

What can be expected of COVID-19 this winter?

October 25 2021, by Dr Sabine L. Van Elsland



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The UK is likely to face a substantial wave of COVID-19 infections, hospitalisations and deaths this winter, new modeling suggests.

Even with a [booster](#) vaccination program in place, up to 100,000 people could be hospitalized with COVID-19 between now and March 2022, under the most pessimistic scenario according to the report by the Imperial College COVID-19 Response Team, which was released today by the Scientific Pandemic Influenza Group on Modeling (SPI-M). However, deaths are projected to be approximately ten-fold lower, reflecting the sustained high level of protection provided by all vaccines against the most severe forms of COVID-19 related disease.

[The report](#) summarizes the modeling of 12 scenarios of potential COVID-19 pandemic trajectories for this autumn and winter, describing infections, hospitalisations, and deaths. These scenarios take into consideration different contact rates, waning of natural and vaccine induced protection, implementation and effectiveness of booster vaccines, and vaccination of 12- to 15-year-olds.

Current COVID-19 case numbers are higher than this time last year and contact rates are gradually increasing to pre-pandemic levels. This may lead to a significant peak in case numbers over the 2021–2022 winter period. Adding to normal winter pressures, this growing epidemic wave may mean decisions could again have to be made about how to prioritize [hospital care](#).

Optimistic and pessimistic scenarios

In the more optimistic scenario, current levels of protection in the population combined with the delivery of boosters should maintain the epidemic at levels similar to or lower than currently observed. This is projected to result in into 43,000 hospital admissions (95 percent credible interval: 23,000 to 72,000) and 5,000 deaths (95 percent credible interval: 3,000 to 8,000) between now and March 2022.

Under pessimistic assumptions around contact patterns and the extent

and duration of immunity, the team projected up to 100,000 hospitalisations (95 percent credible interval: 60,000 to 146,000) and 10,000 deaths (95 percent credible interval: 6,000 to 14,000) over the same time period.

These numbers reflect the impact of the booster program and its ability to curtail winter transmission. Under the counterfactual assumption of no booster program, deaths were projected to be four to six times higher than the figures above.

For all forward projections, future vaccine rollouts follow a predicted schedule given to all modeling groups by the Cabinet Office. This assumed that an average of 1.3 million mRNA booster doses would be administered per week to clinical vulnerable groups and over 50-year-olds, and an average of 200,000 first doses given per week for those aged between 12 and 15.

Importance of vaccinations

At the time of the report, 85 percent of the population over 12 years of age in England had received one vaccine dose and 79 percent have received two doses.

Although the current Delta variant is more transmissible and causes more severe disease than the Alpha variant this time last year, successful vaccination programs have led to a lower proportion of cases translating into hospital admissions, severe disease and deaths.

Immunity from first and second dose vaccinations is, however, waning. This highlights the importance of boosters, which will be key in keeping infection and hospital admission numbers down and preventing hospitals from being selective in care provided. Despite the benefit of boosters, further enforcing plan B (mandate wearing face-covering in [public](#)

[places](#), avoid indoor gatherings, encourage work from home) might be needed, should contact rates in the population keep rising.

Sensitivities

The researchers caution that the projected scale of the winter wave is sensitive to small changes in assumptions about vaccine effectiveness including boosters, cross-protection from prior non-Delta infections, and waning of natural- and [vaccine](#)-induced protection. It is also sensitive to the assumed level of social mixing.

Prof Neil Ferguson said: "Our study shows how this year's COVID-19 vaccination program has transformed where the country finds itself compared with one year ago. While we anticipate infection levels may remain high over the next few months, [death](#) is now a far more unlikely outcome of infection. However, while vaccination has dramatically reduced the risk of hospitalization and death, our projections suggest the NHS could still be put under very severe strain in the coming weeks or months. It is vital that we continue to try to convince unvaccinated individuals to be protected by vaccination, as well accelerating rollout of booster doses and both first and second doses in teenagers."

Dr. Marc Baguelin said: "We show that while pressure will remain high for a while on the healthcare system, boosters and vaccination of 12–15 year olds, should improve the situation over the next few months. We have shown though how these results are sensitive to the rolling out of the booster campaign and in that respect the fact that the current campaign is behind the schedule we had modeled at the time is worrying."

Dr. Pablo Perez Guzman said: "In the absence of new variants emerging, the severity of the winter wave will likely have two main drivers. On the one hand, the success of the national vaccination campaign, including a

high uptake of boosters amongst at-risk groups and of first-doses amongst teenagers. On the other, moderating social interactions in the general public over winter season will also be key."

Provided by Imperial College London

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