California Department of Public Health – January 2019

# Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Quicksheet

**MERS-CoV Background (as of January 1, 2017)**

- Middle East respiratory syndrome (MERS) is caused by a distinctive coronavirus (MERS-CoV) first identified in Saudi Arabia in 2012.
- More than 2,000 confirmed cases of MERS have been reported in more than 27 countries; all reported cases have originated in the Arabian Peninsula or been linked to a case who had recently traveled there.
- Two cases of MERS in the United States (IN and FL), both healthcare workers exposed while working in Saudi Arabia, were reported in May 2014.
- In 2015 an outbreak of 186 cases associated with healthcare facilities began when a man returned to South Korea from the Arabian Peninsula.
- Limited human-to-human transmission of MERS-CoV has occurred in family members and healthcare workers exposed to cases. To date, there is no evidence of sustained transmission.
- Typical symptoms include fever, chills, cough, and dyspnea, though certain patients with compromised immune systems might not mount a fever. Pneumonia is common. Some cases have had diarrhea, nausea, or vomiting. Some cases tested after contact with MERS patients were asymptomatic.
- Complications include severe pneumonia, acute respiratory distress syndrome, and organ failure.
- Approximately 35% of confirmed cases have died.
- There is no known treatment for MERS-CoV infection; management is supportive.

**MERS PUI (Person Under Investigation) Definition**

A) A person with fever (≥ 38°C, 100.4°F) AND pneumonia or acute respiratory distress syndrome (based on clinical or radiological evidence); AND EITHER

- History of travel from countries in or near the Arabian Peninsula* within 14 days before symptom onset; OR
- Close contact with a symptomatic traveler who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries in or near the Arabian Peninsula*; OR
- A member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which MERS infection is being evaluated.

**OR**

B) A person with fever AND symptoms of respiratory illness (not necessarily pneumonia; e.g. cough, shortness of breath) AND being in a healthcare facility (as a patient, worker, or visitor) within 14 days before symptom onset in a country or territory in or near the Arabian Peninsula in which recent healthcare associated cases of MERS have been identified.

**OR**

C) A person with fever OR symptoms of respiratory illness (not necessarily pneumonia; e.g. cough, shortness of breath) AND close contact (defined below) with a confirmed MERS case while the case was ill.

*Includes Bahrain, Iraq, Iran, Israel, the West Bank and Gaza, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Palestinian territories, the United Arab Emirates (UAE), and Yemen.

Local health departments should notify CDPH of suspect MERS cases by calling 510-620-3737 or, if after hours, the CDPH Duty Officer.

**MERS-CoV specimen collection and testing**

Polymerase chain reaction (PCR) testing for MERS-CoV is available at the CDPH Viral and Rickettsial Disease Laboratory (VRDL). Local health departments should contact VRDL at 510-307-8585 to arrange shipping after the CDPH Clinical Consultant has been notified.

A) Collect and priority ship specimens from 3 categories:

- 1) Lower respiratory tract specimens have the highest yield. Whenever possible collect one or more of: broncheoalveolar lavage fluid, tracheal aspirate, pleural fluid, or sputum.
- 2) Upper respiratory tract specimens: Obtain nasopharyngeal and oropharyngeal (throat) swabs using synthetic fiber swabs with plastic shafts. Do not use calcium alginate or wooden shaft swabs. Nasal washes are not acceptable.
- Send respiratory samples in viral transport media.
- 3) Serum: ≥1 full tube (5-10 ml blood for adults).

See CDC guidance for collecting, handling and testing specimens: http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html

B) Forward both completed forms to CDPH:

- VDRL general purpose specimen submittal form: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/VRDL_Specimen_Submittal_Forms.aspx#
- CDC PUI form: http://www.cdc.gov/coronavirus/mers/downloads/MERS-investigation-short-form.pdf

C) Laboratories should NOT attempt to perform viral culture on specimens from patients with suspected or laboratory-confirmed MERS infection.

**MERS infectious period**

The infectious period for MERS-CoV is not clearly established but is likely to extend from the onset of fever until 10 days after fever resolves.

**MERS incubation period**

The available data suggest that symptoms have occurred up to 14 days after last exposure, most often after 5 days.

**INFECTION CONTROL - Hospital isolation**

Suspect or confirmed MERS cases who are ill enough to be hospitalized should be placed in an airborne infection (negative-pressure) isolation room with Airborne, Contact, and Standard precautions, including eye protection. Isolation should continue until PCR testing is negative for suspected cases or until 10 days after resolution of fever in laboratory-confirmed cases.

Updated CDC hospital infection control guidance is available at: https://www.cdc.gov/coronavirus/mers/infection-prevention-control.html

**Home isolation**

Persons with suspect or confirmed MERS infection who are not ill enough to require hospitalization should:

1. **Stay home:** Restrict activities outside the home, except for getting medical care and not go to work, school, or public areas, or use public transportation.
2. **Separate themselves from other people in the home:** Stay in a different room from other people in the home as much as possible and use a separate bathroom, if available.
3. **Call ahead before visiting the doctor:** Before a medical appointment, notify the healthcare provider about the possibility of MERS infection.
4. **Wear a facemask:** Wear a facemask when in the same room with other people and when visiting a healthcare provider. If a facemask cannot be worn, persons in the home should wear one while in the same room with the patient.
5. **Cover coughs and sneezes:** Cover mouth and nose with a tissue when coughing or sneezing, or cough or sneeze into a sleeve. Throw used tissues in a lined trash can, and immediately wash hands with soap and water.
6. **Keep hands clean:** Wash hands often and thoroughly with soap and water. Use alcohol-based hand sanitizer if soap and water are not available and if hands are not visibly dirty. Avoid touching eyes, nose, and mouth with unwashed hands.
7. **Avoid sharing household items:** Do not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items with other people in the home. These items should be washed thoroughly after use with soap and warm water.

These recommendations should be followed until PCR testing is negative for suspected cases or until 10 days after resolution of fever in laboratory-confirmed cases.

CDC home care and isolation guidance is available at: http://www.cdc.gov/coronavirus/MERS/hcp/home-care.html

**MERS close contact definition**

Any person who was:

- Within approx. 6 feet or within the room or care area for a prolonged period of time (e.g., healthcare personnel, household members) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection).

**OR**

- In direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment.

At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact. If an exposure occurs in a venue in which individual contacts cannot be identified, local healthcare providers should be notified to be on the alert for possible cases.

**Management of contacts**

Close contacts of suspect or confirmed MERS cases should monitor their health for 14 days, starting from the day they were last exposed to the ill person.

Symptom monitoring includes temperature checks twice daily and self-observation for:

- Fever (≥ 38°C/100.4°F)
- Coughing
- Shortness of breath
- Any other symptoms such as chills, body aches, sore throat, headache, runny nose, diarrhea, nausea or vomiting.

Close contacts should alert their local health department immediately if they develop symptoms; the local health department should arrange for evaluation and testing in a healthcare setting that can provide appropriate isolation and infection control.
While being evaluated, symptomatic contacts should stay home other than for medical care and follow other recommendations for persons under home isolation.

**Additional information**

CDC MERS web page: http://www.cdc.gov/coronavirus/mers/index.html
CDPH MERS web page: https://archive.cdph.ca.gov/programs/immunize/Pages/MERS-CoV.aspx
WHO MERS web page: http://www.who.int/csr/disease/coronavirus_infections/en/