

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

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.

Affected areas

The affected areas of MERS include the Arabian Peninsula and its neighboring countries (including Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Kingdom of Saudi Arabia, State of Palestine, Syria, United Arab Emirates, Qatar and Yemen). So far, over 95% of the confirmed cases were reported by Middle East countries. For the remaining cases, most of them either acquired the infection in the Middle East during travel or work, or through close contact with another patient who acquired the infection in Middle East. Moreover, there has been an outbreak of MERS in Korea since the end of May 2015 with transmissions mainly occurred in healthcare facilities. Please refer to website of Centre for Health Protection for affected areas update:
http://www.chp.gov.hk/files/pdf/distribution_of_mers_cases_en.pdf

Prevention

Good personal hygiene including proper hand hygiene is an effective way to prevent infection. In view of the severity of illness of reported cases and uncertainty on the transmissibility of MERS-CoV, the following actions are advised for schools to prevent Middle East Respiratory Syndrome (MERS):

Maintain good indoor ventilation

- Windows of classroom should be opened for better ventilation
- Switch on fans or exhaust fans to enhance air flow
- Keep air-conditioners well-maintained
- Clean the dust-filters of air-conditioners regularly

Environmental cleansing and disinfection

- 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 10ml of household bleach containing 5.25% hypochlorite solution with 990ml of water wait until dry and then rinse with water. For metallic surface, disinfect with 70% alcohol.

- Clean and disinfect frequently touched surfaces, furniture, toys, commonly shared items and floor at least daily by using appropriate disinfectant. For non-metallic surface, disinfect with mixture of 10ml of household bleach containing 5.25% hypochlorite solution with 990ml of water wait until dry and then rinse with water. For metallic surface, disinfect with 70% alcohol.
- 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. For non-metallic surface, disinfect with mixture of 10ml of household bleach containing 5.25% hypochlorite solution with 490ml of water, leave for 15-30 minutes, and then rinse with water. For metallic surface, disinfect with 70% alcohol.

Environmental support for hand hygiene practice

- Provide liquid soap and disposable paper towels or hand dryers at places where there are handwashing facilities, e.g. toilets, kitchens / pantries, laundries, art rooms as indicated.
- Provide alcohol-based handrub in places where handwashing facility is not available. Use 70-80% alcohol-based handrub disinfection when hands are not visibly soiled is also effective. The alcohol-based handrub should be kept out of reach of children to prevent unsupervised use. The children should be instructed to use alcohol-based handrub properly.
- Clean hands frequently, especially in the following situation:
 - before handling food or eating;
 - before touching the eyes, nose and mouth;
 - after sneezing, coughing, cleaning the nose and going to toilet;
 - after physical education lessons; and
 - when hands are visibly soiled.
- Use disposable paper towel and hand dryer for hand drying after hand washing.

Staff should observe themselves and instruct the children to maintain respiratory hygiene practices in accordance to the following advice:

- Do not spit.
- Cover both the nose and mouth with a handkerchief or tissue paper when coughing or sneezing.
- Wrap up secretion with tissue paper and discard it into garbage bins with lids or flush them away in the toilet.
- Clean hands immediately after contacting respiratory secretions or touching objects contaminated with respiratory secretions.
- Put on a surgical mask for those with respiratory infection symptoms.
- Do not share personal items such as eating utensils and towels.

Staff and children should seek prompt medical attention if they develop fever or respiratory infection symptoms. For management of sick children in schools, please refer to the Guidelines on Prevention of Communicable Diseases in Schools / Kindergartens / Kindergartens-cum-Child Care Centres / Child Care Centres. http://www.chp.gov.hk/files/pdf/guidelines_on_prevention_of_communicable_diseases_in_schools_kindergartens_kindergartens_cum_child_care-centres_child_are_centres.pdf

For more information on MERS, please visit the Centre for Health Protection website at www.chp.gov.hk, the CHP Facebook Fanpage or call the 24-Hour Health Education Hotline 2833 0111

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Preparing and Using Diluted Bleach

1. Keep windows open when diluting or using bleach to ensure good ventilation
2. 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.
3. Cold water should be used for dilution of bleach as hot water decomposes the active ingredient of bleach and renders it ineffective. 4. Bleach containing 5.25% sodium hypochlorite should be diluted as follows:
 - 1 to 99 diluted household bleach (mixing 10 ml of bleach with 990 ml of water) can be used for general household cleaning.
 - 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.
4. Make adjustments to the amount of bleach added if the concentration of sodium hypochlorite is above or below 5.25%.
 - Calculation: Multiplier of the amount of bleach added = 5.25% concentration of sodium hypochlorite in bleach 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.
 - For accurate measurement of the amount of bleach added, a measuring cup can be used.
5. Rinse disinfected articles and surfaces with water and wipe dry.
6. Cleaning tools should be soaked in diluted bleach for 30 minutes and then rinsed thoroughly before reuse. Finally, wash hands with liquid soap and water, then dry hands with a clean towel or disposable paper towel.

Precaution

1. Avoid using bleach on metals, wool, nylon, silk, dyed fabric and painted surfaces.
2. Avoid touching the eyes. If bleach gets into the eyes, immediately rinse with water for at least 15 minutes and consult a doctor.
3. 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.
4. 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.
5. Sodium hypochlorite decomposes with time. To ensure its effectiveness, it is advised to purchase recently produced bleach and avoid over-stocking.
6. For effective disinfection, diluted bleach should be used within 24 hours after preparation.