

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Rick Scott
Governor

John H. Armstrong, MD, FACS
State Surgeon General & Secretary

Vision: To be the **Healthiest State** in the Nation

Middle East Respiratory Syndrome (MERS) Guidance

Focus Area: Surveillance and Investigation

Guidance document number 2014-2

Key Points for Health Care Providers Middle East Respiratory Syndrome (MERS)

Version 1.1

May 23, 2014

Note: This document may become outdated as situations change. Documents on this topic dated after May 23, 2014 supersede this one. This document will be posted on the Bureau of Epidemiology website <http://www.flhealth.gov/mers>

Notable changes from May 13, 2014:

- Updated information about the status of the confirmed MERS patient in Florida
- Updated information about the status of contact investigation associated with the confirmed MERS patient in Florida
- Added information regarding antibody testing of the close contact to MERS patient in Indiana
- Updated MERS patient of interest screening criteria for health professionals. Please use the new triage [screening tool](#) available on the DOH website.
- Clarification of respiratory samples needed for MERS-CoV testing

Background:

On Monday May 12, the Florida Department of Health (DOH) confirmed the first imported Florida case of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection in a patient at an Orlando hospital. The patient is a health care worker who resides and works in Saudi Arabia and is visiting the United States. The patient first flew to London and then through Boston and Atlanta, arriving in Orlando on May 1. The patient was hospitalized on May 9 and was placed in isolation once MERS-CoV was suspected. The patient is now recovering from his illness and was discharged from the hospital. DOH has investigated individuals with close contact to the patient during travel or in the Orlando area and no other cases have been identified. There is no evidence this case is epidemiologically linked to the first case of Middle East Respiratory Syndrome (MERS) identified in Indiana and confirmed on May 2, 2014.

Situation Update

- The first two U.S. cases of MERS represent a very low risk to the general public in this country.
- A close contact to the Indiana MERS case developed antibodies to MERS-CoV, indicating recent prior infection, however this person never developed symptoms. The Centers for Disease Control and Prevention (CDC) is evaluating the patient's laboratory data to determine how best to interpret this finding.
- Our guidance and recommendations may change as the situation evolves and we learn more.
- CDC advises that people protect themselves from respiratory illnesses by washing their hands often, using a tissue when coughing or sneezing, avoiding touching their face with unwashed hands, staying away from ill people, and disinfecting frequently touched surfaces.
- DOH recommends that health care providers evaluate patients for MERS-CoV infection using the section of this document entitled, "[what health care professionals should do](#)". Health care providers that have questions should contact their [county health department](#) or if unable to be reached the Bureau of Epidemiology at 850-245-4401.

MERS and MERS-CoV

- MERS is the illness caused by Middle East Respiratory Syndrome Coronavirus (MERS-CoV).
- MERS-CoV is different from other coronaviruses that have been found to infect people.
 - MERS-CoV is not the same coronavirus that caused Severe Acute Respiratory Syndrome (SARS) in 2003. However MERS-CoV has caused severe acute respiratory illness and pneumonia in many reported cases.

Florida Department of Health

Division of Disease Control & Health Protection • Bureau of Epidemiology
4052 Bald Cypress Way, Bin A-12 • Tallahassee, FL 32399-1720
PHONE: 850/245-4401 • FAX 850/413-9113

www.FloridasHealth.com

TWITTER:HealthyFLA
FACEBOOK:FLDepartmentofHealth
YOUTUBE: fldoh

- We do not know where the virus came from or exactly how it spreads.
 - Scientists are investigating clusters of MERS in countries in and near the Arabian Peninsula¹ to learn how the initially infected people (index cases) were exposed to the virus.
 - MERS-CoV has been shown to spread among family members and to care takers in hospital settings, where there has been close contact but there is **no evidence of sustained spread in community settings**.
 - In efforts to determine where the virus may have come from, studies have been done to test animals, including camels, for evidence of MERS-CoV infection.
 - A recent study detected evidence of MERS-CoV (gene sequences) in three out of 14 camels on a farm, linked to two confirmed human infections from Qatar.
 - MERS-CoV gene sequences have also been identified from dromedary camels in Saudi Arabia and Egypt, some associated with human cases.
 - Other studies have shown that camels from several countries, including Egypt, Oman, and Spain, had antibodies to MERS-CoV. One study identified a limited gene sequence for MERS-CoV in a bat in Saudi Arabia. This indicates that the animals had previous exposure to MERS-CoV or another closely related virus.
 - More information is needed to define the role that camels, bats, and other animals may play in possible transmission of MERS-CoV.
 - Limited human-to-human spread has been reported, usually after close and prolonged contact, such as caring for or living with an infected person. The few instances where human-to-human spread has been identified have most frequently occurred among health care workers caring for MERS patients.

