Infection Control Recommendations of mpox

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衛生防護中心 Centre for Health Protection

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Overview

- Background
- General preventive measures
- Infection Control Measures in healthcare settings

Background

The Virus

- Mpox is a zoonosis caused by monkeypox virus, which belongs to the Orthopoxvirus genus of the Poxviridae family

- A double-stranded DNA virus with DNA genome surrounded by a protein coat and lipid envelope

- Two distinct genetic clades:
  - Central African (Congo Basin) clade
  - West African clade

https://www.who.int/news-room/fact-sheets/detail/mpox#:~:text=Self%2Dcare%20and%20prevention&text=Covering%20lesions%20and%20wearing%20a,mouth%2Dto%2Dskin%20contact

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Background

The Reservoir

- The reservoir host is still unknown
- Rodents are suspected to play a part in the endemic setting
- Various animal species identified as susceptible
  - Squirrels, tree squirrels, Gambian pouched rats, dormice, non-human primates and other species

https://www.who.int/news-room/fact-sheets/detail/mpox#:~:text=Self%2Dcare%20and%20prevention&text=Covering%20lesions%20and%20wearing%20a,mouth%2Dto%2Dskin%20contact

https://www.ecdc.europa.eu/en/all-topics-z/monkeypox/factsheet-health-professionals

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Background

Mode of Transmission

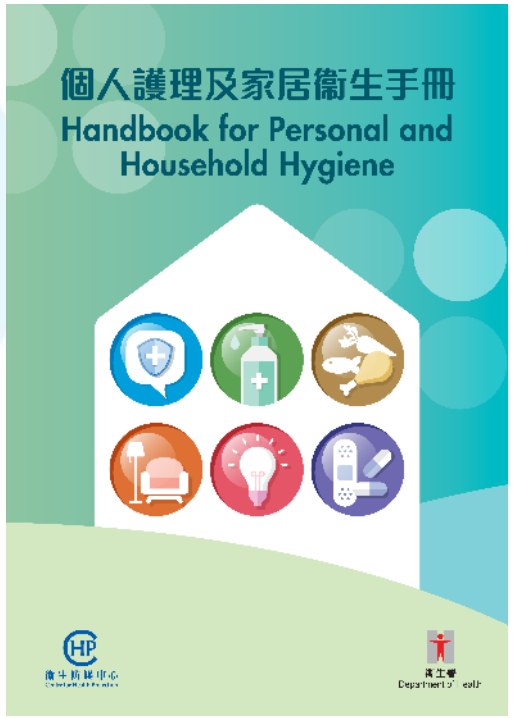
- Infection could occur when a person comes into contact with the virus from
  - **Infected wild animals:** through bite, scratch, or direct contact with body fluid by some species of primates, rodents and squirrels, etc.
  - **Infected human:** through respiratory droplets during prolonged face-to-face contact; or direct contact with body fluids from ulcers, lesions and sores in the mouth
  - **Contaminated materials**: surfaces or items contaminated by body fluid of patients infected with mpox

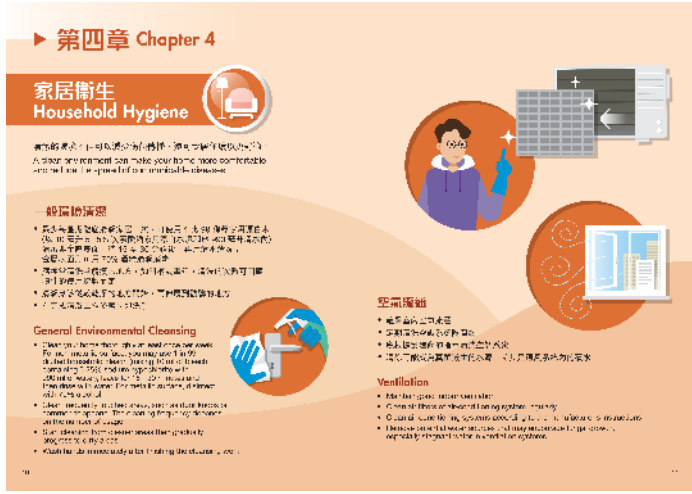
- Close, interpersonal contact, including direct touching (including sex), or sharing items like towels, beds, etc. is believed the most important mode of transmission

