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COVID-19 serological studies during pandemic in Portugal

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Methods



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Study design: serie of cross-sectional study

Study objectives varied in each survey accordingly the needed information

Target population: residents in Portugal, all ages

Sample source: users of laboratories (private laboratories and public hospitals)

Methods to sample selection: non-probabilistic, stratified by region and allocated by age-group quotas

Informed consent, questionnaire (demographics, co-morbidities, behaviours, previous SARS-CoV-2 infections, vaccination), **blood sample**

Lab methods: IgA, IgG (*Euroimmun Anti-SARS-CoV-2 ELISA*); **IgM** (*Wantai SARSCoV-2 ELISA*); **IgG Anti-N** (*SARS-CoV-2 IgG II, Abbott Diagnostics, IL, USA*), **IgG Anti-S** (*SARS-CoV-2 IgG II, Abbott Diagnostics, IL, USA*), **nAB** (*TECO® SARS-CoV-2 Neutralization Antibody Assay, ELISA*)

- To estimate attack rate after the first epidemic wave
- Comparisons between regions and 4 age groups
- IgA, IgM, IgG
- Blood sample + questionnaire

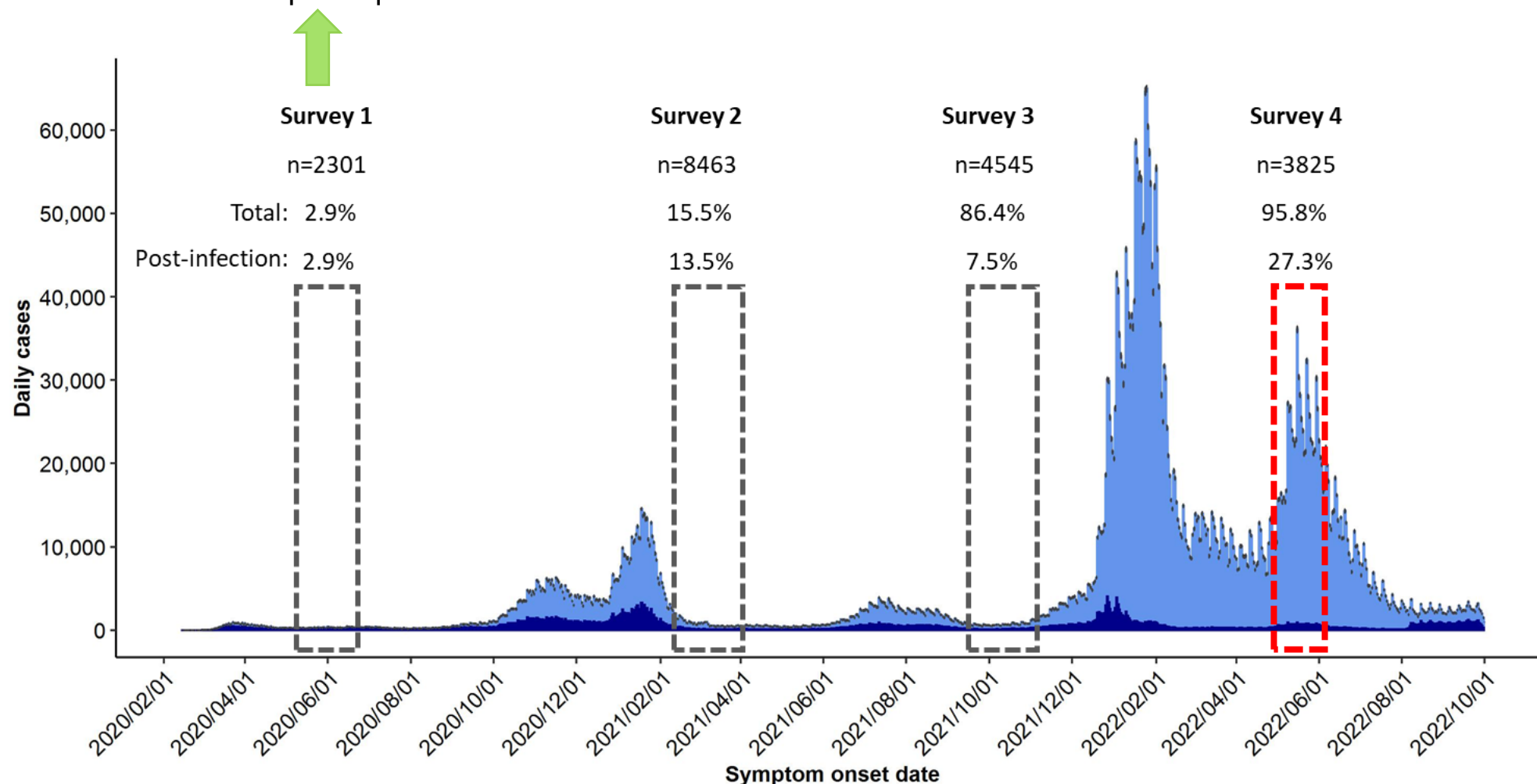


Fig. 1. COVID-19 daily cases in Portugal between february 2020 and september 2022. Light blue are laboratory reported cases, dark blue are clinical reported cases. Each box represents the collection period of each SARS-CoV-2 serosurvey.

- To estimate attack rate after the second epidemic wave
- To assess response to vaccination
- Comparisons between regions and 10 years age groups
- IgG anti-N, IgG anti-S
- Blood sample + questionnaire

