



衛生防護中心
Centre for Health Protection

Health Advice to School for the Prevention of Middle East Respiratory Syndrome (MERS)

I. Middle East Respiratory Syndrome (MERS)

A. Causative Agent

Coronaviruses are a large family of viruses which include viruses that may cause mild illness like common cold as well as severe illness like severe acute respiratory syndrome (SARS) in humans. There are 3 main subgroups of coronaviruses: alpha (α), beta (β) and gamma (γ). Middle East Respiratory Syndrome Coronavirus (MERS-CoV), formerly known as novel coronavirus (NCoV), is a beta coronavirus which has not been identified in humans before and is different from any coronaviruses (including SARS-coronavirus) that have been found in humans or animals.

B. Clinical Features

2. Infected persons may present with acute serious respiratory illness with symptoms including fever, cough, shortness of breath and breathing difficulties. Patients with MERS may develop severe complications such as pneumonia and kidney failure. Some also have gastrointestinal symptoms including diarrhoea and nausea/vomiting. In people with immune deficiencies, the disease may have atypical presentation. Some laboratory-confirmed cases of MERS-CoV infection are reported as asymptomatic. Approximately 35% of reported MERS patients died.



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轄下執行疾病預防
及控制的專業架構
The Centre for Health
Protection is a
professional arm of the
Department of Health for
disease prevention
and control

C. Mode of Transmission

3. There is still uncertainty at the moment. People may be infected upon exposure to animals (especially camel), environment or other confirmed patients (such as in a hospital setting).

4. Based on the current information, MERS-CoV could be spread from person-to-person through close contact.

5. Besides, scientific studies support that dromedary camels serve as a major reservoir host for MERS-CoV and an animal source of infection in humans.

D. Incubation Period

6. It ranges from 2 – 14 days

E. Treatment

7. There is currently no specific treatment for the disease. Treatment is supportive.

F. Vaccination

8. No vaccine is currently available to protect against MERS.

9. The Department of Health advises school to take the following precautionary measures to minimize the risk of contracting and spreading MERS

II. Prevention Measures

A. Stay Alert

- (a) Remind students/staff that they should avoid travel to the affected areas. Good personal and environmental hygiene should be maintained. For the MERS updates, Please visit Centre for Health Protection website http://www.chp.gov.hk/files/pdf/distribution_of_mers_cases_en.pdf
- (b) Instruct students/staff who had travelled to those affected areas in the past 14 days; they should notify school and observe closely their health condition. Within the 14 days of returning from those affected areas, they should measure their body temperature every day before going to school. If feeling unwell, they should seek medical consultation promptly and should not go to school.
- (c) Students/staff returning from affected areas with MERS outbreaks should consult doctors promptly if they have MERS symptoms, and inform the doctor of the travel history and wear a surgical mask to help prevent spread of the disease.

B. Maintain Good Personal Hygiene

- (a) Perform hand hygiene properly before touching your eyes, nose or mouth; before eating; after using the toilet; and touching public installations or equipment such as escalator handrails, elevator control panels or door knobs.
- (b) Wash hands with liquid soap and water properly whenever possibly contaminated.
- (c) When hands are not visibly soiled, clean hands by rubbing them with 70-80% alcohol-based handrub as an effective alternative.

- (d) Cover nose and mouth with tissue paper when sneezing or coughing. Dispose soiled tissue paper properly into a lidded rubbish bin and wash hands with liquid soap and water afterwards.
- (e) Students/staff should wear a surgical mask if develop respiratory symptoms and consult their doctor promptly. They should take rest at home and refrain from going to school if having fever.
- (f) Do not share personal items such as eating utensils and towels.

C. Preparation of Hand Hygiene Facilities

- (a) Provide liquid soap and disposable paper towels or hand dryers at places where there are handwashing facilities, e.g. toilets, kitchens, tuck shops/ canteens, art rooms, activity rooms as indicated.
- (b) Provide alcohol-based handrub in places where handwashing facility is not available.
- (c) The children should be instructed to use alcohol-based handrub properly.