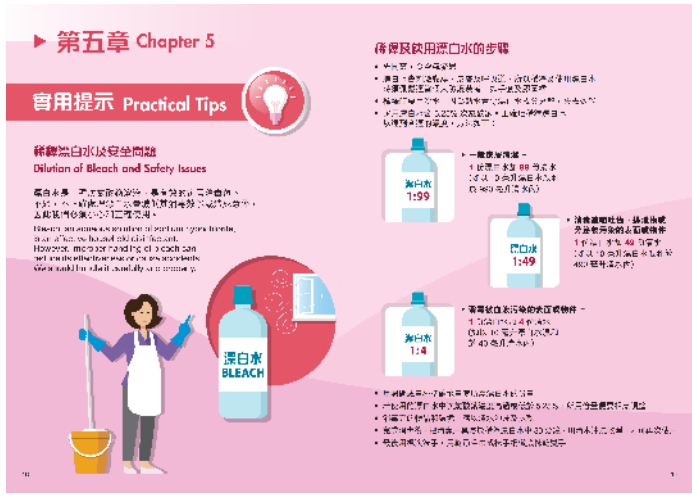
https://www.cdc.gov/poxvirus/mpox/if-sick/transmission.html#:~:text=The%20virus%20that%20causes%20mpox,in%20markets%20or%20classrooms%2C%20etc.

General preventive measures

Maintain good personal and environmental hygiene all the time







Disinfectants effective against Monkeypox virus

Difficulty to Inactivate	Description
Tier 1	**Enveloped** viruses are the **easiest to inactivate**. When disinfectants damage their lipid envelope, the virus is no longer infectious.
Tier 2	**Large, nonenveloped** viruses are encased in protein capsids that make them **more difficult to inactivate** compared to enveloped viruses.
Tier 3	**Small, nonenveloped** viruses are the **hardest to inactivate**. Both their protein capsids and their small size make them less vulnerable to disinfectants compared to other viruses.

→ Monkeypox virus

- CDC: Use an EPA-registered disinfectant with an emerging viral pathogens claim
  - **Emerging Viral Pathogens (EVPs)** claims on EPA's List Q
  - Follow manufacturer directions for use, e.g. concentration, contact time, care and handling

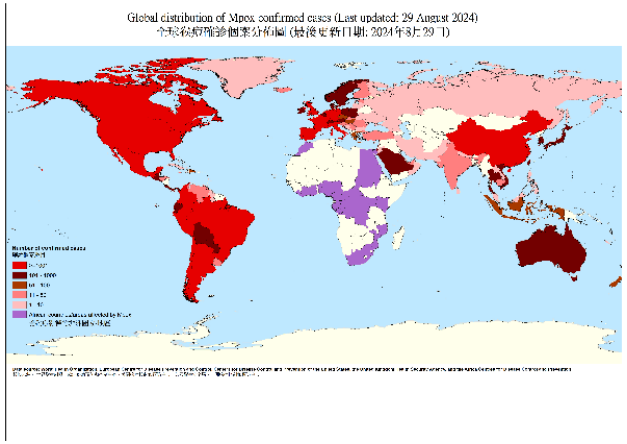
➢ EDC / Public Health England: 1000ppm sodium hypochlorite (i.e. 1:49 diluted household bleach)

https://www.epa.gov/pesticide-registration/disinfectants-emerging-viral-pathogens-evps-list-q

https://www.cdc.gov/poxvirus/mpox/clinicians/infection-control-healthcare.html

When travelling to places affected by mpox

- **Avoid close, skin-to-skin contact with sick people** or people with a rash that looks like mpox**;**
- **Avoid contact with objects and materials that a person with mpox has used**, such as eating utensils or cups, bedding, towels, or clothing;
- **Avoid contact with sick or dead animals;**
- **Implement appropriate infection control precautions** when taking care of ill people or handling animals, such as wearing protective clothing and equipment including gloves and surgical masks**;**
- **Maintain hand hygiene.** Clean hands with liquid soap and water when they are visibly soiled or likely contaminated with blood and body fluid. When hands are not visibly soiled, they could be cleaned with 70-80% alcohol-based handrub;
- **Thoroughly cook all animal** products before eating; and
- **Seek medical advice** promptly for any suspicious symptoms**.**



https://www.chp.gov.hk/files/png/map_of_global_distribution_of_monkeypox_confirmed_cases.png

https://www.chp.gov.hk/en/healthtopics/content/24/101721.html

Infection control measures in healthcare settings

Isolation Precautions

For Suspected or confirmed mpox cases,

- A combination of **standard, contact, and droplet precautions** should be adopted for routine patient care. Because of the theoretical risk of airborne transmission of Mpox virus, **airborne precautions** should also be applied.

