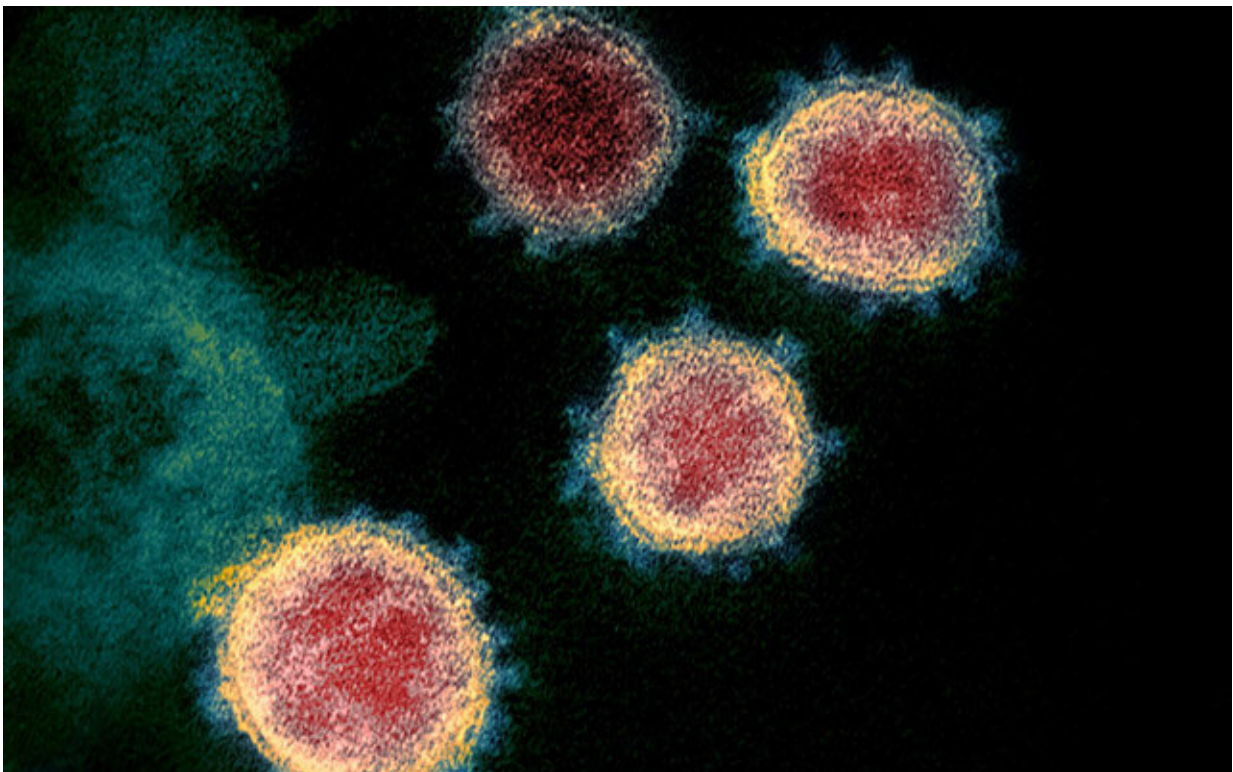


SARS-CoV-2 emergence associated with large drop in circulation of other respiratory viruses during first wave

September 26 2020



A colorized scanning electron micrograph of the SARS-CoV-2 virus. Credit: NIAID

Analysis of samples taken to test for respiratory viruses over the past five years suggests that the emergence of SARS-CoV-2 was associated

with a large drop in circulation of other common respiratory viruses during the first wave. The study, presented at this week's ESCMID Conference on Coronavirus Disease (ECCVID), is by Dr. Stephen Poole, BRC Clinical Research Fellow from the Southampton NIHR BRC, Southampton, UK, and colleagues.

Traditionally, respiratory [virus](#) associated disease predominantly affects those with underlying lung diseases. SARS-CoV-2 emerged in December 2019 as a novel respiratory viral pathogen in humans. Its effect on other circulating [respiratory viruses](#) and its overall impact on viral respiratory disease, remains largely unknown. The purpose of this study was to assess the impact of the emergence of SARS-CoV-2 on the prevalence of common respiratory viruses and the clinical characteristics of respiratory virus associated disease, during the first wave of the pandemic.

Data for this retrospective cohort study were collected from patients who had multiplex polymerase chain reaction (PCR) testing for common respiratory viruses as part of 3 large clinical trials during 4 recent winter seasons in Hampshire, England. Patients were adults in the Emergency department or Acute Medical Unit presenting with acute respiratory illness and recruited within the first 24 hours of admission.

The detection of all respiratory viruses during the first epidemic peak of SARS-CoV-2 in the UK (March-May) was compared to the same time period across four of the previous five years. The clinical features and outcomes associated with respiratory virus detection were compared.

The study included 856 patients who had multiplex PCR for respiratory viruses between March and May over 5 winters. Before 2020, a non-SARS-CoV-2 virus was detected in 202 (54%) of 371 patients (47% influenza A+B, 21% rhinovirus) compared to 4% patients (20/485) in 2020.

When compared to other respiratory viruses, patients with SARS-CoV-2 were significantly less likely to have co-detection of a second respiratory virus (absolute difference 7.2%). As well as having worse clinical outcomes, patients with COVID-19 were much more likely to have pneumonia (81% compared to 24%).

It is well established that existing seasonal respiratory viruses are a frequent cause of exacerbation in COPD and asthma, and this was the diagnosis in 37% of cases from our cohort. Comparatively, these were the main clinical diagnosis in only 1% of SARS-CoV-2 infections.

The authors conclude: "The emergence of SARS-CoV-2 was associated with a substantial reduction in the circulation of other respiratory viruses and a change in the clinical characteristics and outcome of adult respiratory virus associated disease."

Dr. Poole adds: "Respiratory virus circulation is notoriously difficult to predict so we cannot say with any degree of certainty what may happen during the second wave. Lockdown measures may have dramatically impacted the spread of other respiratory viruses earlier than COVID-19, due to these viruses having shorter incubation periods. Non-COVID [respiratory virus](#) circulation in a second wave will be influenced by public health interventions."

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