



## Letter to the Editor

## The serostatus approach to fighting COVID-19



A serostatus approach could assist combating both the COVID-19 pandemic and some of its knock-on effects such as the economic downturn and epidemic of anxiety that have followed it. The serostatus approach would involve the rapid roll-out of serological testing of heavily affected populations. Those who test positive would be allowed to return to normal activities whilst those testing negative would be encouraged to minimize their exposure.

A number of features of COVID-19 make it amenable to a serostatus approach. In keeping with serological tests for SARS-CoV-1, those for SARS-CoV-2 appear to be highly specific and sensitive – with reported specificities of up to 100% (Amanat et al., 2020; IBTC, 2019). This high specificity means that the test could reliably confirm that an individual has been infected with SARS-CoV-2. The available evidence suggests that these individuals will be immune to reinfection for at least the short to medium term (Woelfel et al., 2020). Although sample sizes were small, detailed serological studies in infected persons indicate that all infected persons develop high levels of neutralizing antibodies from around the 14th day after symptom onset (Woelfel et al., 2020; Lee et al., 2020). The level of antibodies produced did not vary between those with minimal and severe symptoms (Woelfel et al., 2020). Around 80% of those infected and who develop symptoms only experience mild symptoms (Wu and McGoogan, 2020). At least 30% of infected persons will not develop any symptoms at all (Nishiura et al., 2020).

These features suggest that widespread serological testing could have multiple benefits. In many countries nucleic acid amplification (NAAT) diagnostic testing was limited due to supply and other constraints. In Belgium, for example, contacts of COVID-19 patients including Health Care workers with symptoms of upper respiratory tract infections without fever were not eligible for NAAT testing (BDH, 2020). Studies from elsewhere indicate that a considerable proportion of those exposed, such as health care workers would be infected (Wu and McGoogan, 2020). These could be detected via serological testing and they could be safely released from home confinement (as is the practice in many countries currently) and prioritized for return to work. This would have a number of benefits. A considerably larger number of persons would become aware of the fact that they had been infected with minimal or no symptoms, which could reduce the fear associated with COVID-19. Those testing positive would be able to return to work which would assist with economic recovery. In

the health care, and related sectors such as care-of-the-elderly facilities, recovered individuals could be favored for patient contact which would reduce transmission between health care workers and patients. Finally, testing could identify a large number of immune individuals whose serum could be used for convalescent therapy (Casadevall and Pirofski, 2020).

The primary disadvantages of this strategy include the logistical arrangements of setting up the new serological assay and testing of large numbers of individuals. There is also some uncertainty as to the strength and duration of immunity to recurrent infections (Woelfel et al., 2020). These disadvantages would likely be offset by the positive effects on reducing transmission (including of subsequent waves of COVID-19 (Morens and Fauci, 2007)), the economy and mental health.

**Ethical approval**

Not applicable.

**Data availability**

Not applicable.

**Funding**

No specific funding was received for this work.

**Transparency declarations**

None to declare. All the authors declare that they have no conflicts of interest.

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Received 22 March 2020

Accepted 30 March 2020