

Summary of Infection Control Measures

Ebola virus disease (EVD)

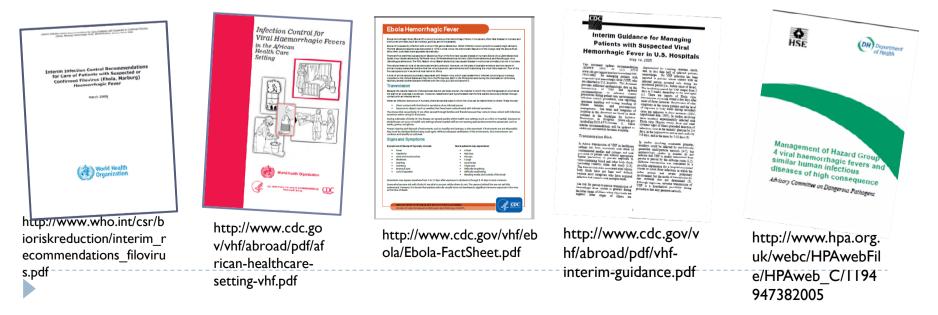
Mr N Y SO, SONY Nursing Officer, Infection Control Branch, Centre for Health Protection

12 Aug 2014

International & Local Infection Prevention & Control Guidelines / Information for EVD

International Infection Prevention & Control Guidelines / Information for EVD

- WHO Interim Infection Control Recommendations for Care of Patients with Suspected or Confirmed Filovirus (Ebola, Marburg) Haemorrhagic Fever
- WHO & CDC -Infection Control for Viral Haemorrhagic Fevers in the African Health Care Setting
- USA CDC Interim Guidance for Managing Patients with Suspected Viral Hemorrhagic Fever in U.S. Hospitals; Fact Sheet Ebola Hemorrhagic Fever
- UK HSE- Management of Hazard Group4 viral haemorrhagic fevers and similar human infectious diseases of high consequence





Hazards & Risk Communication

Hazards & Risk Communication

In order to ensure safety in the workplace, information about the identities and hazards must be available and understandable to workers. To develop and disseminate safety information to users.



http://www.chp.gov.hk/en/view_content/34199.html

HAHO Infection Emergency & Contingency



Training Materials for EVD



Public PowerPoint & Pamphlets Chinese & English



4 Aug 2014

Healthcare PowerPoint Chinese & English



Transmission of Disease 疾病傳播方式



fluids of a person who is sick with or has died from Ebola, or from exposure to contaminated objects, such as needles. Ebola poses no significant risk in the United States.



- When an infection does occur in humans, there are several ways in which the virus can be transmitted to others.
- These include: direct contact with the blood or body fluids of a person who is sick with Ebola exposure to objects (such as needles) that have been contaminated with infected body fluids

http://www.cdc.gov/vhf/ebola/transmission/index.html

Infection Hazards – Potential Infectious Materials

- Blood
- Body fluids
- Secretions
- Excretions
- Contaminated items/contaminated surface
- Touching mucus membranes
- Touching nonintact skin

























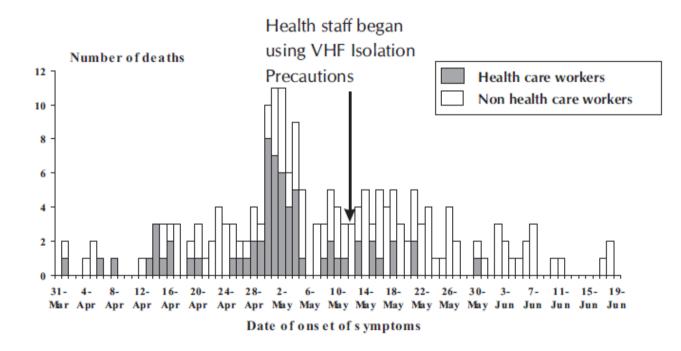
Infection Prevention & Control Measures

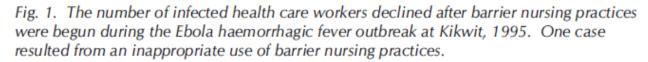
感染預防及控制措施

增 警 覺,遵 安 全,減 風 險

Enhance Awareness, Follow Safe Working Practices, Minimize Risk

According to WHO' s recommendations, HCWs would prevent EVD by following appropriate infection control measures.





