1 **Supplementary material**

2 This supplementary material is hosted by Eurosurveillance as supporting information alongside the article

3 mRNA vaccines effectiveness against COVID-19 hospitalizations and deaths in older adults: a cohort study

4 based on data-linkage of national health registries in Portugal on behalf of the authors who remain

5 responsible for the accuracy and appropriateness of the content. The same standards for ethics, copyright,

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7 journal is not responsible for the maintenance of any links or email addresses provided therein.

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9 Supplementary Table S1 – Study period times (days) and date of last event for COVID-19

10 hospitalization and deaths - cohort 65-79 and 80 yo or older.

	Start	End	Duration (days)
65-79 Cohort			
Hospitalization	30.03.2021	11.08.2021	134
Deaths	30.03.2021	09.08.2021	132
80 + Cohort			
Hospitalization	02.02.2021	11.08.2021	190
Deaths	02.02.2021	07.08.2021	186

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13 Supplementary Table S2– Distribution of time (days) since second dose for cohort 65-79 and ≥80 yo.

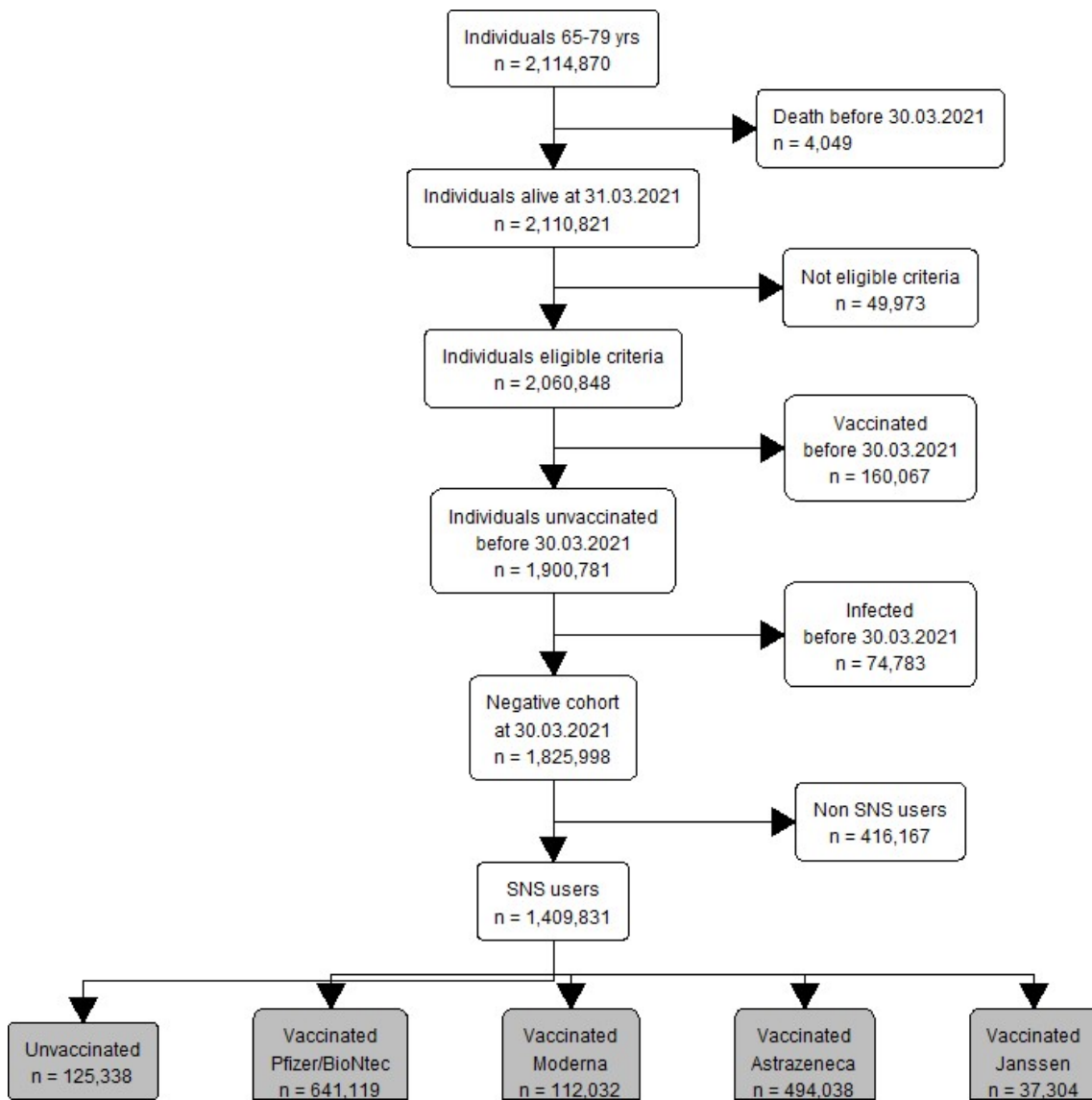|	Median	Interquartile Range (IQR)	Minimum-Maximum
65-79 yo Cohort	78	71 to 94	1 - 113
≥80 yo Cohort	125	112 to 145	1 - 168

