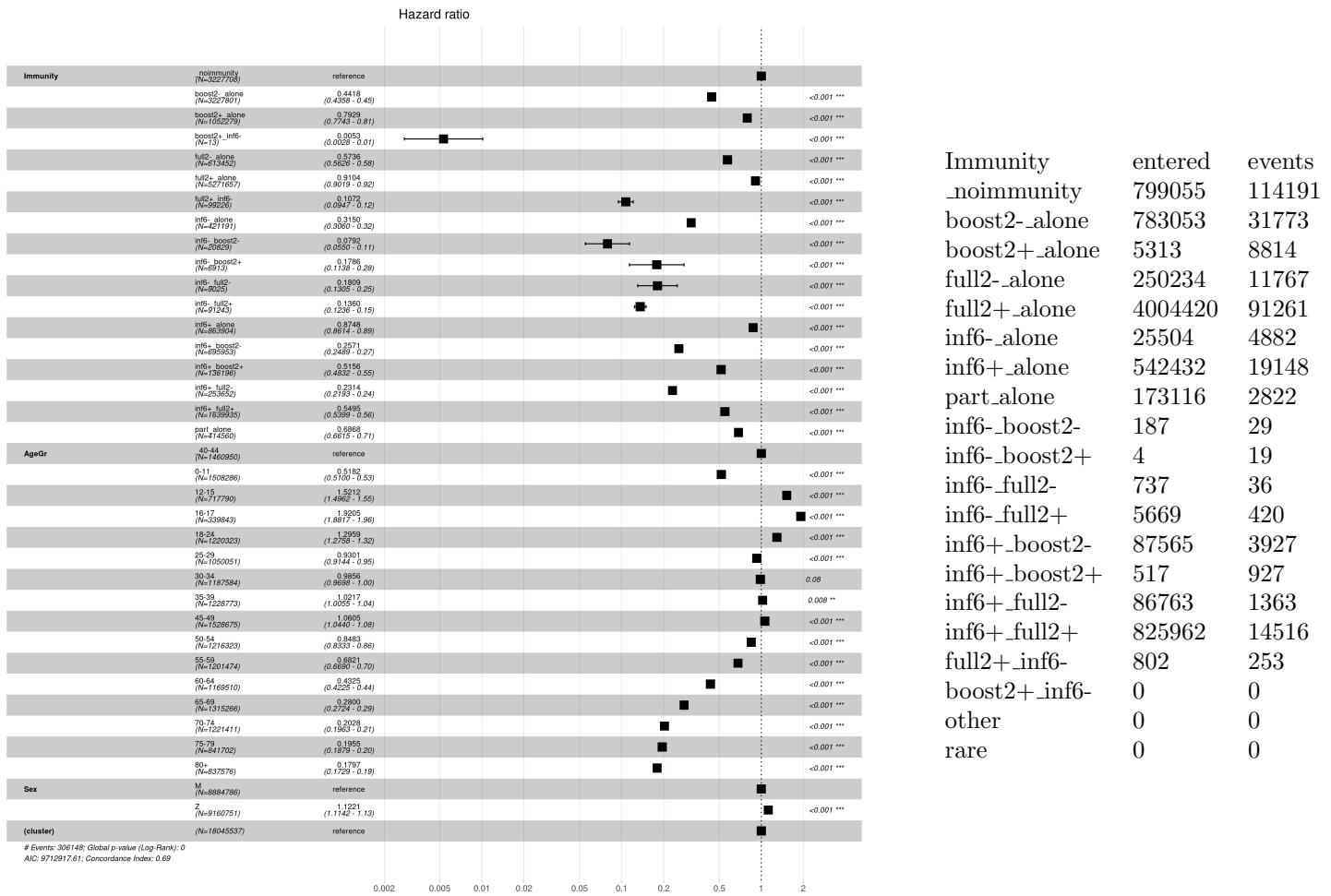


Protection provided by covid-19 vaccines and previous infection against the Omicron  
variant

