

A Guide for the Establishment & Supervision of Ebola Holding Units

King's Sierra Leone Partnership

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Some of the materials in this guide are drawn from public documents developed by other organisations. We similarly encourage other organisations to adopt the materials we have presented in this guide, but request that the source be acknowledged if they are presented in another format.

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1. Preface

This guide is intended to describe and support the supervisory role that partners (**Supervising Partners**) may undertake in the establishment and supervision of Ebola Holding Units.

During the course of this Ebola outbreak, there have been many different names used to describe Ebola units, including 'Holding Units', 'Isolation Units', 'Care Units' and 'Care Centres'. For the purposes of this document we use the phrase **Ebola Holding Unit** to mean a site which:

- isolates patients who are screened or otherwise identified as suspected cases of Ebola Virus Disease (**EVD**)
- provides initial clinical care for suspected EVD patients
- undertakes laboratory testing to confirm the status of suspected EVD cases
- refers positive EVD patients to an Ebola Treatment Centre as soon as is possible
- can safely store corpses of suspected or positive EVD patients pending collection by a burial team
- is ideally co-located with other general health services

The guidance is based on King's' experience of setting up and supervising holding units in the Western Area of Sierra Leone, in collaboration with the Ministry of Health & Sanitation (**MoHS**), since May 2014. It also draws on guidance and documentation from other key organisations such as the World Health Organization (**WHO**), Médecins Sans Frontières (**MSF**), the US Centres for Disease Control & Surveillance (**CDC**) and shared experiences with partners such as the Republic of Sierra Leone Armed Forces (**RSLAF**) and GOAL.

Whilst this guidance is modelled on our approach in the Western Area, we hope that organisations involved in similar activities in other districts may find this information useful in planning their outbreak response. There may however be significant differences in what is possible between urban and rural settings.

2. Introduction

The size and extent of the Ebola outbreak in Sierra Leone has required new responses to deliver care and safe isolation for Ebola patients.

This model has evolved from the recognition that general health facilities need to be able to screen patients and safely isolate suspected EVD cases in an Ebola Holding Unit in order to protect health workers and maintain health services. These units can play a critical role in the Ebola response by safely isolating patients away from the community and by initiating early medical treatment, thereby reducing transmission and mortality.

There is evident need to rapidly and massively scale up isolation bed capacity to help contain the outbreak, but too often the concepts of bed capacity and of absolute bed numbers have been conflated. For Ebola Holding Units, bed capacity should be considered as the number of new admissions that can be seen per week, which is far more important than the number of beds in a unit. If an Ebola Holding Unit can increase its throughput (i.e. reduce the time it takes to get a lab result for patients and to discharge or refer them, freeing up their bed for a new patient) then it can see more patients with the same number of physical beds and staff. Increasing the throughput can therefore be a far quicker, less resource-intensive and more effective way of increasing bed capacity than building additional Ebola Holding Units. Good monitoring of data and constant troubleshooting are critical for this to be achieved.

Existing health facilities can safely and effectively manage Ebola Holding Units provided support is given for training, construction and supervision. Ebola Holding Units have many strengths: pre-existing human resources and staffing structure, local leadership, functional supply chains, and engagement from the local community. This approach is not only quick and inexpensive but also sustainable; focusing on training local staff and improving healthcare infrastructure in the local community may lead to longer-term gains for basic healthcare delivery and preparedness for future outbreaks.

3. The Ebola Holding Unit Model – An Overview

Key processes for setting up and running an Ebola Holding Unit include:

- Construction
- Training
- Staffing
- Facility maintenance
- Payment of risk allowance
- Provision of medical supplies and PPE
- Provision of non-medical supplies (sheets, generator fuel etc.)
- Supervision and inspection (providing technical advice and assessing safety and clinical care)

3.1 Layout



Fig 1.1 example layout of a simple unit (one room or tent)

Ebola Holding Units normally have a 5-15 bed capacity and are ideally built within or adjacent to health facilities (such as a hospital or community health centre). They may be established within existing buildings or as tents. Key components include:

- screening area
- PPE dressing area for staff
- patient areas (ideally divided into 'wet' and 'dry' areas for high and low risk patients)
- decontamination area for staff
- incinerator and waste pit
- body storage area
- stores for general supplies and drugs
- office
-

3.2 Minimum staffing requirements

A typical 10 bed Ebola Holding Unit would need a minimum of the following staff:

- 1 doctor or community health officer (**CHO**) or senior nurse
- 9 care-giving staff (nurses or CHOs)
- 2 lab technicians
- 2 district surveillance officers
- 11 cleaning and security staff

3.3 Patient flow

In urban areas the target is for patients to only be admitted to the Ebola Holding Unit for 24 hours before being discharged or referred:

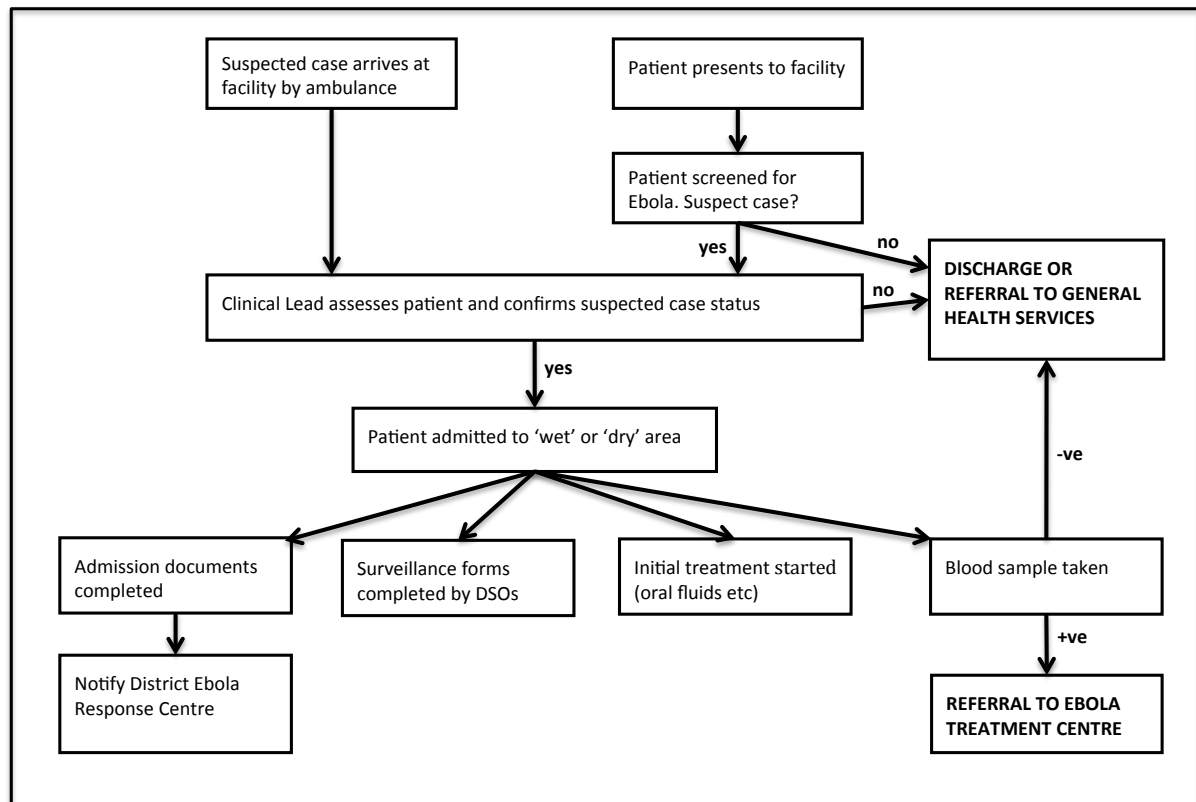


Fig 1.2 simplified patient flow through a unit

Figure 1.3 details the flow of care throughout the whole patient journey, detailing where responsibility for each stage lies.

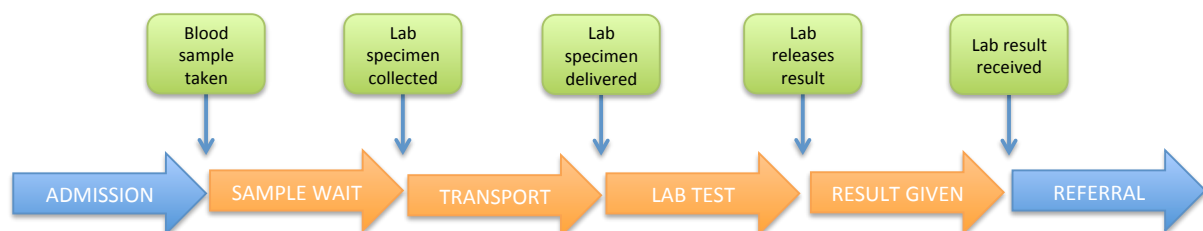


Fig 1.3 overall patient journey

There are a variety of metrics that can be used to assess patient flow through an Ebola Holding Unit. These can be routinely collected at each site and extracted in real time from a simple spreadsheet. These can also be used in aggregate to assess systems functioning across an outbreak. Appendix 7 details the requisite flow into an Ebola Holding Unit, testing, and the onwards referral process, alongside potential delays. The

metrics are shown, with the tabulation needed for calculation. If a persistent delay is noted in laboratory results being received, then analysing several further metrics will identify the specific bottleneck. These can be looked at separately once a problem is identified.

3.4 Ebola Holding Units within a wider framework

Ebola Holding Units do not function in isolation but require direct contact and support from others:

- **District Ebola Response Centre:** to arrange for ambulances to bring suspected EVD cases from the local community, arrange lab sample collection and results dissemination, identify treatment beds for positive EVD cases to be referred to and organise ambulances to transport them there
- **Surveillance teams:** to identify new suspected EVD cases in the community and complete surveillance forms for suspected EVD cases that present directly to the facility
- **Burial teams:** to safely collect and remove corpses
- **Central Medical Stores:** to provide regular supplies of medicines and personal protective equipment
- **General health services:** to accept non-EVD patients who require further medical care
- **Case tracking:** using the correct paperwork and case tracking mechanisms such as unique IDs is essential to track patient flow, troubleshoot issues, track individual outcomes, and provide feedback to communities

4. Partnership and Supervision

4.1 Working in partnership

Existing health facilities already have many of the core requirements for an Ebola Holding Unit, including:

- leadership
- clinical and non-clinical staff
- facilities
- engagement with the local community
- links with the District Health Management Team

However they often need two types of additional external support in order to establish and safely manage an Ebola Holding Unit:

- specialist clinical and infection control advice, training and supervision
- assistance with construction, equipment and provision of non-medical supplies

In order for this partnership to work, it is essential that there is a clear agreement between the Supervising Partner and the MoHS on roles and red lines (from both sides), which for the Supervising Partner, might include agreement from the MoHS to:

- follow the Supervising Partner's timeline for bringing bed capacity online
- never exceed the maximum bed capacity of the Ebola Holding Unit
- ensure timely payment of risk allowance for local staff
- ensure timely delivery of medical supplies and personal protective equipment
- not redeploy Ebola Holding Unit staff to other facilities without discussion and agreement
- mutually agree and approve any construction work prior to commencement
- mutually agree and approve future construction or layout changes or increases in the bed capacity

4.2 Staged process for opening a new Ebola Holding Unit

The process of opening an Ebola Holding Unit can be divided into three distinct stages:

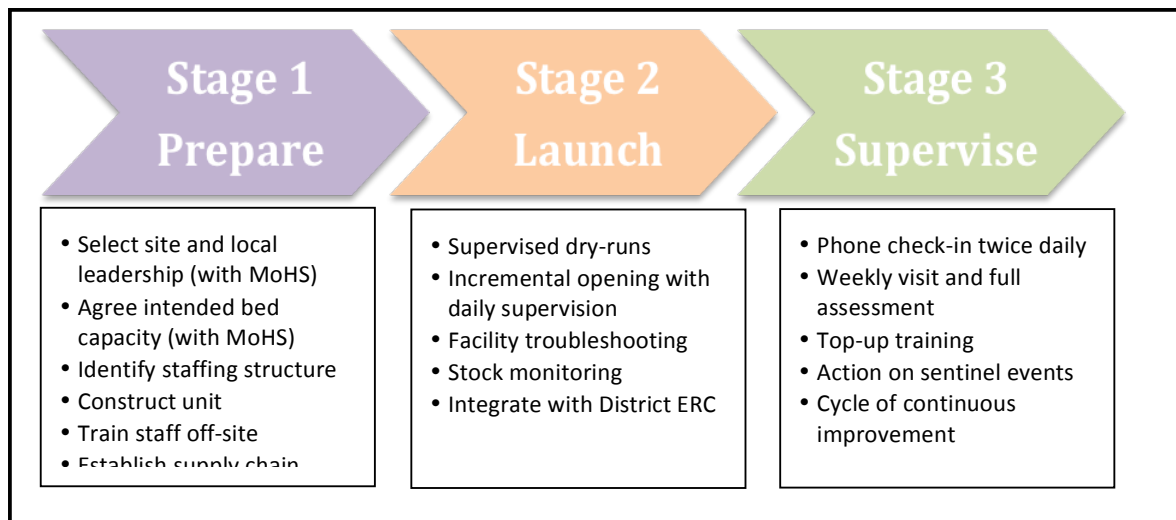


Fig 1.4 the three-stage supervision model

Supervision across the three stages allows for a more integrated approach – ensuring that training is matched to the specific layout of the facility, that staffing levels are site-specific and that Stage 3 supervision builds on (and does not contradict) Stage 1 training.

