Management of Adults with Suspected Viral Haemorrhagic Fever

Regional Infectious Diseases Unit, Ward 74, Royal Victoria Building, Western General Hospital, Edinburgh

Contents:

Authors:	Version:	Revised:	Review date:
K. Hill, C. Mutch, C. Russell, M. Wiseman, O. Koch	15.1	Nov 2024	July 2025

1. Risk assessment

National guidelines indicate the appropriate levels of personal protective equipment (PPE) for different levels of clinical risk of a viral haemorrhagic fever (VHF), but implementation of these at a local level must be adapted based on available facilities. This document only relates to adult patients admitted to the ID unit on ward 74 in the Royal Victoria Building, Western General Hospital. It provides information on the practical implementation of PPE and infection control for suspected/confirmed VHF.

The Advisory Committee on Dangerous Pathogens (ACDP) has produced specialist guidance to assist with initial VHF risk assessments. This algorithm, and links to up-to-date epidemiological data, is available at

https://www.gov.uk/government/publications/viral-haemorrhagic-fever-algorithm-and-guidance-on-management-of-patients

Blood samples should not be taken or sent to the lab until the risk assessment has been carried out and discussed with the on-call ID Consultant.

The outcome of the risk assessment, conducted in accordance with the ACDP algorithm, will allow classification of the scenario into two categories, used to determine the appropriate infection control and PPE requirements:

- **Minimal risk**
- **Staff at risk**

The risk assessment is a dynamic process that can be revised if/when further information and test results (e.g. malaria) become available.

For practical reasons, if a patient has **uncontrolled bleeding, diarrhoea or vomiting**, the scenario should automatically be classified as "Staff at risk" to allow adoption of enhanced PPE due to the increased risk of exposure to body fluids.

The risk of VHF should be reassessed if a patient with a relevant exposure history fails to improve or develops one of the following:

- Nosebleed
- Bloody diarrhoea
- Sudden rise in ALT
- Sudden fall in platelets count
- Clinical shock
- Rapidly increasing O_2 requirements in the absence of alternative diagnosis

2. Overview of infection control and PPE requirements

Risk	Transfer to w74	Accommodation	PPE	Specimen handling
Minimal risk	No special arrangements.	Single room with en-suite (or dedicated commode). Single use disposable equipment. Numbers of staff should be restricted and a contact log should be kept.	▪ Disposable plastic apron (worn over usual uniform; scrubs not required) ▪ Usual footwear ▪ Disposable full-face visor ▪ Fluid-repellent surgical face mask ▪ Single pair gloves ▪ FFP3 respirator mask (or Jupiter Hood) **if** performing AGP[1,2]	▪ Normal procedure: processed at local hospital containment level 2 lab. ▪ **Clinicians will inform lab of low-risk status** so that specimens can be retained pending clarification of waste status. ▪ Do not use tube system for specimen transport. ▪ If patient is **reclassified to high risk**, then lab staff will arrange to courier any existing samples to **containment level 3 lab at RIE** for haematology/biochemistry.
Staff at risk[3]	If feasible, a relative already exposed to the patient brings patient to RVB. If not, call Ambulance Control Centre and ask for National Operations Manager who will discuss with Strategic Manager for National Resilience Centre to deliver a proportionate response. **Call ASAP; arrangements may take time.** SAS may wish to set up a teleconference to discuss.	**Admit to room 15, ward 74, RVB WGH.** Single use disposable equipment. Numbers of staff should be restricted and a contact log should be kept.	**See Section 3.5.**	▪ **All specimens will go to containment level 3 lab at RIE** (*via* specialist courier arranged by Virology). ▪ Do not use tube system for specimen transport. ▪ Malaria testing will be with thin film and RDT (thick films cannot be fixed for removal from CL3 for examination/confirmation checks). Lab staff aware to be cautious of low level parasitaemia easily missed without thick film. ▪ If malaria negative, patient remains high risk. Haem/biochem processed in CL3, VHF test requested if this has not already been done. ▪ If malaria positive, Haem/biochem processed in CL3. Risk status will be re-assessed. Patient may be reclassified to low risk or may remain high risk whilst VHF test and response to antimalarial therapy are assessed. ▪ ***If confirmed VHF***, further laboratory testing in Edinburgh will be avoided if possible. If it is judged clinically necessary to do haem/biochem on patient with confirmed VHF this will be done in CL3 at RIE as above. This decision will be taken in consultation between ID and Virology consultants.

RVB: Royal Victoria Building.

[1] Aerosol generating procedures: endotracheal intubation, positive pressure ventilation, chest physiotherapy, nebuliser therapy, sputum induction

[2] If prolonged patient encounter planned then Jupiter Hood will be more comfortable and may be preferred

[3] Includes "minimal risk" cases with uncontrolled bleeding, diarrhoea or vomiting.

3. Practical guidelines for managing "Staff at risk" scenario

This section deals with admission of a patient from the community, or arrival of patient by ambulance from another hospital.

Overview:

1. Patient placement and room usage

2. Assign roles

3. Prepare w74 to receive patient

4. Admission of patient

5. Healthcare worker PPE

3.1. Patient placement and room usage

Three options exist for initial room usage, to be decided at the discretion of the ID consultant in charge, based on their clinical assessment of the case.

One room option

Patients at minimal risk of VHF are admitted to room 15. Basic assessment PPE as per above 'minimal risk' category. No additional room closures required.