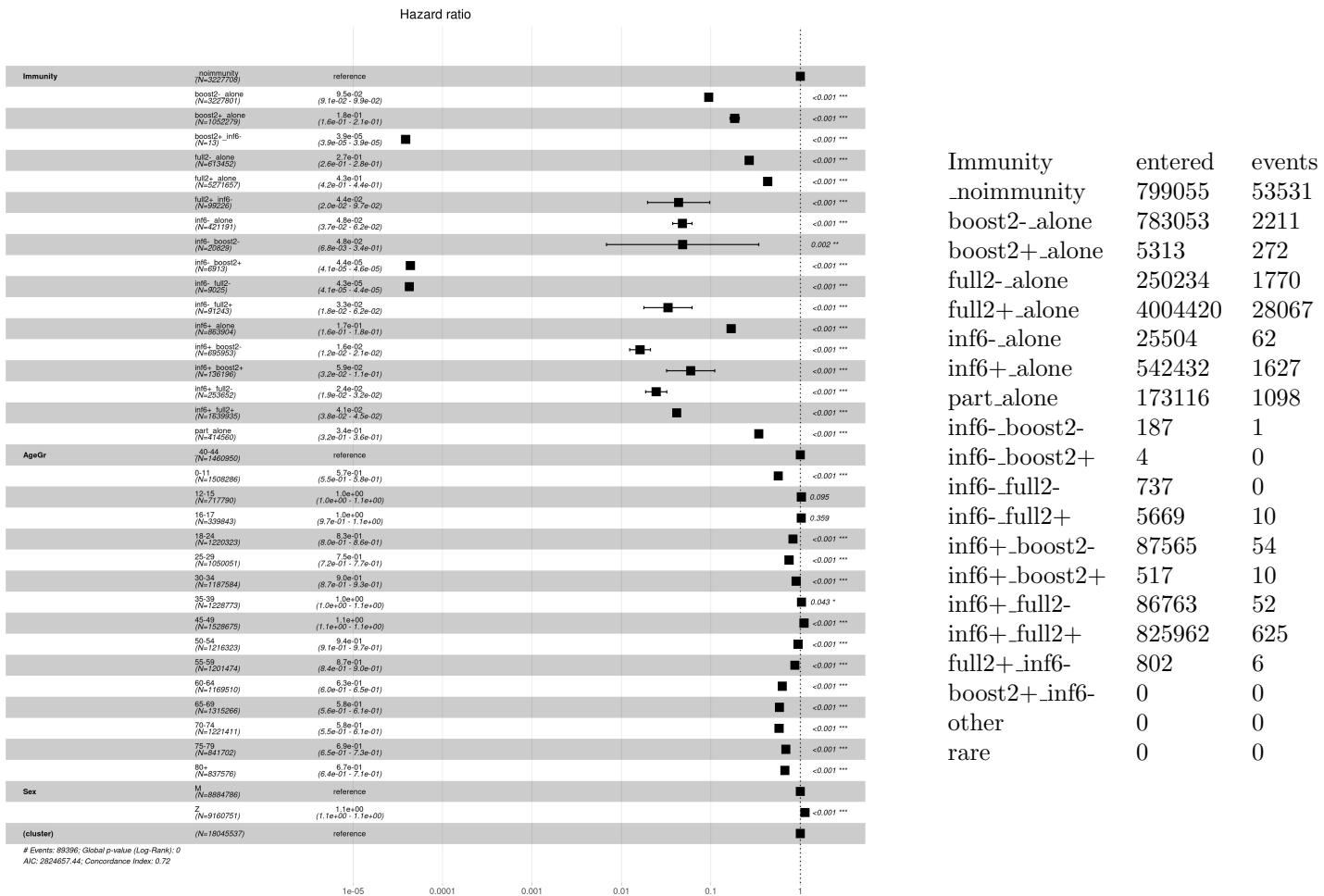
Results of Statistical Estimation

July 24, 2022

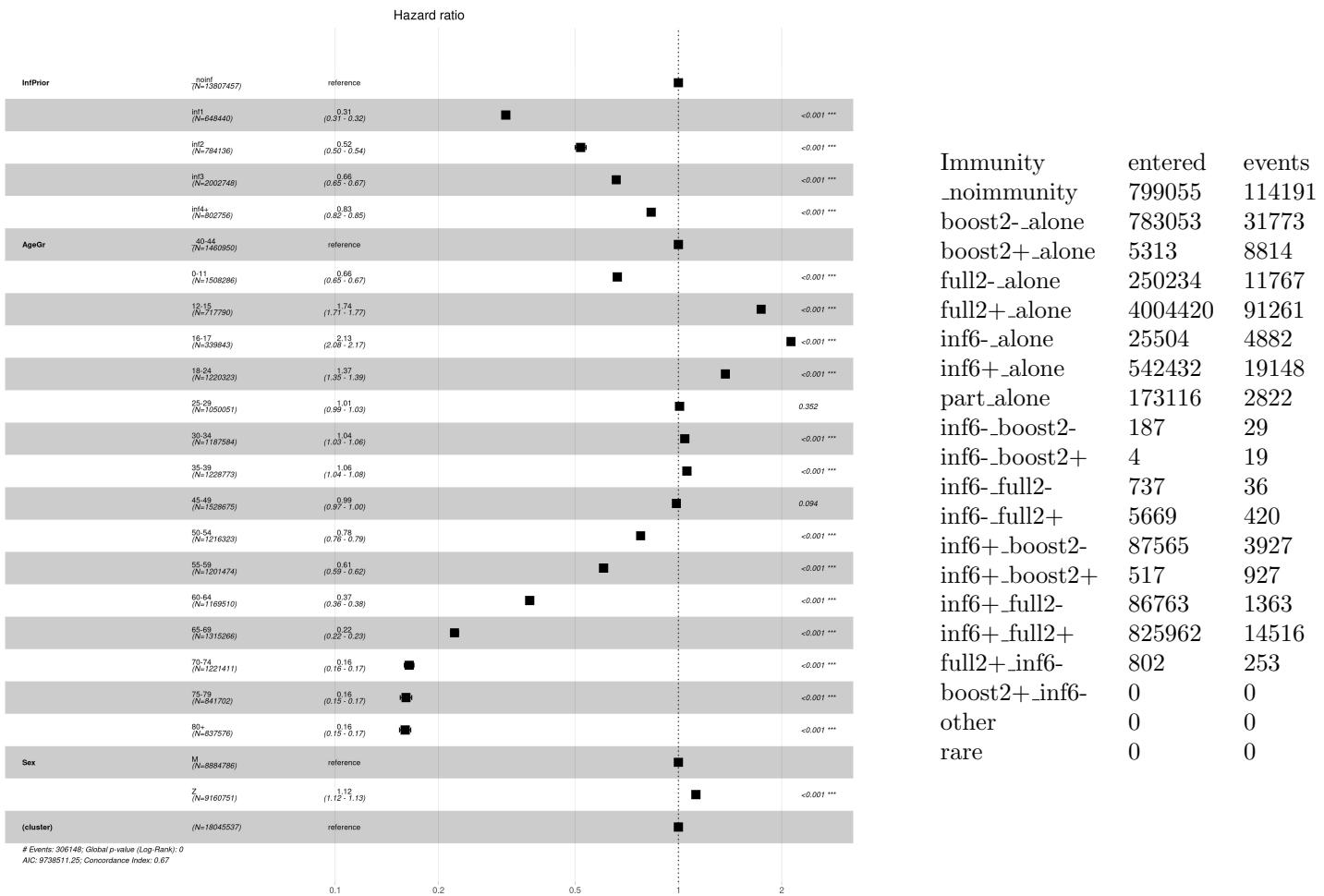
# 1 Infections – Omicron



## 2 Infections – Delta

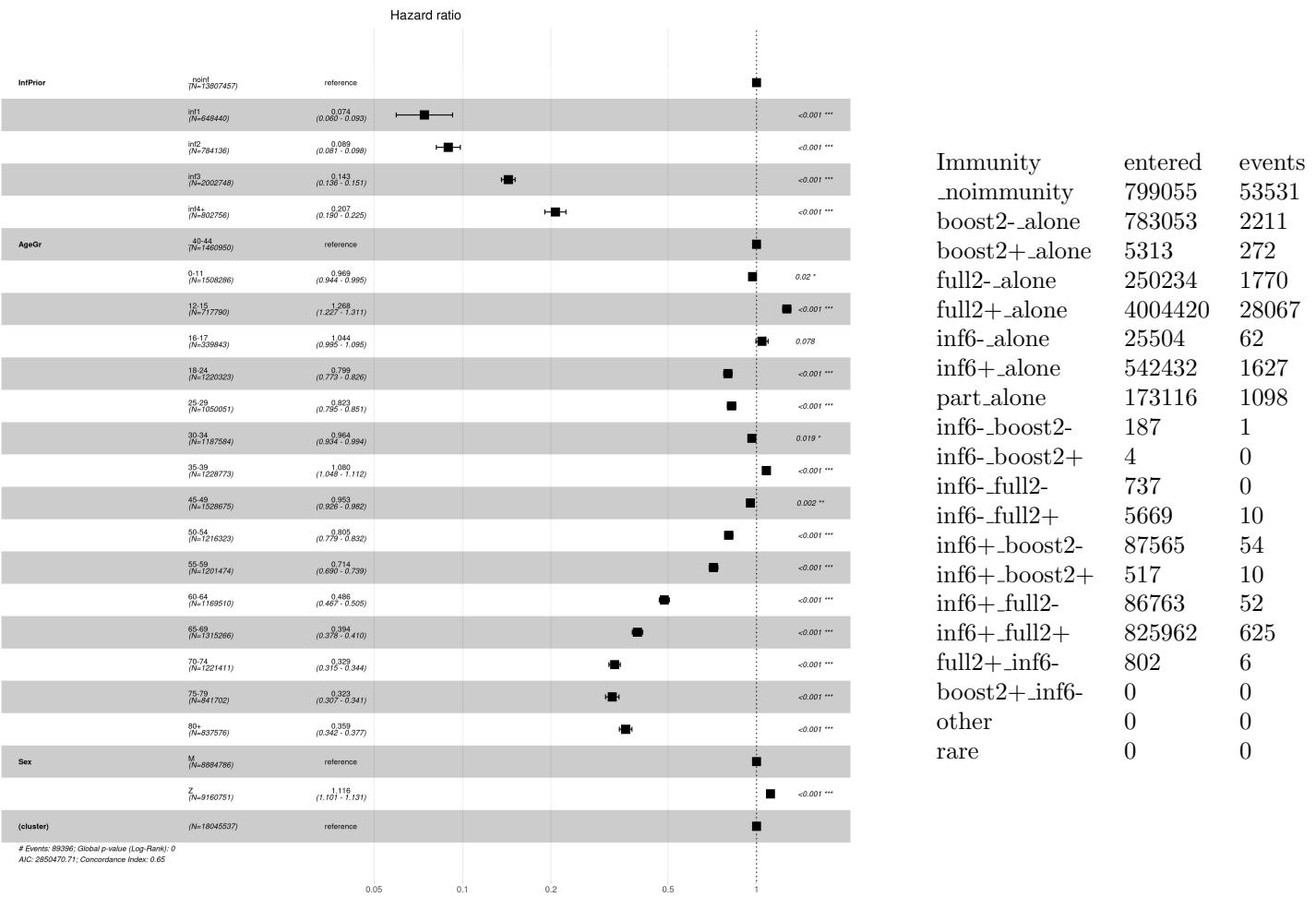


### 3 Re-infections – Omicron

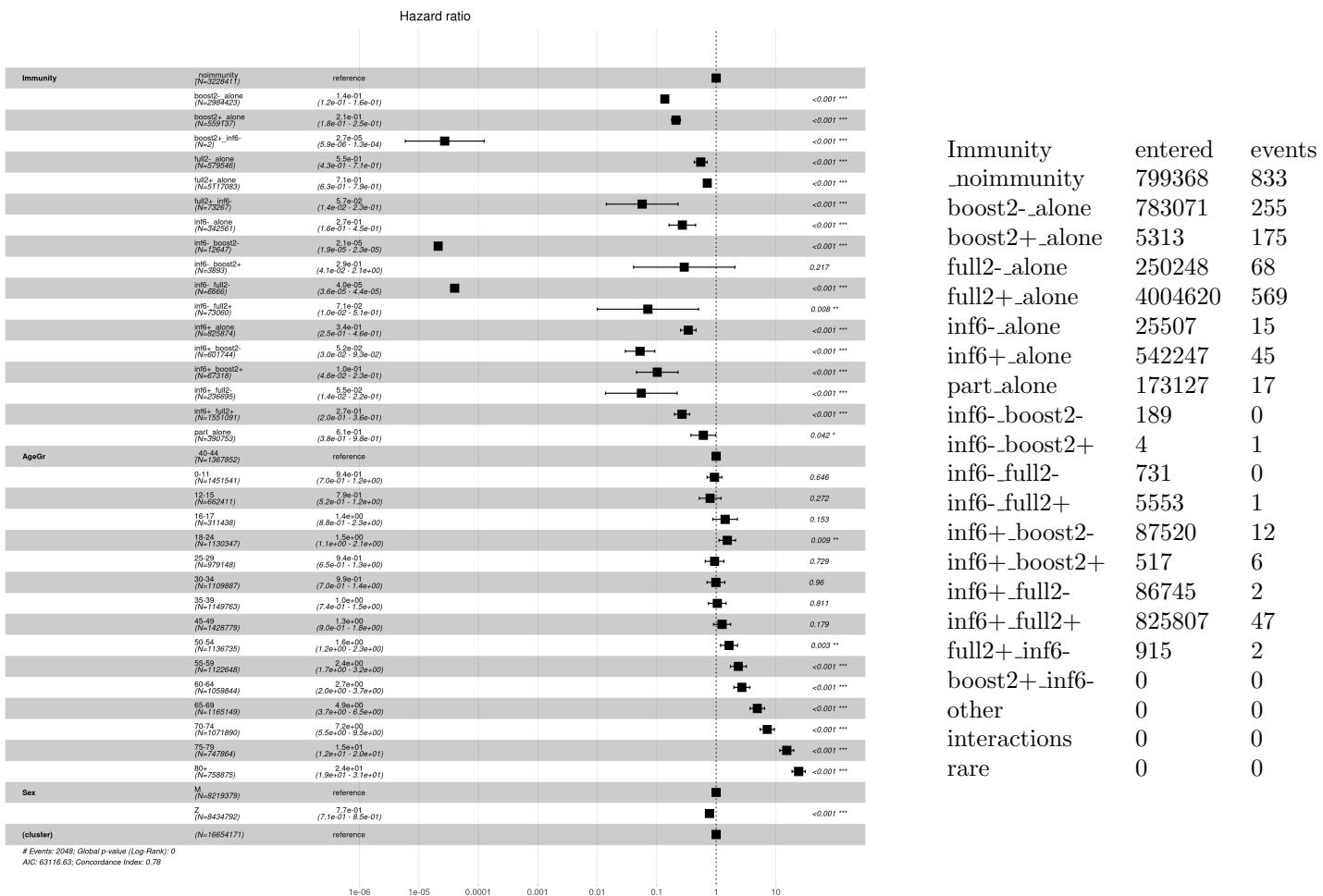


Immunity	entered	events
_noimmunity	799055	114191
boost2-_alone	783053	31773
boost2+_alone	5313	8814
full2-_alone	250234	11767
full2+_alone	4004420	91261
inf6-_alone	25504	4882
inf6+_alone	542432	19148
part_alone	173116	2822
inf6-_boost2-	187	29
inf6-_boost2+	4	19
inf6-_full2-	737	36
inf6-_full2+	5669	420
inf6+_boost2-	87565	3927
inf6+_boost2+	517	927
inf6+_full2-	86763	1363
inf6+_full2+	825962	14516
full2+_inf6-	802	253
boost2+_inf6-	0	0
other	0	0
rare	0	0