Stage 1 construction is a particularly visible and tangible investment that helps strengthen the bond between the local staff, the local community and the Supervising Partner. Ideally the Supervising Partner should oversee all three stages, although it may be feasible for partners to supervise Stage 2 or 3 delivery if working in pre-constructed facilities.

4.3 Local leadership and staffing

It is critical that a Supervising Partner provides on-going mentoring and supervision to Ebola Holding Units after they have opened. EVD is an extremely challenging disease to manage and Ebola Holding Units can very quickly collapse from this pressure, due to factors such as:

- lowering of infection control standards leading to staff infections
- bottlenecks in support leading to shortages of critical supplies or delayed payment in risk allowance
- excessive patient numbers leading to units being overwhelmed and abandoned
- degradation or poor maintenance of facilities leading to insecure or unsafe premises
- poor communication with patients' relatives or the local community leading to hostile relationships
- delays in lab results leading to prolonged stays and patient frustration

Staff confidence can collapse quickly and can be difficult to restore. If the Supervising Partner is able to establish and maintain good relationships with key staff and closely monitor the Ebola Holding Units they support, these challenges can usually be identified early and resolved before the crisis point is reached.

The single most critical factor in determining the success of an Ebola Holding Unit is local leadership. It can be challenging to engage senior health workers (e.g. medical superintendents, doctors and matrons) in providing direct clinical care to EVD patients or to enter inside of Ebola Holding Units, due to the perceived risks that are associated. These senior staff still have a key role however, such as:

- giving approval for an Ebola Holding Unit to be established in their premises
- identifying staff willing to work inside the unit, including a Unit Coordinator/Clinical Lead (see sections 5.2 and 5.3), and giving them encouragement and support
- maintaining good relationships with the local community
- resolving administrative or political bottlenecks, such as delays in payment of risk allowance or delivery of medical supplies

In addition to supportive senior leadership, it is essential to have a Unit Co-ordinator who will take ownership of the management and coordination of the Ebola Holding Unit (see sections 5.2 and 5.3 for a more detailed breakdown of roles and responsibilities). Community health officers can be very effective in this role as they are experienced with independent clinical management of patients and with leading teams. These staff members provide a single point of coordination and contact for all aspects of the Ebola Holding Unit and are priorities for mentoring and support.

The remainder of the clinical staff (i.e. nurses) may be drawn from the health facility, from other facilities, or from elsewhere, such as private hospitals (many of which are closed) or student nurses. Cleaners and porters can usually be easily found from the local community, due to the high youth unemployment rate.

4.3.1 PAYMENT AND RISK ALLOWANCE

Only MoHS staff are guaranteed a base salary but all staff will be eligible for a risk allowance, currently set at Le400,000 per week, which is highly prized. It can however be challenging to ensure that this allowance is only received by staff that work within the unit, or to reprimand or discipline staff who demonstrate poor attendance, performance or safety.

King's currently offers an additional performance-based bonus (accompanied by a written report) of Le150,000 per week to local staff working at the Ebola Holding Unit at Connaught Hospital, which has proved to be an effective tool for providing feedback and incentivising good performance. However at other Ebola Holding Units this has not been attempted, and good mentorship and encouragement has been sufficient to motivate local staff.

4.3.2 ROLE MODELLING AND STIGMA

Key aspects of successful supervision include an understanding of the non-contractual relationship between Supervising Partner and staff and of the fear of infection and stigma that all health care workers experience.

One challenge experienced by King's when working with local staff has been evident stigma experienced by those working inside the Ebola Holding Unit from relatives and colleagues. There have been reports of workers having been shunned by other health workers or expelled from their houses by their families. It is important to discuss this possibility with staff in the early stages of training and discuss contingency plans in the event that they face difficulties.

Local staff, especially junior staff, respond very well to active role modeling and leading by example. For this to be achieved, supervising staff must be willing to enter inside the unit and perform clinical and non-clinical duties. Supervising staff may have to perform many duties during Stage 2, to demonstrate correct procedure to local staff and also to build confidence in the safety of the procedure.

4.4 Supervision team roles and responsibilities

The supervision team should consist of 2-4 people. It is possible to merge roles depending on the skill set of the team. This team should have the capacity to manage multiple units during the Stage 3 supervision process, although it may only be able to provide Stage 1 and 2 support to one site at a time.

4.4.1 CLINICAL SUPERVISOR

- ensures delivery and continuity of staff training
- takes overall responsibility for supervising clinical care at the unit
- takes overall responsibility for supervising staff and patient safety at the unit
- liaises with National Emergency Response Centre (**NERC**) and District Emergency Response Centre on current and future bed capacity of units
- ensures clinical protocols are updated and followed
- provides clinical advice on special cases and populations
- ensures patients that test negative are referred to appropriate care
- ensures that data in units and is collected and analysed effectively
- ensures appropriate community engagement and support
- must be able to enter the Ebola Holding Unit patient areas

4.4.2 FACILITY CONSTRUCTION AND WASH SUPERVISOR

- conducts site assessments for new units
- plans layout of new units in conjunction with the Clinical Supervisor, local staff and construction crew
- ensures construction is completed according to agreed plan
- provides advice and assistance in dealing with any on-going facility-related issues
- provides continual monitoring and assessment of safe waste disposal at unit
- ensures that the facility conforms to safety and care standards
- must be able to enter Ebola Holding Unit patient areas

4.4.3 SUPPLIES SUPERVISOR

- oversees and coordinates the initial set up of supply chain for the unit
- identifies local staff to take responsibility for supply chain
- ensures stock and supplies are ready for Stage 2
- provides ongoing training and supervision of local staff on stock and supply chain
- provides ongoing estimation of supply usage for Stages 2 and 3 to ensure smooth delivery of supplies
- liaises with other NGOs about supply issues
- updates stock lists as clinical care protocols change

5. Establishing an Ebola Holding Unit: Stage 1 – Prepare

5.1 Site selection

Initial site selection requirements:

- open space for Ebola Holding Unit structure or pre-existing buildings which can be adapted
- easy demarcation between Ebola and non-Ebola healthcare services
- perimeter wall (ideal but not essential)
- area for incinerator or waste disposal
- area for screening
- adequate water supply
- grid energy service or ability to install generators
- community acceptance
- local clinical staff and availability of non-clinical workforce
- road access

5.2 Identifying leadership

The choice to use existing healthcare facilities allows Supervising Partners to tap in to existing human resource networks and staffing structures. A balance must be found between respecting and utilising the existing hierarchy and chain of command and identifying proactive local leaders who are willing to work in an Ebola Holding Unit.

As mentioned in section 4.3, a key step during Stage 1 is to identify the main local leader(s) who will act as Unit Coordinator and Clinical Lead and implement the day-to-day running of the facility (see 5.3 below). Both roles can be undertaken by one person if required.

5.3 Staffing requirements and structure

The manning of an Ebola Holding Unit will differ based on its size and should take into account the number of beds/patients being managed. We suggest that staff are recruited and sourced by the Unit Co-ordinator, ideally from within the health facility, and then assessed for suitability for roles by the Supervising Partner, which is faster and avoids tensions within the workforce.

The following structure is based on a 4-shift system. This can be scaled up or down based on unit size.

5.3.1 SHIFT PATTERNS

A	08:00-14:00
B	14:00-20:00
C	20:00-08:00
D	08:00-18:00

5.3.2 MANNING

a. **Unit Coordinator (Shift D)**

Figure of authority within the existing clinic who is willing to take over running of the unit full-time. Previous experience running health care facilities is highly desirable, this could be a CHO or Matron.

b. **Unit Clinical Lead (Shift D)**

Background in clinical medicine required (preferably a nurse or CHO). Must be willing to enter patent areas inside of the Ebola Holding Unit regularly. Can be the same as the Unit Coordinator.

c. **9 care giving staff (Shifts A, B & C)**

Preferably from a nursing background. Must be capable of following simple protocols and understand basic infection control. Must be able to administer IM and PO medication. This allows for a shift pattern of 3 early, 3 late, 2 night, aiming for 1 day off per week per staff member.

d. **3 cleaners per shift (Shifts A, B & C)**

e. **>2 Security (Shifts A, B & C)**

The number of local security staff required will be dependent on the area and the unit. There must be at least one security staff member present at all times.

f. **District Surveillance Officer (DSO) (Shift D).**

This individual is key to the accurate registration of patients and reporting to central command structures within the district (where they exist), and must be incorporated in to unit opening plans. If the existing patient registration and command and control structures that exist in the Western Area continue to be utilised across the country, good DSO coverage of new units will be essential.

g. **2 Laboratory staff (Shift D)**

Additional staff will be needed if the unit team is to also run the screening process at the PHU as well. For a small community health centre, one additional nurse on Shift D is suggested. For larger healthcare units one additional nurse and one additional DSO is suggested.

5.4 Set up and construction

Ebola Holding Units will change in lay out from one location to another depending on the infrastructure available.

5.4.1 COMMONLY USED TERMINOLOGY

The terminology often used is 'Green Zone' for the areas where there is no patient contact and no risk to staff of exposure, and 'Red Zone' for the areas inside the Holding Unit where there are patients and infectious waste. The Red Zone encompasses all aspects of waste management including the disposal of infectious material and the storage of bodies. The flow of the unit must ensure that all staff are dressed in full PPE before entry into the Red Zone, and are fully decontaminated on exit. Nothing should leave the Red Zone without full sterilisation. If this is not possible, all material must be destroyed. Patients who test negative should have a shower before exit.

5.4.2 REQUIREMENTS

All facilities should meet the requirements outlined below as a minimum:

- a. The area should be well ventilated to reduce heat and humidity and to allow the evacuation of chlorine gas.
- b. Units should have a simple design to encourage the flow of staff from low to high-risk areas.
- c. A minimum of one clean entrance, one dirty exit and one clean exit is suggested.
- d. Internal doors between Red and Green Zone areas should be secured to prevent the movement of patients and possible contamination of decontamination areas or green zones
- e. Each bed should have separate designated toilet, or individual latrine pot/bucket, to prevent transmission between patients. Because urine and faeces are highly contagious and infectious body fluids, safe disposal of this sewage is essential. Note that existing sewage systems may drain into neighbouring structures, which could risk contaminating them and infecting others in the community.
- f. The Ebola Holding Unit perimeter should be secured from non-EVD patient or visitor incursion and EVD patient excursion. To protect staff, non-EVD patients and health facility visitors, the unit may need to be locked, barricaded, or otherwise secured. The local police or armed forces unit should be contacted to provide round-the-clock security.
- g. The unit should be spacious enough to accommodate clean and dirty PPE changing stations, patient care with separation (see figs. 1.5 and 1.6 below), waste collection and disposal (including liquid and dry waste, burn pits, incinerators, etc.), storage of corpses, laundry, safe water and chlorine solution preparation.
- h. The patient care room within the unit should be spacious enough to separate patients by at least 1.5-2 metres. Screens should be used between patients to maintain privacy, discourage patient

movement, and reduce transmission between patients. Screens should be made of materials that can be easily disinfected (e.g. plastic) and preferably semi transparent to allow light, but also provide an element of privacy.

- i. Suspected EVD cases should be separated from confirmed EVD cases whenever possible.
- j. Efforts should also be made to separate 'wet' patients (those producing bodily fluids, like vomit and faeces) from 'dry' patients (those not producing bodily fluids), although this may not be possible if the unit is normally full.

