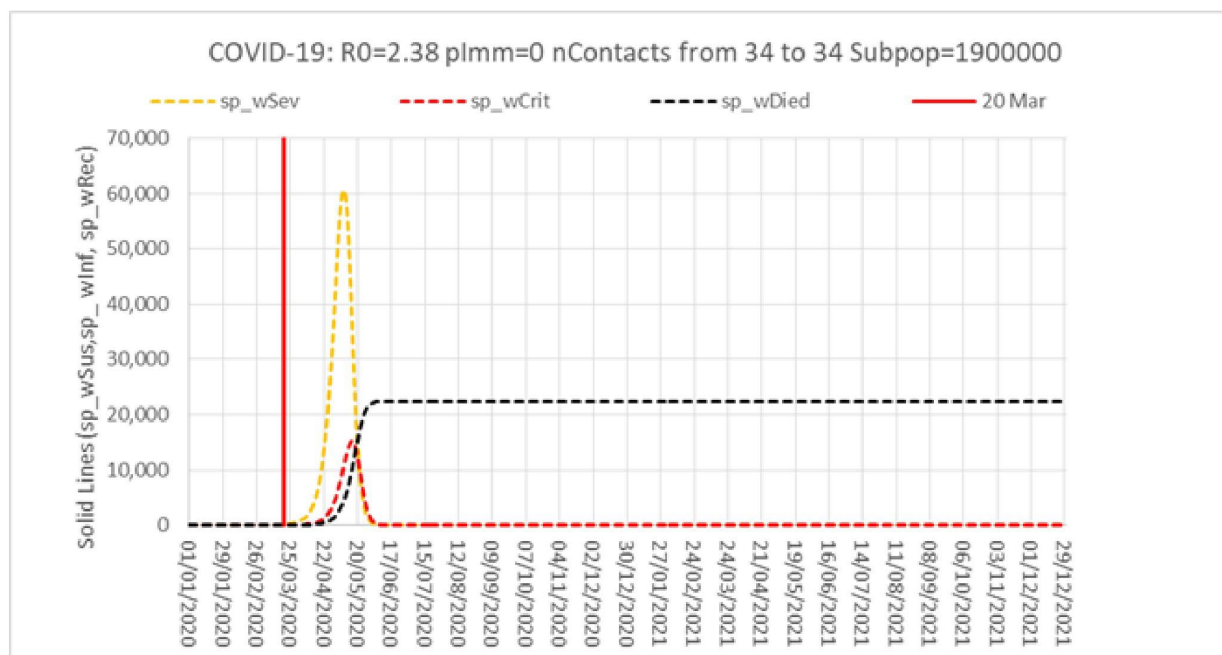
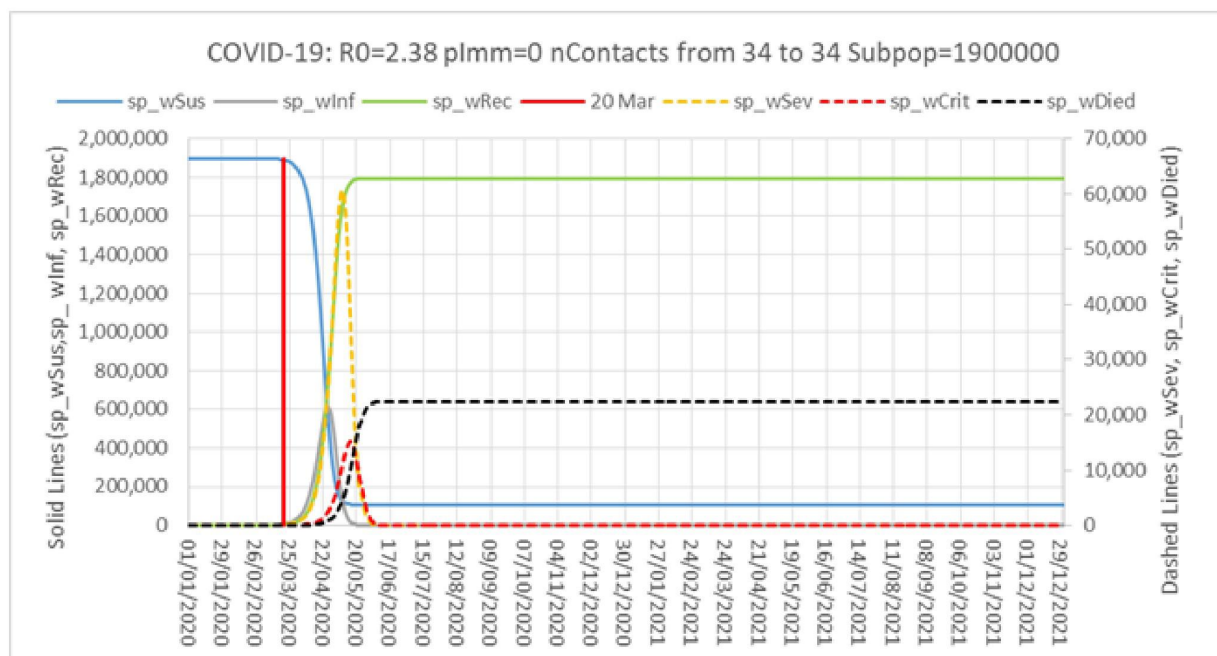


