26. Consistent risk factors across studies include increasing age, female sex, being overweight/obesity, pre-existing asthma, pre-pandemic poor physical and mental health, and severity of the initial illness.
27. There are limited data available for children, but the data which are available suggest that long illness duration after SARS-CoV-2 infection in school-aged children is uncommon, with around 2% experiencing symptoms at 8 weeks post infection (low confidence). For those children who do suffer long illness duration, there may be a need for guidance to parents, carers and schools on how to support them.
28. The limited data available on the impact of vaccination suggest that prevalence of symptoms may be substantially reduced in individuals who become infected after double vaccination compared to those who are not vaccinated (low confidence).
29. Data from studies which are underway should help answer some of the outstanding questions. Research into treatments will be important and these studies may also have relevance to other similar syndromes. Studies have given insight into some of the biological changes that occur with long term symptoms.
30. Data from the UK on long COVID are broadly consistent with international comparators.

Vaccine efficacy

31. Vaccines currently in use in the UK for COVID-19 are highly effective in protecting against severe disease and death. However, vaccines do not produce sterilising immunity (where infection is completely prevented).
32. A range of studies are regularly reviewed to estimate the effectiveness of vaccines against infection, symptomatic disease, severe disease and transmission. For the vaccines considered so far (primarily Pfizer-BioNTech and AstraZeneca), the effectiveness against severe outcomes appears similar for the alpha and delta variants (although effectiveness against delta is probably reduced to some extent). Other vaccines and variants will be reviewed as more data accumulate.
33. For these two vaccines, protection against infection with alpha is around 80-85% from 2 doses (low confidence). Recent ONS data suggest that protection against infection with delta may be lower (low confidence).
34. Protection after two doses against symptomatic disease for delta is around 70% for AstraZeneca (medium confidence) and around 85% for Pfizer-BioNTech (high confidence).
35. Protection against hospitalisation, for both vaccines, is c.80% after one dose and c.95% after the second dose (there is currently a higher degree of confidence for the Pfizer estimates than the AZ estimates).
36. Understanding of the effectiveness of the vaccines not widely administered in the UK, and of VE against other VOCs not currently circulating widely here will be important if there is to be a more open international travel policy.
37. ONS data suggest that for those who have been vaccinated who do get infected with the delta variant, PCR cycle threshold (Ct) values are generally lower than for those infected with alpha, suggesting that vaccinated people may still have a high viral load with delta infection (medium confidence). This may mean that there is limited vaccine effect against on onward transmission for the delta variant.

Waning of vaccine-derived immunity

38. It is not yet known how long vaccine-induced protection against SARS-CoV-2 infection will last, but it is highly likely that it will wane over time (high confidence). It is also likely that protection against severe disease will wane, but to a lesser extent (medium confidence).
39. The level of serum antibodies can act as a proxy for measuring immunity. Monitoring this at population level could help guide decisions on vaccine booster doses.