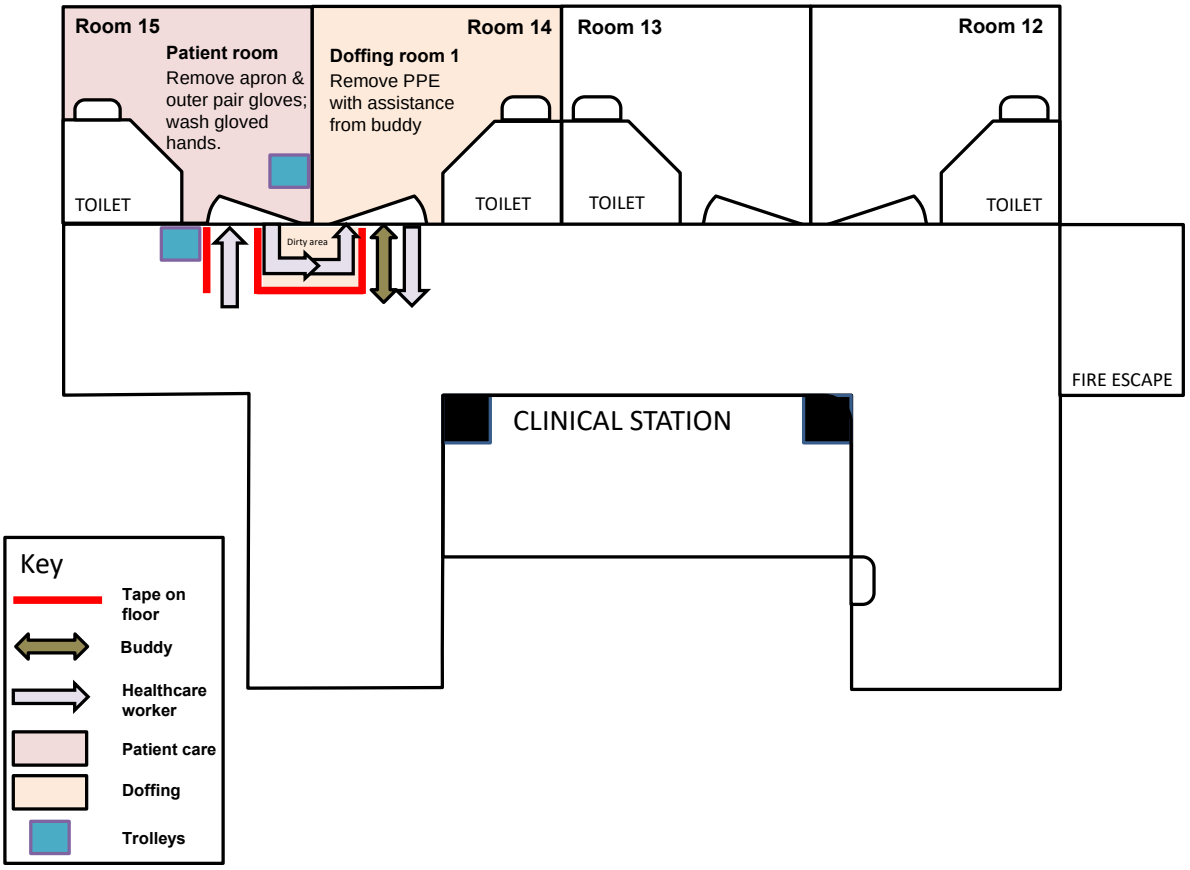
Two room option

This option can be used for admitting patients who have been assessed as 'at risk of VHF/staff at risk' (see above) but who are clinically well, do not have uncontrolled vomiting/diarrhoea/bleeding, or where an alternative diagnosis is thought to be more likely. Enhanced PPE as per above table.

Room	Allocation
14	Doffing
15	Patient room

Following assessment of patient once admitted, evacuation of rooms 12 and 13 could be undertaken if needed, for example if uncontrolled vomiting/diarrhoea/bleeding, or the diagnosis of VHF is considered more likely.

Room usage in two room option:



Four room option

Room	Allocation
12	Donning
13	Showering
14	Doffing
15	Patient room

Further evacuation of ward 74

In the event of a confirmed VHF case, rooms 10, 11, and 16 would also be evacuated to reduce traffic and risk of patients/staff inadvertently coming into proximity with the dirty area outside room 15.

3.2. Assign roles

See checklists in Appendix 1

NURSING

Nurse in charge/coordinator #1 will designate a second coordinator, each with the following roles:

- **Coordinator #1 (Evacuation coordinator)**:
  - Prepare patient admission room
  - Prepare donning and doffing rooms
  - Identifying boarders with help of consultant or registrar
  - Overseeing evacuation

- **Coordinator #2:**
  - Ongoing care of those remaining on ward
  - Preparing patients for evacuation if required
  - Notify Infection Prevention and Control Team (if out of hours, notify Lindsay Guthrie via switchboard)

- **NB: a minimum of 4 staff members (including admitting medic) will be required to assist with admission of patient through RVB into w74.**

MEDICAL

- On-call consultant:
  - For high-risk patients it is suggested that the presence of a second ID consultant should be sought for practical reasons of time spent on patient care, requirement for breaks and requirement for regular telephone calls with Public Health etc.

- On-call registrar (9am to 7pm; 7pm to 9am only if available / on-call):
  - Present to assist with direct patient care, liaise with Virology, and facilitate identification of boarders

SITE & CAPACITY

- The **evacuation coordinator** (#1) will contact bleep 8100/Site &Capacity to advise of high-risk admission and whether need for evacuation of any rooms on w74.
- **Site & Capacity coordinator/8100** will initiate business continuity plan, prioritising domestic, security and portering assistance to w74.
- **The site & capacity coordinator** should make their way to w74 to assist in the evacuation plan. This will include
  - identifying and allocating support staffing from rest of site to care for patients and assist in evacuation
  - assisting in identifying boarding areas within WGH
  - contacting domestics for cleaning of evacuated rooms

3.3. Prepare w74 to receive patient

RIDU nursing staff will be guided by the **evacuation coordinator.**

Coordinator #1:

1. **Identifying boarding patients – the ID consultant oncall will provide guidance.** These patients should ideally be *(a)* fittest, *(b)* most independent and *(c)* not require isolation, though the reality of the usual inpatient cohort dictates this will be imperfect. Other areas identify boarders for the evacuation areas and accommodate our patients that are requiring isolation or assistance of >1 and handover to Coordinator #2 for the evacuation of ward 74 HCID area.

2. **Tape floor markings** (see Figure 1)

3. **Trolley/equipment placement**. Put prepared trolleys and equipment in correct locations (prep rooms/decontamination etc). See attachments for trolley lists/locations.

4. Place trolley inside Room 15 directly beside door for hard plastic container to place bag of blood tubes into prior to leaving room.

5. Place trolley outside Room 15 for clean outer box to contain specimens for lab.

Coordinator #2:

1. **Contact Site & Capacity coordinator/8100** to clarify patients requiring evacuation, ensure clearly advise of those which will require isolation

2. **Packing up patients**, including documentation, drug charts and medications, to be moved out. ***Patient movements should be updated in real time on Trak***.

3. **Advise Domestic Supervisor/Staff** when rooms are free and ready to clean

Evacuation of 4 patients from RIDU <u>if required</u>

Patients should be boarded to appropriate beds in medical or surgical wards as directed by site co-ordinator/8100.

