

Seventy-seventh SAGE meeting on COVID-19, 21st January 2021

Held via Video Teleconference

Summary

1. SPI-M estimates that R in the UK and in England is between 0.8 and 1.0. Estimates of R for Scotland, Wales, and Northern Ireland are between 0.8 and 1.1, 0.7 and 0.9, and 0.7 and 1.1 respectively. Hospital admissions are now declining in those areas which entered Tier 4 earliest (London, East & South East of England). Occupancy in these regions has begun to level out, but at very high levels. Across most of the rest of the country the rate of admissions is still increasing but has slowed. ICU admissions and deaths lag hospital admissions and are still rising across the country.
2. SPI-M has set out a range of scenarios, which are not forecasts or predictions, showing different possible trajectories (for R values between 0.8 and 1.2) over the next six weeks. Even in the more optimistic of these cases, hospital occupancy by mid-February will remain at high levels.
3. There is a need for standardisation of measurement of antigenic changes, including of the assays and doses used. In vitro studies will remain difficult to interpret without this standardisation. Clinical data will be important to understand the impact of changes. The ability to reliably measure and interpret antigenic changes will be important when considering potential vaccine updates.
4. Previous analysis suggested no significant difference of hospitalisation or death risks from the B.1.1.7 variant. However, new analyses are consistent in indicating some increase in disease severity in people infected with B.1.1.7 when compared to other variants. There are several limitations in the datasets used, but there is a realistic possibility that infection with B.1.1.7 is associated with a small increase in absolute risk of death compared to wild-type variants.
5. There remains significant uncertainty about the size of any effect on disease severity or mortality. As with other variants, for most people, infection with this variant results in mild disease, and the risk of death for each infection remains low. Analyses of CO-CIN data do not indicate increased hospital case fatality rates.
6. Measures to reduce importations are most important when domestic prevalence (either overall or of a particular variant of concern) is low and when importation could lead to $R > 1$. No intervention, other than a complete, pre-emptive closure of borders, or the mandatory quarantine of all visitors upon arrival in designated facilities, irrespective of testing history, can get close to fully prevent the importation of cases or new variants (moderate confidence, moderate evidence).
7. All strategies are highly dependent on the level of adherence to quarantine, self-isolation, and testing protocols. Adherence is not binary, and different types of non-adherence will vary in terms of risk. There are limited data on adherence, with much based on self-reporting, and options to improve this data should be considered.

Situation Update

8. SPI-M estimates that R in the UK and in England is between 0.8 and 1.0. Estimates of R for Scotland, Wales, and Northern Ireland are between 0.8 and 1.1, 0.7 and 0.9, and 0.7 and 1.1 respectively. R is estimated to be below 1 in the East of England, London and the South East; estimates span 1 in other regions of England. R is a lagging indicator and the effects of the latest measures across the four nations are partly but not wholly captured in the latest data.
9. SPI-M estimates that there are between 49,000 and 136,000 new infections per day in England. The ONS community infection survey for the most recent week of the study (10th to 16th January) estimates that an average of 1,023,700 people had COVID-19 in the community in England (credible interval 978,900 to 1,070,000), which is slightly lower

than the previous estimate. The latest data from the REACT study do not show strong evidence of either growth or decline in prevalence.

10. Positive test numbers have dropped across all age groups, though less so in the over-60s. PHE is investigating the possible reasons for this. The drops are larger in those areas which entered Tier 4 earliest (London, East & South East of England) and smaller in some other areas including the West Midlands and South West of England.
11. The greater reduction in positive tests numbers in some areas compared to others under the national measures (which were also seen following the first national lockdown) could be due to different working patterns (e.g. a higher proportion of people not currently going into workplaces), different levels of immunity in the populations, or other factors.
12. CoMix data indicate that the numbers of contacts were lower over the festive period, with workplaces and schools fully closed, than they have been since. The types of contacts made over this period will have been different to usual patterns.
13. Hospital admissions lag infections and are now declining in those areas which entered Tier 4 earliest (London, East & South East of England). Occupancy in these regions has begun to level out, but at very high levels. Across most of the rest of the country the rate of admissions is still increasing but has slowed. ICU admissions and deaths lag hospital admissions and are still rising across the country.
14. SPI-M has set out a range of scenarios, which are not forecasts or predictions, showing different possible trajectories (for R values between 0.8 and 1.2) over the next six weeks. Even in the more optimistic of these cases, hospital occupancy by mid-February will remain at high levels.
15. It will take some time for the effects of vaccination to be seen in hospitalisations and deaths. This is due to the time taken for vaccination to induce an immune response, the large proportion of hospital admissions not in the oldest age groups, and the lag between infections, hospitalisations, and deaths.
16. The effect of vaccination will be seen in deaths before it is seen in hospitalisations, as deaths are more skewed towards older age groups. The impact on hospitalisations will depend on rolling the vaccine out to those groups being hospitalised, and on the effectiveness of the vaccine. As previously advised, uptake will be critical, including in the hardest to reach groups.
17. The proportion and number of deaths in over-80s should start to fall in the coming weeks as vaccination takes effect. The numbers of deaths in care homes continues to grow but should start to fall in the coming weeks if vaccination is successful.
18. As well as UK data, data from other countries which have vaccinated large numbers of people (e.g. Israel) will be important in understanding the effectiveness for preventing transmission, severe disease and death. It will also be important to learn from other countries' experiences in addressing vaccine hesitancy.
19. There are plans for further data collection on non-attendance at vaccination appointments. Understanding reasons for refusals would also be valuable.

