

at 44 deaths per 100,000 births, 4 times the global average for high-income countries. The amicus brief that she co-signed with other health-equity researchers and advocates states: “Black women, in particular, who continue to experience the effects of racially-motivated policies and practices that impact their maternal health, must have the right to decide whether to continue a pregnancy to term.”

The empowerment argument

Mississippi’s assertion that abortion access has nothing to do with women’s ability to pursue careers and financial stability is supported by an amicus brief signed by anti-abortion organizations and a group that describes itself as 240 women scholars and professionals, who have degrees in law, medicine and other subjects. “Women do not need abortions to achieve,” says Michele Sterlace-Accorsi, the executive director of the organization Feminists Choosing Life of New York, and a signatory on the brief. It criticizes the Turnaway Study and others that link the right to abortion to women’s health and empowerment, saying that researchers have mistaken correlation for causation.

More than 150 economists disagree. Some of the studies described in the economists’ amicus brief find that abortion legalization in the 1970s helped to increase women’s educational attainment, participation in the labour force and earnings. That remains true, the brief says. For example, one study⁷ posted last year assessed about 560 women of comparable age and financial standing periodically after they either got an abortion or were unable to get an abortion they sought. After five years, the group that was turned away from an abortion had experienced a 78% increase in overdue debt and an 81% increase in publicly recorded financial events, such as bankruptcies and evictions. Meanwhile, the overdue debt of women who had received an abortion remained stable, and their publicly recorded financial events had declined modestly.

“Mississippi is arguing that there is no evidence that abortion access matters to people’s lives, and that is just wrong,” says Caitlin Myers, an applied macroeconomist at Middlebury College in Vermont, and a signatory on the brief.

The Supreme Court will decide the case by the end of June 2022. Even if the justices don’t overturn *Roe*, they could effectively end the precedent by erasing its viability standard, which permits abortion until a fetus can survive outside of the womb. If the court shifts this standard on the basis of arguments about when a fetus becomes a person, the research filed to the justices might not matter. Because this question is not something that science clearly defines, Toti says, courts generally haven’t debated it.

With this in mind, some researchers are forecasting what the future might look like in the United States if *Roe* is overturned or significantly curtailed by the Supreme Court. In one

unpublished analysis, Myers modelled what will happen if abortions are banned in 12 states with pre-emptive ‘trigger bans’ – which will automatically block abortion if *Roe* is overturned – and in 10 other states with several types of abortion restriction. She estimates that, on average, a woman in these states who seeks an abortion will need to travel 450 kilometres (280 miles) to a clinic (see ‘If *Roe* is overturned’), and each year the distance will present an insurmountable obstacle for around 100,000 of them, who don’t have the means to travel far.

Laurie Sobel, a researcher at KFF, a non-partisan health-policy research organization based in San Francisco, California, is working on a similar assessment. KFF refrains from taking political positions, but Sobel says the

evidence for the potential repercussions of this court decision is clear. “This could have a devastating impact on women that would be real and very severe in many states.”

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SCIENTISTS WORLDWIDE WATCH UK COVID INFECTIONS

Relaxation of restrictions – especially in England – is revealing the limits of relying on vaccines alone.

By Luke Taylor

The COVID-19 pandemic in the United Kingdom has often foreshadowed what came later elsewhere. The highly contagious Alpha variant was first detected there, and the country then reported high caseloads of the more-contagious Delta strain before this variant dispersed around the rest of the world. The United Kingdom also saw a wave of infections that seems to have preceded a similar glut now sweeping Western Europe.

Furthermore, England was among the first regions in Western Europe to lift almost all of its COVID-19 restrictions, following one of the world’s fastest vaccine roll-outs. It ended the legal requirements for social distancing and mask use on 19 July, with Wales and Scotland – which set their own public-health policies – lifting most of their restrictions on 7 and 9 August, respectively. Northern Ireland followed on 31 October.

As one of the first countries to trust high vaccine coverage and public responsibility alone to control the spread of SARS-CoV-2, the United Kingdom has become a control experiment that scientists across the world are studying.

“We are watching the increase in cases closely, trying to dissect what is going on and how that might influence our situation right now,” says Rafael Radi, a biochemist and

coordinator of Uruguay’s COVID-19 Scientific Advisory Group.

Nature spoke to scientists around the world about what they hope to learn from the UK experience.

Can vaccines alone prevent infections from surging?

The United Kingdom was hit by three million infections between July and October this year – comparable to when the country was under a strict lockdown in late 2020. This is despite 79.5% of those aged 12 years and older having received two vaccine doses as of 31 October.

UK infection rates are higher than those in countries in continental Europe, where COVID-19 restrictions were relaxed later or remain in place. In the 7 days between 17 October and 23 October, Spain recorded 286 infections per one million people, and Germany 1,203. The United Kingdom registered 4,868 over the same week.