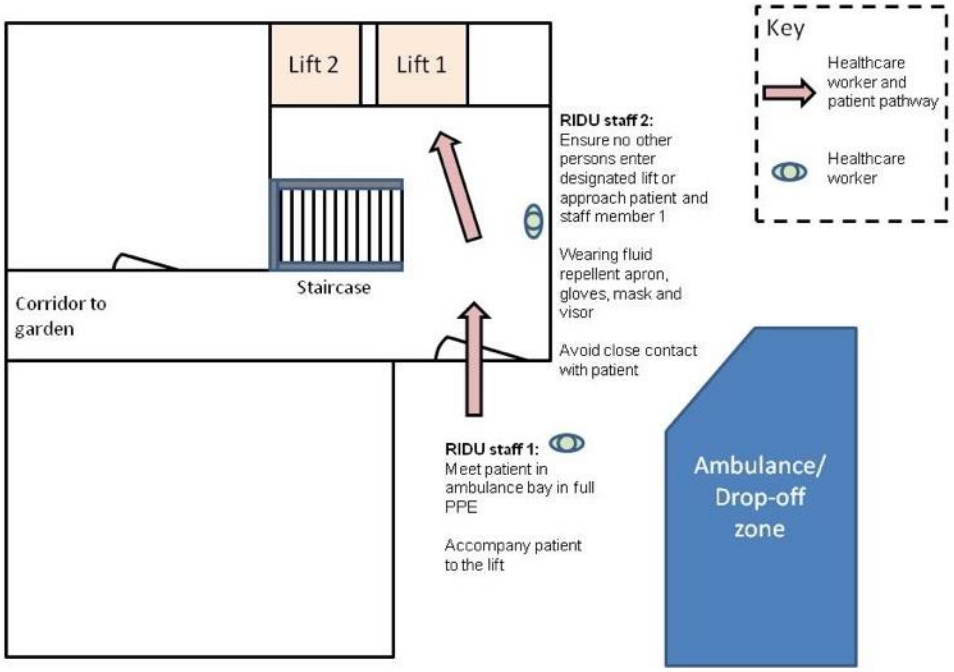
WGH theatre recovery is a last resort option, where 4 beds could be created.

3.4. Admission of patient to w74

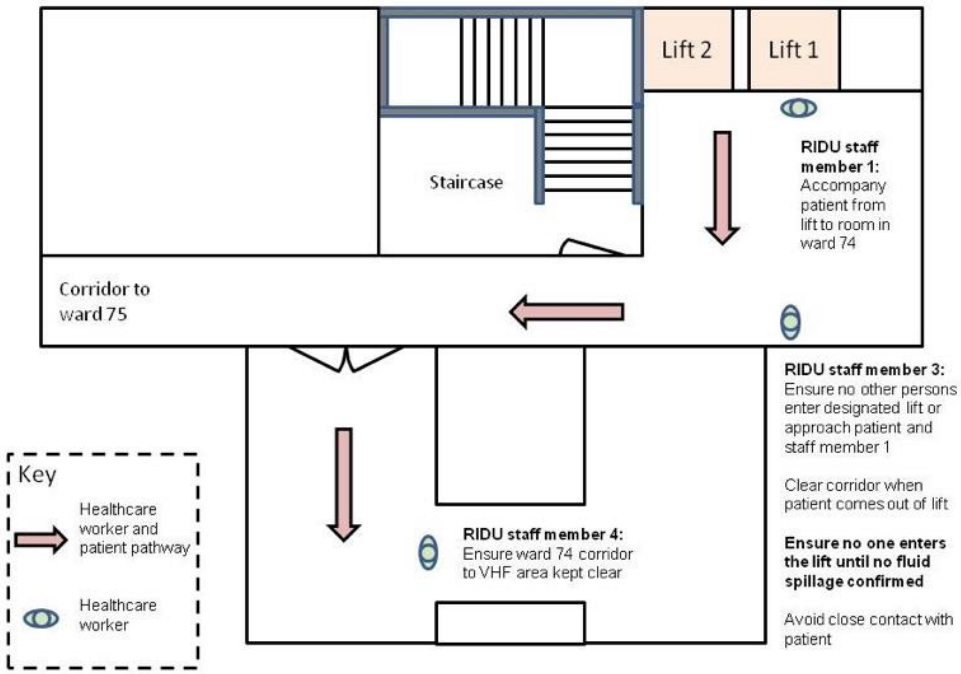
At least four team members are required to meet patient and transport them to w74:

1 Meet patient and accompany them +/- SAS crew to patient room.
2 Stand in RVB basement and clear area + lift not used after transfer until confirmed safe
3 Stand in level 2 corridor, ensure area clear + lift not used after transfer until confirmed safe
4 Stand in ward 74 corridor and ensure area clear

Route from Ambulance bay to lifts in basement (level -1)



Route from level 2 lift to ward 74



- Patient arrives at the RVB building ambulance bay, either by SORT ambulance, having driven themselves, or driven by a relative.
- If not arriving by ambulance the patient/relative should be instructed to phone the ward mobile phone (07580 342 100) to announce arrival.
- If driven self, instruct to park car at far end of ambulance bay, as close to kerbside as possible.

↓

The patient should remain in the vehicle until a member of the ID team in appropriate PPE meets them **outside the building** in the ambulance bay.

↓

If possible, patient should wear surgical mask (to be provided by ID team) and have sick bowl if needed. Wheelchair may be required if patient unable to walk.

↓

- Enter RVB via level -1/basement entrance and take the elevator to ward.
- Both elevators will be isolated using isolator keys.
- Ensure lift not used by patients or staff until no body fluid spill confirmed.

↓

Admitting team member accompanies patient to room to begin assessment.
SAS crew may also enter via this route to undertake doffing in RIDU.

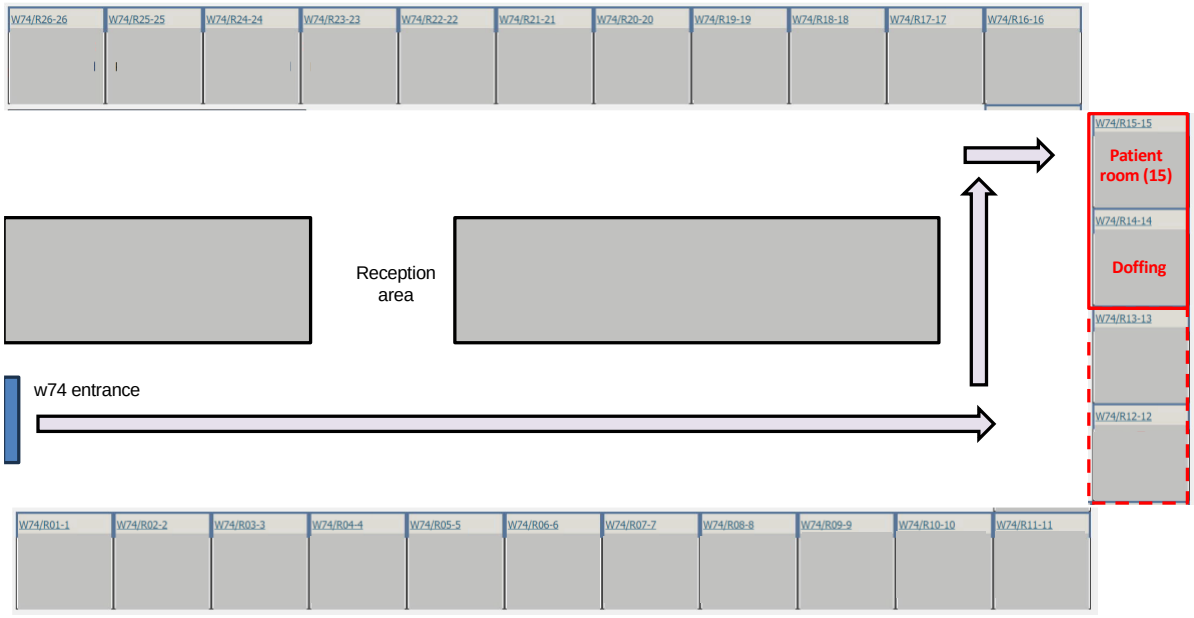
Subsequent cleaning:

If there is **no body fluid contamination,** then decontamination/cleaning of the area is not required.

