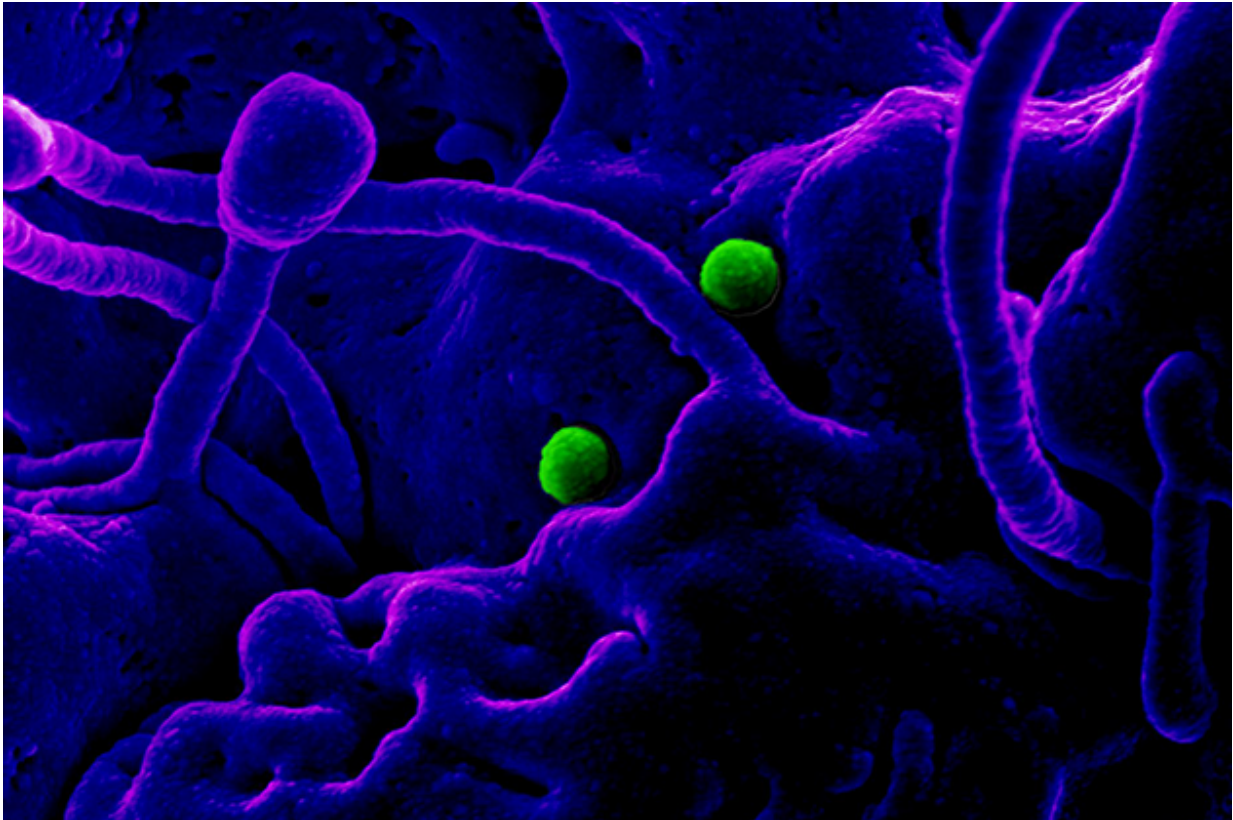


Researcher discusses the spread of MERS

June 24 2015, by Sheila Foran



MERS-CoV particles on camel epithelial cells. Credit: NIAID image, in collaboration with Colorado State University, under the Creative Commons license

In parts of the Arabian Peninsula and in South Korea, a disease called Middle East Respiratory Syndrome (MERS) has claimed lives. MERS has been diagnosed in at least 25 countries worldwide, including a few

isolated cases in the United States. In South Korea, up to 6,500 people have been quarantined. The newness of the disease, its familiar sounding symptoms, and the fear it has engendered are strikingly similar to both Severe Acute Respiratory Disease (SARS) and Ebola, which have also been in the news in recent years.

To find out more about MERS, UConn Today turned to assistant professor of pathobiology and veterinary science Steven Szczepanek, an expert on [infectious diseases](#) and vaccine immunology. He is currently developing a course on Emerging Infectious Diseases, and MERS is one of the topics.