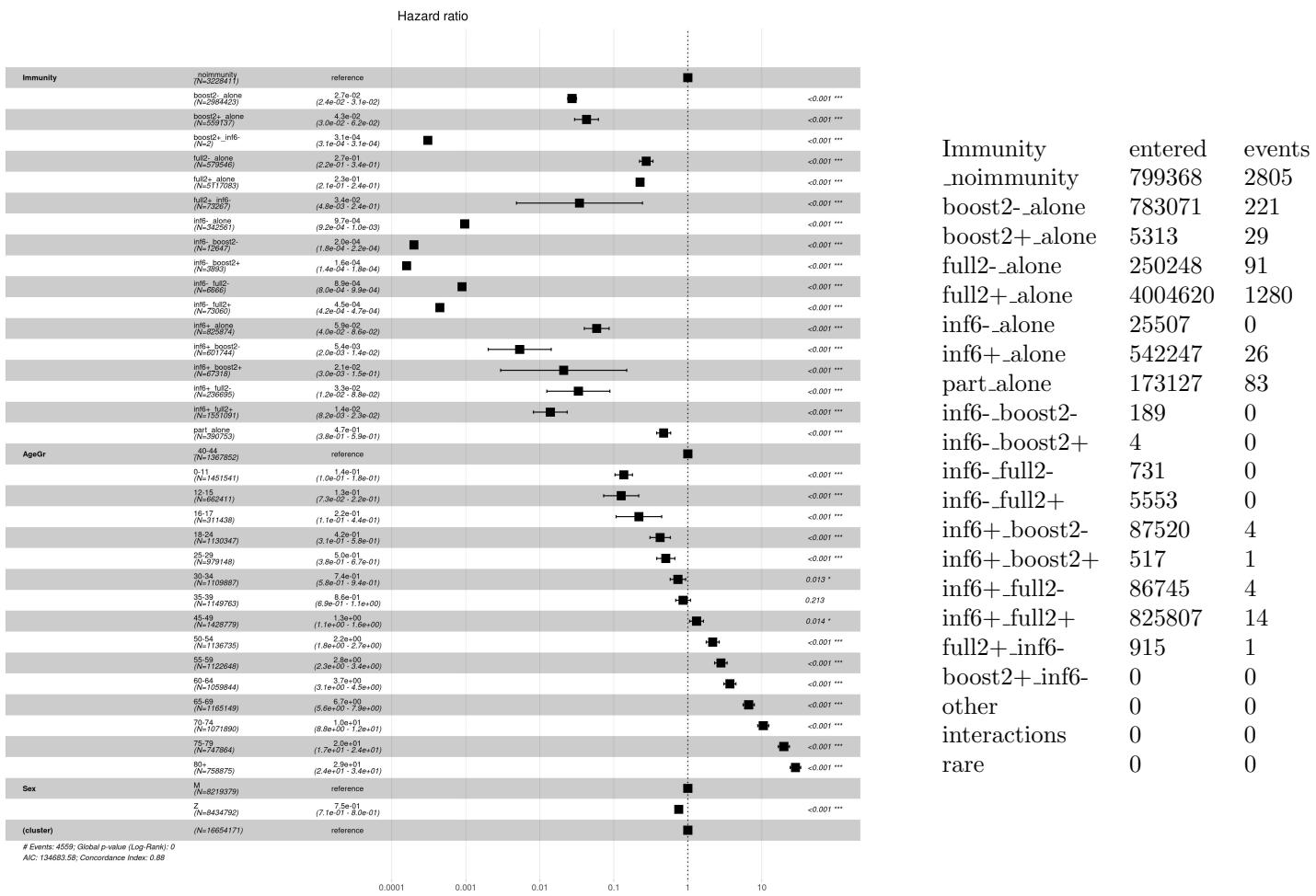
## 4 Re-infections – Delta



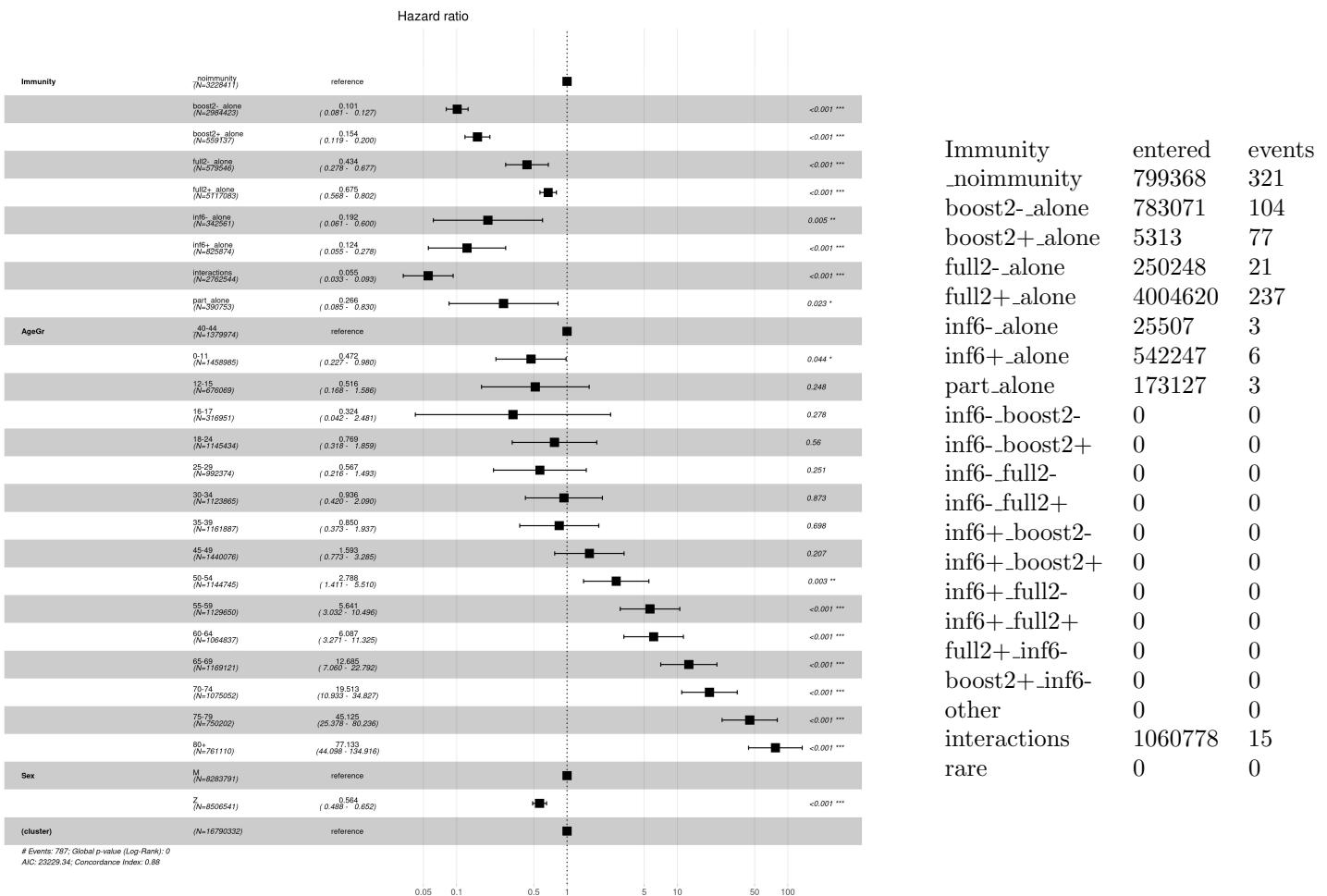
## 5 Hospitalizations – Omicron



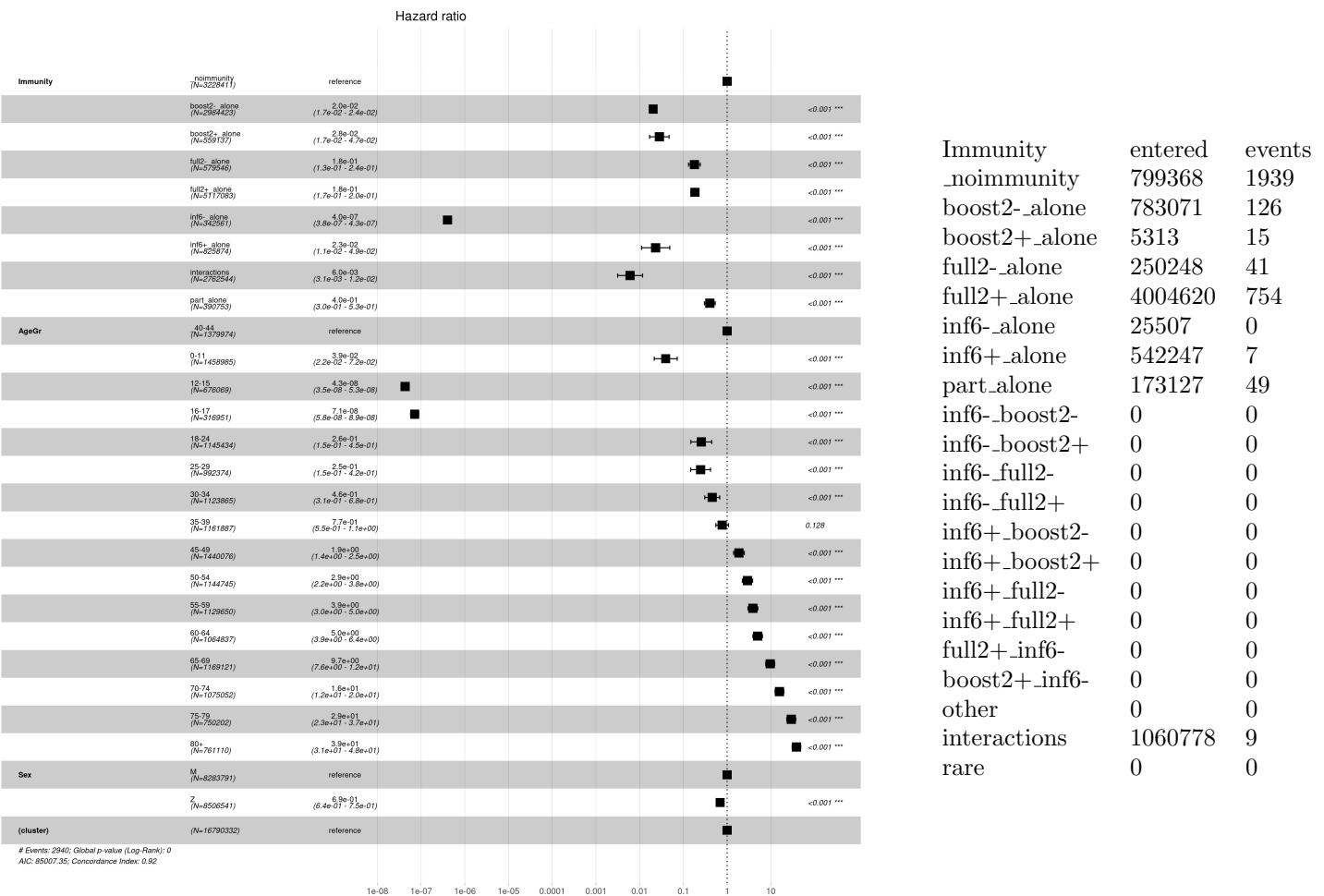