D. Maintain Good Indoor Ventilation

- (a) Windows of classroom should be opened, window and louver are not located on the same wall for better ventilation
- (b) Switch on fans or exhaust fans to enhance air flow.
- (c) Keep air-conditioners well-maintained.
- (d) Clean the dust-filters of air-conditioners regularly.

E. Maintain Environment Clean and Hygienic

- (a) School management is advised to maintain good hygienic standard of the school premises through thorough cleansing and disinfection daily (please refer to Annex I for procedures of preparing and using diluted bleach). Keep classrooms, kitchens, canteens, toilets and bathrooms clean and hygienic by using mixture of 1ml of household bleach

containing 5.25% hypochlorite solution with 99ml of water. For metallic surface, disinfect with 70% alcohol.

- (b) Clean and disinfect frequently touched surfaces, furniture, toys, commonly shared items and floor at least daily by using appropriate disinfectant (e.g. 1 part of household bleach containing 5.25% sodium hypochlorite to 99 parts of water for non-metallic surface), leave for 15 - 30 minutes, rinse with water and wipe dry afterwards. For metallic surface, disinfect with 70% alcohol.
- (c) If places are contaminated by respiratory secretions, vomitus or excreta, use strong absorbent disposable paper towels to wipe them away. Then disinfect the surface and the neighbouring area with appropriate disinfectant (e.g. 1 part of household bleach containing 5.25% sodium hypochlorite to 49 parts of water for non-metallic surface), leave for 15-30 minutes, rinse with water and wipe dry afterwards. For metallic surface, disinfect with 70% alcohol.

III. Early Recognition of Infection:

- (a) Contact the staff and parents/guardians of students to ascertain the reasons for their absence.
- (b) Keep sick leave records of staff and students properly. This helps early detection of possible infections.
- (c) Inform Centre for Health Protection (CHP) of the Department of when staff or student diagnose of MERS/with similar symptoms of MERS. This helps to reduce the risk of the spread of communicable diseases.

IV. When a Suspected MERS Case is Encountered in School

A. Cleansing staff would wear appropriate PPE including:

- (a) Surgical mask
- (b) Latex gloves
- (c) Disposable gown
- (d) Eye protection (goggles/face shield) and
- (e) Cap (optional)

B. Enhanced Environmental Disinfection

- (a) Disinfect all potentially contaminated surfaces or items by using 1 part of household bleach containing 5.25% sodium hypochlorite to 49 parts of water, leave for 15-30 minutes, rinse with water and wipe dry afterwards.

C. If There is Blood, Secretions, Vomitus or Excreta, Take Enhanced Measures:

- (a) Cleansing staff should wear appropriate personal protective equipment (PPE) including surgical mask, gloves, disposable gown, eye protection (goggles/face shield) and cap (optional).
- (b) Use forceps to hold the strong absorbent disposable towels to wipe away the blood, secretions, vomitus or excreta during a preliminary clean up.
- (c) Then put the forceps and used absorbent disposable towels in a garbage bag carefully without contaminating oneself/the environment.
- (d) Use 1 part of household bleach containing 5.25% sodium hypochlorite to 4 parts of water, wipe from the outside inward, leave for 10 minutes, rinse with water and wipe dry afterwards.
(Recommended disinfection area: contaminated surface and its surroundings, such as 2 m)

- (e) After the procedure, put all the wastes and cleansing tools (e.g. forceps, cloth, mop head) in the garbage bag.
- (f) Carefully remove PPE, put them in the garbage bag, and then perform hand hygiene.
(When hands are not visibly soiled, use 70-80% alcohol-based handrub. Wash hands with soap and water when hands are visibly dirty or visible soiled with blood, body fluid.)
- (g) Wear a pair of new gloves, seal the waste bag tight and dispose it properly in covered rubbish bin. Then, label the rubbish bin and put it in a safe undisturbed place until the status of case is confirmed. #
- (h) Remove gloves carefully. Wash hands with liquid soap and water.

