



衛生防護中心

Centre for Health Protection

Infection Control Branch

**Infection Control Recommendations for
Ebola Virus Disease (EVD) in Healthcare Settings**

Disease information

Please refer to website of Centre for Health Protection for disease information update:

<https://www.chp.gov.hk/en/healthtopics/content/24/34397.html>

Affected areas

2. Please refer to the Centre for Health Protection (CHP) website for affected areas update:

https://www.chp.gov.hk/files/pdf/evd_updated_statistics.pdf

Case reporting

3. In Hong Kong, EVD has been made statutory notifiable since July 2008 under the disease group viral haemorrhagic fever. Medical practitioners managing returning travelers from visiting affected areas with compatible symptoms are advised to take into consideration the possibility of EVD.



4. Patient fulfilling the reporting criteria (available at: <https://ceno.chp.gov.hk/casedef/casedef.pdf>) should be isolated immediately and notified the Central Notification Office (CENO) of Centre for Health Protection (CHP) via fax (2477 2770), phone (2477 2772) or CENO On-line (<http://ceno.chp.gov.hk>). Please also contact the Medical Control Officer of DH at Pager 7116 3300 call 9179 for prompt investigation, control and arrangement of patient to the Hospital Authority Infectious Disease Centre (HAIDC) in Princess Margaret Hospital (PMH) for isolation, testing and treatment. For details of notification procedures, please visit CHP website: <http://www.chp.gov.hk/en/static/24040.html>.

Standard precautions

5. It is not always possible to identify patients with EVD early because initial symptoms may be non-specific. Therefore, it is important that healthcare workers apply standard precautions consistently with all patients in all work practices at all times regardless of their diagnosis. These include hand hygiene, respiratory hygiene, use of personal protective equipment (according to point-of-care risk assessment), safe handling of sharp instruments, contaminated equipment and used linen, environmental decontamination and clinical waste management¹. In general, it is sufficient to implement standard precautions for clients who undergo assessment in ambulatory settings.

Isolation precautions for suspected EVD cases before transferal

6. In addition to stringent standard precautions, additional isolation precautions (contact, droplet, airborne** precautions) 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 or unprotected contact with the contaminated environment.

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

- (a) Placement^{2,3,4}
 - (i) Patients should be cared in a single room (preferably an airborne infection isolation room (AIIR)).

- (ii) AIIR is required for patients presented with cough, vomiting, diarrhoea or bleeding; or for aerosol generating procedures such as endotracheal intubation or cardiopulmonary resuscitation.
- (b) Use of personal protective equipment (PPE) ^{2,3,4}
 - (i) Staff working in healthcare setting should wear working clothes underneath the PPE.⁵
 - (ii) All health workers should cover the whole body, including head and neck, with appropriate PPE while providing clinical care for patients with filovirus disease in order to prevent virus exposure⁶.
 - (iii) Real time infection control supervision is recommended.
 - (iv) Buddy system to supervise donning and doffing of PPE is preferable especially in inpatient settings.
 - (v) Perform hand hygiene, proper donning and doffing of PPE are essential.
 - (vi) Doff and discard all disposable PPE as clinical waste before exiting doffing area. Non-disposable items e.g. used boots should be decontaminated in designated places. *(Please refer to the Guide to decontaminate used gumboots after handling suspected/ confirmed cases with Ebola Virus Disease (EVD))*
 - (vii) Emergency shower is recommended after accidental unprotected exposure to blood and body fluid.
 - (viii) The PPE recommendations⁶ for healthcare workers in inpatient and outpatient settings are shown in Table 1 and 2 respectively.