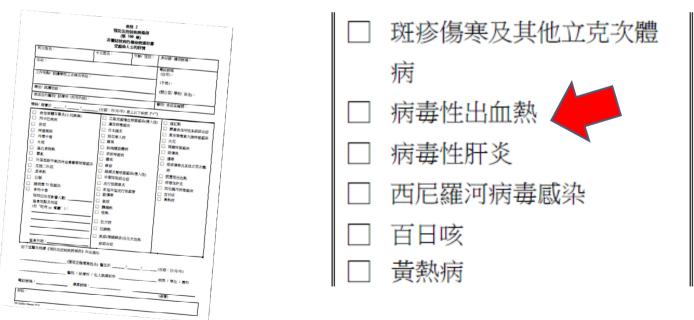
Infection Prevention & Control Measures

 HCWs should strengthen awareness for "3E" ie (1) Early Identification, (2) Early isolation, & (3) Early Reporting.



Early Reporting – Reporting of Notifiable Disease

 According to Cap 599 - Prevention and Control of Disease Ordinance, Ebola virus is grouped in Viral haemorrhagic fever (VHF). And VHF is a Notifiable Disease.



呈報程序 Reporting procedure

- Any suspected cases meeting the reporting criteria should be reported to the Central Notification Office of CHP via the following channels:
 - 1 fax (24772770), phone (24772772) or CENO on-line (www.chp.org.hk/ceno).

AND

2. contact the Medical Control Officer (MCO) of DH at Pager: 71163300 call 9179.

AND

3. contact the Head Office Duty Officer (HODO) of HA at Pager: 71163328 call 999.

For details of notification procedures, please visit CHP website: <u>http://www.chp.gov.hk/en/static/24040.html</u>.

Healthcare workers should also follows in-house of infectious disease reporting procedures, e.g., Hospital Authority - Notifiable Diseases and Outbreak Reporting System (NDORS)

Early Isolation

In addition to stringent standard precautions, additional isolation precautions (contact, droplet, airborne^{**}) should be adopted when caring suspected or confirmed EVD cases with particular attention to avoid any exposure to the patient's blood and body fluids and unprotected contact with the contaminated environment.

**Initiate airborne isolation precaution if patient has cough, vomiting, diarrhoea or bleeding, or for aerosol-generating procedures such as endotracheal intubation or cardiopulmonary resuscitation.





Handling VHF Suspected Case

- Patients are suspected to have VHF, if, within three weeks before onset of fever, have either:
- Residence or travel in a country where VHF has recently occurred or is endemic; and
 - contact with blood, other body fluids, secretions, or excretions of a sick or dead person or animal; or
 - Worked in a laboratory that handles haemorrhagic fever viruses
 - had sex with someone recovering from a viral HF in the last 3 months.
- Whenever a case of suspected VHF is diagnosed in the Accident and Emergency or clinical departments, it should be reported immediately to the Hospital Infection Control Team / HAHO and CHP through NDORS and by phone.

Information source: HAHO Revised Fact Sheet on Management of Patients with Suspected Viral Haemorrhagic Fever version 2.1

EVD Suspected Cases

Suspected cases of VHF should be referred to Princess Margret Hospital, Hospital Authority Infectious Disease Center.





Information source: HAHO Revised Fact Sheet on Management of Patients with Suspected Viral Haemorrhagic Fever version 2.1









Standard Precautions Elements

- Hand Hygiene "
- Patient Placement & Transportation
- Percutaneous (Sharps) Injury & Mucosal Exposure
- Decontamination Patient Care Equipment/Devices
 - Housekeeping & Environment
- Personal Protective Equipment (PPE)
- ... Linen Management
- Respiratory Hygiene and Cough Etiquette
- Clinical Waste



