



## Monroe Livingston Region Program Agency

*Division of Prehospital Medicine, University of Rochester*

Mailing Address: 601 Elmwood Avenue, Box 655, Rochester, NY 14642

Physical Address: 120 Corporate Woods, Suite 100, Rochester, NY 14623

Phone: (585) 463-2900 Fax: (585) 473-3516 E-Mail: [mlrems@mlrems.org](mailto:mlrems@mlrems.org)

To: All Providers and Agencies

From: Jeremy T. Cushman, MD, MS, EMT-P   
Regional Medical Director

Date: May 20, 2014

Re: Advisory 14-05: MERS

Due to recent concerns over the Co-MERS virus please take the following precautions to ensure the safety of your patient, your agency, and your community. See attached NYSDOH guidelines for more information.

Use appropriate caution and preventative techniques (mask, gloves, and protective eyewear when appropriate) when evaluating patients who would be considered at risk for Co-MERS based on the following criteria:

- **Fever with cough or respiratory distress AND**
- **Recent travel to or from the Middle East or contact with persons who have travelled from those areas (see map)**

**If the patient meets these criteria please take the following steps**

- **Place a N95 mask upon yourself and your partner**
- **Place a surgical or N95 mask on the patient**
- **Alert ED staff of your patient's presentation preferably PRIOR to arrival at the hospital, but AT LEAST prior to introducing the patient to the ED triage area.**
- **Change all linens and thoroughly disinfect gurney, mattress, and any patient-care equipment used during patient contact.**

Countries in or near the Arabian Peninsula



There have been additional recent cases documented in the United States of MERS (Middle-Eastern Respiratory Syndrome – aka Coronavirus or MERS-CoV). For further information please visit the CDC at [www.cdc.gov/CORONAVIRUS/MERS/INDEX.HTML](http://www.cdc.gov/CORONAVIRUS/MERS/INDEX.HTML)

Keep in mind, providers should take respiratory precautions for ANYONE with an influenza-like illness (fever and cough), regardless of travel history or time of year. Careful practices protect providers!

With any questions, please do not hesitate to contact our office.

May 16, 2014

**TO: Healthcare Providers, Hospitals, and Local Health Departments**

**FROM: NYSDOH Bureau of Communicable Disease Control**

**HEALTH ADVISORY:  
MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-CoV) UPDATE**

**For healthcare facilities, please distribute immediately to the Infection Control Department, Emergency Department, Infectious Disease Department, Director of Nursing, Medical Director, Director of Pharmacy, Laboratory Service, and all patient care areas.**

**SUMMARY**

- Two cases of MERS-CoV infection have been confirmed in the U.S. Both cases were imported in recent travelers who were employed as healthcare workers in Saudi Arabia. The two U.S. cases are not linked and no cases have been identified in New York State.
- Healthcare professionals should evaluate patients for MERS-CoV infection who meet the following criteria:
  - Fever and pneumonia or acute respiratory distress syndrome (based on clinical or radiologic evidence) AND EITHER:
    - history of travel from countries in or near the Arabian Peninsula within the 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
    - is 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 a state or local health department.
- Standard, contact, and airborne precautions are recommended for management of patients with suspected or known MERS-CoV infection.
- Providers must immediately report suspected cases of MERS-CoV infection to the local health department (LHD) where the patient resides. LHD contact information is available at <http://goo.gl/wfRgjb>. Providers who are unable to reach their LHD can contact the NYSDOH at (518) 473-4439 during business hours or 1-866-881-2809 evenings, weekends and holidays.
- Patients with lower respiratory illness should also be evaluated for common causes of community-acquired pneumonia.
- Testing for MERS-CoV and other respiratory pathogens can be performed at NYSDOH's Wadsworth Center Laboratories. Providers wishing to access public health testing must obtain pre-approval from the NYSDOH via their LHD.

## **BACKGROUND**

Since April 2012, certain countries in or near the Arabian Peninsula have been experiencing an outbreak of MERS-CoV infection, including Saudi Arabia, United Arab Emirates (UAE), Qatar, Oman, Jordan, Kuwait, and Yemen. Additionally, travel-associated cases have been reported from the United Kingdom, France, Tunisia, Italy, Malaysia, Turkey, Greece, Egypt, the Netherlands, and the United States. As of May 15, 2014, 572 laboratory-confirmed cases of MERS-CoV infection, including 173 deaths, have been reported to the World Health Organization (WHO). A recent increase in cases reported from countries in the Arabian Peninsula is being investigated by WHO. Risk factors for infection are currently unknown, but many infections have been acquired in the hospital setting, both among healthcare workers and other patients. Most cases have been reported in adult males (median age approximately 50 years), although children, women, and adults of all ages have been infected.

The first two cases of MERS-CoV infection in the U.S. were recently confirmed in Indiana on May 2 and in Florida on May 12. The two cases are not linked. Both patients had recently traveled to the U.S. from Saudi Arabia, where each lives and works as a healthcare worker. Both patients were hospitalized prior to the diagnosis of MERS-CoV infection and are reportedly recovering. Tracing and monitoring of healthcare, community, and travel contacts, including all airline passengers who shared a flight with either patient, has not revealed any further transmission. These two cases of MERS-CoV infection imported to the U.S. represent a very low risk to the general public in this country.

## **CLINICAL FEATURES AND EPIDEMIOLOGY**

A wide clinical spectrum of MERS-CoV infection has been reported ranging from asymptomatic infection to acute upper respiratory illness, and rapidly progressive pneumonitis, respiratory failure, septic shock and multi-organ failure resulting in death. Most hospitalized patients with MERS-CoV infection have had chronic comorbidities. Among confirmed cases of MERS-CoV infection reported to date, the case fatality proportion is approximately 28-30%.

