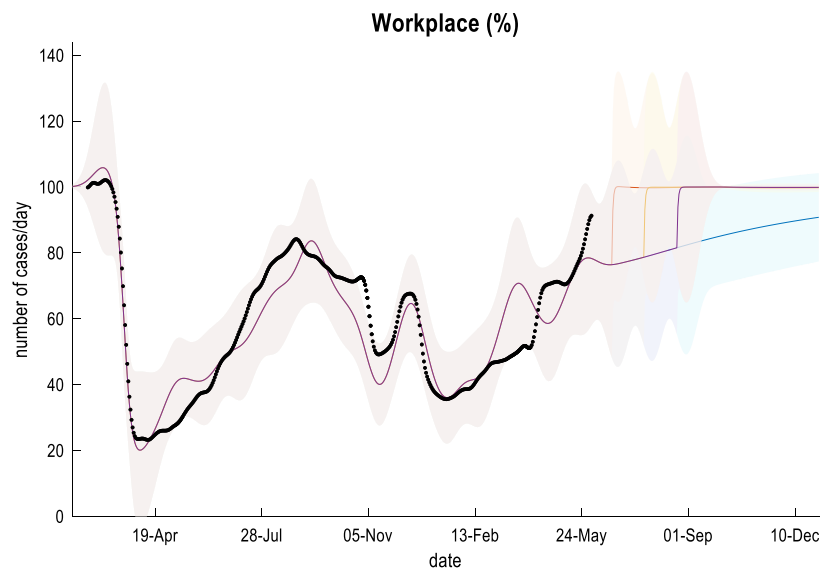
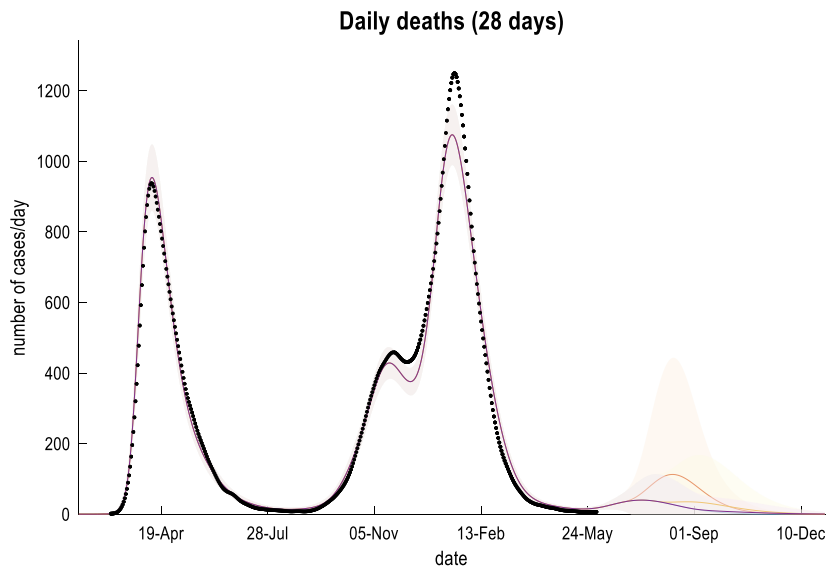


Scenario modelling for advisory board to the Cabinet office (11 June 2021) (updated to include hospital admissions and occupancy)

Context: The final phase of the roadmap on 21 June is approaching. A decision on whether to relax restrictions is confounded by the emergence of the Delta variant, now dominant in the UK. The Delta variant is substantially more transmissible (with an estimated basic reproduction ratio of 6.3 at the time of writing: see accompanying forecast summary). Current dynamic causal modelling suggests a slight resurgence of hospital admission and fatality rates over the summer and a gradual (partial), prevalence-dependent increase in contact rates (please see the long-term forecast [dashboard](#) for current estimates – and the national [dashboard](#) for data fits upon which these estimates are based). Predictions of contact rates are based on population behaviour in response to previous fluctuations in prevalence. They suggest that we will return to contact rates seen last summer in September 2021. **What would happen if restrictions were lifted completely on 21 June 2021 – or delayed for one or two months?**

This can be estimated—using scenario modelling—by increasing the rate at which people return to a normal (pre-pandemic) contact rate on 21 June, 21 July and 21 of August, 2021.