5.4.3 EXAMPLE LAYOUTS

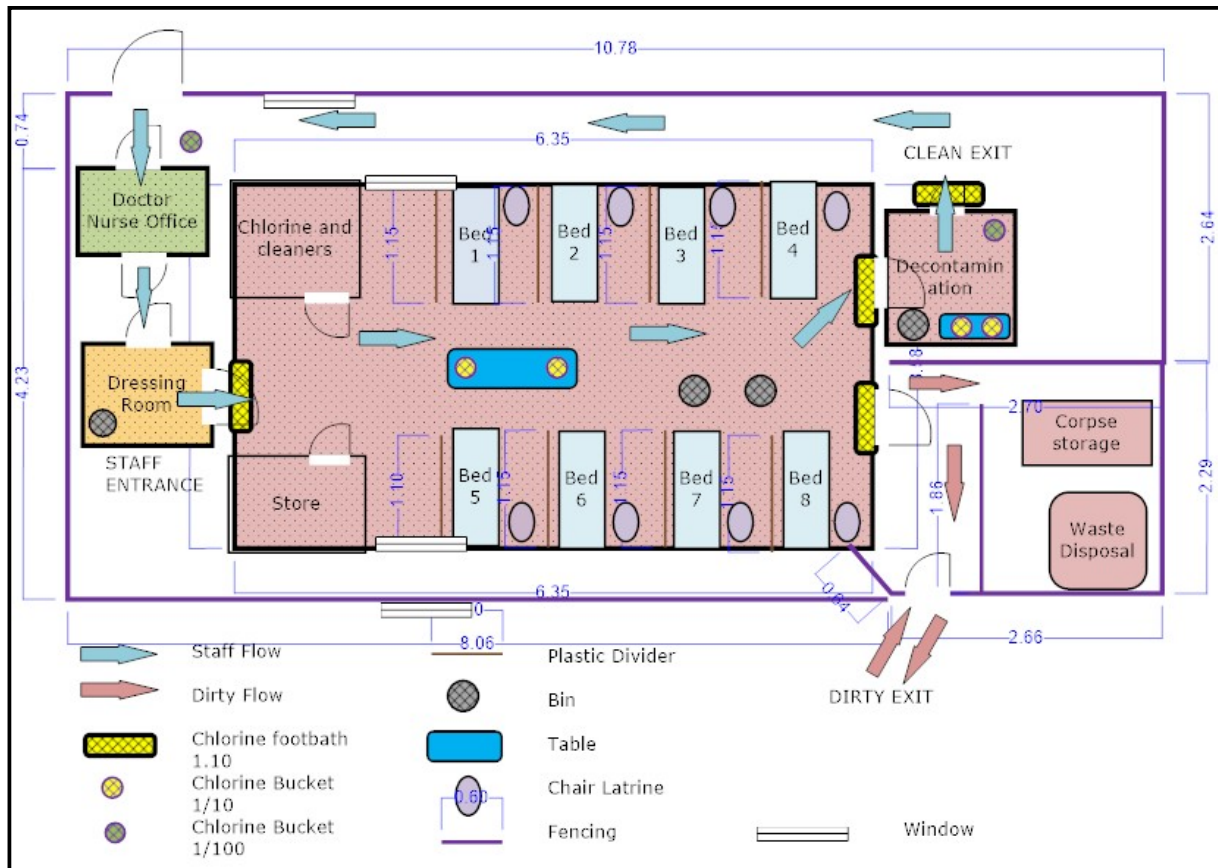


Fig 1.5 example of simple unit: one room or tent version. Beds 5,6,7,8 can be designated for wet patients and movable barriers can be used to help delineate staff flows through the unit. Preferably if space allows there should be two separate rooms (see fig 1.8 below and Appendix 1: case study of Lumley Government Hospital for more in depth description).



Fig 1.6 example of adaptation of existing building, based on the Ebola Holding Unit at Lumley Hospital. Pre-existing rooms such as those labelled in blue should be securely blocked off.

5.4.4 TENT STRUCTURES

Tents may be used for rapid deployment. Several considerations should be taken in to account:

- **Environment:** tents will be subject to direct sunlight throughout the dry season and heavy rainfall during the wet season. The internal temperature can rise to unsafe levels for both patients and staff. As a result it is advised that a sloping roof structure is built above the tent to provide shade and additional cover from rain.
- **Ventilation:** tents must have ventilation flaps, which should be opened during chlorine cleaning of the unit.
- **Doorways:** if possible tents with formal doorway structures rather than foldable cloth entrances are advised, as flaps pose a contamination risk when opening/closing/entering/exiting.
- **Perimeter fence:** if a tent structure is used it is difficult to secure the entrance and exits, so all tent structures should have a perimeter fence built around the tent.
- **Foundations:** tents should be erected on solid foundations suitable for cleaning, ideally concrete with a sufficient grade to drain effluent into a soak away/French drain covered with linoleum.

A rapid, cost effective, safe and pragmatic solution for Ebola Holding Units that cannot adapt existing structures would be a satellite-site constructed with UK Armed Forces Temporary Deployable Accommodation (TDA). These modular units can be transported and erected safely and rapidly in remote and urban areas alike. They are large enough as single modules to accommodate 6-8 patients comfortably, but can be expanded to increase capacity using further modules. These should use existing Rollertrack flooring with linoleum cover available, with additions of an incinerator unit and water tank, plus 2-3 smaller tents for office, dressing and undressing. Simple units can be transported to locations and erected within 24-72 hours dependent on the size of the unit. It can be helpful to erect them close to existing sites so that staffing and infrastructure can be shared.

5.4.5 WASTE DISPOSAL

- Existing incinerators are usually not sufficient to cope with the increase in waste.
- Storage of waste is not appropriate and all waste must be burnt as soon as is practicable.
- Waste disposal should be undertaken by staff fully trained in wearing full PPE.
- The major factors to consider when disposing of waste are both quantity and type.
- Wet and dry waste will both need to be burned.

In order to effectively burn wet waste, both solid fuel (e.g. wood) and liquid accelerant such (e.g. diesel or kerosene) will be needed. The fire will need to be established before adding the wet waste and dry waste, alternating between the two in order to maintain an appropriate temperature to kill all infective pathogens.

Several methods can be used to burn this waste. The most common and easiest to construct is a burns pit. Simple 6 x 6 x 6 foot pits are sufficient for small amounts (e.g. waste from a six bed unit). For larger volumes of waste a more sophisticated burns pit will need to be built that gives more consideration to air supply and ventilation, as well as protection from the elements during the rainy season.

Construction of flues and chimneys may be needed for larger pits. Constructed from corrugated iron and perforated to allow entry of air to the bottom of the pit, these can keep the supply of clean air sufficient to maintain heat and intensity.

In order to maintain safety a barrier will need to be constructed around the top of the pit to avoid accidental falls.

5.4.6 MORTUARY

A mortuary should be set up for storage of corpses. Removal of corpses from the ward should be done as per the procedures outlined in Appendix 4. Rapid removal of corpses is essential to prevent cross infection and ensure dignity and safety is maintained in the clinical area. It also frees up beds for new suspected EVD cases.

A designated room or an outside roofed structure can be used as a mortuary. Corpses should be stored off the ground in body bags. A soak away should be in place if possible to allow for easier cleaning of the area.

5.5 Screening

A thorough screening process is essential both to ensure that all possible cases are isolated, and that any patients that do not meet the case definition are not isolated unnecessarily.

The screening process should ideally take place outside of the point of patient entry to the facility, i.e. the main gate. All patients entering the facility should be screened, using the screening tool (see Appendix 4). Screening should be performed by clinical staff (either a nurse or DSO).

Screening is a non-touch process and should be performed from a distance of at least 1.5m. There should be a simple barrier between screening staff and patients. Screening staff should only enter screening area wearing basic PPE: consisting of gloves, apron and face mask. There should be an appropriate area, with chlorine provision, for screening staff to decontaminate and doff basic PPE when leaving the screening area.

Patients who meet the suspect case definition should be escorted by staff in full PPE into the Ebola Holding Unit. There should be a clearly demarcated pathway or corridor for suspected EVD cases to enter the unit through the dirty entrance/exit. Patients who are deemed to not match the case definition should proceed to access the non-EVD healthcare services.

Monitoring the proportion of suspect cases that test positive and whether EVD cases are ending up inside the general health facility is an important way of assessing whether the screening tool is working effectively. All screening forms should be collected and stored for data collection purposes and assessment of screening efficacy.

5.6 Stocks and supplies

5.6.1 STOCK ROOM

During Stage 1 a suitable room needs to be identified and prepared for use. The room needs to be secure and it must be clear who is in possession of all the keys. The availability of key holders across all shifts needs to be considered and plans put in place to make sure that the unit does not run out of stock when the key holders are absent. If there is doubt about the integrity of key holders it might be necessary to change the locks and distribute keys to designated staff.

The room must also be dry, well ventilated and free of vermin. It may be necessary to clear the room of general hospital supplies before starting to stock supplies for the unit. Pallets can be useful for storing boxes on if the floor is damp. Staff should be encouraged to arrange the supplies in a logical and tidy manner, keeping supplies of like items in the same area such that staff can easily access the full range of items with ease.

Supplies should be grouped according to size (e.g. small sized gloves vs. medium sized gloves etc.). Boxes should be packed so that labels can be seen easily without having to move the boxes. For drugs, expiry dates should be observed and those items with the shortest expiry dates should be placed in at the front of the store so that they will be picked up and used first.

Stock cards are important for recording stock received and stock issued. An example stock card can be seen in Appendix 2. This helps with calculating consumption rates and knowing how much stock to order. The cards should also include a balance column so that the amount remaining can easily be seen without having to manually recount the stock. All staff that will have access to the store room must be instructed in how to record stock received and stock issued. It is good practice to do a weekly inventory check to compare the quantity listed on the stock card with the physical stock. The Supplies Supervisor can discuss any discrepancies with the staff to improve practice.

5.6.2 SUPPLIES

During Stage 1 the following supplies will need to be acquired:

- **Set-up items** (e.g. buckets, footbaths, mops, brooms etc.) – see Appendix 2 for more details
- **Medical supplies** from the Central Medical Stores / District Stores – estimated quantities for a 10-bed unit are shown in Appendix 2. Orders for the Central Medical Stores / District Stores should be put in writing and have to be signed by the most senior member of staff of the health facility. It is recommended that there is a discussion with the existing health care staff about the usual processes for signing orders and their submission to the Central Medical Stores / District Stores (e.g. whether verbal orders would be accepted, lead in times for delivery etc.) and a discussion with the stores about acquisitions, as there are different processes in place for Ebola Holding Units. It is helpful to include desired quantities for each item ordered.
- **Non-medical consumables** – see Appendix 2 for a guide to useful items and quantities.

5.6.3 STORAGE WITHIN THE UNIT

In addition to the store room for bulk supplies, it is important to have the following storage spaces within the unit in order to reduce the interaction between staff inside and outside the unit and reduce the risk of supplies becoming contaminated inside the unit:

- shelving in the dressing room for storage of PPE
- storage cupboard or room within the unit for storage of drugs, drinking water and other consumable items. This could also be an area where injectable drugs are prepared.

These areas should be stocked with enough supplies to last for a 24-hour period. A stock list should be devised to specify the minimum stock level needed for the unit to run at full capacity for 24 hours. At the end of the night shift, or the start of the early shift, one nurse dressed in clean PPE should check the quantity of stock physically present against the stock levels on the stock lists, and identify the amount of stock that needs to be ordered to ensure that the stock inside the unit is topped up to the minimum stock level.

The stock to be ordered should be communicated to staff outside the unit, who note down the order on an order form and arrange for the required items to be obtained from the bulk store room. The use of a baby monitor (with a 2-way talk function) can be helpful to aid communication between those inside and outside the unit. A similar stock list system can be used for the paperwork kept in the office area to ensure that these documents are available at all times.

Example stock lists and order forms can be found in Appendix 2.

6. Establishing an Ebola Holding Unit: Stage 2 – Launch

6.1 Overview

Stage 2 is a key phase, requiring intensive supervision of the unit. Stage 2 starts when the unit construction is completed, set-up supplies are in place and all staff have received the appropriate training. It consists of a phased opening of the unit starting with a dry run, followed by the admission of a small number of suspected EVD cases (suggested 10-20% of overall capacity), with the aim of increasing the capacity by 20% each day until the maximum capacity is reached on day 5. Each unit may have differing time scales for incremental bed increases depending on bed capacity and local demands.