Table 1: PPE recommendation in health care setting (in-patient)

Settings \ PPE	A&E triage	Providing clinical care for suspected/confirmed case
Cap	Cap (optional)	Water resistant head cover /hood
Face or eye protection	Face shield /goggles/visor	Face shield /goggles
Respiratory protection	Surgical mask	N95 respirator
Gown	Water-resistant gown	Water-resistant gown
Gloves	As indicated [#]	Double gloves*
Shoe cover/boots	Shoe covers (optional)	Full length shoe covers/gumboots
Footnote: [#] For example, when presence of skin lesions or contact with blood or body fluids anticipated *Prefer nitrile gloves		

Table 2: PPE recommendation in health care setting (out-patient)

Settings \ PPE	OPD registration counter Private clinic Ambulatory care setting	When patient reports positive TOCC (<i>Travel, Occupational, Contact, Cluster</i>)
Cap	/	/
Face or eye protection	/	Face shield /goggles
Respiratory protection	Surgical mask	Surgical mask**
Gown	/	Water-resistant gown
Gloves	/	Gloves ^D
Boots	/	As indicated ^{##}
Footnote: **Use N95 respirator if suspected case presents with cough, vomiting, diarrhea or bleeding; or for aerosol-generating procedures (such as endotracheal intubation or cardiopulmonary resuscitation). ^D Wear double gloves when handle cases with haemorrhagic symptoms. ## Use gumboots if environment is grossly contaminated with blood or body fluid		

Other infection control measures

7. Specimen collection and handling

- (a) Only essential investigation for immediate patient care should be done to decrease staff exposure.
- (b) The specimen containers should be bagged in sealed plastic bags. They must be placed in a robust, clearly labelled container before transport.
- (c) Laboratory staff should be informed prior to receipt of specimens.

8. Transfer of patients

- (a) Transfer of patients with suspected EVD should be kept to minimum.
- (b) Ambulance crew and staff for the transfer should be informed of the patient's clinical condition, and advised of appropriate precautions.
- (c) Use appropriate PPE as specified in point 6(b) during the transfer. The used vehicle should be decontaminated after patient transportation. Contaminated items and equipment should be properly clean and disinfected or discarded as specified in points 9-12.
- (d) Inform the receiving parties prior to transfer of patients to facilitate appropriate arrangement.

9. Management of healthcare equipment and instruments

- (a) Ebola viruses have been known to survive for two weeks or even longer on contaminated equipment and fabrics⁷.
- (b) Disposable equipment and instruments are recommended where possible and should be disposed as clinical waste.
- (c) Dedicate individual equipment and instruments.
- (d) Clean and disinfect reusable equipment and instruments contaminated with patient's blood, secretions, vomitus or excretion according to manufacturer instructions and healthcare facility's disinfection policy.
- (e) Staff performing cleaning and disinfection procedures should wear

appropriate PPE.

10. Environmental cleaning and disinfection

- (a) Cleaning staff should be equipped with appropriate PPE
- (b) Clean and disinfect the environment by 1,000 ppm sodium hypochlorite solution (1:49 diluted household bleach).
- (c) Clean and disinfect environmental surfaces contaminated with patient's blood, secretions, vomitus or excretions by using 10,000 ppm sodium hypochlorite solution (1:4 diluted household bleach).
- (d) Terminal disinfection should be conducted upon discharge of patients.

11. Linen management

- (a) Used linens should be classified as infected linen. They should be placed in clearly labeled leak-proof bags at the site of use with minimal manipulation or agitation. They should be tagged as “infected linen” and transported directly to the laundry area, and laundered following the recommended laundry procedures².

12. Clinical waste management

- (a) Any contaminated disposable materials should be classified as clinical waste *Group 4 - Infectious Materials*. All clinical waste should be safely segregated, packed, labeled, transported, and stored in accordance with relevant Code of Practices by Environmental Protection Department⁸.

13. Dead body handling

- (a) The dead body which has died of EVD is listed under Category 3 and should be handled according to established guidelines^{9, 10, 11}.
- (b) The dead body should be tagged with a red color dead body Category 3 tag.
- (c) Handling of the body should be minimal.

- (d) Autopsy is not recommended. If autopsy is to be carried out because of special reasons, it should be performed by a pathologist under stringent infection control precautions.