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19 Supplementary Table S3 – Comparison between the age group, sex and region distribution of

20 the individuals included in the 65-79 age cohort and the Portuguese population estimates

21 (Statistics Portugal, 2020 population estimates).

	Cohort (%)	Population (%)
65-79 yo cohort		
Age group		
65-69	341,953 (38.9)	602,210 (38.4)
70-74	298,253 (34.0)	536,388 (34.2)
75-79	238,283 (27.1)	428,706 (27.4)
Sex, male	385,128 (43.8)	694,974 (44.3)
≥80 yo cohort		
Age group		
80-84	232,429 (50.4)	337797 (51.0)
85+	228,391 (49.6)	324027 (49.0)
Sex, male	186,014 (40.4)	239,436 (36.2)

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24   Figures

Individuals 65-79 yrs
n = 2,114,870

Death before 30.03.2021
n = 4,049

Individuals alive at 31.03.2021
n = 2,110,821

Not eligible criteria
n = 49,973

Individuals eligible criteria
n = 2,060,848

Vaccinated
before 30.03.2021
n = 160,067

Individuals unvaccinated
before 30.03.2021
n = 1,900,781

Infected
before 30.03.2021
n = 74,783

Negative cohort
at 30.03.2021
n = 1,825,998

Non SNS users
n = 416,167

SNS users
n = 1,409,831

Unvaccinated
n = 125,338

Vaccinated
Pfizer/BioNtec
n = 641,119

Vaccinated
Moderna
n = 112,032

Vaccinated
Astrazeneca
n = 494,038

Vaccinated
Janssen
n = 37,304

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26   Supplementary Figure S1 – Participants selection flowcharts 65-79 years old cohort

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Individuals 80+ yrs
n = 923,436

