

Vaccine efficacy reported in trials

Vaccine efficacies (VE) reported in phase III clinical trials depend on the outcome, time interval, number of received doses and subgroups. The overview in table 1, lists the overall VE estimates after full vaccination focused on the prespecified time interval after full vaccination as described in the study protocol.

Table 1. Vaccine efficacy (VE) after complete vaccination against symptomatic SARS-CoV-2 infections, hospitalization, death and severe COVID19 for the COVID19-vaccines developed by Pfizer, Moderna, AstraZenca and Janssen.

Vaccine												
	Pfizer ^e			Moderna ^e			AstraZeneca ^{e,α}			Janssen ^f (one dose scheme)		
Outcome	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI
Symptomatic SARS-CoV-2 infection	≥7 days after d2	95,0 [Polack]	(90,3-97,6)	≥14 days after d2	94,1 [Baden]	(89,3-96,8)	≥15 days after d2	62.1 [Voysey]	(41.0-75.7)	≥14 days after vaccination	66.9 [FDA J]	(59.0-73.4)
	≥14 days after d2	94,2 [EPAR P]	(88,7-97,2)							≥28 days after vaccination	66.1 [EMA J]	(55.0-74.8)
Vaccine												
	Pfizer			Moderna			AstraZeneca			Janssen (one dose scheme)		
Outcome	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI
Hospitalization							≥15 days after d2	100 [EPAR AZ]	(42.65, NE)	≥14 days after vaccination	81.8 [FDA J]	(16.7-98.0)
										≥28 days after vaccination	100 [FDA J]	(74.3-100.0)
Vaccine												
	Pfizer			Moderna			AstraZeneca			Janssen (one dose scheme)		
Outcome	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI

Death											≥14 days after vaccination	80.0 [FDA J]	(29.4, 96.3)
											≥28 days after vaccination	75 [FDA J]	(-25.2, 97.4)
	Pfizer			Moderna			AstraZeneca			Janssen (one dose scheme)			
Outcome	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	Time interval	VE [ref]	95% CI	
Severe COVID19	≥7 days after d2	66,4 [FDA P]	(-124,8-96,3)	≥14 days after d2	100 [Baden]	(NE, 100.0)	≥15 days after d2	100.0 [EPAR AZ]	(-3742.53, NE)	≥14 days after vaccination	76.7 [FDA J]	(54.6, 89.1)	
										≥28 days after vaccination	85.4 [FDA J]	(54.2, 96.9)	

*Complete vaccination reflects two doses for the vaccines developed by Pfizer, Moderna and AstraZeneca and one dose for the vaccine developed by Janssen. †Median age in years of the study populations are 52 (16-91) [Polack], NR [18-70+] [Voysey] and 53 (18-100) [FDA J] for the vaccines developed by Pfizer, AstraZeneca and Janssen respectively. Participants in the trial of the Moderna vaccine had a mean age of 51.4 (range 18-95) year [Baden]. ‡Standard dose – standard dose scheme. NE, not estimated since there were 0 cases in the intervention or placebo arm. NR, not reported.

Vaccine effectiveness reported in post-marketing studies

Note: no post-marketing studies have been found for the Moderna and Janssen vaccines. VEs estimates after full vaccination in post-marketing studies are limited for the vaccines developed by Pfizer and AstraZeneca. In table 2, VEs are reported in time intervals that are as similar as possible to those used in phase III trials, i.e. ≥ 7 days or ≥ 14 days after dose 2. Additionally, VE estimates after one dose are provided if no relevant information after two doses is available. VEs after one dose are listed for time intervals around one or two weeks after dose 1 and the maximum time interval after dose 1 provided in the study.

Table 2. Vaccine effectiveness (VE) obtained from preprints (unless stated otherwise) against symptomatic SARS-CoV-2 infections, hospitalization, death and severe COVID19 for the COVID19- vaccines developed by Pfizer and AstraZeneca.

Outcome	Vaccine							
	Pfizer				AstraZeneca			
	Population [ref]	Time interval	VE	95% CI	Population	Time interval	VE	95% CI
Symptomatic SARS-CoV-2 infection	Israel, ≥ 16 yr [Chodick*]	13-24 days after dose 1	51.4	(-7.2-78)	England, ≥ 70 yr [Lopez]	7-9 days after d1	-3	(-16, 1)
	Israel, ≥ 16 yr [Hunter*]	21 days after dose 1	91	(83-98) ^a	England, ≥ 70 yr [Lopez]	14-20 days after d1	22	(11-32)
	Israel, ≥ 16 yr [Dagan ^b]	≥ 7 days after d2	94	(87-98)	England, ≥ 70 yr [Lopez]	≥ 35 days after d1	73	(27-90)
	England, >80 yr [PHE]	≥ 7 days after d2	88	(84-90)				
	England, ≥ 80 yr [Lopez]	≥ 14 days after d2	85	(79-89)				
	Israel, HCW [Amit*]	1-14 days after d1	47	(17-66)				
	Israel, HCW [Amit*]	15-28 d after d1	85	(71-92)				
	Denmark, HCW, 47 (36-57) ^c [Moustsen]	>14 days after d1 – d2	17	(4-28)				
	Denmark, HCW,	≥ 7 days after d2	90	(82-95)				

	47 (36-57) ² [Moustsen]							
	England, HCW, ±45 ⁹ [Hall*]	≥7 days after d2	85	(74-96)				
	Denmark, LTCF, 84 (77-90) ² [Moustsen]	>14 days after d1 – d2	21	(-11-44)				
	Denmark, LTCF, 84 (77-90) ² [Moustsen]	≥7 days after d2	64	(14-84)				
Pfizer								
AstraZeneca								
	Population [ref]	Time interval	VE	95% CI	Population	Time interval	VE	95% CI
Hospitalization	Israel, ≥16 yr [Dagan ³]	≥7 days after d2	87	(55–100)	England, ≥80 yr [Lopez]	≥14 days after d1	37	(3-59)
	England, ≥80 yr [Hyams]	≥14 days after d1	71.4	(43.1-86.2)	England, ≥80 yr [Hyams]	≥14 days after d1	80.4	(36.4-94.5)
	Scotland, adults [Vasileiou]	7-13 days after d1	38	(28-47)	Scotland, adults [Vasileiou]	7-13 days after d1	70	(63-76)
	Scotland, adults [Vasileiou]	14-20 days after d1	60	(50-68)	Scotland, adults [Vasileiou]	14-20 days after d1	74	(66-81)
	Scotland, adults [Vasileiou]	42+ days after d1	64	(49-75)	Scotland, adults [Vasileiou]	28-34 days after d1	94	(71-99)
Pfizer								
AstraZeneca								
	Population [ref]	Time interval	VE	95% CI	Population	Time interval	VE	95% CI
Death	England, ≥80 yr [Lopez]	≥14 days after d1	51	(37-62)				
Pfizer								
AstraZeneca								
	Population [ref]	Time interval	VE	95% CI	Population	Time interval	VE	95% CI
Severe COVID19	Adults ≥16 yr [Dagan ³]	≥7 days after d2	92	(75–100)				

*SARS-CoV-2 infection irrespective of symptoms. ²90% Credible interval. ³No preprint. Peer reviewed publication in the New England Journal of Medicine. ⁴No preprint. Correspondence of the Lancet. ⁵Median age at first vaccination dose (interquartile range). ⁶Median age. D1, dose1; D2, dose 2; HCW, Health Care Workers; LTCF, Long Term Care Facility residents.

