MINISTRY OF HEALTH & SANITATION
GOVERNMENT OF SIERRA LEONE

Standard Operating Procedures
On
The Decontamination Of
EBOLA CARE CENTRES (ECCs)

National Ebola Response

March 2015

Produced by: Case Management Pillar

STANDARD OPERATING PROCEDURE

Decontaminating the Ebola Facilities in Sierra Leone

Background:

The 2014-2015 Ebola outbreak affecting several countries in West Africa, Guinea, Sierra Leone and Liberia in particular, is the largest in history. As of January 14th,2015 WHO reported 21,261 infected persons and 8414 deaths as a cumulative number of Ebola cases since beginning of the outbreak

In response to the urgent need for Ebola treatment beds many facilities were set up to admit and isolate patients in the three most affected countries. Many such facilities were constructed in existing hospitals, schools or buildings that provided other functions prior to the outbreak while others were newly constructed on available land sites

Given the current significant decrease of Ebola cases in Sierra Leone, the government is developing strategies for scaling down the activities and bed capacity in Ebola facilities. Therefore, the closure of existing Ebola facilities or their repurposing for other uses are to be approached using evidence based/best practices[1] while respecting the psychological impact of the outbreak on the population of the affected countries.

Ebola viability

The survival of the Ebola virus in the environment or in solid or liquid waste is an important aspect to be considered while developing strategies for terminal cleaning and decontamination of facilities where Ebola patients were admitted. A limited number of studies on this topic exist, but while the Ebola virus may remain on environmental surfaces, being an enveloped virus, it is relatively fragile and decreases over time.

In African hospitals, the virus was not detected by either nucleic acid amplification or culture in any sample collected from sites that were not visibly bloody [2]. In a blood-stained glove and bloody intravenous insertion site the virus was detected by nucleic acid amplification, which may detect the non-viable virus, but not by culture for living, infectious virus[3]. However, one laboratory study which was conducted under environmental conditions that favor virus persistence, found that under these ideal conditions, Ebola virus could remain active for up to six days[4]. In a follow-up study, Ebola virus was found, relative to other enveloped viruses, to be quite sensitive to inactivation by ultraviolet light and drying, yet sub-populations did persist in organic debris[5]. In conclusion, on environmental surfaces, extensive spontaneous declines of infectivity are expected in hours, days or rarely weeks, depending on the matrix, surface and environmental conditions. Finally, filoviruses are highly susceptible to several disinfectants: 3% acetic acid, 2% peracetic acid, 1%

glutaraldehyde, ethanol-based products, 1:10-1:100 dilutions of domestic bleach & organic solvent. It has also been demonstrated that in settled sewage at 25°C, approximately 99% of the coronona virus, a similar structured (enveloped) virus, was removed in 7 days. Considering the above evidence and fragility of the virus, it is anticpated that Ebola is likely to inactivate faster in the environment than other enteric viruses with known waterborne transmission, such as norovirus or Hepatitis A.[6]

The proposed guidance principles and protocol for deocontamination of Ebola facilities are based on the evidence related to the nature of the virus (Enveloped Virus), the scientific evidence that the virus may variably persist in non-biological fluids for one day and can extended for six days if present in bloody material, and the evidence that the virus is highly susceptible to several disinfectants (including chlorine) and ultraviolet light[5].

With respect to the potential psychological impact of resuming the use of former Ebola facilities for their original purpose such as schools and community centers, district authorities and social mobilisation officers should develop appropriate communications to reassure health workers and the population about the safe conditions of the facilities once the decontamination process has been completed.

Infection Prevention and Control (IPC) Principles

There are a number of guiding IPC principles that should be followed for safe and effective terminal cleaning and decontamination of Ebola facilites:

- An **IPC officer** should be identified for the inspection of the facility before and after terminal cleaning and decontamination, and for supervision of the process
- A **checklist** including the necessary steps for the waste management, cleaning and decontamination processes can be found in annex 1
- The facility should be inspected by the IPC officer(s) during the decontamination procedures (ideally) and after completion
- The facility should **NOT** be opened until the safe completion of the process, documented by use of the checklist
- For psychological reasons, it is suggested to repaint the walls and/or refresh furniture if possible

Procedures for terminal cleaning and decontamination of Ebola facilities

The ECCs' hygienists/cleaners will be responsible for the cleaning and decontamination process.When performing cleaning and decontamination activities, cleaners/hygienists should wear FULL PPE according to WHO recommendations. These are:

- Double gloves (non-sterile examination gloves and heavy duty gloves)

- A disposable gown or coverall made of fabric that is tested for resistance to penetration by blood or body fluids or to blood-borne pathogens to cover clothing and exposed skin.
- A disposable, waterproof apron worn over the gown or coverall. If disposable aprons are not available, heavy duty, reusable waterproof aprons can be used if appropriate cleaning and disinfection between patients is performed.
- A fluid-resistant medical/surgical mask with a structured design that does not collapse against the mouth (e.g. duckbill, cup shape).
- Eye protection (either goggles or face shield) in order to have the mucous membranes of their eyes, mouth and nose completely covered by PPE and prevent virus exposure.
- Waterproof boots (e.g. rubber/ gum boots). If boots are not available, health workers must wear closed shoes (slip-ons without shoelaces and fully covering the dorsum of the foot and ankles) and overshoes.

Application of disinfectants should be preceded by cleaning to prevent inactivation of disinfectants by organic matter. All environmental surfaces (incl furniture, walls, doors, etc) or objects should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution (i.e. a solution containing 5 000 ppm available free chlorine) very meticulously and thoroughly. Spills or waste including blood, other body fluids, secretions or excretions should be removed, cleaned and decontaminated as per the WHO guidelines.

Spraying rooms with disinfectants is not recommended. It is a potentially dangerous practice that has no proven disease control benefit while the disinfectant may not reach all desired surfaces. Spraying may be accepted outdoors when it is the only feasible option or may also be considered when necessary to disinfect sand or gravel floors.

