <ul style="list-style-type: none"> ⇒ Invest in a training policy for other organisation in a medical emergency where the needs surpass MSF's response capacity. 	Operations department

HUMAN RESOURCES	
1. Merge data analysis systems for both international and national staff and use the same analytical structure as finance, especially at project level.	HR department
2. Develop and implement new models for HR administration that cover regional, multi-sectoral and multi-actor issues that are adjustable and replicable in different situations, including contracts, staff compensation, and insurance benefits.	HR department
3. Define policies for national staff in emergencies and allocate resources for implementation: ⇒ These should include staff health, psychosocial support, training, capacity building, staff-friendly working environment, and prevention of stigma. ⇒ Eliminating differences between international and national staff should be a main consideration, for example in the provision of psychological and/ or psychosocial support for all staff.	HR department
4. Design a minimum standard HR policy for employers of subcontracted staff, and to include paid sick leave, access to staff health clinic and training where appropriate.	HR department
5. Implement a return talk policy for use in all crises for international staff, and maintain the specific counselling support created for HQ staff.	HR department
6. Review training strategy and align it for national staff alongside that for international staff. ⇒ Consider that all training courses should routinely include: ○ Aspects of cultural awareness and communication. ○ Emergency rescue and evacuation procedures for working in hazardous areas. ⇒ Invest in 'training of trainers' for potential international staff trainers to ensure adult teaching methods are understood.	Training unit
7. Issue training attendance certificates to national staff for attending Ebola training.	Training unit
8. Develop tools and processes to share innovations and manage incidents, including a capacity to filter the most important and the most urgent information.	Operations department
9. Design a clear and transparent investigation process for cases of staff contamination agreed with the Staff Health Unit and the Legal Unit, which includes centralising and analysing all relevant information.	Emergency desk / Operations department
10. Include HR data and prospective analysis to form part of the decision making and planning process.	Operations department

ADVOCACY AND COMMUNICATION	
1. Develop and maintain a better network with, and a better understanding of, the functioning of governments and institutional bodies, including at higher levels, and deploying MSF offices and other MSF entities to lobby more frequently and in a more timely manner.	Operational directors
2. Define the profiles, roles and expectations of health promotion and field communication staff; develop local communication tools and strategies; and document good practices in different emergency situations.	Medical department
3. Develop MSF's international capacities for medical advocacy.	Operational directors
4. Integrate a 'skilled analyst' in the set-up for large scale emergencies. This will allow more, better and earlier context analysis and identification of potential allies and influencers, including 'unknown and unusual' actors (e.g. African platforms and the Elders). It should also consider the timely involvement of high level MSF representatives where necessary.	Operational directors
5. Develop a more efficient advocacy and communications set up in the field, including the development of an intersectional pool of trained field communications staff ⁹ and develop some standard templates for field analysis, e.g. a template for actor mapping and a local advocacy strategy.	Communication department Operations department
6. Increase attention to and investment in staff and strategies to reach out to non-western media (China, Russia, the Arabic world etc.) in emergencies with a large global media reach.	Communications department
7. Explicitly follow and respect Chatham House rules in order for MSF to be trusted and accepted in bilateral talks with global and state actors.	Operations department

⁹ An International Field Communications Officer pool, managed by MSF UK on behalf of the movement, is about to be launched in the beginning of 2016. This is the first international pool and is an important step, primarily in terms of improving field communication capacity. The Heads of HR and Communications will work closely with the International Communications Coordinator to ensure its success and the pool will be evaluated by the IDRH six months after its launch.

LOGISTICS	
1. Strengthen the logistical input to the e-cell (decisional and tactical input) to allow a more adapted emergency response.	E-cell
2. Adapt/adjust tools & procedures to the emergency (report/tactic monitoring, car fuel movement follow-up, maintenance, supply, finance etc).	E-cell
3. Identify a suitable technical solution for ambulances in a highly contentious disease outbreak.	Logistic department
4. Revise the international protocol for medical evacuations based on the Ebola experiences and prospectively search for alternative future solutions.	Staff Health Unit
SUPPLY	
1. Extend the knowledge and awareness about E2E project at field level.	Supply unit
2. Develop emergency supply procedures that could be used during emergency phase.	E-Cell, Supply unit
3. Implement the use of a standard Excel table as temporary order management and inventory tools during emergency phase.	E-Cell
4. Define and implement a rational system to automatically mobilise international supply capacities to manage overload.	Supply unit
5. Collaborate with other actors to identify and validate alternative supply sources.	Supply unit
FINANCE	
1. Increase capacity for financial coaching to operational directors, coordinators of operations and heads of mission and provide financial and timely analyses requiring data manipulation skills.	Finance department
2. Employ financial experts to obtain historical and timely data and analysis to support operational decisions. This recommendation implies that all sectors of OCB use common analytical structures.	Operations department

