



# COVID-19

## research update

May 8, 2020

### **Optimal test timing by specimen type**

An [article on interpreting COVID-19 diagnostic tests](#) (JAMA, May 6) concisely described two types commonly in use for SARS-CoV-2 infections—reverse transcriptase–polymerase chain reaction (RT-PCR) and IgM and IgG enzyme-linked immunosorbent assay (ELISA)—and how the results may vary over time. The article includes a useful diagram that shows when detection is unlikely, when PCR tests can be used and when antibody detection is possible by symptom onset and number of weeks after exposure. The article summarizes available research on the timing of when PCR tests can detect viral RNA by sample type (nasopharyngeal swab, stool, etc.), the accuracy and timing of antibody (serological) tests, and considerations for rapid point-of-care antibody tests.

A [prospective assessment of 49 COVID-19 cases](#) (CDC Emerging Infectious Diseases, May 8) estimates the frequency and duration of detectable SARS-CoV-2 RNA in human body fluids. The authors found persistent shedding of virus RNA in all types of samples although there were differences in median time until loss of virus RNA detection. They obtained and tested throat swab, nasopharyngeal swab, sputum, and feces specimens every 3 days for 4 weeks. They then used regression modeling to estimate the time until the loss of SARS-CoV-2 RNA detection in each body fluid. The results show prolonged persistence of SARS-CoV-2 RNA in hospitalized patients with COVID-19. Health professionals should consider these findings in diagnostic recommendations and prevention measures for COVID-19.

### **Cautions for using big data to drive local decisions**

An [article on the use of "big data" to measuring social distancing and mobility](#) (Harvard Business Review, May 8) cautions against drawing specific conclusions about local COVID-19 outbreaks. The authors explain that big data analysis should be done in collaboration with epidemiologists and other specialists. The article concludes with suggestions to "read carefully and trust cautiously." This article provides helpful guidance for policymakers, particularly to respond to members of the public or media who will ask questions about big data analysis published in the media.

### **Pediatric condition potentially associated with SARS-CoV-2**

A [study of a cluster of eight children with hyperinflammatory shock](#) (The Lancet, May 7) suggests that a new phenomenon affecting previously asymptomatic children with

SARS-CoV-2 infection manifesting as a hyperinflammatory syndrome with multiorgan involvement similar to Kawasaki disease shock syndrome. The multifaceted nature of the disease course underlines the need for multispecialty input (intensive care, cardiology, infectious diseases, immunology, and rheumatology). Clinical presentations were similar, with unrelenting fever, variable rash, conjunctivitis, peripheral edema, and generalized extremity pain with significant gastrointestinal symptoms. All children initially tested negative for SARS-CoV-2 on broncho-alveolar lavage or nasopharyngeal aspirates. Since discharge, two of the children tested positive for SARS-CoV-2.

An [alert from the New York City Health department](#) (NYC Health, May 4) notified pediatric providers of 15 cases of a pediatric multi-system inflammatory syndrome similar to cases reported in the U.K. Among the 15 cases identified in New York, 4 tested positive for SARS-CoV-2 by PCR testing, 6 tested negative by PCR and positive by serology and 5 were negative. The alert provides instructions for providers to refer potential cases to appropriate specialists and the NYC Health Department.