

## Seventy-sixth SAGE meeting on Covid-19, 14<sup>th</sup> January 2021

### Held via Video Teleconference

#### Summary

1. Numbers of cases, hospital and ICU admissions, and deaths remain high nationally. There remains significant pressure on the NHS. There are indications that new infections may have started to decline in those areas which have been in Tier 4 for the longest (London, East & South East of England). The continued growth in new infections in the North West and South West of England is a concern and means that there will continue to be increases in hospital and ICU admissions and deaths in these areas for several weeks.
2. SPI-M's best estimate for R in the UK is between 1.2 and 1.3, while England is between 1.1 and 1.3. Estimates of R for Scotland, Wales, and Northern Ireland are between 1.0 and 1.4, 0.8 and 1.1, and 0.9 and 1.3 respectively.
3. Vaccines are not 100% effective, and there will not be 100% coverage. The relaxation of non-pharmaceutical interventions (NPIs) could lead to a further epidemic wave if it is not done cautiously. The risk associated with a further wave is reduced if there is high vaccine coverage, particularly amongst the most vulnerable groups, and if community prevalence and hospital occupancy are reduced to low levels before relaxation happens. Any changes should be gradual and carefully monitored.
4. SAGE welcomed the publication of vaccination data, and the work being done by NHS and others to establish data flows. Data on uptake rates and refusals will also be important.
5. New variants which have emerged in South Africa and Brazil have been associated with rapid growth in cases, which could be due to increases in transmissibility, antigenic escape, or both. There is other evidence which indicates the possibility of some degree of antigenic escape in these variants, including in vitro data and the observation that there are high levels of transmission in areas with high levels of seropositivity (low-medium confidence). Although data are still limited, the possibility that these variants may not be fully susceptible to naturally acquired immunity (from infection with wild-type variants) or vaccine-induced immunity is a cause for concern, but firm conclusions cannot yet be drawn either way yet.
6. Initial modelling on the impact of staggering the return of students to higher education establishments suggests that this approach is likely to have limited effect to reduce the expected level of transmission. Modelling indicates that asymptomatic testing and isolation would have some impact.
7. There are opportunities to reduce household transmission through the application of a combination of personal, procedural, and environmental controls, both as pre-emptive measures and as enhanced measures when any household member has symptoms or a confirmed infection. Communicating these measures in a way which increases awareness of the necessity, feasibility and effectiveness of implementing them to reduce transmission is likely to improve the uptake of these measures and reduce transmission (medium confidence).

#### Situation Update

8. Numbers of cases, hospital and ICU admissions, and deaths remain high nationally. There remains significant pressure on the NHS. There are indications that new infections may have started to decline in those areas which have been in Tier 4 for the longest (London, East & South East of England), which indicates that it is likely that R can be brought below 1 even in the presence of the B.1.1.7 variant. Hospital admissions lag infections and in these areas are beginning to level out. Hospital occupancy, ICU

admissions and deaths all lag hospital admissions, and these are still rising in these areas.