GOVERNANCE	
<p>1. Made a sufficiently robust investment in human resources support:</p> <ul style="list-style-type: none"> ⇒ Provide coordination management support positions. ⇒ Separate the functions of emergency unit/taskforce support positions from day-to-day responsibilities. ⇒ Ensure sufficient resources allocated to the taskforce set-up; especially relating to advocacy and communications, medical/epidemiologist and briefing/debriefing positions. ⇒ Invest/expand the formal liaison capacity within OCB or HART (IO). 	Operational director
<p>2. Ensure adequate reflection moments during a long emergency, whether at an operational, strategic or response governance level. This should include the timing and criteria for mobilising a taskforce.</p>	Operational director
<p>3. Be a catalyst for change: organise a roundtable with key actors from the humanitarian emergency sector to discuss future response capacity and availability of resources.</p>	Operational director

The more technical recommendations of the review of Ebola treatment centre design and construction can be found in the respective report.

ANNEXES

ANNEX I: LIST OF INTERVIEWEES

A

Abubacar Sylva
Adamson Brett
Adriaens Barnabé
Aide Keíta
Alain Alain
Alders Petra
Amador Keita
Amadou Halimatou
Amadou Sidibe
Amara Jean
Amena Josephine
Annaud Louise
Antierens Annick
Anthony Julius
Appolinair Camara
Arend-Trujillo Monica
Athersuch Katy
Augustin Augustin
Auman Canole
Ayora Raquel

B

Bachy Catherine
Bah Alpha Oumar
Bah Satamata
Bah Thierno Hamidou
Balasegaram Manica
Balde
Abdourahamane
Balde Idrissa
Balde Mamadou Oury
Kolo
Balole Adama
Balser Josh

Bangura Aisata
Bangura Paul
Bark Gina
Barriez Cecile
Barry Aissatou
Lamarana
Barthaud Katia
Batchili
Abdourahamane
Beaupain David
Bedock Gérard
Begue Geraldine
Belier Antoine
Belli David
Bentein Barbara
Berggren Marcus
Berman Daniel
Bertele Michael
Bindi Munda Joseph
Binton Nabé
Blumberg Lucille
Blumet Marc
Boakai Joseh
Bolkharin Nancy
Bossut Mariannick
Bosteels Katleen
Boucher Thierry
Boye Michel
Brennan Richard
Brocard Clément
Browne Peter
Bruno Bellaton
Bruxeres Cristina
Bussotti Andrea

C

Cabrera Paul
Cabrol Jean-Clément
Cachet Philippe
Calan Mathilde
Calewaerts Séverine
Caluwaerts An
Camara Diara
Camara Djenab
Camara Mamadou
Camara Mohammed
Cannon Robert O
Cartel Mahamed
Cathelain Francis
Cecchini Sergio
Chaillet Pascal
Checchi Francesco
Chertow Daniel
Ciglonecki Iza
Claire Marie
Coffee Megan
Conde Moussa
Cone Jason
Conteh Daniel
Contel Hassan
Coppens Katrien
Cornelis Muriel
Cox Vivian
Crahay Beatrice
Crespo Juan
Crestani Rosa
Cristobal Teresa
Curtaz Pietro

D

Dafour Sébastien
Damond Julie
Danda Anma
Daramy Ibrahim
De Clerck Hilde
De La Tour Roberto
De La Vega Marc-Antoine
De Lamotte Nadine
De Le Vingne Brice
De Leval Fabienne
De Weggheleire Anja
Decroo Tom
Delahaie Agnès
Delaunay Sophie
Deville Florian
Diakite Mandiaiou
Dialou Bilgison
Dridi Naoufel
Dinka Azzura
Dioulde Diallo Amada
Djangeray Mamodou
Djassira A
Djavili Davide
Djibril Sylla
Dorion Claire
Draguez Bertrand
Dridi Naoufel
Dubuet Fabien
Dumont François
Duport Nicolas
Dvorac Iris

