

Middle East Respiratory Syndrome (MERS) Coronavirus Infection

Coronaviruses are large enveloped RNA viruses that infect humans and animals. Some animal species may act as reservoirs for novel (new) strains of coronaviruses infective to humans. Although most coronaviruses cause mild to moderate respiratory symptoms (e.g. runny nose, cough, sore throat, fever), some coronaviruses can cause severe disease such as pneumonia and acute respiratory distress.

In 2012, a novel coronavirus called Middle East Respiratory Syndrome coronavirus (MERS-CoV) was identified in Saudi Arabia. MERS-CoV has been associated with severe respiratory illness in humans and likely originated from an animal source. Most people infected with MERS-CoV either lived in or recently traveled from the Arabian Peninsula before becoming ill. A few people became infected after having close contact with an infected person with recent travel to the Arabian Peninsula. Transmission of MERS-CoV is through close contact, such as caring for or living with an infected person. The first travel-associated MERS cases in the United States were confirmed in May 2014.

Case Definitions

The clinical and epidemiologic criteria may be modified and case definitions may be refined as determined by the Centers for Disease Control and Prevention (CDC).

Patient Under Investigation (PUI)

A person with the following characteristics should be considered a patient under investigation (PUI):

- A. Fever AND pneumonia or acute respiratory distress syndrome (based on clinical or radiological evidence) AND EITHER:
 - a history of travel from countries in or near the Arabian Peninsula¹ within 14 days before symptom onset, OR
 - close contact² 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 Peninsula¹ 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-CoV is being evaluated, in consultation with state and local health departments.

OR

- B. 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 identified³.

Confirmed Case

A confirmed case is a person with laboratory confirmation of MERS-CoV infection. Confirmatory laboratory testing requires a positive PCR on at least two specific genomic targets or a single positive target with sequencing on a second.

Probable Case

A probable case is a PUI with absent or inconclusive laboratory results for MERS-CoV infection who is a close contact² of a laboratory-confirmed MERS-CoV case. Examples of laboratory results that may be considered inconclusive include a positive test on a single PCR target, a positive test with an assay that has limited performance data available, or a negative test on an inadequate specimen.

Contact Under Investigation of a Confirmed Case of MERS

As part of investigation of confirmed cases, in consultation with a state or local health department, a person with fever or symptoms of respiratory illness within 14 days following close contact² with a confirmed case of MERS while the case was ill should be evaluated for MERS-CoV infection.

Footnotes

1. Countries considered in the Arabian Peninsula and neighboring include: Bahrain; Iraq; Iran; Israel, the West Bank, and Gaza; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syria; the United Arab Emirates (UAE); and Yemen.
2. Close contact is defined as:
 - a. being within approximately 6 feet (2 meters) 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— see [Infection Prevention and Control Recommendations](#)); or
 - b. having direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection – see [Infection Prevention and Control Recommendations](#)).
 - c. Note: Data to inform the definition of close contact are limited. At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact.
3. As of June 1, 2014, Jordan, Saudi Arabia, UAE; this may change as more information becomes available.