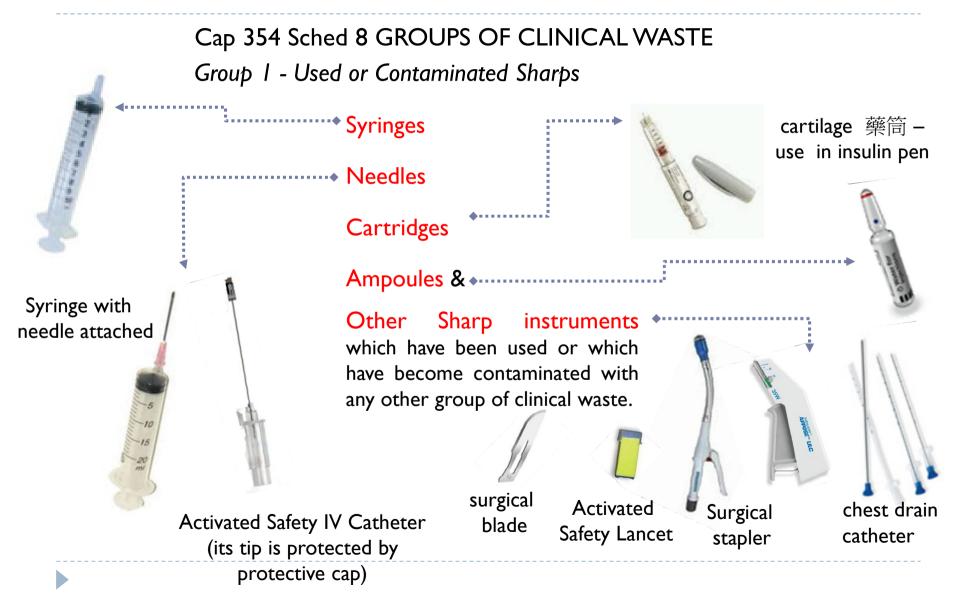








Standard Precautions Sharps Safety



Standard Precautions Sharps Safety

Contaminated needles and other contaminated sharps shall not be bent, recapped, or removed.

Shearing or breaking of contaminated needles is prohibited.

Standard Precautions Hand Hygiene

5 Moments for Hand Hygiene五個必須潔手的時刻



接觸傳播防護措施 Contact Precautions

- Wear appropriate personal protective equipment e.g. gloves, fluids-resistance gown, boots/shoes cover and cap when contact with patient or his/her immediate environment, and exposure risks are reasonable anticipated.
- In particular, if environment is heavily contaminated (patients have profuse bleeding, vomiting and diarrhea.)
- When handling contaminated environment / items, follow the principle of cleansing, disinfection & sterilization.
- Follow the 5 moments of hand hygiene and hand hygiene method.





飛沫傳播隔離防護措施 Droplet Precautions

Good compliance of hand hygiene

 Patients should wear surgical masks and maintain Respiratory Hygiene and Cough Etiquette (if patients with respiratory symptoms)





空氣傳播防護措施 Airborne precautions

- Patient should be isolated into single room (Airborne Infection Isolation Room AIIR is preferred), with negative air pressure, air change per hour should be 12, and keep door closed.
- Health care workers should wear N95 respirator before entering AIIR room.







Personal Protective Equipment (PPE)

- Provision of suitable PPE as a last resort where engineering control methods are not feasible
- There are a number of reasons for this approach.
 - First, PPE protects only the person wearing it, whereas measures controlling the risk at source can protect everyone in the workplace.
 - Second, PPE's theoretical maximum levels of protection are seldom achieved in practice, and the actual level of protection is difficult to assess. Effective protection is only achieved when the PPE chosen is of the suitable type, correctly fitted and maintained, and properly used.
 - Third, PPE may restrict the wearer's mobility or visibility to some extent. Other means of protection should therefore be used whenever reasonably practicable.

CODE OF PRACTICE On Safety Management, Occupational Safety and Health Branch Labour Department, HK SAR http://www.labour.gov.hk/eng/public/os/manage.pdf

Appropriate PPE

- Gloves. Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures ...; and when handling or touching contaminated items or surfaces.
- Masks, Eye Protection, and Face Shields. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, shall be worn whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.
- Gowns, Aprons, and Other Protective Body Clothing. Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations. The type and characteristics will depend upon the task and degree of exposure anticipated.

USA OSHA Bloodborne Pathogens Standard https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10051&p_table=STANDARDS

CDC – PPE

Why do responders in Africa wear so much personal protective equipment (that can include full body suits) for this Ebola outbreak when CDC says hospitals here could safely manage the care of an Ebola patient without a full body suit?

