

REPUBLIC OF RWANDA



MINISTRY OF HEALTH

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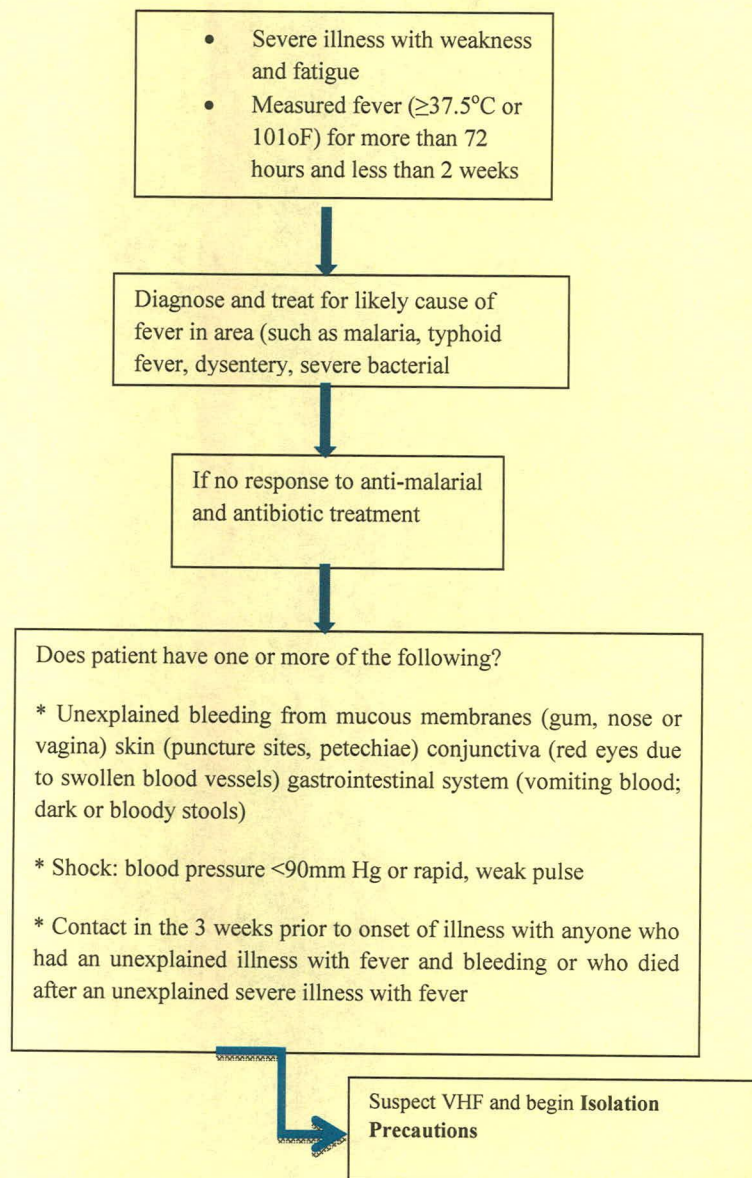
**MINISTERIAL GUIDELINES ON VIRAL HEMORRHAGIC
FEVER CASE MANAGEMENT**

Introduction

Viral Hemorrhagic Fevers (VHF's) are severe life-threatening diseases caused by a range of viruses. VHF's that are theoretically capable of being transmitted from person-to-person include Lassa, Marburg, Ebola, and Congo-Crimean hemorrhagic fevers. Transmission is via blood, body fluids and through intimate contact. VHF's need not pose a high risk to healthcare workers provided good infection control measures are practiced, particularly when dealing with sharps, blood and body fluids. In Africa transmission of VHF's has been associated with the reuse of unsterilized needles and the provision of patient care, without use of the appropriate Standard Precautions.

Diagnostic

Clinical Diagnostic



Laboratory

If a person has the early symptoms of VHF and there is reason to believe that VHF should be considered, the patient should be isolated and health professionals notified. Samples from the patient can then be collected and tested to confirm infection.

Laboratory tests used in diagnosis include:

Timeline of Infection	Diagnostic tests available
Within a few days after symptoms begin	<ul style="list-style-type: none">• Antigen-capture enzyme-linked immunosorbent assay (ELISA) testing• IgM ELISA• Polymerase chain reaction (PCR)• Virus isolation
Later in disease course or after recovery	<ul style="list-style-type: none">• IgM and IgG antibodies
Retrospectively in deceased patients	<ul style="list-style-type: none">• Immunohistochemistry testing• PCR• Virus isolation

Case management

Report suspected cases of VHF according to national level surveillance guidelines and identify patient's contacts.

Case Isolation

As soon as a health care worker suspects VHF, notify the head of the health facility that will notify the central level (EID Division) and will:

- Refer the patient to the isolation area and take the necessary steps to begin VHF isolation precautions.
- Limit the number of health facility staff and visitors in the patient's room.
- Limit the use of invasive procedures and reduce the number of injectable medications.