6.2 Timeline

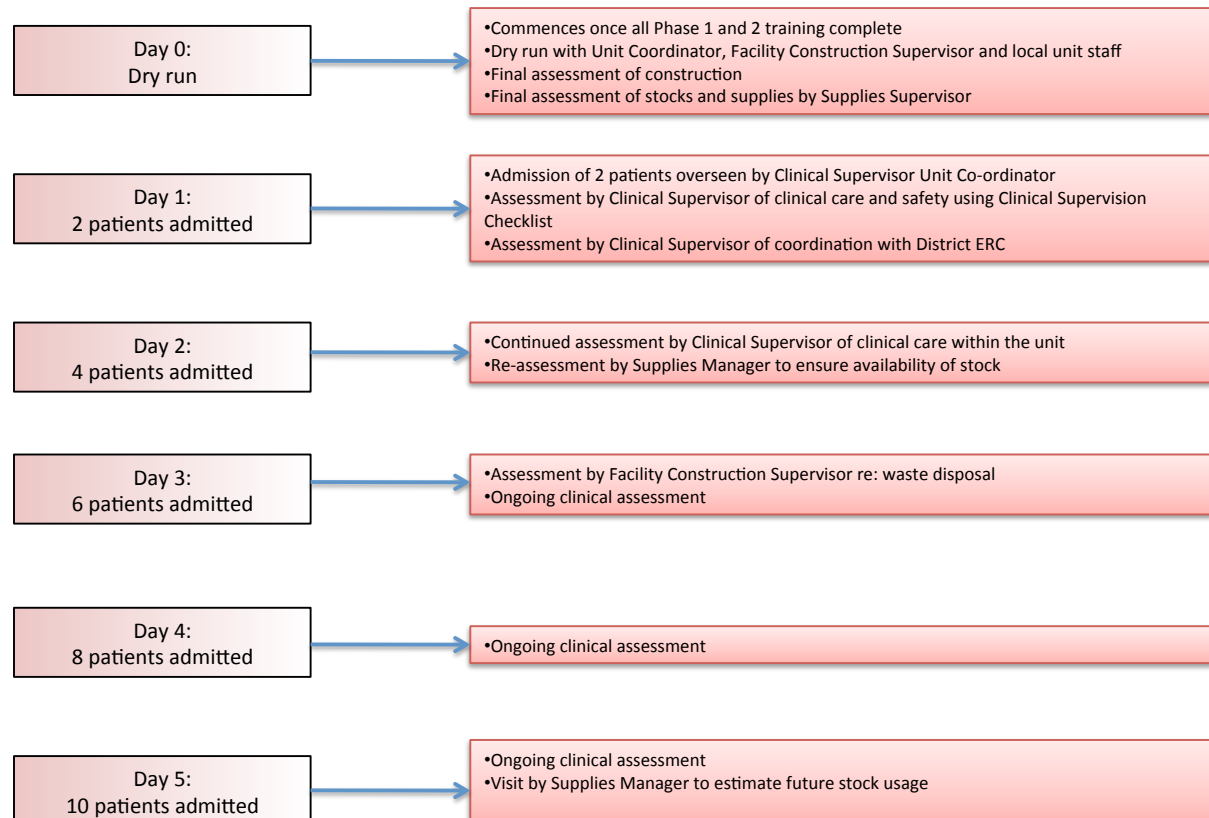


Fig 1.7 Stage 2 timeline for opening an Ebola Holding Unit

During Stage 2 the Supervising Partner needs to maintain a presence at the unit throughout daytime working hours every day, until maximum bed capacity is reached. The opening periods require intensive supervision of clinical work, minor changes to facility design and support with logistics and the supply chain. Ideally presence at the unit should consist of all members of the supervision team.

Being able to control the number of admissions is key to the smooth functioning of Stage 2. A gradual increase in bed capacity and admissions is needed to slowly build staff confidence and prevent walkouts or sentinel events (see section 7.2.2).

For a 10-bed unit, Stage 2 would require intensive daily supervision for a total of 8 days:

- 6 days inclusive of a dry run and a 20% increase in bed capacity each day from the day of opening
- 2 days of supervision operating at maximum capacity.

During the opening period of each unit the majority of cases will be referrals from the community, but as the unit becomes more respected amongst the local community and normal healthcare services are resumed, an increase in walk-in cases is very likely. A good relationship with the various command and

control units at the District Emergency Response Centre, in addition to the establishment of red lines for patient admission numbers, can facilitate the process. Daily assessment should be carried out during Stage 2 using the Clinical Supervision Checklist tool (see Appendix 3).

6.3 Staff training

All staff entering patient areas should receive the three-phase training described below. Before starting clinical work all staff should have completed Phase 1 and Phase 2 training. Phase 1 consists of generic EVD training, including basic PPE training, decontamination procedures, Infection Prevention Control (IPC) protocols and basic knowledge and awareness of EVD.

Phase 2 should focus on the application of protocols to the real life environment. Training should take place within a currently functioning facility that cares for EVD cases, and should be provided by experienced staff that can provide adequate supervision. It is suggested that Supervising Partners maintain a central EVD care facility staffed by their most experienced clinicians, which can deliver the experienced supervision needed for Phase 2 training. Throughout Phase 2, there should be a gradual increase in both time spent inside the unit and procedures performed by trainees.

Phase 3 training can be delivered on-site at the Ebola Holding Unit by the Supervising Partner during Stage 2. Staff should undergo formal revalidation of decontamination procedures and IPC protocols on a regular basis. All staff should be retrained during Phase 3 if the Supervising Partner adopts any new procedures or protocols.

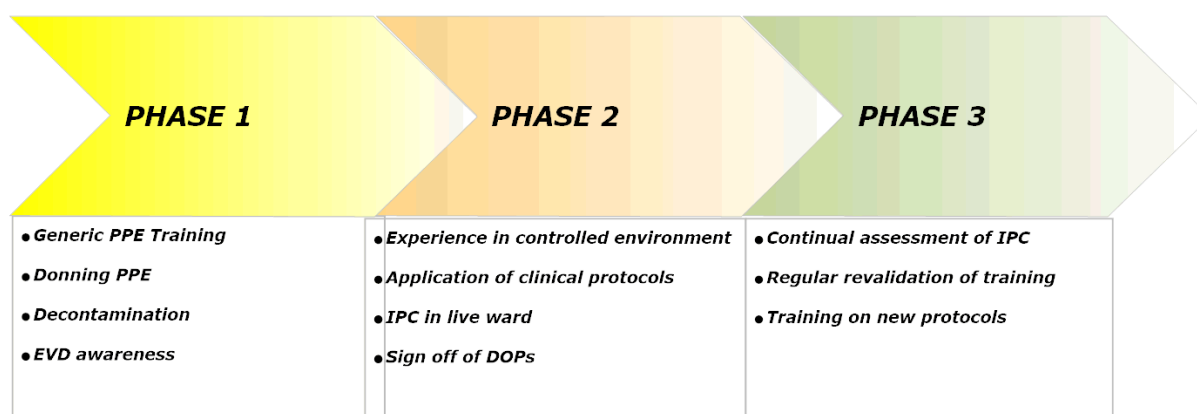


Fig 1.8 phased training model

6.4 Shadowing

6.4.1 CLINICAL SUPERVISOR

The Unit Coordinator should shadow the Clinical Supervisor throughout Stage 2. This allows the transfer of necessary skills for running the unit as well as giving the Unit Coordinator the opportunity to analyse the strengths and weaknesses of local senior staff and decide upon appropriate roles and responsibilities.

Shadowed by the Unit Co-ordinator, the Clinical Supervisor should oversee and ensure:

- the overall coordination of Stage 2 set up
- the establishment of the correct communication channels with the command and control units of the District Emergency Response Centre (live case referrals, ambulance services, burial teams, MoHS staff, specimen collection and laboratory services)
- that full staffing requirements are met as outlined in section 5.3.2.
- the creation of a staff rota
- that all staff are aware of their specific responsibilities
- that unit staff are registered to receive risk allowance from the MoHS
- effective community mediation and engagement

- that staff are able to liaise with non-Ebola healthcare services within the PHU
- that a screening area and screening services are set up and in place
- that all patient documentation, wristbands, blood specimen tubes and body bag labels use a three point identification system (full name, age, unique ID)

If the Unit Clinical Lead is separate to the Unit Co-ordinator, the Unit Clinical Lead and care-giving staff should shadow the Clinical Supervisor throughout Stage 2.

Shadowed by the Unit Clinical Lead OR Unit Co-ordinator and care-giving staff, the Clinical Supervisor should oversee and ensure:

- the quality of clinical care provided is of the correct standard
- the daily completion of the Clinical Supervision Checklist (Appendix 3)
- the completion of Directly Observed Procedures of all clinical staff and cleaners (see Appendix 3)
- the understanding and correct interpretation of clinical protocols
- the correct administration of medication
- the correct disposal of sharps and specimen collection
- that correct decontamination procedures are followed at all times
- correct staff and patient flow through the unit
- that regular assessments of the screening process take place
- that proper nutrition and hydration of patients is provided

6.4.2 FACILITY CONSTRUCTION AND WASH SUPERVISOR

In theory the unit should be fully fit for purpose by the time Stage 2 begins, however in reality minor construction changes or maintenance may be needed once Stage 2 has begun.

Throughout Stage 2, the Facility Construction and Wash Supervisor should oversee and ensure:

- that proper waste disposal and burning is carried out
- that adequate cleaning and hygiene standards are maintained
- the correct make up of chlorine solutions
- the assessment of cleaning staff and sprayers daily
- the safe storage of corpses
- the supply of adequate lighting and water to the unit
- that adequate security for patients and staff is implemented and maintained

6.4.3 SUPPLIES SUPERVISOR

During Stage 2 the appropriate local staff who will assume control of stocks and supplies should shadow the Supplies Supervisor.

Shadowed by the relevant local staff member(s), the Supplies Supervisor will oversee and ensure:

- there is correct and efficient communication between the Central/District Medical Stores and the unit
- that rapid stock assessments are carried out and new PPE, consumables or medication are ordered as required
- that there is easy access of appropriate stock from stock room to dressing room
- timely food and water deliveries
- an adequate supply of appropriate medications
- that good stock taking is carried out
- that regular estimations of future usage are carried out

7. Establishing an Ebola Holding Unit: Stage 3 – Supervise

7.1 On-going supervision

Stage 3 is a less intensive supervisory role, where the team at the Ebola Holding Unit starts to operate more independently. The Supervising Partner should regularly contact the unit, e.g. twice daily by telephone, and communicate with the Unit Coordinator. Once, preferably twice weekly, in-person visits in to the unit should be made and combined with a formal assessment of all areas and processes including the patient area, utilising the assessment tools included in Appendix 3.

7.2 Trigger points and Sentinel Events

In addition to the regular timetable of assessment and supervision there are a number of critical stages and incidents (**Sentinel Events**) that should prompt immediate input and assessment by the Supervising Partner.

7.2.1 CRITICAL CHANGES

Immediate input and assessment from the Supervising Partner is required when:

- there is a change to the unit design
- there is an unplanned or planned increase in bed capacity
- there is a change in local leadership

7.2.2 SENTINEL EVENTS

Sentinel Events are incidents that also prompt an immediate response from the Supervising Partner. A site visit and assessment should be combined with implementation of immediate steps to resolve the problem.

Examples of Sentinel Events:

- healthcare worker infection at unit
- staff walk out or strike
- community strife or social unrest
- supply chain breakdown
- patient escape or patient threat to staff health
- local leadership crisis at unit

7.3 Maintaining relationships with other entities

Throughout Stage 3 the Supervising Partner should maintain close relationships with other supervising entities, e.g. WHO/CDC who may perform a vital role in improving IPC for non-Ebola healthcare services.

Case Study - Lumley Community Hospital

Case History

LOCATION

Lumley Community Hospital is situated in the heart of Lumley Town, adjacent to the main road and football pitch. It was a functioning community hospital until the EVD outbreak reached Freetown. A serious reduction in both healthcare services offered and staff attendance was catalyzed by the infection and subsequent death of a prominent doctor at the facility.

The site had previously hosted a 2-bed isolation unit. This unit was not currently functioning at the time of King's' assessment and was poorly designed.

HISTORY

Previous services and facility capabilities:

- 16 bed inpatient wards, separated in to male and female
- antenatal clinic
- delivery room
- operating theatre for minor surgical operations
- under 5s clinic
- HIV clinic
- laboratory for basic microscopy and blood tests
- general practice/OPD clinic

Staffing

Over 100 clinical and non-clinical staff.

Services

At the time of the initial site visit, the only healthcare services being offered at the site were the antenatal clinic, the Under 5s clinic and the HIV clinic. All other services were closed and staff were not attending work. One wing of the hospital, where the office of the doctor who died was located, had been effectively closed off and the facilities in this part of the hospital were not functioning.

Implementing the Three Stage process

APPROVAL

King's were formally requested to support the site by the District Emergency Response Centre. King's then visited the site on 24th October 2014 to work with the Medical Superintendent to gain consent and jointly formulate a plan to develop an Ebola Holding Unit. The installation of the Ebola Holding Unit and patient screening procedure would aim to maintain the functioning of the services still operating and encourage the re-opening of the general practice/OPD clinic.

