Ninety-ninth SAGE meeting on COVID-19, 16 December 2021
Held via Video Teleconference

Situation update

1. The number of Omicron infections in the UK has continued to increase very rapidly with the doubling time in England currently around two days. This is faster than the growth rate seen in March 2020.
2. In England it is almost certain that there are now hundreds of thousands of new Omicron infections per day). Levels of Omicron infection are currently highest in London. Reported numbers of confirmed and suspected Omicron infections will only be a small proportion of the actual number. This is because there are lags between people becoming infected, being tested, and getting test results (data lags matter most when growth is very fast); not all tests allow the variant to be identified; and not everyone who is infected is tested.
3. Currently observed numbers of Omicron infections admitted to hospital in the UK are probably around one tenth of the true number because the data lags of hospital reporting. The observation that there are apparently not many people being admitted to hospital because of an Omicron infection is therefore misleading. It is currently very unclear how many such people there are.
4. In Gauteng, which is ahead of the UK in the epidemic trajectory, high levels of infection are now leading to significant numbers of hospitalisations, despite the young population and high levels of past infection, but this may be slowing. Other parts of South Africa have an epidemic trajectory behind Gauteng and more in line with the UK.
5. It is still too early to reliably assess the severity of disease caused by Omicron compared to previous variants. Although a preliminary analysis from South Africa suggests that this wave may be less severe than previous waves, a comparison of SGTF (mainly Omicron) and SGTP (non-Omicron) cases *within* this wave suggests less difference between variants. Some severity estimates should start to become available in about a week as hospital data accumulate. Even if there were to be a modest reduction in severity compared to Delta, very high numbers of infections would still lead to significant pressure on hospitals.
6. As a result of the very high number of current infections, hospitalisations in UK will reach high levels in about two weeks even if transmission is reduced soon, because there are lags between infections, symptoms appearing, and hospitalisation (high confidence). There are likely to be between 1,000 and 2,000 hospital admissions per day in England by the end of the year. Many of these will be people who are already infected now or who become infected in the next few days. The acceleration of the booster vaccination programme will not affect transmission and severe and mild disease in time to mitigate these hospitalisations for the rest of 2021 (high confidence).
7. Without intervention beyond those measures already in place (‘Plan B’), modelling indicates a peak of at least 3,000 hospital admissions per day in England. Some scenarios have significantly worse outcomes during the first few months of 2022 but there are many uncertainties. If the aim is to reduce the levels of infection in the population and prevent hospitalisations reaching these levels, more stringent measures would need to be implemented very soon.

8. The earlier interventions happen the greater the effect they will have (high confidence). This may also mean that they can be kept in place for a shorter duration. Illustrative scenarios from SPI-M-O suggest that measures equivalent to those in place after Step 2 or Step 1 of the Roadmap in England, if enacted early enough, could substantially reduce the potential peak in hospital admissions and infections compared with Plan B alone (medium confidence). The timing of such measures is crucial. Delaying until 2022 would greatly reduce the effectiveness of such interventions and make it is less likely that these would prevent considerable pressure on health and care settings.
9. Slowing the wave of infections would also allow more people to receive boosters before they are potentially exposed to Omicron. This would prevent (not just delay) some hospitalisations and deaths.
10. Reducing incidence of infection would also reduce the morbidity burden in those who are not hospitalised and reduce the level of workforce and school absences. If incidence reaches very high levels, there are likely to be many simultaneous workforce absences. It would also present considerable challenges for managing the epidemic as areas such as testing would struggle to meet the demand. An analysis of mortality over previous waves indicates that mortality increases as a wave progresses and healthcare comes under pressure.
11. There remain many uncertainties about the biological parameters of Omicron including the combination of transmissibility and immune escape which give it a growth advantage over Delta in the UK. Evidence continues to suggest a significant degree of immune escape, and much higher levels of reinfections are being seen with Omicron (8-9%) than Delta (around 1%). All plausible combinations of transmissibility and immune escape give qualitatively similar results when modelling the scale of this wave of the epidemic.
12. Precise vaccine efficacy against severe disease and death from Omicron remains uncertain due to the small numbers of severe outcomes to date. Duration of vaccine efficacy also remains uncertain.
13. Behavioural factors are likely to significantly affect the timing and scale of the peak. Behaviour remains a source of major uncertainty in modelling. Some data indicate that people have been adopting safer behaviours in recent days including increased use of face coverings (up to around 95% self-reported usage) and reductions in contacts. These changes will take some time to lead to any slowing of growth in infections, and longer to affect hospitalisations, and so whilst potentially significant, are unlikely on their own be sufficient to avert the large wave of hospitalisations.
14. Enabling people to make safer behavioural choices will remain important, particularly over the festive period where they may feel obligations or pressures to participate in some higher-risk activities or events in addition to the ones they do want to prioritise.
15. As well as high levels of transmission associated with mixing outside the home, data show that there is a near 3-fold increased risk of transmission in households with Omicron infection. UKHSA data show that secondary attack rates (SAR) both for household and non-household contacts appear to be around twice as high for Omicron as for Delta.
16. Nosocomial transmission is an even greater risk as a result of Omicron. Additional measures may need to be put in place. This may include measures to reduce the risk of transmission amongst healthcare workers, particularly as vaccine effectiveness against infection will be reduced. Some settings other than hospitals (for example care homes and prisons) will also need specific measures.