1. Prior to cleaning and disinfection :

- Visually inspect surfaces for sign of wear and tear, decay or overall disrepair (e.g. matresses, furniture, equipment)
- Safely dispose and incinerate all non intact objects/equipment and replace them if still needed for future use
- Safely dispose and incinerate all objects/equipment made of porous/ absorbable material (e.g. linen)
- If the surfaces of the tent like structure show visible signs of wear or breakdown they shoud be discarded as contaminated waste and incinerated
- Surfaces that are intact and can withstand rigourous cleaning may undergo cleaning and disinfection

2. Process for environmental cleaning and disinfection:

- In the red zone cleaners should wear FULL PPE according to WHO recommendations. While cleaning the green zone, lower level PPE can be used (disposable gown, heay duty gloves, mask, face shield)

- All environmental surfaces (incl furniture, walls, doors, etc) or objects should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution (i.e. a solution containing 5 000 ppm available free chlorine) very meticulously and thoroughly
- Spills or waste including blood, other body fluids, secretions or excretions should be removed, and cleaned and decontaminated as above
    - Cover the soiled area with a rag or paper towel to avoid splashes or dispersion of fluids
    - Wipe up the spill and dispose of the rags or towel into a laundry container for laundering or a waste bucket for diposal
    - Clean the area with water + detergent then disinfect
- If locally prepared, cleaning and disinfectant solutions should be freshly prepared every day
- Cleaning solutions and the equipment should be changed and refreshed frequently while being used during the day, as they will quickly become contaminated
- Cleaning should always be carried out from "clean" areas to "dirty" areas, in order to avoid contaminant transfer
- Cleaning with a moistened cloth helps to avoid contaminating the air and other surfaces with air-borne particles
- Allow surfaces to dry naturally
- Dry sweeping with a broom should never be done. Rags holding dust should not be shaken out, and surfaces should not be cleaned with dry rags

3. WASH activities

Annex 2 contains supplementary information for the WASH expert and should be consulted with the checklist.

3.1 Latrine/septic tank

- Septic tanks and waste water should be designed to hold wastewater for as long as feasibly possible.
- A septic tank or latrine that was specifically built for ECCs, should be decomissioned (see Annex 2)
- A permanent septic tank or latrine that has been used for an ebola facility and is less than 2/3 full should be cleaned and decontaminated with 0.5% cholorine. The pit of the septic tank should be treated with lime.
- A septic tank or latrine that has been used for an Ebola facility and is more than 2/3 full should be decontaminated and closed. A new septic tank will need to be built according to the national standards/VIP.
- If there is no space to build new septic tanks or latrine, desludging of the latrine should be considered and carried out according to the national policy.
- In a publica area,closed pits must be sealed with concrete slabs for safety reasonsOtherwise pits should be marked with clear signage.
- Standard procedures for handling waste water are recommended ,including[7]
    - on site septic tank treatment

- containment of wastewater for seven days prior to secondary biological treatment to allow natural die off of the Ebola virus

3.2 Water

Water systems that have been installed should be handed over to the relevant local authorities, fully functionnal and maintained. Information about the systemshould be provided to the WASH district engineers including the borehole log, the blue print of the water network and the water equipment reference and maintenance log book

a) Water storage:

Most Ebola Care Centres have plastic water tanks. There are also containers used for preparation of chlorine solution and hand-washing buckets. They should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution (i.e. a solution containing 5 000 ppm available free chlorine) very meticulously and thoroughly. After cleaning and decontamination, the tanks and buckets may be reused.

b) Pumping devices:

- Equipment should be cleaned and maintained according to the manufacturer's maintenance procedures. Because of the high chlorination, the systems may be damaged (if pumping devices installed downstream of the chlorination system). Equipment that is to be returned to the government or donated should be inspected by a WASH engineer prior to repurposing.

Pipe network:

- Pipe networks should also be disinfected with 0.5% chlorine. A pumping system should be used to flush the water network.The current pumping system or a temporary system should be used to flush the water network. The potential for pipe networks to be re used may be limited If the site is dismantled, the pipes should be removed to an approved dumping site.

4. Final steps to reopen or repurpose the facility

- If a burning pit is used, it should be closed with cement when all procedures are concluded
- Once the cleaning and disinfection has been completed, the District IPC Coordinator will validate that surfaces have been properly cleaned and disinfected using a specific checklist.
- The facility should be inspected by the administrator/ DHMT coordinator or appropriate district official who will assume responsibility for the repurposed structure (e.g., district education authority if repurposed as a school, to determine if any additional repairs or painting of structures are required prior to use.
- Once the cleaning, disinfection and any other necessary repairs have been completed the facility may be operated as a non-Ebola facility e.g. school; general hospital,etc..

References

1. WHO, Infection Prevention and Control Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola, December 2014

2. CDC, Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus August 1, 2014

3. *Bausch DG et al. Assessment of the Risk of Ebola Virus Transmission from Bodily Fluids and Fomites. J Infect Dis2007; 196:S142–7.*

4. Sagripanti JL, Rom AM, Holland LE. Persistence in darkness of virulent alphaviruses, Ebola virus, and Lassa virus deposited on solid surfaces. Arch Virol 2010; 155:2035-2039.

5. Sagripanti JL, Lytle DC. Sensitivity to ultraviolet radiation of Lassa, vaccinia, and Ebola viruses dried on surfaces. Arch Virol 2011; 156:489–494.

6. WHO, Unicef, Ebola virus disease (EVD)-Key questions and answers concerning water, sanitation and hygiene, October 2014

7 WHO, 2002. Environmental health in emergencies and disasters. World Health Organization, Geneva. Retrieved from:
http://www.who.int/water_sanitation_health/emergencies/emergencies2002/en/

ANNEX 1: CHECKLIST FOR TERMINAL CLEANING AND DECONTAMINATION OF EBOLA FACILITIES

Assessors name		**Date**	
Facility name		**Managed by**	
Nº beds			

Notes:

- *This **checklist** includes the necessary steps for terminal waste management, cleaning and decontamination processes*
- *An **IPC officer** should be identified for the inspection of the facility before and after terminal cleaning and decontamination, and for supervision of the process*
- *The facility should be inspected by the IPC officer(s) during the decontamination procedures (ideally) and after completion*
- *The facility should **NOT** be declared satisfactorily decontaminated until the safe completion of the process, documented by use of the checklist*
- *For psychological reasons, it is suggested to repaint the walls and/or refresh furniture if possible*
- *Spraying rooms with disinfectants is not recommended. It is a potentially dangerous practice with no proven disease control benefit and the disinfectant may not reach all desired surfaces. Spraying may be acceptable outdoors when it is the only feasible option or considered when necessary to disinfect sand or gravel floors.*