Modelling

The evidence so far suggests that R_0 has been high in the UK. Sub population set to 1.9 million to represent NI.

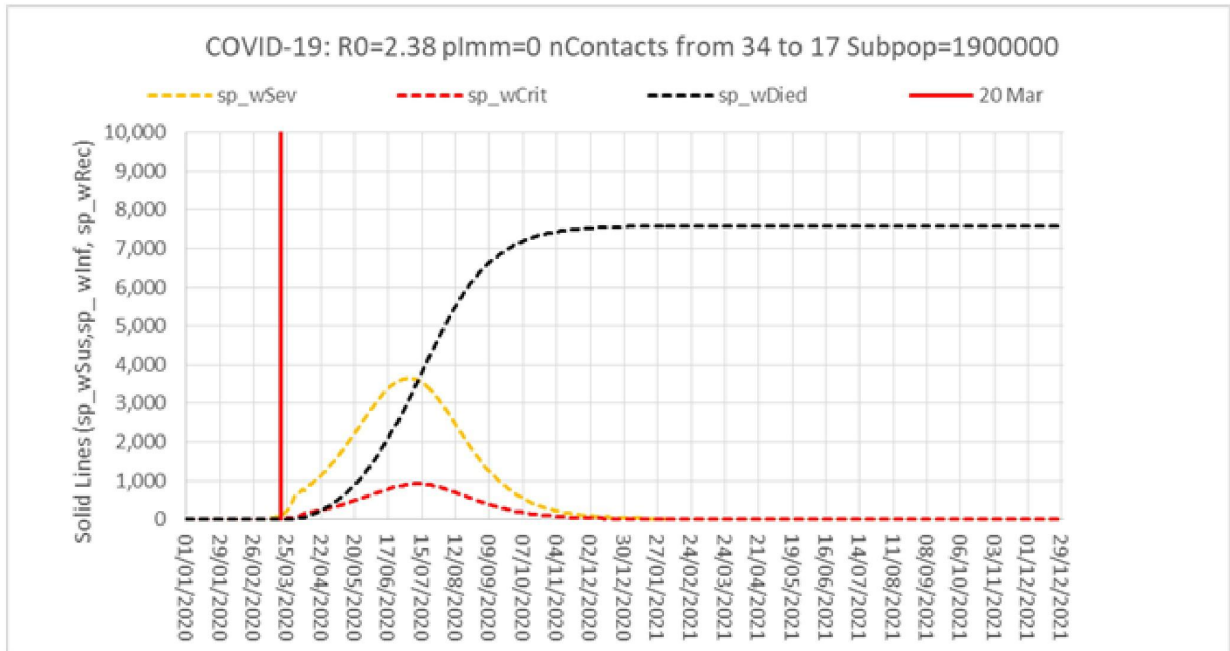
Scenario 3 – No social Distancing – $R_0 = 2.38$



So on the current path in this **illustration**, there is a need for hospital care for 60,000 people at the same time, and critical care for a further ~15,000 people, and around 23,000 people die.

