Iechyd Cyhoeddus Cymru
Public Health Wales

# Personal Protective Equipment (PPE) for all known or suspected cases of Ebola Virus Disease in Acute Healthcare Settings in Wales

## Version 1b – October 2014

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### Background

The outbreak of Ebola Virus Disease (EVD) in West Africa which was first reported in March 2014 is continuing. Ongoing transmission of the virus is continuing to be reported in Guinea, Liberia, and Sierra Leone. Transmission has occurred to healthcare workers in Spain and the USA. The outbreak is not under control and new cases are being reported from both established and new outbreak areas with transmission occurring in both community and healthcare settings. On 8 August the World Health Organisation (WHO) released a statement following a meeting of the International Health Regulation Emergency Committee, declaring the Ebola outbreak a 'Public Health Emergency of International Concern'.

### Rationale

All the available evidence shows that EVD is transmitted via the blood and body fluids of symptomatic infected individuals through direct and indirect contact and droplet contamination. The transmissions in Spain and the USA have shown that the highest risk of transmission is when the affected individuals are in the later, most symptomatic, stages of the disease.

This guidance is based on the highly precautionary principle of instituting the highest level of PPE as early as is practical and maintaining this level of protection until the individual is declared disease free or is no longer in the care of NHS Wales.

In the overwhelming majority of cases in Wales the individual will not have EVD. In the unlikely event that an individual has EVD, the risk of transmission in the early stages of disease is likely to be very low. The highly precautionary approach to PPE will provide a very high degree of protection to healthcare workers, if donned and removed safely.

### Scope

This guidance applies in all acute healthcare settings in Wales. Other guidance is available for primary care and non-health settings and for Welsh Ambulance Service NHS Trust.

### When does PPE need to be worn?

All the PPE described in this guidance must be worn as soon as an individual is suspected of meeting the case definition for EVD as described in the HSE/ACDP[1] "Viral Haemorrhagic Fevers Risk Assessment" algorithm. [https://www.gov.uk/government/publications/viral-haemorrhagic-fever-algorithm-and-guidance-on-management-of-patients] PPE must be worn by all persons in contact with the individual until a risk assessment has been carried out. If the risk assessment concludes there is any risk of EVD, full PPE must be maintained (whether immediate testing for EVD is conducted or not). Full PPE must be worn by all persons entering the room of a known or suspected

EVD patient until the individual is declared disease free or is no longer in the care of NHS Wales. Full PPE must also be worn for management of spills of blood and body fluids from all known or suspected cases and for terminal decontamination of facilities following known cases.

## What PPE should be worn? (See also Appendix 1)

### *In all cases:*

- PPE must establish a full barrier against contact with contaminated surfaces, splash, spray, bulk fluids and aerosol particles.
- PPE must cover all exposed skin with sufficient integrity to prevent any ingress or seepage of liquids or airborne particles.
- Any cuts/lesions or damaged skin must be covered by a waterproof dressing. Staff in whom this can't be achieved must not have contact with EVD cases.

### *To cover hands:*

- Double gloves using surgical gloves (for dexterity and longer cuff to overlap coverall/body coverall junction with wrist).

### *To cover body area:*

- Fluid repellent coverall. Plastic apron over the top of coverall. Scrubs underneath (scrubs to be laundered using normal hospital laundry process, not taken home).

### *To cover head and neck:*

- Wear full head and neck protection to enter the patient's room.

### *To cover face, including mucous membranes of the eyes, mouth and respiratory tract:*

- FFP3 respirator* combined with a compatible full face visor.
- Facial protection must ensure that all potentially exposed skin/mucous membrane is completely covered.

* Powered hood respirators are an alternative for HCW who can't be successfully fit-tested for FFP3.

### *To cover feet:*

- Wellington style boots and/or overboots to enter room

For advice on procurement of PPE see appendix 2

## Donning and removal of PPE

### *Healthcare Workers donning PPE must be:*

- Practiced/drilled in both donning and removal of PPE with a 'buddy'
  - The 'buddy should maintain a minimum 1 metre separation from the healthcare worker who is removing PPE
  - The buddy will take no part in the physical removal of PPE, their role is to talk through the process, observe, check PPE integrity and through reminders, prevent contamination of the skin and mucous membranes
- Fit tested for the FFP3 mask they will be wearing
- Logged as having been in contact with a known or suspected case