Key to completion	
Score each checkpoint statement/question as being: fully met, partially met or not met. A facility will only be classified as safely decontaminated if all checkpoints receive a fully met score.	
FM	Fully met
PM	Partially met
NM	Not met

	Checkpoints	**FM**	**PM**	**NM**
1. PPE – When performing decontamination activities, cleaners/hygienists wear **Full PPE in the Red Zone as listed in 1.1 to 1.7 (for the green zone, see part 3)**				
1.1	*Double gloves (non-sterile examination gloves and heavy duty gloves) worn*			
1.2	*Disposable gown or coverall made of fluid resistant fabric covers clothing and exposed skin*			
1.3a	*A disposable, waterproof apron is worn over the gown or coverall.*			

	Checkpoints	FM	PM	NM
1.3b	*If disposable aprons are not available, heavy duty, reusable waterproof aprons are used with appropriate cleaning and disinfection after use*			
1.4	*A fluid-resistant medical/surgical mask with a structured design that does not collapse against the mouth (e.g., duckbill, cup shape) is worn*			
1.5	*Eye protection (either goggles or face shield) are worn to completely cover the mucous membranes of eyes, mouth, and nose*			
1.6	*Waterproof boots (e.g., rubber/ gum boots) are worn*			
2. Pre-Cleaning Inspection ***Prior to cleaning and disinfection ensure all members of the team are wearing boots and scrubs:***				
2.1	*All surfaces visually inspected for sign of wear and tear, decay or overall disrepair (e.g., mattresses, furniture, equipment)*			
2.2	*All non intact objects/equipment are safely disposed of and incinerated*			
2.3	*All objects/equipment made of porous/absorbable material (e.g,. linen) are safely disposed of and incinerated*			
2.5	*Surfaces that are intact and can withstand rigorous cleaning are cleaned and disinfected*			
3. Environmental Cleaning and Disinfection				
3.1a	*Cleaners In the red zone wear FULL PPE as per Section 1.*			
3.1b	*Cleaners in the green zone wear disposable gown, heavy duty gloves, mask, and face shield or goggles, and boots as a minimum*			
3.2	*Spills or waste including blood, other body fluids, secretions or excretions are removed by covering with a rag or paper towel, wiped up, and disposed of into hazard bag for incineration:*			
3.2a	*Affected area is cleaned with water and detergent*			
3.2b	*Affected area is then disinfected*			
3.3a	*All environmental surfaces (including furniture, walls, doors, etc.) and objects are first cleaned with water and a detergent*			
3.3b	*Cleaning solutions and equipment are changed and refreshed frequently while being used during the day*			
3.3c	*Cleaning is carried out from "clean" areas to "dirty" areas – move to before disinfection*			
3.3d	*Surfaces are cleaned with a moistened cloth*			
3.3e	*All environmental surfaces are then thoroughly disinfected using a 0.5% chlorine solution*			
3.4	*Fresh cleaning and disinfectant solutions (if locally prepared) are prepared daily*			

	Checkpoints	FM	PM	NM
3.5	*Surfaces are allowed to dry naturally*			
3.6	*Dry sweeping with a broom is not undertaken*			
3.7	*Tent-like structures with surfaces that show visible signs of wear or breakdown are discarded as contaminated waste and incinerated*			
4. WASH Activities (see annex 2) ***Latrine/septic tank***				
4.1	*All toilets/latrines are cleaned and disinfected with 0.5% chlorine*			
4.2	*The pit of the septic tank is treated with minimum 15 kg. of lime*			
4.3a	*Septic tanks or latrines that have been used for an Ebola facility and are MORE than 2/3 full are decontaminated*			
4.3b	*The pit is then back-filled with soil, construction rubble if available, and wood chips or organic matter, tipped over the hole by approximately 2 feet and closed*			
4.3c	*Notification has been submitted for a new septic tank to be built according to the national standards/VIP, if required as per SOP*			
4.3d	*If there is no space to build new septic tanks or latrine, desludging of the latrine has been and carried out according to the national policy*			
4.4	*Closed pits are sealed with concrete slabs*			
4.5	*Standard procedures for handling waste water are followed:*			
4.5a	*Septic tanks are treated on site*			
4.5b	*Wastewater is contained for seven days prior to secondary biological treatment*			
5. Water				
5.1	*Installed water systems that have been installed are handed over to the relevant local authorities, fully functional and maintained, with information provided to the WASH district engineers including the borehole log, the blueprint of the water network, and the water equipment reference and maintenance log book.*			
5.2a	***Water storage:*** *Plastic water tanks and containers used for preparation of chlorine solution and hand-washing buckets are cleaned with water and a detergent and then thoroughly disinfected using a 0.5% chlorine solution and then flushed with clean water*			
5.2b	***Pumping devices:*** *Equipment is cleaned and maintained according to the manufacturer's maintenance procedures*			
5.2c	*Basic Spares have been provided*			

	Checkpoints	FM	PM	NM
5.3	*Equipment is inspected by a WASH engineer prior to repurposing*			
5.4a	***Pipe network:*** *Pipe networks are disinfected with 0.5% chlorine*			
5.4b	*The water network is flushed with a pumping system*			
5.4c	*If the site is dismantled, the pipes are removed to an approved dumping site*			
6. FINAL STEPS ***Final steps to reopen or repurpose the facility***				
6.1	*If a burning pit is used - close with cement when all procedures are concluded*			
6.2	*The District IPC Coordinator has validated that surfaces have been properly cleaned and disinfected*			
6.3	*The administrator/ DHMT coordinator or appropriate district officials responsible for the repurposed structure have inspected the facility to determine if any additional repairs or painting is required:*			
6.3b	*Repainting of walls and refreshing of furniture is completed*			
6.4	*On completion of the cleaning, disinfection, and necessary repairs as per this checklist, the facility may be operated as a non-Ebola facility*			
6.5	*The District IPC Coordinator, Administrator/ DHMT coordinator and appropriate district officials responsible for the repurposed structure have inspected the facility and approved for use*			

Signatures:

The District IPC Coordinator

Administrator/DHMT coordinator

Appropriate district officials responsible for the repurposed structure

ANNEX 2: ADDITIONAL INFORMATION FOR THE WASH EXPERT: DECOMMISSIONING EBOLA CARE CENTERS' WASH FACILITIES

THIS GUIDANCE - scope of the guidance:

The main purpose of this note is to provide guidance on how to safely decommission wash facilities in Ebola Care Centers, to reduce the risks of contaminating the environment, and ensure that surrounding communities can safely reuse the space for its original purposes.