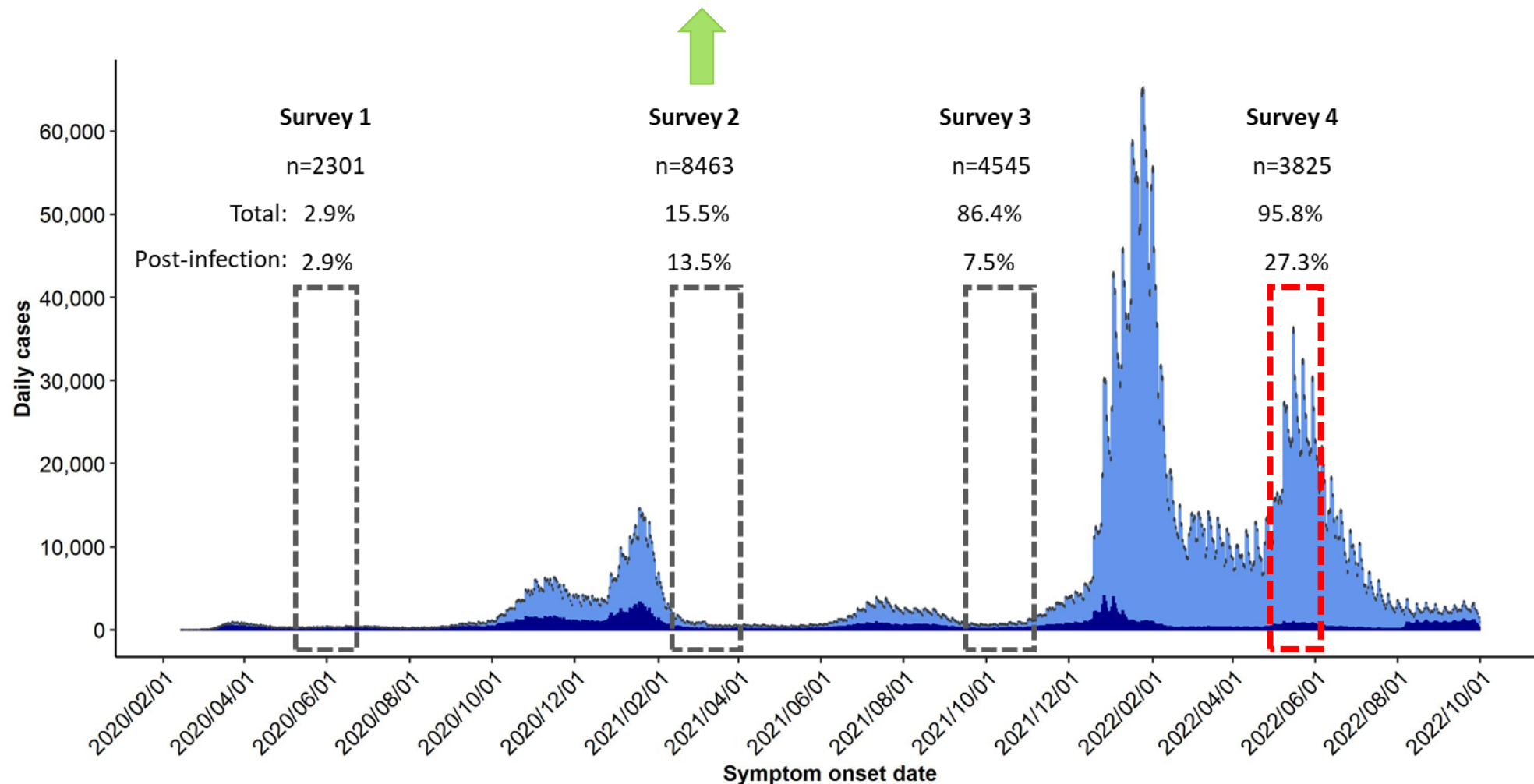


Fig. 1. COVID-19 daily cases in Portugal between february 2020 and september 2022. Light blue are laboratory reported cases, dark blue are clinical reported cases. Each box represents the collection period of each SARS-CoV-2 serosurvey.

- To monitor population vaccination response
- Comparisons between regions and 10 years age groups
- IgG anti-N, IgG anti-S, nAB
- Blood sample + questionnaire