E	Georges Phillipe	Hulsenbek Jose	Kamara Hazral
Edward Jeffrey	Gerard Seco	Hundt Pascal	Kamara Mohamed
Egiziano Erland	Gergonne Bernadette	Hurum Lindis	Kamara Sheku
Ekambaram Sharon			Kamara Yusuf
Encinas Luis	Gignoux Etienne	I	Kamer Ludovic
Esparza Amaia	Goajia Stephen	Ifono Kekoura	Karifa Camara
Eyll Olivier	Godefroid Béatrice	Inca Azzura	Karim Keita Abdul
	Goemaere Eric	Ingelbeen Brecht	Kauffeldt Bev
F	Goepogui Andre	Isaacs Ken	Kauffeldt Kendell
Fabreguetes Francois	Goetghebuer		Kaufman Ruth
Fages Christine	Stephan	J	Keenen Joanna
Falconi Cristina	Goldfarb Michael	Jacob Shevin	Keer Dennis
Fallah Mossaka	Goublomme	Jacobs Jean	Keita Eladji
Faraouendeno	Stéphanie	Jambai Amara	Keita Hadja
Mathie	Goumou Ouyelo	Jamiru Bernard	Keita Mohamed
Fasil Tezera	Grandesso Francesco	Jansen Adeline	Keita Namory
Fautsch Tessy	Grenier Emilian	Janssens Bart	Keita Sakoba
Felero Fernanda	Grey Henry	Jansson Lena	Kenzie Craig
Ferir Marie-Christine	Grumit Lainie	Jemmy Jean-Paul	Kerouané Lansana
Flamand Emmanuel	Grundberg Julie	Jiménez Mónica	Kerr Dennis
Fode Dafe	Guilavogui	Joachim Caroline	Keyta Mahama
Fofamah Ibrahim	Guilavogui Jean	Job Dorian	Kézely Luc
Fofana Aduma	Guild Carissa	Jochum Bruno	Kleijer Karline
Folkesson Elin	Gusu Mickael	Johnston Nicole	Kleine Christian
Fontana Luca	H	Joray Nicolas	Kleinen Evelien
Forget Marc	Haba Odilon	Jununuys Catherine	Koeleman Mireille
Fraser Emma	Hadi Berete	Juvyns Catherine	Kolie Charles
Freeman Anna	Halford Hanna	JY Nuttinck	Kolie Marie Claire
Fricke Renzo	Hanryon Samuel		Koumassadouno
Frisch Philipp	Harding Francis	K	Edward
G	Harouna Morrison	Kabba Mohamed	Koume Mickael
Gaima Nyakeh	Harris Margaret	Kahn Clea	Kourdi Ql Yasmine
Garett Laurie	Hawkins Vickie	Kaifala Joseph	Kremer Ronald
Gasasira Fallah	Hehenkamp Arjan	Kaillie Frank	
Gauge Antoine	Heinzelman Annette	Kalissa Nfansoumane	L
Gbla Abdul	Heymann David	Kamano Faya Anatole	Lachant Aurelie
Gbla Mohamed	Hiller Debbie	Kamano Mariam	Lagrange Borrie
Geoffroy Olivier	Hodges Jefferson	Kamara Aruna	Lamah Marie