There are important differences between providing care or performing public health tasks in Africa versus in a U.S. hospital.

In field medical settings, additional PPE may be necessary to protect healthcare workers. In some places in Africa, workers may not have the ability to prepare for potential exposures. For example, in some places, care may be provided in clinics with limited resources (e.g., no running water, no climate control, no floors, inadequate medical supplies), and workers could be in those areas for several hours with a number of Ebola infected patients. Additionally, certain job responsibilities and tasks, such as attending to dead bodies, may also require different PPE than what is used when providing care for infected patients in a hospital.

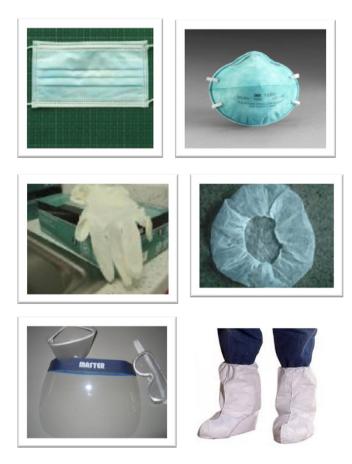
http://www.cdc.gov/vhf/ebola/hcp/patient-management-us-hospitals.html

Appropriate Personnel Protective Equipment (PPE)

When contact with patient or his/her immediate environment, and exposure risks are reasonable anticipated, appropriate PPE (including the followings) should be put on.

- Surgical mask / N95 respirator
- Face shield / goggle
- Water resistant gown
- Gloves
- Cap
- Shoes cover / boots

In particular, if environment is heavily contaminated (patients have profuse bleeding, vomiting and diarrhea.)

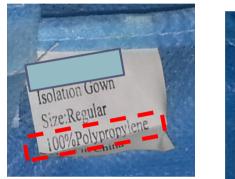


PPE – additional information

- N95 respirator should be worn for managing patients presented with cough, vomiting, diarrhoea, bleeding; or for aerosol-generating procedures such as endotracheal intubation or cardiopulmonary resuscitation.
- Wear boots if environment is grossly contaminated with blood or body fluid.
- Wear double gloves when handle cases with haemorrhagic symptoms

Protective gown (fluids resistant level)

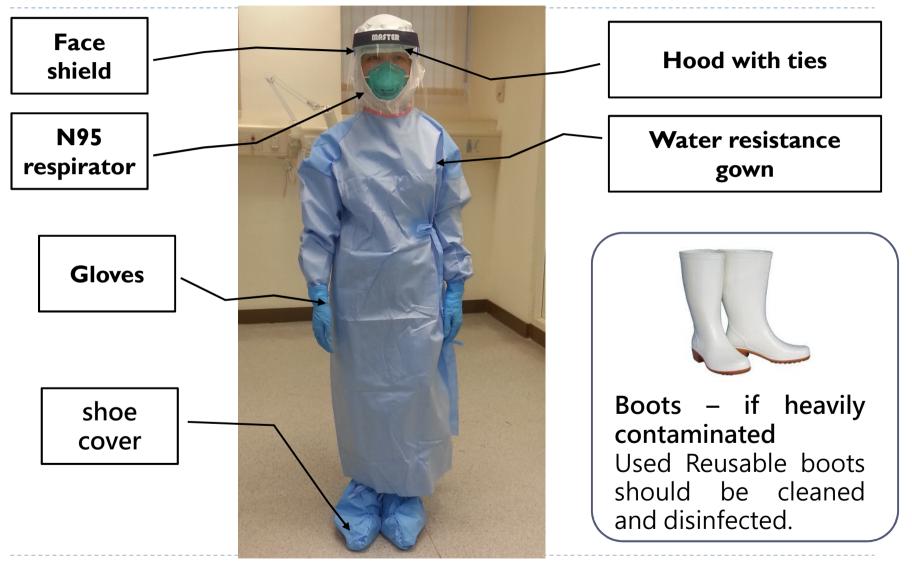
- Refer to gown label for the level of fluids resistance protection properties. Color of the gown is not associated with fluids resistance protection properties.
- gown label information may be confusing, consult ICT for advice







PPE in PMH IDC



Clinical Waste

- Waste generated from patient with EVD should be handled as clinical waste.
 - Ebola virus is one of the organism listed in "Group 4 Infectious Materials for clinical waste".
 - Clinical waste should be discarded in appropriate clinical waste containers. And relevant containers should be properly sealed & labelled.