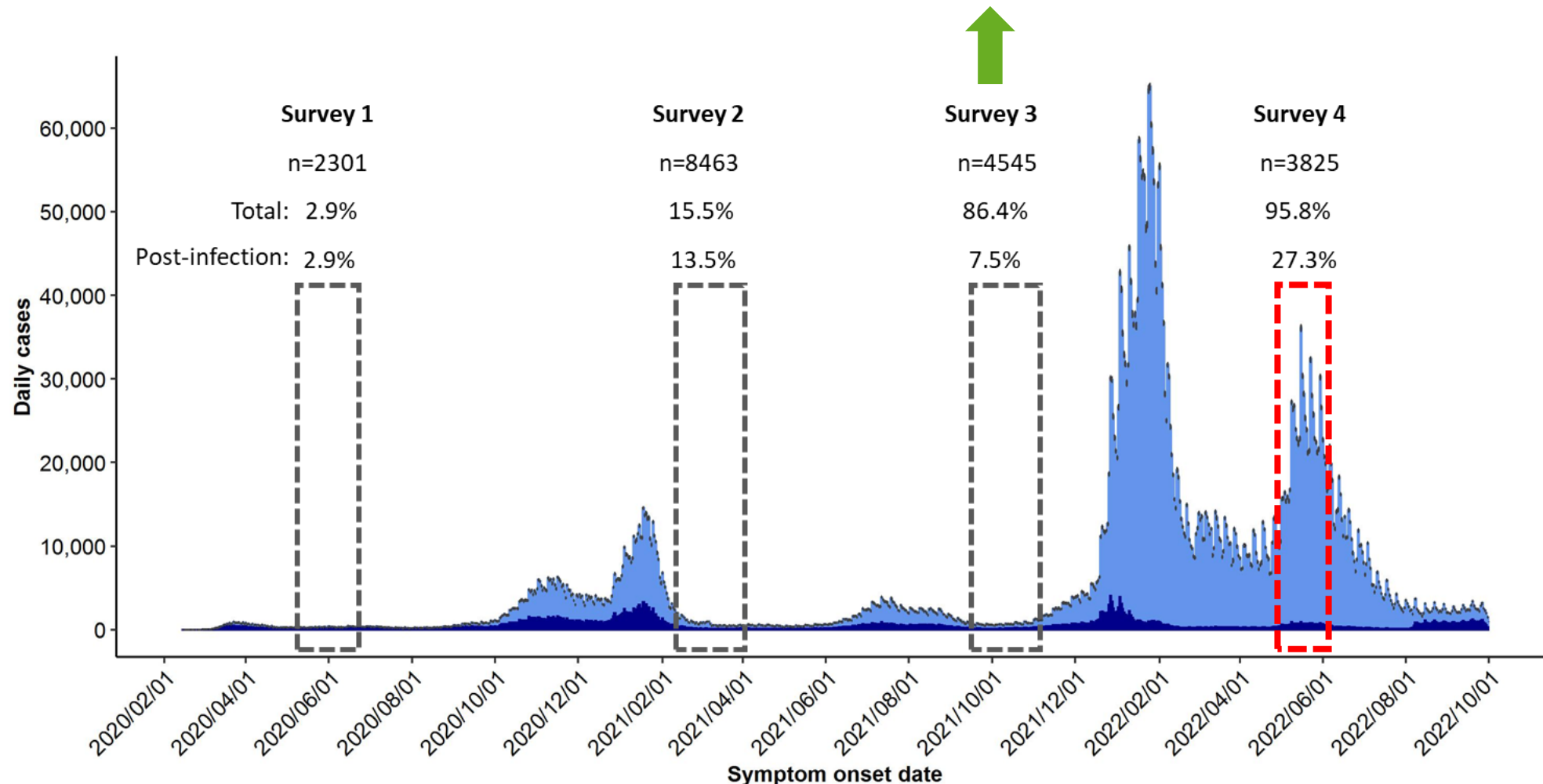


Fig. 1. COVID-19 daily cases in Portugal between february 2020 and september 2022. Light blue are laboratory reported cases, dark blue are clinical reported cases. Each box represents the collection period of each SARS-CoV-2 serosurvey.

- To monitor population seroprevalence after Omicron wave
- To monitor population vaccination response at the end of vaccination campaign
- IgG anti-N, IgG anti-S, nAB
- Residual sera and no questionnaire