Florida Department of Health Response

- DOH and hospital officials responded to the confirmed MERS case by:
 - Reviewing appropriate infection control measures taken by the hospital.
 - Interviewing the health care staff and family members who had close contact² with the patient to obtain detailed information on their exposures, collecting and testing specimens from them, and monitoring their health for relevant respiratory symptoms related to MERS-CoV infection.
 - Identifying other people who had close contact² with the patient, and
 - interviewing them
 - monitoring them to see if they become ill
 - collecting and testing specimens from them, if needed
 - requesting that they monitor their health and seek care if they develop symptoms
- CDC, in collaboration with state health departments, conducted contact tracing that identified and notified U.S. travelers who may have been exposed to the U.S. imported case during that person's travel in conveyances while symptomatic (e.g. in airplanes, buses, trains, etc).
 - CDC provided information to international partners about any non-U.S. citizens who were identified through contact tracing.
- Contact investigations are conducted to:
 - Refer any contacts, such as fellow passengers or crew, who are identified with fever or signs of respiratory illness, for medical evaluation, laboratory testing, and medical care, as needed.
 - Provide information to exposed passengers and crew so they can recognize any symptoms of illness, then isolate themselves, if needed, and seek medical care.
 - Determine whether MERS-CoV may have spread on the conveyance(s) and which passengers were at risk.

What Health care Professionals Should Do

- Health care professionals should immediately report to their local [county health department](#) any person being evaluated for MERS-CoV infection as a patient under investigation (PUI). A triage [screening tool](#) is available from the DOH website: <http://www.floridahealth.gov/mers>.
- **As soon as MERS-CoV infection is suspected, a mask should be placed on the patient and the evaluation should continue after the patient has been placed on standard, contact, and airborne precautions to prevent any additional exposures.**
- The decision to hospitalize a patient suspected to have MERS should be based on providers' clinical judgment taking into account the severity of the disease and need for inpatient care. **Suspicion of MERS alone does not warrant hospitalization.**
- Health care providers should adhere to recommended infection control measures, including standard, contact, and airborne precautions, while managing symptomatic close contacts², patients under investigation, and patients who

have probable or confirmed MERS-CoV infections. Recommended infection control precautions should also be utilized when collecting specimens. For CDC guidance on MERS-CoV infection control in health care settings, see Interim Infection Prevention and Control Recommendations for Hospitalized Patients with MERS-CoV at <http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html>.

- Health care professionals should evaluate patients for MERS-CoV infection who either:
 - have fever AND **respiratory illness resulting in hospitalization**, and any of the following;
 - a history of travel from countries in or near the Arabian Peninsula¹ within 14 days before symptom onset, or
 - have had 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 Peninsula, or
 - are part of a cluster of patients with severe acute respiratory illness of unknown etiology in which MERS-CoV is being evaluated, or
 - close contact² with a confirmed or probable case of MERS-CoV.
 - have fever OR respiratory illness NOT resulting in hospitalization but that sought health care, and any of the following;
 - a history of health care employment in or near the Arabian Peninsula¹ within 14 days before symptom onset, or
 - a history of hospital admission in or near the Arabian Peninsula¹ within 14 days before symptom onset
 - close contact² with a confirmed or probable case of MERS-CoV.
- Patients with lower respiratory illness should also be evaluated for common causes of community-acquired pneumonia³, guided by clinical presentation and epidemiologic and surveillance information. 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.
- Additional information, including criteria for PUI can be found here: www.floridahealth.gov/mers. Health care providers should contact their local [county health department](#) if they have any questions.
- People who had close contact² with a confirmed or probable case of MERS while the case was ill, if not using recommended infection control precautions (e.g. appropriate use of personal protective equipment), are at increased risk of developing MERS-CoV infection and should be evaluated and monitored by health care professionals with a higher index of suspicion. See Interim Guidance for Health Professionals for more information: www.cdc.gov/coronavirus/mers/interim-guidance.html
- CDC recommendations and guidance for health care providers and laboratories are available at www.cdc.gov/coronavirus/mers/interim-guidance.html
- Additional or modified recommendations may be forthcoming as the investigation proceeds or if the situation changes.

