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## COVID-19: what we still don't know

by Fay Taylor

The recent discovery of COVID-19 means scientists still have not been able to gather a complete picture of the virus. Here are some of the questions they are still seeking to answer.

### How did it start?

Many early cases of COVID-19 were linked to a seafood market in the Chinese city of Wuhan, where the outbreak began in December 2019. But the World Health Organization says possible transmission from animal sources of COVID-19 have not yet been confirmed.

Nonetheless, it seems most likely that it jumped from a non-human source to humans. Like SARS and MERS before it, COVID-19 is part of the coronavirus family, which is common among wild animals. The WHO says people occasionally get infected with these viruses, which may then spread to other people. Scientists have demonstrated that SARS and MERS originated in bats.

But bats can't transmit directly to humans. WHO says the transmission of SARS to humans was associated with civet cats and MERS was linked to camels.

Researchers at South China Agricultural University in Guangzhou say the pangolin could be the source of this outbreak. They found a coronavirus on pangolins that was a 99 percent match with the COVID-19 outbreak. However, the scientific journal *Nature* says caution is necessary as the research has not yet been published in full.

### Can it infect embryos in the womb?

According to the UK's Royal College of Obstetricians and Gynaecologists (RCOG), there is currently no evidence to suggest that COVID-19 causes problems with the development of embryos or causes miscarriage.

In a report on Thursday, the RCOG also said there is no evidence that COVID-19 can be passed from mother to unborn baby, that no previous coronavirus has been shown to cause fetal abnormalities – and this is likely to be the same for COVID-19.

Erica Watson, a lecturer in reproductive biology at the University of Cambridge, says: "Studies have ruled out transmission of COVID-19 in the womb, including a study that found that umbilical cord blood [the baby's blood] and amniotic fluid [the fluid that surrounds the baby in the womb] were negative for the virus. Based on the evidence so far, it is unlikely that COVID-19 can be contracted in the womb and so babies are unlikely to be born with the infection."

RCOG says it is not possible to give absolute assurance there is no risk to unborn babies and the UK government advice is that pregnant women should try to isolate themselves as a precaution to lower their risk of catching it.

### What is the mortality rate?

Because of a lack of comprehensive testing, it's difficult to gauge exactly how many people have caught coronavirus, especially as many of those infected are thought to display no, or only mild, symptoms. Therefore it's impossible to say what percentage of the cases are fatal. The UK government estimates the figure is between 0.5 percent and 1 percent. What is known is that those aged over 80 and those with other health conditions are much more likely to die of the illness than the population as a whole.

### Can you catch it twice?

Most scientists believe it is unlikely, at least soon after the initial infection, but there isn't enough evidence to be sure. Wendy Barclay, head of the department of infectious disease at Imperial College London, says: "There is no evidence for any suggestion that if everyone in a family is already sick, they can reinfect each other with more and more virus.

"In fact, for other viruses, once you are infected it's quite hard to get infected with the same virus on top."

Lindsay Broadbent a researcher at Queen's University, Belfast told the UK's LBC radio station that short-term immunity was likely, but long-term immunity was unknown. He said immunity for some ailments such as flu do not last forever and could be cyclical. More research is needed.

### How long will it take to make a vaccine?

To date, there is no vaccine and no specific antiviral medicine to prevent or treat COVID-19, although the WHO says that more

than 20 vaccines are in development.

A research institute in the U.S. city of Seattle began human trials on 18 March and scientists at Australia's University of Queensland say they hope they can begin human trials in June.

In the UK, Robin Shattock, head of mucosal infection and immunity at Imperial College London, says researchers have successfully vaccinated mice and may be able to start human trials by June. But he said it would probably be a year before it was available for patients.

The rollout of any vaccine could take months and key workers and the vulnerable would be prioritized.

#### **Is the virus seasonal?**

The data is not there yet, however the WHO says that from the evidence so far, the virus can be transmitted in all climate conditions, including areas with hot and humid weather.

It says there is no reason to believe that cold weather can kill the new coronavirus. The normal human body temperature remains around 36.5 degrees Celsius to 37 degrees Celsius, regardless of the external temperature or weather.

Mohammad Sajadi, an associate professor at the University of Maryland's Institute of Virology told the [Financial Times](#) that there was evidence to suggest the virus spreads more easily in colder weather. This may be because people are more likely to collect together inside but also because viruses tend survive better outside the body in slightly colder conditions. However, other researchers disagree and point to the fact that COVID-19 has managed to penetrate virtually every country in the world.

#### **Can you catch COVID-19 from pets?**

We don't know and you should take precautions. The WHO says pets are low risk. It says to date there has been one instance of a dog being infected in Hong Kong, but there is no evidence that a dog, cat or any pet can transmit COVID-19. The advice – as always – is to keep washing your hands frequently and thoroughly.