This guidance does not replace the national SOP approved by the MoHS but provide further information for the WASH expert, and complements existing literature.

Who these notes are for:

These notes are mainly for those managing and in charge of decommissioning the Ebola Care Centers. This is specifically dealing with the WASH facilities and should be integrated into the larger guidance notes. However, the WASH component during the decommissioning process is essential, and should be taken into account.

Format of the notes:

KEY PRINCIPLES

The main responsibility lies with the agencies who build the facilities and responsible for decontaminating and decommissioning of facilities.

The decommissioning process is looking primarily at avoiding Ebola transmission, but also addresses other contamination risks. The public health risks of EVD transmission and other communicable infections are greater and have to be taken into account. The basic practices for protection of water resources, good sanitation, appropriate solid waste management and hygiene have to be respected as in any other WASH project. It is expecting from the responsible agencies to refer to the existing guidance and national policies (Reference literature below).

Safety of the workers:

Where possible it is best to undertake this process with trained labour that have worked in the Ebola Care Centers or being involved during the construction phase ensuring all involved are competent in cleaning and disinfection.

Workers should be provided with appropriate safety equipment and tools which should be collected and signed in at the end of each day. This includes "light" PPE in the green zone and full PPE in the red zone. *See Appendix 1 for the composition of the PPE.*

In the red zone cleaners should wear FULL PPE according to WHO recommendations. While cleaning the green zone, lower level PPE can be used (disposable gown, heay duty gloves, mask, face shield)

All works must be monitored at all times by agency field staff who should be equipped with appropriate first aid kits. During decommissioning of toilets, extreme caution should be ensured.

Staff health and safety should be monitored and injuries/illness should be reported (for example, individuals with respiratory disease may need to be excluded because of chlorine exposure).

Cleaning and disinfection principles

All environmental surfaces (including furniture, walls, doors, etc.) or objects should be cleaned with water and a detergent prior to disinfection as organic matter will deactivate the disinfectant and then disinfected using a 0.5% chlorine solution (i.e. a solution containing 5 000 ppm available free chlorine). Moistened cloths and wipes should be used.

Sufficient water, detergent and chlorine have to be available on site before starting the decontamination process.

If locally prepared, cleaning and disinfectant solutions should be freshly prepared on daily basis. Cleaning solutions and disinfectants should not be topped up. Cleaning solutions can become contaminated with micro-organisms. Topping up a disinfectant solution means that the strength of the solution cannot be guaranteed.

Cleaning solutions and the equipment should be changed and refreshed frequently while being used during the day. This is because chlorine solution will deteriorate in the heat and the sun, and the strength of the solution may be reduced.

Cleaning should always be carried out from “clean” areas to “dirty” areas, in order to avoid contaminant transfer

Cleaning with a moistened cloth helps to avoid contaminating the air and other surfaces with air-borne particles

Dry sweeping with a broom should never be done. Rags holding dust should not be shaken out, and surfaces should not be cleaned with dry rags

Allow surfaces to dry naturally

Staff should not walk on surfaces that have just been cleaned.

Spills or waste including blood, other body fluids, secretions or excretions should be removed, and cleaned and decontaminated as above

- Cover the soiled area with a rag or paper towel to avoid splashes or dispersion of fluids
- Wipe up the spill and dispose of the rags or towel into a hazard bag for disposal
- Clean the area with water + detergent then disinfect

Spraying rooms with disinfectants is not recommended. It is a potentially dangerous practice for HCWs that has no proven disease control benefit while the disinfectant may not reach all desired surfaces

Spraying may be accepted outdoors and it may be considered also when necessary to disinfect sand or gravel floors

When spraying is used, it should be preceded by cleaning with water and detergent to mechanically remove the contaminants and organic matter. After spraying of disinfectant, it may be needed also to ensure that it is properly distributed on the surfaces.

Basic principles for disposal

Clear all burnable waste and rubbish to central collection points and incinerate. Anything that will not burn or decompose must be collected separately to be removed to the local authority approved dumping sites or buried on site if approved by the owner. Waste should be stored securely while awaiting transport to point of disposal to prevent scavenging etc.

Place all dirty cloths/towels and solid waste in leak-proof plastic bags, collected in covered bins and incinerate

Visually inspect surfaces for sign of wear and tear, decay or overall disrepair (e.g. mattresses, furniture, and equipment)

Keep careful record all items that have been safely decontaminated and keep such documentation with items

Safely dispose and incinerate all non-intact objects/equipment

Safely dispose and incinerate all objects/equipment made of porous/ absorbable material

Sharp objects and equipment that have been in contact with blood or body fluids should be placed inside puncture resistant waste containers

STEP BY STEP:

Informing Relevant Stakeholders

To allow the physical works to be undertaken in a timely and efficient manner it is therefore advisable to have held discussions with all relevant stakeholders (e.g. MoHS, MoWR, MEST, LCs, community leaders, land owners, surrounding communities etc) prior to the closure of the Ebola Care Centers. During consultation with these respective groups, roles, responsibilities and expectations of each should be clearly defined and set. Having decided who will contribute what to the process any gaps will become evident and can be addressed.

Agreement should be made about the future of the equipment as generators and pumping devices based on the donor's regulation, owners, national SOP. In case of donation, a MoU should be written. MOWR appeals for the handing over of WASH related equipment to contribute to its capacity building & ease of access in case of emergencies.