Lamah Pierre Louis	Manca Christina	Moussa Moussa	Poncin Marc
Lamah Remy	Maria	Mouton Jeromme	Pontiac Nicolas
Lamarana Aissatu	Mangen Thomas	Muhammad Sadiq	Prouvost Vianney
Lamine Barry	Manoh Isabelle Saran	Mummy Philip	Puentes Javiera
Mamadou	Mansory Chistopher	Murillo Sandra	
Lamsweerde Celine	Marclay Eric	Musu Musu	Q
Langenbach Marcel	Marheux Stephanie		Quai Emmanuel
Larcin Lionel	Mariah Lansana	N	
Lavale Emmanuel	Markandya Polly	Nabarro David	R
Lecanu Sophie	Massaquoi Moses	N'fasouma Kalissa	Rabayan Yasmin
Leduc Benoit	Massart Emmanuel	Nichol Stuart	Repeto Ernestina
Leruth Christophe	Massart Manu	Nicolai Meinie	Ressicud Fabrice
Levet Quentin	Masson Sophie	Nijandebo Timothy	Revers Clarence
Levistre Violaine	Matsoso Precious	Nizeyimana Sulleman	Riguelle Gilles
Libessart Yann	Matumona Jimmy	Nordenstedt Helena	Rivero Kate
Linder Johanna	Maury Pierre	Nowi Melik	Robert Hugues
Lindner Walter	Mawalo Adolphus		Rodier Edouard
Liu Joanne	Mazzotta Marcello	O	Rogers Mustapha
Loobuyk Anne-Sofie	Mcclelland Amanda	Oberreit Jerome	Romero Andres
Loop Benoit	Menegatti Stefania	Onivogui Kebe	Ronce Axelle
Lopez Frances	Messaut Guilhem	Oraegebu Anthony	Ronse Maya
Lorinquer Helène	Millan Sally	Ordenes Anibal	Roux Alex
Loua Catherine	Miniac Eric	Ozaltin Basak	Roy Sébastien
Louvet Elise	Minimonou Adele		Ruggeri Maria
Lugli Mariano	Minsoray Mariatu	P	Rull Monica
M	Mirale Romain	Pagano Heather	Rusconi Angelo
Mabeye Fatoumata	Mohamed Bangoura	Paryss Kouta Olivier	Ryan Caitlin
Mabuchi Shunsuke	Mohammed	Pedersen Jens	S
Madden Sophie	Mohammed	Perache Andre	Sabas Saa
Maes Peter	Momodu Jeneba	Perivier Isabelle	Saffa Gbessay
Magasouba Nfaly	Momoh Narecy	Peters Frank	Said Ayub
Magnokoi Jean	Mordret Sarah	Petroucci Roberta	Sailly Laurence
Magone Claire	Morel Justin	Phlips Stephaan	Saive Françoise
Maikere Jacob	Moret André	Piguet Pascal	Sakaouvogui Ouou
Mallah Gashmu	Moriba Moriba	Piot Peter	Sako Yamoussa
Malzieu Thibault	Moriba Sangno	Pletinckx Jean	Sall Amadou
Mamadou Barry	Mortier Delphine	Pobloth Christian	
	Moumié Barry	Poelaert Geertrui	
	Mousa Aminata		

Salvakis Andrius		Vannier William	Yembasu Edwin
Samai Moriba	T	Vasset Brigitte	
Sancristobal Teresa	Tampellini Livia	Veltus Emily	Z
Sandy Martha	Taqi-Bash Regina	Venables Emilie	Zaat Rael
Sannoh Ansu	Tchaton Marie	Verdonk Gert	Zbinden Joele
Sardo Andre	Terzian Mego	Verhoustraeten	Zerboni Alberto
Savany Ibrahim	Thomas Michael	François	Zhimdan Jöel
Sawyerr Yvonne	Thorel Aude	Verschauer Jesse	Zoumanigui Davide
Serafin Julian	Tinguano Angeline	Verth Paul	
Seraian Kamara	Tolno Faya Jean	Vignaud Carole	
Serrafini Micaela	Torborg Bridget	Vogt Florian	
Severy Nathalie	Torgeson Kris	Vuylsteke Beya	
Shaefer Jean	Toure Cheik		
Shenk Tim	Traore Amineta	W	
Song Jangsil	Traore Youssouf	Wagner Erica	
Sophie Anne	Tronc Emmanuel	Wagué Ibrahima	
Sorlien Nythuh Maire	Tunkara Alpha	Walia Sonia	
Soury Laurent	Turner Brent	Walker Alfred	
Sow Lamine	Tyre Patrick	Wann Wahab Abdul	
Spaett Andreas		Waterho Claire	
Spencer Craig	U	Watson Ella	
Sprecher Armand	Usenovic Nikola	Wesphal Florian	
Stals Ewald		Wilmotte Adelaide	
Sterck Ester	V	Wolz Anja	
Stoebe Tankred	Valle Hernan	Wong Sydney	
Stokes Christopher	Van Cutsem Gilles	Wyss Patricia	
Sumo Reginald	Van Den Berg		
Suzanne Millimono	Raphael	Y	
Swarray Mohamed	Van Griensven Johan	Yarie Camara	
	Van Herp Michel	Yarie Keita	

ANNEX II: BIOGRAPHIES OF EVALUATORS

http://cdn.evaluation.msf.org/sites/evaluation/files/attachments/biographies_of_consultants_final_version.pdf

Stockholm Evaluation Unit
Médecins Sans Frontières
www.evaluation.msf.org