Limited clinical data for patients with MERS-CoV infection are available; most published clinical information to date is from critically ill patients. At hospital admission, common signs and symptoms include fever, chills/rigors, headache, non-productive cough, dyspnea, and myalgia. Other symptoms can include sore throat, coryza, nausea and vomiting, dizziness, sputum production, diarrhea, vomiting, and abdominal pain. Atypical presentations, including mild respiratory illness without fever and diarrheal illness preceding development of pneumonia, have been reported. Patients who progress to requiring admission to an intensive care unit (ICU) often have a history of a febrile upper respiratory tract illness with rapid progression to pneumonia within a week of illness onset.

The median incubation period for secondary cases associated with limited human-to-human transmission is approximately 5 days (range 2-13 days). In patients with community-acquired MERS-CoV infection who are hospitalized with more severe disease, the median time from illness onset to hospitalization is approximately 4 days. In critically ill patients, the median time from onset to ICU admission is approximately 5 days, and the median time from onset to death is approximately 12 days. In one series of 12 ICU patients, the median duration of mechanical ventilation was 16 days, and median ICU length of stay was 30 days, with 58% mortality by 90 days.

Laboratory findings at admission may include leukopenia, lymphopenia, thrombocytopenia, and elevated lactate dehydrogenase levels. Radiographic findings may include unilateral or bilateral patchy densities or opacities, interstitial infiltrates, consolidation, and pleural effusions. Rapid progression to acute respiratory failure, acute respiratory distress syndrome (ARDS), refractory hypoxemia, and extrapulmonary complications (acute kidney injury requiring renal replacement therapy, hypotension requiring vasopressors, hepatic inflammation, septic shock) has been reported.

Co-infection with other respiratory viruses and a few cases of co-infection with community-acquired bacteria at admission have been reported; nosocomial bacterial and fungal infections have been reported in mechanically-ventilated patients. MERS-CoV can be detected with higher viral load and longer duration in the lower respiratory tract compared to the upper respiratory tract, and has been detected in feces, serum, and urine. However, very limited data are available on the duration of respiratory and extrapulmonary MERS-CoV shedding.

There are no specific treatments recommended for illnesses caused by MERS-CoV. Medical care is supportive and to help relieve symptoms.

### **LABORATORY TESTING**

To date, limited information is available on the pathogenic potential and transmission dynamics of MERS-CoV. To increase the likelihood of detecting MERS-CoV infection, CDC and NYSDOH recommend collecting multiple specimens from different sites at different times after symptom onset.

Patients with lower respiratory illness should also be evaluated for common causes of community-acquired pneumonia. For these patients, testing for MERS-CoV and other respiratory pathogens can be done simultaneously. Positive results for another respiratory pathogen (e.g., influenza) should not necessarily preclude testing for MERS-CoV because co-infection can occur.

Testing for MERS-CoV and other respiratory pathogens can be performed at NYSDOH's Wadsworth Center Laboratories. Providers wishing to access public health testing must obtain pre-approval from the NYSDOH via their LHD.

For more information, see CDC's Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens for MERS-CoV at <http://goo.gl/vxl6v4>.

### **INFECTION CONTROL, ADDITIONAL CONSIDERATIONS, AND REPORTING**

Standard, contact, and airborne precautions are recommended for management of patients in a healthcare facility with suspected or known MERS-CoV infection. These recommendations are consistent with those recommended for the coronavirus that caused severe acute respiratory syndrome (SARS) and reflect the suspected high rate of morbidity and mortality among infected patients, evidence of limited human-to-human transmission, poorly characterized clinical signs and symptoms, unknown modes of transmission and a lack of a vaccine and chemoprophylaxis. Details are contained in CDC's Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV), which is available at <http://goo.gl/YZYS4g>. As more information becomes available, these recommendations will be re-evaluated and updated as needed.

Ill people who are being evaluated for MERS-CoV infection and do not require hospitalization for medical reasons may be cared for and isolated in their home. However, before the ill person is isolated at home, the provider and LHD should:

- Assess whether the home is suitable and appropriate for isolating the ill person, as described below. This can be done by phone or direct observation;
- Confirm that the home has a functioning bathroom that only the ill person and household members use. If there are multiple bathrooms, one should be designated solely for the ill person;
- Confirm that the ill person has their own bed and preferably a private room for sleeping;
- Assure that basic amenities (heat, electricity, potable and hot water, sewer, and telephone access) are available.
- Determine if the home is in a multiple-family dwelling, such as an apartment building. If so, the area in which the ill person will stay should use a separate air-ventilation system, if one is present.

- Assure that there is a primary caregiver who can follow the healthcare provider's instructions for medications and care. The caregiver should help the ill person with basic needs in the home and help with obtaining groceries, prescriptions, and other personal needs.

Providers must immediately report suspected cases of MERS-CoV infection to the LHD where the patient resides. LHD contact information is available at <http://goo.gl/wfRgjb>. Providers who are unable to reach their LHD can contact the NYSDOH Bureau of Communicable Disease Control at (518) 473-4439 during business hours or the NYSDOH Public Health Duty Officer at 1-866-881-2809 evenings, weekends, and holidays.

### **ADDITIONAL INFORMATION**

Additional information and guidance about MERS is available from the Centers for Disease Control and Prevention at <http://www.cdc.gov/coronavirus/mers/index.html>.

Providers with questions should contact their LHD or NYSDOH BCDC at [bcdc@health.state.ny.us](mailto:bcdc@health.state.ny.us) or (518) 473-4439.