Vaccine Effectiveness Expert Panel - consensus narrative, 27 August 2021

The values presented in the table contained in the 'Delta & Alpha Consensus Revision' tab reflect the consensus judgement of the Vaccine Effectiveness Expert Panel. The panel considers a wide range of domestic and international data, and draws a conclusion as to the most accurate values, given the data. As these figures reflect a consensus from a wider range of non-Public Health England (PHE) sources, they may differ from those in PHE's vaccine surveillance report. **The sources on which the consensus values are based are shown in the 'VE Table: Sources' tab.**

In expert panel meetings convened since 16 July 2021, consensus was reached on the following amendments:

Alpha and Delta variants	
Infection (Symptomatic & Asymptomatic):	- For the Alpha variant, protection against any infection is **~60%** after one dose of the AstraZeneca or Pfizer vaccines. After the second dose, this increases to **~80%** for AstraZeneca and **~85%** for Pfizer. These have low confidence estimates. ***(No change from the previous publication based on 16th July meeting)*** . - For the Delta variant, estimates have been updated based on new data from the ONS. For the AstraZeneca vaccine protection is assessed to be **40%** after one dose and **65%** after two doses, while for Pfizer the estimates are **55%** and **75%**. Confidence in these estimates is currently low. Estimates for the Moderna vaccine have been updated based on new data from Qatar and the ONS. Effectiveness after one dose is assessed to be **~75%**, rising to **~85%** after the second dose. These estimates are also of low confidence, reflecting few available data sources. ***(New update)*** .
Symptomatic Disease:	- For symptomatic disease, there is evidence that vaccine effectiveness is lower for the Delta variant than for the Alpha variant. Protection against Alpha is **~60%** after a single dose of either of the Pfizer or AstraZeneca vaccines, rising to **~80%** after a second dose of the AstraZeneca vaccine and **90%** for the Pfizer vaccine. For the Delta variant, protection is assessed to be **~45%** after one dose of AstraZeneca and **~55%** for Pfizer. After a second dose, this increases to **~70%** for AstraZeneca and **~85%** for Pfizer.The consensus estimate for first dose effectiveness for AstraZeneca is higher than the individual estimates from the source studies listed. The panel assessed that those studies give artificially low estimates, and the figure of 45% is supported by research indicating that protection is approximately 15% lower than protection against the Alpha variant. ***(No change in data from the last publication on 16th July).*** - The estimate for effectiveness after a second dose of AstraZeneca has been updated to high confidence, as more robust data has become available. ***(New update).*** - Effectiveness for one dose of the Moderna vaccine is assessed as **~75%** with low confidence. ***(New update).***
Severe Disease:	**-** At present, although point estimates vary for hospitalisation with the Alpha and Delta variants, there is substantial overlap between the confidence intervals, and there is no evidence to suggest a statistically significant difference between vaccine effectiveness against the two variants. Based on this, similar levels of protection against hospitalisation and death for both variants are assumed at this stage. For hospitalisation, with both the AstraZeneca and Pfizer vaccines, protection is **~80%** after one dose and **~95%** after the second dose. There is currently a higher degree of confidence with the Pfizer vaccine estimates than with the AstraZeneca vaccine estimates. ***(No change in data from the last publication on 16th July).***
Transmission:	- For the Alpha variant, there is **~40%** reduction in onward transmission from vaccinated but infected people after one dose of the AstraZeneca vaccine, and **~45%** for the Pfizer vaccine. There is no data yet for two doses. For the Delta variant, there is currently no direct evidence of vaccine effectivness against transmission, and therefore, estimates are not provided. However, there is indirect evidence to suggest transmission blocking may be lower than for the Alpha variant. ***(No change in data from the last publication on 16th July).***
Waning Immunity:	It was agreed that there is increasing evidence that effectiveness against mildly symptomatic disease is declining over time. There is some evidence of waning immunity against hospitalisation in older cohorts against Delta but both vaccines still offer good protection, and the evidence of waning protection against severe disease is less convincing. **(*New update*).**

COVID 19 Vaccine Effectiveness Table – 27 August 2021

Data last updated: 27 August 2021
Consensus agreed: 27 Aug **DCMO cleared:** 07 Sep

This product captures data agreed by a consensus of experts on one and two dose vaccine effectiveness. Effectiveness is measured against infection, symptomatic disease, hospitalisation, mortality and transmission in relation to major variants in circulation within the UK.

High Confidence	Evidence from studies is consistent and comprehensive	**Medium Confidence**	Evidence is emerging but may be inconsistent requires further analysis	**Low Confidence**	Little evidence is available at present and results are inconclusive

Delta

Vaccine Product	Dose Regime	Real World Data			
		Infection	Symptomatic	Severe	Transmission**
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	1st Dose	40% (30-50%)	45% (40-55%)	80% (75-85%) (hospitalisation) 80% (75-85%) (mortality)	No data
	2nd Dose	65% (60-70%)*	70% (60-75%)	95% (80-99%) (hospitalisation) 95% (80-99%) (mortality)	No data
Pfizer-BioNTech (RNA) BNT162b2	1st Dose	55% (40-70%)	55% (50-65%)	80% (75-85%) (hospitalisation) 80% (75-85%) (mortality)	No data
	2nd Dose	75% (65-85%)	85% (80-90%)	95% (90-99%) (hospitalisation) 95% (80-99%) (mortality)	No data
Moderna (RNA) mRNA-1273	1st Dose	75% (60-90%)	75% (60-90%)	No data	No data
	2nd Dose	85% (80-90%)	No data	No data	No data

