Ebola Outbreak Mitigation through Enhanced Case Isolation:
KUNTORLOH ETC FINAL REPORT

Medair Emergency Response Team
May 2015

Background

An unprecedented outbreak of viral hemorrhagic fever, caused by the Zaire strain of the ebola virus, began with the first index case in Guinea in December of 2013 and quickly spread to neighboring Liberia and then to Sierra Leone in early May 2014. Up to the 2nd of December, Sierra Leone had registered 7,109 cases with 1,530 deaths[1]. The areas of highest transmission at that time included Bombali, Port Loko, and Western Area including both urban, Freetown, and also the Western Rural area. Discussion on the 1st of December with Oliver Morgan, the Country Director for CDC, noted that beds are needed in "days versus weeks" in the Western Area specifically in order to mitigate multiplying transmission rates due to a lack of proper isolation. In response, Medair established a 20 bed isolation center which was later converted to an ebola treatment center in Kuntorlah Community in Wellington on the east side of Freetown. Since opening, over 200 suspected ebola patients have been admitted with 34 testing positive for ebola and 26 confirmed cases receiving treatment at the center. In addition, Medair scaled up the response of a local community based organization, Lifeline Nehemiah Project, to provide practical support to quarantined households, and monitor for the development of illness symptoms in household contacts, and provide additional education on how to prevent transmission among these high risk individuals. After the Western surge in late December/early January as beds scaled up and cases were brought out of homes into centers, the rate of new transmission in Western Area has started to decrease. .

In early March, as case numbers began to decline, a plan for Phase II was presented by the Nation Ebola Response Center including strategies for "right sizing" or down-scaling the isolation and treatment centers. The Medair supported facility in Kuntorlah was on the list for closure and staged scale-down and decommissioning began in early April with handover to Oxfam for final decommission of WASH components by end of April. The following report covers data and activities carried out within the ebola treatment center. Further reports will be circulated following the completion of the quarantine support project – supporting quarantined households in Western Area.

Specific Activity

To reduce morbidity and mortality caused by the ebola outbreak for vulnerable populations in Sierra Leone through quality isolation and treatment within a 20 bed ebola treatment center in Kuntorloh Community in Wellington, Western Area of Sierra Leone

Specific location	Region	Coordinates
Approved School Football Field, Kuntorloh Community	Western Area Urban District, Sierra Leone	8°27'40.11"N, 13°10'42.49"W

Dates of activity

1st of December 2014 to 30th April 2015

Population information

The population of Freetown is estimated at 1.2 million (estimation based on 2004 census).

Summary of Objectives	Outputs Achieved
Health	
Objectives	
1. Coordinate with key stakeholders including the Ministry of Health, NERC, DERC, WHO, NGO partners, and communities throughout the course of the intervention	Medair teams participated in key coordination meetings as part of the response including the case management pillar, the district level holding unit meetings, clinical case follow up, and district level coordination meetings at the DHMT office bi-weekly. Medair also met with community stakeholders at critical times before, during, and after plans for closure of the ebola treatment centre to ensure their participation in planning and ensuring key messages were spread to the community. Medair also coordinated with the DERC, NGO partners, and community stakeholders to distribute items for donation following the closure of

[1] CDC, Case Counts, 2nd December 2014

		the project to ensure the benefit would remain within the communities.
2.	Establish and operate a 20 bed ebola treatment unit in Kuntorloh Community in partnership with the community stakeholders, Lifeline Nehemiah Projects, and Oxfam	Medair with the support of Oxfam and the Kuntorloh community constructed a 20 bed ebola isolation facility at the Approved School Football field. The construction was completed on the 8th of January and utilized resources from DFID provided Community Care Center kits. Construction was carried out through support from the local community as well as local contractors and oversight by Oxfam and Medair. Following completion of construction, the facility was opened on the 9th of January for patients. The last patient was discharged on the 16th of April 2015. **TRAINING:** In preparation for opening, Medair recruited and trained 120 national staff to provide care in the ebola treatment centre. Training began on December 24th and finished on the 7th of January. Topics included ebola case definition, transmission, supportive treatment, infection prevention and control, and 7+ days of hands-on practice with the donning and doffing of personal protective equipment (PPE). Staff also received on-the-job supervision and training on a daily basis throughout the response. Staff trained included the following:

Nurses:	15 (4 male, 11 female)*
Nurse aides:	15 (1 male, 14 female)
Hygienists:	21 (19 male, 3 female)
Doffers (sprayers):	12 (9 male, 3 female)
Community Supervisors:	4 (4 male)
Psychosocial Support counsellors:	6 (4 male, 2 female)
Surveillance Officers:	2 (1 male, 1 female)
Lab Technicians:	3 (3 male)
Pharmacists:	2 (2 male)*
Guards:	16 (16 male)*
Laundry:	10 (10 female)
Dressers:	2 (2 female)
WASH Techs:	8 (8 male)
Admin (IM, HR, Logs)	3 (3 male)*
TOTAL STAFF TRAINED	120 (74 male, 46 female)