### *Process for donning PPE:*

- Clean your hands [WHO Moment 1]
- Don PPE in the presence of a 'buddy' who will check PPE is intact and effectively covers all areas of potentially exposed skin and mucous membranes (i.e. eyes nose and mouth)
- The order of donning is less important than the check that must be done once donned, to ensure that all PPE is intact and covers all areas of potentially exposed skin and mucous membranes.
- The inner pair of gloves must be under the cuff of the coverall
- The outer pair of gloves must be over the cuff/sleeve of the coverall
- The FFP3 mask tapes must be under the hood of the coverall
- The visor strap must be under the hood of the coverall. In all cases, the primary facial protection must be fastened under the hood for safe removal
- All fastenings and fit must be checked by the buddy

### *Healthcare Workers removing PPE must be:*

- Practiced/drilled in both donning and removal of PPE with a 'buddy'
- Logged as having been in contact with a known or suspected case

### *Process for removal of PPE*

- Remove PPE in the presence of a 'buddy' – wait after each stage of removal for the 'buddy' to confirm safe removal of each item, 'talk the process' with the buddy as you go along
- It is vital to avoid contamination of exposed skin and in particular mucous membranes during PPE removal
- Facial PPE (FFP3 mask/visor) must ONLY be removed after hands have been decontaminated and fresh single use gloves donned (examination gloves are adequate).
- All PPE must be placed immediately in a category A (yellow stream) receptacle on removal

### *Sequence of PPE removal*

- Remove the apron, the outside is potentially contaminated, snap the tie at the neck, roll the apron down away from your body, snap the tie at the waist, roll the apron away and dispose of
- If overboots worn, remove now; the outside is potentially contaminated, dispose of

- Remove the outer pair of gloves, turn the gloves inside out as you remove them and dispose of
- Carefully take down the hood of the coverall, the outside is potentially contaminated.
- Remove the coverall, the outside is potentially contaminated, the inner gloves can be removed with the coverall, wellingtons should be stepped out of. The coverall should be rolled down, touching only the inside once the gloves are removed - and disposed of
- Clean your hands immediately after this step (alcohol hand rub is effective on physically clean hands) [WHO Moment 3]
- Don fresh single use gloves (examination gloves are adequate)
- Remove the visor, the front is potentially contaminated, touching only the straps remove from the rear and dispose of
- Remove gloves; clean your hands [WHO Moment 3]
- Don fresh single use gloves (examination gloves are adequate)
- Remove the FFP3 mask, the front is potentially contaminated, using both hands, snap the ties at one side and remove the mask towards the opposite side, away from the face, and dispose of
- Remove gloves; clean your hands [WHO Moment 3]
- Your 'buddy' should confirm no risk of self contamination
- Ensure waste is safely contained (using standard precautions) and clean hands [WHO moment 3]
- Clean hands after leaving the donning/removal area [WHO Moment 5]


## Acknowledgement

Based on materials from

Public Health England

Health Protection Scotland

Advisory Committee on Dangerous Pathogens/Health and Safety Executive

## Appendix 1: Summary of Infection Prevention Precautions for EVD (adapted from Health Protection Scotland)

### For all cases of suspected or confirmed EVD in acute settings in Wales

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| Patient placement | Single room with anteroom and en suite toilet; if possible with negative pressure ventilation. (Under no circumstances should a room at positive pressure to other areas be used) |
| Moving between wards and departments within the hospital | Do not transfer unless under the supervision of Infection Prevention Control Team (IPCT) and/or Infectious Disease Consultant |
| Contact with people | Limit contact with staff to essential only, keep an up to date list/log of who enters the room or has any contact with the patient<br>Clinical staff in room only, no domestic or housekeeping staff |
| Precautions required | Standard Precautions plus contact and droplet precautions (+ FFP3 mask as highly precautionary measure/cover for aerosol generating procedures) |
| PPE | PPE must establish a full barrier against contact with contaminated surfaces, splash, spray, bulk fluids and aerosol particles<br>PPE must cover all exposed skin with sufficient integrity to prevent any ingress or seepage of liquid or airborne particles |
| PPE: to cover hands | Double gloves using surgical gloves (for dexterity and longer cuff to overlap coverall/body coverall junction with wrist) |
| PPE: To cover body area | To enter room: fluid repellent coverall. Plastic apron over the top of coverall. Scrubs underneath |
| PPE: to cover head and neck | Wear full head and neck protection to enter the patient's room (included in coverall) |
| PPE: to cover face, including mucous membranes of the eyes, mouth and respiratory tract | FFP3 respirator & compatible eye protection (visor) to enter room (must cover all exposed skin). |
| PPE: to cover feet | Wellington style boots and/or overboots to enter room |
| Equipment | Single Use (e.g. B/P, wash bowl, thermometer)<br>Keep supplies out of the room<br>Use needle safety devices where possible<br>DO NOT remove equipment from the room without permission of IPCT |
| Specimens required | Do not take specimens without discussion with ID physician<br>Urgent VHF testing<br>Urgent Malaria screen<br>FBC, U&E, LFTs Glucose, CRP, coagulation studies, culture and blood cultures |
| Process/transport of specimens | Notify lab in advance of sending specimens<br>Can be Containment Level 2 (CL2) with permission / additional procedures<br>No vacuum transport of specimens |
| Healthcare waste | Double Yellow bag<br>Category A waste (autoclave/incinerate)<br>Hold waste in patient's room until EVD status is known |