## 6 Hospitalizations – Delta



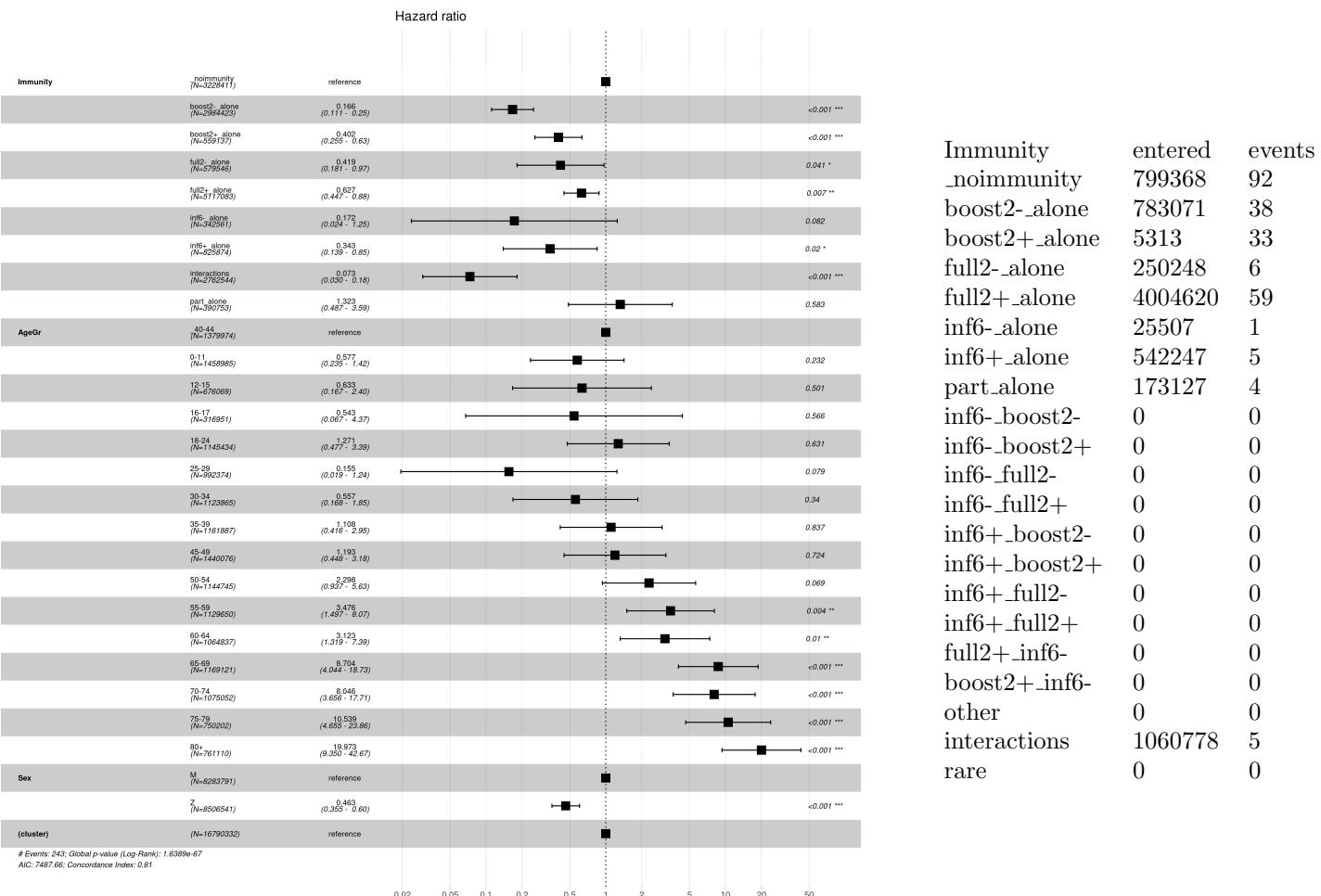
## 7 Oxygen therapy – Omicron



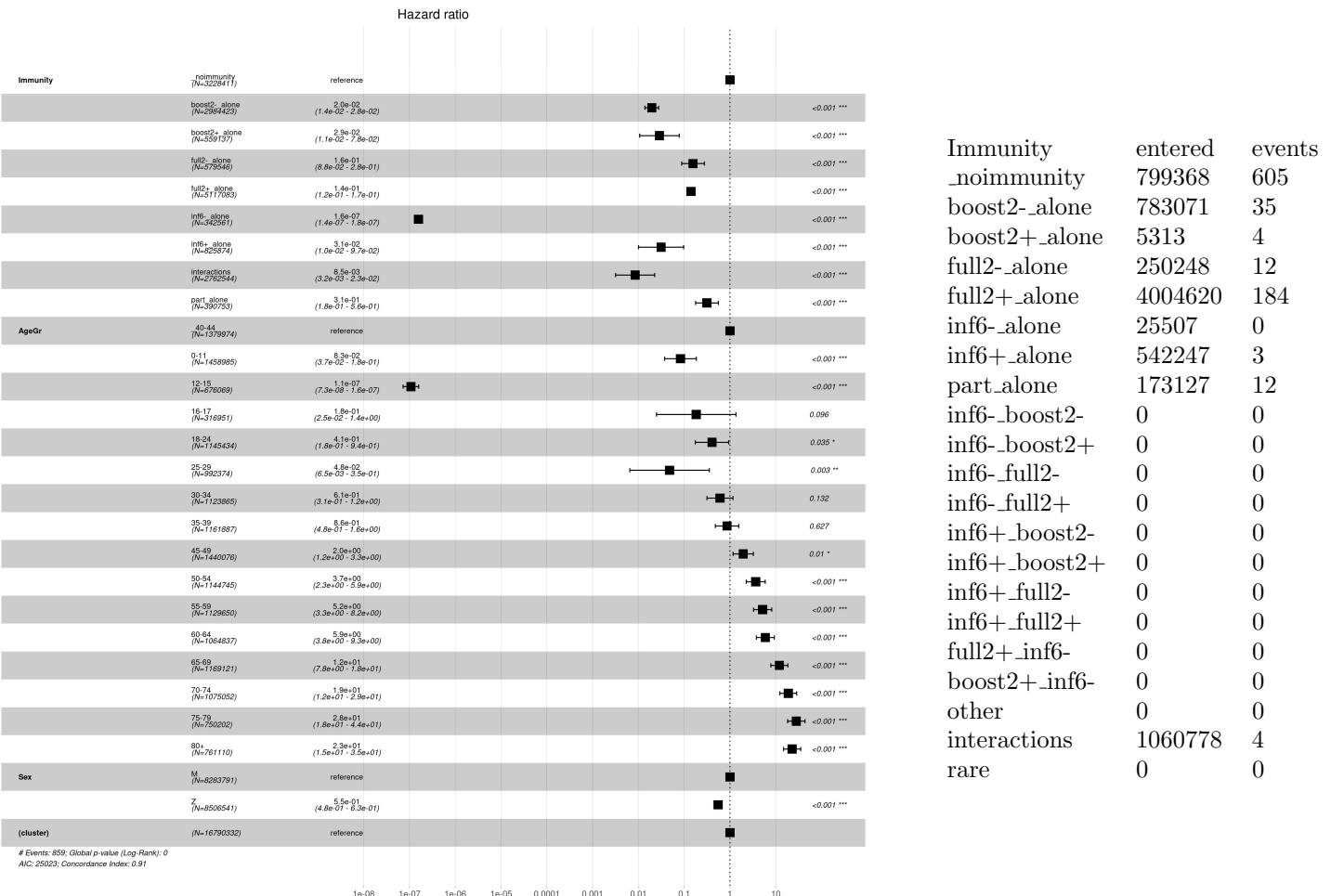
## 8 Oxygen therapy – Delta



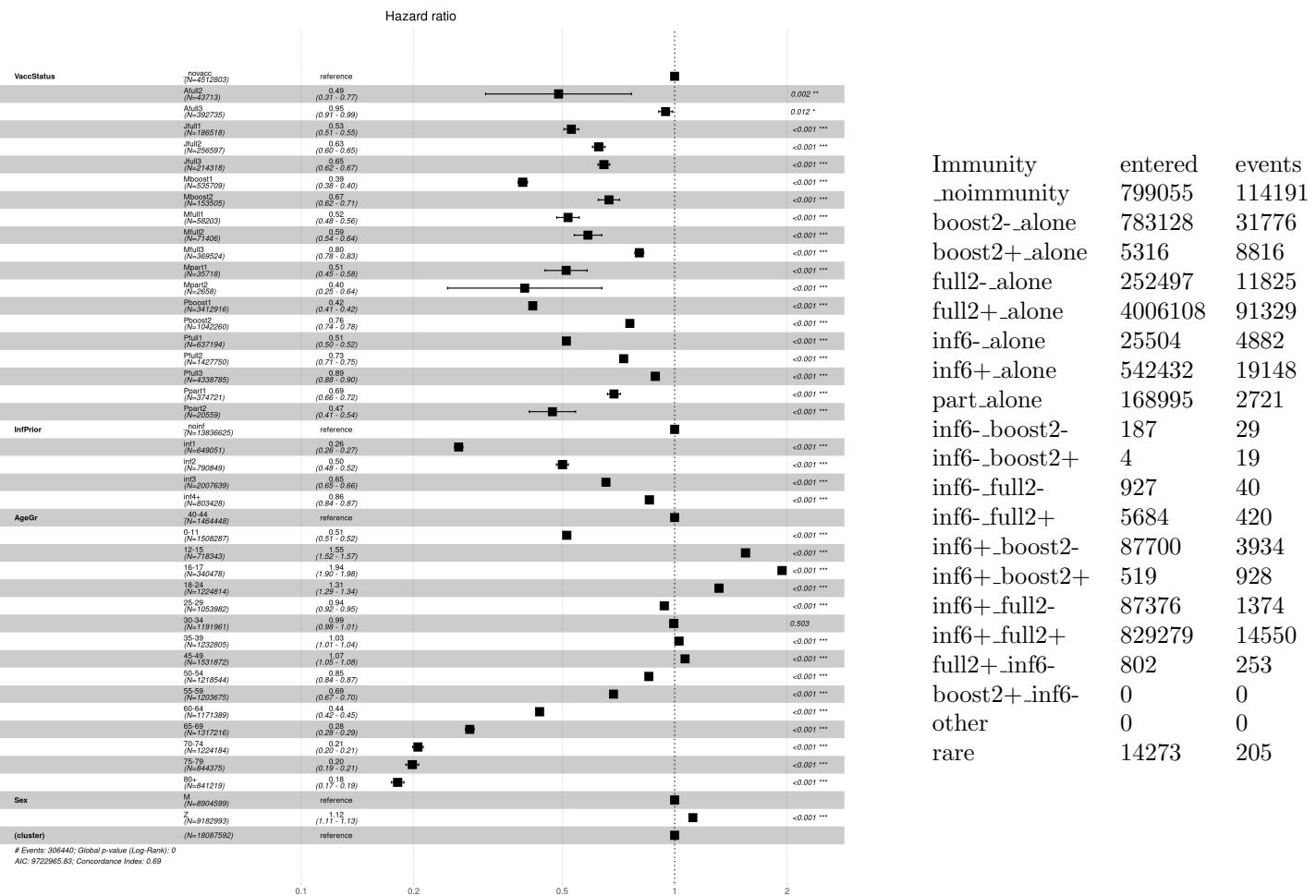