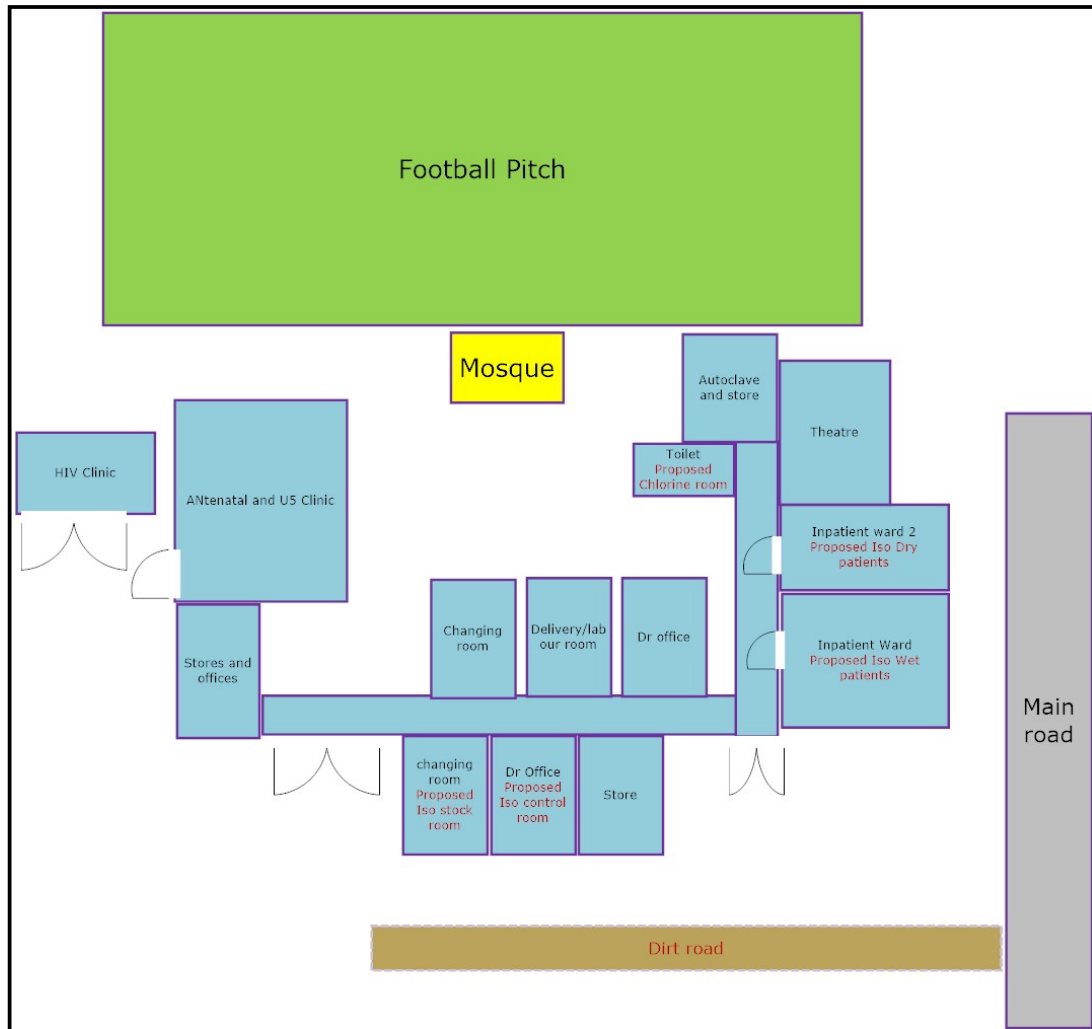
STAGE 1: 24.10.14 – 30.10.14

PLANNING

The initial Stage 1 visit was performed on 25th October 2014 and detailed plans drawn up for the construction partner (GOAL). GOAL commenced work on 26th October 2014 and the unit construction was completed on 30th October 2014.

Awareness of the local context and the current functioning of the facility lead to the proposed construction shown below. The office of the former doctor was reinvigorated by turning it into the unit control room and the disused wards were deemed easily adaptable to a high quality Ebola Holding Unit.

Knowledge acquired of existing staffing levels and capabilities lead to the decision that the new unit could host 12 adult beds with a possible 2 paediatric cots.



Original Layout



New layout

CONSTRUCTION

- A deep pit incinerator was dug in the outside space, fitted with flues for proper air circulation. A barrier was built around to prevent staff from falling and sandbags used to stop water flow in to the pit. A roof was built to cover the pit and prevent the burning of surrounding trees and structures.



Appendix 1: Case Study Lumley Hospital

- **External fencing** was placed along the road, with two meshed windows installed to allow communication between patients and relatives. The external fencing was vitally important in this setting, due to a lack of perimeter walls and the close proximity of the hospital to the surrounding community. The fencing was continued around the outside of the site to the screening area. A double door was installed to allow entrance of ambulance and burial teams.



- A **screening area** was constructed with 4 entrances: patient entrance, HCW entrance, non-suspect case exit and suspected EVD case exit.



- **Soak aways** were constructed for proper drainage of outside areas.
- A simple roofed 4-walled **mortuary** structure was built.
- The tent used for the previous, smaller unit was adapted for decontamination purposes.
- The **two existing wards were redesigned** as shown in the diagrams above.
 - Plastic sheeting from floor to ceiling was placed between each bed. Mattresses were covered in waterproof mattress covers.
 - Curtains were removed and windows cleaned to allow adequate light in to facility.
 - Surplus areas such as the operating theatre and autoclave rooms were locked.
 - Internal doors were built to turn corridor space in to dressing room and secure entrance in to red zone.
 - Bedside tables were placed next to beds for easy storage of patient food and ORS.
 - Latrine chairs were installed next to each patient's bed.



STAFFING

All Red Zone staff were sent to the Ebola Holding Unit at Connaught Hospital for Phase 2 training (real life experience of working in a unit) between 25th October 2014 and 30th October 2014. A total of 9 nurses, 4 laboratory technicians and 6 cleaners were trained. All clinical staff had previously received Phase 1 training. The site benefited from already having 3 security staff plus RSLAF presence.

From amongst the clinical staff a senior nurse was selected as Unit Coordinator (who also assumed Unit Clinical Lead responsibilities), another senior nurse was selected as Deputy Coordinator, and a third nurse was given the responsibility of coordinating the late shift.

SUPPLY

The Supplies Supervisor visited the site on 29th October 2014 and current stocks and supplies were assessed. A stock room was secured and cleaned, stock cupboards and lists were put in place, and an urgent order was placed to Central Medical Stores. Training on stock management was given to relevant staff.

COMING 'ONLINE'

The District Emergency Response Centre was informed about the unit's opening date on 27th October 2014. Prepaid phones were supplied to the unit, contact details and operational protocols were shared and taught to the unit staff. Two DSOs were assigned to the site.

ADMINISTRATION

The new office was supplied with patient whiteboard and all necessary case-related documents.

STAGE 2: 31.10.14 – 06.10.14

TIMELINE

31/10/14	AM, dry run. PM First two patients admitted
01/10/14	two further patients admitted
02/10/14	one positive EVD case transferred, one patient discharged, two further patients (walk-ins) admitted
03/10/14	two patients admitted
04/10/14	two deaths, no further patients admitted
05/10/14	two patients admitted.
06/10/14	two patients discharged, two patients admitted. One patient who tested negative still remained symptomatic; on closer history and examination he was sent to Lumley HIV clinic where a positive HIV test was obtained with a low CD4 count

King's closely controlled the number of admissions and incremental increase in bed capacity, as demonstrated in the timeline above. See Clinical Supervision Checklist (Appendix 3) for details of the supervision that took place.

EVENTS

There were three major events that required immediate responses within Stage 2:

1. **Community tension and stigma amongst healthcare staff.** The unit staff were discriminated against and barred from entering non-EVD areas of the healthcare facility (common room/toileting area).
Response: A staff meeting chaired by the Medical Superintendent was arranged for the next day with King's attendance. Education was provided along with assurance that the decontamination process within the unit was rigorous. The need for professionalism and solidarity amongst all healthcare staff was enforced.
2. **First two patient deaths,** which, similar to previous experience at other Ebola Holding Units had a negative impact on staff. In this case, staff argued over whose responsibility the bagging and removal of the corpse to the mortuary area was, and underlying fear aggravated tensions.
Response: King's staff selected one cleaner and one nurse and took the opportunity to remove the corpse with their help and demonstrate the correct implementation of the protocol. The group discussed this afterwards and decided that in future all staff would share the responsibilities of corpse removal.
3. **Construction failure.** An internal door leading to the 'dry' patient area fell off its hinges, after being forced by a patient. This allowed the possibility of patients moving freely around the unit.
Response: An immediate solution was found by installing temporary bolts to restrict access. The Facility Supervisor then visited the site the next day to install permanent fixings.

ADDITIONAL IMPROVEMENTS DURING STAGE 2

1. The unit was being supplied by the NPA (national) grid with the addition of pre-existing lights. Whilst throughout Stage 1 the NPA lighting was appropriate for use, during Stage 2 the low current meant inadequate lighting was present in one ward of the unit. A generator was purchased the next day and rigged in to the existing supply as back up for when NPA current was insufficient. A letter was also written by the Medical Superintendent, and at her request countersigned by King's, to be presented to the NPA to request immediate improvement of the electricity supply to the hospital.
2. Throughout Stage 2 advice and mentorship was given to all staff. Staff roles and responsibilities were adapted (increased or decreased) after assessment of performance and individual skills. A natural leader was identified amongst the cleaning staff and given overall responsibility for the cleaning duties.
3. Throughout Stage 2 regular meetings were held with community chiefs and non-EVD healthcare staff. If possible the Clinical Supervisor should be present at meetings to gain awareness of the local context and mediate possible disputes

SAMPLE STOCK CARD

Item:

Pack Size:

Date	Action	Number received	Number taken	Balance

SET UP ITEMS FOR EBOLA HOLDING UNIT (ESTIMATE)

DESCRIPTION	ITEM DETAIL	QTY (for 10 patients)	COMMENTS	SOURCE
Cleaning equipment				
Mop		2		
Mop bucket		2		
Shovel		1		
Hard Broom/Heavy duties broom		2	1 inside and 1 outside	
Sprayer – large	Backpack 12 litres	2	1 inside unit, 1 outside	May be available via CMS
Squeegee mop		2		
Plasticware				
Buckets	20 litres	7	For 1:10 chlorine for hand washing	
Buckets	10 litres	12	10 for patients' washing water, 2 for cleaning	
Veronica buckets	20-30 litres	3	Bucket with tap for 1:100 chlorine	
Jugs	1 litre	3	For water filling	
Big bins	150 litres	5	1 in dressing area, 1 in unit, 2 in decontamination area, 1 for storing 1:10	
Bowls	10 litres	3	For decontamination area	
Furniture				
Shelves	2 shelves x 2m	1	For supplies in dressing room	
Tables	1.2x0.6m	1	1 in dressing area	
	2 x 0.6m	2	1 in unit, decontamination area	
Bedside cabinet		10	for patient belongings	
Storage cabinet		1	Lockable with drawers, for drug storage,	
Plastic chairs to be modified for toilet use		10		
Plastic chairs		2	For office use	
Furnishings				
Baby cot		1		
Plastic sheeting for screens	1.25m			

Appendix 2: Stocks and Supplies

between beds	doubled			
String to hang sheeting				
Light bulbs		6		
Foot trays	1m x 0.5m x 30cm	2	To fill with chlorine and staff step into it to clean boots (plastic or metal)	
Barrels - metal	70 gallons	2	For burning waste	
Radio		1		
Mirror	30cm wide	2	1 for dressing room and 1 for decontamination room	
Fan if electrical socket available		1		
Clocks		2		
Boot rack		1		
Boot puller		1		
Stretcher		1		
Whiteboard and pens		1	size depends on unit	
Uniform for health workers (Scrubs)				
Material (100% cotton) for x 30 scrubs (set)	76 yards	76		
Boots	pair	10		Available via CMS

MEDICAL SUPPLIES (ESTIMATE)

Item	Unit	Specification	Weekly estimate for 10 beds	Cost (£)	Notes
PPE Suits	SINGLE	XL or L	350	3.84	
Aprons	SINGLE		400	0.04	
Hairnets or surgical caps	SINGLE		350	from CMS	
Body Bags	SINGLE	adult	15	6.34	
		child	5	from CMS	
Chlorine Powder		ensure % concentration is stated on barrel	25kg	from CMS	
Blood sample tubes	SINGLE	Red top tubes	70	from CMS	
Plastic hazard waste bags for blood samples	SINGLE	50x50cm	70	from CMS	
Alcohol Gel	500ml bottle	Must be at least 70% and clearly marked	21	3.94	
Shoe Covers	SINGLE		1000	0.13	per single cover
Masks with face shields	SINGLE		400	0.26	
Gloves	SINGLE	Nitrile gloves are preferable	3000	0.02	
Long gloves (useful for cleaners)	SINGLE	Gynaecological gloves (40cm length)	300	from CMS	limited supplies
Rubber Gloves - Industrial	PAIRS		10	from CMS	

NON-MEDICAL CONSUMABLES (ESTIMATE)