Aged >110 yrs
n = 6,060

Individuals 80+ & <=110 yrs
n = 917,376

Death before 03.02.2021
n = 7,125

Individuals alive at 03.03.2021
n = 910,251

Not eligible criteria
n = 27,016

Individuals eligible criteria
n = 890,360

Vaccinated before 03.02.2021
n = 64,028

Individuals unvaccinated before 03.02.2021
n = 826,332

Infected before 03.02.2021
n = 34,909

Negative cohort at 03.02.2021
n = 791,423

Non SNS users
n = 320,903

SNS users
n = 470,520

Unvaccinated
n = 26,942

Vaccinated Pfizer/BioNtec
n = 378,312

Vaccinated Moderna
n = 55,566
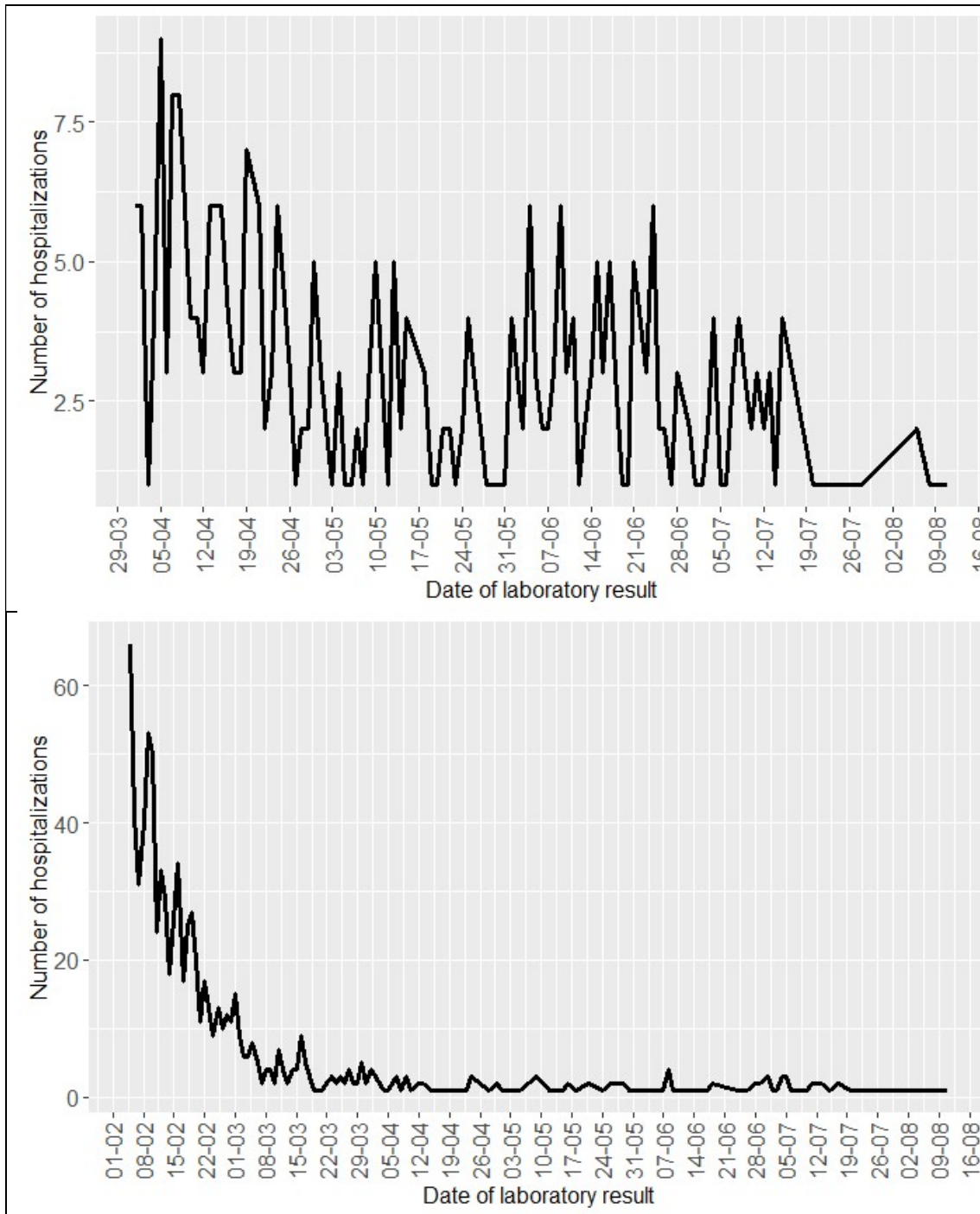
Vaccinated Astrazeneca
n = 7,905