If there is **visible body fluid contamination** i.e. vomit, blood, diarrhoea, it is the responsibility of the nursing team to provide initial decontamination by removal & cleaning of the body fluid spill and then area should be closed off and further advice sought from public health i.e. await VHF result before domestics are requested to clean. **You must ensure that it is clear that this area remains closed for all other staff/patients.**

Once patient is isolated, and no body fluid spillage has occurred, Coordinator #1 can re-open the admitting pathway– presence/absence of body fluid spill must be communicated by admitting staff member.

Route from ward 74 entrance to room 15



3.5. PPE donning and doffing for "Staff at risk" scenario

In this section **HCW** refers to the healthcare worker having direct patient contact, and **buddy** refers to the person allocated to assisting HCW don and doff correctly.

Doffing PPE properly and adhering to the one-way system are as important as keeping covered up whilst in the isolation room.

Generally, FFP3 masks are preferred for their ease of use. Alternatively, where FFP3 masks cannot be used, a Powered Air Respirator System (referred to as Jupiter Hood) is available. Below you will find detailed instructions for donning and doffing, depending on whether you are using FFP3 mask or Jupiter Hood.

Nb.
It is **not** recommended to tape the second pair of gloves to the sleeve of the coverall due to risk of the tape tearing the coverall material.

Summary of PPE:

- Surgical scrubs
- Fluid repellent disposable coverall with hood
- Plastic apron over coverall
- Wellington boots + overshoes
- Triple gloves
- FFP3 respirator or Jupiter Hood
- eye protection: disposable full-face visor (no additional visor required if using Jupiter Hood)

Donning healthcare worker PPE (FFP3 Mask)

STEP	ACTION
0	Before donning PPE, the HCW should: • Change into scrubs • Perform hand hygiene • Ensure that all cuts or abrasions are covered with a waterproof dressing • Avoid wearing glasses • Tuck scrubs into socks
1	• Don disposable, fluid repellent coverall (with hood). • Only pull-on lower portion of the coverall first.
2	• Sit down. • Pull coverall legs up towards knees. • Put on Wellington boots. • Pull the legs of coverall down over Wellington boots.
3	• Don disposable overshoes. • Tuck in the ties at the back of the boot, behind knee.
4	• Pull up and zip coverall to waist.
5	• Don your FFP3 respirator.
6	• Don first pair of long cuffed surgical gloves.
7	• Pull up remainder of coverall. • Ensure thumb loops are utilised when putting arms into the coverall.
8	• Pull hood of coverall up, fully covering head.
9	• Your buddy will then assist to zip up and apply storm flap.
10	• Apply powder to gloves and don second pair of long cuffed surgical gloves. • Ensure cuffs of the coverall are covered.
11	• Don third pair of normal gloves. These can be removed and replaced within patient's room and without compromising PPE integrity (hand hygiene should be performed between any change).
12	• Don disposable long length apron.
13	• Don full face visor
14	Your buddy will now complete a 360° check of your entire PPE kit ensuring it is fitted properly and adjusted as required before entering the patient's room.

Donning healthcare worker PPE (Jupiter Hood)

STEP	ACTION
0	Before donning PPE, the HCW should: • Change into scrubs • Perform hand hygiene • Ensure that all cuts or abrasions are covered with a waterproof dressing • Avoid wearing glasses • Tuck scrubs into socks
1	• Try Jupiter belt and ensure belt is adjusted for good fit before putting PPE on. • Ensure correctly assembled, recently calibrated and perform airflow check.
2	• Don disposable, fluid repellent coverall (with hood). • Only pull-on lower portion of the coverall first.
3	• Sit down. • Pull coverall legs up towards knees. • Put on Wellington boots. • Pull the legs of coverall down over Wellington boots.
4	• Don disposable overshoes. • Tuck in the ties at the back of the boot, behind knee.
5	• Pull up and zip coverall to waist.
6	• Don first pair of long cuffed surgical gloves.
7	• Pull up remainder of coverall. • Ensure thumb loops are utilised when putting arms into the coverall.
8	• Apply powder to gloves and don second pair of long cuffed surgical gloves. • Ensure cuffs of the coverall are covered.
9	• Hood of coverall will be tucked into neck of coverall by buddy. • Your buddy will then assist to zip up and apply storm flap.
10	Don Jupiter belt.
11	• Don Jupiter hood. • Buddy will connect breathing tube and switch on.
12	• Don third pair of normal gloves. These can be removed and replaced within the patient's room and without compromising PPE integrity (hand hygiene should be performed between any change).
13	• Don disposable long length apron. Buddy will assist to tie to ensure sits high on chest: • Break neck band and tie over breathing tube

	• Tie waist ties over breathing tube
14	Your buddy will now complete a 360° check of your entire PPE kit ensuring it is fitted properly and adjusted as required before entering the patient's room.

If wearing Jupiter Hood:

Try Jupiter belt and ensure belt is adjusted for good fit before putting PPE on.

Ensure correctly assembled and perform airflow check.

Ensure any cuts/abrasions are covered with waterproof dressing.

Don disposable, fluid repellent coverall (with hood).

Only pull on lower portion of the coverall first.

Sit down and pull coverall legs up towards knees.

Put on Wellington boots.

Pull the legs of coverall down over Wellington boots.

Don disposable overshoes.

Tuck in the ties at the back of the boot, behind knee (don't tie them).

Pull up and zip coverall to waist.

If applicable: don FFP3 respirator.

Don first pair of <u>long cuffed</u> surgical gloves.

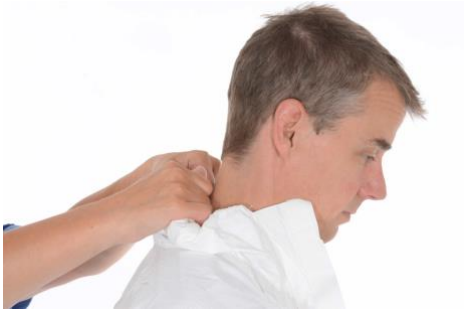
Pull up remainder of coverall.

Use thumb loops when putting arms into the coverall.

<u>If wearing FFP3</u>: pull hood of coverall up, fully covering the head.

Your buddy will assist to zip up and apply storm flap.

<u>If wearing Jupiter Hood</u>:
Hood of coverall will be tucked into neck of coverall by buddy.
Then don Jupiter belt and hood.



Apply powder to gloves and don second pair of <u>long cuffed</u> surgical gloves.

