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Ministry of Health

Case Definition and Surveillance Guidance- Updated June 2015

Suspected case (patients who should be tested for MERS-CoV)[1,2]

Adults (> 14 years)

I. Acute respiratory illness with clinical and/or radiological, evidence of pulmonary parenchymal disease (pneumonia or Acute Respiratory Distress Syndrome) [3].
II. A hospitalized patient with healthcare associated pneumonia based on clinical and radiological evidence.
III. Upper or lower respiratory illness within 2 weeks after exposure to a confirmed or probable case of MERS-CoV infection[4,5].
IV. Unexplained acute febrile (≥38°C) illness, AND body aches, headache, diarrhea, or nausea/vomiting, with or without respiratory symptoms, AND leucopenia (WBC<3.5x10^9/L) and thrombocytopenia (platelets<150x10^9/L) [6].

Pediatrics (≤ 14 years) [7]

I. Meets the above case definitions and has at least one of the following
    a. History of exposure to a confirmed or suspected MERS CoV in the 14 days prior to onset of symptoms
    b. History of contact with camels or camel products in the 14 days prior to onset of symptoms
II. Unexplained severe pneumonia

Probable case:

A probable case is a patient in category I or II above (Adults and pediatrics) with inconclusive laboratory results for MERS-CoV and other possible pathogens who is a close contact[8] of a laboratory-confirmed MERS-CoV case or who works in a hospital where MERS-CoV cases are cared for or had recent contact with camels or camel's products.

Confirmed case:

A confirmed case is a suspected case with laboratory confirmation[9] of MERS-CoV infection.

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[1]Epidemiological clues to MERS-CoV infection include: A. History of contact with camels or camel's products in the 14 days before the onset of illness [3-7]. Such contact may either be direct ie the patient him/herself having the history of contact with camels, or indirect, ie the patient had contact with another healthy person who had had contact with camels or camel's products; B. History of contact with an ill patient suffering from an acute respiratory illness in the community or healthcare setting in the 14 days before the onset of illness.

[2]All suspected cases should have nasopharyngeal swabs, and, when intubated, lower respiratory secretions samples collected for MERS-CoV testing [8].

[3]Patients who meet the criteria for category I or II above should also be evaluated for common viral and bacterial causes of community-acquired pneumonia. This evaluation should be based on clinical presentation and epidemiologic and surveillance information. Testing for MERS-CoV and other respiratory pathogens can be done simultaneously. Positive results for another respiratory should not preclude testing for MERS-CoV because co-infection can occur.

[4]Regardless of protected or unprotected exposure. Protected exposure is defined as contact within 1.5 meters with a patient with confirmed or probable MERS-CoV infection while wearing all personal protective equipment (Surgical or N95 mask, gloves, and gowns, and, when indicated, goggles). Unprotected exposure is defined as contact within 1.5 meters with a patient with confirmed or probable MERS-CoV infection without wearing all personal protective equipment (Surgical or N95 mask, gloves, and gowns, and, when indicated, goggles).

[5]Testing asymptomatic contacts is generally not recommended. Under certain circumstances such as unprotected high-risk exposure of health care worker and investigation of a hospital or community outbreak, such testing should be considered [9].

[6]Laboratory tests to exclude other causes of this clinical presentation (e.g., dengue, Alkhumra hemorrhagic fever virus, CMV, EBV, typhoid fever, and malaria) should be performed when clinically and epidemiologically indicated.

[7]MERS-CoV has been rarely reported in pediatric patients. Therefore additional risk of exposure to human case or exposure to camels or camel's products is required to justify testing.

[8]Close contact is defined as a) any person who provided care for the patient, including a healthcare worker or family member, or had similarly close physical contact; or b) any person who stayed at the same place (e.g. lived with, visited) as the patient while the patient was ill.

[9]Confirmatory laboratory testing requires a positive PCR on at least two specific genomic targets (upE and ORF1a) OR a single positive target (upE) with sequencing of a second target (RdRpSeq or NSeq). It is strongly advised that lower respiratory specimens such as sputum, endotracheal aspirate, or bronchoalveolar lavage be used when possible [7,8]. If patients do not have signs or symptoms of lower respiratory tract infection or lower tract specimens are not possible or clinically indicated, both nasopharyngeal and oropharyngeal specimens should be collected and combined in a single collection container and tested together. If initial testing of a nasopharyngeal swab is negative in a patient who is strongly suspected to have MERS-CoV infection, patients should be retested using a lower respiratory specimen or, if not possible, a repeat nasopharyngeal and oropharyngeal specimen. For patients in whom adequate lower respiratory samples are not possible, you may consider other types of auxiliary testing such as nasopharyngeal wash for MERS-CoV PCR and paired acute and convalescent sera for serological tests. Collection of additional specimens such as stool, urine, and serum for MERS-CoV PCR is also recommended as the virus has also been demonstrated in these body fluids.