## 9 ICU therapy – Omicron



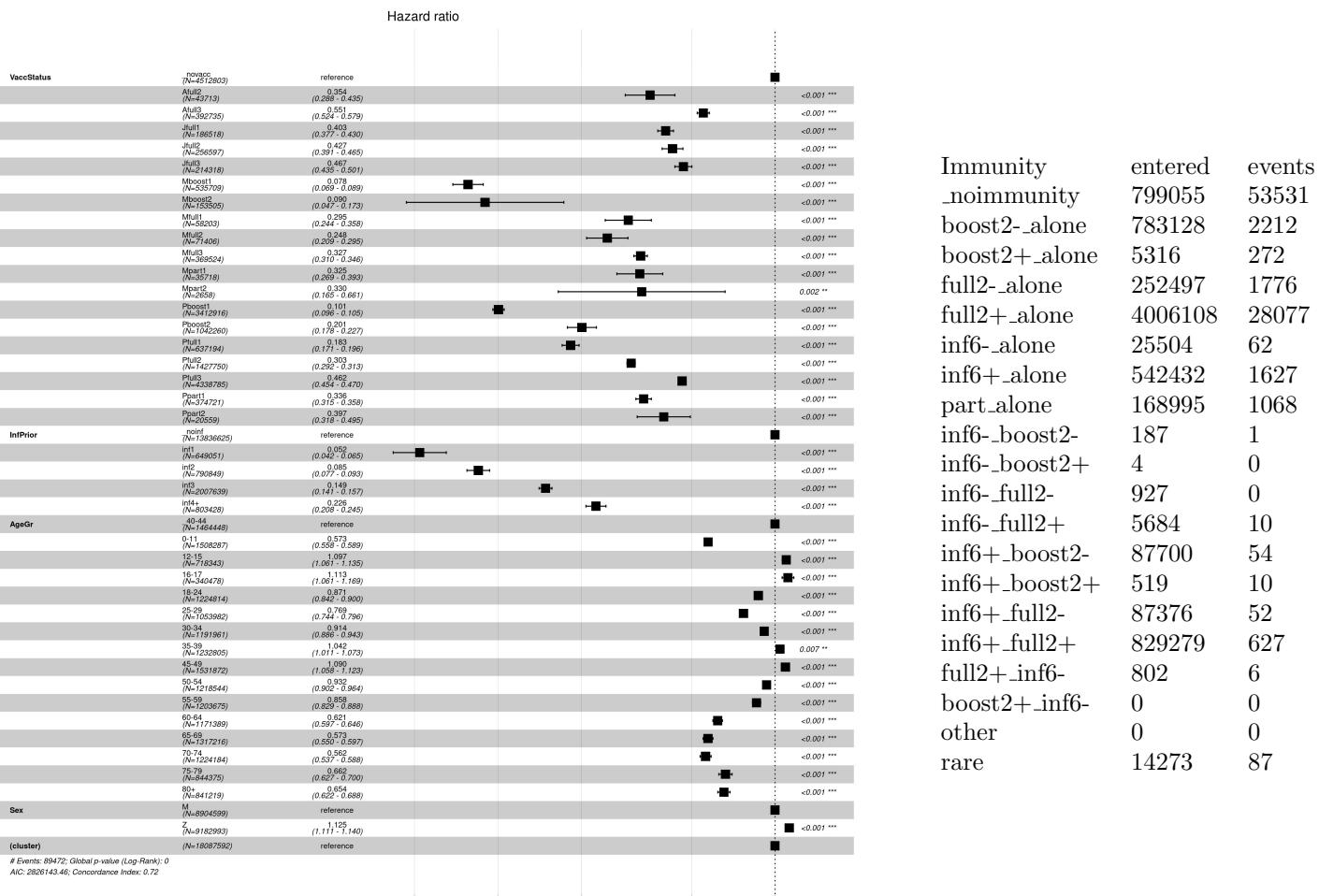
## 10 ICU therapy – Delta



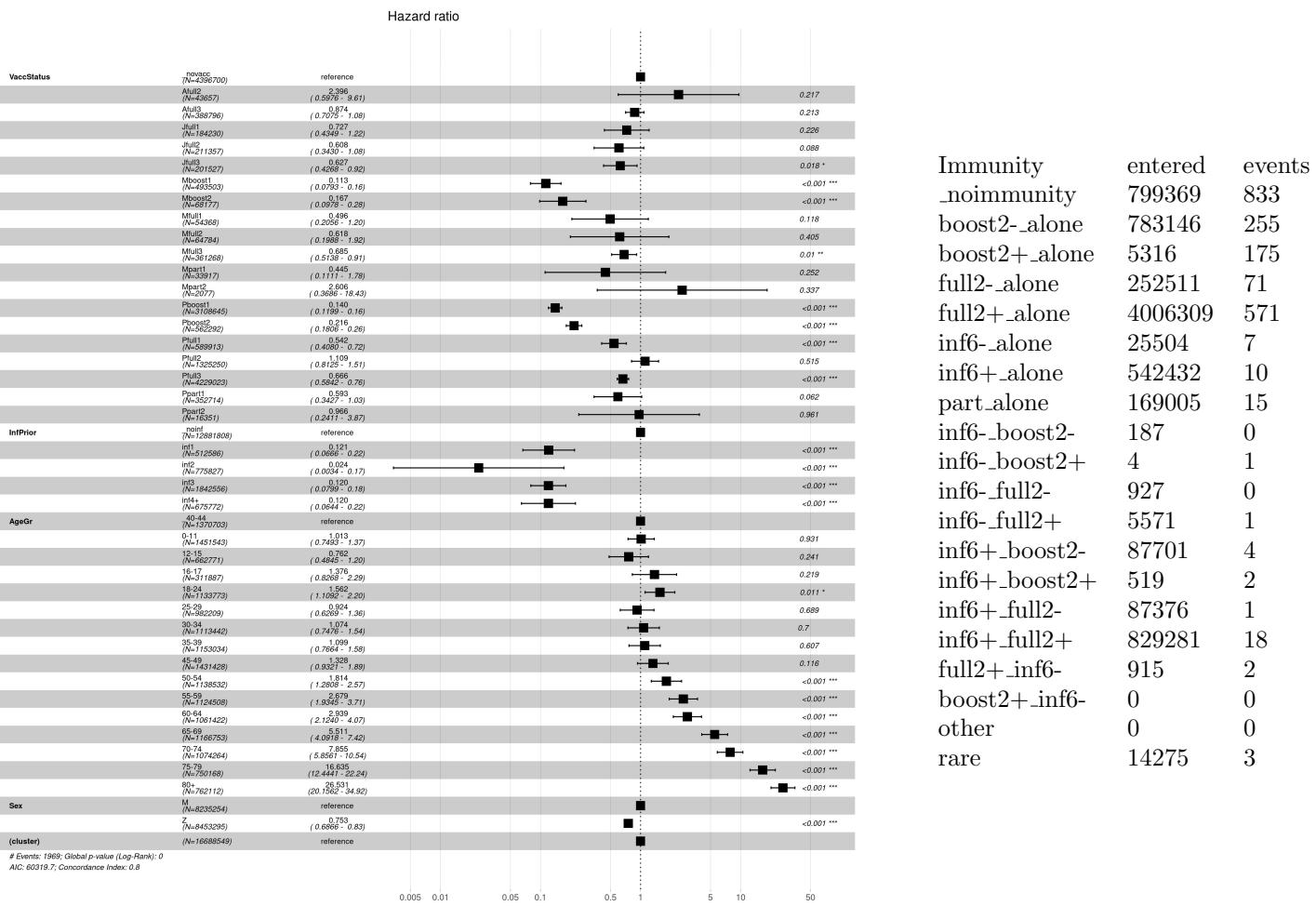
## 11 Infections by Vaccines - Omicron



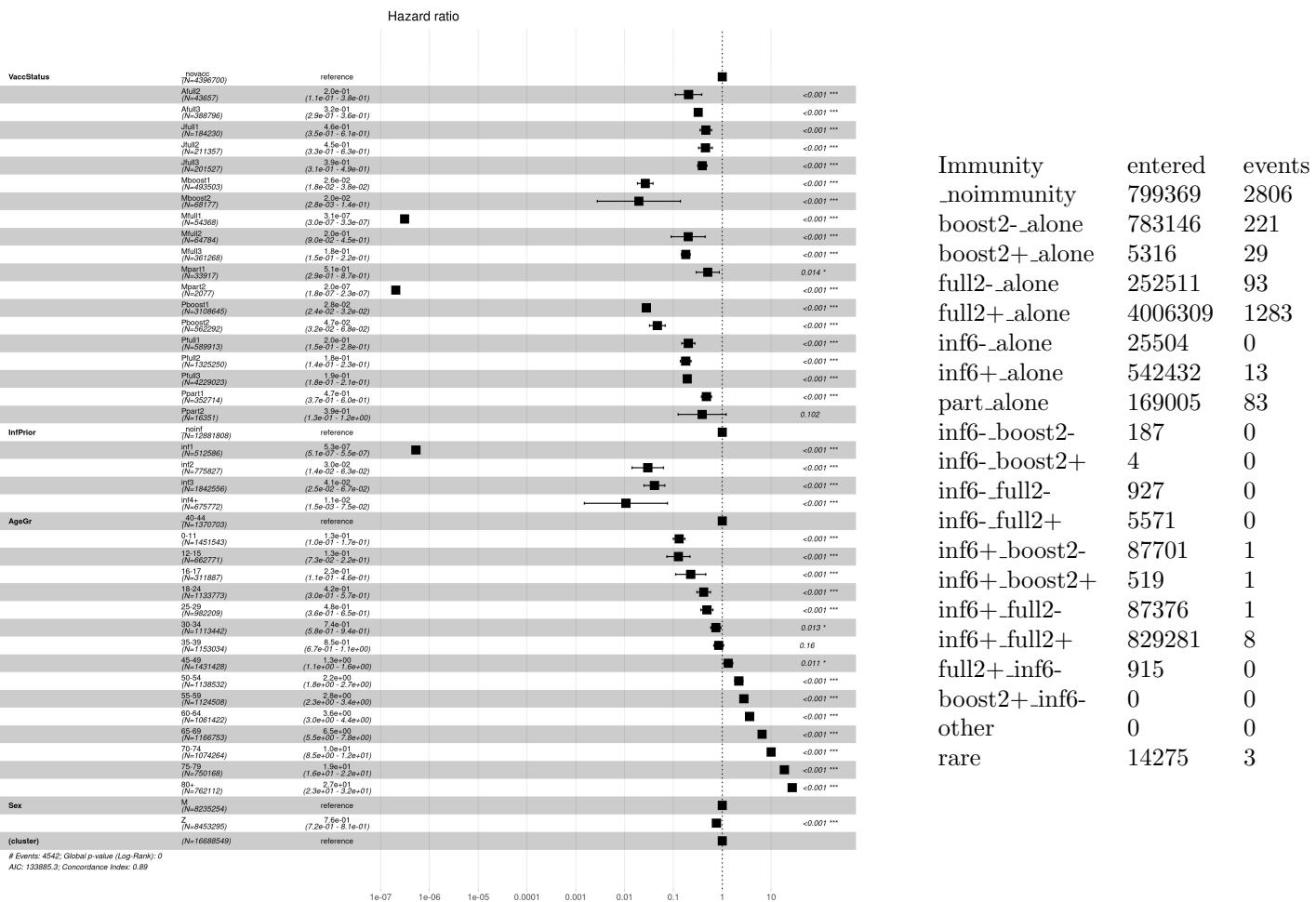
