COVID 19 Vaccine Effectiveness Table – 24 September 2021

dCMO cleared: 07 October

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

Vaccine Effectiveness: Two Doses

Vaccine Product	Time since 2nd dose	Delta					Context
		Infection	Symptomatic	Hospitalisation	Death	Transmission	Waning immunity
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	**0-3 months**	Insufficient Data	65% (60-75%)	95% (90-99%)	95% (85-99%)	Insufficient Data	Waning occurs from around 10 weeks post second dose **Symptomatic disease.** Waning protection is most evident in older groups. **Hospitalisation.** Waning immunity most evident in clinical risk groups, for whom protection after 4 months may be lower than given in this table. **Mortality**. Waning immunity most evident in clinical risk groups, for whom protection after 4 months may be lower than given in this table.
	4-6 months	Insufficient Data	55% (45-65%)	85% (80-95%)	90% (85-99%)	Insufficient Data	
	6+ months	Insufficient Data	45% (35-60%)	75% (65-80%)	80% (55-95%)	Insufficient Data	
Pfizer-BioNTech (RNA) BNT162b2	**0-3 months**	Insufficient Data	90% (80-95%)	99% (90-99%)	99% (90-99%)	Insufficient Data	Waning occurs from around 10 weeks post second dose **Symptomatic disease**. Waning protection is most evident in older groups. **Hospitalisation.** Waning immunity most evident in older people and clinical risk groups, for whom protection after 4 months may be lower than given in this table. **Mortality**. Currently limited evidence of waning
	4-6 months	Insufficient Data	75%(65-75%)	95% (90-99%)	95% (90-95%)	Insufficient Data	
	6+ months	Insufficient Data	65% (55-75%)	90% (90-95%)	90% (85-95%)	Insufficient Data	
Moderna (RNA) mRNA-1273	**0-3 months**	Insufficient Data	95% (90-95%)	99% (95-99%)	Insufficient Data	Insufficient Data	Insufficient Data
	4-6 months	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	
	6+ months	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data	

Vaccine Effectiveness: One Dose

Vaccine Product	Delta				
	Infection	Symptomatic	Hospitalisation	Death	Transmission
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	40% (30-50%)	45% (40-55%)	80% (75-85%)	80% (75-85%)	Insufficient Data
Pfizer-BioNTech (RNA) BNT162b2	55% (40-70%)	55% (50-65%)	80% (75-85%)	80% (75-85%)	Insufficient Data
Moderna (RNA) mRNA-1273	75% (60-90%)	75% (60-90%)	Insufficient Data	Insufficient Data	Insufficient Data

COVID 19 Vaccine Effectiveness Table – 24 September 2021

dCMO cleared: 07 October

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

Vaccine Product	Dose Regime	Alpha			
		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)	Insufficient 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)	Insufficient Data
Moderna (RNA) mRNA-1273	**1st Dose**	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
	2nd Dose	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data

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

Sources for COVID 19 Vaccine Effectiveness Table – 24 September 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	Alpha (B.1.1.7 - Kent)				Delta (B.1.617.2 - India)			
		Real World Data				Real World Data			
		Infection	Symptomatic*	Severe	Transmission	Infection	Symptomatic*	Severe	Transmission
Oxford/AstraZeneca (Non-replicating viral vector) AZD1222	1st Dose	55-70%, Source 1 61%, Source 2 23%, Source 9	55-70%, Source 1 71%, Source 2 48.7%, Source 6 75.4%, Source 8	75-85% (Hospitalisation), 75-85% (Mortality), Source 1 76% (Hospitalisation), Source 7	35-50%, Source 1	43%, Source 11	30%, Source 6 36%, Source 11	71% (Hospitalisation), Source 3 84% (Hospitalisation), Source 7	Insufficient Data
	2nd Dose	65-90%, Source 1 79%, Source 2 85%, Source 10	70-85%, Source 1 92%, Source 2 74.5%, Source 6	80-99% (Hospitalisation), 75-99% (Mortality), Source 1 91% (Hospitalisation), Source 7	Insufficient Data	67%, Source 11 65% (0-3 months), 50% (4-6 months), Source 13	67%, Source 6 70%, Source 11 65% (0-3 months), 50% (4-6 months), Source 13 65% (0-3 months), 55% (4-6 months), 45% (6+ months), Source 13	92% (Hospitalisation), Source 3 93% (Hospitalisation), Source 7 88% (Hospitalisation or mortality), Source 12 Hosp: 95% (0-3 months), 85% (4-6 months), 75% (6+ months), Source 14 Death: 95% (0-3 months), 85% (4-6 months), 75% (6+ months), Source 14	Insufficient Data
Pfizer-BioNTech (RNA) BNT162b2	1st Dose	55-70%, Source 1 66%, Source 2 65.5%, Source 19	55-70%, Source 1 78%, Source 2 47.5%, Source 6 91.4%, Source 8	75-85% (Hospitalisation), 70-85% (Mortality), Source 1 64% (Hospitalisation), 5 78% (Hospitalisation), Source 7	45-50%, Source 1	65.5%, Source 19 58%, Source 11	35.6%, Source 6 59%, Source 11	94% (Hospitalisation), Source 3 91% (Hospitalisation), Source 7	Insufficient Data
	2nd Dose	70-90%, Source 1 80%, Source 2 92%, Source 4 89%, Source B7 96%, Source 16 91%, Source 17 89.5%, Source 19 94.8%, Source 21	85-95%, Source 1 95%, Source 2 97%, Source 4 93.7%, Source 6 76%, Source 18 94.5%, Source 8 97%, Source 21	90-99% (Hospitalisation), 95-99% (Mortality), Source 1 97% (Hospitalisation), 97% (Mortality), Source 4 94% (Hospitalisation), 5 99% (Hospitalisation), Source 7 85% (Hospitalisation), Source 18	Insufficient Data	59.6%, Source 19 82%, Source 11 52.4% (Care Home Res), Source 20 80% (0-3 months), 65% (4-6 months), Source 13	88%, Source 6 86%, Source 11 74%, Source 15 85% (0-3 months), 65% (4-6 months), Source 13 90% (0-3 months), 75% (4-6 months), 65% (6+ months), Source 14	96% (Hospitalisation), Source 3 97% (Hospitalisation), Source 7 80% (Hospitalisation), Source 22 91% (Hospitalisation or mortality), Source 12 97.3% (Mortality), Source 19 Hosp: 99% (0-3 months), 95% (4-6 months), 90% (6+ months), Source 14 Death: 99% (0-3 months), 95% (4-6 months), 90% (6+ months), Source 14	Insufficient Data
Moderna (RNA) mRNA-1273	1st Dose	88.1%, Source 23	Insufficient Data	Insufficient Data	Insufficient Data	79.7%, Source 19 75%, Source 11	72%, Source 26 77%, Source 11	Insufficient Data	Insufficient Data
	2nd Dose	100%, Source 23 98%, Source 16	86%, Source 18	91.6% (Hospitalisation) Source 18	Insufficient Data	86.1%, Source 19 50.6% (Care Home Res), Source 20	95%, Source 25 90%, Source 24 74%, Source 15 95% (0-3 months), Source 14	97.5% (hospitalisation), Source 25 95% (Hospitalisation), Source 22 91% (Hospitalisation or mortality), Source 12 Hosp: 99% (0-3 months), Source 14	Insufficient Data