Specimen Collection and Shipping

- For patients under investigation for MERS, health care providers should collect the following specimens for submission to the DOH state public health laboratory following consultation with DOH:
 - Lower respiratory tract specimen (**PRIORITY**): sputum (induced if necessary), bronchial alveolar lavage, tracheal aspirate, or pleural fluid in a sterile container
 - Upper respiratory tract specimen: nasopharyngeal swab and oropharyngeal swab (which can be placed in the same tube of viral transport medium),
 - Serum, and
 - Stool or rectal swab (stool preferred to rectal swab).
- Specimens can be sent using category B shipping containers. Additional information is available at <http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html>. **Contact your local [county health department](#) to receive approval prior to submitting specimens.**

Infection Control

- Any patient seeking care for symptoms consistent with MERS-CoV infection should be given a mask to wear and immediately placed in a private room with the door closed until an isolation room can be arranged.
- Health care providers and facilities can take key actions now to enhance preparedness for MERS-CoV infection control. See: www.cdc.gov/coronavirus/mers/preparedness.
- Evaluation and care of the patient should be performed using standard, contact, and airborne precautions while awaiting confirmation of diagnosis.

- Place a facemask on the patient whenever the patient is outside of the isolation room.
- Health care personnel should use eye protection in addition to disposable gowns, gloves, and respiratory protection when entering the isolation room (fit-testing is required for the proper use of N-95 masks by health care personnel⁴).
- Patient care equipment, such as stethoscopes and blood pressure cuffs, should be dedicated to the isolation room, not moved from room to room, and disinfected routinely.
- The patient care environment should be cleaned using an Environmental Protection Agency-registered hospital disinfectant, applied according to label instructions, with attention to toilets and frequently touched surfaces.
- People who have had unprotected contact, such as not wearing personal protective equipment, with a suspected MERS-CoV patient need to be monitored for symptoms, including fever, cough or shortness of breath.
 - Contacts are asked to seek medical care immediately if they develop symptoms and notify their [county health department](#).

Symptoms

- Most people confirmed to have MERS-CoV infection have had severe acute respiratory illness.
 - Symptoms included fever, cough, and shortness of breath.
 - Many of them had pneumonia.
 - Some people also had gastrointestinal symptoms, including diarrhea.
 - Some have had kidney failure.
 - About 30% of them died.
- Some people did not have any symptoms, or had only mild respiratory illness.

Risks

- Based on the information we have so far, people with pre-existing health conditions (comorbidities) or weakened immune systems may be more likely to become infected with, or have a severe case of, MERS.
 - Comorbidities from reported cases for which we have information have included diabetes; cancer; and chronic lung, heart, and kidney disease.

Transmission

- In some cases, infected people have spread the virus to others through close contact², such as to people who were caring for or living with them. There is no definitive evidence of sustained spreading of MERS-CoV in the community.
- Infected people have been shown to spread MERS-CoV to others in health care settings. This has happened in hospitals in Saudi Arabia, France, Jordan, UAE, and Qatar.
 - The first identified MERS outbreak occurred in April 2012 in Jordan and involved 9 cases associated with a hospital.
 - A large MERS outbreak occurred April through May 2013 in eastern Saudi Arabia and involved 23 confirmed cases in four health care facilities.
- Most people who had close contact² with people who had MERS-CoV infection did not get infected or ill.
 - This information is based on public health investigations of cases in Jordan, Saudi Arabia, the United Kingdom (UK), France, and Germany.
 - To better understand the risk for infection, additional information is needed about the extent of exposures to infected people, frequency of community and household contacts, and contacts before and during illness.
 - CDC and DOH are working with our partners to carefully evaluate the first two cases of MERS in the U.S. Through this public health investigation, we hope to gain a better understanding of the virus, risk of transmission, and the spectrum of illness it causes.
- All reported cases have been linked to eight countries in the Arabian Peninsula¹: Saudi Arabia, Qatar, Jordan, the United Arab Emirates (UAE), Oman, Kuwait, Yemen, and Lebanon.
 - Most infected people either lived in the Arabian Peninsula or recently traveled from the Arabian Peninsula before they became ill.
 - A few people became infected with MERS-CoV after having close contact² with an infected person who had recently traveled from the Arabian Peninsula.
- Public health agencies continue to investigate clusters of cases in several countries to better understand how MERS-CoV spreads from person-to-person.

