

New research stresses urgent need for serologic testing to help tackle COVID-19

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Serologic tests are blood tests that look for antibodies in your blood, and would allow scientists to decipher what fraction of the British public have already had COVID-19 and recovered, and provide an improved estimate of the number remaining at risk of serious illness.

The research led by Professor Sunetra Gupta and Dr. Jose Lourenco from Oxford's Department of Zoology, used a well-understood and widely studied modeling approach. The model describes rates of transition between three classes of individuals—those that have not had the disease and are therefore susceptible to catching it, those that are infected and can transmit the [virus](#) to susceptible individuals, and those that have had the disease and have recovered.

Like all models, theirs had to be parameterized, which is challenging due to current knowledge gaps leading to large uncertainties on certain key properties of the virus and COVID-19.

In a series of computational experiments, Gupta and colleagues suggest that current uncertainties

around which proportion of a population is at risk of severe disease can lead to vastly different estimates on the current stage of an epidemic.

Consequently, they show that the number of reported deaths can equally be explained by the existence of a very small risk group and many infection cases in the overall population, or, alternatively, by a larger risk group but a small number infection cases in the overall population.

The key conclusion of the report is the need for serological testing to get a first, and critical insight into how many people have already been exposed to the virus (herd-immunity level). Knowing this will allow scientists to infer the risk group size and change how the [research community](#) calibrates models that feed into public health policy.

To work out whether someone has had COVID-19 and has recovered requires testing for [antibodies](#) in their blood. Until the very recent development of antibody tests, it was impossible to tell whether someone had had the infection and recovered.

The confirmed cases of COVID-19 reported in the press are based on individuals who were infected with the virus at the time of testing. If these individuals had had the virus and had recovered, these tests would give a negative result. Given that many people who were tested were already seriously ill with COVID-19, estimating the death rate due to SARS-CoV-2 from these data is likely to result in an elevated estimate of the mortality rate.

To more accurately estimate the mortality rate due to the virus and to assess how many more are at risk of dying from it, it is necessary to use antibody tests to work out the number of people who have been infected and have recovered.

Provided by University of Oxford

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