Ninety-third SAGE meeting on COVID-19, 07 July 2021
Held via Video Teleconference

Situation update

1. Although there are differences in the prevalence of infection across the UK, it is growing similarly everywhere. R is estimated to be between 1.2 and 1.5 in England, in Scotland and in Wales, and between 1.3 and 1.6 in Northern Ireland. R estimates have not changed much in recent weeks.
2. There are estimated to be between 21,000 and 42,000 new infections per day in England. There are currently around 400 COVID-19 hospital admissions per day in England.
3. ONS analysis continues to show people from ethnic minorities have been more affected by COVID-19 even after controlling for disadvantage.
4. CO-CIN analysis shows reductions in morbidity and mortality in hospital patients, due to the lower average age of patients and the impact of vaccination.
5. Initial results from human challenge studies in unvaccinated young adults were reported verbally and will be reviewed in detail at NERVTAG before being discussed at SAGE.

ACTION: NERVTAG to review human challenge study results.

ACTION: Wendy Barclay to return with vaccine effectiveness table once new data have been considered and the report has been approved by DCMO.

Roadmap modelling

6. SAGE reviewed modelling of the proposed Step 4 of the roadmap in England and the potential effects of rapid or gradual changes, or delay in taking Step 4. It did not discuss options such as reintroduction of restrictions to reduce the current wave of infections. Though some of the uncertainty about the potential outcomes of taking Step 4 on July 19th has reduced, there remain a number of factors which are not known, some of which cannot be determined before the step is taken. These uncertainties mean that it is not possible to know which scenarios are most likely to occur and mean that the peak of the next wave cannot be predicted with accuracy.
7. Key uncertainties are changes in behaviours (which may be different in different groups) and in particular how quickly they return to pre-pandemic levels; vaccine effectiveness (data are continuing to emerge, and the best data currently available have informed the modelling); and vaccine uptake. It is important to note that even small changes in these assumptions (e.g. a 92% uptake rather than a 96% uptake, or small changes in how people behave after Step 4 is taken) have significant effects on modelled outcomes. Although the number of people who have been vaccinated is known with high accuracy, the number who have not been vaccinated is not.
8. All modelled scenarios show a period of extremely high prevalence of infection lasting until at least the end of August. There is high uncertainty around both the scale of the peak in prevalence and in the number of confirmed cases that this would correspond to. SAGE also notes that the level of testing may become limited by uptake or capacity.
9. There are four major risks associated with high numbers of infections. These are an increase in hospitalisations and deaths, more 'Long-COVID'; workforce absences (including in the NHS); and the increased risk of new variants emerging. The

combination of high prevalence and high levels of vaccination creates the conditions in which an immune escape variant is most likely to emerge. The likelihood of this happening is unknown, but such a variant would present a significant risk both in the UK and internationally.

10. High prevalence also presents a challenge to testing, contact tracing and sequencing. If PCR testing and genomic sequencing capacity are overwhelmed, it may not be possible to rapidly identify a new variant.
11. The number of hospital admissions likely to occur in this wave is also highly uncertain but is likely to reach at least 1000 per day, depending on the speed of changes following step 4. Most modelled scenarios have peaks lower than January 2021. However, under more pessimistic assumptions, some scenarios show a resurgence of that scale or larger. Even if lower than previous peaks, the number of admissions may become challenging for the NHS (medium confidence).
12. If the aim is to avoid the NHS becoming overwhelmed, SAGE advises that it is important to understand the impact of different levels of admissions on NHS function and have appropriate contingency plans in place. Given the time between infection and hospitalisation, at any point that cases are still increasing exponentially, admissions can be expected to at least double once more regardless of any measures put in place at that point. Pre-defining hospital (and ICU) admission or occupancy levels which would trigger further contingency planning and interventions would be important.
13. It is almost certain that the peak in deaths will be well below the levels seen in January 2021 due to the impact of vaccination (assuming that no new dominant variant emerges) (high confidence).
14. Delaying step 4 by four weeks from 21st June has allowed many more vaccinations to be administered and moved the end of restrictions to a time point close to the school holidays, when transmission is expected to be lower. Although a further delay to step 4 could have some additional positive impact by allowing more people to be vaccinated, the effect of this would be much smaller than the effect of the current delay and it would push the wave further towards the autumn and winter.
15. The peak of the resurgence will however be much lower if the return to pre-pandemic behaviours is gradual, irrespective of legislative decisions (i.e., any changes happen over several months) than if it is rapid, and if more measures to reduce transmission are maintained (high confidence). If the aim is to prevent the NHS being under pressure the priority should be to avoid a very rapid return to pre-pandemic behaviour which could lead to a peak in hospitalisations similar to (or possibly even higher than) previous peaks. The mechanism by which this gradual change to more mixing is achieved is much less important than the fact it is gradual.
16. Maintaining interventions such as more people working from home, the use of masks in crowded indoor spaces, and increasing ventilation, would contribute to transmission reduction and therefore reduce the number of hospitalisations (high confidence). SAGE has previously advised on the effectiveness of different interventions (SAGE 87).
17. Isolation of people likely to be infectious remains particularly important for reducing transmission (high confidence). Further evidence on the effectiveness of daily testing as an alternative to isolation for contacts of known cases is expected within the next month and will be important for informing future approaches. Effective test and trace remains an important part of preventing spread.
18. As restrictions are lifted it will be important for messaging to communicate the continued risks from COVID-19 and effective mitigations, including information on how to minimise within household spread. SAGE advises that continuing to provide