Isolating the VHF patient will:

- Restrict patient access to health facility staff trained to use VHF Isolation Precautions.
- Establish a barrier between the VHF patient and uninfected patients, other health facility staff, and visitors.

Ideally, an isolation area should already be available to admit patients requiring isolation.

Make sure the selected site has:

An isolated toilet: If a toilet is not next to the patient's room, select and isolate a toilet near the isolation area. Use it to receive the patient's disinfected waste and other liquid waste.

Adequate ventilation: The isolation room should have adequate ventilation because chlorine disinfectants will be used. To prevent airborne or droplet transmission of infectious agents, avoid rooms with air conditioning.

Screened windows: If windows are left open for cooling, screen them to prevent transmission of mosquito- and other insect-borne diseases.

Supplies needed for the Patient Area are:

Bed and mattress or sleeping mat for each patient

Plastic sheeting to cover the mattress or sleeping mat. This is strongly recommended. Plastic sheeting will protect the mattress from contamination. It can be easily cleaned and disinfected if it becomes contaminated with infectious body fluids.

Bedding for each bed - at least 1 blanket and a bottom sheet. If necessary, the patient or the patient's family can bring the bedding from home.

One thermometer, one stethoscope, and one blood-pressure cuff per patient. Keep them in the isolation area for reuse with the same patient. If there is not enough equipment to supply one each of these items per patient, assign one piece of equipment for use only with the patients in the isolation area.

Covered container for alcohol or bleach solution used to disinfect thermometer and stethoscope after use with each patient.

Puncture-resistant container for collecting used disposable needles, syringes and other sharp instruments.

Puncture-resistant tray with soapy water for collecting reusable needles, syringes and instruments.

Bedside table or shelf on which to place medical instruments, puncture-resistant container, and so on.

Disinfection station with buckets, sprayer, bleach solutions, soap and water, mop, and a supply of one-use towels. It is preferable to dispose of gloves after each use.

Container with soapy water for collecting discarded outer gloves.

As soon as a VHF is suspected, alert the relevant health staff who should begin using VHF Isolation precautions, especially:

- Doctors or nurses providing direct patient care
- Cleaning, laundry, and waste disposal staff who clean and disinfect contaminated material and supplies
- Laboratory staff who handle samples from the suspected VHF cases
- Medical or support staff who prepare or handle deceased VHF patients.

Wear Protective Clothing

Specify Who Should Wear Protective Clothing

- All doctors, nurses, and health care workers who provide direct patient care to suspected VHF patients.
- All support staff who clean the isolation room, handle contaminated supplies and equipment, launder reusable supplies, and collect and dispose of infectious waste from VHF patients.
- All laboratory staff who handles patient specimens and body fluids from suspected VHF cases.
- Laboratory support staff who clean and disinfect laboratory equipment used to test VHF specimens.
- Burial teams who remove bodies of deceased VHF patients and prepare them for burial.
- Family members who care for VHF patients.

When a VHF case is suspected in the health facility, the following protective clothing should be worn in the isolation area:

- A scrub suit or inner layer of clothing (an old shirt and trousers brought from home)
- A pair of thin gloves
- Rubber boots or overshoes (only if the floor is soiled)
- A gown or outer layer of clothing (surgical or disposable gown with long sleeves and cuffs)
A plastic apron worn over both layers of clothes
- A second pair of thin or thick gloves. Wearing a second pair of gloves provides an added measure of safety during patient care and when handling contaminated supplies
- A HEPA-filter (high-efficiency particulate air respirator) or other biosafety mask (or surgical mask if HEPA-filter or other biosafety mask is not available)

- Cotton head covering
- Clear eyeglasses or non-fogging goggles.

Clinical management

Currently there is no curative treatment for VHF, Only supportive treatment can be offered to the patients. However experience in former outbreaks shows that supportive treatment reduces the suffering of the patients and aggressive invasive supportive treatment might maximize chances of survival.

Invasive procedures

A higher level of supportive care has a possible positive effect on clinical outcome. However invasive procedures like injected drugs, IV fluids and NG tubes are potentially dangerous for the ones performing them and should only be performed when the required safety conditions are achieved. Open discussions with the staff are needed to assure that those performing procedures understand the risks and are comfortable to do the procedures.

Safety conditions for invasive procedures:

- Availability of skilled, experienced and well trained staff
- Adequate infection control
- Sufficient lighting
- 2 people should perform the invasive procedure: one actually performing the procedure and the other assisting in handing out material and controlling the patient.
- Patients should be properly positioned.
- Sharp box and all material needed should be taken to the bedside.
- Inserted canulas should be well secured to avoid being pulled out by the patient, resulting in spreading contaminated blood.
- Plastic canulas should be used for IV infusions. Metal needles and butterflies should only be used for injections and not for drips, given the hazard they pose.
- No risk should be taken with aggressive or confused patients. Tranquillizers should be given to them before performing dangerous procedures or such procedures should be avoided.
- No invasive care should be provided to a patient where a non-invasive alternative is equally effective, e.g. there is no need for injectable medication if oral medication is sufficient.
- If injected treatments are given, medicines with long half-lives should be chosen to minimize the number of injections that need to be given (e.g.ceftriaxone).