Alpha

Vaccine Product	Dose Regime	Real World Data			
		Infection	Symptomatic	Severe	Transmission
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	1st Dose	60% (55-70%)	60% (55-70%)	80% (75-85%) (hospitalisation) 80% (75-85%) (mortality)	40% (35-50%)
	2nd Dose	80% (65-90%)	80% (70-90%)	95% (80-99%) (hospitalisation) 95% (80-99%) (mortality)	No data
Pfizer-BioNTech (RNA) BNT162b2	1st Dose	60% (55-70%)	60% (55-70%)	80% (75-85%) (hospitalisation) 80% (75-85%) (mortality)	45% (45-50%)
	2nd Dose	85% (65-90%)	90% (85-95%)	95% (90-99%) (hospitalisation) 95% (80-99%) (mortality)	No data
Moderna (RNA) mRNA-1273	1st Dose	No data	No data	No data	No data
	2nd Dose	No data	No data	No data	No data

Note on PHE Data: Real world vaccine effectiveness studies undertaken by PHE for all vaccines occurs after the emergence of the Alpha variant as the dominant strain in the UK.

***The estimate for 2-dose VE for AZ against infection is from a single source (ONS infection survey) and may not be directly comparable with other estimates in this summary table.**

****Studies into the transmission blocking effect of vaccines against the Delta variant are ongoing. There is not currently sufficient data on which to base a consensus assessment.**

Sources for COVID 19 Vaccine Effectiveness Table – 27 August 2021

This product captures data agreed by a consensus of experts on one and two dose vaccine effectiveness. Effectiveness is measured against infection, symptomatic disease, hospitalisation, mortality and transmission in relation to major variants in circulation within the UK.

Vaccine Product	Dose Regime	Delta (B.1.617.2 - India)				Alpha (B.1.1.7 - Kent)			
		Real World Data				Real World Data			
		Infection	Symptomatic	Severe	Transmission	Infection	Symptomatic	Severe	Transmission
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	1st Dose	43%, Source 9	30%, Source 2 36%, Source 9	71% (Hospitalisation), Source 3	No data	55-70%, Source 1 61%, Source 4 23%, Source 13	55-70%, Source 1 48.7%, Source 2 71%, Source 4 75.4%, Source 10	75-85% (Hospitalisation), 75-85% (Mortality), Source 1	35-50%, Source 1
	2nd Dose	67%, Source 9	67%, Source 2 70%, Source 9	92% (Hospitalisation), Source 3	No data	65-90%, Source 1 79%, Source 4 85%, Source 14	70-85%, Source 1 74.5%, Source 2 92%, Source 4	80-99% (Hospitalisation), 75-99% (Mortality), Source 1	No data
Pfizer-BioNTech (RNA) BNT162b2	1st Dose	65.5%, Source 15 58%, Source 9	35.6%, Source 2 59%, Source 9	94% (Hospitalisation), Source 3	No data	55-70%, Source 1 66%, Source 4 65.5%, Source 15	55-70%, Source 1 47.5%, Source 2 78%, Source 4 91.4%, Source 10	75-85% (Hospitalisation), 70-85% (Mortality), Source 1 64% (Hospitalisation), Source 6	45-50%, Source 1
	2nd Dose	59.6%, Source 15 82%, Source 9 52.4% (Care Home Res), Source 16	88%, Source 2 86%, Source 9	96% (Hospitalisation), Source 3 97.3% (Mortality), Source 15	No data	70-90%, Source 1 80%, Source 4 92%, Source 5 89%, Source 11 96%, Source 12 91%, Source 13 89.5%, Source 15	85-95%, Source 1 93.7%, Source 2 95%, Source 4 97%, Source 5 76%, Source 14 94.5%, Source 10	90-99% (Hospitalisation), 95-99% (Mortality), Source 1 97% (Hospitalisation), 97% (Mortality), Source 5 94% (Hospitalisation), Source 6 85% (Hospitalisation), Source 14	No data
Moderna (RNA) mRNA-1273	1st Dose	79.7%, Source 15 75%, Source 9	72%, Source 8 77%, Source 9	No data	No data	88.1%, Source 7	No data	No data	No data
	2nd Dose	86.1%, Source 15 50.6% (Care Home Res), Source 16	No data	No data	No data	100%, Source 7 98%, Source 12	86%, Source 14	91.6% (Hospitalisation) Source 14	No data

Reference	Source	Source URL
1	Public Health England	Link
2	Public Health England	Link
3	Public Health England	Link
4	Office for National Statistics, UK	Link
5	Ministry of Health of Israel	Link
6	Centers for Disease Control and Prevention, USA	Link
7	Qatar Ministry of Health	Link
8	Public Health England	Link
9	Office for National Statistics, UK	Link
10	Kuwait University	Link
11	Pfizer Press release	Link
12	U.S. Department of Veterans Affairs	Link
13	United States Air Force	Link
14	Mayo Clinic	Link
15	Qatar	Link
16	Centers for Disease Control and Prevention, USA	Link

Note on PHE Data: Real world vaccine effectiveness studies undertaken by PHE for all vaccines occurs after the emergence of the Alpha variant as the dominant strain in the UK. Some analysis for both Pfizer and Moderna vaccines has been undertaken internationally, which is recorded here.