Vaccinated Janssen
n = 1,795

Supplementary Figure S2 - Participants selection flowcharts ≥ 80 years old cohort
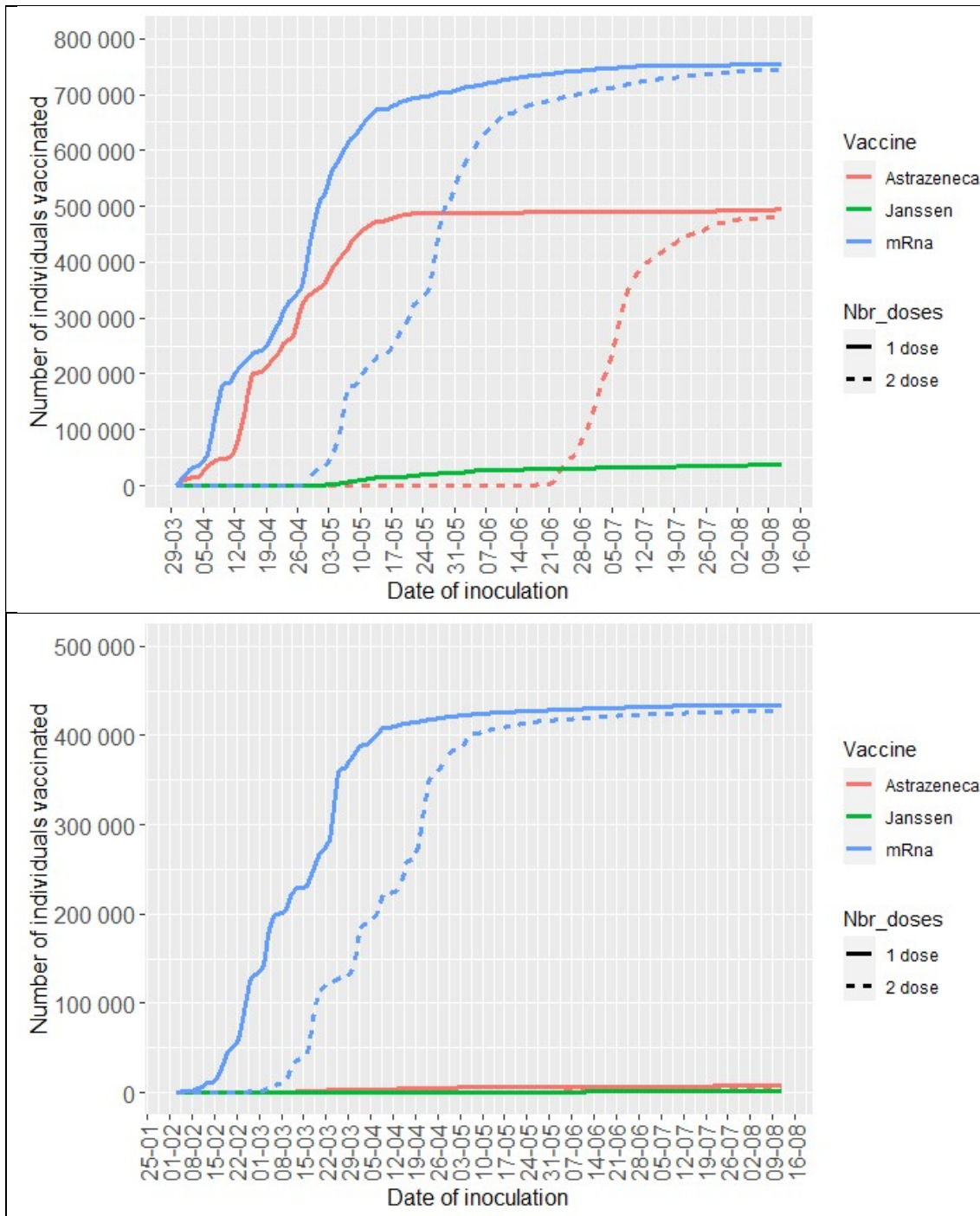
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Supplementary Figure S3– Daily accumulated number of individuals vaccinated with
mRNA vaccines, according to the number of doses for the 65-79 age cohort (upper
panel) and ≥80 years old cohort (lower panel).
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Supplementary Figure S4 – Daily number of COVID-19 hospitalizations according to
date of SARS-CoV-2 infection diagnosis for 65 to 79 cohort (upper panel) and ≥80
years old cohort (lower panel)