- PPE: **Surgical respirator, eye protection (goggles / face shield), isolation gown, gloves, and cap (optional)** for routine patient care and aerosol-generating procedures (AGPs)

- **Isolation precautions should be maintained until all scabs have fallen off and new skin is present.**

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Patient Care Equipment

- Handle used/soiled patient-care equipment carefully to prevent skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to other patients and environment

- Use disposable items when those items cannot be cleaned or disinfected properly

- **Designate non-critical patient care equipment** to the patients
  - If sharing is unavoidable, clean and disinfect with sodium hypochlorite solution 1,000 ppm after each patient use

Environmental Control

- Clean and disinfect with **sodium hypochlorite solution 1000 ppm**; or use 70% alcohol to disinfect metal surfaces

- Perform terminal disinfection upon each patient discharge

Cleaning of Spillage of blood, body fluids, or other potentially infectious materials

- Clean the visible soils with disposable absorbent material and discard it into the appropriate waste bag

- **Mop the area with a cloth or paper towels wetted with sodium hypochlorite solution 10000 ppm, leave for 10 minutes.** 70% alcohol can be used in metal surface if household bleach is contraindicated

- Then rinse with water and allow the area to air dry

Waste Management

- The majority of wastes arising from mpox cases such as PPEs, paper tissues, leftover food, meal boxes, and packing materials should be treated as **general waste**

- The exceptions are those waste types defined as **clinical waste** in the Waste Disposal Ordinance including used or contaminated sharps, laboratory waste, human tissues and dressings which should be handled according to the Clinical Waste Management Plan from the Environmental Protection Department (https://www.epd.gov.hk/epd/clinicalwaste/en/index.html)

Linen Handling

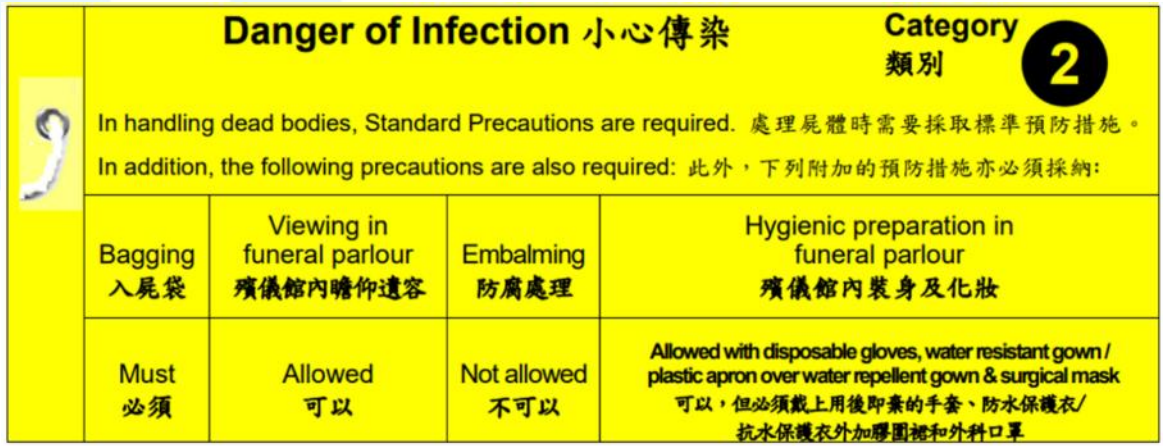
- Contaminated clothing and linens should be washed at least 60°C cycle.
- **Avoid sorting** linens in patient-care areas.
- The linens should be gently and promptly contained in an appropriate laundry bag and never be shaken or handled in manner that may disperse infectious material

Handling of Dead Body

1. Handling and disposal of dead body according to **Category 2**

2. Use **YELLOW label**

3. Follow the additional precautions as recommended in “Precautions for Handling and Disposal of Dead Bodies, 10th edition.” https://www.chp.gov.hk/files/pdf/grp-guideline-hp-ic-precautions_for_handling_and_disposal_of_dead_bodies_en.pdf