DESCRIPTION	ITEM DETAIL	NUMBER PER CONTAINER	QTY for 1 week (10 patients)	UNIT (SLL)	Total (SLL)
Patient drinks and food					
Juice (Tetra Pack) -	200 ml	27	2.00	40,000.00	80,000.00
Baby formula	400 g	1	2.00	25,000.00	50,000.00
Bottle for formula milk		1	3.00		0.00
Packet water	Bundle	20	25.00	3,000.00	75,000.00
Bottled water	1.5L	1	140.00	4,000.00	560,000.00
Disposable plates		1	250.00		0.00
Disposable cups		1	250.00		0.00
Disposable spoons		1	250.00		0.00
Patient hygiene					
Toothpaste - Maxam	45 g	1	25.00	1,500.00	37,500.00
Toothbrush	Unit	1	25.00	1,000.00	25,000.00
Pillows	Unit	1	25.00	12,500.00	312,500.00
Bedsheets (fitted)	Unit	1	25.00	20,000.00	500,000.00
Pillowcases	Unit	1	25.00	10,000.00	250,000.00
Towels (medium size -hygien use)	Unit	1	13.00	12,000.00	156,000.00
Plastic Bowl for drinking water (4 packets of water)	Unit	1	5.00	4,000.00	20,000.00
Cleaning wipes for patients	Pack of 80	1	25.00	6,000.00	150,000.00
Pampers	Pack of 25	1	3.00	40,000.00	120,000.00
Cleaning materials					
Waste disposal bags (40 Gallons)	Roll of 5	1	30.00	12,000.00	360,000.00
Waste disposal bags (25 litres)	Roll of 10	1	8.00	8,000.00	64,000.00
Alcohol Hand Sanitizer (Bactigel) - 70% alcohol	350 ml	1	14.00	28,000.00	392,000.00
Cleaning paper Trendy (packet)	Pack of 100	1	14.00	10,000.00	140,000.00
Big roll (white/Blue) cleaning paper	Unit	1	1.00	20,000.00	20,000.00
Mopheads	Unit	1	3.00	10,000.00	30,000.00
Brush head	Unit	1	1.00	12,000.00	12,000.00
Cleaning Household Gloves	Pairs	1	7.00	8,000.00	56,000.00
Small black bin (5L) + Lid	5L	1	30.00	5,000.00	150,000.00
Laundry Liquid Soap (Detoil/Rexoguard)	5L	1	10.00	14,000.00	140,000.00
Laundry Powder Soap (for Scrubs) - Foam	300-400 g	1	3.00	4,000.00	12,000.00
Toilet Paper	Units	1	3.00	2,500.00	7,500.00
Small towels for cleaning blood	Bundle	1	0.50	90,000.00	45,000.00
Kerosene for burning waste	Litres	1	14.00	4,500.00	63,000.00
Stationery					
Ledgers		1	2.00	15,000.00	30,000.00
Photocopies of patient documentation		1 set	35.00	1,000.00	35,000.00
Pens		1	10.00	500.00	5,000.00
Scissors		1	2.00	5,000.00	10,000.00
Patient clothes for 20 discharged patients					-
Lapa for woman	Unit	1	10.00	10,000.00	100,000.00
T.Shirt (unisex) - Adults & kids	Unit	1	20.00	5,000.00	100,000.00
Trousers for men (Jeans, ...)	Unit	1	10.00	15,000.00	150,000.00
Trousers for kids & teenagers (unisex)	Unit	1	5.00	10,000.00	50,000.00
Underwear: men & boys (boxer, pants)	Unit	1	10.00	10,000.00	100,000.00
Underwear: women & girls (pants)	Unit	1	10.00	8,000.00	80,000.00
Flipflops	Pairs	1	20.00	5,000.00	100,000.00
TOTAL					4,587,500.00

UNIT STOCK LISTS

UNIT

Stock item	Stock level
Pillows	10
Bed sheets	20
T-shirts	6
Lappa	4
Trousers /shorts for men	4
Children's clothes	4 sets
Bin bags for black rubber bins	25
Towels for washing	4
Small towels for cleaning	10
Toothpaste	10
Toothbrush	10
Black rubber bins with lids	20
Green bowls	
Cleaning wipes	2 packets
Baby wipes	2 packets
Nappies	6
Juice	10 cartons
Packet water	120 packets
Bottle water	20 bottle

DRUGS

Stock item	Stock level
Ceftriaxone 1g injection	25
Artesunate 60mg injection	20
ACT tablets adults	20 courses
ACT children 1-5 years	2 courses
ACT children 2 -11 months	2 courses
Syringes 10ml	20
Syringes 5ml	40
Syringes 20ml (for feeding)	10
Needles (blue)	100
Paracetamol 500mg tablets	250
Paracetamol 125mg/5ml syrup	2 bottles
Metoclopramide 10mg injection	20 vials
Metoclopramide 10mg tablets	20 tablets
Tramadol 50mg capsules	250
Diazepam 5mg tablets	10 tablets
Diazepam 10mg injection	4 vials

UNIT DRESSING ROOM

Stock item	Stock level
PPE – large	50
PPE – extra large	30
Masks with visors	100
Aprons	100
Sterile / long gloves – medium	2 boxes
Sterile / long gloves – large	2 boxes
Examination gloves – medium	4 boxes
Examination gloves – large	4 boxes
Shoe covers	300
Hair nets	50
Blood sample tubes	20
Biohazard bags for blood samples	20
Body bags – adult	10
Body bags - children	5
Surgical gowns	8
Hand soap	2 bottles
Hand sanitiser	2 bottles
Tissues	2 packets

UNIT OFFICE

Stock item	Stock level
Wristbands	20
Admission forms	20
DSO forms	20
Negative discharge forms	20
Survivor discharge forms	20
Referral forms	20
Dead positive forms	20
Dead negative forms	20
Drug charts	20
Hand soap	2 bottles
Hand sanitiser	2 bottles
Tissues	2 packets

UNIT ORDER FORM

Date _____

Time _____

UNIT STORE ROOM

Stock item	Stock level	Amount ordered
Pillows	10	
Bed sheets	20	
T-shirts	6	
Lappa	4	
Trousers /shorts for men	4	
Children's clothes	4 sets	
Bin bags for black rubber bins	25	
Towels for washing	4	
Small towels for cleaning	10	
Toothpaste	10	
Toothbrush	10	
Black rubber bins with lids	20	
Green bowls		
Cleaning wipes	2 packets	
Baby wipes	2 packets	
Nappies	6	
Juice	10 cartons	
Packet water	120 packets	
Bottle water	20 bottle	
Sharp bin	1	

DRUGS

Stock item	Stock level	Amount ordered
Ceftriaxone 1g injection	25	
Artesunate 60mg injection	20	
ACT tablets adults	20 courses	
ACT children 1-5 years	2 courses	
ACT children 2 -11 months	2 courses	
Syringes 10ml	20	
Syringes 5ml	40	
Syringes 20ml (for feeding)	10	
Needles (blue)	100	
Paracetamol 500mg tablets	250 tablets	
Paracetamol 125mg/5ml syrup	2 bottles	
Metoclopramide 10mg injection	20 vials	
Metoclopramide 10mg tablets	20 tablets	
Tramadol 50mg capsules	250 capsules	
Diazepam 5mg tablets	10 tablets	
Diazepam 10mg injection	4 vials	

UNIT DRESSING ROOM

Stock item	Stock level	Amount ordered
PPE – large	50	
PPE – extra large	30	
Masks with visors	100	
Aprons	100	
Sterile gloves – medium	2 boxes	
Sterile gloves – large	2 boxes	
Examination gloves – medium	4 boxes	
Examination gloves – large	4 boxes	
Long gloves – medium		
Long gloves – large		
Long gloves – extra large		
Shoe covers	300	
Hair nets	50	
Blood sample tubes	20	
Biohazard bags for blood samples	20	
Body bags – adult	10	
Body bags - children	5	
Surgical gowns	8	
Hand soap	2 bottles	
Hand sanitiser	2 bottles	
Tissues	2 packets	

UNIT OFFICE

Stock item	Stock level	Amount ordered
Wristbands	20	
Admission forms	20	
DSO forms	50	
Negative discharge forms	20	
Survivor discharge forms	20	
Referral forms	20	
Dead positive forms	20	
Dead negative forms	20	
Screening forms	50	
Drug charts	20	
Hand soap	2 bottles	
Hand sanitiser	2 bottles	
Tissues	2 packets	

Ordered by: _____ (print name)

Appendix 3: Supervision Checklists

Name of facility	
Inspected by	
Current bed capacity	
Date of inspection	

Clinical Checklist	SCO	Good	Acceptable	Unacceptable	Comments and actions
Identify Unit Coordinator and Clinical Lead	O				
Identify Supervising Partner	O				
How many clinical staff working in unit? Local/expat	O				
How many non-clinical staff working in unit?	O				
Clinical Protocol pack displayed	O				
Ensure all staff entering the unit have undergone PPE training	S O				
Check staffing and attendance	O				
Any holding unit staff infections since last assessment?	S				
Has risk allowance been paid in last 2 weeks?	O				
Check registration and admission documents and DSO forms	O				
Check patient documentation	O				
Check for special populations: paediatric, pregnant, appropriate for unit?	OS				
Are stock levels of PPE above minimum stock levels? (see supply checklist)	S O				
Is stock accessible 24 hours a day	S O				
Is stock stored in safe, dry environment	S O				
Is physical security present and safe at facility?	S O				
Adequate water supply?	S O				
24-hour lighting/electricity/water available?	S O				
Screening, is screening area safe?	S				
Is screening tool being used?	O C				
No touch screening process and PPE?	S				
Dressing room are PPE protocols displayed	O S				
Observe staff putting on PPE, choose 2 at random	S				
Clear demarcation of red zone understood, no staff crossing line?	S				

Appendix 3: Supervision Checklists

Clinical Checklist	SCO	Good	Acceptable	Unacceptable	Comments and actions
Any PPE failings inside unit?	S				
Hand washing between contacts?	SC				
Appropriate amount of physical contact between staff and patients?	SC				
Respecting clean>dirty flow?	S				
Obvious unsafe practices?	S				
Correct bed to patient ratio	S				
Beds still set up to unit original design:	S				
Are chlorine footbaths full?	S				
Are chlorine hand washing buckets full?	S				
Is chlorine made up correctly? (test kit)	S				
Correct patient population to register (check wristbands)	O				
Correct patient bodily waste items (latrine chair/bucket)	C S				
Good isolation between beds	C S				
Do patients appear well cared for?	C				
Bedside area clean?	C				
Availability of ORS and water at patient bedside	C				
Hydration status of patients	C				
Directly question patients if they have received medication	C				
Directly ask if they have been receiving regular food	C				
Directly ask if patients have any specific concerns	C				
Directly take history from any patient who looks asymptomatic or other pathology suspected	C				
Observe unit Clinical Lead performing clinical review/ward round on patients.	C				
Observe drawing up/preparation of medication	C S				
Observe administration of medication	C S				
Observe proper sharps disposal and check sharps bins	C S				
Observe corpse removal if timing allows, if not have staff demonstrate knowledge	S				
Observe oral swab or blood sample collection if present	C S				
Check storage of blood specimens	S				

Appendix 3: Supervision Checklists

Clinical Checklist	SCO	Good	Acceptable	Unacceptable	Comments and actions
Check documentation of blood samples and timing	O				
Check proper storage of corpses at facility and timely burial	S				
Observe waste disposal	S				
Observe decontamination, choose 2 random staff	S				
All items necessary are in decon room?	S				
Overall assessment of organisation	O				
Overall assessment of clinical care given to patients	C				
Overall assessment of safety inside unit	S				

DOMAIN: S Safety: staff and patient
 C Clinical Care
 O Organisation

*Unacceptable marks in the safety and clinical care domains should lead to immediate action being taken.

Actions:

ESSENTIAL DIRECTLY OBSERVED PROCEDURES FOR CLINICAL STAFF

Hand washing	
6 steps observed	
COMPLETED?	

Putting on PPE	
Identify correct equipment	
Put on gloves and foot covers	
Enter room	
Change into boots	
Put on suit	
Put on apron	
Put on second pair of gloves	
Put on mask	
Check in mirror	
Enter Unit	
COMPLETED?	

Taking off PPE	
PHASE 1	
Wash gloves for 1 minute (1/10)	
Remove apron and put in bin	
Wash gloves for 1 minute 1/10	
Remove apron and put in bin	
Wash gloves for 1 minute 1/10	
Remove outer gloves	
PHASE 2	
Wash gloves for 30 seconds 1/10	
Remove suit	
Wash gloves for 30 seconds 1/10	
Remove facemask	
Wash gloves 1/10	
Remove inner gloves	
Wash hands for 1 minute up to elbows in 1/100	
PHASE 3	
Put on gloves	
Stand in chlorine bucket 1 minute	
Spray own boots	
Remove gloves	
Wash hands 1/100	
Put on gloves	
Leave isolation unit through back door	
Enter dressing room through dressing room door	

Appendix 3: Supervision Checklists

Remove boots	
Put on shoes	
Remove shoe covers and gloves	
Wash hands	
Use alcohol gel	
Leave dressing room	
COMPLETED?	