Ensure cuffs of the coverall are covered.

<u>Do not</u> tape gloves to coverall: risk of tearing coverall when moving arms.

Don third pair of <u>normal</u> gloves.

If wearing FFP3:

Don disposable long length apron. Your buddy will assist to tie behind your back.

Don full face visor.

Your buddy will now complete a 360º check of your entire PPE kit.

You are now ready to proceed to patient's room.

If wearing Jupiter Hood:

Don disposable long length apron. Your buddy will assist to tie (see below).

Your buddy will now complete a 360º check of your entire PPE kit.

You are now ready to proceed to patient's room.

<u>Donning apron</u>:

Break neck band and tie over breathing tube.

Tie waist ties over breathing tube.

Donning buddy PPE

The buddy will wear the following PPE while helping the HCW remove their contaminated PPE:

- Disposable hospital scrubs
- Theatre clogs
- Disposable over shoes
- Disposable, fluid repellent, floor length surgical gown
- Long length plastic apron
- Head cover
- FFP3 mask (note that buddy cannot use Jupiter hood as they cannot remove this safely themselves)
- Disposable visor
- Ordinary gloves
- Long cuffed gloves under &over gown cuffs (powder if necessary)

STEP	ACTION
0	Before donning PPE the BUDDY should: • Change into scrubs • Perform hand hygiene • Ensure that all cuts or abrasions are covered with a waterproof dressing • Avoid wearing glasses • Be wearing theatre clogs
1	Don overshoes
2	Don floor length disposable fluid repellent gown – you may need to ask someone to fasten the Velcro at the back and ensure you are fully covered.
3	Don long length plastic apron – break ties at neck and re-tie to sit as high on your chest as possible.
4	Don first pair of long cuffed gloves – ensure they go under the cuffs of your gown.
5	Don your head cover.
6	Don your FFP3 mask
7	Don second pair of long cuffed gloves – ensure these go over the cuff of your gown. Use talcum powder to help.
8	Don full face visor.
9	Don third pair of normal length gloves.
10	You are now ready to go to room 14 to assist the HCW doffing.

Initial doffing steps (for both FFP3 and Jupiter hood users)

Before you leave the patient's room

It should always be assumed that the outer pair of gloves and apron front are contaminated. Whilst in the patient's room the HCW should remove these in the following manner:

1. **Wash gloved hands**
2. **Remove apron**
    a. Burst straps of apron at neck allowing top half to fold
    b. Burst waist straps pulling away from body
    c. Fold and roll apron inward into a bundle
    d. Discard into designated waste
    e. Alcohol gel hands
3. **Remove outer (3rd pair) gloves**
    a. Pinch the outside of the glove with opposite gloved hand
    b. Peel off
    c. Hold removed glove in gloved hand
    d. Pinch wrist of other glove and pull
    e. Peel the second glove over the first
    f. Discard into designated waste
    g. Alcohol gel gloved hands (now with 2 pairs gloves)

You are now ready to leave the patient's room and proceed to room 14.

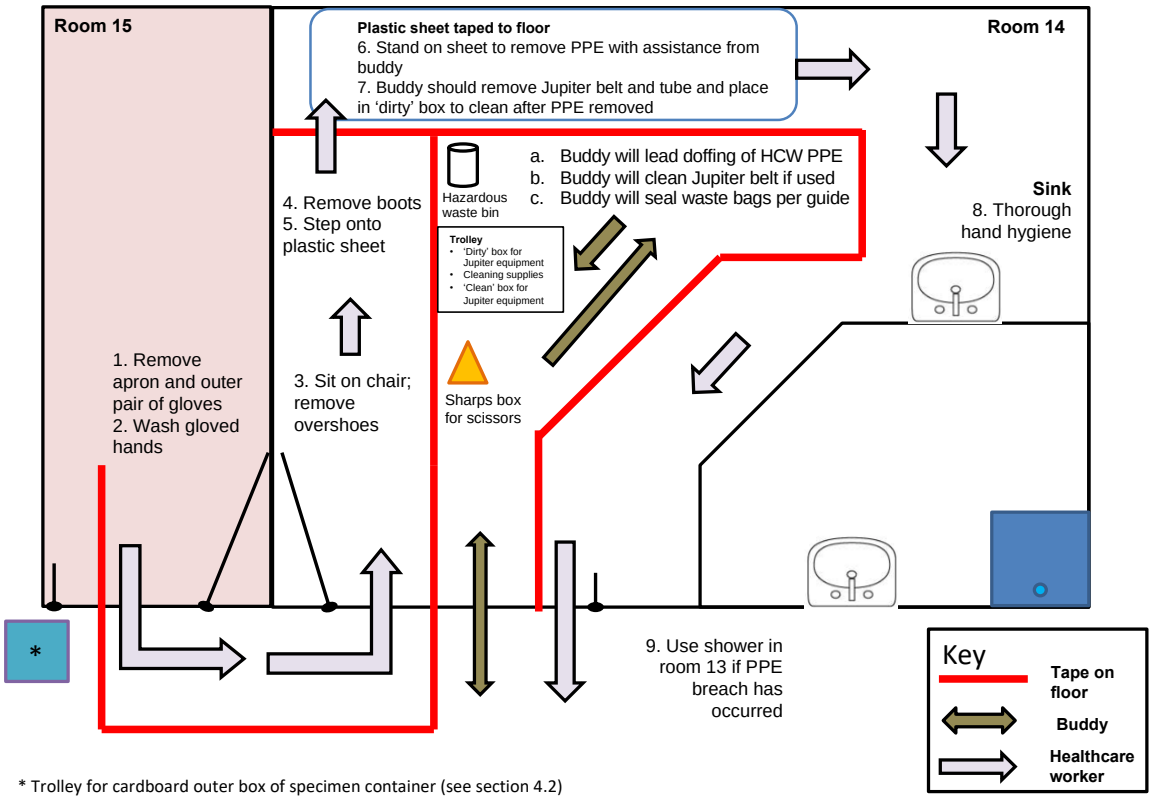
In room 14

Remove overshoes

1. Put on clean gloves (so that you are wearing a 3rd pair)
2. Sit to remove overshoes
3. Start with **RIGHT** foot. Holding the front of overshoe cut down the inside of your leg right down to soles
4. Roll overshoe down so that you can lift boot out, leaving overshoe on floor
5. Repeat with left foot
6. Dispose of overshoes into waste bin in centre of room
7. Dispose of scissors in sharps bin
8. Remove third pair of gloves and drop into waste bin
9. Apply alcohol gel to gloved hands (i.e. to second pair of gloves)
10. Clean chair (Actichlor and wipe). Wipes & chlorclean bottle should be kept next to chair
11. Use the boot jack to remove Wellington boots
    - Stand facing jacks (taped to floor) and remove RIGHT boot first by;
    - Placing LEFT FOOT on JACK1
    - Put RIGHT HEEL into JACK 1

