One-hundred-and-second SAGE meeting on COVID-19, 07 January 2022

Held via Video Teleconference

Situation update

1. The number of infections continues to increase nationally, including in older age groups. The main exception is London, where there is now a levelling in case numbers due to a decrease in younger age groups, with a continued increase in older age groups. Case data from the festive period are difficult to interpret due to testing capacity coming under pressure and changes in behaviour, especially around Christmas. It is particularly important to consider positivity rates alongside the overall numbers of cases. Test positivity rates have continued to increase in most groups. Surveillance studies such as the ONS infection survey will continue to be the most reliable way of assessing numbers of infections, though data for these are lagged.
2. The epidemic has the potential to continue to grow nationally. The peak in infections will not be known for sure until after it has passed and will occur at different times in different areas and amongst different age groups. The impact of the return to schools and workplaces is not yet known.
3. The spread of infections in older age groups, which are lagging younger cohorts, will be a determinant of the number of hospital admissions. In previous waves, infection rates in care homes have lagged transmission in the community. The number of infections (and therefore testing pressures and workforce capacity issues) will peak first, as hospital admissions lag infections.
4. Modelling of different scenarios suggests that non-pharmaceutical interventions implemented in the near future would now have little effect on the peak but could affect overall hospitalisation levels. They would have much less effect than had they been introduced earlier, and the reduction is unlikely to be large. The largest effects of such measures would be in those parts of the country where Omicron has become dominant more recently. Changes in behaviour, for example if there were a reversal of current interventions (e.g. 'Plan B' in England) before the peak is passed, could increase the overall impact of this wave on hospitalisations.
5. There is some evidence that the median generation time (the average time between someone being infected, and that person infecting others) is slightly shorter for Omicron than for Delta (low confidence). The mean generation time appears similar between the two variants (low confidence). For a given growth rate, a shorter generation time will result in an earlier and lower peak in infections and hospital admissions. A modest reduction in generation time could have a significant impact on the modelled peak (high confidence). However, a shorter serial interval does not necessarily mean that people with Omicron stop being infectious sooner than those with Delta.
6. One analysis from Imperial suggests a reduction in risk of hospitalisation of 35-65% for Omicron when compared to Delta in the current wave, depending on the endpoint used. The analysis suggests a greater reduction in likelihood of admission to hospital than of attendance at hospital. The increasing evidence of lower severity, accumulating evidence on vaccines' effectiveness against hospitalisation, and the likelihood of Omicron's generation time being shorter than Delta's, mean that of the various scenarios previously considered the most pessimistic scenarios are now unlikely (high confidence). It remains likely based on the scenarios that hospital admissions in England will remain high for some time as a result of the very high

number of infections and the continued risk of hospitalisation for the elderly and unvaccinated adults in particular.