Important ! : Each invasive procedure is a dangerous action for the person performing the procedure and his assistant. Therefore limit the invasive procedures to the absolutely necessary, but keep in mind that intensive supportive treatment may have a positive impact on the outcome.

Hydration

A. Oral hydration

Ebola provoke gastro-intestinal symptoms such as watery diarrhea, vomiting and anorexia, as well as causing fever. This may result in severe dehydration.

Oral Rehydration Solution (ORS) should be provided to patients able to drink and support needs to be given to weak patients. Patients with light vomiting should be put on anti-emetics.

B. IV hydration

Patients with insufficient oral intake, severe diarrhea or vomiting (insufficient input for increased output) or paralytic ileus should start IV hydration.

Perfusion rate and quantity of fluid depend on the grade of dehydration. Patients need to be monitored for signs of over-hydration resulting in pulmonary edema e.g. engorged jugular veins, tachypnea or tachycardia.

Remark:

In case of shock crystalloids should be used. Colloids should be banned as it may affect blood clotting and evidence of superiority of colloids over crystalloids is lacking in patients with shock.

Symptomatic care

EVD infections often provoke a painful throat and difficulty in swallowing. Therefore the amount of tablets to be swallowed should be as low as possible and the size of the tablets as small as possible. Also tablets may be crushed.

A. Anti-pyretic

Fever is a common feature in Ebola and Marburg infections and paracetamol can be given to reduce the temperature and the pain.

Remark:

Aspirin and other non-steroidal anti-inflammatories should not be used due to their effect on blood clotting.

B. Pain control

Pains caused by filovirus infections, like headache, abdominal pains and joint pains are often severe.

Adequate painkillers can reduce the suffering of the patients.

C. Nausea, vomiting and dyspepsia

Nausea and vomiting are common. Anti-emetics like promethazine or metoclopramide can be used. Filoviruses often provoke stomach pain and dyspepsia. Dyspepsia can be treated with cimetidine or omeprazole.

D. Anxiety

Anxiety is common. Psychologists can help to reduce anxiety. Diazepam (e.g. 5mg PO TDS) might be given to manage severe anxiety.

E. Agitation and confusion

Patients can get agitated, confused or aggressive and can be a danger to themselves and others. Tranquillizers like chlorpromazine or diazepam can be given.

Presumptive treatment

Symptoms of VHF infections are similar to those of common diseases in the areas where the VHF outbreaks normally occur e.g. malaria, typhoid or shigellosis.

Patients with VHF infections may suffer from common diseases at the same time that can interfere with their ability to build an immune response to the filovirus infection.

Also a patient with a common tropical disease can be admitted as suspected VHF case and appropriate treatment should not be delayed until the lab results of VHF are known. To avoid leaving these common tropical diseases untreated in suspected VHF patients, systematic treatment with appropriate antibiotics and anti-malarial treatment should be provided to all suspected patients on admission.

Broad spectrum antibiotics

A broad-spectrum antibiotic with oral cefotaxime or injectable ceftriaxone should be given starting from the day of admission to cover the wide range of pathologies. For penicillin allergic patients azithromycin can be prescribed. (Amoxicillin and cotrimoxazol might not be strong enough). Duration should be minimum 5 days, but may be continued during the whole length of stay to keep the patient covered, depending on the clinician's point of view. However, the clinician should prescribe antibiotics always according to the presentation and severity of the symptoms, and according to concomitant epidemics.

Supplementation

Vitamin deficiencies may have a negative influence on the immune reaction of the patient to the virus and should be corrected. Vitamin A, B, C or multivitamins can be beneficial to the patients.

Type of Vitamin	Dosage adults	Dosage children
Vitamin A (Retinol)	200.000 IU PO on day 1,2 and 8	100.000 IU PO on day 1, 2 and 8 (children between 6m-1yr)
Vitamin B (Vit.B complex)	1 tab per day	1 tab per day
Vitamin C (Ascorbic acid)	250-500mg PO 3times/day	125-250 mg 3times/day
Multivitamin	1 tab per day	1 tab per day

Nursing care

Nurses, rather than family members, should provide all basic nursing care, to reduce the risk of transmission. However often in the beginning of an outbreak there might not be sufficient nursing staff employed and then family members may be needed to help providing care like feeding. These family members must be instructed and supervised and protective clothing should be given. Relatives involved in basic nursing care will be considered as a contact and will need to be followed up for 21 days after their last visit to the VHF unit.

Nursing tasks (to be adapted to the available human resources and work load):

Patient monitoring:

- Temperature check three times daily
- Observation for symptoms that need to be mentioned during the doctor's round.

Medication: (Separate stocks are needed for suspected and confirmed patients.).Medication should be provided according to doctor's prescription and crossed after the patient's intake.

