

## Supplementary Material

COVID-19 vaccine effectiveness against severe disease from the Omicron BA.1 and BA.2 subvariants – surveillance results from southern Sweden, December 2021 to March 2022

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**Supplementary Table S1.** Routine sequencing of samples of infected cases, Scania, Sweden, 2021 w52 – 2022 w11 (n = 2,999).

Year	2021	2022										
Week	52	1	2	3	4	5	6	7	8	9	10	11
Total	289	325	281	340	288	314	314	222	222	123	124	157
Omicron BA.1	162	206	136	153	72	65	40	32	77	6	6	6
Omicron BA.2	29	61	124	179	214	244	273	190	144	117	118	151
Delta	98	58	21	8	2	5	1	0	1	0	0	0

**Supplementary Table S2.** Classification of comorbidities.

<b>Disease group</b>	<b>ICD-10 codes (incl KVÅ-codes<sup>a</sup>)</b>
Cardiovascular diseases	I10-I15, I20-I25, I42-I43 I50, I60-I69 J81
Diabetes or obesity	E10, E11, E66
Kidney or liver diseases	K70.X, K74.3-K74.6, K75.4, K76.0 N18.5, N18.9 DR016, DR024
Respiratory diseases	A15-A19 E84 I26, I27 J42, J43, J44, J45, J47, J84 J96, J98.2, J98.3
Neurological diseases (including dementia)	G00-G99 F00-F03
Cancer or immunosuppressed state (including organ transplantation)	C00-C99 KAS, FQA, FQB, JJC, GDG, JLE DR046, DR047, DR048 D80.0-D80.1 D80.5, D81, D82, D83
Other conditions and diseases <ul style="list-style-type: none"> <li>• HIV</li> <li>• Thalassemia</li> <li>• Sickle cell</li> <li>• Mood disorders</li> <li>• Schizophrenia spectrum disorders</li> <li>• Substance use disorders</li> <li>• Downs syndrome</li> </ul>	B20-B24 D56, D57 F10-F19, F30-F39, F20-F29 Q90

<sup>a</sup>Swedish classification of certain interventions during health care visits

**Supplementary Table S3.** Vaccine effectiveness after at least three or two doses against severe COVID-19 in each follow-up period, Scania, Sweden, 2021 w52 – 2022 w11 (n = 593 cases; n = 5,930 controls).

	Follow up period		
	Omicron BA.1 2021 w52-2022 w1	Transition 2022 w2-3	Omicron BA.2 2022 w4-11
	VE (95% CI) <sup>a</sup>	VE (95% CI) <sup>a</sup>	VE (95% CI) <sup>a</sup>
<i>At least three doses</i>			
All	94 (84 – 98)	90 (82 – 95)	82 (64 – 91)
Age			
< 65 years	92 (73 – 98)	74 (16 – 92)	76 (32 – 91)
≥ 65 years	94 (76 – 98)	92 (83 – 97)	82 (56 – 93)
Sex			
Females	92 (74 – 97)	93 (81 – 98)	78 (35 – 93)
Males	96 (79 – 100)	89 (74 – 96)	84 (62 – 93)
Comorbidities			
None	99 (53 – 100)	96 (81 – 100)	77 (27 – 92)
≥ 1	90 (44 – 98)	84 (54 – 95)	85 (48 – 96)
<i>Two doses</i>			
All	90 (78 – 95)	70 (42 – 84)	54 (13 – 75)
Age			
< 65 years	93 (81 – 98)	78 (35 – 93)	59 (4 – 83)
≥ 65 years	84 (37 – 96)	55 (0 – 81)	43 (0 – 79)
Sex			
Females	88 (65 – 96)	73 (37 – 88)	53 (0 – 82)
Males	92 (73 – 98)	67 (14 – 87)	54 (0 – 80)
Comorbidities			
None	96 (66 – 100)	79 (32 – 94)	61 (2 – 85)
≥ 1	77 (0 – 95)	58 (0 – 86)	46 (0 – 86)

<sup>a</sup>Vaccine effectiveness (95% confidence interval). Estimates were obtained from conditional logistic regression for age and sex matched case and controls (1:10), and with adjustment for comorbidities (0, 1, ≥2) and infection at least 90 days prior the case date. Results are presented overall and stratified by age, sex and comorbidities.