

Latest coronavirus research reveals important differences between new virus and SARS

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New research published in *The Lancet Infectious Diseases* provides the first complete viral load profile— a comprehensive clinical description of where and how much of the virus circulates through the body— of a patient infected with Middle East respiratory syndrome coronavirus.

The report describes a 73-year-old man from Abu Dhabi, who died in Munich in April 2013, having contracted MERS-CoV a few weeks earlier.

Little comprehensive clinical data on the [new virus](#) exists, and this is only the fifth patient for whom the virus's progression and characteristics have been described in a medical journal. The patient described in the new paper entered hospital in Abu Dhabi 2 days after developing flu-like symptoms, where he was diagnosed with pneumonia and received antibiotics and artificial ventilation. On the 12th day of illness, the patient was flown to hospital in Munich. After experiencing deteriorating [respiratory symptoms](#), and suffering [kidney failure](#), the patient died, 18 days after becoming ill.

After admission to the Munich hospital, researchers regularly measured the patient's [viral load](#), finding it to be highest in the [lower respiratory tract](#), supporting earlier findings and current [World Health Organization](#) advice that specimens from this area should be obtained for diagnosis wherever possible. Low, but detectable, viral loads were also found in

urine and stool samples, but not in the patient's blood.

The presence of the virus in urine may indicate that it is able to replicate in a patient's kidneys, which may also explain why this patient— and two other patients in France, described in a recent *Lancet* article¹—experienced kidney failure. However, the researchers point out that the antibiotics prescribed in the early stages of the patient's illness may have also affected [kidney function](#), so more research will be needed to establish where and how the virus reproduces in the body after infection.

Low concentrations of the virus in [stool samples](#) also suggests a key difference between how the new virus circulates in the body compared with severe acute respiratory syndrome (SARS) coronavirus, which tended to be found in high concentrations in stool. Learning more about where and how the virus circulates will have critical implications for diagnosis and infection control, say the authors. "Laboratory data like these are critical to reach recommendations for diagnostics, to make projections about the prognosis of the patient, as well as to estimate infection risks", says Professor Christian Drosten, a lead author of the study.

"In the absence of qualitative laboratory data from well-documented MERS cases, most of these considerations were up to now made upon an assumed analogy to SARS. However, we're now finding that certain elementary traits of the MERS virus appear to be different to SARS."

According to Professor Clemens-Martin Wendtner, co-lead author of the study, "With only five complete genome sequences so far available there is an urgent need for more genetic data to reveal the spatial and temporal distribution of these cases, estimate the number of independent human chains of transmission, and thus better evaluate the threat this virus poses to world health."

- More information:** 1. [www.thelancet.com/journals/lan ...](http://www.thelancet.com/journals/lan...)
 [\(13\)60982-4/fulltext](http://www.thelancet.com/journals/lan...)
2. *The Lancet Infectious Diseases* Published online June 17, 2013
[dx.doi.org/10.1016/S1473-3099\(13\)70154-3](https://doi.org/10.1016/S1473-3099(13)70154-3)

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