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Coronavirus spreads

The deadly virus that emerged in Wuhan, China, may be much more contagious than initially thought. Jessica Hamzelou reports

IT NOW looks as if it will be even more difficult to limit the transmission of a deadly new coronavirus between people. On 26 January, China’s health minister Ma Xiaowei said the virus can spread before a person experiences symptoms. If this is the case, some researchers may have underestimated how contagious the virus is.

“If the virus is able to spread before symptoms show, that could certainly explain why the virus is spreading quicker than SARS,” says Robin Thompson at the University of Oxford.

He had previously calculated that there is a 1-in-3 chance that a person who brings the virus to the UK will pass it on to others in the country. This would change if the virus is contagious before people realise they have it.

The scale of the outbreak will depend on how quickly and easily the virus is passed between people. Using data collected up to 18 January, it appears that, on average, each person infected with the virus passes it to between 1.5 and 3.5 other people, according to an analysis by Natsuko Imai at Imperial College London and her colleagues.

But another study, by Shi Zhao at the Chinese University of Hong Kong and his colleagues and based on data collected between 10 and 21 January, estimates that each person with the virus can pass it to between three and five other people.

Comparisons have been drawn between the pneumonia caused by the new virus and that induced by severe acute respiratory syndrome (SARS), which infected more than 8000 people during a global outbreak that began in 2003. The viruses are from the same family, and both can cause fever and pneumonia.

So far, the new virus seems to have a lower fatality rate. Based on the number of reported cases and deaths, the rate seems to be about 2.8 per cent, compared with a 9.6 per cent rate for SARS. But it is too soon to be sure just how dangerous the virus is.

We are still in the early days of the outbreak, says Thompson.

What we do know is that the new virus is spreading more quickly than SARS. “SARS took several months to cause a thousand cases,” says Thompson. “This has caused [almost] 3000 cases in three weeks.”

The SARS outbreak was over by 2004 – there have been no reported cases since then. The virus was brought under control by isolating infected people and screening air travel passengers. Such measures would be more difficult with a virus that can spread before symptoms appear.

There is also a chance that the virus could mutate to become more contagious or deadly. However, there is no evidence yet that the virus has mutated within people, and the World Health Organization (WHO) told a press conference last week that the virus appears to be stable.

Cities locked down

When New Scientist went to press, the WHO hadn’t yet declared a public health emergency of international concern, although the organisation says the risk of the virus is “very high in China, high at the regional level and high at the global level”.

The US Centers for Disease Control and Prevention (CDC) describes the outbreak as a “very serious public health threat”. The CDC cautions that, although only five cases have been reported in the US so far, person-to-person spread of the virus in the country is “likely to occur to some extent”.

WHO figures from 27 January say that there have been 2741 confirmed cases of the virus so far, with cases in 12 countries including Australia and France. There have been 80 deaths, all in China.

On 28 January, reports were emerging of the first possible cases of person-to-person transmission to occur outside China. The WHO is expected to declare a public health emergency if and when the virus is confirmed to be spreading in this way in multiple countries.

Meanwhile, health authorities in China have undertaken unprecedented measures in an attempt to stop the virus spreading. Wuhan has been placed on lockdown – public transport has been stopped, the airport is closed and the use of personal motor vehicles has been banned. Similar measures have been taken in several other cities, affecting tens of millions of residents.

The Chinese government has also temporarily banned the sale of wildlife in markets and restaurants. While the origins of the virus are still unclear, it is thought that the virus was passed from bats to people, possibly via snakes or minks. These animals were all reportedly on sale at the Huanan seafood market in Wuhan, where the first infections were reported.