Institution	**Roles and Responsibilities**
MoHS DHM Team with the support of the DERC OR official district authorities	Will assume responsibility for the repurposed structure Will be responsible for the planning process of the scaling down at district level Will coordinate and monitor the scaling down of the ECC Will be responsible to inform key stake holders the completion of the decommissioning process of an ECC
MoHS *IPC officer*	Will inspect the facility before, during and after terminal cleaning and decontamination, Should supervise the decontamination the process
MoHS *District IPC Coordinator*	Will validate that the ECC has been properly cleaned and disinfected using a specific checklist
MoHS *Environmental Health team*	Will engaged in the development of the workplan Will assess the landfill for disposing waste from the Ebola Care Centers Will assess the sites after completion of the decommissioning process Will assess new construction of latrines/septic tanks
Agency managing ECCs' hygienists/cleaners	Will be responsible for the decontamination process
MEST, *If case of school*	Will participate to the decisions about the rehabilitation of the school (including painting, locating/siting of new latrines...)

Institution	Roles and Responsibilities
District Education Officer, School Management Committee	Will involve the teachers and school Management committee in the process
MoWR *WASH engineer*	Should be engaged in the development of the workplan Should verify the water equipment handed over to the authorities Should receive all information/document related to the water sources and equipment handed over Should inform the central level of the status of the water points
Local Council	Should identify proper landfill for disposing waste from the Ebola Care Centers.
Land owner	Will be involved in the decommissioning workplan Sitting of the decommissioning facilities will be handed over

Consultation and participation of the communities

Surrounding communities have to be consulted and involved from early stage, prior to, during and after the decontamination process. All groups have to be engaged to ensure equitable access to the information and reduce mistrust, and build confidence.

Appendix 2 are the messages approved for the decontaminating process.

Public announcement and meetings with the community around the facility must be carried out as soon as possible.

The main objective of this meeting will be to inform the community on what will happen and what the future risk may be of the site after is “closed”, raise the issue of theft of items that may remain behind, or for children etc. playing on the site and so on.

The first step is to explain

- The process of decontamination, how it will be done, what precaution will be taken.
- The future of the place
- The new Ebola Care Center referral systems.

It is encouraged that community leaders or identified focal points from the communities visit the Ebola Care Center (green zone) and that explanation are given during the meeting.

Listening and answering to the request of the communities is key to the process. A dialogue have to be established before, during and after the process of decontamination. Doubt have to be removed.

Agreements if necessary have to be found before starting the decontamination process.

7 days after the removal of the site, a new visit can be made with the community.

Prior to the decontamination

Ensure that the planning is understood by all the staff members, who should be trained and competent in cleaning and disinfection, and that the necessary PPE, tools and resources are available

Visually inspect surfaces for sign of wear and tear, decay or overall disrepair (e.g. mattresses, furniture, and equipment), safely dispose and incinerate all non intact objects/equipment and replace them if still needed for future use

Safely dispose and incinerate all objects/equipment made of porous/ absorbable material (e.g. linen)

If the surfaces of the tent like structure show visible signs of wear or breakdown they shoud be discarded as contaminated waste and incinerated

Surfaces that are intact and can withstand rigourous cleaning may undergo cleaning and disinfection

Water supply

Water systems that have been installed should be handed over to the relevant local authorities, fully functional and maintained.

Water storage:

Most of Ebola Care Centres have plastic Water tank. There are also containers used for preparation of chlorine solution and hand-washing buckets. They should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution (i.e. a solution containing 5 000 ppm available free chlorine) very meticulously and thoroughly, followed by rinsing and flushing with clean water. After cleaning and disinfection, the tanks and buckets may be reused.

Pumping devices:

Equipment should be cleaned and maintained according to the manufacturer's maintenance procedures. Because of the high chlorination, the systems may be damaged (if pumping devices installed downstream of the chlorination system). Equipment that is to be returned to the government or donated should be inspected by a WASH engineer prior to repurposing.

Pipe network:

Information about the system should be provided to the WASH district engineers including the borehole log, the blue print of the water network and the water equipment reference and maintenance log book

Pipe networks should also be disinfected with 0.5% chlorine. A pumping system should be used to flush the water network. The current pumping system or a temporary system should be used to flush the water network.

The potential for pipe networks to be re used may be limited. If the site is dismantled, the pipes should be removed to an approved dumping site.

Accessories such as taps, valve can be incinerated or buried depending on their composition. New ones should be installed before the network is handed over.

Excreta Disposal (latrines/septic tanks)

Latrines represent one of the greatest hazards to the decommissioning team, and extreme caution should be exercised. Surfaces as walls, plastic sheetling, slabs should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution. There have been numerous research programs that concluded that hydrogenated (slaked) lime is the most effective means of treating sewage for removal or bacteria and viruses, which will be used to treat pits.

A septic tank or latrine that was specifically built for ECCs, should be decommissioned as per Appendix 3.

2. The superstructure and plastic slab should be cleaned with chlorine solution (0.5%) before further handling. It is recommended that the superstructure (timber frame and tarpaulin) is burnt on site. The plastic slab should be carefully removed, inverted and disinfected (cleaned with water and detergent, and chlorine solution 0.5%). In theory the plastic slab can be re-used. The timber frame used to support the slab should be burned. The pit should be backfilled with soil. Plant a tree (banana trees) on top if in line with site rehabilitation. If not, a pile of debris should be made over the filled pit to allow for further subsidence as the contents settles and decomposes further. Mark area with clear signage.

A permanent septic tank or latrine that has been used for an ebola facility and is less than 2/3 full should be cleaned and decontaminated with 0.5% cholorine. The pit of the septic tank should be treated with hydrogenated lime. If it is possible to prevent access to the site after closure, latrines should be left untouched for 7 days to allow for virus inactivation

A septic tank or latrine that has been used for an Ebola facility and is more than 2/3 full should be decontaminated and closed. A new septic tank will need to be built according to the national standards, VIP lartines are recommended in Sierra Leone. Septic tanks which will not be reused can be destroyed after emptying. One week should be allowed the site is redeveloped.

If there is no space to build new septic tanks or latrine, desludging of the latrine should be considered as the last option and carried out according to the national policy. Faecal waste in holding tanks or septic tanks should be left at least one week after last user and emptied according to local protocols with workers wearing full PPE. The transport and disposal site for the sludge should be assesed by the agency in charge and risks have to be minimised to zero.

Closed pits must be sealed with concrete slabs (10 cm deep) for safety reasons. Otherwise pits should be marked with clear signage.