- Gently pull coverall leg to release boot
- Place SOCKED RIGHT FOOT on JACK 2
- Put LEFT HEEL into JACK 2
- Gently pull coverall leg to release boot
- Step onto plastic sheet
- Pick Wellington boots up and dispose into waste bin

12. Step onto plastic sheet to begin PPE removal with assistance from buddy



* Trolley for cardboard outer box of specimen container (see section 4.2)

Doffing healthcare worker PPE (FFP3 mask)

After stepping onto plastic sheet in room 14 (with boots removed)

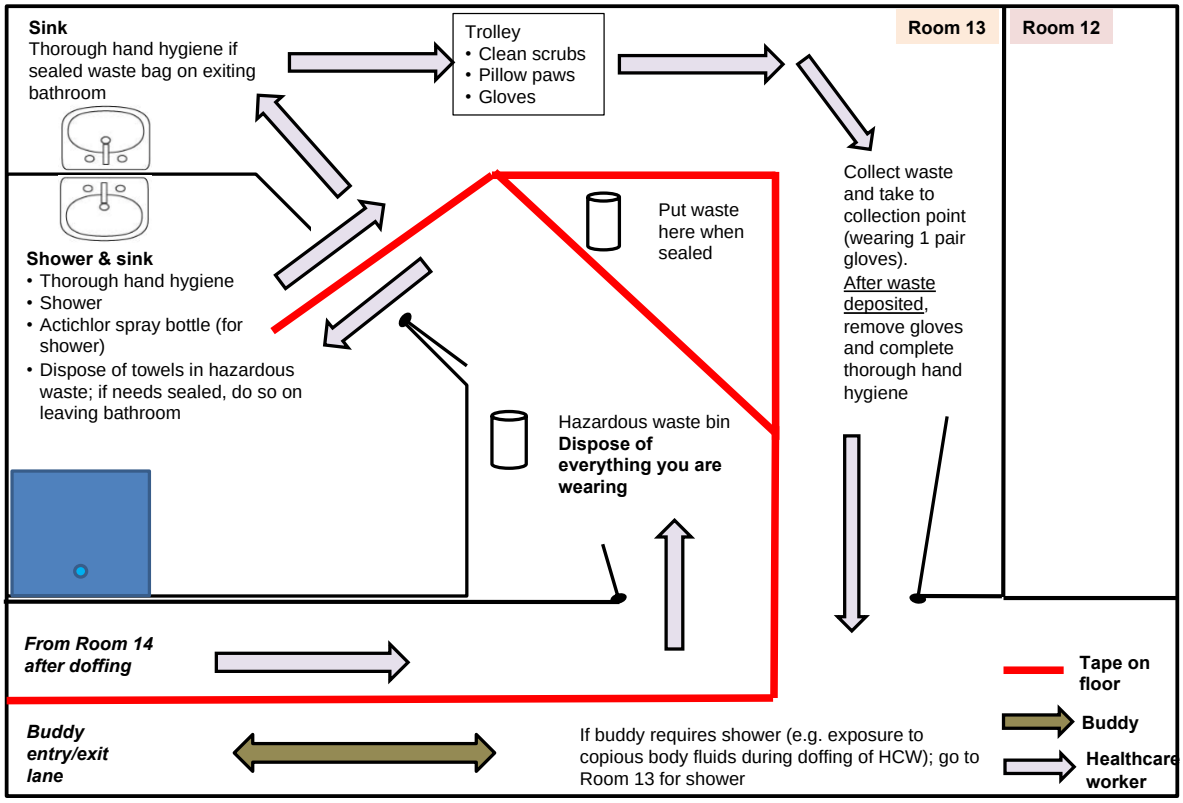
STEP	ACTION
1	• Your buddy will do a 360° check of your PPE for visible blood/body fluid contamination. A single use Chlorine-based disinfectant, 10,000ppm solution, should be used to soak disposable wipes should be used to remove visible blood or body fluid contamination from the outside of PPE before doffing to prevent splashing or run off.
2	Buddy applies  to HCW hands
3	HCW removes visor, back to front, drops onto plastic sheet near waste bag.
4	Buddy applies to HCW hands
5	Buddy will undo storm flap and unzip to waist
6	Buddy applies  to hands
7	HCW takes down hood.
8	Buddy applies  to HCW hands
9	• Buddy will take coverall from the inside and start to roll coverall down. • Buddy will <u>take one arm at a time</u> and assist first pair of gloves off if not coming with suit – can place one finger inside to assist. • Assist to <u>step RIGHT FOOT out of suit first</u> to allow HCW to stand on clean floor and don theatre clogs
10	Buddy applies  thoroughly to HCW last pair of gloves
11	HCW will remove FFP3 by taking clean straps forward and drop onto plastic sheet.
12	HCW will remove last pair of gloves drop onto plastic sheet.
13	HCW will wash hands thoroughly at sink with soap and water.

Doffing healthcare worker PPE (Jupiter hood)

After stepping onto plastic sheet in room 14 (with boots removed)

STEP	ACTION
1	• Your buddy will do a 360° check of your PPE for visible blood/body fluid contamination. A single use Chlorine-based disinfectant, 10,000ppm solution, should be used to soak disposable wipes should be used to remove visible blood or body fluid contamination from the outside of PPE before doffing to prevent splashing or run off.
2	Buddy applies  to HCW hands
3	• Buddy switches off Jupiter Hood power. • Disconnect the hose at lower (pump) end first, then disconnect at the hood. • Hose is disposable, place in waste.
4	• Buddy will state ready to remove Jupiter Hood belt. • HCW will unclip belt. • Buddy will place in 'dirty' box on trolley.
5	 to BUDDY & HCW hands
6	• HCW removes Jupiter hood. • Grasp breathing tube connector and remove from back to front. • Drop onto plastic sheet near to waste bag.
7	Buddy applies  to HCW hands
8	Buddy will undo storm flap and unzip to waist.
9	Buddy applies  to hands
10	• Buddy will take coverall from the inside and start to roll coverall down. • Buddy will take one arm at a time and assist first pair of gloves off if not coming with suit – can place one finger inside to assist. • Assist to step RIGHT FOOT out of suit first to allow HCW to stand on clean floor and don theatre clogs
11	HCW will remove last pair of gloves drop onto plastic sheet
12	HCW will wash hands thoroughly at sink with soap and water

If shower is required, use room 13:



Buddy: PPE doffing, cleaning Jupiter Hood and disposal of waste

STEP	ACTION
1	Take 2 corners of plastic sheet nearest to you and roll to contain all PPE, dispose into waste
2	
3	If Jupiter Hood used: Take Jupiter belt and dismantle to clean all parts as per cleaning protocol.  gloved hands during all parts and change gloves if contaminated. • Airflow tube: disposed of during doffing procedure • Remove filters: dispose of into waste • Remove battery: wipe clean with cloth and solution of 1000ppm available chlorine, leave for contact time of 5 minutes and clean with a detergent solution/wipe ensuring all areas covered, dry using disposable cloth • Belt: wipe clean with cloth and solution of 1000ppm available chlorine, leave for contact time of 5 minutes and clean with a detergent solution/wipe ensuring all areas covered, dry using disposable cloth • Put clean Jupiter Hood parts into 'clean' box as you go • Clean the dirty box: wipe clean with cloth and solution of 1000ppm available chlorine, leave for contact time of 5 minutes and clean with a detergent solution/wipe ensuring all areas covered, dry using disposable cloth
4	Remove third pair of gloves and discard into waste.
5	Apply 
6	Remove apron breaking ties at neck, allowing top half to fold, burst waist straps pull away from body, and roll apron inward into bundle.
7	Apply 
8	Remove visor using elastic strap at back.
9	Apply 
10	Remove FFP3 mask and head cover.