Call the doctor in case of any medical problem

Provide food, water and ORS and assists where needed and registers quantities.

Hygiene: help bathing in shower or in the bed and ensure clean bed linen for patient.

Explain what you are doing and why to the patient.

Psychological support

Psychological support should be offered to all patients and families, ideally from the beginning of the intervention. However providing psychological care in PPE might be uncomfortable and difficult:

The PPE is physically exhausting for the psychologist and for the patient it is impossible to see the face of the psychologist (seeing faces helps to establish a good contact). For mobile patients an area can be created where the patients can talk over the fence of the High-risk area with the psychologist at sufficient distance to prevent contamination.

Nutritional support

Food should be carried with containers that are locally used for the transport of human food from outside the isolation facilities to the High-risk area where it will be transferred in empty containers inside the High-risk area without contact between the containers. In the High-risk area it will be divided for the suspected area and the Confirmed area. Some food should be kept in the low risk area for the caregivers. Families should also be allowed to provide food for their relatives, as this food is likely to be more acceptable by the patients. Family can provide food to the patient 'over the fence' of the High-risk area under supervision of the staff, and no items should be taken inside the High-risk area. Plates inside the High-risk area need to be disinfected and washed first before food can be received. Help needs to be given to patients who are not able to eat independently.

Type of food

VHF infections can provoke anorexia, vomiting and difficulty in swallowing. Inappropriate feeding can contribute to an ineffective immune response to the filovirus infection. Food should be easy to digest, well balanced and culturally acceptable.

The patient should be encouraged to take Plumpynut, besides the food provided by the hospital, or the family. Alternatively porridge can be offered because it is easy to swallow.

Nasogastric tube feeding can be considered in severe feeding problems.

3.7 Discharge

Discharge criteria

The decision to discharge a patient should be taken on clinical grounds, but can be supported by the laboratory results. A negative PCR means that the virus can't be detected anymore in the body and the patient is unlikely to be contagious. Patients can be discharged if they meet all following clinical criteria:

Clinical criteria:

- 3 days without fever or significant symptoms AND
- A significant improvement in clinical condition AND
- Able to feed, wash and walk independently.

Laboratory support:

- Antigen or PCR is negative on day 4 or later after the onset of the symptoms OR
- PCR turned negative after having been positive AND patient is clinically cured OR
- If patients suffers symptoms, but these are not thought to be due to VHF, 2 negative blood PCR's 48 hrs apart can be used as discharge criteria. The patient might be referred to another ward.

Fever can be absent in late and terminal stages of the illness and is not a reliable sign for discharge (or admission). Absence of fever cannot be used alone to plan discharges.

Discharge procedures**Disinfection**

On discharge all clothes should be disinfected by soaking them for 30 min in an 0.05% chlorine solution, then wash with soap, rinse with water and then air-dry. Severely dirty clothes should be burnt. It is useful when replacement clothing brought by family members is available. All discharged patients should take a shower with 1 % chlorine solution and put on his/hers replacement or clean clothes and avoid any contact with items in the VHF ward. Disinfect and return other belongings to the patient. The patient can go to the patient exit where hands and feet will be sprayed. The hospital belongings like bed, mattress (with plastic protection) and buckets need to be disinfected and may be reused by another patient. Sheets should be burned and eating utensils thrown away.

Accompany patient to his/her home

Rejection of patients by their communities is a common phenomenon in VHF outbreaks. A medical person or a health promoter or a psychologist should accompany patients on their way home and it should be well explained to the family and the community that they are not contagious anymore and that touching them is not a problem.

Supportive treatment and follow up

Convalescent patients will be weak for some weeks or months and additional help can be provided:

- Provide 1-2 month supply of vitamin supplements.

- Provide condoms for 3 months to all male discharged patients and explain the purpose. The virus can be found in the semen up to 3 months after onset of disease, so theoretically infecting other people is possible.

Regular visits are recommendable to follow the recovery, to see if additional supportive or psychological help is needed and to help integration into the community

Environmental health management

Home/ward disinfection and safe burial procedures are essential for outbreak control interventions. Correct implementation reduces infection risks for the family members and friends of a patient. Emotions can be high in the community because normal traditions can not be followed and for people it can be difficult to cope with the strange situation. The security risk may be increased when performing these procedures. Communication and explanations to the community are of great importance to avoid misunderstandings and lack of confidence in the teams and the activities.

Teams for disinfecting houses, transferring patients or performing burials, must not arrive on the spot wearing PPE. Arriving in normal clothes helps to normalize the process and the communication with the community. Only after all procedures are well explained, the team members can start to dress up. (Refer ence to Guidelines of environmental health management of Ebola Virus Disease)

Annexes

Annex 1 : Standard Precautions in health Care – AIDE MEMOIRE KEY ELEMENTS AT A GLANCE

1. Hand hygiene

How to perform hand hygiene:

- Clean your hands by **rubbing them with an alcohol based formulation**, as the preferred mean for routine hygienic hand antiseptics if hands are not visibly soiled. It is faster, more effective, and better tolerated by your hands than washing with soap and water.
- **Wash your hands with soap and water** when hands are visibly dirty or visibly soiled with blood or other body fluids or after using the toilet.
- If exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks of *Clostridium difficile*, hand washing with soap and water is the preferred means.

