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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Expanding such a system to include diseases other than COVID-19 could benefit public health as a whole. It is important to define the type and level of detail needed for data on a local, national, regional, and global level to be prepared for the next SARS-CoV-2 variant and subsequent pandemic threats.

We declare no competing interests.

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## Modelling results on the impact of COVID-19 testing in schools

The COVID-19 pandemic has had widespread health, wellbeing, and economic impacts, both from the disease itself and from the measures put in place to try to control it. By mid-April, 2020, school closures had impacted 94% of the world’s students, with the duration and impact of closures varying substantially by country.¹

As new variants rise and fall, it is vital to understand ways to minimise both educational and social disruption by keeping schools open while also reducing the spread of infection.

In *The Lancet Infectious Diseases*, Elisabetta Colosi and colleagues² report modelling results investigating the impact of different potential testing strategies in French primary (ages 6–11 years) and secondary (in this study comprising ages 17–18 years) schools. The results are informed by pre-pandemic data on contact patterns, collected via radio frequency identification tags (wearable sensors that detect proximity), and infection data from pilot screening trials in French primary and secondary schools. Colosi and colleagues use the infection data to estimate the effective reproductive number in schools during the alpha (B.1.1.7) and delta (B.1.617.2) variant waves, informing transmission in an individual-based model of infections that is structured according to the contact pattern data. They conclude that weekly asymptomatic testing could reduce both infections and the number of missed days of school due to reactive class closures.

How do these results compare with other models of school-based testing for COVID-19? Previous work examining SARS-CoV-2 transmission among school pupils in the USA,³ Canada,⁴ and the UK⁵–⁷ found that asymptomatic testing can reduce school transmission. Similar results from a range of independent studies in different countries at different times can give some confidence of a sound conclusion. However, it is very difficult to quantify a reduction in transmission accurately and robustly. Comparisons between studies are further complicated by the implementation of different potential strategies. In addition, schools in different countries might be sufficiently different in setup that implemented measures might be reasonably expected to have different outcomes.

One aspect that reduces our ability to make robust quantifications in this area is the lack of comprehensive data to inform modelling. A strength of the study by Colosi and colleagues is their use of detailed data on school contact patterns, which allowed representative networks to be built using a data-driven basis. These data are one of the best sources of school contact patterns used in this type of study, and yet they still have inevitable drawbacks as they are, by necessity, from studies of particular schools and they represent pre-pandemic contact patterns. Another attempt to inform contact patterns has been made by Woodhouse and colleagues,⁸ who used structured expert judgement to construct their random contact networks. By contrast with the detailed contact pattern data available to Colosi and colleagues, Woodhouse and colleagues’ data on school infections were sadly quite sparse (as they rightly
acknowledge in the paper) as the data originated from a pilot study and were limited in fitting to the increasing phase of the epidemic. Modelling of SARS-CoV-2 transmission in UK schools has an advantage here, with long-term data available on student and staff absences, as well as reported testing in the relevant age groups. These data have been used by my group (Leng and colleagues) and by Woodhouse and colleagues to parameterise and validate school-based models. Both groups agree with Colosi and colleagues that testing could have an important effect in reducing infections and school days missed.

In time, as more data become available in a wider range of circumstances, and modelling and analysis of existing data are published, a consensus might be reached on the magnitude of the likely effect of SARS-CoV-2 testing strategies in schools. The work by Colosi and colleagues underscores the value of detailed epidemiological and social data obtained in similar populations to better inform future epidemic control policies.

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The S-Trimer (SCB-2019) COVID-19 vaccine and reinfection with SARS-CoV-2

By the end of March, 2022, more than 476 million confirmed cases of COVID-19 and 6·1 million deaths from COVID-19 have been reported. In the meantime, one of the world’s largest vaccination campaigns is ongoing. Approximately 5·0 billion people worldwide have received at least one dose of COVID-19 vaccine, and more than 4·4 billion people have completed primary series of immunisation with COVID-19 vaccines.

Previous infection with SARS-CoV-2 could induce an effective immunity against future reinfections in most of the naturally infected population, with robust protection of 80% or higher.1 However, individuals aged 65 years or older had less than 50% protection against repeat SARS-CoV-2 infection.2 Guidelines recommend that patients who have recovered from infection should also receive COVID-19 vaccines to prevent reinfection. However, data regarding vaccine effectiveness in this are still scarce.

In The Lancet Infectious Diseases, Ralf Clemens and colleagues reported a secondary analysis of the SPECTRA study, providing evidence for a protective effect afforded by previous exposure to SARS-CoV-2 against subsequent SARS-CoV-2 reinfection. Moreover, Clemens and colleagues also provide evidence for additional benefits of vaccination for this naturally infected population, such as added protection against severe COVID-19 or COVID-19-associated hospitalisations. The SPECTRA study is a phase 2 and 3 multicentre, double-blind, randomised, placebo-controlled trial that is designed to evaluate the efficacy and safety of the SCB-2019 COVID-19 vaccine, Clover’s Trimeric Recombinant protein-based COVID-19 vaccine adjuvanted with CpG-1018 and alum, which is still ongoing.

In the initial report of this study, SCB-2019 was found to have an efficacy of 67·2% (95% CI 54·3–76·8) against COVID-19 of any severity, 83·7% (97·8% CI 55·9–95·4) efficacy against moderate to severe COVID-19, and 100% (97·8% CI 25·3–100·0) efficacy against severe COVID-19. These results were based on