

25 June 2021 Risk assessment for SARS-CoV-2 variant: Delta (VOC-21APR-02, B.1.617.2) Public Health England

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. Secondary attack rates and household transmission studies support increased transmissibility. 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 and there is a limited understanding of clinical course of disease.
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. National surveillance analyses are underway but 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 against symptomatic infection. This is more pronounced after one 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 prevention of transmission is affected. Further age stratified vaccine effectiveness analysis is required.
Overall assessment			Delta is predominant. All analyses continue to support increased transmissibility and reduced vaccine effectiveness against symptomatic infection. The interplay between the current findings of increased risk of hospitalisation and preserved vaccine effectiveness against hospitalisation requires careful consideration. The clinical course of disease and severity of hospitalised illness also requires further detailed assessment. It is too early to assess the case fatality ratio compared to other variants. The priority investigations are more detailed analysis of hospitalised cases, 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