

## Summary and Key Points – Middle East Respiratory Syndrome Coronavirus (MERS-CoV) (Formally called Novel Coronavirus, or nCoV)

### SUMMARY

- MERS-CoV is a virus that is new to humans; it is associated with respiratory illness and high death rates.
- Infections of the virus originate in areas of the Arabian Peninsula and have been occurring since April of 2012.
- There is clear evidence that the virus spreads from person to person (although not sustained) and that there has been international spread to three countries.
- The virus has already caused at least three outbreaks in healthcare settings, including the largest and most recent one in eastern Saudi Arabia.

### KEY POINTS

- **A novel coronavirus caused respiratory illness in 44 people from Saudi Arabia, Qatar, Jordan, the United Kingdom, the United Arab Emirates, France, and Tunisia from April 2012 to May 2013. Twenty-three of them died. This information is current as of May 28, 2013.**
  - Twenty-seven of the 44 cases have onset of illness in the last two months.
  - Thirty-two people are from Saudi Arabia; 18 of them died.
  - Two people are from Qatar.
  - Two people are from Jordan; both died.
  - Three people are from the UK; two died. The first person got sick while traveling in Pakistan and Saudi Arabia.
  - One person is from the United Arab Emirates; he died.
  - Two people are from France. The first person got sick after traveling from the United Arab Emirates.
  - Two people are from Tunisia.
  - Updates on the investigation can be found on the WHO website:  
[http://www.who.int/csr/disease/coronavirus\\_infections/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/en/index.html).
- **The novel coronavirus has been named Middle East Respiratory Syndrome Coronavirus, or MERS-CoV.**
  - In May 2013, the Coronavirus Study Group (CSG) of the International Committee on the Taxonomy of Viruses (ICTV) decided on the name “MERS-CoV” after careful consideration and broad consultation.
  - The virus discoverers, researchers who pioneered studies on this and other coronaviruses, WHO, the Saudi Arabia Ministry of Health, and others have endorsed the name “MERS-CoV.”
  - As required by ICTV rules, CSG considered potential sensitivities, such as stigmatization related to geography, and vetted the name with specific organizations and countries.
  - The European Centre for Disease Prevention and Control (ECDC) and WHO are currently using “MERS-CoV.” Also, news media and multiple reporting groups, including ProMED, have been using the new name.
  - CDC is preparing updates to its website and creating materials to recommend proper usage of the new name.
- **MERS-CoV is different from other coronaviruses that have been seen in people before.**
  - This coronavirus is most similar to those found in bats.
  - It is not the same coronavirus that caused SARS in 2003. However, like SARS, MERS-CoV has caused severe acute respiratory illness and pneumonia in most reported cases. A small number of mild cases have been reported.
- **MERS-CoV has been shown to spread from person to person through close contact.**
  - In February 2013, in the UK, an infected man spread the virus to two family members. He had recently traveled to Pakistan and Saudi Arabia and got sick before returning to the UK. This cluster of cases provides the first clear evidence of person-to-person transmission of the virus.
  - In May 2013, in Saudi Arabia, a cluster of cases is linked to one healthcare facility. Two healthcare personnel were infected after caring for patients who had MERS-CoV infection. This is the first clear evidence of patient-to-healthcare-provider transmission
  - In May 2013, in France, a person became infected after sharing a hospital room with the country’s first infected person.
  - Investigations are being conducted of the clusters of cases that have occurred so far in Jordan, Saudi Arabia, the UK, and France to better understand person-to-person virus transmission.
- **The source of MERS-CoV is not known.**

