

Frequently Asked Questions on Middle East respiratory syndrome coronavirus (MERS-CoV)

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What is coronavirus?

Coronaviruses are a large family of viruses that cause illness in humans and animals. In people, coronaviruses can cause illnesses ranging in severity from the common cold to Severe Acute Respiratory Syndrome (SARS).

The novel coronavirus, first detected in April 2012, is a new virus that has not been seen in humans before. In most cases, it has caused severe disease. Death has occurred in about half of cases.

This new coronavirus is now known as Middle East respiratory syndrome coronavirus (MERS-CoV). It was named by the Coronavirus Study Group of the International Committee on Taxonomy of Viruses in May 2013.

Where are MERS-CoV infections occurring?

Nine countries have now reported cases of human infection with MERS-CoV. Cases have been reported in France, Germany, Italy, Jordan, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates, and the United Kingdom. All cases have had some connection (whether direct or indirect) with the Middle East. In France, Italy, Tunisia and the United Kingdom, limited local transmission has occurred in people who had not been to the Middle East but who had been in close contact with laboratory-confirmed or probable cases.

How widespread is MERS-CoV?

How widespread this virus may be is still unknown. WHO encourages Member States to continue to closely monitor for severe acute respiratory infections (SARI) and to carefully review any unusual patterns of SARI or pneumonia. WHO will continue to share information as it becomes available.

What are the symptoms of MERS-CoV?

Common symptoms are acute, serious respiratory illness with fever, cough, shortness of breath and breathing difficulties. Most patients have had pneumonia. Many have also had gastrointestinal symptoms, including diarrhoea. Some patients have had kidney failure. About half of people infected with MERS-CoV have died. In people with immune deficiencies, the disease may have an atypical presentation. It is important to note that the current understanding of illness caused by this infection is based on a limited number of cases and may change as we learn more about the virus.

What is the significance of recent findings of virus antibodies in camels?

The recent study by Reusken and colleagues ([link to the article](#)) suggests that MERS-CoV or a virus very similar to the MERS-CoV has been recently circulating among camels. More study is

needed to know whether the virus is actually the identical to that found in humans. To do this, it is important to recover the MERS virus itself from a camel.

The paper provides a very important clue to the source of the virus and a direction for further investigation. The most critical question remains to be answered, that is, the type of human exposures that result in infection. Most human cases do not have a history of direct contact with camels; if camels or other animals are the source, the route of transmission to humans may be indirect.

It is premature to rule out the possibility that other animals might serve as a reservoir or an intermediate host for the MERS-CoV. There continues to be a need for well planned, structured investigations carried out in conjunction with exposure investigations in humans.

How do people become infected with this virus?

We do not yet know how people become infected with this virus. Investigations are underway to determine the source of the virus, the types of exposure that lead to infection, the mode of transmission, and the clinical pattern and course of disease.

How is the virus being transmitted to humans?

We still do not know the answer to this question. It is unlikely that transmission of the MERS-CoV to people occurs through direct exposure to an infected camel, as very few of the cases have reported a camel exposure. More investigations are needed to look at the recent exposures and activities of infected humans. WHO is working with partner agencies with expertise in animal health and food safety, including FAO, OIE and national authorities, to facilitate these investigations. Many technical organizations are offering their expertise to assist ministries responsible for human health, animal health, food, and agriculture. Investigation protocols and guidelines for dealing with new cases are available on the WHO website.

- [Latest information on MERS-CoV infections](#)

Should people avoid contact with animals or animal products?

Because neither the source of the virus nor the mode of transmission is known, it is not possible to give specific advice on prevention of infection. Contact with any obviously sick animals (including birds) should be avoided, and basic hygiene measures taken, especially frequent hand washing and changing of clothes and shoes or boots, after handling animals or animal products. Sick animals should never be slaughtered for consumption. The consumption of raw or undercooked animal products, including milk and meat, carries a high risk of infection from a variety of organisms that might cause disease in humans. Animal products processed appropriately through cooking or pasteurization are safe for consumption but should also be handled with care, to avoid cross-contamination with uncooked foods. Other hygiene measures include avoiding unwashed fruits or vegetables, and drinks made without safe water.

Are bats the source of the virus?

MERS-CoV has recently been found to be genetically related to a virus identified in bats from Southern Africa. But there is no definitive evidence that MERS-CoV originates in bats.

Can the MERS-CoV persist in the environment?

We do not yet know the answer to this question. Some types of environment are better suited for persistence of certain viruses but we still do not know exactly how well and under what conditions MERS-CoV may persist in the environment.

Can the virus be transmitted from person to person?

Yes. We have now seen multiple clusters of cases in which human-to-human transmission has occurred. These clusters have been observed in health-care facilities, among family members and between co-workers. However, the mechanism by which transmission occurred in all of these cases, whether respiratory (e.g. coughing, sneezing) or direct physical contact with the patient or contamination of the environment by the patient, is unknown. Thus far, no sustained community transmission has been observed.

Is there a vaccine or treatment for MERS-CoV?

No. No vaccine is currently available. Treatment is largely supportive and should be based on the patient's clinical condition.

How can people protect themselves from getting MERS-CoV?

It is not possible to give specific advice on prevention, as neither the source of the virus nor the mode of transmission is yet certain. It is always prudent to avoid close contact, when possible, with anyone who shows symptoms of respiratory illness and to maintain good hand hygiene. Other effective general measures include avoiding eating uncooked or undercooked meats, unwashed or unpeeled fruits or vegetables, and consuming drinks made without clean water. If you become sick while travelling, you should avoid close contact with other people while you have symptoms and use good respiratory hygiene. If you have respiratory symptoms, such as coughing or sneezing, you should cough or sneeze into a sleeve or flexed elbow, or tissue, and throw used tissues into a closed bin immediately after use.

The chances of contracting the virus are small. However, people who meet the following criteria should see a health-care worker as soon as possible: people who have travelled to the Middle East who develop breathing difficulties that are not explained by any other illness or virus; ill people who are immunocompromised and have recently travelled to the Middle East.

How many people have been infected by MERS-CoV?

- [Latest information on cases](#)

Are health workers at risk from MERS-CoV?

Yes. Transmission has occurred in health-care facilities, including spread from patients to health-care providers. WHO recommends that health-care workers consistently apply appropriate infection prevention and control measures.

- [Infection prevention and control during health care for probable or confirmed cases of novel coronavirus \(nCoV\) infection pdf, 164kb](#)
Interim guidance

How is WHO responding to the emergence of MERS-CoV?

Since the emergence of this virus, WHO has been working under the International Health Regulations to gather scientific evidence to better understand this virus and provide information to Member States. For this purpose, WHO convened the first international meeting on MERS-CoV in Cairo in January 2013.

On 19-22 June, WHO convened a second meeting in Cairo to discuss advances in scientific research and the international response to MERS-CoV. On 5 July, WHO announced it would convene an Emergency Committee under the International Health Regulations (2005). This Committee will advise the Director-General as to whether this event constitutes a Public Health Emergency of International Concern (PHEIC). The Committee may also offer advice to the Director-General on public health measures that should be taken.

WHO is also working with affected countries and international partners to coordinate the global health response, including the provision of updated information on the situation, guidance to health authorities and technical health agencies on interim surveillance recommendations, laboratory testing of cases, infection control, and clinical management.

What is WHO recommending that countries do?

WHO encourages all Member States to enhance their surveillance for severe acute respiratory infections (SARI) and to carefully review any unusual patterns of SARI or pneumonia cases. WHO urges Member States to notify or verify to WHO any probable or confirmed case of infection with MERS-CoV.

- [Current recommendations for surveillance](#)

Has WHO recommended any travel or trade restrictions related to this new virus?

No. WHO does not recommend any travel or trade restrictions with respect to MERS-CoV. WHO will continue to review all recommendations as more information becomes available.