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Transparency data

SAGE 97 minutes: Coronavirus (COVID-19) response, 29 November 2021

Published 3 December 2021

Contents

Held via Video Teleconference.

Situation update

1. SAGE commended the work by colleagues in South Africa to identify the Omicron variant and wished to put on record its appreciation for their swift alerting of the global scientific community.

2. The Omicron (B.1.1.529) variant has led to a rapid increase in infections in South Africa, particularly in Gauteng. The population in this area has had a high number of previous infections and a moderate level of vaccination, with studies showing pre-existing seroprevalence of around 60% to 80%. The rapid increase in Omicron infections (primarily monitored using S-gene target failure data) indicates that Omicron may have a growth rate advantage over Delta in that population (low confidence). Following the outbreak of Omicron test positivity increased rapidly over a two-week period. Most spread has been amongst young people so far.

3. The limited diversity of genomic sequences obtained thus far supports the hypothesis that Omicron has emerged recently. It may have originated from chronic infection in an immunocompromised host (low confidence).

4. Omicron is now present in the UK and there are likely to be more cases confirmed in the coming days. This includes some not yet linked to travel. The number of S-gene target failures in the UK is low (approximately 1 in 1000) and has not changed significantly in recent weeks, which suggests there is not currently widespread transmission (high confidence). UKHSA is monitoring these data and undertaking extensive contact tracing and backward contact tracing of Omicron positive individuals.

5. The context in the UK is different to South Africa, in terms of age structure, population immunity from vaccination coverage and previous infection, and current incidence of delta variant infections (low in South Africa). The impacts of Omicron in the UK therefore remain uncertain. However, as South Africa is ahead of the UK on this epidemic trajectory, it will remain important to monitor and learn from the situation there.

6. The manner in which Omicron has spread in parts of South Africa while Delta levels remain low suggests that it could have any combination of greater transmissibility, escape from natural immunity and escape from vaccine-induced immunity.

7. It is highly likely that Omicron can escape immunity to some extent, but it is not yet clear how much. The evidence comes from the number of reinfections already seen, and from the presence in the Omicron genome of a combination of mutations that are either already known to be associated with immune escape or which are found in areas that structural studies suggest will affect antibody binding. All known antigenic sites for neutralising antibodies are potentially disrupted, which has not been seen in combination in any previous variant. Some mutations may affect some T cell epitopes in the spike protein, S, although at a population level this is less likely to have a major impact because different individuals recognise different epitopes. Other changes are present that may affect transmissibility, for example those associated with ACE2 binding site, or furin cleavage sites or in regions outside of S such as in nucleoprotein, N.

8. There is likely to be a greater reduction in protection conferred by previous infections or vaccines against infection than against severe disease (high confidence). It is not yet known whether the extent to which protection from natural infection, vaccination, or a combination of both may be affected, nor how this might vary by the type of vaccine used or the variant someone has previously been infected with.

9. The mutations in Omicron that result in a degree of immune escape also mean that the effectiveness of monoclonal antibodies is likely to be markedly reduced, at least for some of the agents (medium confidence). Efficacy of antiviral drugs is expected to remain unaffected (medium confidence).

10. Booster vaccinations have been shown to produce very strong antibody responses (high confidence) and are likely to provide protection against severe disease, hospitalisation and death from most variants at least in the short term, with protection against severe disease remaining higher than protection against infection. Increasing coverage of booster vaccinations (as well as increasing coverage of primary courses) is therefore an important defence. Other vaccine strategies, such as updated vaccines, may also need to be considered depending on the degree of immune escape. Companies are already pursuing both multivalent vaccines and Omicron specific vaccines.

11. It is too early to have robust data on the severity of disease caused by infection with Omicron, or how this varies by age, vaccination or immunity status, or other characteristics. This is being monitored carefully in South Africa.

12. Even if there continues to be good protection against severe disease for individuals from vaccination (including boosters), any significant reduction in protection against infection could still result in a very large wave of infections. This would in turn lead to potentially high numbers of hospitalisations even with protection against severe disease being less affected. The size of this wave remains highly uncertain but may be of a scale that requires very stringent response measures to avoid unsustainable pressure on the NHS. If vaccine efficacy is substantially reduced, then a wave of severe disease should be expected.

13. The first indication of the likely level of reduction in vaccine effectiveness will come from neutralisation studies. Further data will be available over the coming weeks. Key data required are (i) severity of disease from omicron (ii) transmissibility (iii) neutralisation data (iv) epidemiology of spread and severe disease in vaccinated and unvaccinated individuals. The most important piece of information is the neutralisation data and assessment of vaccine efficacy (post booster).

14. It is important to be prepared for a potentially very significant wave of infections with associated hospitalisations now, ahead of data being available.

Actions:

- SPI-M to produce overview of current levels of immunity in the UK population acquired by different routes, and of current and historic estimates of relationship between infection, hospitalisation and mortality that show how this has changed with vaccination and boosters
- SPI-M to follow up on studies recommended in consensus statement with those who are best placed to set these up and report back on how they are being followed up

Response measures in the context of Omicron

15. As SAGE has previously advised, border measures cannot completely prevent the introduction of variants into the country. Nevertheless, they can be effective at reducing the number of introductions (high confidence) and therefore delaying the subsequent wave of infections (low confidence). This allows time to prepare, for example through increasing vaccination coverage and potentially updating vaccines. Border measures are most effective when the number of potential introductions is high compared to the incidence of new infections inside the country.