near real time local information on prevalence would be helpful. Communication targeted to both individuals and organisations will be important.

19. Disadvantaged groups will continue to be disproportionately impacted by direct and indirect harms from COVID-19. Groups where vaccine uptake is lower will be particularly affected and encouraging vaccine uptake continues to be critical.

ACTION: NHSE to outline impact of different levels of hospital or intensive care admissions.

ACTION: CMO to follow up with Calum Semple on paediatric data to ensure all the latest information is taken into account in messaging.

List of actions

NERVTAG to review human challenge study results.

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NHSE to outline impact of different levels of hospital or intensive care admissions.

CMO to follow up with Calum Semple on paediatric data to ensure all the latest information is taken into account in messaging.

Attendees

Scientific experts (34): *Patrick Vallance (GCSA), Chris Whitty (CMO), Angela McLean (MoD, CSA), Brooke Rogers (KCL), Calum Semple (Liverpool), Catherine Noakes (Leeds), Charlotte Deane (UKRI), Charlotte Watts (FCDO, CSA), Fliss Bennee (Welsh Government), Graham Medley (LSHTM), Harry Rutter (Bath), Ian Boyd (St Andrews), Ian Diamond (ONS), Ian Young (Northern Ireland Executive, Health CSA), Jeanelle De Gruchy (ADPH), Jeremy Farrar (Wellcome), John Edmunds (LSHTM), Jonathan Van-Tam (dCMO), Julie Fitzpatrick (Scottish Government, CSA), Kamlesh Khunti (Leicester), Linda Partridge (Royal Society), Marc Baguelin (LSHTM/Imperial), Maria Zambon (PHE), Mark Walport, Mark Wilcox (Leeds), Matt Keeling (Warwick), Michael Parker (Oxford), Nicola Steedman (Scottish Government, dCMO), Rob Orford (Welsh Government, Health CSA), Peter Horby (Oxford), Stephen Powis (NHS England), Susan Hopkins (PHE/NHST&T), Wendy Barclay (Imperial), and Yvonne Doyle (PHE).*

Observers and government officials (29): *Alan Penn (MHCLG, CSA), Andrew Curran (HSE, CSA), Andrew Morris (Edinburgh),* [redacted], *Anna Seale (JBC/DHSC),* [redacted], *Daniel Kleinberg (Scottish Government), Edward Wynne-Evans (JBC),* [redacted], *Gideon Henderson (Defra, CSA), Ian Hall (Manchester), Jennifer Rubin (HO, CSA), Jim McMenamin (Health Protection Scotland), Laura Bellingham (CO),* [redacted], *Liz Lalley (Welsh Government), Louise Tinley (HMT),* [redacted], *Paul Monks (BEIS), Paul Taylor (CSA),* [redacted], *Rob Harrison (CO),* [redacted], *Rosie Bate-Williams (No. 10), and* [redacted].

Secretariat (all GO-Science) (13): [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], *Simon Whitfield,* [redacted], [redacted], [redacted] *and Zoë Bond.*

Total: 76