		*Few staff in this cadre were trained on-the job or in supplemental trainings as they began work following the initial trainings. **CASE MANAGEMENT:** Medair carried out case management based on the Viral Haemorrhagic Fever Guidelines as established by WHO and the Ministry of Health in Sierra Leone. Where guidelines may have been limited, Medair utilized guidelines provided by MSF based on their previous experience. The Kuntorloh Ebola Center was initially opened as a holding unit – screening patients, providing supportive treatment based on the VHF guidelines, and transferring all positive cases to nearby ebola treatment centres. On the 29th of January, Medair converted to an ebola treatment centre due to the high positivity rate coming from the Kuntorloh community. Protocols were enhanced to ensure sufficient intravenous fluids were given as well as treatment for concomitant illnesses. Patients were provided with multivitamin supplementation as well as 4 meals per day based on the nutrition guidelines. Meals were supplemented with fruits and coconut jellies based on their high potassium content. Patients were seen at triage initially where they were screened against the case definition by trained surveillance officers. For those that did not meet the case definition, Medair would refer patients to the nearby Approved School Community Health Center. For those who were suspected of having ebola, Medair would admit them to the centre – attempting to maintain separation between dry and wet, suspect and

probable, male and female as much as was possible. Upon admission, patients were provided with oral rehydration salts or intravenous fluids if they were unable to take oral medications. Patients would receive antibiotics and antimalarials based on symptoms and per standard protocols. Lab samples would be taken on admission by lab technicians and would be sent by courier to the nearest lab for analysis. Patient would typically have their result within 24 hours or less based on time of admission (last courier pick up at 1700).

Ebola Negative Patients:

Patients found negative for ebola after 72 hours of symptoms would be discharged home after taking a shower in 0.05% chlorine. They would be discharged with appropriate medications based on the likely aetiology of their illness. Psychosocial counsellors would provide information in means to protect yourself from contracting ebola and good hygiene. Patients would then be followed through daily phone calls for 21 days to monitor for ebola symptoms or potential nosocomial exposure and exposure to ebola from the ETC. Of 256 suspected patients admitted to the ETC, 202 were found to be negative for ebola (2 transferred and 2 eloped before testing).

	Male	Female	Total
0-4 years	2	8	10
5-14 years	18	11	29
15-45 years	89	32	121
46-60 years	16	7	23
60+ years	11	8	19
Total	136	66	202

Of those 202, 133 were tested for malaria with 38 (29%) having a positive malaria test. Of those discharged, 18 patients died of unknown non-ebola causes (10.1%) and 159 improved from their symptoms or were still undergoing treatment for non-ebola causes (89.8%). Of those ebola negative patients discharged, no patients contracted ebola-like symptoms after their discharge based on 21 days of follow up carried out by the psychosocial team. Twelve patients (4.6%) were lost to follow-up.

Ebola Positive Patients:

Patients found to be positive on PCR test for ebola were transferred to either a confirmed bed in the Kuntorloh ETC or transferred to the nearest ETC with available beds. Since suspect patients in the Kuntorloh ETC were started on supportive treatment upon admission, there was only a change to their treatment or medication regimen based on a change in their symptoms. All ebola positive patients received fluid support through oral rehydration salts or lactated ringer's given intravenously. Patients were also treated with multivitamins and potassium supplements due to losses from diarrhoea or vomiting. 50 patients (19.8 %) were found to be positive by PCR. See below the age and sex disaggregation:

	Male	Female	Total
0-4 years	0	0	0
5-14 years	4	4	8
15-45 years	19	16	35
46-60 years	1	4	5
60+ years	1	1	2
Total	25	25	50

The maximum and minimum CT values recorded in initial laboratory results for ebola positive patients were 35 and 16.94, with a median of 23.45. The lowest CT value which resulted in a successful discharge was 22. The most common presenting symptoms by patient report in ebola positive patients were fever (90%), loss of appetite (90%), and intense fatigue (86%). The overall case fatality rate for the Kuntorloh ETC was