Shower and waste water

Showers should be treated in a similar way to latrines i.e. first disinfect and then burn the superstructure. The concrete floor should be disinfected and buried on site. If necessary it can be broken into pieces to facilitate burial. The shower pit should be backfilled.

Standard procedures for handling waste water are recommended ,including on site holdic tank treatment, containment of wastewater for seven days prior to secondary biological treatment to allow natural die off of the Ebola virus.

The soakaway and drainage channels should be disinfected with chlorine solution (0.5%), and backfilled.

Where possible remove drainage channels (from water points), foundations and holes made when removing any structure. If these depressions are deep they can first be filled with fine rubble and then covered with soil and sand. Level and grade the site as much as is sensible, taking care to remove as much rubble and debris as possible.

Waste management structures

The volume of items to be burnt is significant, and the burning pits should be designed consequently. If necessary a new one has to be dug for the decommission process.

Items that cannot be burnt should be safely disposed to the approved landfill, and clear demarcation should be made to dispose those items. Prior to the disposal, all items have to be decontaminated.

If there is no appropriate landfill, some items can be buried on site. This has to be discussed with the land owner. Safety measures have to be taken into account to avoid contamination of environment (i.e. water sources)

If a burning pit is used, it should be closed with cement when all procedures are concluded

Incinerator drums should be emptied into the waste pit, and then sterilized by igniting a fuel such as kerosene and allowed to burn for 10-15 minutes until the steel is too hot to touch at the point furthest from the flame. The incinerator drums can then be transferred to other sites and re-used.

Sharps pits and organic pits: Back fill and compact before encapsulating with concrete slurry to permanently close

Ash pits: there would be limited “risk” from ash therefore back fill the pit with soil and compact. It may be prudent to mark off this area for future reference

Shelter, Fences

Depending on the composition and status of the material, the shelter and fences will be:

1- Burnt if damaged and/or made of porous/ absorbable material (plastic sheeting, timber…)

2- Decontaminate and dismantle if intact and made of porous/ absorbable material (rubble…)

3- Decontaminated, rehabilitated and painted if a permanent structure (bricks walls)

Surfaces as walls, plastic sheeting, slabs should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution.

Ensure that there is sufficient space to clean and dry large superficies as tents, rubble.

If dismantling and repurposing, proper storage (wood box) have to be provided, and a checklist to certify that the kits are complete.

Chain link fences have to be disposed safely.

Floor, concrete slabs

Depending of the composition and status of the material, the floor will be:

1- Burnt if damaged and/or made of porous/ absorbable material (plastic sheeting, timber…)

2- Decontaminated, destroyed if a temporary structure (concrete slabs…)

3- Decontaminated, rehabilitated and painted if a permanent structure (concrete slabs…)

Surfaces as concrete slabs, plastic sheeting, slabs should be cleaned with water and a detergent and then disinfected using a 0.5% chlorine solution.

Final steps to reopen or repurpose the facility

It is important to mark decommissioned sites with durable signs.

In the event that underground masonry structures are buried in place, it is recommended that agencies provide a site plan to the landowner to avoid the installation of water points on or near the areas where toilet pits were decommissioned in place.

Once the cleaning and disinfection has been completed, the District IPC Coordinator will validate that surfaces have been properly cleaned and disinfected using a specific checklist.

The facility should be inspected by the administrator/ DHMT coordinator or appropriate district official who will assume responsibility for the repurposed structure (e.g., district education authority if repurposed as a school, to determine if any additional repairs or painting of structures are required prior to use)

Once the cleaning, disinfection and any other necessary repairs have been completed the facility may be operated as a non-Ebola facility e.g. school; general hospital, etc.

Appendix 4 contains a summary list of items and recommendations.

References

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8. WHO, 2002. Environmental health in emergencies and disasters. World Health Organization, Geneva. Retrieved from: http://www.who.int/water_sanitation_health/emergencies/emergencies2002/en/

9. Decommissioning considerations: IPC and WASH WHO Technical briefing, February 2015 Input from individuals at UNICEF, CDC, WHO Guidelines for Drinking-water Quality Experts

10. MoWR, 2015, Protection of water resources from wastes at and around Ebola care facilities

11. IRC, 2015, Technical Brief: Decommissioning the IRCs Ebola facilities (ETUs, Holding units, Community Control Centers/Units)

APPENDIX 1: PERSONAL PROTECTIVE EQUIPMENT

FULL PPE:

- Double gloves (non-sterile examination gloves and heavy duty gloves)
- A disposable gown or coverall made of fabric that is tested for resistance to penetration by blood or body fluids or to blood-borne pathogens to cover clothing and exposed skin.
- A disposable, waterproof apron worn over the gown or coverall. If disposable aprons are not available, heavy duty, reusable waterproof aprons can be used if appropriate cleaning and disinfection between patients is performed.
- A fluid-resistant medical/surgical mask with a structured design that does not collapse against the mouth (e.g. duckbill, cup shape).
- Eye protection (either goggles or face shield) in order to have the mucous membranes of their eyes, mouth and nose completely covered by PPE and prevent virus exposure.
- Waterproof boots (e.g. rubber/ gum boots). If boots are not available, health workers must wear closed shoes (slip-ons without shoelaces and fully covering the dorsum of the foot and ankles) and overshoes.

LIGHT PPE:

- Double gloves (non-sterile examination gloves and heavy duty gloves)
- A fluid-resistant medical/surgical mask with a structured design that does not collapse against the mouth (e.g. duckbill, cup shape).
- Eye protection (either goggles or face shield) in order to have the mucous membranes of their eyes, mouth and nose completely covered by PPE and prevent virus exposure.
- Waterproof boots (e.g. rubber/ gum boots). If boots are not available, health workers must wear closed shoes (slip-ons without shoelaces and fully covering the dorsum of the foot and ankles) and overshoes.

APPENDIX 2: MESSAGES FOR THE COMMUNITIES

Community Engagement Plan on decommissioning

1 Decommissioning of Ebola care facilities – Introduction

Ebola Community Care Centers (CCCs)/ETUs are facilities that provide Ebola triage, testing, isolation and care services. As of January 2015, Ebola transmission has been declining resulting in reductions in facility visits and bed occupancy. The primary reason for decommissioning these CCCs as they are set up either on school grounds or in proximity of the schools or are close to the ETUs. With the re-opening of the schools, in March 2015, it is imperative that the CCCs or ETUs near/on the school grounds should be set for closure. This document outlines the process of the community engagement plans with key messages on decommissioning.

2 Community Engagement approach, guiding principles and key messages

The community engagement process for decommissioning will be rolled out in three phases :

a) Phase I: **prior** to decommissioning. (One week)

b) Phase II: **during** the decontamination. (Two weeks)

c) Phase III: **post** decontamination. (One week)

Guiding Principles

1. To ensure that all the key stakeholders and the wider community are aware of decommissioning, understand why it is necessary and what benefits it will deliver.

2. To remind that it was a community participatory activity right from the establishment of the CCCs towards the successful utilization of the CCCs and the ETUs are still there to take care of patients.

3. To manage expectations among the community stakeholders and the wider community.

4. To sustain the rapport and maintain the trust with the community.

5. To thank the community for the support they provided in the establishment of the CCCs and now decommissioning.

6. To provide timely and accurate information to the key community stakeholders about the steps to be taken during decommissioning process.

7. To ensure that stakeholders have the opportunity to input to and feedback on the decommissioning process, and increase the sense of the community ownership.

Stakeholder group	Strategic Interventions
Influencers	
DHMT/Local councillors/DEOs/school management committees	▪ District level strategic meetings
Paramount Chiefs/traditional leaders/religious leaders	▪ District level meetings. Chiefdom, Ward level meetings, community dialogues
Implementing partners	▪ Orientation to IPs and SMs on decommissioning
Neighbourhood watch groups	▪ Orientation through IPs and SMs
Youth and women networks Survivor Groups	▪ Orientation through IPs and SMs, C4D Specialists
Health workers/Social Mobilisers/CHWs/Contact Tracers	▪ Orientation through IPs and SMs, C4D specialists
Village Health Committees	▪ Orientation through the IPs and SMs
Directly Impacted	
Wider Community	▪ Community based meetings, House to house visits, community dialogues etc

3 Key Messages for the 3 Phases of decommissioning

	PRIOR	DURING	POST
WASH	1. Information on cleaning and disinfecting of the facility 2. Toilet facilities in the facility will be demolished. 3.Ground will be restored 4.The space will be decontaminated and sprayed with Chlorine	1. Repeat messages from Phase I 2. Chlorination is a safe process. 3. The entire space around the facility will be disinfected. 4. Strengthening with BTS (Back to School)	1. Repeat messages on safety of decontamination. 2. CCC/ETU ground safe and available for the community. 3. Children can safely play in the grounds, where the

	4. Water supply will be used for schools. 5. Toilets in the school facilities will be restored 6. Ensuring the faith and trust of the community members	messages, children get their playgrounds back, resume education.	facility was established. 4. WASH facilities fully functional.
HEALTH CARE	1. CCC/ECCs/ETUs will be closing down, due to school reopening, but does not mean that Ebola is gone. 2. Make sure to call 117, in case, if you have signs and symptoms 3. Refer to the PHUs/ETUs medical care is available. 4. Rebuilding trust in the health care system.	1. Repeat messages from Phase I. 2. Increase visibility of the PHUs	1. PHUs, ETUs, local govt hospitals available for health care.
SUPPLIES	1. Supplies are NOW owned by the DHMT 2. Decision made by DHMT on supplies. 3. Only drugs come back to UNICEF. 4. Some supplies from high risk zones of the facilities will be destroyed or disinfected.	1. Supplies are NOW owned by the DHMT. 2. Decision made by DHMT on supplies. 3. Only drugs come back to UNICEF. Some supplies from high risk zones of the facility will be destroyed or disinfected.	1. Supplies are NOW owned by the DHMT. 2. Decision made by DHMT on supplies. 3. Only drugs come back to UNICEF. Some supplies from high risk zones of the facility will be destroyed or disinfected.
EDUCATION	1.Reinforcing Back to School messages 2.Importance of resuming education 3. Creating trust and re-building faith in parents in	1.Reinforcing Back to School messages 2.Importance of resuming education 3. Creating trust and re-building faith in parents in	1.Reinforcing Back to School messages 2.Importance of resuming education 3. Creating trust and re-building faith in

	allowing children to go back to school. 4. Ebola is not gone yet, keep a watch on signs and symptoms. 5. Alert 117	allowing children to go back to school. 4. Ebola is not gone yet, keep a watch on signs and symptoms. 5. Alert 117	parents in allowing children to go back to school. 4. Ebola is not gone yet, keep a watch on signs and symptoms. 5. Alert 117

FREQUENTLY ASKED QUESTIONS

These questions have been designed keeping in mind the queries the communities may have while decommissioning or are asking our social mobilisers and C4D specialists at the districts during the community engagement. This is not an exhaustive list of questions

Q1. I have heard in today's meetings that CCC will be closed. Is that true?

Yes, It is true that the CCC/ECC/ETU XXX near the school will be closed.

Q2. Why are the CCCs being closed down?

Not all CCCs are being closed down. Only the CCCs near to or on the school grounds are being closed, to help children come back to schools and some closer to the ETUs, because now the ETUs have enough beds to accommodate patients.

Q3. Will it be safe to send children to schools where the CCC were?

Yes, it will be completely safe to send children to schools. The premises where the CCCs were built will be thoroughly cleaned and sprayed. You will not have to worry about sending your children to schools.

Q4. Will my child get Ebola, by attending the school closer to CCCs?

No, your child will not get Ebola by attending the school where the CCC was. We are following a very detailed process to clean up the space for your children to come back to schools. Also as a reminder, classrooms were not used for treating patients.

Q5. We were getting free treatment at the CCCs. Where do we go now?

The CCCs were set-up for ebola care. CCCs were ONLY giving malaria or fever tablets for people who had fever. For all other illnesses you were already going to the local govt. hospital or the PHU. Please continue to seek health care services at these facilities. CCCs were only used for Ebola treatment.

Q6. We don't want the CCCs to be closed? What can you do about that?

It is important for you to know that it is the decision of the government to close the CCCs near the schools so that children can go back to schools safely and immediately. All CCCs will be closing down as Ebola is reducing in the country and we now have ETUs with a larger bed capacity that can take care of the patients.