9. The continued growth in new infections in the North West and South West of England is a concern and means that there will continue to be increases in hospital and ICU admissions and deaths in these areas for several weeks. In the South West, there is a particular risk around care homes which were not as badly affected in the first wave and so where there may be lower levels of immunity than in care homes elsewhere. Vaccine rollout to care homes is continuing to be prioritised.
10. SPI-M's best estimate for R in the UK is between 1.2 and 1.3, while England is between 1.1 and 1.3. Estimates of R for Scotland, Wales, and Northern Ireland are between 1.0 and 1.4, 0.8 and 1.1, and 0.9 and 1.3 respectively.
11. R is a lagging indicator, and these estimates are based on the latest data available up to 11th January. These estimates cannot fully reflect the latest measures across the four nations including the lockdown in England from 5th January. The delays in the data streams are still unwinding from the festive period, and estimation and projection are less accurate at turning points, leading to higher levels of uncertainty. SAGE discussed the relevance of a backward-looking R estimate now that better real time data are available.
12. SPI-M estimates that there are between 113,000 and 253,000 new infections per day in England. The ONS community infection survey for the most recent week of the study (3<sup>rd</sup> to 9<sup>th</sup> January) estimates that an average of 1,021,600 people had COVID-19 in the community in England (55,700 in Scotland, 31,000 in Wales, 17,700 in Northern Ireland).
13. SPI-M has set out a range on projections, which are not forecasts or predictions, showing a range of possible trajectories (for R values between 0.8 and 1.2) over the next six weeks. Even in the more optimistic cases where R is below 1, hospital occupancy by mid-February will remain at high levels. The impact of the most recent national measures will become clearer next week but it will take two to three weeks to be able to differentiate which of these scenarios is closest to the trajectory of the epidemic.
14. Due to the time taken for vaccination to induce an immune response, the fact that many people being hospitalised are not in the groups being vaccinated first (though they are largely from groups on the JCVI phase 1 priority list), and the lag between infections, hospitalisations, and deaths, the impact of vaccination over this period, particularly on hospitalisations, is expected to be limited. Reaching the hardest to reach groups for vaccination is important.
15. Vaccines are not 100% effective, and there will not be 100% coverage. The relaxation of non-pharmaceutical interventions (NPIs) could lead to a further epidemic wave if it is not done cautiously. The risk associated with a further wave is reduced if there is high vaccine coverage, particularly amongst the most vulnerable groups, and if community prevalence and hospital occupancy are reduced to low levels before relaxation happens. Any changes to NPI's should be gradual and carefully monitored. SAGE will consider this further at future meetings.
16. SAGE welcomed the publication of vaccination data, and the work being done by NHS and others to establish data flows. Data on uptake rates and refusals will also be important.
17. There is some reporting of potential differences in the demographics of morbidity and mortality between the second and first wave, which are being further investigated and will be discussed at the next SAGE meeting.
18. Multiple studies indicate that South Asians (particularly people from Pakistani and Bangladeshi backgrounds) have had higher hospital admissions and mortality rates than those in the White majority group during the second wave. Although children of all ethnicities remain at low risk of severe disease, analysis from QRsearch indicates that South Asian children are more likely to be admitted to intensive care than others.

**ACTION: Calum Semple** to bring preliminary analysis of demographic changes between first and second waves, including input from UKOSS if required, to SAGE on 21<sup>st</sup> January

**ACTION: SPI-M and Task and Finish group on Children** to consider epidemiological impact of school reopening

**ACTION: NHSE** to identify how data on vaccination uptake and refusals can be obtained

### **New variants**

19. In the last two months several SARS-CoV-2 variants with multiple mutations have been identified which appear to have rapid epidemiological growth. This growth may relate to biological properties of the virus that confer a competitive advantage over other virus variants.
20. The variant B.1.1.7 appears to have increased transmissibility compared to other variants and has grown quickly to become the dominant variant in much of the UK. The cause of the increase in transmissibility is not yet known, although there do appear to be biological differences between B.1.1.7 and wild-type virus. There remains no evidence yet that this variant is associated with changes in disease severity or significant antigenic escape from naturally or vaccine acquired immunity.
21. Variants have emerged in South Africa and Brazil with the E484K substitution, some of which also have other changes including the N501Y and K417N substitutions. The independent emergence of similar variants in different places suggests that there is a combination which has some effect which benefits the virus. These variants have been associated with rapid growth in cases, which could be due to increases in transmissibility, antigenic escape, or both.
22. There is evidence which indicates the possibility of some degree of antigenic escape in these variants, including in vitro data and the observation that there are high levels of transmission in areas with high levels of seropositivity (low-medium confidence). Though data are limited, the possibility that these variants may be less susceptible to naturally acquired immunity (from infection with wild-type variant) or vaccine-induced immunity is a cause for concern but firm conclusions cannot yet be drawn either way yet.
23. It is important to get more data to better understand possible implications for vaccines and testing. Work is underway to obtain these data including from the vaccine manufacturers.
24. NERVTAG has suggested a number of actions to monitor and reduce the risk associated with potential spread of these variants in the UK, which SAGE supports. SAGE will also further consider the potential impact of border measures.
25. There are reports that the variant identified in South Africa is now spreading more widely elsewhere in southern Africa, in countries where there is limited access to healthcare, vaccines or PPE, which has the potential to cause significant harm.

**ACTION: Charlotte Watts** to bring a paper to SAGE on international issues associated with the emergence of new variants, for 21<sup>st</sup> January.

**ACTION: Wendy Barclay** to update SAGE on the work of the Vaccine Science Coordination group, for 21<sup>st</sup> January.