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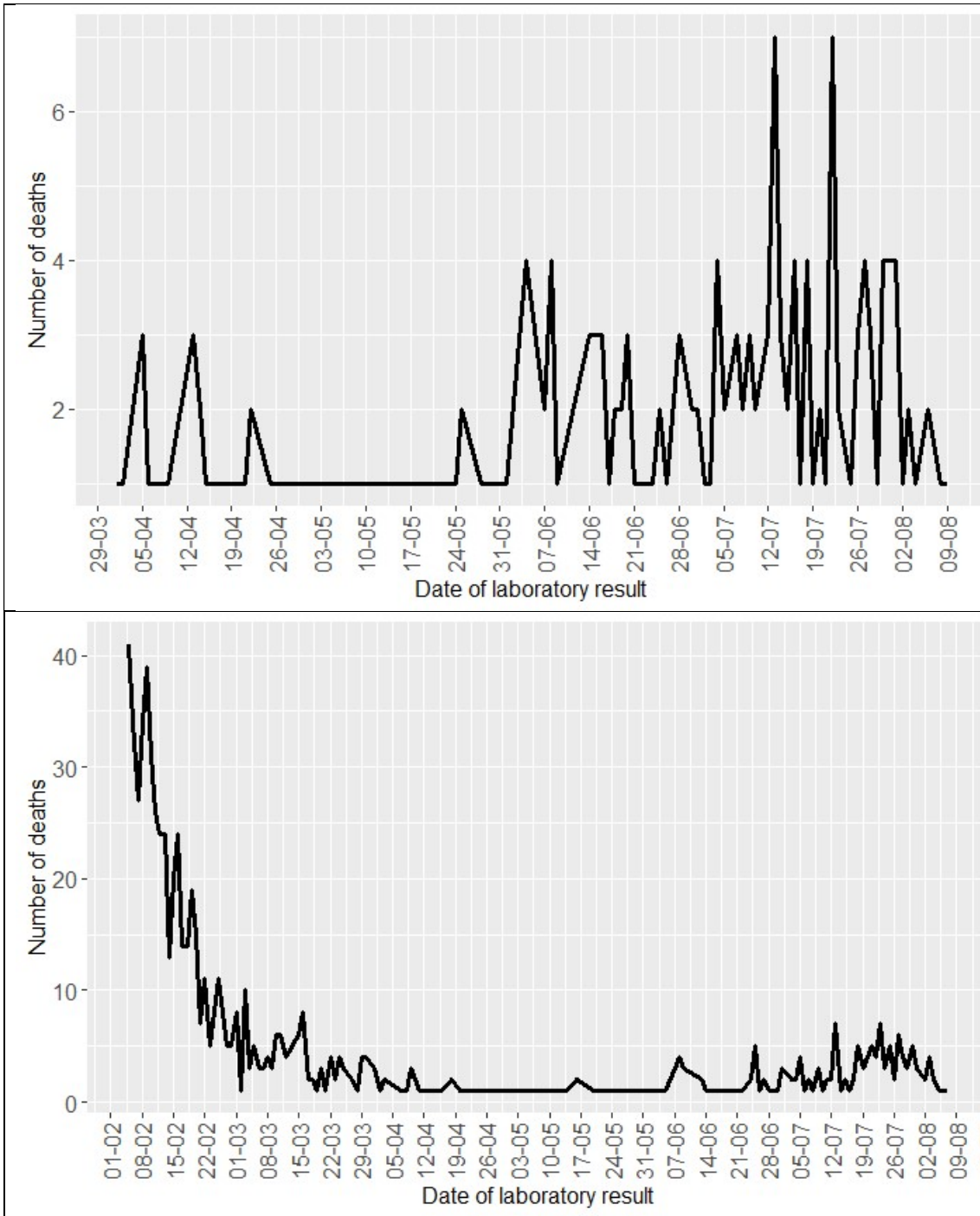
42   Supplementary Figure S5 – Daily number of COVID-19 related deaths according to
43   date SARS-CoV-2 infection diagnosis for 65 to 79 cohort (upper panel) and ≥80 years
44   old (lower panel)