Message

From: WOOLHOUSE Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9C4153BCEE124D7181397F6F48883523-MEJW]
Sent: 06/03/2020 21:34:05
To: Catherine.Calderwood@gov.scot; Gregor.Smith@gov.scot
CC: CMO@gov.scot
Subject: RE: URGENT: novel coronavirus - follow up from SAGE13 #CONFIDENTIAL

Dear Catherine,

I know notes were taken during our meeting this afternoon. But I thought it would be useful for me to put down in writing brief responses to the points have been raised today.

We discussed 3 social distancing measures that were being considered as policy options. My answers are informed by the modelling work being done by Imperial College London and communicated through SPI-M.

- Self-isolation of symptomatic cases. I agreed that this was likely to be a useful policy, expected to flatten the epidemic.
- Self-quarantining family members of the above cases. Ditto (noting that recovered family members – X days after symptoms end – need not be quarantined [assuming post-infection immunity]).
- Cocooning of populations about some age threshold. I suggested that the aim of this policy is not primarily to reduce population-level transmission rates (though it would do so to a limited extent) but to reduce the risk to a vulnerable sub-population. That is, this is more to do with mitigation than delay. Gregor raised the point that there might be vulnerable people below the chosen age threshold as well. Personally, I don't see any reason why risk factors other than age couldn't be included in a cocooning policy, but it is for the clinicians to advise what those might be.

I cautioned that the modelling work done on these measures involved numerous assumptions and guesses (though informed guesses) for some of the parameters. So I do not regard them as predictions, merely useful indicators as to what might happen. As the epidemic unfolds the models can be calibrated much more accurately and their predictive power will improve. This makes them potentially very valuable tools for guiding policy decisions later on, e.g. whether to extend or to relax social distancing measures at any one time.

Two important uncertainties are, on the one hand, level of compliance with the measures and, on the other hand, level of spontaneous adoption of these and perhaps other social distancing measures.

We did not discuss school closures. I was glad that school closures are not in the package above as I am not yet convinced of their effectiveness for COVID-19. Nonetheless, it is easy to imagine there being pressure to act if there is any risk of infection to children. There is a very difficult issue underlying this: parents won't want their children to become infected but the main point of school closures is not to prevent anyone becoming infected, it is to generate a flatter epidemic curve that nonetheless is likely to result in much the same number being infected in the end. Messaging this – that even if we close schools we still expect the children to be infected at some stage – will surely be challenging.

I believe that the aspect of school closures that was of most interest to you was timing. I address that below but the short answer is that I think we could consider Scottish-specific timings of school closures if they are to happen. I note that SPI-M did a very detailed analysis of the likely impact of school closures (though this suffers from the same uncertainties as other model-based analyses at this time).

Timings. I think it is now generally accepted i) that the epidemic will be de-synchronised across cities and regions in the UK and ii) that the timing of social distancing measures is expected to have a major impact on their effectiveness. Therefore I continue to think that Scotland should choose its own timings.

Triggers. However, I do not advise that Scotland should use different triggers, in which case the timing difference emerges naturally from a UK-wide policy.

Spatial variation in timing/triggers. We agreed that Scotland is particularly heterogeneous (from an epidemiologist's perspective) and discussed the implications of this. There are several points to make here:

- We expect infections to spread first to cities, then towns then rural areas.
- There is a danger that by using national data and a single trigger we will implement measures too late in some cities (because the average value for any trigger indicator will be dragged down by the rest of the country) and, conversely, too early in other regions.
- I reiterate that, as we discussed last week, both too late and too early could result in markedly worse outcomes.
- Gregor asked me what population sub-units we should consider. Having checked the SPI-M material I see that the Imperial College models use counties in their spatially heterogeneous modelling. I also see that they use a threshold of a single ICU per county for measures to be implemented. I have to say that I am sceptical of this approach – there'd be a lot of stochasticity if a count of 1 is used. I will raise the issue at the SPI-M meeting on Monday.
- More constructively, I do suggest that the trigger indicator data are reported by locality. It would be straightforward to do some statistical analysis to see if any spatial differences were sufficient to warrant different timings of measures.

I should reiterate a key message. It is essential that there are triggers not only for introducing social distancing measures but also for relaxing them. I note that in some of the scenarios being modelled, especially where the delay strategy is effective, involve epidemics lasting many months.

I also raised the point that if a flatter epidemic results in a longer period of risk then vulnerable people are being asked to self-isolate for a longer period too.

The above points relate to the discussion we had last week: I don't think you can devise a rational strategy without paying attention to the societal and economic costs of social distancing measures as well as the expected epidemiological benefits. At present, the discussion is framed largely around the latter.

One final point, perhaps the most important of all. A lot of work went into making containment work. Quite rightly. But it hasn't, as was to be expected. A lot of work is now going into making delay work. Quite rightly. It may work, or partially work. But there remains every likelihood that it won't work well enough to prevent an epidemic that does, sooner or later, completely overwhelm our health systems. This is not a prediction but it is an entirely possible scenario. If it happens, it could happen within weeks. So I do think that we should start thinking about the mitigation phase now.

I will continue to liaise with Imperial College, HPS and now Mel about epidemic modelling for Scotland.

I am sure you will let me know if I or my team can be of any further assistance.

Kind regards,
Mark Woolhouse

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