7. Early data from CO-CIN indicates that the severity of disease being observed in hospital over the last three weeks is lower than observed in early phases of previous waves, with less need for oxygen, less admission to intensive care, better outcomes, and shorter stays. A shorter average length of stay means a reduced average hospital occupancy for a given number of admissions. Unlike in previous waves, intensive care units are not likely to be the part of the health system under most pressure in this wave (medium confidence). The probability of needing admission to ICU is very much higher in the unvaccinated population and outcomes remain poor for those who require mechanical ventilation.
8. The biological mechanism for the observed differences in severity may be related to changes in the way Omicron enters cells compared to Delta, and its lower tropism for TMPRSS2 expressing cells. Lab data suggest that Omicron replicates more readily than Delta in upper respiratory tract cells, whilst Delta replicates more quickly in lower respiratory tract cells (e.g., lungs). Animal models also suggest reduced severity and less systemic effects for Omicron infection compared to Delta. These data are consistent with Omicron being a more upper respiratory tract infection. It is important to note that future variants will not necessarily retain these properties.
9. In addition to the lower intrinsic severity (i.e. the severity of the virus itself) of Omicron compared to Delta, realised severity (i.e. the severity observed in a population) in this wave is lower due to the benefit of higher levels of immunity than in past waves. Vaccine effectiveness data continue to show that boosters are highly effective, although with some waning of protection against symptomatic disease (15 to 25% reduction in VE) after 10 weeks. The protection against severe disease is likely to be better maintained.
10. Unlike in other age groups, there does not appear to be a reduction in hospitalisation risk for Omicron compared to Delta in younger children (under 10 years old) though there is no indication of an increase in serious disease. In the very youngest (under 5, and particularly under 1-year olds), there appears to be an increase in the proportion of cases attending hospital compared to past waves, although absolute numbers are small. These early data are affected by some biases and a similar effect seen in data from Gauteng reduced in size as the epidemic progressed and more data accumulated (epidemic phase bias). The relative risk of hospital admission can be estimated with more confidence when there are more data available, though the absolute risk of hospital admission for children remains very low (high confidence).
11. The severity of disease for children remains low (high confidence). For the small number of children who do attend hospital, the length of stay is typically short and where they stay overnight it is often to allow for screening for other infections. Fever and upper airways symptoms appear to be the most common symptoms. COVID-19 continues to account for a small minority of paediatric activity and paediatric intensive care occupancy has not changed significantly.
12. Seroprevalence is higher in older children (especially 12+) than younger children, partly as a result of vaccination. Vaccination rates in pregnant women remain low compared to the wider population. Increasing vaccination rates in pregnant women may increase immunity in the youngest children as antibodies can be transferred from mother to baby. Vaccination is also very important for the health of the mother (high confidence).

ACTION: CMO office to work with paediatricians to accurately communicate the assessment of the risk to children from Omicron.

Attendees

Scientific experts (38): *Patrick Vallance (GCSA), Chris Whitty (CMO), Angela McLean (MoD, CSA), Ann John (Swansea), Calum Semple (Liverpool), Camilla Kingdon (RCPCH), Catherine Noakes (Leeds), Charlotte Watts (FCDO, CSA), Daniela De Angelis (Cambridge), David Crossman (Scottish Government), Graham Medley (LSHTM), Harry Rutter (Bath), Ian Diamond (ONS), Ian Hall (Manchester), Ian Young (Northern Ireland Executive, Health CSA), Jenny Harries (UKHSA), Jim McManus (ADPH), John Edmunds (LSHTM), Jonathan Van Tam (dCMO), Julie Fitzpatrick (Scottish Government, CSA), Kamlesh Khunti (Leicester), Lucy Chappell (DHSC, CSA), Mark Wilcox (Leeds), Matt Keeling (Warwick), Meera Chand (UKHSA), Michael Parker (Oxford), Neil Ferguson (Imperial), Peter Davis (University Hospitals Bristol), Peter Horby (Oxford), Ravi Gupta (Cambridge), Rob Orford (Welsh Government, Health CSA), Russell Viner (UCL), Simon Kenny (NHSE), Steve Powis (NHS England), Susan Hopkins (UKHSA), Thom Waite (dCMO), Wei Shen Lim (Nottingham) and Yvonne Doyle (NHSE).*

Observers and government officials (29): *Alan Penn (DLUHC, CSA)***,** *Andrew Curran (HSE, CSA), Andrew Morris (Edinburgh),* [redacted]*, Christopher Williams (PHW), Daniel Kleinberg (Scottish Government), David Lamberti (DHSC),* [redacted]*, Gideon Henderson (Defra, CSA), Gillian Armstrong (Northern Ireland), Giri Shankar (PHW), Jennifer Rubin (HO, CSA), Jim McMenamin (HPS), Laura Bellingham (CO), Laura Gilbert (No. 10), Liz Lalley (Welsh Government), Louise Tinsley (HMT),* [redacted]*, Osama Rahman (DfE, CSA),* [redacted]*, Paul Monks (BEIS, CSA), Paul Taylor (NPCC, CSA),* [redacted]*, Rob Harrison (CO), Sarah Sharples (DfT, CSA),* [redacted] *and Tom Rodden (DCMS, CSA).*

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

Total: 80