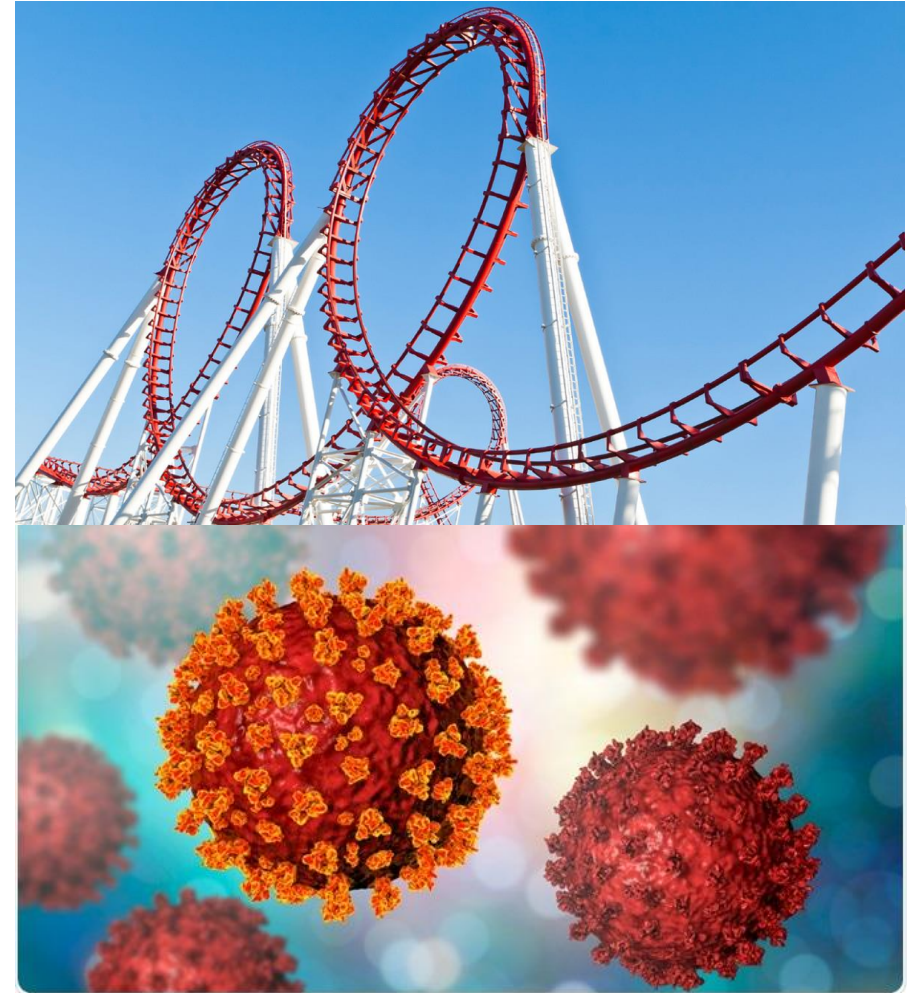


SARS-CoV-2 Seroprevalence in Blood Donors

Three years of monitoring in nine provinces

Covid-19 Immunity Task Force Seminar
March 8, 2023



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**Canadian
Blood
Services**
BLOOD
PLASMA
STEM CELLS
ORGANS
& TISSUES

Objectives

- To describe the Canadian Blood Services SARS-CoV-2 seroprevalence study
- To present monitoring data over the full course of the pandemic
- To show breakdown by demographics and social determinants of health

Who are blood donors?

17

At least 17 years old
Weigh at least 50kg*



Feeling well on the day
(no recent COVID-19 or risk of COVID-19)



Meet donor eligibility criteria



At low risk of blood transmissible
infection



Not taking certain medications



Live in any major city, most smaller cities and
many towns in any province except Quebec
(not the territories)

Laboratory Methods



April to December 2020

- Abbott Architect SARS-CoV-2 IgG assay (Nucleocapsid)
 - Sensitivity 92.7% and specificity 99.9%

January 2021 to December 2022

- Roche Elecsys® Anti-SARS-CoV-2 S immunoassay (total Ig, Spike)
 - Sensitivity 98.8% and specificity 99.6% (semi-quantitative)
- Roche Elecsys® Anti-SARS-CoV-2 immunoassay (total Ig, Nucleocapsid)
 - Sensitivity 99.5% and specificity 99.8%

All positivity percentages were adjusted

- For age and gender of general population by raking
- For assay characteristics using the Rogan-Gladen equation



Data Variables

Age and Gender

Collected at registration to donate

Race/ethnicity

Blood donation screening question

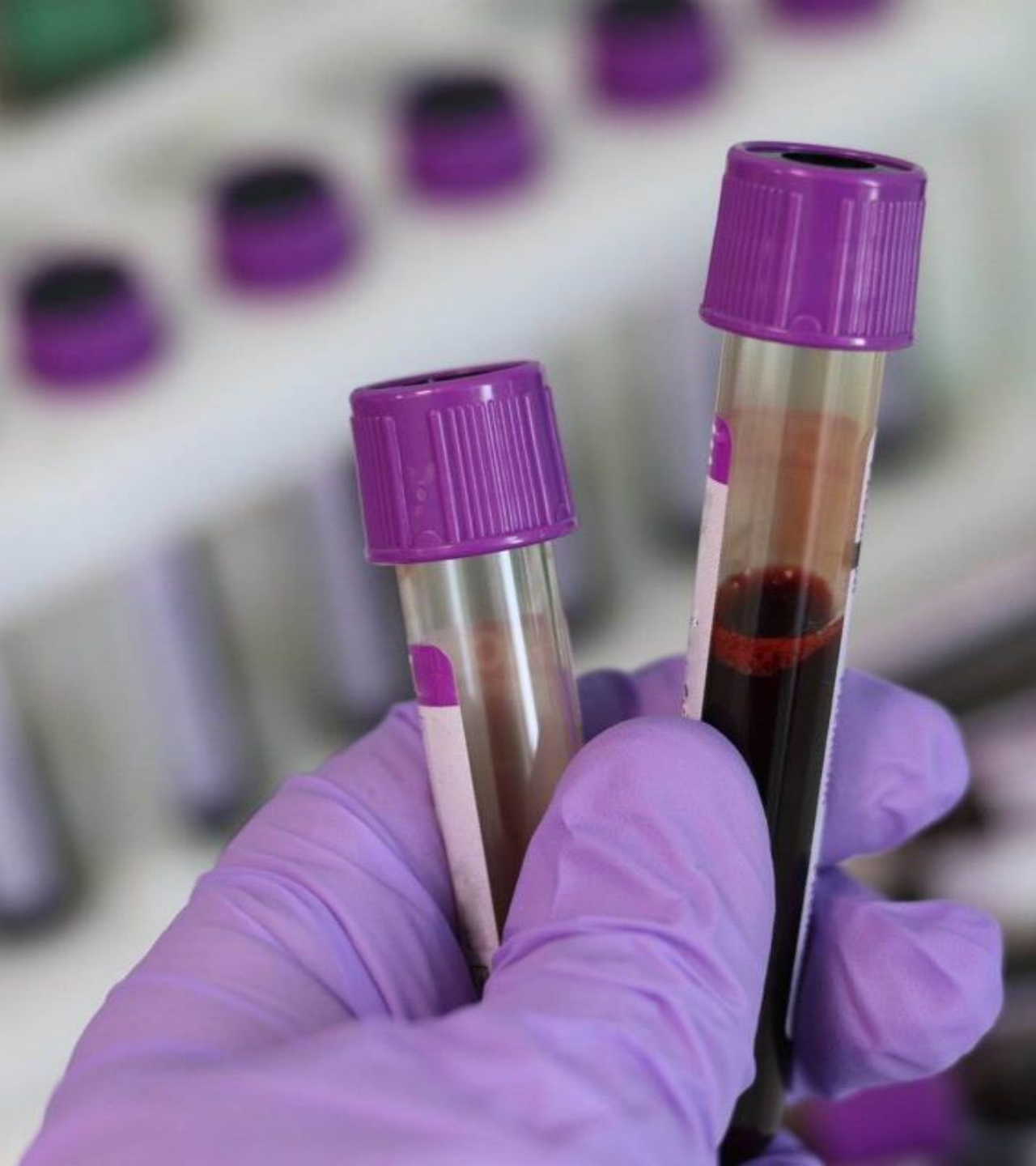
Pampalon material and social deprivation scales

Residential neighbourhood variables

Material deprivation- income, job security, education

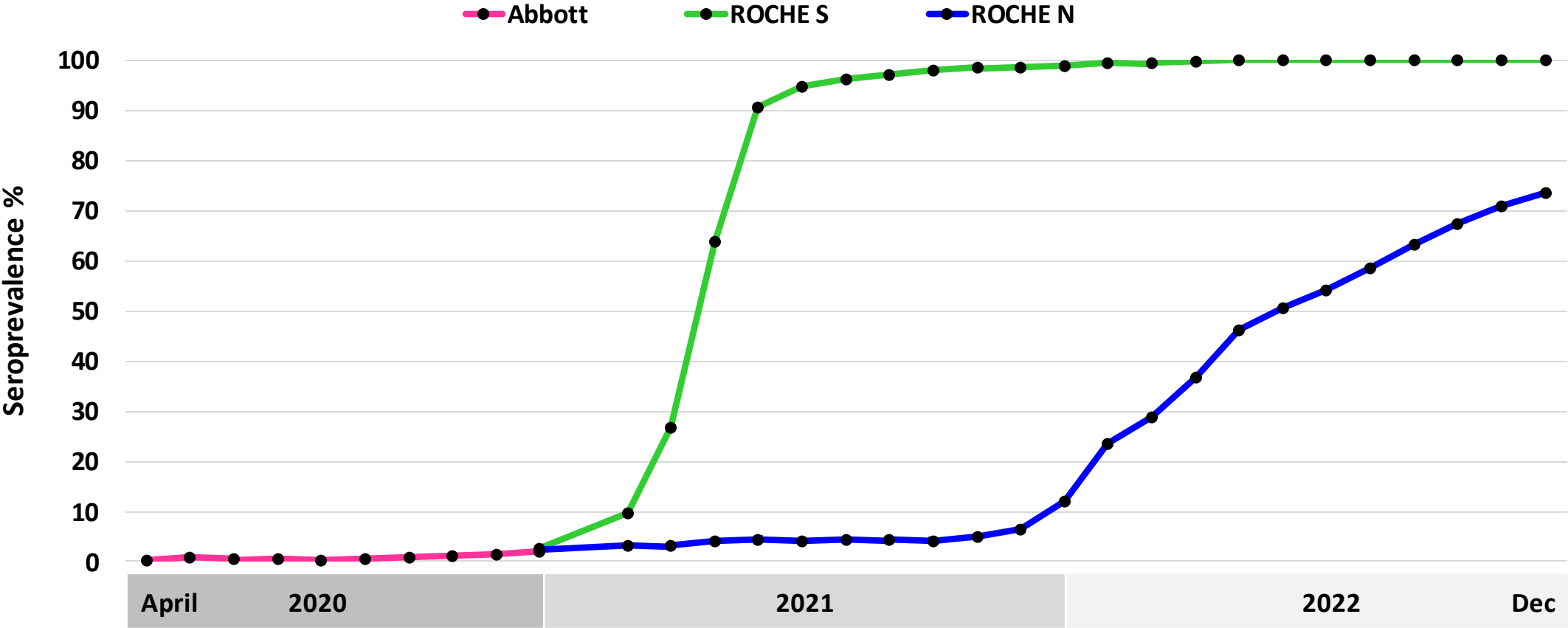
Social deprivation- living alone, single parent, separated/divorced/widowed



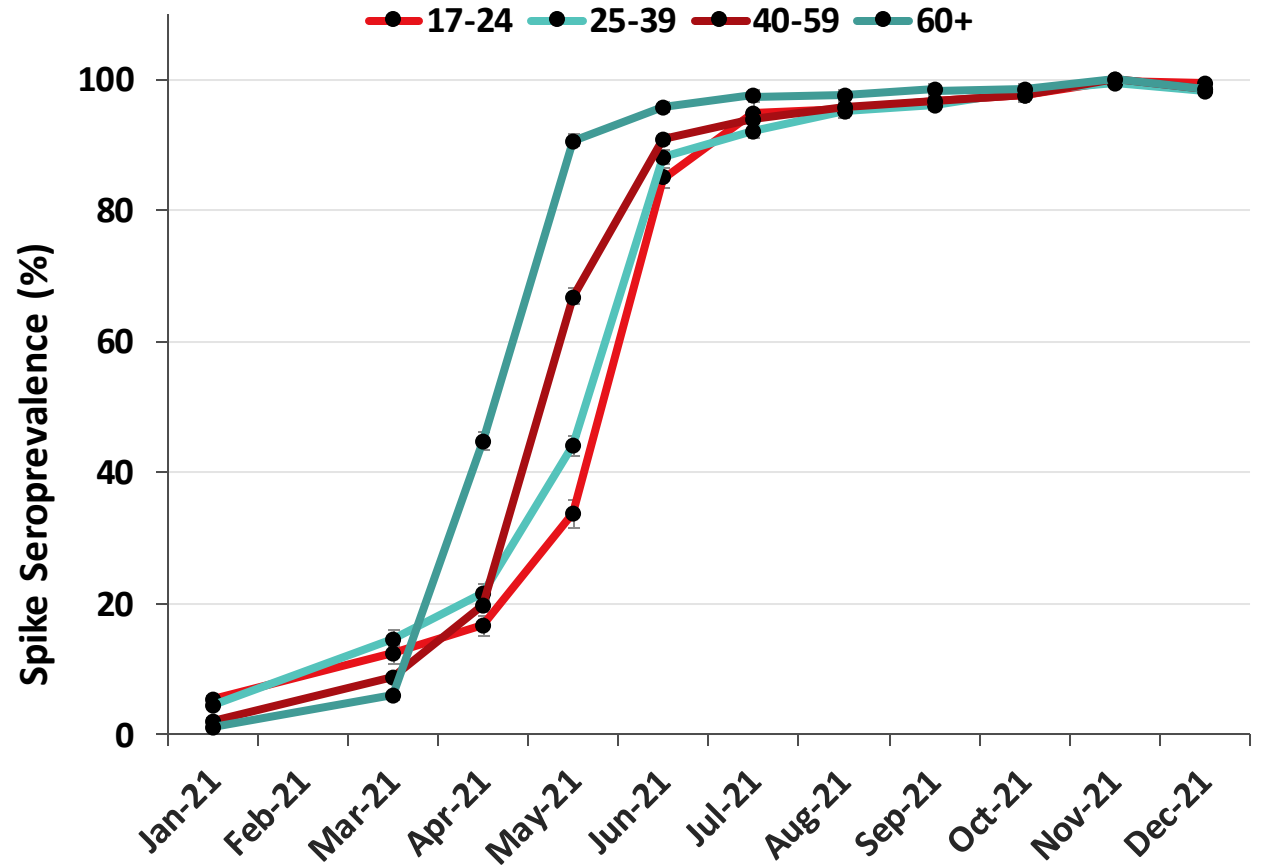


631,011
samples tested

Anti-N and Anti-S Percent Positive – April 2020 to December 2022

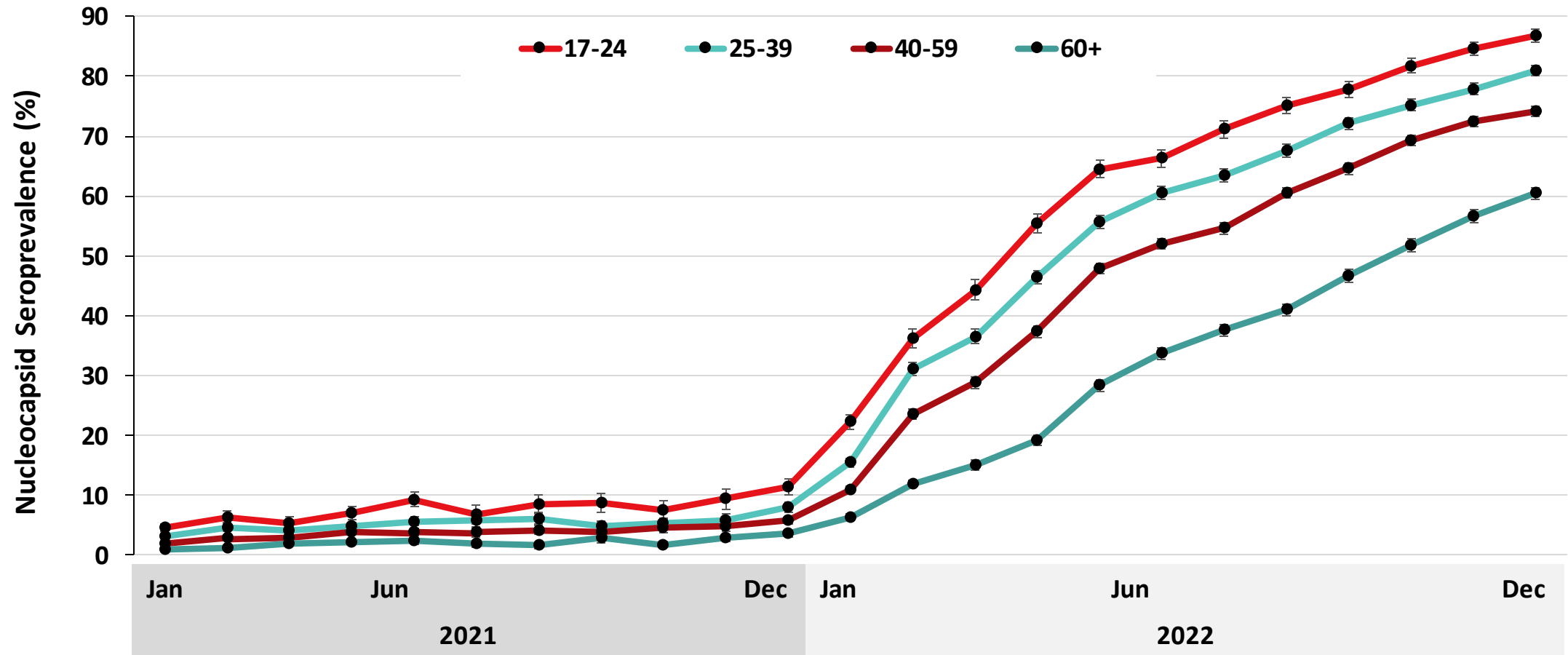


Nearly all donors were vaccinated in 2021

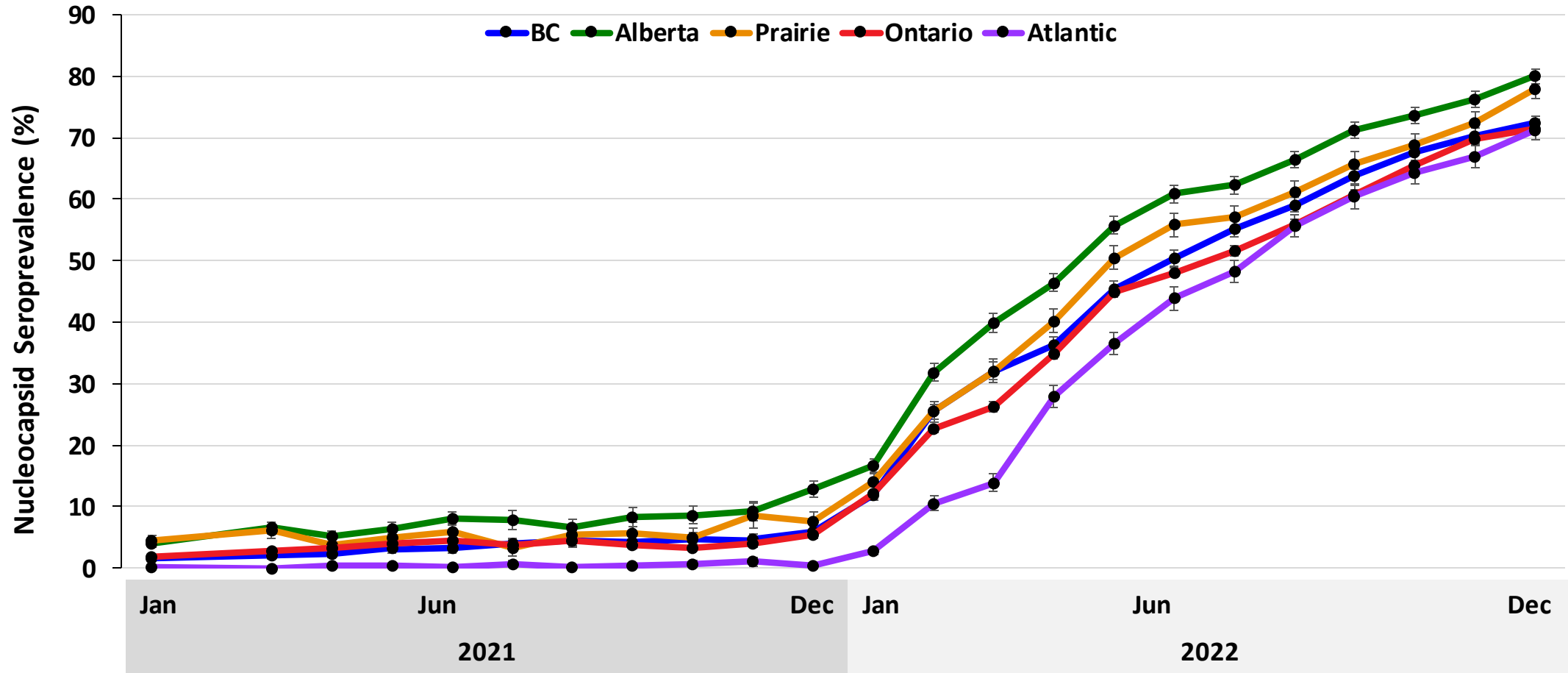


Vaccine-related seroprevalence by age group 2021

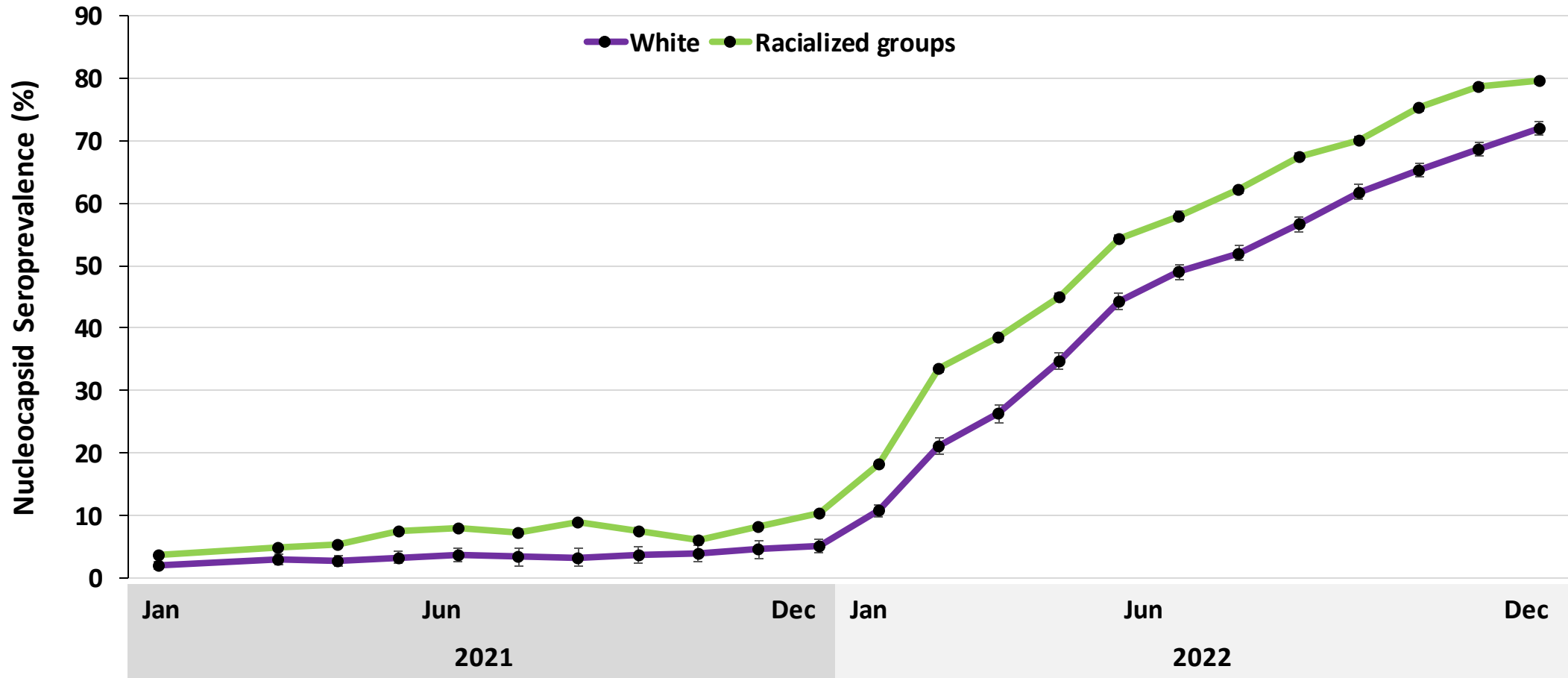
Anti-N Percent Positive by Age Group – January 2021 to December 2022