What Close Contacts² of an Ill Traveler from the Arabian Peninsula Should Do

- If you have had close contact² with someone who recently traveled from a country in or near the Arabian Peninsula, AND the traveler has/had fever and symptoms of respiratory illness, such as cough or shortness of breath, you should monitor your health for 14 days, starting from the day you were last exposed to the ill person.
- If you develop fever and symptoms of respiratory illness, such as cough or shortness of breath, you should call ahead to a health care provider and mention your recent contact with the traveler. While sick, stay home from work or school, consider wearing a mask and delay future travel to reduce the possibility of spreading illness to others.

What People Who have had Close Contact² with a Confirmed or Probable Case Should Do

- If you have had close contact² with someone who has a probable or confirmed MERS-CoV infection, you should contact a health care provider for an evaluation and mention your recent close contact with someone known to be infected with MERS-CoV. Your health care provider may request laboratory testing and outline additional recommendations, depending on the findings of your evaluation and whether you have symptoms. You most likely will be asked to monitor your health for 14 days, starting from the day you were last exposed to the ill person. Watch for these symptoms;
 - Fever (take your temperature twice a day)
 - Coughing
 - Shortness of breath
 - Other early symptoms to watch for are chills, body aches, sore throat, headache, diarrhea, nausea/vomiting, and runny nose.
- If you develop symptoms, call your health care provider as soon as possible. Before your medical appointment, call the health care provider and tell them about your possible exposure to MERS-CoV. This will help the health care provider's office take steps to keep other people from getting infected, including providing you with a mask upon arrival at the health care facility. Ask your health care provider to call their [county health department](#).
- CDC guidance on home care and isolation for persons with MERS can be found at: <http://www.cdc.gov/coronavirus/mers/hcp/home-care.html>

Vaccine and Treatment

- There is no vaccine to prevent MERS-CoV infection at the present time.
- There is no specific antiviral treatment recommended for MERS-CoV infection; medical care can help relieve symptoms. For severe cases, current treatment includes care to support vital organ functions.
- CDC has participated in an interagency working group led by the U.S. National Institutes of Health (NIH) to address the possibility of antiviral treatment, vaccine, and other possible treatments for MERS-CoV infection.
 - NIH has the lead in exploring possibilities for a MERS-CoV vaccine.
 - NIH has supported and conducted foundational work on potential SARS vaccines; this work may be helpful for developing a MERS-CoV vaccine.
- The Food and Drug Administration (FDA) has not approved specific antiviral treatment for people with MERS-CoV infection. Also, CDC, NIH, FDA, and World Health Organization (WHO) do not currently have recommendations for specific antiviral treatment.

Where People Can Get More Information About MERS

- Florida Department of Health: <http://flhealth.gov/mers>. **DOH will continue to post new information to that site as it becomes available.**
- CDC will continue to post new information about MERS on the following websites as it becomes available:
 - CDC MERS website: www.cdc.gov/coronavirus/mers/index.html
 - Travelers' Health: <http://wwwnc.cdc.gov/travel/notices/alert/coronavirus-arabian-peninsula-uk>
- WHO coronavirus infections website: www.who.int/csr/disease/coronavirus_infections/en/index.html

¹ Countries in and near the Arabian Peninsula include: Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen.

² Close contact is defined as: a) any person who provided care for the patient, including a health care 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.

³ Examples of respiratory pathogens causing community-acquired pneumonia include influenza A and B, respiratory syncytial virus, *Streptococcus pneumoniae*, and *Legionella pneumophila*.

⁴ For CDC guidance on use of respiratory protection, see: http://www.cdc.gov/h1n1flu/guidance/ill-hcp_ga.htm. For OSHA guidelines on fit-testing, see: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9780.