16. A single day 2 PCR test for UK arrivals will identify significantly fewer cases than using 2 PCR tests spaced apart by a few days (for example on day 2 after returning and day 5 or 8), due to the tests falling at different points in the potential infection cycle (high confidence). Daily lateral flow testing is another potentially effective model for identifying infections (though would not allow variants to be identified without confirmatory PCR tests, and identification of cases by PCR is important at the moment). Pre-departure tests are valuable in identifying potentially infectious people before they board transport. SAGE noted the cases detected on flights to the Netherlands from South Africa.

17. Past SAGE advice on measures to reduce transmission remains highly relevant, including but not limited to advice around ventilation, face coverings, hand hygiene, reducing contacts (for example by working from home), vaccination certification, and the importance of effective testing, contact tracing and isolation. Colder weather is likely to affect natural ventilation levels, as windows are less likely to be opened. There are some very preliminary indications that Omicron might show more airborne transmission (low confidence).

18. Lateral flow testing is a valuable way of identifying potentially infectious people and lateral flow devices have identified Omicron cases, indicating that they are still effective for this variant. They are particularly valuable if used as a group diagnostic tool within households or following a common exposure event. If each in the group tests negative, there would be greater confidence that they are all negative. If, however, at least one person tests positive, then there is a higher likelihood that another person in the group is also infected, despite a negative test result. Lateral flow tests are useful to identify infection to avoid attendance at gatherings and pre-testing will be particularly important over the upcoming holiday period (high confidence).

19. The earlier measures to reduce transmission are introduced, the more stringent they are, and the wider their geographic coverage, the more effective they will be (high confidence – see previous SAGE advice, including on Plan B). As with previous waves of infection, some settings (for example care homes) will require particular consideration.

20. Even if measures are introduced immediately, there may not be time to fully ascertain whether they are sufficient before decisions are needed on further action. The situation could develop quickly over the coming weeks and decision-makers may need to act while there is still a high level of uncertainty including considering the potential need for stringent response measures.

21. Evidence suggests that measures could be reintroduced with expectation of a similar level of adherence as has been seen in the past if messaging has a clear rationale and there is coherence between messaging and policy. Early communication of risk and potential decisions would allow people to plan accordingly, and in turn increase levels of adherence.

Action:

- COVID-19 Taskforce, UKHSA and NHS to consider advice on Omicron and response options

List of actions

- SPI-M to produce overview of current levels of immunity in the UK population acquired by different routes, and of current and historic estimates of relationship between infection, hospitalisation and mortality that show how this has changed with vaccination and boosters

- SPI-M to follow up on studies recommended in consensus statement with those who are best placed to set these up and report back on how they are being followed up
- COVID-19 Taskforce, UKHSA and NHS to consider advice on Omicron and response options

Attendees

Scientific experts:

- Patrick Vallance (GCSA)
- Chris Whitty (CMO)
- Andrew Rambaut (University of Edinburgh)
- Angela McLean (MOD, CSA)
- Brooke Rogers (Kings College London)
- Calum Semple (University of Liverpool)
- Catherine Noakes (University of Leeds)
- Charlotte Watts (FCDO, CSA)
- Derek Smith (University of Cambridge)
- Fliss Bennee (Welsh Government)
- Gavin Screaton (University of Oxford)
- Ian Young (Northern Ireland Executive, Health CSA)
- Jeanelle de Gruchy (dCMO)
- Jenny Harries (UKHSA)
- John Edmunds (LSHTM)
- Jonathan Van Tam (dCMO)
- Kamlesh Khunti (University of Leicester)
- Lucy Chappell (DHSC, CSA)
- Mark Wilcox (University of Leeds)
- Matt Keeling (University of Warwick)
- Meera Chand (UKHSA)
- Nicola Steedman (Scottish Government, dCMO)
- Peter Horby (University of Oxford)
- Ravi Gupta (University of Cambridge)
- Richard Lessells (Centre for Epidemic Response & Innovation)
- Rob Orford (Welsh Government, Health CSA)
- Sharon Peacock (University of Cambridge)
- Stephen Powis (NHS England)
- Steven Riley (UKHSA)
- Susan Hopkins (UKHSA)
- Thomas Waite (dCMO)
- Tulio De Oliveria (Centre for Epidemic Response and Innovation)
- Wendy Barclay (Imperial)

Observers and government officials

- Andrew Curran (HSE, CSA)
- Andrew Morris (HDRUK)
- Charlette Holt-Taylor (DHSC)
- David Lamberti (DHSC)
- Edward Wynne-Evans (UKHSA)
- Gideon Henderson (Defra, CSA)
- Giri Shankar (PHW)
- Henry Cook (No.10)
- Ian Hall (University of Manchester)
- Jennifer Rubin (HO, CSA)
- Jim McMenamin (Health Protection Scotland)
- Laura Bellingham (CO)
- Liz Lalley (Welsh Government)
- Louise Tinsley (HMT)
- Rob Harrison (CO)
- Sarah Sharples (DfT, CSA)
- Soheila Amin-Hanjani (BEIS)
- Tom Rodden (DCMS, CSA)

Total: 73

10 observers and government officials and 9 secretariat redacted.