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.

Lifting of COVID-19 restrictions in the UK and the Delta variant

As *The Lancet Respiratory Medicine* went to press, the UK Government was preparing to lift nearly all of England's remaining lockdown restrictions. From July 19, 2021, there will be no legal requirement for people to wear masks in public places, sporting events and nightclubs will be free to function at full capacity, and the Government will not advise people to work from home if possible. People who have been fully vaccinated against COVID-19 will no longer be expected to isolate if they come into contact with someone infected with SARS-CoV-2, though isolation will still be mandatory for those who test positive for the virus. The Government also intends to accelerate the vaccination programme for those under the age of 40 years, by reducing the interval between the first and second dose of the vaccine from 12 weeks to 8 weeks.

On July 7, 32 548 people returned positive tests for SARS-CoV-2 in the UK. New cases have been rising steadily since the beginning of June. Hospitalisations have not been rising at the same rate, largely because the patient population tends to be young or partially or fully vaccinated. But those infected with SARS-CoV-2 remain vulnerable to so-called long COVID. "The problem now is not severe disease or death, it is long COVID; we are contributing to chronic disease and the long-term burden on general practitioners and health services", said Tim Spector, Professor of Genetic Epidemiology at King's College London and co-founder of the ZOE COVID Symptom Study app, a not-for-profit initiative which tracks COVID-19 infections.

As of July 6, 86% of adults in England had received at least one shot of the COVID-19 vaccine, and 64% were fully vaccinated. Impressive figures indeed, but nowhere near high enough to control the spread of the Delta variant (also known as B.1.617.2) that is now responsible for 95% of sequenced cases in the country.

The reproductive number (R0) for the original strain of SARS-CoV-2 is roughly 2.5. The Alpha variant (B.1.1.7), which was previously dominant in the UK, is around 60% more transmissible than the parental virus. The Delta variant is roughly 60% more transmissible than the Alpha variant, which translates to an R0 of nearly 7. "If you have a virus with an R0 of 6 or 7, then the herd immunity point is somewhere in the region of 85%", explained Martin Hibberd, Professor of Emerging Infectious Diseases at London School of Hygiene and Tropical Medicine.

According to Public Health England, a single dose of either the AstraZeneca or the Pfizer-BioNTech vaccine is only 33% effective against the Delta variant, compared with 50% for the Alpha variant. Fortunately, the full schedules are highly protective against hospitalisation and symptomatic disease for both variants. WHO has confirmed that all the vaccines it has listed for emergency use are effective against the Delta variant. But the vaccines do not prevent people from becoming infected with SARS-CoV-2, and it is unclear how efficiently they protect against long COVID. "The main benefit from vaccination is the reduction in transmission; there may well be a reduced risk in long COVID, for those who contract COVID-19 after being vaccinated, but we cannot yet quantify it", said Spector.

Given that neither natural infection nor vaccination provides protective immunity in everybody, it is extremely difficult to calculate the number of people that need to have been infected or vaccinated to reach the herd immunity point in the UK. Moreover, it remains to be seen how long the antibodies last. Spector and Hibberd argue for booster shots. The Joint Committee on Vaccination and Immunisation has recommended that a potential booster programme should start offering jabs to priority groups from September, 2021.

A study in Scotland concluded that infection with the Delta variant, which has thus far been detected in 96 countries worldwide, was almost twice as likely to lead to hospitalisation as infection with the Alpha variant. People who contract COVID-19 in the UK now tend to experience the disease as something akin to a heavy cold. Shortness of breath and loss of taste and smell are no longer prominent symptoms. This could be down to the Delta variant, or to the age or vaccination status of those infected. Regardless of the cause, it complicates control efforts.

"According to the ZOE data, symptoms are becoming milder so people might think they have a cold or hayfever, so they do not isolate", said Spector. "We are making things much worse for ourselves by not educating people on all the symptoms of COVID-19." Health Secretary Sajid Javed has raised the possibility of 100 000 daily cases of COVID-19 after the July re-opening. "With the way we are opening up, we could see one or two million infections in a highly vaccinated population; that is the perfect environment for generating new variants that might be more resistant to vaccine protection", said Hibberd. Meanwhile, the Delta variant looks set to continue its rapid global spread, at least until it is stopped by an even more transmissible variant.

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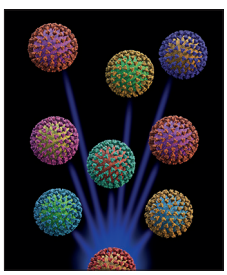

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For more on the **ZOE COVID Symptom Study app** see https://covid.joinzoe.com/about

For information from **Public Health England on the vaccines and the Delta variant** see https://www.gov.uk/government/news/vaccines-highly-effective-against-b-1-617-2-variant-after-2-doses

For the **Scottish study** see **Correspondence** in *Lancet* **397:** 2461–62