11	Apply 
12	Remove surgical gown by pulling from shoulders and folding forwards.
13	Apply 
14	Remove overshoes.
15	Apply 
16	Remove outer gloves.
17	Apply 
18	Seal waste bag and leave in room 12 if result unknown – if multiple waste bags can store in bathroom
19	Apply 
20	Take clean Jupiter Belt box to donning room
21	Take empty clean box and fresh waste bag to room 12 **IF PATIENT IS **POSITIVE** DON FRESH APRON AND 2ND PAIR OF GLOVES AND MOVE TO STEP 24
22	Prepare waste bag and remove final pair of gloves (clean), discarding into waste.
23	Wash hands thoroughly at sink
24	Prepare fresh waste bag.
25	Double bag and seal waste.
26	Apply 
27	Take double bagged waste to waste store

28	Apply 
29	Mark waste bag 'CAT 4, Date & Ward 42/43'
30	Apply 
31	Place waste bag in 60L UN 3291 box
32	Apply 
33	Remove apron and drop into box
34	Apply 
35	Remove outer gloves and drop into box
36	Apply 
37	Seal bin, clicking lid into place at each individual point. Apply yellow waste tag to handle. Double check lid is completely secure.
38	Apply 
39	Complete UN 3549 hazardous waste label and place over UN 3291 label already on box.
40	Apply 
41	Number 60L bin lid based on number of boxes already stored.
42	Apply 
43	Complete paper record of waste
44	Apply 
45	Leave waste store and go to nearest sink

46	Remove last pair of (clean) gloves and wash hands with soap and water.

4. Initial management of patient in "Staff at risk" scenario

Staff numbers in contact with patient should be kept as low as possible. A log of personnel entering and leaving the room should be kept by the nurse in charge (coordinator 1). This should include name of staff member, date & time of entry/exit. This log needs to be kept until either HCID tests are negative, or (if positive) until the end of the incubation period (at least 21 days from last encounter). If feasible and the patient's clinical condition allowing only one nominated nurse and doctor should care for the patient for each 12-hour shift to limit exposure.

4.1. Investigations required

- Do not carry out any near patient testing (e.g. blood gases). There is currently no facility to measure blood gases in patients assessed as high risk.
- Samples should not be taken or sent to the lab until risk assessment has been carried out in discussion with ID and virology consultants.
- Initial investigations (full blood count, malaria PCR, U&E, calcium, glucose, VHF serology) will be carried out in containment level 3 at RIE.

4.2. Venepuncture procedure

Initial investigations to be performed are strictly limited to:

• FBC / Malaria testing	1x red top
• Serology tube	1x brown top
• VHF PCR panel	2x large (4.5ml) EDTA tubes (red top)
• U&E/Ca^{2+}/Glucose	1x non-gel Lithium heparin orange top*

***N.b.** the Trak label for U&E/Ca^{2+} will say brown top tube, and the label for glucose will say yellow top tube, but an orange top tube should be used instead. Attach both the 'brown tube' U&E/Ca^{2+} and 'yellow tube' glucose labels to the orange top tube.

Specific boxes for specimen transport (DX UN3373) are available in the equipment storeroom on w74 and can also be supplied by the courier. If the correct transport boxes are not available, then these will be supplied by the courier. The bubble wrap, plastic container, absorbent material, alcohol wipes and a TRAK label should be taken into the patient room. Do not take the cardboard box and forms into the patient room, these should be left on trolley outside room, so the cleaned plastic container can be dropped into it when leaving patient room to doff.

Venepuncture and Sample Handling & Packaging

1.	Assemble venepuncture equipment and sample tubes. Ensure sufficient butterfly needles for multiple attempts. Print TRAK labels.
2.	Pack venepuncture kit and take it into the patient's room.
3.	Place cardboard outer box and completed SNVTS request form on trolley outside patient room. These must never enter the room. Trolley placed within arm's reach of door. Box open, ready to drop plastic container inside upon exiting room. The SNVTS request form can be found on at: https://edinburghlabmed.co.uk/sites/default/files/2020-09/SNVTS%20Request%20form.pdf
4.	After entering room, leave the hard plastic container on trolley beside door, ready to place the sealed bag of blood tubes into prior to exiting the room.
5.	Clean the bedside table with Actichlor.
6.	Open venepuncture kit and lay IncoPad on table to provide clean surface.
7.	The kit contains two cardboard trays which should be separated.
8.	Put plastic bag and absorbent material on IncoPad.
9.	Take blood and put full sample tubes into first cardboard tray. Dispose of sharps and any visibly contaminated material.
10.	If gloves are heavily soiled, then change the outer (third) pair.
11.	Wipe sample tubes with alcohol wipes and put them, cleaned, onto the second tray.
12.	 Decontaminate gloves with alcohol rub.
13.	Label the blood tubes with TRAK labels.
14.	 Decontaminate gloves with alcohol rub.
15.	Put samples into plastic bag with absorbent material.
16.	Dispose of everything except tubes in plastic bag, sitting on cardboard tray.
17.	 Decontaminate gloves with alcohol rub.
18.	Place bag of samples into bubble wrap bag (which contains further absorbent material) and then put this into the hard plastic container, left sitting on trolley beside door, still inside the patient room.
19.	The whole plastic container should then be wiped with alcohol wipes.

20.	Seal plastic container with yellow long rectangular 'biohazard' sticker.
21.	After removing apron and outer gloves, pick up plastic container and carry this out of patient room on exiting. Drop into cardboard outer box, left sitting on trolley outside patient room.
22.	The cardboard box can be considered clean and another HCW can attend to it, whilst person who has had patient contact goes to doff. They should: • Close cardboard box • Attach second yellow long rectangular 'biohazard' sticker. • Clearly label the shipment address on the box as above.

Contact the duty virologist to inform them the sample has been taken, and again when the courier leaves with the sample.

4.3. Transport of specimens for VHF testing

RIDU on-call doctor must phone the on-call BMS for both virology and haematology at RIE and the on-call consultant virologist before sending any specimen. **The virologist will organise the courier for transport of the samples and advise on when the courier will be attending RIDU**.