**ACTION: SAGE secretariat** to support NERVTAG secretariat in identifying leads for the actions outlined in the NERVTAG note on variants of concern.

### **Return to campus: impact of staggering and the wider community**

26. Modelling of COVID-19 in university settings indicates that students are highly connected through their courses and accommodation which makes them susceptible to higher rates of transmission (high confidence).
27. Evidence shows the importance of a combination of measures to identify and contain infection, and to support students during outbreaks. Studies indicate large scale randomised testing, contact tracing, and quarantine underpin successful strategies for containing campus outbreaks (medium–high confidence).
28. Initial modelling on the impact of staggering the return of students to higher education establishments suggests that this approach is likely to have limited effect to reduce the expected level of transmission.
29. Modelling indicates that asymptomatic testing would have some impact, and is likely to be necessary to avoid very large outbreaks in the presence of the more transmissible variant now circulating.
30. Further quantitative and qualitative data is needed on the feasibility and acceptability of universal, asymptomatic testing of staff and students in universities. This should include broader, more diverse student and staff populations, and focus on student perceptions, experience, and responses.
31. ONS data indicate that student intention to engage with university testing programmes appears high. Greater understanding of the enablers and barriers to engagement will inform more effective programmes.
32. Maximising uptake of testing and protective behaviours among those who need to be on campus for in-person courses will require support packages tailored to specific needs if testing indicates the need to self-isolate (high confidence).
33. Following a positive test, information about the principles underlying self-isolation should help people understand why and how to adhere. Multiple studies in the current pandemic and in previous outbreaks have shown that low levels of knowledge, not believing the illness to pose a serious risk and not perceiving a benefit to self-isolation are associated with lower adherence (high confidence).
34. Long-term planning beyond the end of the spring term is required to provide greater certainty for students and staff, and to help minimise risk of national transmission (high confidence).

**ACTION: DfE** to arrange a seminar in week commencing 18<sup>th</sup> January for relevant policy officials (including in the Devolved Administrations) with **Julia Gog** and **Brooke Rogers** on evidence to reduce the risk from return of university students to campus.

### **Household transmission**

35. SAGE endorsed the paper '*Making household quarantine work: reducing within- and between-household transmission in light of new variant SARS-CoV-2*'.
36. As previously noted, households are a common setting for SARS-CoV-2 transmission (see SAGE 56). A reduction of within-household transmission can potentially make a substantial contribution to further reducing prevalence (medium confidence).
37. Current restrictions have reduced opportunities for transmission between households whilst requiring most people to spend more time in their homes; transmission within the household is therefore likely to account for an increased proportion of overall transmission at the moment, which therefore increases the importance of measures to mitigate it. As with other settings, the increased transmissibility of the now dominant variant (B.1.1.7) also increases the importance of mitigation measures (medium confidence).

38. There are opportunities to reduce household transmission through the application of a combination of personal, procedural, and environmental controls, both as pre-emptive measures and as enhanced measures when any household member has symptoms or a confirmed infection. Enhanced measures are also likely to be beneficial when a household member is vulnerable (high confidence). These measures are set out in the paper which was endorsed by SAGE.
39. Communicating these measures in a way which increases awareness of the necessity, feasibility and effectiveness of implementing them to reduce transmission is likely to improve the uptake of these measures and reduce transmission (medium confidence). This should include both national communications as well as targeted and tailored approaches which are aimed at more vulnerable groups such as those living in multi-generational households or the Clinically Vulnerable (CV) and Clinically Extremely Vulnerable (CEV), some of whom require close contact care. Interactions with test, trace and isolate systems also provide key opportunities to deliver and reinforce some of these messages to people.
40. Much of this advice is also applicable to other indoor environments and any guidance should be consistent, though some (e.g. healthcare settings) will require different measures.

**ACTION: Harry Rutter** to work with **Jenny Harries** and **Jeanelle de Gruchy** to check consistency with other guidance and consider any further communication options; SAGE secretariat to support rapid publication of the endorsed paper.

