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# DROMEDARY CAMELS AND MERS-CoV: FILLING KNOWLEDGE GAPS

Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is an emerging threat for public health globally and can be a cause of severe respiratory infection in humans, especially those suffering other ailments.

The disease is new to humans and was first reported in 2012 in Saudi Arabia.

Dromedary camels are thought to be a natural reservoir of MERS-CoV and can be a source of infection for humans. Camels are widely spread throughout the

world, mainly in arid areas, and serve important economic, livelihood, nutritional and social purposes.

MERS-CoV is transmitted from person to person through close contact, especially in healthcare settings.

However, there is currently no evidence of sustained person-to-person spread.

Additionally, no vaccine or specific treatment is currently available to prevent MERS-CoV transmission.

To date, 27 countries have reported human cases of MERS-CoV in the Middle East, Africa, Europe, Asia and North America.

Nevertheless, the majority of cases have so far occurred in Saudi Arabia where - according to some studies - MERS-CoV has been circulating in camels since at least 1992.

All cases and outbreaks outside of this region can be traced back to someone who travelled from the Middle East.

## TOWARD A BETTER UNDERSTANDING OF MERS-CoV

MERS-CoV has been found in dromedary camels in several countries in the Middle East and Africa.

Camels become infected with very mild or no clinical signs. MERS-CoV is mainly acquired in dromedaries when they are less than one year of age.

They can be a source of infection to humans, but it is not known how the virus is transmitted from camels to humans.

Because the role that camels and other animals play in the epidemiology of MERS-CoV and the route of transmission to humans remain unclear,

scientifically based decisions and risk management measures are based on precautionary measures and good hygiene practices.

Scientific studies to better understand the dynamics of MERS-CoV in the camel population and mode of transmission between camels and humans is critical for developing appropriate measures to reduce the risks to public and animal health.

Coronaviruses are a large family of viruses that can cause mild to severe illness, usually gastrointestinal or respiratory. Severe Acute Respiratory Syndrome (SARS) is another example of a coronavirus jumping from animals to humans and causing severe diseases.

# KEY FACTS

## MERS-CoV

**MERS-CoV IS A NEW PUBLIC HEALTH THREAT WHICH CAN CAUSE SEVERE RESPIRATORY INFECTIONS IN HUMANS**

**DROMEDARY CAMELS ARE THOUGHT TO BE A NATURAL RESERVOIR AND CAN BE A SOURCE OF INFECTION FOR HUMANS**

**THERE IS CURRENTLY NO HUMAN OR ANIMAL VACCINE, NOR SPECIFIC TREATMENT**

**CRITICAL GAPS REMAIN IN OUR UNDERSTANDING OF CAMEL-HUMAN TRANSMISSION**

**UNDERSTANDING MERS-CoV AT THE HUMAN-ANIMAL INTERFACE REQUIRES A ONE HEALTH APPROACH INVOLVING HUMAN AND ANIMAL HEALTH SECTORS**

**AS A BRIDGE BETWEEN RESEARCH AND NATIONAL PARTNERS, FAO IS WELL POSITIONED TO CONTRIBUTE TO EFFORTS TO BETTER UNDERSTAND THIS PUBLIC HEALTH THREAT ASSOCIATED WITH THE DROMEDARY CAMEL SECTOR**

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It is thought that MERS-CoV originally evolved from a bat coronavirus and jumped to dromedary camels some time ago.

Dromedaries are considered the natural host for MERS-CoV, although it has also been found in alpacas living in close proximity to infected camels.

The challenges of MERS CoV at the human-animal interface can only be met using a One Health approach involving multi-sectoral collaboration, communication and cooperation.

### FAO AND MERS-CoV

FAO plays a coordinating role to reduce the risk of MERS-CoV at the human-animal interface by working with global partners such as the World Organisation for Animal Health (OIE) and the World Health Organization (WHO).

The three organizations convene joint technical and expert meetings to advance knowledge and guide policy.

At national level, FAO provides technical expertise to improve capacity for surveillance, laboratory diagnostics, camel value chain analysis, behavioral studies, food safety, and risk mapping and analysis.

In addition, FAO provides guidance and promotes good practices and biosecurity measures to prevent human transmission or consumer protection.

FAO also monitors regularly the MERS-CoV situation in humans and animals, issues monthly updates, publishes qualitative risk assessments, provides access to information and knowledge, and promotes research development with relevant institutions to address knowledge gaps in the transmission of MERS-CoV in animals and from animals to humans.

Furthermore, FAO assists countries in developing communication strategies to ensure

appropriate information reaches the public on MERS-CoV and avoid possible negative impacts on the livestock industry.

FAO is currently implementing several projects on MERS -CoV in Africa and Middle East. Cross-sectional and longitudinal surveillance studies are being conducted in four countries - Egypt, Ethiopia, Jordan, and Kenya - at different nodes along the camel value chain including breeding herds, live camel markets, quarantine stations, and slaughterhouses.

Camel value chain analyses are also being carried out to characterize the sector.

Approximately 75 laboratory staff in three national veterinary laboratories have been trained on MERS-CoV diagnostic testing while 50 field personnel received training in sample collection and transportation, clinical examinations and data collection.

In implementing the MERS-CoV projects, FAO works closely with funding partners (e.g. U.S. Agency for International Development - USAID), national governments, academic institutions, collaborating centers, and producer associations.

### FUTURE PROSPECTIVE

More studies are planned to better understand routes of transmission to humans, seasonality factors, and potential animal host species, including wildlife.

In addition, the collation of data that captures the distribution of virus circulation in countries with high camel population densities can offer opportunities to understand human 'spillover' events.

Information from these studies would be important also for identification and evaluation of socioeconomic factors that are associated with risk of MERS-CoV infection in camel populations.