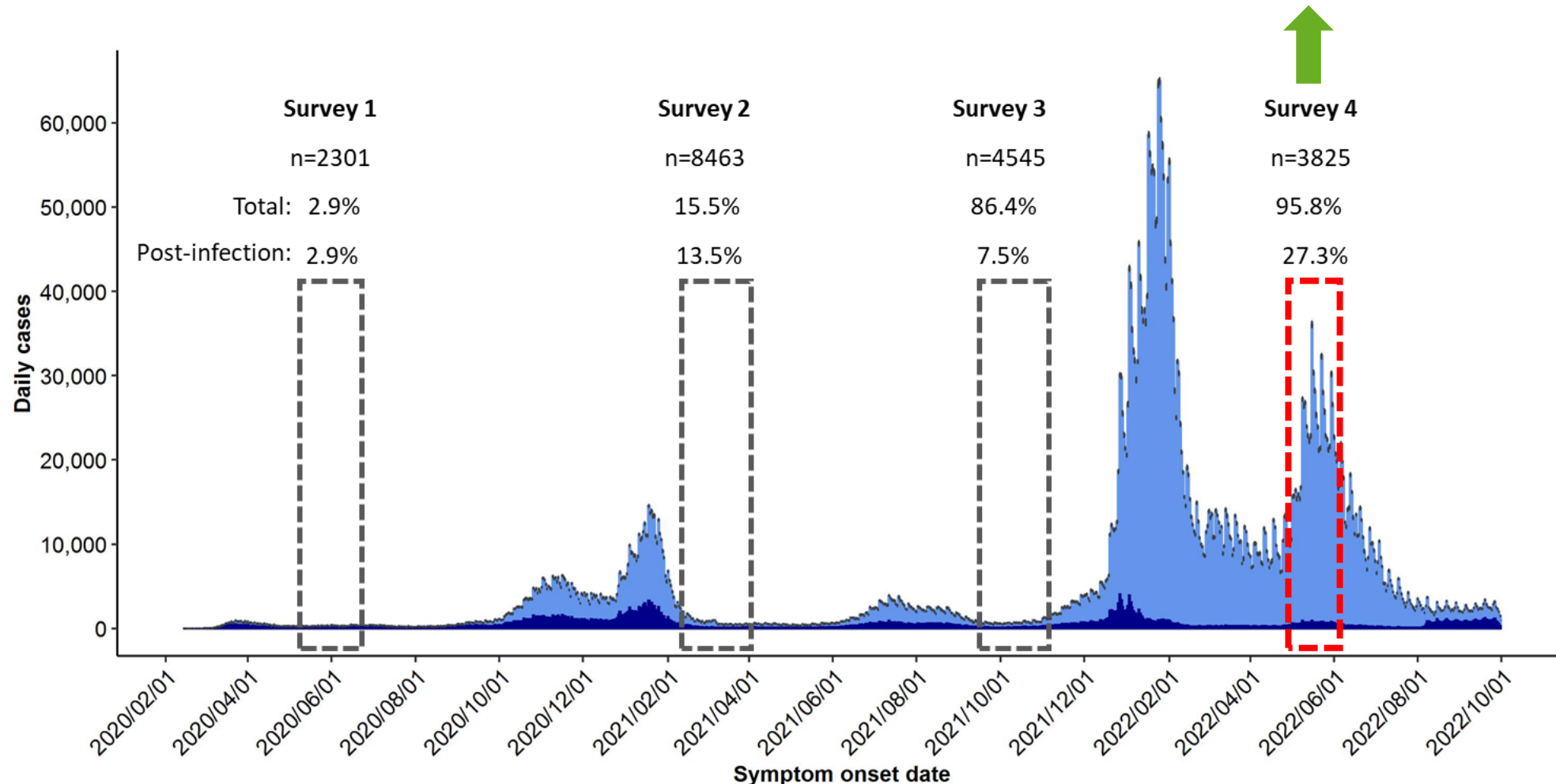


Fig. 1. COVID-19 daily cases in Portugal between february 2020 and september 2022. Light blue are laboratory reported cases, dark blue are clinical reported cases. Each box represents the collection period of each SARS-CoV-2 serosurvey.

