

Indicator	RAG*	Confidence	Assessment and rationale
Transmissibility between humans		HIGH	Transmissibility appears greater than wild type (first wave) virus Delta continues to demonstrate a substantially increased growth rate compared to Alpha, across multiple analyses. Delta cases are rising whilst Alpha cases are declining. Secondary attack rates are higher for Delta than for Alpha but have declined slightly over time; further analysis is being undertaken. There is in vitro evidence suggestive of increased replication in biological systems that model human airway. It is highly likely that Delta is more transmissible than Alpha.
Infection severity		LOW	Increased severity (hospitalisation risk) when compared to Alpha Early evidence from England and Scotland suggests there may be an increased risk of hospitalisation compared to contemporaneous Alpha cases. A large number of cases are still within the follow up period.
Immunity after natural infection		LOW	Experimental evidence of functional evasion of natural immunity but insufficient epidemiological data Pseudovirus and live virus neutralisation using convalescent sera from first wave and Alpha infections shows a reduction in neutralisation. There is currently insufficient evidence to assess whether the risk of reinfection differs between Delta and Alpha.
Vaccines		HIGH	Epidemiological and laboratory evidence of reduced vaccine effectiveness There are now analyses from England and Scotland supporting a reduction in vaccine effectiveness for Delta compared to Alpha. This is more pronounced after one dose (absolute reduction in vaccine effectiveness against symptomatic infection of approximately 15% to 20% after 1 dose). Iterated analysis continues to show vaccine effectiveness against Delta is higher after 2 doses but that there is a reduction for Delta compared to Alpha. There is uncertainty around the magnitude of the change in vaccine effectiveness after 2 doses of Oxford-AstraZeneca vaccine. Although this is observational data subject to some biases, it holds true across several analytic approaches and the same effect is seen in both English and Scottish data. It is strongly supported by pseudovirus and live virus neutralisation data from multiple laboratories. There are no data on whether prevention of transmission is affected. The analysis of vaccine effectiveness against hospitalisation is in process. The acquisition of the mutation K417N, which may be antigenically significant, in a small number of cases is noted.
Overall assessment			Delta is predominant and all analyses find that it has a very substantial growth advantage. The observed high growth rate is likely to be due to a combination of transmissibility and immune escape; there is still geographic heterogeneity and a probable contribution from place-based context. Iterated analyses this week continue to support our previous estimates of vaccine effectiveness and hospitalisation risk. The priority investigations are vaccine effectiveness against hospitalisation and death, further investigations of secondary attack rates, characterisation of the generation time, viral load and period of infectivity, and epidemiological studies of reinfections.

The therapeutics risk assessment is under review for all variants and is not included.

*refer to scale and confidence grading slide