



PIPPA FOWLES/NO. 10 DOWNING STREET

Europe's second wave

Lockdowns across Europe

Many countries are starting new lockdowns, but it may already be too late to stop the second wave of coronavirus from eclipsing the first, reports **Michael Le Page**

ENGLAND has begun a second national lockdown, after weeks of regional restrictions failed to curb the spread of the coronavirus. The UK government didn't follow suggestions made by scientific advisers in September to institute a shorter lockdown weeks earlier, intended to halt the exponential growth of coronavirus cases.

This new lockdown is needed to stop the spread of the virus, but it and similar efforts across Europe may be too late to prevent the second wave of covid-19 being worse than the first.

"It's pretty bleak," says Paul Hunter at the University of East Anglia in the UK. He thinks the second wave will be more drawn out but will eventually lead to more deaths in the UK than the 44,000 seen in the first wave.

"I think probably we will ultimately see more deaths over the next six months," he says.

A sharp rise in cases has also been seen across Europe in recent months, and many countries are being forced to ramp up covid-19 control measures and introduce lockdowns. Northern Ireland increased restrictions on 16 October, stopping short of a full lockdown, while the Czech Republic was the first to impose a second lockdown, on 22 October, despite the government having stated that it wouldn't do so.

"We have no time to wait," said Prime Minister Andrej Babiš. "The surge is enormous."

Since then, Wales, Spain, France, Germany (see page 10), Belgium, the Netherlands, Italy and other countries have also announced new lockdowns or restrictions with varying degrees of severity.

In England, where a three-tier system of regional restrictions has been in place since 12 October, a four-week lockdown will begin on 5 November, while a five-tier system began in Scotland on 2 November.

In the Czech Republic, which did better at limiting the first wave than many other countries in Europe, the second wave is already far worse on every measure. There are six times as many people in

UK prime minister Boris Johnson announcing the latest English lockdown

hospital with covid-19 than during the first wave, and there are 16 deaths per million people per day compared with just one per million people per day in the first wave.

The second-hardest-hit country is Belgium, which had a big first wave. Belgium is reporting more than 1200 cases per million people per day – the highest rate in Europe. So far there are only a third as many people in hospital with covid-19 as during the first wave, and seven deaths per million people per day compared with 25 earlier in the year. However, government health spokesperson Yves Van Laethem has warned that all available intensive care beds ➤

Daily coronavirus news round-up
 Online every weekday at 6pm GMT
[newscientist.com/coronavirus-latest](https://www.newscientist.com/coronavirus-latest)

in the country could be full by mid-November.

The skyrocketing numbers of coronavirus cases happening in Europe now were predicted by epidemiologists months ago.

“No government can claim they have been ‘taken by surprise by virulence of second wave,’” wrote Jeremy Farrar, director of the Wellcome Trust in the UK, in a tweet. The trajectory has been clear since at least the start of September in Europe, though it could be seen as far back as mid-July, he said.

After lockdowns during the first wave greatly reduced the spread of the coronavirus, most European countries opened their borders and relaxed restrictions. At first, case numbers continued to fall, but they started to creep up again in July and August.

Exponential growth means cases are now rising fast in most countries – including in Sweden, where the majority of measures to control the coronavirus are voluntary and where infection rates have been much higher than those of neighbouring countries.

Underestimated cases

“Increased contact levels are at the heart of this,” says Anne Johnson at University College London.

As people went on holiday in August, or returned to fully reopening schools and universities, they came into contact with more people, she says. And with more of life moving indoors as the weather gets colder, the risk of being infected has increased too.

Across Europe, daily case numbers reached nearly 250,000 last week, compared with under

50,000 during the first wave. However, in many countries, the actual number of people being infected probably hasn’t yet exceeded the levels in the first wave. The reason is that little testing was done early on in the

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pandemic, so most cases were missed – only 1 in 50 cases were detected in the first wave, compared with around 1 in 4 now.

In England, researchers get an idea of infection rates from

surveys in which a random selection of people are tested regardless of symptoms, and the results are extrapolated to the entire population. The latest survey by the Office for National Statistics (ONS) suggests that 52,000 people were infected every day between 17 and 23 October.

Another survey, by the REACT 1 team at Imperial College London, put the figure even higher. It suggests that around 96,000 people in England were being infected every day between 16 and 25 October. That is more than four times the number of confirmed daily cases that have been reported by the UK government.

How does this compare with the first wave? We don’t know for sure, because these surveys didn’t start until the end of April. However, a modelling study by Nick Davies at the London School of Hygiene & Tropical Medicine suggests that in England there were 200,000 infections per day on average over a two-week period during the peak in March. At the very peak of the first wave, there were 250,000 infections on just one day.

“It is quite high compared to other estimates,” says Davies. But it is based on the number of deaths and hospital admissions, so he is confident in the finding. This work hasn’t yet been published.



People with covid-19 being treated in a hospital in Belgium

If these estimates are right, the number of new infections in England could surpass the number during the first wave within days. The REACT 1 results suggest cases are doubling at least every nine days. “The rate of growth is really quite rapid,” says Steven Riley at Imperial College London.

Hospital admissions rise

It is clear that the three-tier system of regional restrictions introduced in England on 12 October didn’t go far enough. Davies has been using data from Google indicating how much people are moving around to assess the system’s impact, and his team’s modelling suggests that the measures only slowed the spread of the virus, instead of halting it completely.

It will take several weeks for it to become clear what effect the various new measures introduced across Europe are having, due to the delay between people becoming infected, developing symptoms, getting tested and, in some cases, being hospitalised or dying.

“No matter what we do now, infections and deaths will go up over the next few weeks,” says Duncan Robertson at Loughborough University in the UK. “These deaths are already baked into the system.”

There are already some ominous warning signs. By 18 October, there were more people hospitalised than in the first wave in at least seven countries: Bulgaria, Poland, Hungary, Slovenia, Croatia, Latvia and the Czech Republic. This list may be incomplete as some countries, including Germany, the Netherlands and Sweden, don’t report hospital admissions data to the European Centre for Disease



MARTIN DIVISEK/EPA-EFE/SHUTTERSTOCK

Police patrol a bridge after curfew in Prague, Czech Republic

Prevention and Control (ECDC).

In the UK, there are only half as many people in hospital with covid-19 as there were in the first wave. This might seem at odds with the idea that the infection rate is about to surpass the earlier peak. However, it is because of the lag between people being infected and becoming severely ill.

“Admissions to hospital are going up later but in parallel with the number of cases,” says Johnson.

What’s more, the first ONS survey of England back in May found the highest rate of infections among people aged between 50 and 69. Now, the highest rate is among people in their twenties, who are much less likely to become severely ill.

Unfortunately, infection rates are starting to rise in older age groups too, says Johnson. She was one of the authors of a July report that warned there could be a protracted second wave, with 120,000 deaths in the UK between September and June 2021 – more than double the number in the first wave. “It was a reasonable worst-case scenario, not a prediction,” says Johnson. “But we are not far off it really.”

Harder to contain

The figure of 120,000 deaths didn’t account for the availability of better treatments than we had in the first wave, such as the steroid dexamethasone, which has been shown to reduce deaths from covid-19. However, another, more recent, reasonable worst-case planning scenario in a leaked report from the UK’s Scientific Advisory Group for Emergencies (SAGE) is similar: 85,000 deaths in the UK directly due to covid-19, plus another 27,000 indirect deaths.

The UK government was

advised a month ago by a SAGE subcommittee that the number of infections and hospital admissions in England was already higher than those in this worst-case scenario, and that the number of deaths would also soon exceed this scenario. “Were the number of new infections to fall in the very near future, this exceedance of the reasonable worst case scenario could be modest and short-lived,” states a 7 October document made public last week.

England is far from alone. By January, the daily mortality rate in Europe as a whole could be five times higher than in April unless countries reverse course, said Hans Kluge at the World Health Organization in a statement on 15 October.

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While many countries have tightened restrictions since then, most haven’t imposed measures as strict as the lockdowns put in place during the first wave. For instance, in England, schools and universities will remain open, unlike in March.

A tendency to stay indoors in winter might make it harder to contain an outbreak than in spring, especially if actual case numbers are already surpassing those from earlier in the year. The higher the number of cases, the harder it is to contain an outbreak, says Johnson, because the odds of people coming into contact with an infected person are higher.

“This is a serious situation,” she says. “We have already baked ourselves into a lot more trouble, just because of the number of people infected.” ■

250k

Highest reported daily rate of coronavirus cases across Europe

1 in 4

Cases detected now, compared with 1 in 50 during the first wave

20-29

Age group with the highest current rate of covid-19 in England

120k

Potential number of coronavirus deaths in the UK between September 2020 and June 2021