BMJ 2020;369:m2294 doi: 10.1136/bmj.m2294 (Published 9 June 2020)

NEWS

Covid-19: Risk of second wave is very real, say researchers

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Lockdown measures may have averted 3.1 million deaths from covid-19 across 11 European countries, including 470 000 in the UK, a new modelling study indicates.[1]

However, the researchers warn that European countries are very far from achieving herd immunity, as less than 4% of their populations were infected with SARS-CoV-2 up to 4 May, when lockdowns started to be lifted. The estimated proportion of the total population infected varies between the countries from less than 1% in Norway, Germany, and Austria to 8% in Belgium (box 1).

Box 1: Covid-19 infection rate in 11 European countries

Percentage of total population infected (95% credible interval) up to 4 May

- Austria—0.76% (0.59% to 0.98%)
- Belgium—8% (6.1% to 11%)
- Denmark—1.0% (0.81 to 1.4%)
- France—3.4% (2.7% to 4.3%)
- Germany—0.85% (0.66% to 1.1%)
- Italy—4.6% (3.6% to 5.8%)
- Norway—0.46% (0.34% to 0.61%)
- Spain—5.5% (4.4% to 7%)
- Sweden—3.7% (2.8% to 5.1%)
- Switzerland—1.9% (1.5% to 2.4%)
- UK—5.1% (4% to 6.5%)

Seth Flaxman, a study author from the Department of Mathematics at Imperial College London, told a press briefing: "We are very far from herd immunity. The risk of a second wave if all interventions are abandoned is very real." He added, "We are only at the beginning of this epidemic, and claims that it's all over can be firmly rejected."

The research, published in *Nature*, estimated that between 12 million and 15 million people were infected with covid-19 in Austria, Belgium, the UK, Denmark, France, Germany, Italy, Norway, Spain, Sweden, and Switzerland up to the beginning of May.

Between 2 and 29 March European countries began implementing non-pharmaceutical interventions to control the covid-19 epidemic. These varied between countries but included social distancing, banning large gatherings, closing schools, and stopping all but essential travel. The study points out that most interventions were implemented in rapid succession in many countries and so it is difficult to disentangle the individual effect sizes of each intervention.

The model found that lockdown measures had successfully reduced the reproduction number (R value) to less than 1 in all the countries studied, ranging from a mean of 0.44 for Norway to 0.82 for Belgium. The average R value across the 11 countries was 0.66, an 82% reduction from the figure before the lockdowns.

Study author Samir Bhatt, from the faculty of medicine at Imperial College London, said, "Lockdown has had a really dramatic effect on reducing the rate of transmission, and without it there would have been many more deaths from covid-19."

A second study, also published in *Nature*, estimated that lockdown policies implemented in China, South Korea, Italy, Iran, France, and the US prevented or delayed around 530 million covid-19 infections.[2]

The US researchers estimated that without anti-contagion policies in place, early rates of SARS-CoV-2 infection grew by 68% a day in Iran and an average of 38% a day across the other five countries. Using econometric modelling normally used in assessing economic policies, they found that lockdown measures significantly and substantially slowed this infection rate.

1 Flaxman S, Mishra S, Gandy A, etal. Imperial College COVID-19 Response Team. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature* 2020;(Jun). 10.1038/s41586-020-2405-7. 32512579

2 Hsiang S, Allen D, Annan-Phan S, etal . The effect of large-scale anti-contagion policies on the COVID-19 pandemic. *Nature* 2020;(Jun). 10.1038/s41586-020-2404-8. 32512578