Danger of Infection 小心傳染 Category 類別 2			
In handling dead bodies, Standard Precautions are required. 處理屍體時需要採取標準預防措施。 In addition, the following precautions are also required: 此外，下列附加的預防措施亦必須採納：			
Bagging 入屍袋	Viewing in funeral parlour 殯儀館內瞻仰遺容	Embalming 防腐處理	Hygienic preparation in funeral parlour 殯儀館內裝身及化妝
Must 必須	Allowed 可以	Not allowed 不可以	Allowed with disposable gloves, water resistant gown / plastic apron over water repellent gown & surgical mask 可以，但必須戴上用後即棄的手套、防水保護衣/抗水保護衣外加膠圍裙和外科口罩

Patient Transport

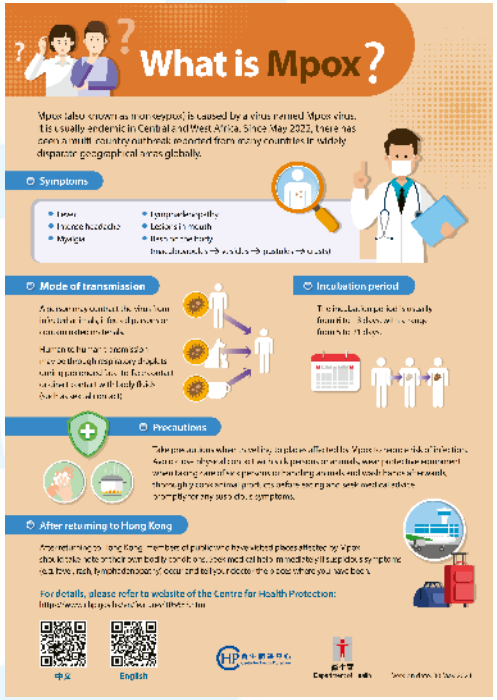
1. Limit patient transport to essential purpose only
2. Wear appropriate PPE when handling patients
3. Provide **surgical mask to patients** during transportation if not contraindicated
4. **Cover patients' lesion (e.g. long sleeves and pants) to the best extent** possible for transport
5. Inform the receiving ward/ parties before patient transport to facilitate appropriate arrangement
6. Inform the administration to prepare the **designated route** for transport. The involved area should be disinfected afterwards
7. **Disinfect transport vehicles** after use

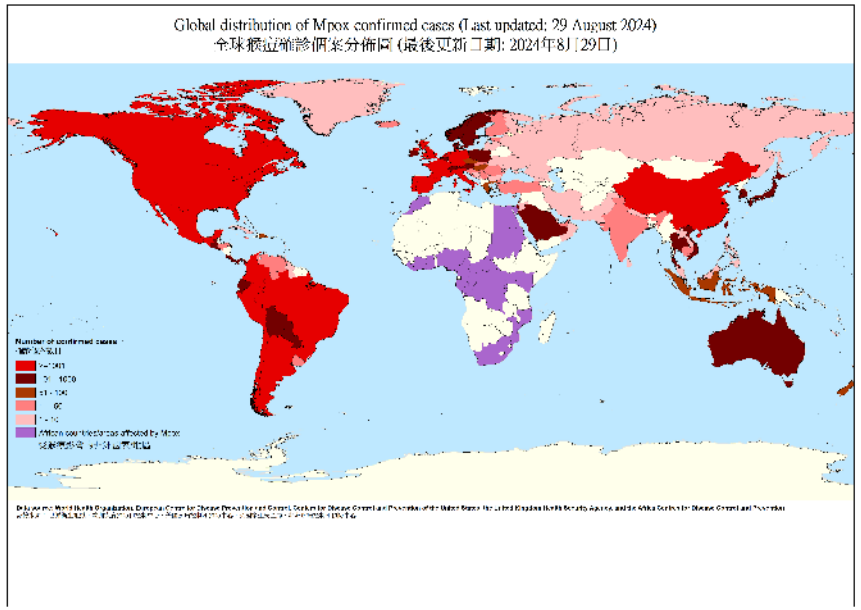
Take home messages

- To reduce the risk of acquiring mpox, we should
  - Maintain good personal and environmental hygiene all the time
  - Take appropriate preventative measures when travelling to places affected by mpox
  - For healthcare workers require to handle suspected or confirmed mpox cases
    - A combination of **standard, contact, and droplet and airborne precautions** should be adopted for routine patient care

Stay tuned to CHP website

https://www.chp.gov.hk/en/features/105683.html





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Thank you