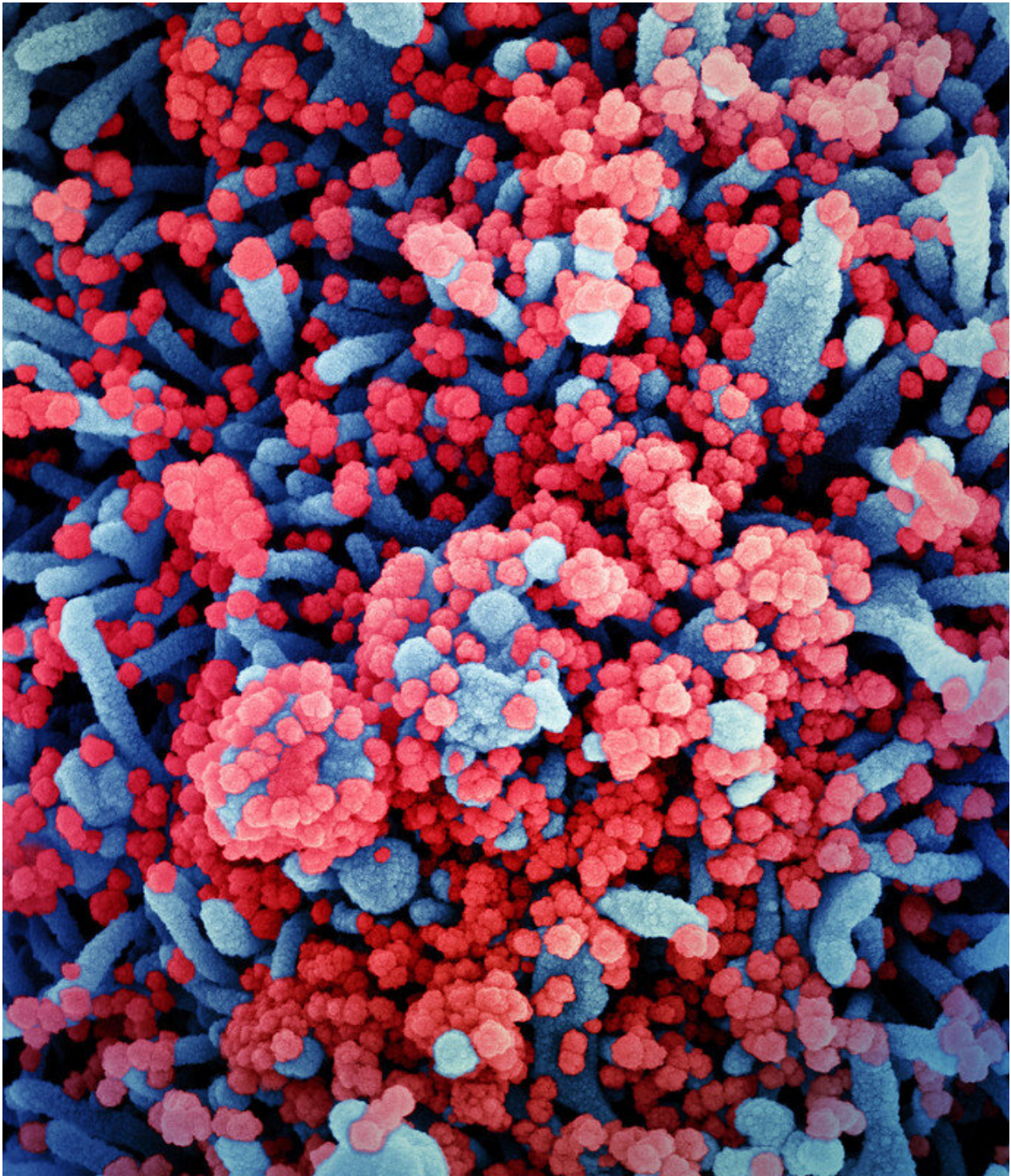


# **Mathematical model of SARS-CoV-2 UK variant suggests it could be 43–90% more transmissible**

March 5 2021, by Bob Yirka

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Colorized scanning electron micrograph of a cell (blue) heavily infected with SARS-CoV-2 virus particles (red), isolated from a patient sample. Image captured at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Credit: NIAID

A team of researchers led by a group at the Centre for Mathematical Modelling of Infectious Diseases, London School of Hygiene and Tropical Medicine, has found evidence suggesting that the U.K. variant of the SARS-CoV-2 virus could be 43 to 90% more transmissible than the original virus. In their study, published in the journal *Science*, the group used models to study the transmissibility of various variants of the SARS-CoV-2 virus.

Back in November of last year, [medical researchers](#) discovered a new variant of SARS-CoV-2 virus, which subsequently became known as the VOC 202012/01 (U.K.) variant. The following month, researchers began reporting that the evidence suggested the U.K. variant was more transmissible than the original virus. These fears appeared to be warranted when subsequent studies found that by the beginning of February, 95% of new infections in England were due to the U.K. variant. The variant has also, to date, been found in 82 other countries.

To learn more about the variant, the researchers sampled 150,000 virus sequences from all across the U.K. In so doing, they found evidence suggesting that the growth rate of the U.K. variant was higher than all 307 other variants they found. They next entered data regarding the virus into a [mathematical model](#) modified to show transmission rates of the SARS-CoV-2 virus and its variants. The team then used the [model](#) to test certain assumptions that have been made about the variant, such as its ability to cause a higher viral load and how long it persists in infected people. The model showed the reproduction number for the variant to be 43 to 90% higher than for the original [virus](#) or other variants.

The researchers also used models to show how effective interventions might be in combating the variant. They found that in order to prevent large increases in infections, the U.K. will have to step up vaccination

efforts. Without them, they predict the U.K. will see more hospitalizations and deaths in 2021 than were recorded in 2020.

**More information:** Nicholas G. Davies et al. Estimated transmissibility and impact of SARS-CoV-2 lineage B.1.1.7 in England, *Science* (2021). [DOI: 10.1126/science.abg3055](https://doi.org/10.1126/science.abg3055)

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