Recommended management procedure in Clinic Settings (Annex I)

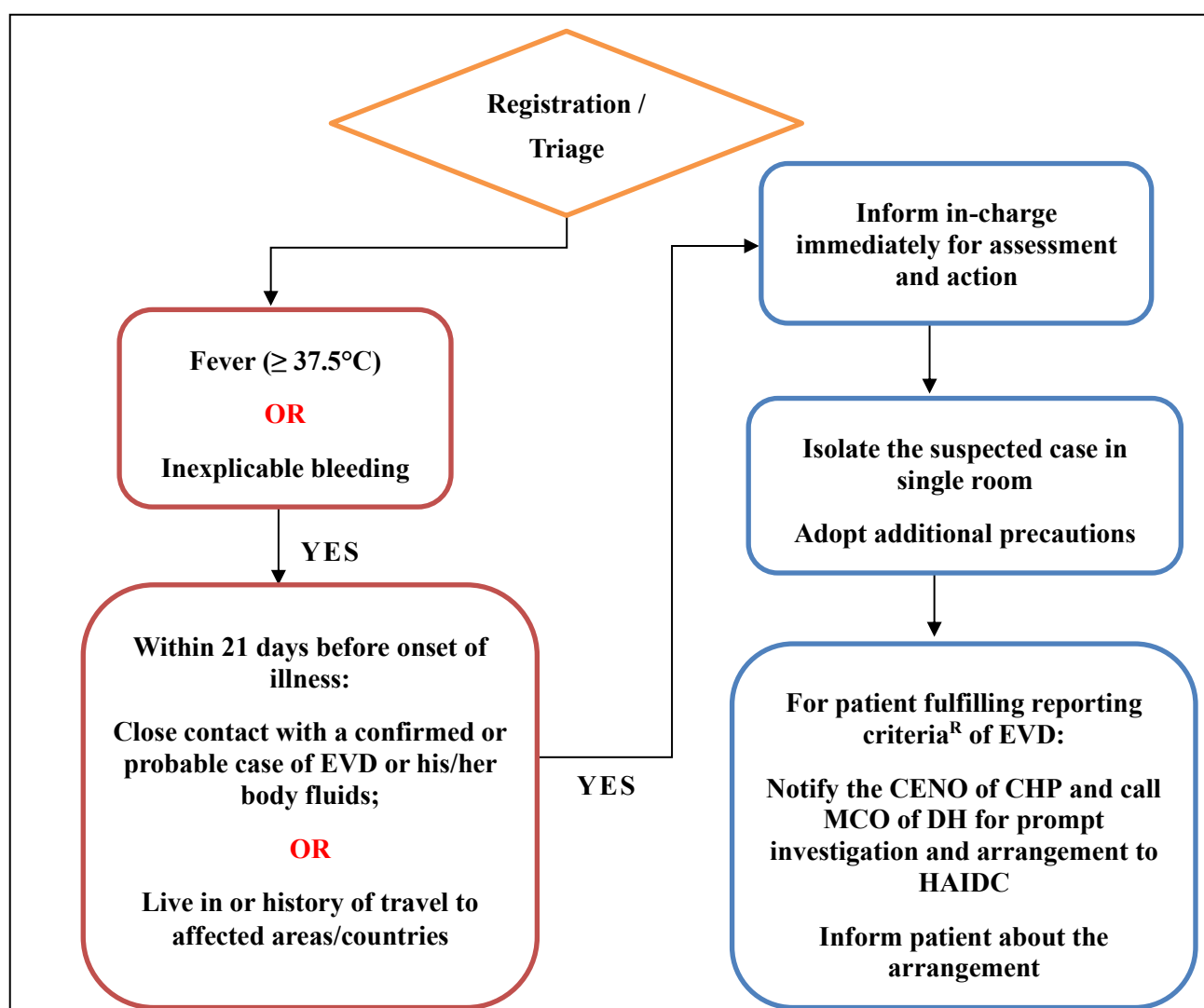
14. At Registration / Triage

- (a) Identify any fever ($\geq 37.5^{\circ}\text{C}$) OR inexplicable bleeding; AND any contact history OR travel history.
- (b) For suspected EVD case, inform in-charge of the clinic immediately for assessment and action.
- (c) Isolate the suspected EVD case in a single room, adopt additional precautions and use appropriate PPE as specified in point 6.
- (d) Notify the Central Notification Office (CENO) of CHP and call Medical Control Officer (MCO) of DH for prompt investigation, control and arrangement of patient to the Hospital Authority Infectious Disease Centre (HAIDC) in Princess Margaret Hospital

Infection control information

15. The infection control recommendations for EVD are developed based on current information and would be revised if new information becomes available. For more update information about EVD, please refer to the thematic webpage:

<https://www.chp.gov.hk/en/features/34199.html>



^R For reporting criteria of EVD please refer to

<https://ceno.chp.gov.hk/casedef/casedef.pdf>

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References:

1. World Health Organization. Standard precautions in health care, Aide-Memoire. Oct 2007. Available at:
<http://www.who.int/csr/resources/publications/standardprecautions/en/>
2. World Health Organization. Interim infection prevention and control guidance for care of patients with suspected or confirmed Filovirus Haemorrhagic Fever in health-care settings, with focus on Ebola. December 2014. Available at:
<http://www.who.int/csr/resources/who-ipc-guidance-ebolafinal-09082014.pdf?ua=1>
3. Advisory Committee on Dangerous Pathogens, Department of Health (UK). Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence – Appendix 8. November 2015. Available at:
http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947382005
4. Centers for Disease Control and Prevention. Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals. 3 September 2015. Available at:
<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>
5. World Health Organization. Personal Protective Equipment in the Context of Filovirus Disease Outbreak Response Rapid advice guideline, 2014. Available at:
http://apps.who.int/iris/bitstream/handle/10665/137410/WHO_EVD_Guidance_PPE_14.1_eng.pdf;jsessionid=F14619F505863FC1FE42C07EAA85299B?sequence=1
6. Scientific Committee on Infection Control, Centre for Health Protection, HKSAR. Recommendations on Use of Personal Protective Equipment (PPE) in the setting of EBOLA VIRUS DISEASE (EVD) in Hong Kong. December 2014. Available at:

http://www.chp.gov.hk/files/pdf/scic_recommendations_on_the_use_of_ppe_in_the_setting_of_evd_in_hong_kong.pdf

7. Advisory Committee on Dangerous Pathogens, Department of Health (UK). Management of Hazard Group 4 viral haemorrhagic fevers and similar human infectious diseases of high consequence – Appendix 10. November 2015. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/534002/Management_of_VHF_A.pdf
8. Website of Environmental Protection Department (EPD), HKSAR Government:
<https://www.epd.gov.hk/epd/clinicalwaste/tc/index.html>
9. Department of Health, Hospital Authority, Food and Environmental Hygiene Department, HKSAR Government. Precautions for Handling and Disposal of Dead Bodies. 10th Edition. 2014. Available at:
http://www.chp.gov.hk/files/pdf/grp-guideline-hp-ic-precautions_for_handling_and_disposal_of_dead_bodies_en.pdf
10. Centre for Health Protection, HKSAR. Supplementary Guidance for Handling of Dead Bodies of suspected/confirmed Ebola Virus Disease (EVD). Available at:
http://www.chp.gov.hk/files/pdf/supplementary_guidance_on_handling_of_dead_bodies_ebola.pdf
11. Centre for Health Protection, HKSAR. Arrangement for cremation/burial of dead bodies Arrangement for cremation/burial of dead bodies infected with Ebola virus disease (EVD). Available at:
http://www.chp.gov.hk/files/pdf/directions_arrangements_for_cremation_burial_of_dead_bodies_infected_with_evd_2014_eng.pdf