New variants

20. The increased transmissibility of variant B.1.1.7 compared to other variants has been noted previously. The underlying cause of this is not yet known. Earlier data from the ONS community infection survey had indicated lower Ct values in S-gene target failure samples (SGTF), which can be used as a proxy for the B.1.1.7 variant, but more recent data now suggests that the Ct values are similar. This suggests that the faster transmission is not related to viral load changes.
21. It remains the case that there is no evidence of significant antigenic escape from naturally or vaccine acquired immunity for the B.1.1.7 variant and there is increasing evidence that immune responses to vaccine will be effective against this variant. Further data are still needed to understand potential antigenic escape for other variants being

monitored with combinations of N501Y, E484K and K417N/E substitutions. There is more concern and more evidence for antigenic escape for variants identified in South Africa and Brazil

22. There is a need for standardisation of measurement of antigenic changes, including of the assays and doses used. In vitro studies will remain difficult to interpret without this standardisation. Clinical data will be important to understand the impact of changes. The ability to reliably measure and interpret antigenic changes will be important when considering potential vaccine updates. The Vaccine Taskforce is exploring the effects of antigenic change and the potential need for future vaccine modifications.
23. Previous analysis suggested no significant difference of hospitalisation or death from the B.1.1.7 variant. However, new analyses are consistent in indicating some increase in disease severity from people infected with B.1.1.7 when compared to other variants (but data sources are imperfect). There are several limitations in the datasets used, but there is a realistic possibility that infection with B.1.1.7 is associated with a small increase in absolute risk of death compared to wild-type variants.
24. Different studies measure the effect size in different ways, and there remains significant uncertainty about the size of any effect. As with other variants, for most people, infection with this variant results in mild disease, and the risk of death for each infection remains low for the vast majority of people. Analyses of CO-CIN data do not indicate increased hospital case fatality rates. SAGE noted that presenting information in absolute as well as relative terms where possible would be helpful for communication and public understanding.
25. NERVTAG has suggested a number of actions for further data collection and analysis to explore the effects further, which SAGE supports.

ACTION: SAGE secretariat to support NERVTAG secretariat in identifying leads for the actions outlined in the NERVTAG note on severity.

Travel and borders

26. Countries can expect travellers infected with SARS-CoV-2 to arrive through air, land and sea borders. There is an increasing number of options available for consideration to reduce the importation of infection.
27. Measures to reduce importations are most important when domestic prevalence (either overall or of particular variants of concern) is low and when importation could result in $R > 1$. No intervention, other than a complete, pre-emptive closure of borders, or the mandatory quarantine of all visitors upon arrival in designated facilities, irrespective of testing history, can get close to fully preventing the importation of cases or new variants (moderate confidence, moderate evidence).
28. The emergence of new variants of concern around the world presents a rationale for attempting to reduce importation of even small numbers of infectious cases. This rationale will strengthen if new variants emerge that are capable of immune escape. Measures would be likely to delay importation of these variants rather than prevent them altogether. These measures will make most difference when domestic prevalence of the variant is low and there is little domestic transmission.
29. Reactive, geographically targeted travel bans cannot be relied upon to stop importation of new variants, due to the lag between the emergence and identification of variants of concern, as well as the potential for indirect travel via a third country (moderate confidence, moderate evidence). Prioritising cases from returning travellers for sequencing may be valuable in identifying potential importations of new variants.
30. Infected travellers have the potential to be detected at different points: through symptom screening or testing before departure, through testing on arrival, testing during or after quarantine, or through becoming symptomatic at any point prior to travel up to the end of any period of quarantine. Interventions can be used alone or in combination to prevent

infected travellers to the UK from seeding new chains of transmission (as well as mitigations to reduce risks during travel, which are similar to those which should be considered in all settings).

31. All strategies are highly dependent on the level of adherence to quarantine, self-isolation, and testing protocols. Adherence is not binary, and different types of non-adherence will vary in terms of risk. There are limited data on adherence, with much based on self-reporting, and options to improve this data should be considered.
32. Measures such as monitored quarantine (e.g. at airport hotels) for international travellers could reduce risks associated with non-adherence. Hotel quarantine would also reduce the risk of onwards transmission within households. Digital methods may also be possible, though there would be practical and equity challenges.
33. Any form of interventions will have social, economic and political implications which policymakers will also need to consider, alongside epidemiological considerations.

ACTION: Phil Blythe to update paper to reflect SAGE discussion.

ACTION: ONS to consider what further data can be obtained on adherence to quarantine.

ACTION: PHE to consider how best to target sequencing to identify potential importations of new variants.

Changes in hospital admissions between first and second wave

30. CO-CIN data indicate that there are differences in the age and sex distribution of people being hospitalised in the second wave when compared to the first, including an indication of an increase in hospitalisations of younger women.
31. The underlying reasons for this are unknown. There is no evidence yet that this is due to new variant. ONS is doing further analysis of CO-CIN data, though difficulty in obtaining unified data on occupation makes any analysis relating to this challenging.
32. There does not appear to be a meaningful rise in the hospital fatality rate.

ACTION: Calum Semple to add percentages and absolute numbers to figure 1e of CO-CIN analysis.

Vaccine Science Coordination Group (VSCG) update

34. The group has now been established with five subgroups: a behavioural group, a clinical group, a virology-immunology-vaccinology group, a modelling group and a data science group. A number of studies are being planned, including on vaccine combinations and on the potential impact of the timing of second doses.

List of Actions

SAGE secretariat to support NERVTAG secretariat in identifying leads for the actions outlined in the NERVTAG note on severity.

Phil Blythe to update paper to reflect SAGE discussion.

ONS to consider what further data can be obtained on adherence to quarantine.