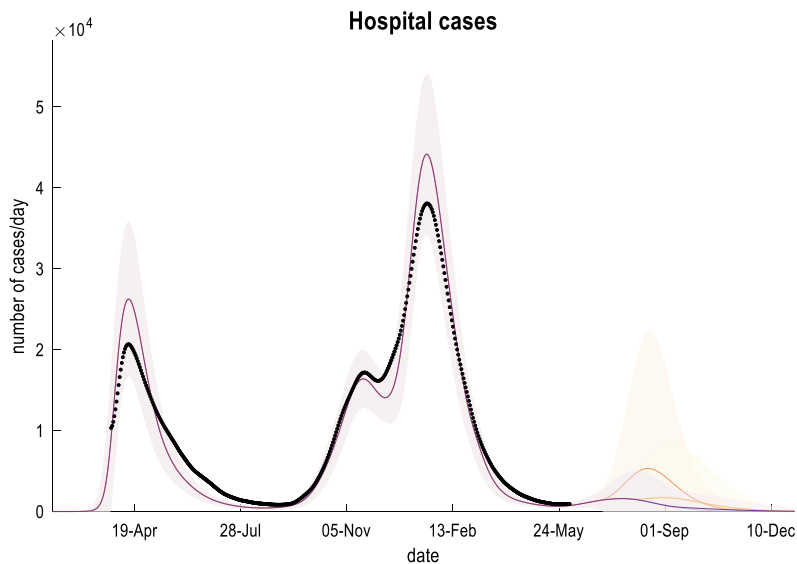
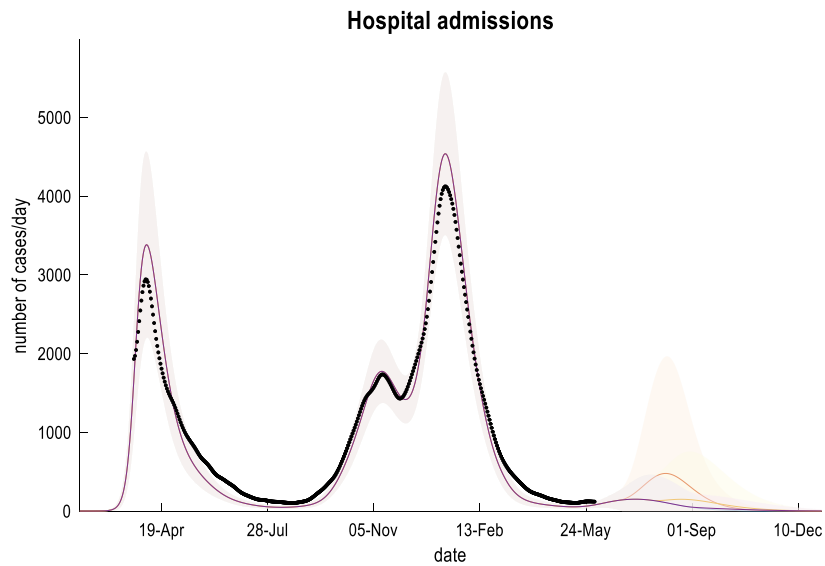


This figure reports scenario modelling using the parameters of a [dynamic causal model](#) based on data covering the entire pandemic until 6 June 2021. The lines correspond to expected deaths per day (upper panel) and contact rates as reflected in workplace activity (lower panel). The shaded areas correspond to 90% confidence intervals. The [blue/purple](#) lines are the most likely estimate of deaths, while the black dots correspond to (smoothed) data from the [ONS](#) and [Google mobility data](#). The [red](#) lines show what might happen if the restrictions are lifted on [21 June](#) (modelled by increasing the rate at which people return to a normal contact rate). The [yellow](#)

and purple lines show the equivalent predictions when delaying the lifting of restrictions by one and two months, until 21 July and 21 August, respectively.

Under a predicted (partial) relaxation of restrictions a total of 129,497 (CI: 121,164 to 137,830) lives will be lost by 1 January 2022¹. With a complete relaxation on 21 June, this rises to 134,577 (CI: 116,153 to 153,001)—an average difference of **5,080 lives**. Delaying by one month would reduce this average difference to **1,586** lives. Delaying by two months would further reduce the loss of life to **279**. Note that in these forecasts, vaccination precludes a winter resurgence, even in the context of increasing transmission risk.

¹ These confidence intervals pertain to the entire epidemic (i.e., what could have happened, as opposed to what has happened to date). The confidence intervals would be proportionally tighter when limiting uncertainty to the future.



The corresponding predictions for hospital admissions and occupancy (cases) are shown above. Under a predicted (partial) relaxation of restrictions a total of 474,553 (CI: 385,659 to 563,447) patients will have been admitted to hospital by 1 January 2022. With a complete relaxation on 21 June, this rises to 495,307 (CI: 379,553 to 611,061)—an average difference of **20,754** admissions. Delaying by one month would reduce this average difference to **6,637** admissions. Delaying by two months would further reduce the excess admissions to **1,169**.

Conclusion: In short, a partial (prevalence-dependent) unlocking is licensed by the current forecasts. However, a complete lifting of restrictions on 21 June might be difficult to justify in light of deferring a full unlocking for one or two months.

Supplementary material: underlying epidemiological (and other latent states) under partial and complete lifting of restrictions on 21 June, 21 July and 21 August, 2021:

