

Seroprevalence of SARS-CoV-2 antibodies due to vaccination and/or infection: findings from ongoing blood donor residual sera surveillance

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Table 1: Sample Characteristics, 17 October 2021 – 3 October 2022

Characteristic		Total	Percent	Seropositive	Percent
Sex	Male	9,589	64.0	9,378	97.8
	Female	5,404	36.0	5,336	98.7
Age	Median age (years)	45	-	-	-
	Mean age (years)	44	-	-	-
	Age range (years)	18-80	-	-	-
	18-29	2,645	17.6	2,624	99.2
	30-49	6,408	42.7	6,249	97.5
Collecting site	Dublin	12,350	82.4	12,130	98.2
	Cork	2,643	17.6	2,584	97.8
	Total	14,993*	100.0	14,714	98.1

*15,049 specimens in total were returned to HPSC SEU, 56 apheresis specimens are excluded from analyses.

Fig 2: Adjusted seroprevalence of SARS-CoV-2 anti-spike (S1) and anti-nucleocapsid antibodies in blood donors, with shaded grey indicating 95% confidence intervals around the fitted lines.

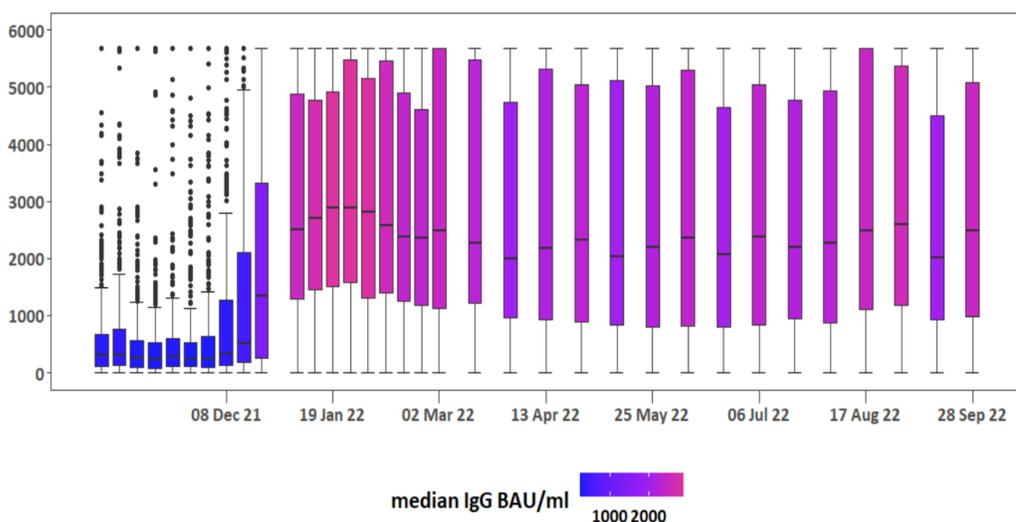
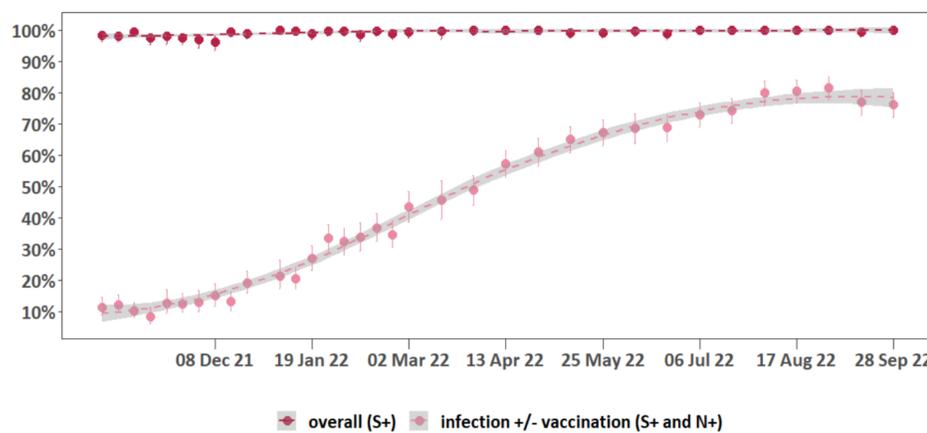
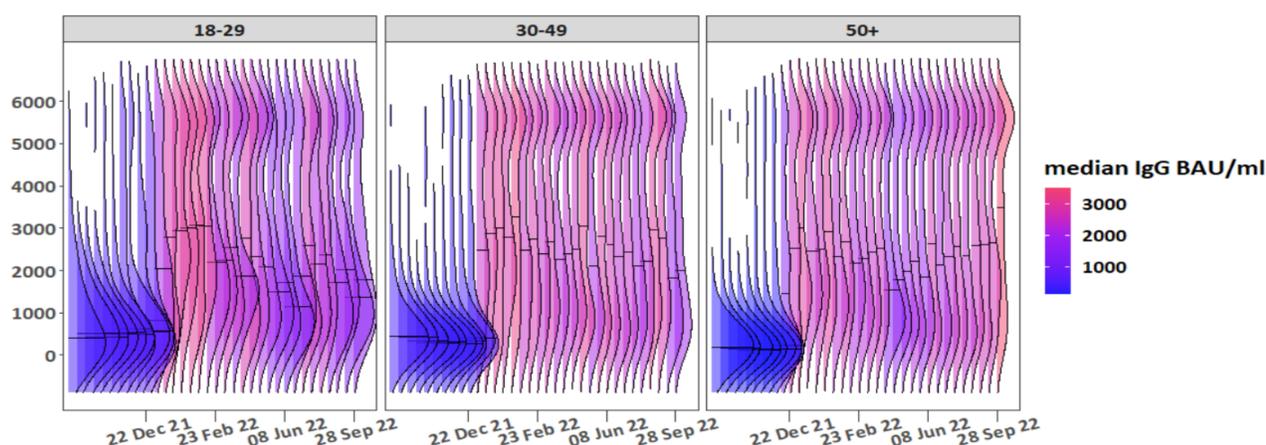


Fig 3: Boxplots showing the distribution of antibody levels over time. The black horizontal lines indicate median antibody levels for each collection period.

Fig 4: Ridge plots showing the distribution of antibody levels by age-group, by time. The black horizontal lines indicate median antibody levels for each collection period.



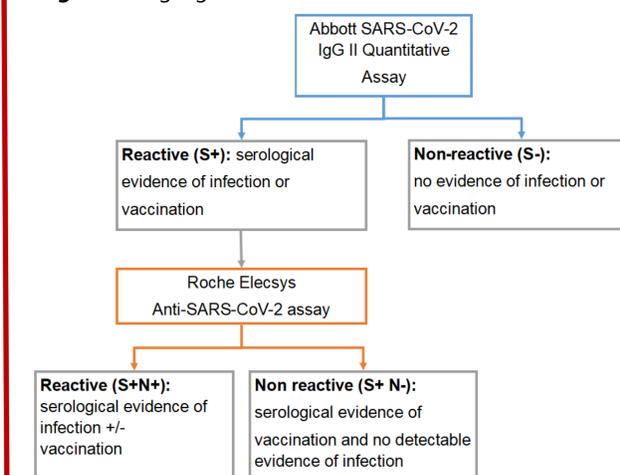
ABOUT

The National Serosurveillance Programme (NSP) in the Health Protection Surveillance Centre (HPSC) has been working with the Irish Blood Transfusion Service (IBTS) to provide estimates of COVID-19 rates of infection and vaccination in adult blood donors.

METHODS

Residual blood samples are collected every fortnight from three fixed blood donation clinics. The samples are screened for COVID-19 antibodies. Results are adjusted for test accuracy.

Fig 1: Testing algorithm for residual blood donor sera



OBJECTIVES

- Measure the age- and sex-specific prevalence of antibodies to SARS-CoV-2 in residual blood samples from adult blood donors in Ireland
- Monitor trends in the presence of antibodies
- Use this data to inform public health policy

RESULTS

Since October 2021, 14,993 specimens have been collected and screened for SARS-CoV-2 spike and nucleocapsid antibodies. The proportion of seropositive samples has ranged from 96% to 100% since October 2021, and the proportion with evidence of infection has risen from 11% to 77% through to October, 2022.

Quantitative antibody levels are highest in blood donors aged 50+, and lowest in those aged 18-29 as of October 2022.

DISCUSSION

SARS-CoV-2 anti-S seropositivity is high in the blood donor population of 18-79 year olds in Ireland. Anti-spike antibody levels associated with virus neutralisation are not consistent across all variants of the virus and decline over time. Research is ongoing to better understand the interpretation of quantitative antibody levels and their correlates of protection. This underscores the importance of continued vaccination against COVID-19.