Making up chlorine	
60/70% -72g per 10 litres makes 10L of 1:10	
Master mix bin must be filled whenever empty	
1L of 1/10 +9L normal water makes 10L 1/100	
Change chlorine for fresh mix every 24 hours	
Change foot baths every 12h	
COMPLETED?	

Dead body in the unit	
Put on PPE	
Identify patient and confirm death	
Wash chlorine	
Put body in bag (2/3 people)	
Attach label to body bag	
Move body bag to corridor	
Spray/wash previously occupied space	
COMPLETED?	

Dead on Arrival	
Collect orange specimen pot from lab upstairs	
Put on PPE	
Identify patient and confirm death	
Do 2 oral swabs + place in same container	
Put specimen pot in corridor	
Wash body with chlorine	
Put body in body bag (2/3 people)	
Attach label to body bag	
Move to corridor	
Spray/wash previous occupied space	
Inform burial team	
COMPLETED?	

Forms to observe	
DSO	
Admission	
Drug charts	
Oral swab	

Appendix 3: Supervision Checklists

Referral form	
Dead- positive	
Dead – negative	
Outcome – negative	
COMPLETED?	

Taking Blood	
Identify pending collections from board	
Write label	
Enter ISO + Take blood	
Put blood in corridor box	
Update board	
Update book	
COMPLETED?	

Accidental Exposure Theory	
Wash site of exposure thoroughly	
Decontaminate	
Inform senior	
Document	
COMPLETED?	

Ebola Holding Unit Clinical Lead Training Form

Unit	
Name	
Position	
Contact number	
Years of experience	

Training

	Date	Comments
Basic PPE Training		
King's Training		
Refresher Training		

Directly Observed Procedures

	Date	Pass	Comments
PPE On			
Supervisor signature			
PPE Off			
Supervisor signature			
Hand washing 6 steps			
Supervisor signature			
Making up chlorine			
Supervisor signature			
Administration PO medication			
Supervisor signature			
Administration IM medication			
Supervisor signature			
Corpse procedure			
Supervisor signature			
Patient admission			
Supervisor signature			
Accidental exposure theory			
Supervisor signature			
Assessment and treatment of patient in pain			
Supervisor signature			
Assessment and treatment of patient with nausea/vomiting			

Appendix 4: Training Pack

Supervisor signature			
Assessment and treatment of agitated patient			
Supervisor signature			
Paediatric patient			
Supervisor signature			
Oral Swab			
Supervisor signature			
Command flow understanding			
Supervisor signature			

Safe to work (yes/no):**Supervisor signature:****Date:****Comments and areas of improvement:****Date of next assessment:**

Ebola Holding Unit Cleaner Training Form

Unit	
Name	
Position	
Contact number	
Years of experience	

Training

	Date	Comments
Basic PPE Training		
King's Training		
Refresher Training		

Directly Observed Procedures

	Date	Pass	Comments
PPE On			
Supervisor signature			
PPE Off			
Supervisor signature			
Hand washing 6 steps			
Supervisor signature			
Make Up Chlorine			
Supervisor signature			
Clean infected area			
Supervisor signature			
Safe Waste disposal			
Supervisor signature			
Prepare clean bed			
Supervisor signature			
Accidental exposure (theory)			
Supervisor signature			

Safe to work (yes/no):

Supervisor signature:

Date:

If no, further action needed:

Date of next assessment:

Ebola Holding Unit Nurse Training Form

Unit	
Name	
Position	
Contact number	
Years of experience	

Training

	Date	Comments
Basic PPE Training		
King's Training		
Refresher Training		

Directly Observed Procedures

	Date	Pass	Comments
PPE On Supervisor signature			
PPE Off Supervisor signature			
Hand washing 6 steps Supervisor signature			
Administration PO medication Supervisor signature			
Administration IM medication Supervisor signature			
Corpse procedure Supervisor signature			
Patient admission/discharge forms Supervisor signature			
Accidental exposure theory Supervisor signature			

Safe to work (yes/no):

Supervisor signature

Date

If no, further remedial action needed:

Date of next assessment:

Ebola Holding Unit Lab Technician Training Form

Unit	
Name	
Position	
Contact number	
Years of experience	

Training

	Date	Comments
Basic PPE Training		
King's Training		
Refresher Training		

Directly Observed Procedures

	Date	Pass	Comments
PPE On			
Supervisor signature			
PPE Off			
Supervisor signature			
Hand washing 6 steps			
Supervisor signature			
Labelling of specimen + white board + book documentation			
Supervisor signature			
Specimen collection			
Supervisor signature			
Safe sharps disposal			
Supervisor signature			
Sample storage			
Supervisor signature			
Oral swab collection			
Supervisor signature			
Accidental exposure (theory)			
Supervisor signature			

Safe to work (yes/no):

Supervisor signature:

Date:

If no, further remedial action needed:

Date of next assessment:

Patient name:

Date/Time:

Age:

Sign:

Healthcare Facility Ebola Screening

Is the patient feeling ill?



**Send to
hospital/clinic
for routine care**

Yes



Has the patient had any fever in the last 3 weeks or a temperature reading $>38^{\circ}\text{C}$?

Yes



In the last 3 weeks, has patient had...	Yes	No
Nausea/vomiting		
Diarrhea		
Abdominal pain		
Red eyes		
Hiccups		
Unusual bleeding		
Difficulty swallowing		
Muscle/joint pain		
Headache		
Fatigue		
Loss of appetite		
Difficulty breathing		
Contact history		
TOTAL		

Total = 2 or more Yes?

No



**Send to
Hospital/Clinic for care**

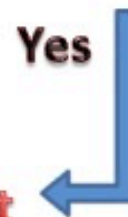
Yes



Admit to isolation unit

Total = 1 or more Yes?

Yes



No



**Send to
Hospital/Clinic for care**

HOW TO MAKE CHLORINE SOLUTIONS

1. Solutions lose their effectiveness after 24 hours, so they must be refreshed every day. Organic material (e.g., vomitus, dirt, etc.) also binds chlorine, decreasing its effectiveness; therefore, change disinfectant solutions whenever they become cloudy or visible dirty.
2. Always check the concentration and expiration date of chlorine before making chlorine solutions. Unknown concentrations and expired chlorine should not be used.
3. A simple suggestion to ensure that chlorine solutions are correctly made up each day is to mix the solution in one very large bucket/tank inside the red zone that can be used to fill the smaller buckets. The total volume of water required to fill this large bucket (either to the top or a clearly visible line) can be measured by counting the number of litres of water this requires. The exact volume of chlorine powder required to make it to a 0.5% concentration can then be calculated (using high-accuracy weighing scales and the formulas below) and a plastic cut can be cut to the correct size so that one single full scoop of chlorine will always be the correct amount of chlorine for a single full large bucket of water. It can be helpful to buy 100L buckets for each of the units to make this easier.


Colour coordination of different buckets depending on their concentration is an intuitive way to help staff identify which bucket to use for different tasks.



70% HTH chlorine powder:

How to Make Strong (0.5%) Chlorine Solution

Chlorine solutions of **0.5%** should be used for **DISINFECTING OBJECTS** (floors, counters, bedrails, medical equipment)

Make chlorine solution every day. If chlorine solution is more than 1 day old, throw it away



**STIR WITH
A STICK
FOR 10
SECONDS**

20 Liters Water **10 Heaping TABLESPOONS OF HTH**

Label the bucket: "STRONG (0.5%) CHLORINE SOLUTION"


WAIT 30 MINUTES BEFORE USE



WARNING: Chlorine can burn. Always wear gloves and goggles when handling chlorine granules and strong solutions!

How to Make Weak (0.05%) Chlorine Solution

Chlorine solutions of **0.05%** should be used for **WASHING HANDS**

Make chlorine solution every day. If chlorine solution is more than 1 day old, throw it away



**STIR WITH
A STICK
FOR 10
SECONDS**

20 Liters Water **1 Heaping TABLESPOONS OF HTH**

Label the bucket: "WEAK 0.05% CHLORINE SOLUTION"


WAIT 30 MINUTES BEFORE USE



WARNING: Chlorine can burn. Always wear gloves and goggles when handling chlorine granules and strong solutions!



5% Liquid Bleach:

Using Liquid Bleach to Make Strong (0.5%) Chlorine

9 measures of water 1 measure of bleach














WARNING: Chlorine can burn. Always wear gloves and goggles when handling chlorine granules and strong solutions!

Using Liquid Bleach to Make Weak (0.05%) Chlorine

9 measures of water 1 measure of strong (0.5%) chlorine solution



WARNING: Chlorine can burn. Always wear gloves and goggles when handling chlorine granules and strong solutions!

3.5% Liquid Bleach:

Strong (0.5%) chlorine solution:

Dilute 1 measure/part (1Litre) of 3.5% liquid bleach with 6 measures/parts (6Litres) of water.

Weak (0.05%) chlorine solution:

Dilute 1 measure/part (1Litre) of strong (0.5%) chlorine solution with 9 measures/parts (9Litres) of water.

Any Other Chlorine Concentration:**Example I - Using Liquid Bleach**

Chlorine in liquid bleach comes in different concentrations. Any concentration can be used to make a dilute chlorine solution by applying the following formula:

$$\left[\frac{\% \text{ chlorine in liquid bleach}}{\% \text{ chlorine desired}} \right] - 1 = \text{Total parts of water for each part bleach}^\dagger$$

Example: To make a 0.5% chlorine solution from 3.5%[‡] bleach:

$$\left[\frac{3.5\%}{0.5\%} \right] - 1 = 7 - 1 = 6 \text{ parts water for each part bleach}$$

Therefore, you must add 1 part 3.5% bleach to 6 parts water to make a 0.5% chlorine solution.

† "Parts" can be used for any unit of measure (e.g. ounce, litre or gallon) or any container used for measuring, such as a pitcher.

‡ In countries where French products are available, the amount of active chlorine is usually expressed in degrees chlorum. One degree chlorum is equivalent to 0.3% active chlorine.

Example II - Using Bleach Powder

If using bleach powder,[†] calculate the amount of bleach to be mixed with each litre of water by using the following formula:

$$\left[\frac{\% \text{ chlorine desired}}{\% \text{ chlorine in bleach powder}} \right] \times 1\,000 = \text{Grams of bleach powder for each litre of water}$$

Example: To make a 0.5% chlorine solution from calcium hypochlorite (bleach) powder containing 35% active chlorine:

$$\left[\frac{0.5\%}{35\%} \right] \times 1\,000 = 0.0143 \times 1\,000 = 14.3$$

Therefore, you must dissolve 14.3 grams of calcium hypochlorite (bleach) powder in each litre of water used to make a 0.5% chlorine solution.

† When bleach powder is used; the resulting chlorine solution is likely to be cloudy (milky).

Example III - Formula for Making a Dilute Solution from a Concentrated Solution

$$\text{Total Parts (TP) (H}_2\text{O)} = \left[\frac{\% \text{ Concentrate}}{\% \text{ Dilute}} \right] - 1$$

Example: To make a dilute solution (0.1%) from 5% concentrated solution.

$$\text{Calculate TP (H}_2\text{O)} = \left[\frac{5.0\%}{0.1\%} \right] - 1 = 50 - 1 = 49$$

Take 1 part concentrated solution and add to 49 parts boiled (filtered if necessary) water.

Source:

AVSC International (1999). Infection Prevention Curriculum. Teacher's Manual. New York, p.267.

Opening a new holding or treatment facility in the Western Area and Integration with the Western Area ERC

Western Area Emergency Response Centre

Location: British Council, Tower Hill, Freetown

Responsibilities: ERC coordinates all activities for the Ebola response in the Western Area; deploys ambulances, dispatches burials team and coordinates the movement of blood samples, amongst other responsibilities.

Command Centres: The Emergency Response centre consists of 6 command centres:

- Live Case Management
- Dignified Burials Management
- Quarantine Management
- Alerts Management
- Surveillance Management
- Laboratories Management

Hours of operation: 7am – 6pm, 7 days a week

The documents structure

As a holding or treatment facility, prior to opening it is important to understand how the Centre can support your activities.