	51.5 % (41.1% men, 62.5% women, 0% children under 12 years)[2]. 38 (76%) had known contacts at the time of presentation vs. 12 (24%) who had no known contacts. Only one case had been exposed at a funeral. **Child Protection:** Medair collaborated with the Pekin Paddy facilities for quick screening of child contacts from the observation interim care centre. In addition, the interim care centre in Kissy provided discharge support for children who were discharged from the Kuntorloh ETC but were unable to return to their homes due to on-going quarantines, death of parents, or other social concerns which required follow up by child protection experts. The psychosocial team and the Pekin Paddy teams worked together to ensure the children were cared for, safe, and had on-going support for their health and emotional needs after leaving the facility. **Decommissioning:** Following a plan to "right-size" the number of ebola treatment centres as the caseloads started to diminish, a decision was made by the NERC in late March that the Kuntorloh ETC should be closed and decommissioned. A staged scale-down took place to coordinate bed closure on the east side with other facilities including the MSF Kissy ETC and Rokupa Holding Unit. Medair began the decommissioning process in the second week of April and completed all decontamination and cleaning steps by April 21st except for water and waste system decommissioning. These final WASH activities were carried out by Oxfam in late April. As the facility was constructed on a community football pitch, field revitalization was carried out to provide a football field for the community and a sign of renewed hope for those who served in this fight against ebola.
3. Procure sufficient personal protective equipment, medications, and supplies for safe and effective ebola treatment at the ETC	Based on initial estimates, Medair anticipated a need for 15,300 sets of personal protective equipment (PPE) for 6 months of operations in our ETC. By end of March, Medair had procured from both importation and in country Gift in Kind 17,408 coveralls in addition to hoods, masks, aprons, gloves, googles, and gum boots. During the outbreak response, Medair had no stock outs of PPE. One critical defect noted was the lack of seal that was produced over the nasal bridge of most of the national staff when using goggles. The flattened nasal bridge in the typical Sierra Leone anatomy led to a large gap between the face and the goggles causing potential for exposure while in the red zone. This gap was identified and addressed with suppliers. As a temporizing measure, Medair utilized disposable shields over the top of goggles to better prevent any potential exposure.
4. Contribute to lessons learned, revisions of guidelines, and documentation for future responses	Medair participated in the paediatric guideline for the treatment of VHF sub-committee meetings to help better define the standard operating procedures for the treatment of children. Medair also participated in the Foreign Medical Teams meeting in Geneva looking at the overall FMT response and areas for revision and improvement. **Patient Satisfaction Survey:** A patient satisfaction survey was carried out by the Medair team to aid in quality improvements within the facility and also to identify other key messages which could be spread through social mobilization campaigns. 65 individuals were surveyed up to the 16th of May 2015 with 67% male and 32% female with similar age breakdowns in comparison with the overall admission data. 100% of the patients surveyed noted that the facility was comfortable and that the nurses and staff visited and checked on patients enough times during the day while they were inpatients. 77% noted that the nurses always explained what medications they were receiving and what they were for and 89% noted that the staffs were friendly when they arrived at the facility.

[2] Only includes patients who were treated in the Kuntorloh ETC for the entirety of their illness or died between 29th of January and closure of the facility.

	97% of those surveyed noted that the food was good and suggested the best foods for ebola patients are pap (porridge) (27%) and fofo (23%). 69% of those surveyed noted that the staff made him/her feel more comfortable and cited words of encouragement (60%) and providing medication when needed (31%) most frequently. Others noted that the nurses were caring, they talked to them frequently, and they fed the patients like kids when they were too weak to eat on their own. The survey also asked the means of arrival to the facility with only 17% of the patients arriving by ambulance and 83% (54 out of 65) arriving by walking or by private vehicle. Of those who walked or arrived by private vehicle, the most noted reasons for not taking the ambulance included the following: • 27 individuals (50%) lived close and it was easy to walk • 9 individuals (17%) noted stigma in using an ambulance • 7 individuals (13%) noted the ambulance is too slow or never arrived
On-going Outbreak Programming	
1. Provide support to quarantined households including fresh food supplies, non-food items, interim health kits, ebola education, contact tracing, and psychosocial support	Medair supported the training of 90 case workers to support quarantined households covering the entire Western Area District. Teams coordinated with the District Ebola Response Center to identify new quarantined addresses, check line listings, and then provide support including fresh food, batteries for lights, phone credit, and an interim health kit. Case workers provided training on how to recognize symptoms of ebola, steps to call 117 for ambulance pick up, and usage of the interim health kit should someone become ill. Medair teams checked each individual in quarantine daily including temperature checks and screening for symptoms. By mid-June, Medair had supported 12,147 individuals in quarantine and continues to support all new quarantined households in Western Area. Preliminary data from post-quarantine monitoring demonstrates that safe burial teams were called for 100% of all deaths in Medair supported quarantines. 90% of all those with symptoms called 117 for safe ambulance transport. 98.5% of those in quarantine noted a change in sense of well-being from "very sad" or "upset" to "happy" resulting from the daily visits from Medair Case Workers.
2. Provide technical support for community social mobilization teams to ensure accurate and effective messaging	Medair provided training for 24 community members engaged in social mobilization and "community tok." Training was focused on the signs and symptoms of ebola, means of transmission, steps to take if you suspect infection, and messages to combat stigma. Teams focused on hotspot areas to reach out to community leaders, youth and other groups to ensure all cases were identified and isolated quickly to prevent further spread of the disease.
Report by *Dr. Trina Helderman, Emergency Response Officer – Health Specialist*	**Date written** **17 June 2015**
	Medair collaborated with the Kuntorloh Community to provide a holistic ebola response including social mobilization, quarantine isolation support, contact tracing and case management • 20 bed Ebola Treatment Center was established including the training of 120 national staff • 252 suspect ebola patients were admitted, tested, and treated for ebola or other non-ebola diagnosis including malaria, meningitis, and diarrhoea • 50 ebola positive patients were treated with a case fatality rate of 51% • 114 quarantine case workers and social mobilizers were provided technical training in ebola viral disease and psychological first aid • 12,147 individuals have been supported so far through quarantine support, education, and psychosocial support with effective adherence to protocols for suspect cases and dead body management • Quarantine support and social mobilization is on-going as the outbreak persists