Classified as ECDC NORMAL

Second serosurvey (feb-mar 2021)

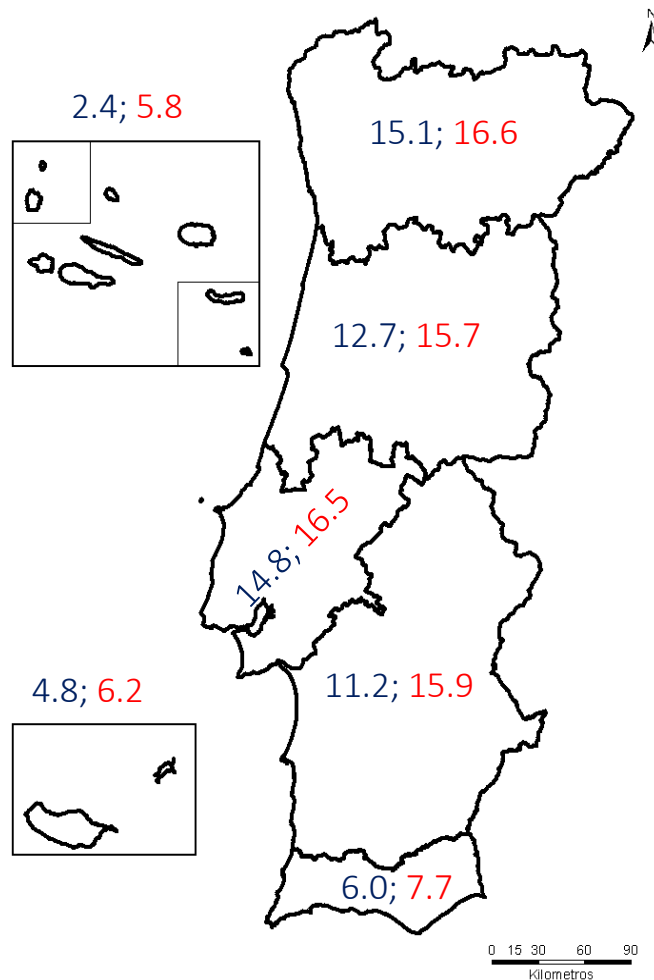


Fig 2. SARS-CoV-2 seroprevalence by region (blue: seroprevalence due to infection; red: overall seroprevalence)