- Investigations are being done to learn how the initial infected people might have been exposed to the virus.
- **There is no vaccine or specific antiviral treatment for MERS-CoV infection.**
  - Within the U.S. Government, the National Institutes of Health (NIH) has the lead in developing a MERS-CoV vaccine; CDC is participating in an NIH-led working group to address antiviral treatment, vaccine development, and other possible treatments for MERS-CoV infection.
  - NIH supports and conducts foundational work on potential SARS vaccines; this work may be helpful for developing a MERS-CoV vaccine.
- **CDC is always concerned when emerging new viruses cause severe illness and death in people.**
  - CDC recognizes and is concerned about the potential for further MERS-CoV cases and clusters globally, including the U.S., because-
    - there is documented international spread of the virus,
    - nearly 50% of MERS-CoV infections have resulted in death, and
    - there is evidence of person-to-person transmission.
  - CDC is closely monitoring the MERS-CoV situation. So far, there have not been any reports of cases in the U.S.
  - New information will be posted on CDC's website ([www.cdc.gov/coronavirus/hcv](http://www.cdc.gov/coronavirus/hcv)).
- **CDC is working with WHO and other partners to understand the public health risks of MERS-CoV.**
  - **Assay and Diagnostic Test Development**
    - CDC has developed assays to detect antibodies to MERS-CoV. We intend to use these assays to test specimens collected from potential cases in past and future public health investigations. However, these assays are not yet ready to be disseminated.
    - CDC has developed MERS-CoV molecular diagnostics and is evaluating genetic sequences as they are available.
  - **International Public Health Investigations**
    - In October 2012, a CDC team went to Saudi Arabia to help with the public health investigation of the first reported case, contacts of the case, and healthcare workers who cared for the patient in the hospital..
    - On January 14-15, 2013, CDC participated with WHO in a technical consultative meeting, held in Cairo to discuss scientific advances and public health plans regarding MERS-CoV.
    - In May 2013, a CDC team went to Jordan to help with an ongoing public health investigation of a cluster of cases that occurred in April 2012. They interviewed and collected specimens from the cases, and people who were exposed to the cases.
    - CDC continues to provide advice and laboratory diagnostic support to countries in the Arabian Peninsula and surrounding region.
  - **Public Health Preparedness in the U.S.**
    - As part of routine preparedness, CDC has started to provide MERS-CoV testing kits to state health departments.
    - CDC continues to communicate with state and local health departments to keep them informed.
  - **International Travel**
    - CDC is providing recommendations to travelers when needed.
    - Together with partners at ports of entry, CDC staff is assessing ill travelers returning from affected areas to determine whether any additional public health action is needed.
- **WHO and CDC have not issued Travel Health Warnings for any country related to MERS-CoV.**
  - CDC does not recommend that anyone change their travel plans because of these cases of MERS-CoV infection.
  - For up-to-date information about the current MERS-CoV situation, see CDC's travel notice: [Novel \(New\) Coronavirus in the Arabian Peninsula](#).
- **People who develop a fever and symptoms of lower respiratory illness, such as cough or shortness of breath, within 10 days after traveling from countries in the Arabian Peninsula or neighboring countries\* should see a healthcare provider and mention their recent travel.**
- **Healthcare providers should be alert to patients who develop severe acute lower respiratory illness (e.g., requiring hospitalization) within 10 days after traveling from countries in the Arabian Peninsula or neighboring countries,\* excluding those who only transited at airports in the region.**

- Consider other more common causes of respiratory illness, such as influenza.
- Evaluate patients using the CDC case definitions and guidance (see [www.cdc.gov/coronavirus/ncv/case-def.html](http://www.cdc.gov/coronavirus/ncv/case-def.html)).
- Immediately report patients with unexplained respiratory illness and who meet the CDC's criteria for patient under investigation (PUI) to CDC through the state or local health department. Specimens for MERS-CoV infection are recommended for all PUIs. A PUI is-
  - A person with an acute respiratory infection, which may include fever ( $\geq 38^{\circ}\text{C}$ ,  $100.4^{\circ}\text{F}$ ) and cough; AND
  - suspicion of pulmonary parenchymal disease (e.g., pneumonia or acute respiratory distress syndrome based on clinical or radiological evidence of consolidation); AND
  - history of travel from countries in the Arabian Peninsula or neighboring countries\* within 10 days; AND
  - not already explained by any other infection or etiology, including all clinically indicated tests for community-acquired pneumonia\*\* according to local management guidelines.
- Consider evaluating patients for MERS-CoV infection who:
  - develop severe acute lower respiratory illness of known etiology within 10 days after traveling from the countries in the Arabian Peninsula and neighboring countries,\* but who do not respond to appropriate therapy
  - develop severe acute lower respiratory illness who are close contacts of a symptomatic traveler who developed fever and acute respiratory illness within 10 days after traveling from the countries in the Arabian Peninsula and neighboring countries\*
- Contact your state or local health department if you have any questions.
- **CDC recommendations and guidance for healthcare providers, health departments, and labs are available at [www.cdc.gov/coronavirus/ncv](http://www.cdc.gov/coronavirus/ncv).**
  - Health departments should coordinate with CDC for specimen testing since widely available diagnostic tests are not suitable.
  - Health departments with questions should contact CDC's Emergency Operation Center (770-488-7100).
- **More information about MERS-CoV is available at [www.cdc.gov/coronavirus](http://www.cdc.gov/coronavirus).**

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

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