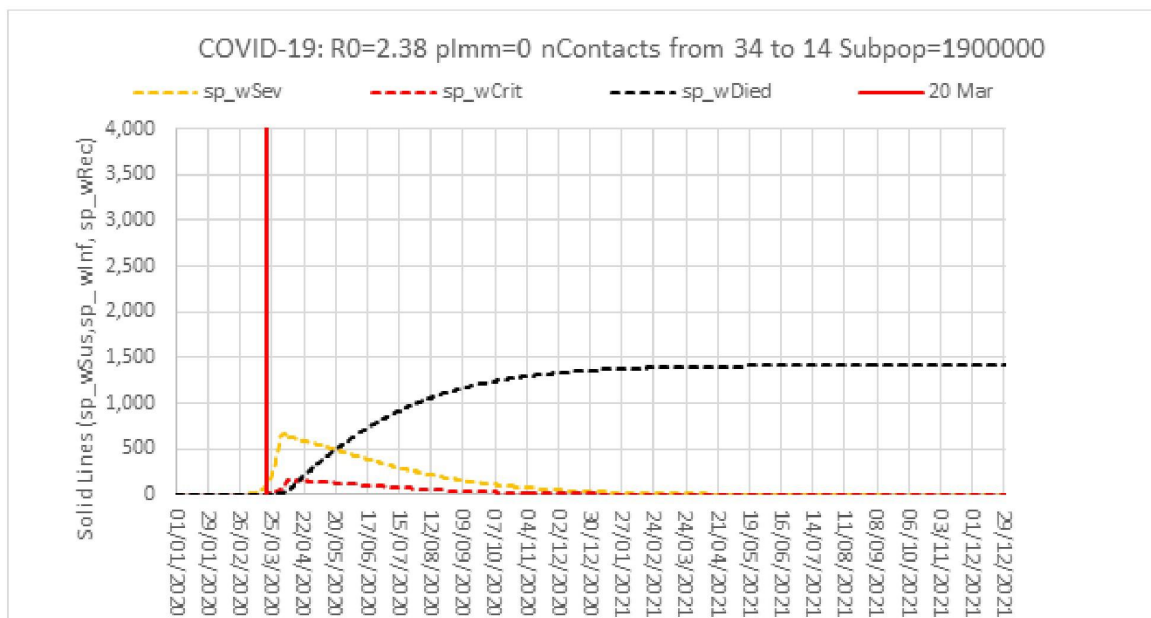
Scenario 2 – Social contact halved – R0 = 1.19

If social contact is halved, on average to 17, the new R0 is 1.19 and the need for hospital care is vastly reduced, with a peak occupancy of <4000 in beds and 1,000 ventilated at one time, 7,500 deaths.



Scenario 1 – Further reduced social contact – R0 = 1.05

Reducing the number of contacts a little further to 15 gives us R0 of 1.05 – and numbers that look more like what the health service can deal when flexed. And if you get the average number of contacts in this (illustrative) model to 14 (R0 0.98), then the outbreak peaks in 11 days from now with a maximum of around 160 people ventilated.



These are very sensitive to the amount of time that people are hospitalised and ventilated for.

Conclusions/Assumptions

1. There is still time to make a huge difference to the scale of this by social distancing now. If we go too far on social distancing, we can relax later; but if we don't go far enough, that is irreversible. Because of the exponential growth, any delay has disproportionately large effects.
2. If the numbers are anything like the 'do nothing' or even reasonably successful social distancing scenarios, the great majority will not receive care in hospitals.
3. On the worst case scenario, current critical care capacity will be overrun by end April.
4. On the scenario 2, current critical care capacity will be overrun by mid-end May.

Peak surge

Scenario 1 - Surge

Hospital care - 650

Critical care - 166

Scenario 2 – Extreme Surge

Hospital care – 3,500

Critical care – 1,000

Deaths – 7,500

Scenario 3 - Reasonable Worst Case Scenario (RWCS)

Hospital care – 60,000

Critical care – 15,000

Deaths – 23,000

Themes for discussion

When – Where – How – Who

All scenarios

Protecting tertiary and priority specialist services

Maximising flow

- a. Pulling patients through the system (creating capacity downstream).
- b. Frequent senior decision-making, especially at weekends – 7 day working.

Domiciliary care - Need to be able to pull people back to their own homes without delay.

Thresholds of care

Workforce

Estate

NIAS

Scenario 2

Designated regional respiratory hospitals – treatment/palliative/recovery

Discharge hubs – increasing capacity for intermediate care

Scenario 3

Delivering acute care outside hospital settings

Civil contingency arrangements.