Summary technique:

- Hand washing (40–60 sec): wet hands and apply soap; rub all surfaces; rinse hands and dry thoroughly with a single use towel; use towel to turn off faucet.
- Hand rubbing (20–30 sec): apply enough product to cover all areas of the hands; rub all surfaces until dry.

Summary indications:

- Before touching a patient: Clean your hands before touching a patient when approaching him/her*
- Before clean / aseptic procedure: Clean your hands immediately before accessing a critical site with infectious risk for the patient (e.g. a mucous membrane, non-intact skin, an invasive medical device)*
- After body fluid exposure risk: Clean your hands as soon as the task involving an exposure risk to body fluids has ended (and after glove removal)*
- After touching a patient: Clean your hands when leaving the patient's side after having touched the patient*
- After touching patient surroundings: Clean your hands after touching any object or furniture when leaving the patient surroundings, without having touched the patient*

2. Gloves

- Wear GLOVES when touching blood, body fluids, secretions, excretions, mucous membranes, nonintact skin.
- Change GLOVES between tasks and procedures on the same patient after contact with potentially infectious material.

- Remove THEM after use, before touching non-contaminated items and surfaces, and before going to another patient.
- Perform hand hygiene immediately after removal.

3. Facial protection (eyes, nose, and mouth)

- Wear (1) a surgical or procedure mask and eye protection (eye visor, goggles) or (2) a face shield to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.

4. Gown

- Wear to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- Remove soiled gown as soon as possible, and perform hand hygiene.

5. Prevention of needle stick and injuries from other sharp instruments²

Use care when:

Handling needles, scalpels, and other sharp instruments or devices.

6. Respiratory hygiene and cough etiquette

Persons with respiratory symptoms should apply source control measures:

- Cover their nose and mouth when coughing/sneezing with tissue or mask, dispose of used tissues and masks, and perform hand hygiene after contact with respiratory secretions.

Health-care facilities should:

- Place acute febrile respiratory symptomatic patients at least 1 metre (3 feet) away from others in common waiting areas, if possible.
- Post visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practice respiratory hygiene/cough etiquette.
- Consider making hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

7. Environmental cleaning

Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

8. Linens

Handle, transport, and process used linen in a manner which:

- Prevents skin and mucous membrane exposures and contamination of clothing.
- Avoids transfer of pathogens to other patients and or the environment.

9. Waste disposal

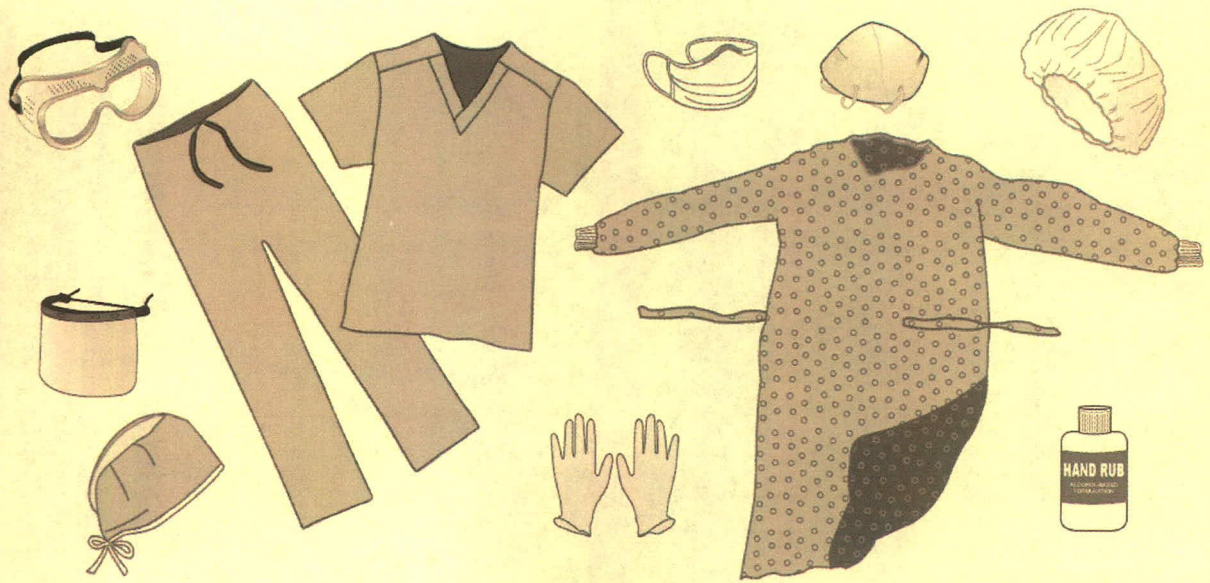
- Ensure safe waste management.
- Treat waste contaminated with blood, body fluids, secretions and excretions as clinical waste, in accordance with local regulations.
- Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste.
- Discard single use items properly.