The surge in infections shows that vaccines alone cannot contain the virus, say scientists calling for the introduction of ‘soft’ public-health measures to avoid another lockdown.

“The vaccines are amazing and doing exactly what they’re supposed to do,” says Susan Butler-Wu, director of medical microbiology at the LAC+USC Medical Center in Los Angeles, California. “But why don’t we want to give them the best chance by combining them with



A wall in London commemorates people who died of COVID-19.

other measures?”

Was the behaviour of individuals responsible for the recent surge?

The surge in infections is not the result of the public suddenly abandoning caution, researchers say. “We have not seen a continuous rise [in social interaction], but rather a small increase and then fluctuations driven by whether schools are open and how many people are attending work,” says Christopher Jarvis, a statistician who heads the London School of Hygiene & Tropical Medicine’s CoMix Social Contact Survey.

The average adult now has contact with three to four other people per day, compared with more than ten before the pandemic. For children, the numbers are much higher now that schools have reopened. Mask use dropped once the mandate was lifted, but this is harder to measure.

The gradual pace of behaviour readjustment could explain why the country has experienced a sustained high level of infections rather than the spike that models predicted in August or September. Ongoing high transmission suggests that measures such as free rapid COVID-19 testing will not contain infections while high-risk events in crowded indoor environments are permitted, says William Hanage, an epidemiologist at the Harvard T. H. Chan School of Public Health in Boston, Massachusetts.

“This shows how cautious we need to be with the return to normality,” says Radi. “Increasing human interactions, even with a high proportion of the population fully vaccinated, may lead to new surges, hospitalizations and death.” Uruguay is using the United Kingdom’s

rise in infections as a cautionary tale to warn people of the risk of easing restrictions prematurely, Radi says.

Is vaccine protection waning?

The United Kingdom had one of the fastest COVID-19 vaccination campaigns in Europe. But that strength now seems to be its Achilles heel. The country’s first COVID-19 vaccines were administered ten months ago, and antibodies have had time to decline.

Vaccine effectiveness against infection, hospitalization and death fell considerably after six months, particularly in older people, a UK-based study has found¹. A separate study in Israel – another country that deployed vaccines early – found similar results².

“Boosters are a lot more effective at reducing infections than we were expecting.”

One of the driving forces behind this might have been dropping antibody levels, says Paul Hunter, who studies health protection and medicine at the University of East Anglia in Norwich, UK. Despite high infection rates and the ongoing vaccination campaign, antibody levels plateaued in May, then began to drop, according to the UK Office for National Statistics.

A decline in infection-blocking, or ‘neutralizing’, antibodies does not mean that someone is susceptible to infection, because memory immune cells also play a part, “but we do know that the level of neutralizing antibodies early on is a good indicator of protection”, Hunter says.

But are vaccines are still holding up against death and serious illness?

The Delta variant’s mutations – combined with waning vaccine antibodies – are causing more breakthrough infections. But vaccines are still offering remarkable protection against hospitalization and death. A study at the University of Edinburgh, UK, found that the Pfizer–BioNTech and Oxford–AstraZeneca vaccines were 90% and 91% effective, respectively, at preventing death³. Furthermore, around 75,000 people required hospital treatment for COVID-19 in the United Kingdom between the start of July and early October this year, compared with 185,000 between October 2020 and January 2021, when vaccines were less available.

Relative to the size of its population, the United Kingdom has around three times as many infections as the United States, but only two-thirds the daily deaths. “The amount of infection that is currently going on in the UK would be expected to have much worse consequences if replicated elsewhere,” says Hanage.

Can boosters help to control future surges?

UK authorities began offering a third dose of a COVID-19 vaccine to residents aged 50 years and older, and to those in high-risk groups, on 16 September. Although the precise impact of booster doses has not been established, “the emerging evidence is that they are a lot more effective at reducing infections than we were expecting”, says Hunter.

A study at the Weizmann Institute of Science in Rehovot, Israel, found that people who received a third dose of the Pfizer–BioNTech vaccine were almost 20 times less likely to get seriously ill from COVID-19, and 10 times less likely to be infected, than were people who had received their second and last dose at least 5 months before⁴.

The World Health Organization has criticized the roll-out of third doses in wealthy nations when many people in poorer ones are yet to receive their first. But boosters could get the United Kingdom through the coming winter without new restrictions being imposed, says Marc Baguelin, who models COVID-19 infections for the UK government at Imperial College London.

High circulation of the virus, as the cold pushes people indoors where the virus spreads more easily, and as immunity wanes, means that marginal increases in vaccine protection should have “a significant impact on hospitalizations and deaths”, Baguelin says. “Now everything relies on the boosters.”

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