Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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SeroTracker: a global SARS-CoV-2 seroprevalence dashboard

As the initial phase of the COVID-19 pandemic passes its peak in many countries, serological studies are becoming increasingly important in guiding public health responses. Antibody testing is crucial for monitoring the evolution of the pandemic, providing a more complete picture of the total number of people infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) than molecular diagnostic testing alone.[1] All individuals with SARS-CoV-2-specific antibodies have been exposed to the virus, so antibody testing can highlight differences in past exposure between regions, demographic groups, and occupations.[2] Seroprevalence estimates can also be used to estimate the infection fatality rate.[3] Dashboards that visualise COVID-19 cases confirmed by diagnostic testing have been pivotal in enabling policy makers and researchers to monitor the pandemic.[4] Yet, despite the value of antibody testing, there is no unified resource for seroprevalence estimates.

To address this need, we created SeroTracker, a custom-built dashboard that systematically monitors and synthesises findings from hundreds of global SARS-CoV-2 serological studies. The dashboard allows users to visualise seroprevalence estimates on a world map and compare estimates between regions, population groups, and testing modalities (eg, assay type or antibody isotype).

SeroTracker integrates evidence from serosurveillance studies through a live systematic review.[5] Each day, published articles (MEDLINE, Embase, Web of Science, and Cochrane), preprints (medRxiv and bioRxiv), government reports, and news articles are reviewed for newly reported SARS-CoV-2 seroprevalence estimates by a team of doctoral and medical students. Over 13 000 records have been screened to date. Seroprevalence estimates are extracted from each article, in addition to the sample size, sampling approach, study population, and antibody test used. Risk of bias for each prevalence estimate is assessed using the Joanna Briggs Institute Critical Appraisal Guidelines for Prevalence studies.[6] As of July 23, 2020, 162 studies are being monitored, with data available through the SeroTracker website and dashboard code accessible through GitHub.

SeroTracker presents data on an Explore map tab and an Analyze chart tab. The Explore tab features a world map where countries are coloured by seroprevalence. Hovering over each country displays the aggregated seroprevalence estimate along with a 95% CI, the total number of seroprevalence estimates available for that country, and the number of antibody tests administered. This birds-eye view shows that most reported seroprevalence estimates are in the USA and Europe (appendix).

The Analyze tab offers a more granular view, providing seroprevalence estimates stratified by geography, age, or population group, among other variables. This tab also features a references table that summarises the sources from which these estimates were extracted. Across both tabs, users can also filter data by geography, study characteristics (source type, study status, overall risk of bias), population demographics (age, sex, general population, health-care workers), and test information (test type, reported isotypes). Filtering for national or regional seroprevalence estimates in the general population yields studies in 12 countries. Comparing these estimates to diagnostic testing data suggests that SARS-CoV-2 has infected many more individuals than case counts indicate (appendix).

SeroTracker has proven useful to researchers, policy makers, and public health officials. For example, one group is using our data to estimate COVID-19 infection fatality rates globally. Recognising the limitations of serological tests and serosurvey study designs, our dashboard shows by default only studies at low and moderate risk of bias, and we plan to adjust seroprevalence estimates on the basis of test sensitivity and specificity. Further features will allow visualisation of how seroprevalence is changing over time, overlay diagnostic testing data alongside seroprevalence estimates, and show seroprevalence estimates in specific states and provinces. We will continue to host SeroTracker throughout the COVID-19 outbreak to support evidence-based decision making.

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For **SeroTracker's code** see https://github.com/serotracker/

See **Online** for appendix

For **SeroTracker** see https://serotracker.com

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