10. Patient care equipment

- Handle equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens to other patients or the environment.
- Clean, disinfect, and reprocess reusable equipment appropriately before use with another patient.
- Cleaning used instruments.
- Disposing of used needles and other sharp instruments.

Annex 2. Steps to put on Personal Protective Equipment (PPE)

1. Always put on essential required PPE when handling either a suspect, probable or confirmed case of VHF. Gather all the necessary items of the PPE beforehand.
2. The dressing and undressing of PPE should be supervised by another trained member of the team. These instructions should be displayed on the wall in the dressing and undressing room. Steps to put on essential required PPE.
3. Put on the scrub suit in the changing room.



Annex 2: Donning & Doffing personal protection equipment (PPE)

Proper Sequence for Putting on (Donning) PPE and Proper Sequence for Taking off (Doffing) PPE

THE PERSONAL PROTECTION EQUIPMENT (PPE) KIT



- **Tyvek Coveralls**
- **Shoe Covers**
- **N-95 Respirator**
- **Goggles**
- **Plastic Apron**
- **Gloves**
- **Germicidal Wipes**
- **Alcohol Wipes**
- **Infectious Waste Bag**

A. DONNING OF PPE

The following slides will show the sequence of activities involved in donning PPE for human healthcare workers.

Before You Put on the PPE:

1. Remove your watch and any jewelry
2. Remove extra clothing

N.B: It is recommended to leave cell phones behind. If for any reason you need to have a cell phone with you, put it in a plastic bag so the surface of the bag can be easily disinfected

Before You Put on the PPE: Wash Your Hands! Wet hands with soap and water, rub all surfaces, rub for 20 seconds, rinse well, Wash forearms and face, Towel or air dry



PROPER SEQUENCE FOR PUTTING ON (DONNING) PPE

! Big is good: Coveralls should be 2 sizes larger than you normally wear

SEQUENCE

Coveralls, Shoe covers Respirator, Goggles, Pull hood over head, Apron, 2 pairs of gloves

PPE Donning Activity

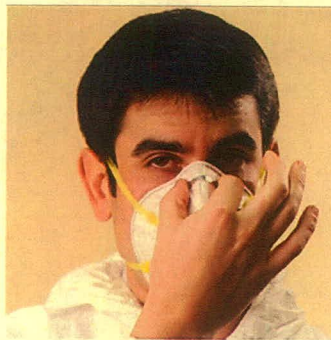
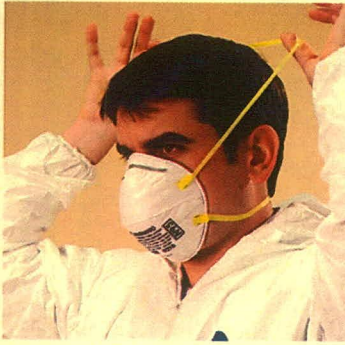
1. Put On Coveralls