Q7. Who's property is the CCC? Does it belong to UNICEF?

As you may know, during the establishment of the CCCs it was decided that CCCs would belong to the communities and the district health team.

UNICEF has only financially supported the building of the CCCs and the maintenance up to this stage.

Q8. What happens to the supplies in the CCCs? Are they infected?

The supplies in the CCCs will go back to the DHMT. The supplies from the high risk (red zones) will either be burnt or destroyed. The other materials will be carefully disinfected.

Q9. What happens if Ebola comes back into the community?

If ever, there is an Ebola case in your community, please immediately call 117 and always

APPENDIX 3: DECOMMISSIONING/CLOSING LATRINES

Preparation:

- Don't wait for the pit to be full before decommissioning the latrine, ensuring a safety depth of 3 feet between sludge and surface. Otherwise sludge will overflow during the backfilling
- Workers need to be provided with PPE (Personal Protection Equipment) light in the green zone and full PPE in the red zone
- Facilities should be made available for daily washing and disinfection of their clothes.
- Make sure that after cleaning the workers will take a shower and wash themselves with bathing soap
- Teams should be equipped with 1 shovel and 1 pick axes per person, a large sledgehammer to break concrete, and a long safety rope per team (in case somebody falls in the pit)
- Ensure nobody is near the site during the operation

Decommissioning latrine:

- Dig drainage channel / soakage trench around the pit, to prevent overflowing liquids to spread in a large area when backfilling.
- Break (smash) the top slab cover and possible above ground masonry structure. Allow debris to fall into the pit.
- Spread 1.5 kg of hydrogenated lime in the pit over the excreta. Chlorine should not be used, as it would prevent/slow down waste decomposition process.
- Back fill the pit with soil, and, if available, construction rubble. Addition of wood chips or other organic matter is also very useful as it provides carbon (digestible energy source for bacteria) and air pockets which will further encourage the breakdown of the material and elimination of pathogen
- Backfill slowly, to limit overflowing, and allow displaced fluid to drain into the surrounding trenches.
- Hip soil over the hole to a height of approximately 2 ft.
- Backfill the trenches used for absorption of overflowing liquids.
- Clearly marked the site using fences, whitewashed stones or other type of available durable signs.
- When possible quick-growing and water absorbent trees (banana tree) and plant can be planted on the site.

Decommissioning or Reusing Pan & pipes and other material

- If not planned for reuse, the material should be broken down, and burnt.
- If planned for re-use, remove the pan and wash it with water and 0.5% chlorine solution using a hard broom/brush.
- After washing and rinsing, place the slab in a chlorine bath for a minimum of 30 minutes.
- Sun dry the slab for a day
- The materials can be stored in the warehouse for future use

APPENDIX 4: LIST OF ITEMS AND RECOMMENDATIONS

Item	Recommendation
Used scrubs, boots, rubber gloves, heavy aprons etc.	Follow standard laundry SoP then donate to MoH if not worn or damaged – if damaged incinerate and or landfill
Cup, plastic plate	Decontaminate according to the SOP, dry in the sun – can be reused
Telephone	Decontaminate according to the SOP and incinerate
Ventilators	Decontaminate according to the SOP, disposed or buried
Washing machines and driers	Decontaminate all outer surfaces, run the machines empty at the hottest cycle twice then donate
All wooden shelves and items including footbaths in Low & High risk zones	Decontaminate according to the SOP, dry in the sun then incinerate
Office furniture in Low risk zone	Decontaminate according to the SOP and leave in the sun to dry. They can reuse if not damage (intact) and not in an absorbable material
Chain link fence materials in both zones Plastic fencing (cyclone fence)	Decontaminate according to the SOP and landfill – especially the chain link fence from the high risk zone Decontaminate then incinerate
All cleaning materials (mops, buckets, brushes etc)	Soak for 30mins to disinfect then incinerate and or landfill
Tents (wards)	Decontaminate according to the SOP inside and outside They can reuse if not damage (intact) and not in an absorbable material
Bedframes, stretchers etc.	Decontaminate according to the SOP and leave in the sun to dry. Donate if in good repair. If in poor repair then landfill.
Mattresses	Decontaminate according to SOP and incinerate
Medical equipment	Some may be damaged/destroyed by soaking in chlorine so once disinfected then landfill
Hand washing facilities in Low and High risk zones	Decontaminate according to SOP, leave to dry in the sun. Re-use if in good repair
Concrete surfaces of showers, latrines, tents bases, tap stands etc.	Decontaminate according to SOP, leave to dry in the sun. Mechanically break up the concrete then re-spray again with 0.5% Chlorine solution and leave until completely dry. Excavate the rubble to landfill. PLEASE NOTE THAT THIS SHOULD BE ONE OF THE LAST ACTIVITIES SO THAT THE EXCAVATER CAN ENTER THE HIGH RISK ZONE WITHOUT RISK.
Toilet, shower and all wood super structures in both zones	Decontaminate inside and out, leave to dry and with full PPE suit for high risk areas If superstructure of latrine/toilet is temporary sheeting of little value, safely dispose and incinerate. If superstructure of latrine/toilet is material that can be reused and of value, clean and disinfect in same manner as treatment facility
Tap stands for various chlorine solutions.	Decontaminate and leave it to dry before inspecting for any damage. If damaged or has heavy wear and tear remove to the landfill. If still in working order they can be reused
Sprayer units	Decontaminate with 0.5% Solution and leave to dry for 2hrs. Fully dismantle the unit and check for disrepair – especially the nozzles and levers. If in good repair re-use, if not landfill
Infiltration trenches in High risk zones	Decontaminate with thick layer of hydrogenated Lime, backfill with soil, compact and level surfaces.
Low risk and high risk incinerators	Decontaminate the external surfaces according to the decontamination SOP and

Sharps pits	If the pit is less than ¾ full back fill and compact before encapsulating with concrete slurry to permanently close
Ash pits	There would be limited “risk” from ash therefore back fill the pit with soil and compact. It may be prudent to mark off this area for future reference
Organic pits	If the pit is less than ¾ full then back fill and compact before encapsulating with concrete slurry to permanently close.