

Indicator	RAG*	Confidence	Assessment and rationale
Transmissibility between humans		HIGH	Transmissibility appears greater than wild type (first wave) virus. All analyses support increased transmissibility for Delta compared to both wild type virus and Alpha. There is in vitro evidence suggestive of increased replication in biological systems that model human airway, and evidence of optimised furin cleavage. There is epidemiological evidence from secondary attack rates, household transmission studies, and growth rate modelling. The finding of lower CT values in routine testing data, compared to Alpha, may be relevant to the mechanism of increased transmissibility, however there may be multiple contributors.
Infection severity		LOW	Increased severity (hospitalisation risk) when compared to Alpha. There is an apparent increased risk of hospitalisation compared to contemporaneous Alpha cases. Analysis of deaths in England is limited by low numbers but suggests that Delta has at least an equivalent case fatality rate to Alpha (LOW confidence). Further analysis is required of both national surveillance and CO-CIN data to understand the severity and characteristics of disease in hospital.
Immunity after natural infection		LOW	Evidence of increased reinfections Pseudovirus and live virus neutralisation using convalescent sera from first wave and Alpha infections shows a reduction in neutralisation. National surveillance analysis, adjusted for different variables including age and vaccination, shows a preliminary signal of increased risk of reinfection with Delta compared to Alpha. Further investigations are being undertaken
Vaccines		HIGH	Epidemiological and laboratory evidence of reduced vaccine effectiveness There are analyses from England and Scotland supporting a reduction in vaccine effectiveness for Delta compared to Alpha against symptomatic infection. This is more pronounced after 1 dose. Iterated analysis continues to show vaccine effectiveness against Delta is high after 2 doses. Current evidence suggests that VE against hospitalisation is maintained. 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 vaccine effectiveness against transmission is affected.
Overall assessment			Delta remains predominant in the UK and the rapid global spread continues. Distinct clades within Delta are beginning to be identified, predominantly distinguished by changes outside spike of uncertain biological significance. Laboratory investigations have been triggered. The changes in this update concern severity and reinfection risk. Both hospitalisation and deaths analyses now point towards severity that is at least as great as that of Alpha, although there is a high level of uncertainty in these findings. Whilst laboratory data and anecdotal reports have long raised the possibility of an increased risk of reinfection, there is now a signal in the national surveillance data. The priority investigations are to improve understanding of asymptomatic transmission in the vaccinated, to further investigate the developing diversity within Delta, and continued investigation of the clinical course of disease.

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

*refer to scale and confidence grading slide