If MERS is confirmed, CHP will inform the school as soon as possible and the wastes will be collected by the Food and Environmental Hygiene Department. On the contrary, if MERS is excluded, the wastes can be disposed as usual.

D. MERS is Confirmed

- (a) Wear a new pairs of gloves.
- (b) Put the waste bag into red clinical waste bag (with biohazard sign), each bag of clinical waste should be labeled with “clinical waste” tag and clearly indicate the source of the waste in a non-fading black pen.
- (c) Remove gloves carefully. Wash hands with soap and water.
- (d) The Food and Environmental Hygiene Department will arrange a collector approved by the Environmental Protection Department and the clinical waste will be collected and transported to a licensed disposal facility.

V. Updated Information for MERS

10. Please visit the website of the Centre for Health Protection of the Department of Health at

<https://www.chp.gov.hk/en/healthtopics/content/24/26528.html>

VI. Guideline on Prevention of Communicable Diseases in Schools

11. Please refer to the “Guidelines on Prevention of Communicable Diseases in Schools/Kindergartens/Kindergartens-cum-Child Care Centres/Child Care Centres” for more details.

http://www.chp.gov.hk/files/pdf/guidelines_on_prevention_of_communicable_diseases_in_schools_kindergartens_kindergartens_cum_child_care-centres_child_care_centres.pdf

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Safe Use of Bleach Solution

I. Preparing and Using Diluted Bleach

- (a) Keep windows open when diluting or using bleach to ensure good ventilation
- (b) Put on personal protective gear (e.g. mask, gloves and goggles) when diluting or using bleach as it irritates mucous membranes, the skin and the airway.
- (c) Cold water should be used for dilution of bleach as hot water decomposes the active ingredient of bleach and renders it ineffective.
- (d) Bleach containing 5.25% sodium hypochlorite should be diluted as follows:
 - (i) 1 to 99 diluted household bleach (mixing 10 ml of bleach with 990 ml of water) can be used for general household cleaning.
 - (ii) 1 to 49 diluted household bleach (mixing 10 ml of bleach with 490 ml of water) is used to disinfect surfaces or articles contaminated with vomitus, excreta and secretions.
- (e) Make adjustments to the amount of bleach added if the concentration of sodium hypochlorite is above or below 5.25%.
 - (i) Calculation: Multiplier of the amount of bleach added = $5.25\% \div$ concentration of sodium hypochlorite in bleach.
 - (ii) For example, when diluting bleach containing only 5% sodium hypochlorite, the multiplier is $5.25 / 5 = 1.05$. That means $10 \text{ ml} \times 1.05 = 10.5 \text{ ml}$ of bleach should be used.
- (f) For accurate measurement of the amount of bleach added, a measuring cup can be used.
- (g) Rinse disinfected articles and surfaces with water and wipe dry.
- (h) Cleaning tools should be soaked in diluted bleach for 30 minutes and then rinsed thoroughly before reuse.
- (i) Finally, wash hands with liquid soap and water, then dry hands with a clean towel or disposable paper towel.

II. Precaution

- (a) Avoid using bleach on metals, wool, nylon, silk, dyed fabric and painted surfaces.
- (b) Avoid touching the eyes. If bleach gets into the eyes, immediately rinse with water for at least 15 minutes and consult a doctor.
- (c) Bleach should not be used together or mixed with other household detergents as this reduces its effectiveness in disinfection and causes chemical reaction. For instance, a toxic gas is produced when bleach is mixed with acidic detergents such as those used for toilet cleaning. This could result in accidents and injuries. If necessary, use detergents first and rinse thoroughly with water before using bleach for disinfection.
- (d) As undiluted bleach liberates a toxic gas when exposed to sunlight, it should be stored in a cool and shaded place out of reach of children.
- (e) Sodium hypochlorite decomposes with time. To ensure its effectiveness, it is advised to purchase recently produced bleach and avoid over-stocking.
- (f) For effective disinfection, diluted bleach should be used within 24 hours after preparation.