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|---|---|
| Laundry | Hold in patient's room as 'infected' linen until EVD status is known. If confirmed EVD, dispose of as healthcare waste, if patient is not EVD, launder as normal policy |
| Crockery and cutlery | Disposable (Category A waste) |
| Toileting facilities | Patient may use a toilet<br>Commode / bedpan: solidify contents – (Category A waste autoclave/incinerate) |
| Disinfection of toilets and commodes | 10,000 ppm available chlorine (av cl) after each use |
| Spills of blood and body fluids | Blood and other body fluids except urine 10,000 ppm av cl<br>Contact time 3 minutes<br>Urine – solidify then discard as Category A waste. Use 10,000 ppm av cl for 3 minutes contact time to disinfect area<br>Wear full PPE as above |
| Notification | Inform local Microbiology/Virology and Health Protection (Public Health Wales) who will liaise with other teams/agencies as required |
| Room decontamination | If not EVD – normal terminal clean<br>If confirmed EVD – IPCT will liaise with High Level IDU for advice on fumigation process. Seal off area until process agreed. |
| Stand down – when precautions can be discontinued | Consultant Microbiologist / ID physician confirms it is safe to stand down, e.g.<br>the patient is<br>• EVD and other VHF negative<br>• responding to treatment for an alternative diagnosis<br>• Apyrexial for 24 hours<br>(discuss with Imported Fever Service for other diagnosis) |

## Appendix 2: Advice for Purchase of Required Personal Protective Equipment (PPE) for Viral Haemorrhagic Fever (VHF) Preparedness

NHS Wales organisations have already sourced suitable PPE for inclusion in EVD/VHF preparedness supplies but as guidance is re-examined in light of growing experience and knowledge of how the virus is spread organisations may now need to review the PPE available.

This document seeks to aid procurement of EVD/VHF appropriate PPE by suggesting suitable products to be included, their purchase codes and prices.

| Areas Protected | Description of PPE and Product Suggestion(s) |
|---|---|
| Body, Head and Neck | Choose a coverall in material which achieves the highest classification for protection against biological agents in accordance with EN 14126:2003 for penetration of blood, body fluids and blood-borne pathogens. The coveralls should have ultrasonically welded seams, a two-way front zip with re-sealable storm flaps, elasticated waist and hood, elasticated wrists (of the same material) and finger loops to prevent sleeves from slipping down. For additional protection to critical areas a disposable plastic apron should be worn over the coverall. |
| Footwear | Feet should be protected with impermeable footwear such as wellington boots and/or disposable overboots - these have an elasticated opening and a tie fastening to prevent potentially infectious fluids from entering the top of the boot. |
| Respiratory PPE | Although many VHF species (e.g. Ebola virus) are not typically transmitted by the airborne route, aerosol generating procedures have the potential to create an airborne exposure risk; therefore fluid resistant FFP3 respirators should be worn when performing aerosol generating procedures. In addition, aerosols may be created by the patient vomiting, coughing, sneezing etc.<br><br>This guidance makes no recommendation on brand/model of FFP3 as these should already be available and fit-tested locally as standard. It is understood that FFP3 respirators may not provide a good fit for all HCW; in this case a full face respirator may be required.<br>Coveralls that are designed to provide an optimal fit with full face respirators should be purchased; should HCWs decide to use full face respirators it is anticipated that face-shields and FFP3 would not be required. |
| Face and eyes | The HCW must wear an FFP3 respirator and a compatible full face-shield/visor. All exposed skin must be covered. Face-shields must provide crown and chin protection and should wrap around the face, with an anti-fog visor. |