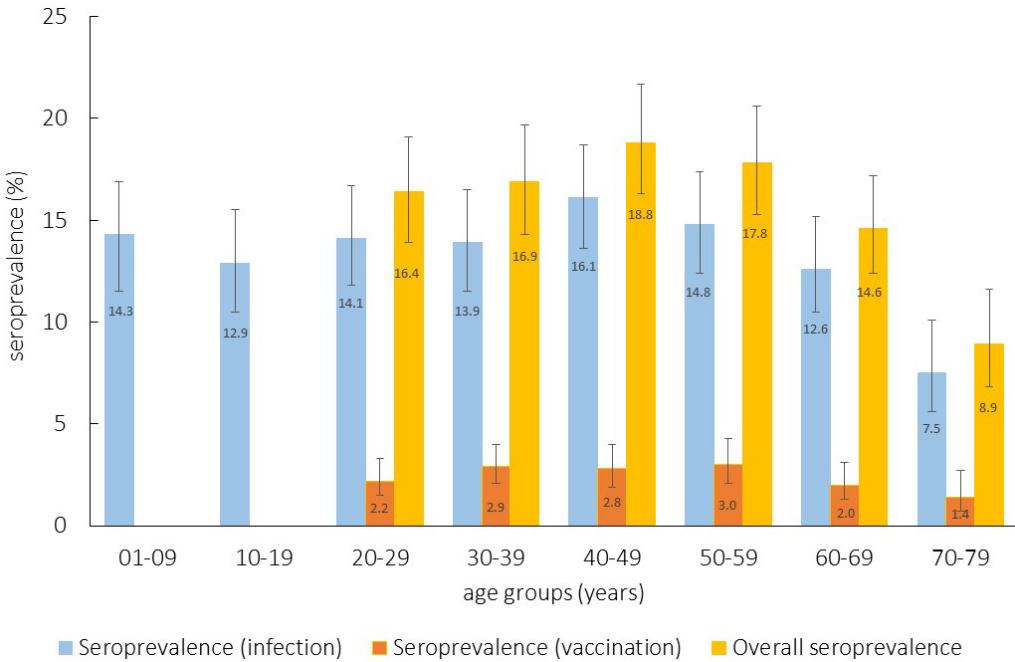


Fig. 3. SARS-CoV-2 seroprevalence by age group, february-march 2021, Portugal.

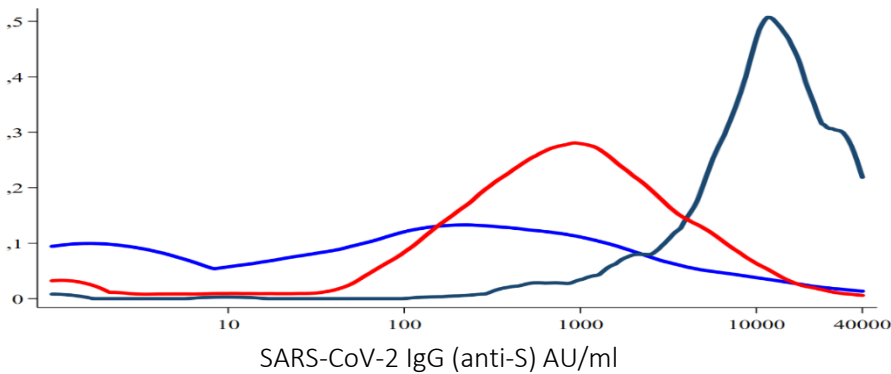


Fig 4. Specific anti-SARS-CoV-2 IgG (anti-S) accordingly vaccination status. Light blue: 1 vaccine dose, dark blue: 2 vaccine doses, red: infected unvaccinated.

Messages to take

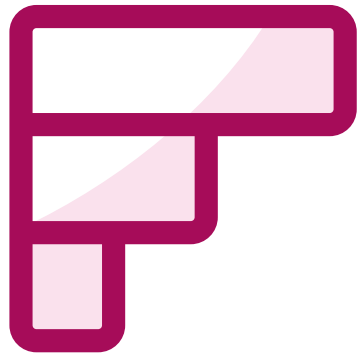
- Seroprevalence studies during a pandemic is an important tool to complement surveillance system
- These studies allow to:
 - monitor the pandemic and identify undiagnosed infections
 - provide information for modelling tools
 - distinguish recent and previous infections
 - identify population groups in higher risk of being infected
 - monitor the implementation of vaccination campaigns



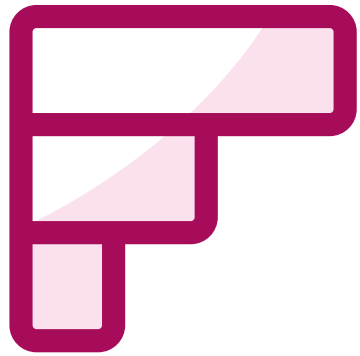
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Slido questions



**Did the COVID-19 pandemic
change how you perceive the
value of serological studies?**



What support would you need to implement influenza serology?