ACTION: UKHSA and **NHS** to work together to identify ways in which lags in data flows can be reduced as a matter of urgency. Genotyping of hospital patients is also important.

Response measures in the context of Omicron

17. Although increased vaccination is a critically important mitigation and will reduce disease severity, a significant package of non-pharmaceutical interventions would be required to slow growth in infections. Crowded indoor mixing with many different groups remains the biggest risk factor for spread. Large gatherings present a risk for multiple spreading events.
18. Any increased transmissibility of Omicron may relate to a lower infectious dose and /or a higher viral load (low confidence). This might increase the relative risk of long-range aerosol transmission (low confidence), which could account for superspreader events and rapid transmission in settings including households, workplaces, health care settings, care homes, prisons, and hospitality.
19. If aerosol transmission is higher for Omicron than previous variants, then some activities may have an increased risk of transmission. There may also be an increased risk of transmission across longer distances and within shorter periods of time around an infectious individual. This may also drive an increase in within-household transmission. This may increase the potential impact of household isolation on reducing transmission (low confidence).
20. Mitigations for Omicron are similar to Delta, including use of well-fitting and well-made face coverings, reducing occupancy levels in indoor environments, and ensuring adequate ventilation. However, additional or reinforced measures may be needed in line with Omicron's increased transmissibility (such as reducing group sizes, increasing physical distancing, reducing duration of contacts and closing high-risk premises).
21. Testing before attending any gathering or event (including at workplaces and schools) is highly desirable, with isolation to follow if the test is positive. The negative predictive value of a negative test declines in a matter of hours, so a test should be conducted as close to a meeting or event as possible. Testing after attending a gathering or event is also important, with isolation of positive cases and contact tracing following.
22. Lateral flow devices are helpful at an individual level, but they can also be used at a group level. If there is one positive test within a group (such as a household) there is a significant chance that others are already infected, even if not yet testing positive. If one person from a group tests positive prior to an event or gathering, then none should attend.
23. Ensuring sufficient testing capacity (including maintaining fast turnaround times for results) will be essential if testing measures are to be effective. If testing is not possible, physical distancing, wearing of face-coverings, and environmental interventions may need to increase further to compensate. The same is true if, or when, contact tracing capacity is exceeded.
24. Consistency of messaging will be important to ensure that people understand the importance of mitigations and are able to apply guidance (such as on use of face coverings or physical distancing) consistently in a range of environments.

25. Policymakers will need to make difficult decisions to make about the implementation of measures and allocation of resources which incorporate factors beyond scientific advice. In some circumstances it may be useful to have frameworks developed in advance to support decision-making. Design of such frameworks could include input from ethicists.

ACTION: **Cabinet Office C-19 Taskforce** to outline the need for any further advice including on any specific packages of interventions. The paper 'NPIs in the context of Omicron' provides guidance on measures.

List of actions

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Attendees

Scientific experts (34): *Patrick Vallance (GCSA), Chris Whitty (CMO), Angela McLean (MoD, CSA), Ann John (Swansea), Brooke Rogers (KCL), Calum Semple (Liverpool), Charlotte Watts (FCDO, CSA), Fliss Bennee (Welsh Government), Gavin Screaton (Oxford), Graham Medley (LSHTM), Gregor Smith (Scottish Government, CMO), Harry Rutter (Bath), Ian Diamond (ONS), Ian Young (Northern Ireland Executive, Health CSA), Jeanelle de Gruchy (dCMO), Jenny Harries (UKHSA), Jim McManus (ADPH), John Edmunds (LSHTM), Julie Fitzpatrick (Scottish Government, CSA), Kamlesh Khunti (Leicester), Lucy Chappell (DHSC, CSA), Mark Wilcox (Leeds), Matt Keeling (Warwick), Meera Chand (UKHSA), Michael Parker (Oxford), Nicola Steedman (Scottish Government, dCMO), Peter Horby (Oxford), Sharon Peacock (Cambridge), Steve Powis (NHS England), Steven Riley (UKHSA), Susan Hopkins (UKHSA), Thom Waite (dCMO), Wendy Barclay (Imperial), and Yvonne Doyle (NHSE).*

Observers and government officials (32): *Alan Penn (DLUHC, CSA), Andrew Curran (HSE, CSA), [redacted] Charlette Holt-Taylor (DHSC), Christopher Williams (PHW), Daniel Kleinberg (Scottish Government), David Crossman (Scottish Government, Health CSA), David Lamberti (DHSC), Edward Wynne-Evans (UKHSA), [redacted] Gideon Henderson (Defra, CSA), Giri Shankar (PHW), Henry Cook (No. 10), Ian Hall (Manchester), Jennifer Rubin (HO, CSA), Jim McMenamin (Health Protection Scotland), Laura Bellingham (CO), Laura Gilbert (No. 10), Louise Tinsley (HMT), [redacted] Osama Rahman (DfE, CSA), Paul Monks (BEIS, CSA), Paul Taylor (NPCC, CSA), [redacted] Rob Harrison (CO), Sarah Sharples (DfT, CSA), [redacted] Tom Rodden (DCMS, CSA), and [redacted].*

Secretariat (all GO-Science) (15): [redacted] *Simon Whitfield, Stuart Wainwright, and Zoe Bond.*

Total: 81