#### **Mitigations including face coverings and physical distancing**

30. SAGE endorsed the paper '*Application of physical distancing and fabric face coverings in mitigating the B117 variant SARS-CoV-2 virus in public, workplace and community*'.
31. As previously advised, face coverings can be effective in reducing transmission in public and community settings (medium confidence). Their effectiveness stems mostly from reducing the emission of virus-carrying particles when worn by an infected person (source control). They may provide a small amount of protection to an uninfected wearer; however, this is not their primary intended purpose (medium confidence). Widespread application of face coverings as a source control is likely to have a small but significant impact on population level transmission, though the benefit is difficult to quantify.
32. Face coverings (worn correctly and of suitable quality) are likely to be most effective at reducing transmission in both indoor and outdoor settings when people are likely to be close together (high confidence). There may be marginal benefits in some indoor spaces where people are further apart through the reduction in the amount of small aerosols released into the space (low confidence).
33. Physical distancing (2m) and use of fabric face coverings, alongside other interventions (e.g. hand hygiene, good ventilation), are important mitigation strategies to reduce community transmission of SARS-CoV-2 and are likely to be needed to be applied more consistently and effectively to be able to mitigate transmission of the B.1.1.7 variant (high confidence).
34. This advice does not cover healthcare settings where there are different requirements; other groups including the Hospital Onset COVID-19 working group provide advice directly to the NHS on this.

**ACTION: Cath Noakes** to liaise with **PHE** and **CO** on any further communication requirements; Paul Monks and Andrew Curran to liaise with relevant teams in BEIS and HSE.

## List of Actions

**Calum Semple** to bring preliminary analysis of demographic changes between first and second waves, including input from UKOSS if required, to SAGE on 21<sup>st</sup> January.

**SPI-M** and **Task and Finish group on Children** to consider epidemiological impact of school reopening.

**NHSE** to identify how data on vaccination uptake and refusals can be obtained

**Charlotte Watts** to bring a paper to SAGE on international issues associated with the emergence of new variants, for 21<sup>st</sup> January.

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**Harry Rutter** to work with **Jenny Harries** and **Jeanelle de Gruchy** to check consistency with other guidance and consider any further communication options; SAGE secretariat to support rapid publication of the endorsed paper.

**Cath Noakes** to liaise with **PHE** and **CO** on any further communication requirements; Paul Monks and Andrew Curran to liaise with relevant teams in BEIS and HSE.

## Attendees

**Scientific Experts (33):** Patrick Vallance (GCSA), Chris Whitty (CMO), Cath Noakes (Leeds), Charlotte Watts (FCDO CSA), Calum Semple (Liverpool), Fliss Bennee (Wales), Graham Medley (LSHTM), Ian Boyd (St Andrews), Ian Diamond (ONS), Jeremy Farrar (Wellcome), Jenny Harries (DHSC), John Edmunds (LSHTM), Julia Gog (Cambridge), Kamlesh Khunti (Leicester), Maria Zambon (PHE), Mark Walport (UKRI), Mark Wilcox (NHS), Michael Parker (Oxford), Peter Horby (Oxford), Stephen Powis (NHS England), Wendy Barclay (Imperial), Harry Rutter (Bath), Rob Orford (Wales, Health CSA), Jeanelle de Gruchy (ADPH), Andrew Morris (HDR UK), Yvonne Doyle (PHE), [REDACTED], James Rubin (KCL), Jonathan Van Tam (dCMO), Linda Partridge (Royal Society), Lucy Yardley (Bristol/Southampton), Susan Hopkins (PHE/NHST&T), Phil Blythe (DfT CSA)

**Observers and government officials (25):** Paul Monks (BEIS CSA), [REDACTED], [REDACTED], Jennifer Rubin (HO CSA), Rupert Shute (HO dCSA), Andrew Curran (HSE CSA), Stephen Jones (Scotland), [REDACTED], Osama Rahman (DfE), Alan Penn (MHCLG CSA), James Benford (HMT) Ben Warner (No.10), [REDACTED], Anna Seale (JBC), Jim McMenamin (Health Protection Scotland), [REDACTED], Tom Rodden (DCMS CSA), Rob Harrison (CO), Thomas Waite (JBC), Robin Grimes (CSA), [REDACTED], [REDACTED], [REDACTED]

**Secretariat (all GO-Science) (25):** Stuart Wainwright, Simon Whitfield, [REDACTED]  
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]  
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]  
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[REDACTED] [REDACTED] [REDACTED] [REDACTED]

**Total: 83**