## 12 Infections by Vaccines - Delta



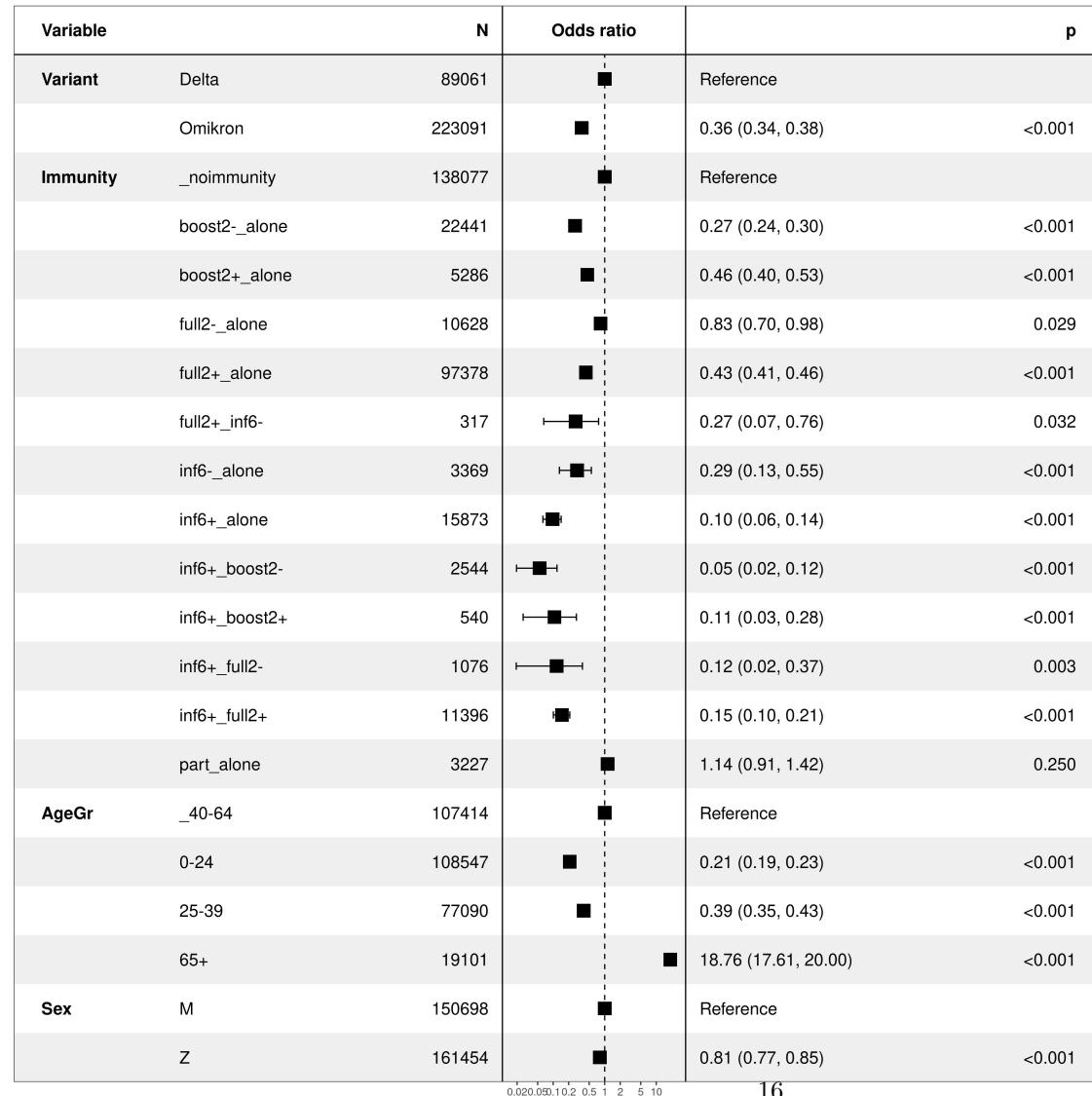
## 13 Hospitalizations by Vaccines - Omicron



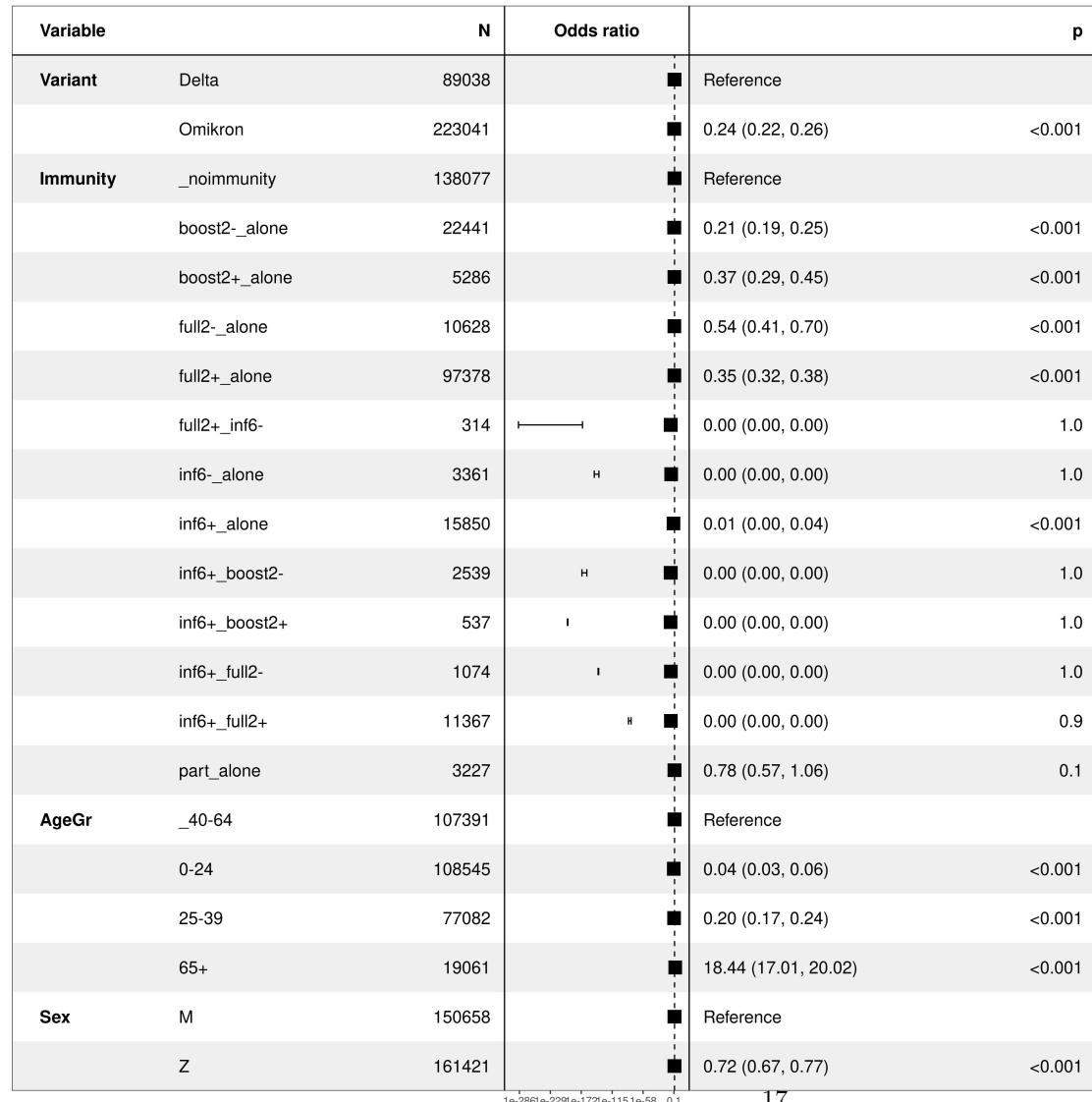
## 14 Hospitalizations by Vaccines - Delta