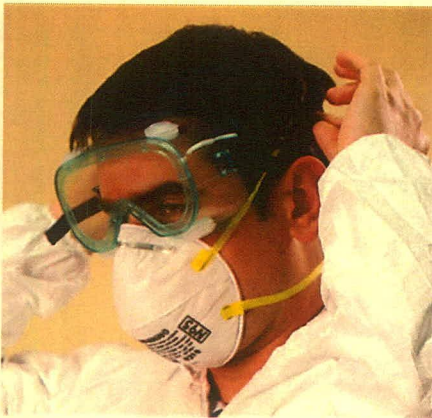
1. Put on Shoe Covers



2. Put On Your Respirator



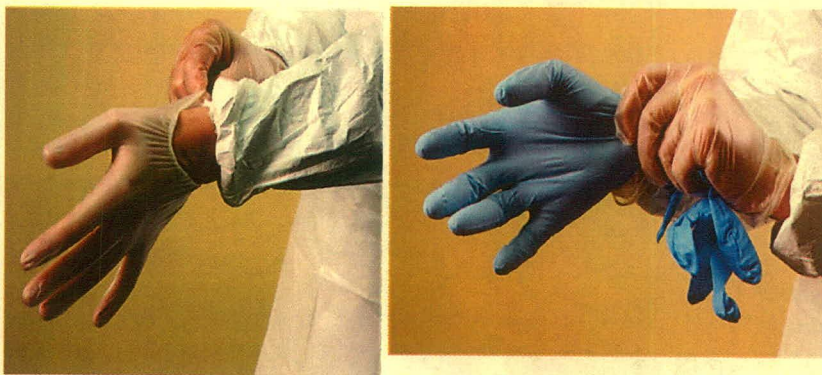
3. Put on Goggles and Pull Up Hood



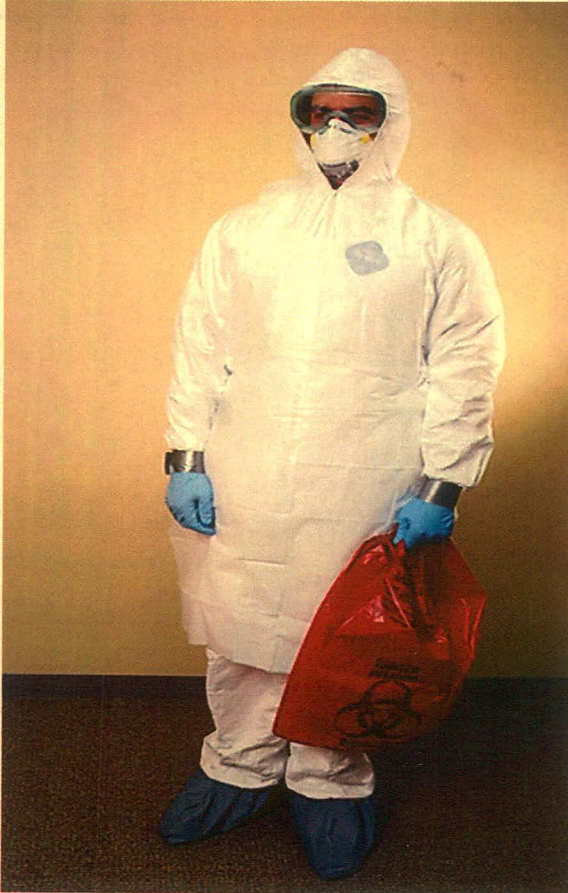
4. Put on an apron



5. Put on Inner and Outer Gloves



6. Ready to go!

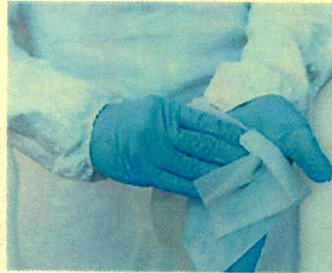


B. Doffing PPE Activity

PROPER SEQUENCE FOR TAKING OFF (DOFFING) THE PPE: Open biohazard bag, Wipe off gloves with germicidal wipes

Remove: Apron, Shoe covers, Outer gloves, Coveralls, Goggles, Respirator, Inner gloves, Tie off, biohazard bag, Wash hands with soap and water