The following document is divided into three sections designed to explain how to interact with three critical elements of the response:

1. Live Case Management Team,
2. Dignified Burials Management and
3. Laboratories Management.

1. Live Case Management

Live Case Management Team Contact Numbers:

099 517 901/ 099 517 902/ 099 517 903/ 099 518 500

Functions of the Live Case Management Command Centre

- Coordinate transfer of suspect cases from the community into holding facilities
- Coordinate the transfer of suspect cases at facilities to other available beds when facilities are at capacity
- Cross check lab results and communicate results with facilities unable to receive results by email
- Coordinate transfer of Ebola positive patients to treatment centres

In order to do this for each facility, every day, the live case management team need the following daily information from all facilities:

Holding facilities responsibilities

- Provide a key contact in holding facilities who will phone the command centre each morning between 8-9 with the following information:
 - Current number of patients in the facility
 - Number of beds available for referrals from the command centre

- Ensure a DSO is stationed at the facility to phone the live case management team each time a walk-in patient is admitted to the facility and report case information real-time to the command centre
- Provide a key contact who will phone the command centre each afternoon between 4pm and 5pm to update the command centre on the details of patients within the facilities or cross check with the command centre
 - Patient ID, name, age, gender
 - This information is critical for the live case management team to check lab results
 - Status – discharged, died, transferred
 - This information is important for updating the central database

Treatment centre responsibilities

- Provide a key contact in holding facilities who will phone the command centre each morning between 8-9 with the following information
 - Total number of current patients
 - Number of beds available for transfer of confirmed Ebola positive patients
- Provide a key contact who will phone the command centre each afternoon between 4pm and 5pm to update the command centre on:
 - Details of patients currently in the facility and their outcomes

2. Dignified Burials Management

Functions of the Burials Centre

- To facilitate the safe medical burial for all deaths in the Western Area both from the community and from hospitals

In order to do this, the Burials Centre needs facilities to complete the following actions upon the death of each patient.

- When a death occurs in the facility report it to 117 immediately
- Prepare the body for collection (in a body bag) and ensure the body is tagged with the name of the deceased on the outside of the body bag
- Inform the family of the death and explain their right to be at the funeral providing a coffin or a shroud for the burial team to

The Burials Centre will coordinate:

- Upon the opening of the facility, confirmed by live case management, a burial team will be assigned to your facility to attend each morning and collect corpses – usually between 8 and 8am
- A dignified medical burial for all corpses in the Western Area

3. Labs Management

Functions of the Labs Centre

- To facilitate the movement of samples from facilities to laboratories for testing via a courier service
- To advise facilities of any planned or emergency downtimes for the laboratories; the resulting changes to the samples courier service and any fall-back plans for samples to be tested at other laboratories

In order to do this, the labs centre needs a holding/treatment facility to complete the following

Appendix 5: Command and Control

- **Documentation.** Ensure samples have clear labels and are accompanied by a completed documentation prior to pick-up. Accurate address information is particularly important:
 - Chain of Custody (CoC) form.
 - Case Investigation (CI) Form.
- **Integrity.** Ensure samples have sufficient volume and form for diagnosis.
 - Samples should be stored in a fridge to preserve integrity if keeping overnight.
- **Packaging.** Ensure samples are packaged correctly, prior to the pick-up time. There should be two layers of packaging the outer of which is clean for handling with minimal PPE. If you need more packaging let us know.
 - If specimen samples are not packaged correctly the courier will not take them.
- **Timing.** Ensure samples are ready for collection at the specified time.
 - The courier service will only wait 10 minutes.
- **Contact.** Appoint a point of contact for the lab command centre to:
 - Take receipt of the CUG phone to make free calls to the command centre
 - Call the specimen management at the end of each day (4-6pm) to confirm the number of samples requiring collection in the morning run
 - Call the specimen manager between 10:30 and 11:30am to confirm number of samples required for collection in the afternoon run
 - Communicate any issues and delays in results longer than 48 hours after pick up to the Labs Centre for action. All communication to be made to the Specimens Manager Mr Ahmed Foray Samba on 077208751.

Please note that a new courier timetable will be resent to all existing and new holding facilities each time a new facility opens, confirming any amendments to the schedule.

Advice for newly established holding centres

Before opening, please ensure the following is in place:

- 1) **Identify a key point of contact within holding centres** for the live case management command centre and confirm the name to live case management
 - A contact responsible for decisions on bed capacity
 - A contact to update the command centre on current patients and progress – normally advised through the DSO

This person will receive a CUG phone to make free calls to the Live Case Management Centre

- 2) **Communicate with the live case management team at the command centre before opening**
 - Proposed number of beds for the facility
 - Who the key points of contact will be
 - Proposed opening date
- 3) **Ensure two district surveillance officers have been put in place at your facility to run 24/7 shifts**
 - The live command centre will communicate your opening date to the Surveillance Lead and Mr Charles Keimbe will ensure 2 DSOs are assigned to your facility for the opening day
- 4) **Identify a key contact (the lab lead in your facility) for the labs centre to speak with on**
 - a. The courier run
 - b. Lab results
 - c. Lab issues and emergency lab downtimes

This person will receive a CUG phone to make free calls to the Live Case Management Centre

Appendix 6: Case Paperwork

PATIENT NAME					BED NUMBER	
LABORATORY ID NUMBER						
AGE			GENDER			
ADDRESS						
DISTRICT						
RISK: CONTACT OR TRAVEL						
PROFESSION					If HCW , please record and inform CDC	
SYMPTOMS ON ADMISSION	<input type="checkbox"/> Fever <input type="checkbox"/> Vomiting/nausea <input type="checkbox"/> Vomiting with blood <input type="checkbox"/> Diarrhoea <input type="checkbox"/> Diarrhoea with blood <input type="checkbox"/> Intense fatigue/weakness <input type="checkbox"/> Anorexia/LOA <input type="checkbox"/> Abdominal pain <input type="checkbox"/> Muscle pain <input type="checkbox"/> Joint pain <input type="checkbox"/> Headache <input type="checkbox"/> Cough			<input type="checkbox"/> Difficulty breathing <input type="checkbox"/> Difficulty swallowing <input type="checkbox"/> Sore throat <input type="checkbox"/> Jaundice <input type="checkbox"/> Conjunctivitis <input type="checkbox"/> Skin rash <input type="checkbox"/> Hiccups <input type="checkbox"/> Pain behind eyes <input type="checkbox"/> Coma/unconscious <input type="checkbox"/> Confused/disorientated <input type="checkbox"/> Other bleeding <input type="checkbox"/> Other symptoms		
OTHER BLEEDING OR SYMPTOMS						
DATE OF ONSET SYMPTOMS						
DATE FIRST PRESENTED						
SOURCE OF ADMISSION	<input type="checkbox"/> A&E-TRIAGE TENT <input type="checkbox"/> DSO <input type="checkbox"/> WARD			<input type="checkbox"/> OTHER HOLDING UNIT <input type="checkbox"/> PRISION <input type="checkbox"/> DEAD ON ARRIVAL		
DATE OF ADMISSION						
LABORATORY SAMPLE	TAKEN		SENT		RESULT	
OUTCOME	<input type="checkbox"/> DISCHARGE TO HOME <input type="checkbox"/> DISCHARGE TO WARD			<input type="checkbox"/> REFFERED TO <input type="checkbox"/> DEATH		
DATE OF OUTCOME						

Pulse beats/min

Respiratory rate breaths/min

Mucous membranes dry/moist

Neuro (AVPU) Yes (Y) No (N) Not done (ND)

A: Alert?

If A = Yes walks unaided
walks with assistance
sits unaided
sits with assistance
drinks unaided
drinks with assistance
recalls name

V: Responds to voice?

P: Responds to pain?

U: Unresponsive

Jaundice

Conjunctivitis

Other comments:

Date DD/MM/YY

Time hh:mm

Completed by initials



<HOSPITAL NAME

<DISTRICT>, Sierra Leone

The patient _____

Has been isolated in <HOSPITAL NAME> from _____ to _____

And a blood sample has been taken to perform a test for EBOLA with a NEGATIVE result.

The patient is discharged from the Ebola Holding Unit.

Date _____

<DOCTORS NAME>

<HOSPITAL NAME>

SIGNATURE

ISOLATION UNIT REFFERAL FORM

NAME OF HOLDING CENTRE			
PATIENT NAME			
LABORATORY ID NUMBER			
AGE			
ADDRESS			
FAMILY OR CARER CONTACT NAME		FAMILY OR CARER CONTACT NUMBER	
DATE OF ONSET SYMPTOMS			
DATE OF ADMISSION TO ISOLATION UNIT		DATE OF TRANSFER TO TREATMENT CENTRE	
SYMPTOMS (tick relevant ones)	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>General</p> <p><input type="checkbox"/> Fever</p> <p><input type="checkbox"/> Weakness / severe fatigue</p> <p><input type="checkbox"/> Generalised body/joint pain</p> <p><input type="checkbox"/> Back pain</p> <p>Gastrointestinal</p> <p><input type="checkbox"/> Sore throat</p> <p><input type="checkbox"/> Difficulty swallowing</p> <p><input type="checkbox"/> Chest / epigastric pain</p> <p><input type="checkbox"/> Hiccups</p> <p><input type="checkbox"/> Abdominal pain</p> <p><input type="checkbox"/> Anorexia / loss of appetite</p> <p><input type="checkbox"/> Nausea</p> <p><input type="checkbox"/> Vomiting</p> <p><input type="checkbox"/> Diarrhoea</p> </div> <div style="width: 48%;"> <p>Skin and mucoses</p> <p><input type="checkbox"/> Skin rash</p> <p><input type="checkbox"/> Conjunctivitis</p> <p><input type="checkbox"/> Neurological status</p> <p><input type="checkbox"/> Confused / disorientated</p> <p><input type="checkbox"/> Coma / unconscious</p> <p>Bleeding</p> <p><input type="checkbox"/> Oral / gum bleeding</p> <p><input type="checkbox"/> Haemoptysis</p> <p><input type="checkbox"/> Haematemesis</p> <p><input type="checkbox"/> Melena</p> <p><input type="checkbox"/> Epistaxis</p> <p><input type="checkbox"/> Vaginal bleeding</p> <p><input type="checkbox"/> Haematuria</p> <p><input type="checkbox"/> Other site</p> <p>Other symptoms</p> </div> </div>		
MEDICATION RECEIVED IN ISOLATION UNIT			

A blood sample has been taken and this patient tested POSITIVE for EBOLA.
 This patient is referred to your facility for further treatment and management.

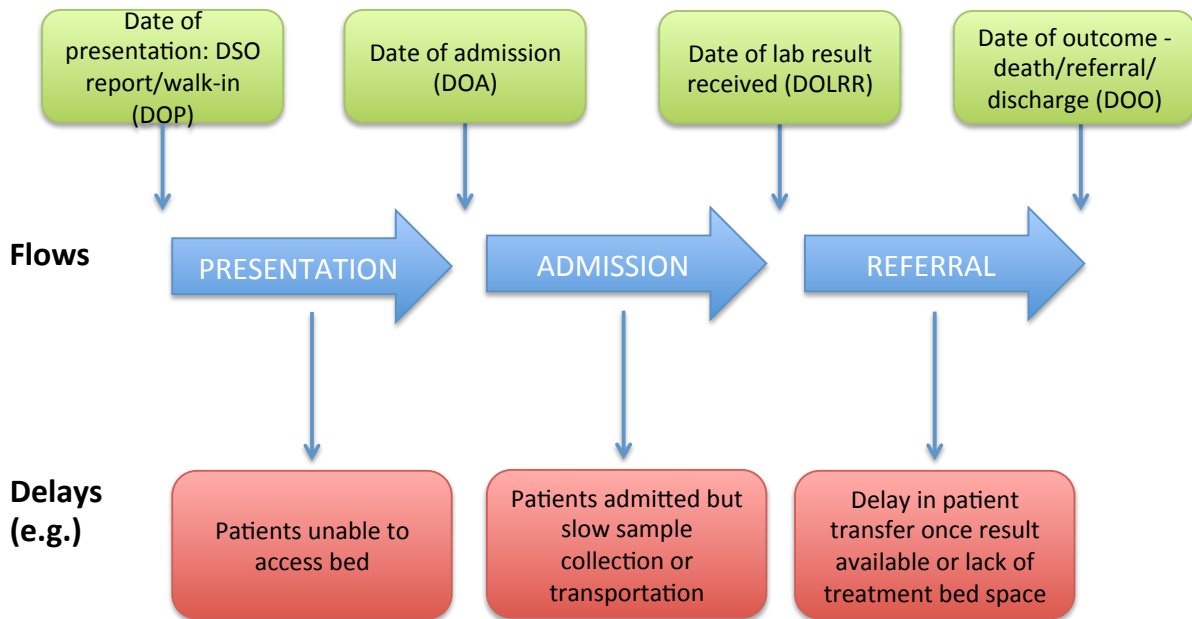
Signed by:

Name:

Position:

LIVE CASE MANAGEMENT METRICS

Metrics



Delays	Goals (d)	Calculation
Patient admission delay	<1	DOA-DOP
Patient result received	1	DOLRR-DOA
Patient transferred to unit	<1	DOO-DOLRR

LAB TESTING - DETAILED