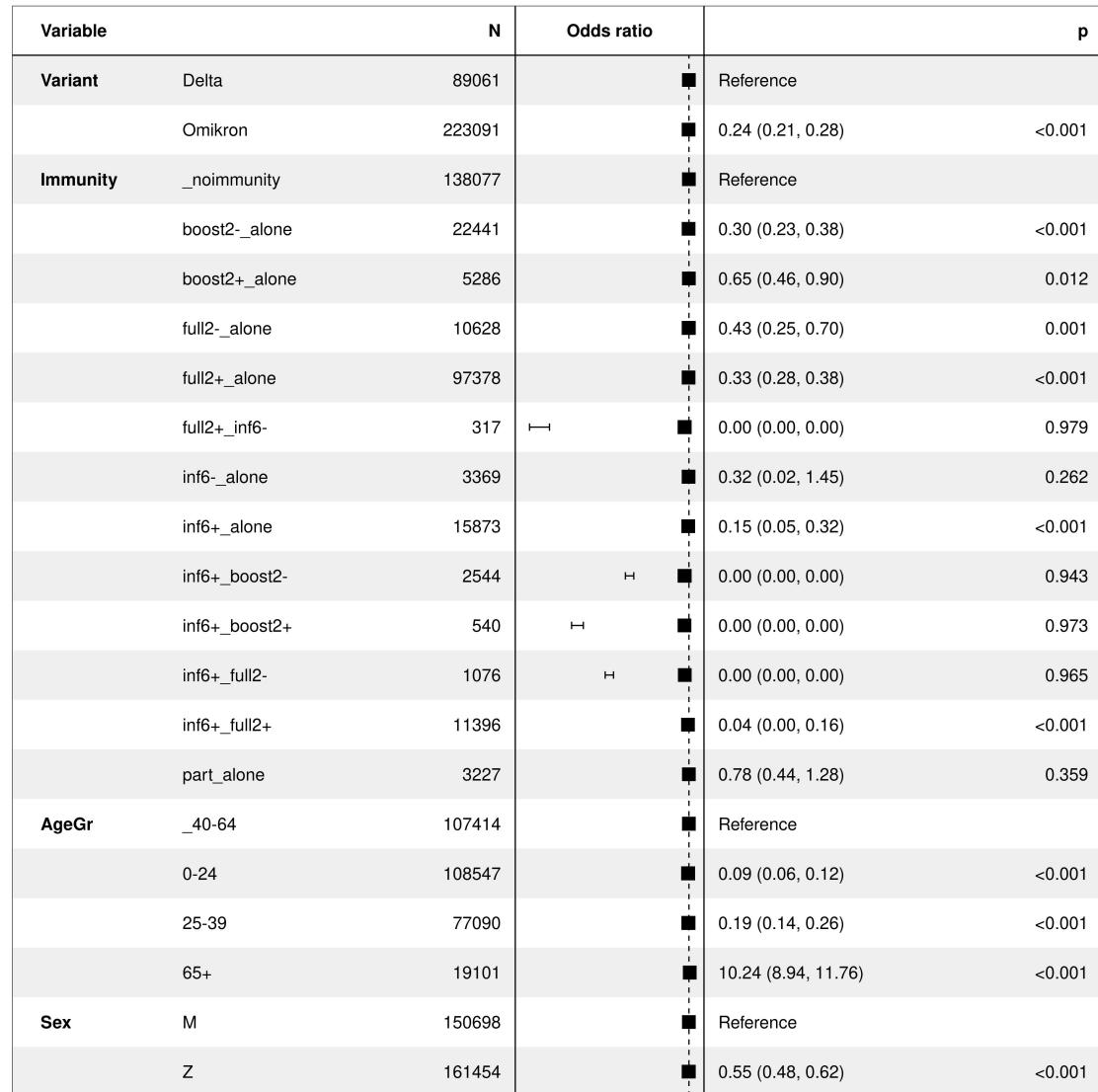
## 15 Hospitalization given Infection



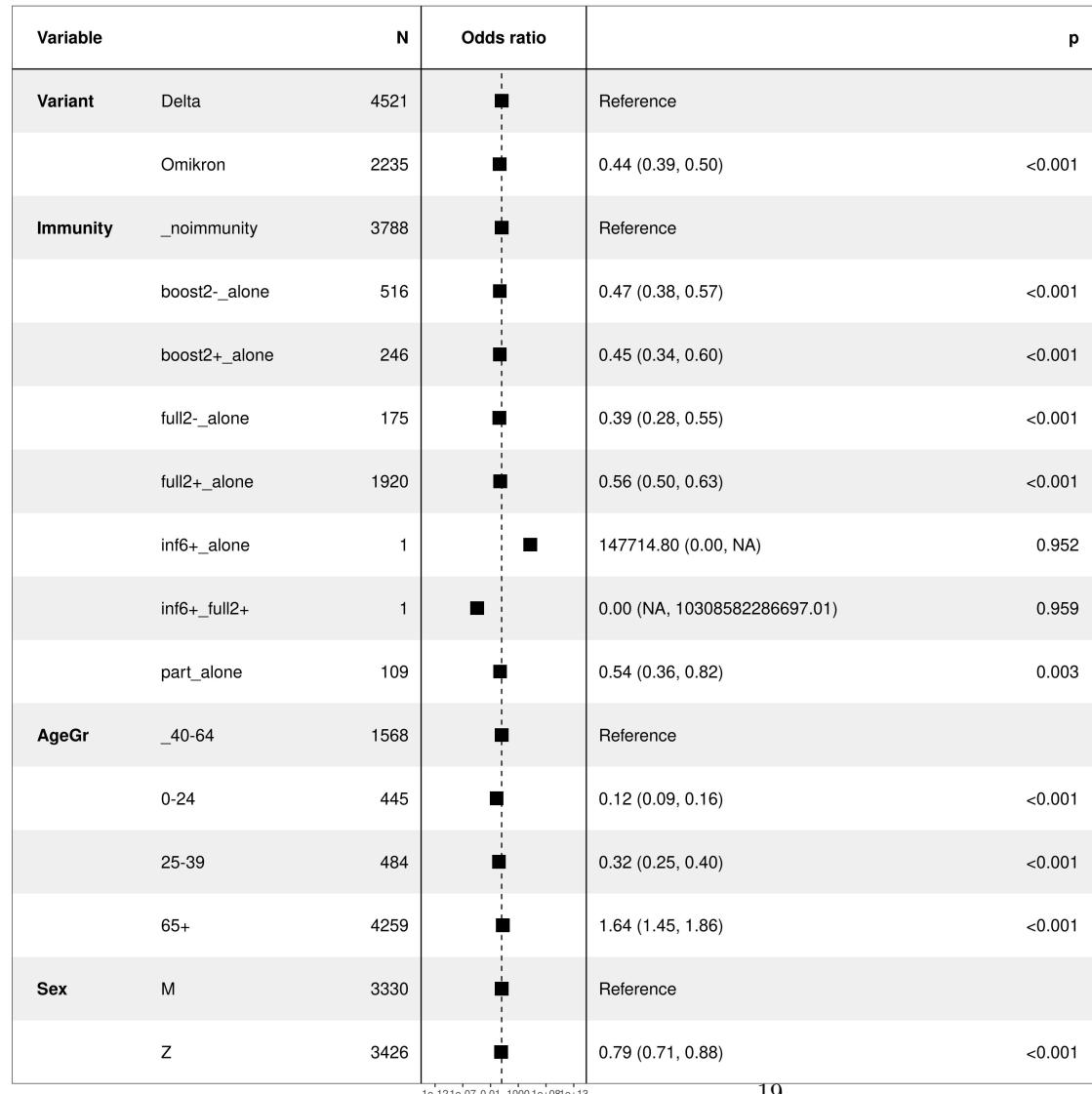
## 16 Oxygen given Infection



## 17 ICU given Infection



## 18 Oxagen given Hospitalization



1e-12 1e-07 0.01 1000 1e+08 1e+13

## 19 ICU given Hospitalization

Variable		N	Odds ratio	p
Variant	Delta	4544	Reference	
	Omikron	2285	0.62 (0.53, 0.73)	<0.001
Immunity	_noimmunity	3788	Reference	
	boost2_-_alone	516	0.82 (0.63, 1.07)	0.149
Immunity	boost2+_alone	246	1.09 (0.75, 1.56)	0.649
	full2_-_alone	175	0.43 (0.24, 0.71)	0.002
Immunity	full2+_alone	1920	0.64 (0.54, 0.74)	<0.001
	full2+_inf6-	3	0.00 (NA, 2243344685955.21)	0.970
Immunity	inf6-_alone	8	0.80 (0.04, 4.61)	0.838
	inf6+_alone	24	1.13 (0.37, 2.86)	0.812
Immunity	inf6+_boost2-	5	0.00 (NA, 313632.44)	0.960
	inf6+_boost2+	3	0.00 (NA, 1091790144331.05)	0.969
Immunity	inf6+_full2-	2	0.00 (NA, 211411878393342885888.00)	0.975
	inf6+_full2+	30	0.18 (0.01, 0.86)	0.095
AgeGr	part_alone	109	0.69 (0.38, 1.17)	0.194
	_40-64	1591	Reference	
AgeGr	0-24	447	0.42 (0.29, 0.59)	<0.001
	25-39	492	0.46 (0.33, 0.64)	<0.001
AgeGr	65+	4299	0.82 (0.71, 0.95)	0.010
	M	3370	Reference	
Sex	Z	3459	0.63 (0.55, 0.72)	<0.001

0.1 1000e+07e+11e+15e+19