MERS is yet another new disease that sounds foreboding. Can you tell us something about it?

MERS stands for Middle East Respiratory Syndrome. It is transmitted by a coronavirus, which means it belongs to the same family of viruses that are responsible for the common cold – although, of course, it is much more serious. The name corona comes from projections on the surface of the virus that resemble crowns.

Like SARS and Ebola, MERS is a zoonotic disease, which means that it can be passed between animals and humans. All three diseases are similar in that we're pretty sure they all are associated with bats – so bats are referred to as reservoir hosts. For a while, we thought that camels might be the reservoir hosts for MERS, because they carry the disease and because the greatest number of human cases are in Saudi Arabia and the United Arab Emirates where camels play such an important role in daily life. Now, we think that any link between camels with MERS and people who catch the disease from them is a phenomenon caused by close association, and that bats in the wild remain the real culprit.

What are the symptoms?

The typical symptoms are usually described as 'flu-like' leading to a fever of 101 degrees or higher and a cough, as well as some gastrointestinal issues. Untreated, MERS leads to pneumonia and respiratory distress.

How worried should I be if I have traveled to a region of the world where MERS is more common, or if I've shared space on a flight with someone who appears ill?

You probably don't have to worry very much. People hear about the high mortality rate of MERS – it's around 40 percent or higher in some parts of the world – but it's closer to 10 percent in South Korea, where there is excellent medical care available and probably a healthier population to begin with.

MERS is really kind of difficult to catch under normal circumstances, because humans are not a preferred 'host' for the virus. If the virus has a preference, it will go somewhere – maybe to a bat or a camel – where it can continue to reproduce without killing the organism it has infected.

The incubation period for MERS is about five days, so if you have traveled to the Arabian Peninsula or South Korea and you get sick during your trip or shortly after you get home, then that's something to tell your doctor. But under the vast majority of circumstances, normal, healthy people with short-term exposure to someone who is acutely ill with the disease – such as a fellow passenger on an airplane – shouldn't be unduly alarmed.

Actually, no matter if you have traveled or not, if you have flu-like

symptoms you should probably see your doctor anyway. The fact is, influenza – or the flu – kills many more people worldwide in an average year than do any of these zoonotic diseases that we're seeing. But because the flu is so common, we don't really give it the respect it is due.

If it's not 'easy' to catch, then how is MERS transmitted?

There are a few ways. The first cases of MERS came from the Arabian Peninsula, and those people were probably infected via camels that were carrying the disease. We're not really sure how this initial infection of the camels happened, and it's an area of great interest to the research community.

We also speculate that the most direct route of transmission may be by coming in contact with bat feces – or guano – that can dry up and become dust. Or people may come in contact with droppings on the leaves of trees where bats have landed, or in caves where they roost. You don't have to come into actual contact with an infected bat in order to pick up the virus.

There is also the possibility of human-to-human transmission, but that seems to require pretty intense, repeated contact between a person who is already exhibiting symptoms and another at-risk individual. This is why hospitals may be considered a source of the illness, and this seems to be what happened in South Korea.

In that case, someone traveled to the Middle East for business and he apparently became infected while there. By the time he came home to South Korea and went to the hospital, he was likely shedding a large number of virus particles and that's how the disease started to spread.

Since MERS often leads to pneumonia and subsequent respiratory failure, people may need to be put on mechanical ventilators when hospitalized. This can actually help spread the disease further, as particles of the virus circulate into the air. This is why hospitals are initiating quarantines of people suspected of having the disease – to stop its spread among people who are already sick. In South Korea, whole hospitals are being shut down until it's clear the virus has been eliminated.

You mentioned bats as being hosts for this disease, and there are bats in Connecticut and throughout the U.S. Are they carrying the MERS virus?

No. There are over 1,000 species of bats in the world and the ones connected to MERS, such as the Egyptian tomb bat, are not found in this country. If you are sitting in your backyard in the evening and you see a bat fly by, it is probably on its way to an evening meal of mosquitoes, and is helping keep the insect population down. And sure, while some bats do carry infectious diseases, the ones we see don't carry MERS so we don't have to worry about that form of transmission.

Provided by University of Connecticut

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