環保署-醫療廢物管理工作守則-大型醫療廢物產生者及醫療廢物收集者 http://www.epd.gov.hk/epd/clinicalwaste/english/downloads/files/cop_major.pdf

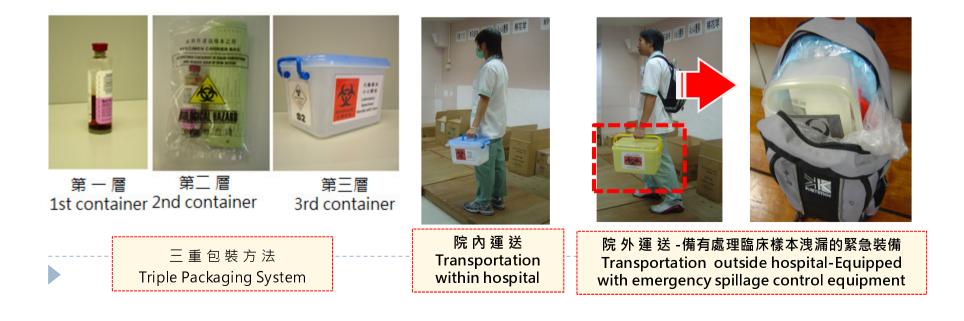
Safety Transportation



Triple Packaging System for

Transportation of Clinical Specimens

- Ist container: All specimens shall be collected in a primary container that is watertight and leak proof, i.e. specimen bottles. The cap should be securely closed.
- 2nd container: The primary containers shall be put into secondary container for example disposable zip-lock plastic bag.
- 3rd container: All secondary containers should be put into an outer container or packaging/box during transportation.



Safe Handling of Blood and Body Fluid Spillage

- environment decontamination should be carried out immediately or as soon as possible.
- Cleanse all visible soils before disinfection with disposable absorbent material.
- using appropriate environmental disinfectant (e.g. 1 to 4 diluted household bleach (containing 5.25% sodium hypochlorite) (10,000 ppm)).



Standard Precautions

Housekeeping & Environment

- Stringent environmental cleaning and disinfection by 1,000 ppm sodium hypochlorite solution (1 to 49 diluted 5.25% household bleach) is recommended.
- Following discharge of patients, terminal disinfection should be conducted.

Safe Handling of Infected Linen

- Wear appropriate PPE when handling Infected linen.
- Used linen should be handled as little as possible and with minimal agitation. And it should be contained into appropriate laundry bags at the point of generation.
- Sorting, rinsing, decontamination prior to washing or prewashing of used linen are NOT allowed to be performed in clinical areas as all laundry process should be done in laundry facilities.
- Linen bag should be tagged with "INFECTED LINEN"
- Seal linen bag properly for prevent leakage
 • DO not overload



Precautions for Handling and Disposal of Dead Bodies with VHF

Dead bodies with viral haemorrhagic fever should be classified as dead bodies

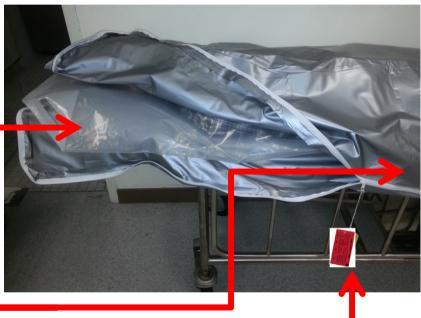
Under Category 3



http://www.chp.gov.hk/files/pdf/grp-guideline-hp-ic-precautions_for_handling_and_disposal_of_dead_bodies_en.pdf

Precautions for Handling and Disposal of Dead Bodies with VHF - Category 3

- First placed in a robust and leakproof transparent plastic bag of not less than 150 µm thick, which should be zippered or closed tightly with tapes and bandage strips. Pins are NOT to be used.
- A second layer of cover is required. The bagged body should be either wrapped with a mortuary sheet or placed in an opaque body bag.
- The outside of the body bag, if soiled, should be wiped with diluted bleach.



Category 3

END