The specimen request form MUST be labelled **HIGH POSSIBILITY OF VHF** though this should not be written on the outside of the box.

Automated specimen transport systems (tube system) must not be used. Specimen should be transported in a sealed container. Transport between hospitals will require either **category A** or **category B** transfer by specialist courier (arranged by Virology). The virology consultant will advise on the appropriate category of the transport.

Boxes for specimen transport (DX UN3373) are available in the RIDU Doctors room or in the equipment store and can also be supplied by the courier. When sending these should be clearly labelled with the shipment address on the box as:

Sender: Ward 74, Regional Infectious Diseases Unit, Western General Hospital, Crewe Road South, Edinburgh, EH4 2XU (**plus your contact number**)

Ship To: Scottish National Viral Haemorrhagic Fever Test Service Laboratory Medicine, Royal Infirmary of Edinburgh, Virology Laboratory Reception, Level 2, Little France, Edinburgh EH16 4SA

Remember to enclose the SNVTS request form within the cardboard box, outside the plastic container. The request form can be found at:
http://www.edinburghlabmed.co.uk/Specialities/reflab/snvhfts/Pages/RequestForms.aspx

The following information should be provided to the courier by the Virologist (extracted from the Scottish National VHF Test Service user manual):

Once at Little France, Edinburgh, please follow the signs to the **South Entrance** of the **Royal Infirmary of Edinburgh** and drive to **Car Park 2B (Gate 2)**. At the barrier entrance to the car park, please use the intercom to gain entry. Once parked, please proceed to **Laboratory Reception** on **level 2** of the Royal Infirmary building. Laboratory Reception is manned at all times and there is a buzzer for gaining the attention of laboratory staff. During the night, the reception grill may be down, but the buzzer is accessible at all times.

Upon arrival of laboratory staff, please hand over the sample parcel showing **ID badge** and **courier license** so that the laboratory may record all such details. **Please do NOT leave sample parcel unattended at Laboratory Reception.**

Once delivered, laboratory staff will place the parcel in the designated area ('Virology Bench') for the attention of the Duty/On Call Biomedical Scientist in Virology

4.4. Clinical management

Physical examination. Physical contact with the patient should be minimised until the VHF result is available. *Auscultation involves a breach of PPE and should not be attempted.*

Cannulation. Avoid IV cannulation unless clinically urgently indicated for IV antibiotics or IV fluids. *Decision making about requirements for IV treatments will be made on a case-by-case basis.*

4.5 Waste management, cleaning and decontamination

Waste management

- a large yellow clinical waste bin will be located on ward 74 for the storage of all category 4 waste
- waste should only be marked 'category 4' if VHF is confirmed
- to further reduce exposure to staff the decision has been made that these bins will remain on ward 43, healthcare environmental will collect straight from RIDU – this normally happens once in 24 hours, they can be contacted for increased removal if waste management becomes a concern

Detailed advice is given in appendix 10 of the ACDP document.

A more detailed digest of all aspects of infection control will be found in the accompanying document "Viral Haemorrhagic Fever – Precautions Summary" prepared by Health Protection Scotland (http://www.hps.scot.nhs.uk/resourcedocument.aspx?id=5827).

Specific attention is drawn to the following:

For patients at high possibility or with confirmed VHF:

- **If using a commode,** contents must be **solidified** with high absorbency gel, and then **autoclaved or incinerated.**

- **Sodium dichloroisocyanurate (NaDCC) granules** may be used to solidify and inactivate spills.

- **Disposable crockery and cutlery** must be used and disposed of as category A waste.

Appendix 1: Immediate actions for admission of 'high possibility' VHF patient to RIDU

Immediate actions in first hour

Clinician in charge (ID consultant)	Nurse co-ordinator 1 (Evacuation co-ordinator)
❒ Telephone discussion with **patient**: – Confirm relevant history to assess risk using ACDP algorithm and assess severity of illness. – Advise patient to self-isolate until plan for transportation to w74 established. ❒ Discuss case with **Imported Fevers Service.** ☎: 0844 778 8990 ❒ If agreement after IFS discussion is to proceed with VHF testing, discuss with **Scottish National VHF Testing Service.** ☎: NHSL switchboard, "on-call Virologist" (IFS will also liaise independently with SNVTS to confirm) ❒ Discuss with on-call **Public Health Consultant.** ☎: NHSL switchboard – Public Health Consultant should discuss with SAS immediately and convene an early PAG, which the ID consultant will participate in. – If patient is referred from different health board, ensure NHSL Public Health team are informed. ❒ Virologist will organise courier ❒ Inform **patient** of outcome of risk assessment and plan for admission to w74. – If patient being transported by relative, find out car registration no. and phone no. for patient. – Give patient the ward mobile phone no.	❒ Identify boarding patients with medical team: 4 boarders to allow evacuation of ward 74, rooms 12, 13, 14, 15; **prioritise rooms 14 and 15**. ❒ Tape floor markings. ❒ Trolley/equipment placement.
Admitting clinician	**Nurse co-ordinator 2**
❒ Change into scrubs, eat/drink, refresh. ❒ Review donning/doffing guidance with buddy. ❒ Review blood sampling guidance. ❒ Prepare equipment (venepuncture/tubes, vital signs monitor, anticipated medications) to take into room for initial assessment. ❒ Discuss practicalities of admitting patient with all members of team.	❒ Contact Site & Capacity coordinator (bleep 8100). ❒ Oversee preparation of patients for evacuation. Ensure up to date NEWS recorded. ❒ Prepare nursing handover for receiving area. ❒ Advise domestic supervisor/staff re room cleaning. ❒ Notify on-call Infection Prevention & Control Team nurse

Appendix 2: Telephone numbers and addresses

Imported Fever Service
0844 778 8990
24 hour on call diagnostic service for VHF at HPA Porton
See also:
http://www.hpa.org.uk/ProductsServices/MicrobiologyPathology/LaboratoriesAndReferenceFacilities/RareAndImportedPathogensDepartment/ImportedFeverService/

NHSE EPRR (to arrange transfer to HLIU): 0333 2005022

Reference Laboratory: Microbiology Services Division, HPA Porton
019806 12100 switchboard (24 hour)

High Security Infectious Diseases Unit, Royal Free Hospital, London
+44 (0)20 7794 0500 ext 36285 (infectious diseases office)
+44 (0)20 7794 0500 (Royal Free switchboard, ask for infectious diseases doctor on call)

Consultant Virologist on call: Via Switchboard

Infectious diseases consultant on call: Via WGH switchboard (0131 537 1000)

Scottish Ambulance Service
Ambulance Control for urgent ambulance transfer: 0345 602 3999

Courier Service
The virology department will contact courier and deal with costs. So, there should not be any need for RIDU to contact the courier.

RIDU ward mobile phone
07580 342 100