Message

From: Whitty, Chris [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0B3EE62E0CA04E978730B14F9B416A1E-WHITTY, CHR]
Sent: 15/03/2020 09:43:36
To: Ferguson, Neil M [neil.ferguson@Irrelevant & Sensitive]; Vallance, Patrick (GO-Science) [P.Vallance1@go-science.gov.uk]
Subject: RE: Urgent

Thanks a lot Neil

At some point (not now) we need to look at the secondary deaths (non coronavirus) that occur as a result of different scenarios. Prolonging the period when the NHS does nothing but emergencies will have some significant negative consequences.

Chris

From: Ferguson, Neil M <neil.ferguson@Irrelevant & Sensitive
Sent: 15 March 2020 09:38
To: Vallance, Patrick (GO-Science) <P.Vallance1@go-science.gov.uk>; Whitty, Chris <Chris.Whitty@dhsc.gov.uk>
Subject: RE: Urgent

In case it is relevant - in the CI+HQ+SDOL70 mitigation scenario, 70% of ICU demand is from those over 65. That is illustrative of the maximum triage might achieve. Again, not enough – would still need 20k ventilator beds at peak. Never mind the ethical/moral concerns.

From: Ferguson, Neil M <neil.ferguson@Irrelevant & Sensitive
Sent: Sunday, March 15, 2020 3:37:35 AM
To: Vallance, Patrick (GO-Science) <P.Vallance1@go-science.gov.uk>; Whitty, Chris <Chris.Whitty@dhsc.gov.uk>
Subject: RE: Urgent

PS I need to sleep now. But I will leave my phone on, so call if needed.

From: Ferguson, Neil M
Sent: 15 March 2020 03:37
To: Vallance, Patrick (GO-Science) <P.Vallance1@go-science.gov.uk>; Whitty, Chris <Chris.Whitty@dhsc.gov.uk>
Subject: Urgent

If we want to have any chance of staying within the surge beds figures NHSE circulated yesterday (4700 critical care beds, 20,000 general ward beds), I am afraid we will have to adopt one of the two policies in green (last two row) below:

Scenario	Maximum ICU bed demand	General ward bed demand
No Interventions	182749	469896
CI_HQ_SDOL70	60402	188857
SD	43003	132774
CI_SD	21263	67863
CI_HQ_SD	9927	32306
PC_CI_SD	3363	9819
PC_CI_HQ_SD	2828	8538

The current planned policy is second row CI_HQ_SDOL70 – as expected it gives a ~2/3 reduction in peak demand. However, that is nowhere near enough. We basically need a 98% reduction in demand.

The minimum policy will require: closing schools & universities, home isolation of cases, and large-scale intensive social distancing – reducing all contacts outside the home and work by 75%+, preferably reducing work contacts by some extent.

From social contact data collected in the past, the only way I can see the latter reductions being achievable is to close all leisure venues – non-essential shops, bars, restaurants, cinemas, etc.

It may be possible to have a short break from the social distancing at that point, but only likely for a month, before they will need to be reinstated. Interruptions and restarts of social distancing will be best triggered by ICU case numbers, as the uncertainties in the effectiveness of controls and population behaviour mean that that it is hard to predict accurately how long these measures will need to be in force. Likely at least 4 months. More if we delay.

This policy is basically supressing transmission, so population immunity will build up slowly. In the absence of vaccine, we'll still be doing it in over a year's time.

These conclusions are robust to uncertainty in severity and R0. The numbers above are for our (and NHSE's – joint work) latest estimates, drawing on clinical experience in the UK and Italy and more analysis of Chinese data (which lowered hospitalisation rates compared with RWC, but increased critical care bed predictions). But they look qualitatively identical for the previous RWC, and even if we halve ICU beds (the reason for the increase in ICU bed predictions is that clinical experience shows that non-invasive ventilation is ineffective, meaning 30% of hospitalised patients may need invasive ventilation).

In a few optimistic scenarios, one can get away without closing schools. But I can't be confident that isn't needed, and we won't have time to find out. We may be able to assess whether we can do without school closure for the second round of social distancing based on how fast the epidemic declines. But likely schools will be shut until September. It's feasible they could stay open for holding exams.

Obviously, we could look at age-based triage scenarios. But they would likely need to apply to hospitalisation per se, not just ICUs. I'm also not convinced they would be morally or politically acceptable.

Last, if the initial epidemic is not to exceed ICU capacity, I estimate that these policies will need to be brought in before ICU admissions exceed 250/week. I'm afraid that the quality of the data we're getting doesn't let me judge how far away that is. I would guess <2 weeks.

Also, for containment, it is always better to act early – unlike mitigation. So we should be doing this as soon as it minimal planning can be done and it can be announced. Likely this coming week.

I will look at regional policies in the next 24h. It's likely they will be a little more efficient, if they can be communicated clearly. I will produce a full report tomorrow (today ☹). And we will aim to release all the BSI modelling work early next week. Our estimates of IFR and hospitalisation rates will also be published next week.

Sorry to be the harbinger of such depressing news. But if govt policy is to keep within NHSE's stated surge limits, there is no other way. And even if triage was adopted to reduce demand by 2/3, the situation wouldn't be very different.

Best,

Neil