

## Scenario modelling for advisory group to the Cabinet office (30 oct 2021)

The following scenario modelling addresses the question as to whether Plan-B should be implemented in light of rising infection rates and hospitalisations. This (dynamic causal) modelling is based upon current estimates of epidemiological and sociobehavioural parameters that are updated on a weekly basis: please see the following [website](#).

In brief, this scenario modelling rolls out several months into the future in the absence of any changes in predicted contact rates and under a reduction in contact rates (e.g., Plan-B). The savings in terms of hospital admissions, deaths and economic burden are summarised in Figure 1

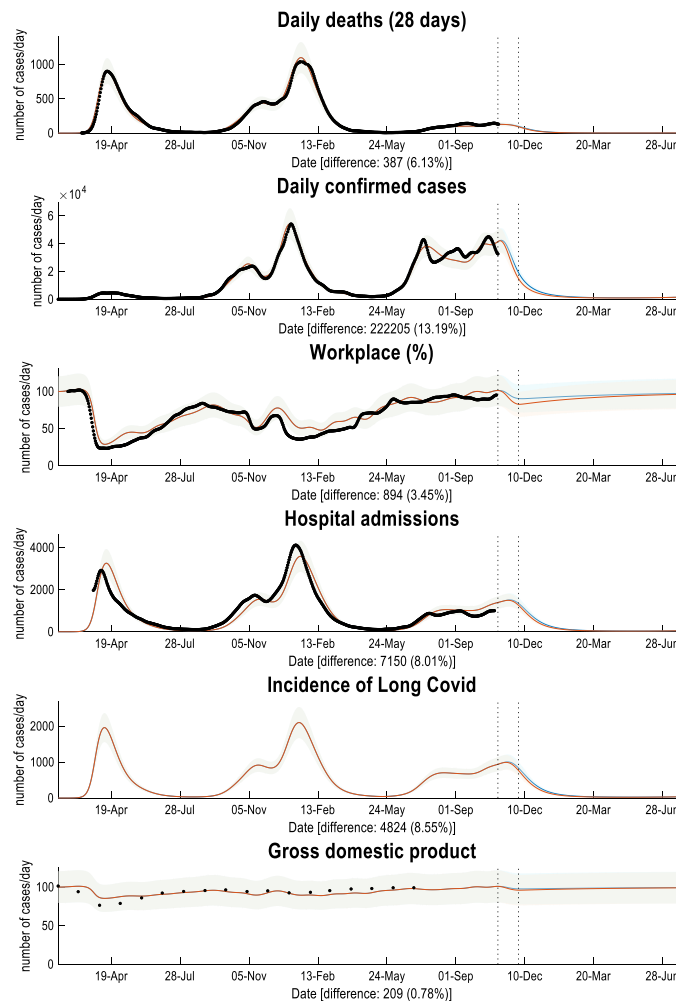


Figure 1: This figure reports the results of scenario modelling using the parameters of a [dynamic causal model](#) based on data covering the entire pandemic until 1 Nov 2021. The lines correspond to expected deaths per day, daily confirmed cases, workplace activity (based upon Google mobility data), hospital admissions, incidence of long COVID and gross domestic product. The shaded areas correspond to 90% confidence intervals. The blue lines are the most likely estimates, while the black dots correspond to (smoothed) data from the [ONS](#) and [Google mobility data](#). The

orange lines show what might happen if contact rates were reduced on 1 Nov 2021 (modelled by decreasing the prevalence-dependent probability of going to work for one month—indicated by the dotted lines). This reduction was calibrated to produce a peak reduction in workplace activity (as scored by Google mobility data) of 4%. This translates into an average reduction of about 0.77% in GDP over the period modelled (until the 1 Aug 22).

The focus on reducing contact rates is based upon a first principles account of the factors that underwrite viral spread—and the mechanisms that mitigate each of these factors; summarised as follows:

Mechanism	Measure
<b>Contact rates</b>	<b><i>Work at home where possible</i></b>
Transmission risk	<i>Mask wearing in crowded indoor spaces (droplet transmission). Ventilation (aerosol transmission) (e.g., enforcement of clean air regulations)</i>
Main period of infectiousness	<i>Support and enable self-testing and isolation (e.g., with mandatory sick pay)</i>
Immunity	<i>Support and enable (access to) vaccination</i>

## Conclusion

This scenario modelling suggests that reminding people to work at home where possible, for the next month, may save about 400 lives and 7000 hospital admissions. This translates into a quarterly loss of gross domestic product of about (0.77% x £500B) £3.83B<sup>1</sup>, which is offset by a saving of (7150 x £50,000) £357.48M in terms of hospital treatment<sup>2</sup>.

<sup>1</sup> Assuming [quarterly GDP](#) is £500 billion.

<sup>2</sup> Assuming the [cost of a hospital admission for COVID 19](#) is £50,000 (see [also](#)).