Reference	Source	Source URL
1	Public Health England	Link
2	Office for National Statistics, UK	Link
3	Public Health England	Link
4	Ministry of Health of Israel	Link
5	Centers for Disease Control and Prevention, USA	Link
6	Public Health England	Link
7	Public Health England	Link
8	Kuwait University	Link
9	Catalan Institute of Health	Link
10	Mary Queen's Mission Hospital, Kerala	Link
11	Office for National Statistics, UK	Link
12	Public Health Scotland	Link
13	Office for National Statistics, UK	Link
14	Public Health England	Link
15	Pfizer Press Release	Link
16	U.S. Department of Veterans Affairs	Link
17	United States Air Force	Link
18	Mayo Clinic	Link
19	Qatar	Link
20	Centers for Disease Control and Prevention, USA	Link
21	Ministry of Health of Israel	Link
22	Centers for Disease Control and Prevention, USA	Link
23	Qatar Ministry of Health	Link
24	Public Health England	Link
25	Public Health England	Link
26	Public Health England	Link

Vaccine Effectiveness Expert Panel - consensus narrative, 24 September

The consensus values reflect the best judgement of the expert panel based on a range of data sources, including some which may not yet be published. Individual source data may therefore be subject to change.

Delta variant	
Infection	- Vaccine effectiveness estimates are not yet available for all infections - i.e. asymptomatic and symptomatic infections combined - for the periods following second dose shown in the new consensus table. Previously, the expert panel had assessed that the AstraZeneca, Pfizer and Moderna vaccines were around **65%**, **75%** and **85%** effective respectively against overall infection with the Delta variant after two doses. These estimates referred to the whole period up to around 7 months following the second dose. ***(New update)***
Symptomatic disease	- Protection against symptomatic disease from the Astra Zeneca vaccine is assessed to be **65%** at 0-3 months post second dose, **55%** at 4-6 months and **45%** at 6+ months. For the Pfizer vaccine, effectiveness is estimated at **90%** at 0-3 months, **75%** at 4-6 months and **65%** for 6+ months. For the Moderna vaccine, data is only available for the 0-3 month period, for which protection is assessed to be **95%**. ***(New update)*** .
Hospitalisation	- The AstraZeneca vaccine is assessed to be **95%** effective at 0-3 months, falling to **85%** at 4-6 months and **75%** at 6+ months. For the Pfizer vaccine, there is less of an absolute reduction in effectiveness, with VE at **99%**, **95%** and **90%** for the same follow up periods. The Moderna vaccine is also assessed to be **99%** at 0-3 months, but data for later periods are not ytet available. ***(New update)*** .
Death	- For the AstraZeneca vaccine, less of a reduction in protetction is observed against mortality than against symptomatic disease and hospitalisation. At 0-3 months protection is **95%**, falling to **90%** at 4-6 months and **80%** for 6+ months. For Pfizer, effectiveness is estimates at **99%**, **95%** and **90%** for the same periods. For Moderna data are not yet available. ***(New update)*** .
Waning Immunity	- Waning immunity is common for many vaccines and diseases and some reduction in vaccine effectiveness over time is expected. - Evidence suggests that vaccine effectiveness against infection and mild disease starts to wane from around 10 weeks following the second dose. Waning against severe disease, including hospitalisations and deaths, is much more limited and is most evident in older age groups and clinical risk groups from around 20 weeks following the second dose. For these groups, the actual level of protection is likely to be lower than the figures presented in the consensus VE table, which are for the population at large. - Notwithstandsing the effect of booster doses, which are expected to increase protection in those who receive them, proection is expected to plateau rather than fall to zero. It is not known at what level or after how long this will occur. **(*New update*).**