Removing PPE: Open Biohazard Bag, Clean Gloves



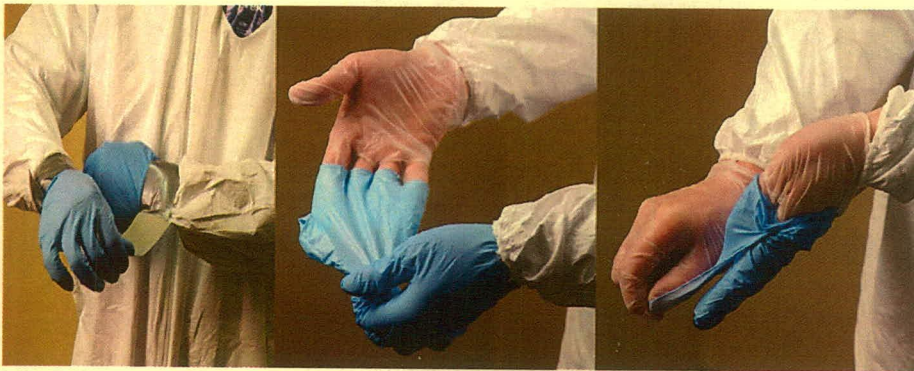
1. Remove Apron



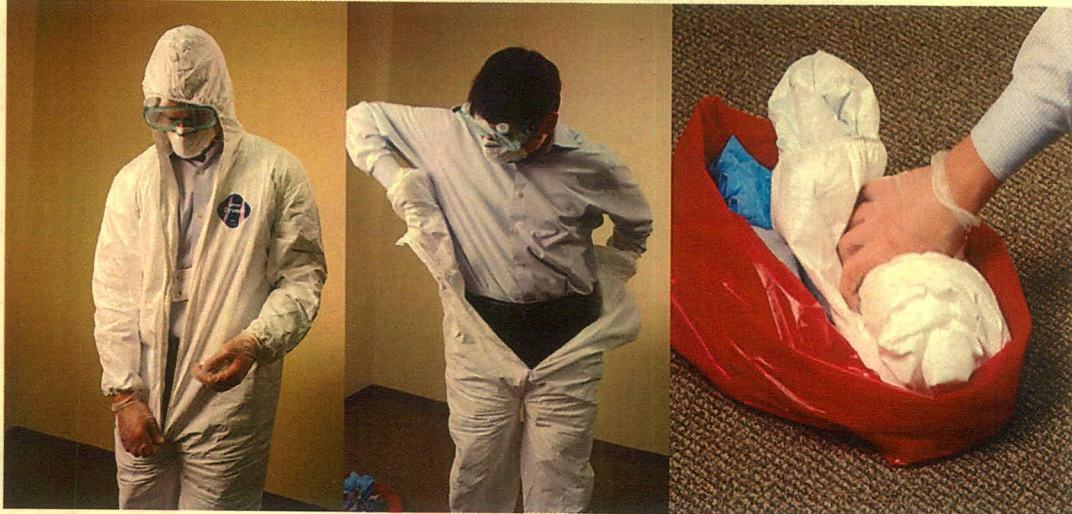
2. Remove Shoe Covers



3. Remove Outer Gloves

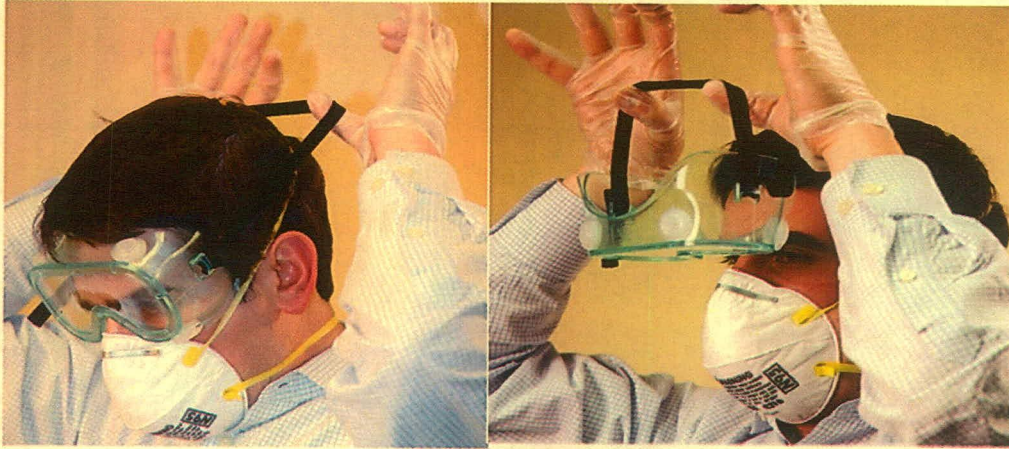


4. Roll Down coveralls without touching outside

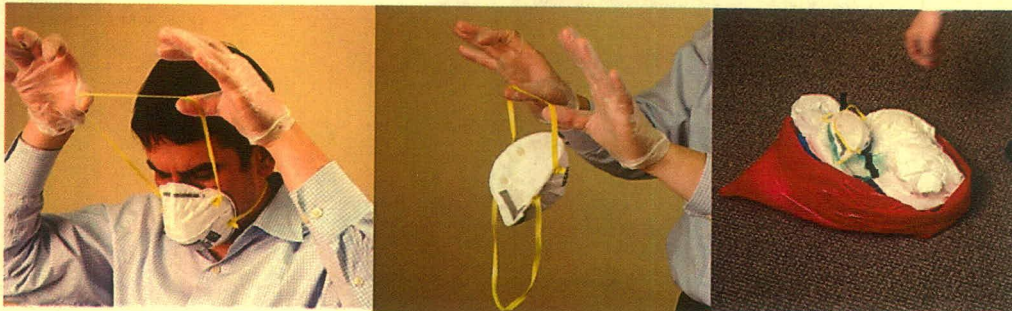


5. Remove Goggles

Remove goggles by the strap that was covered by hood, not by the front piece!



6. Remove Respirator: By the straps!



7. Remove Gloves, Close Bag, Use Germicidal Wipe Hands



8. Clean Hands, Arms and Face with Alcohol Wipes and Wash With Soap and Water, if Possible

- Wet hands with soap and water
- Rub all surfaces
- Rub for 20 seconds
- Rinse well
- Wash forearms and face
- Towel or air dry



Important notice

1. Do Not Reuse PPE
2. PPE kit contents are designed for single use only
3. Do not wash and reuse
4. Reuse could result in:
 - a. Self-contamination
 - b. Contaminating someone else
 - c. Contaminating a new location
5. Discard PPE
 - a. Immediately if it is torn, heavily soiled or wet
 - b. Immediately after use
6. Discard PPE After Use!
Use plastic bags provided
 - a. Be sure to seal the bag and disinfect the surface of the bag
 - b. Dispose of the bag appropriately by burial or incineration
 - c. Burning is not a preferred method of disposal due to the environmental implications associated with burning plastic
 - d. Proper disposal is important to prevent further disease spread and contamination
7. Disposal of PPE In a Hospital Setting
 - a. PPE should be removed, placed in the biohazard bag provided and placed in the appropriate waste receptacle in the isolation room
 - b. PPE are then disposed of according to hospital procedures which may involve autoclaving before final burial or incineration
8. When You Take a Break:
 - a. Remove PPE
 - b. Take your break
 - c. Put on new PPE

=End=

Approved by:



Dr Agnes BINAGWAHO
Minister of Health