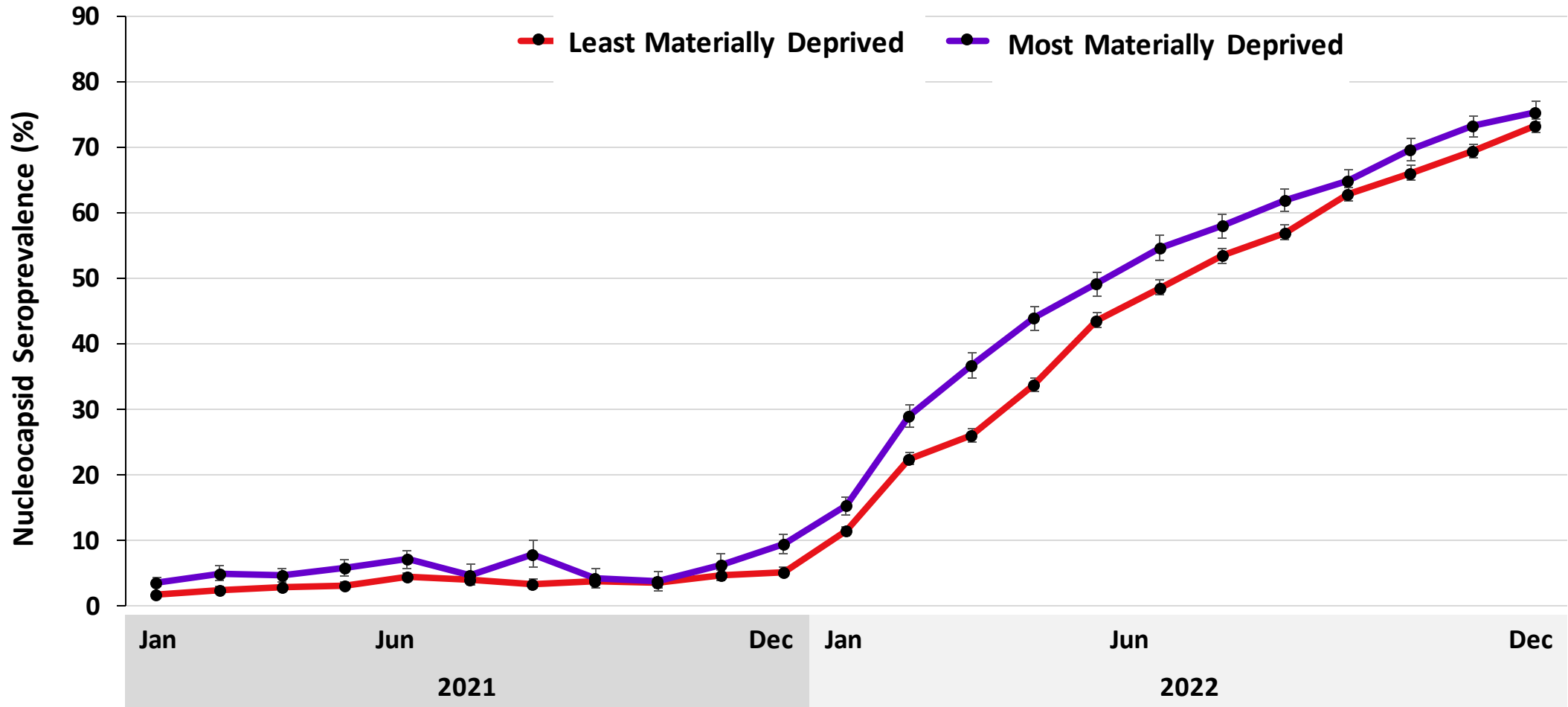
Anti-N Percent Positive by Region – January 2021 to December 2022



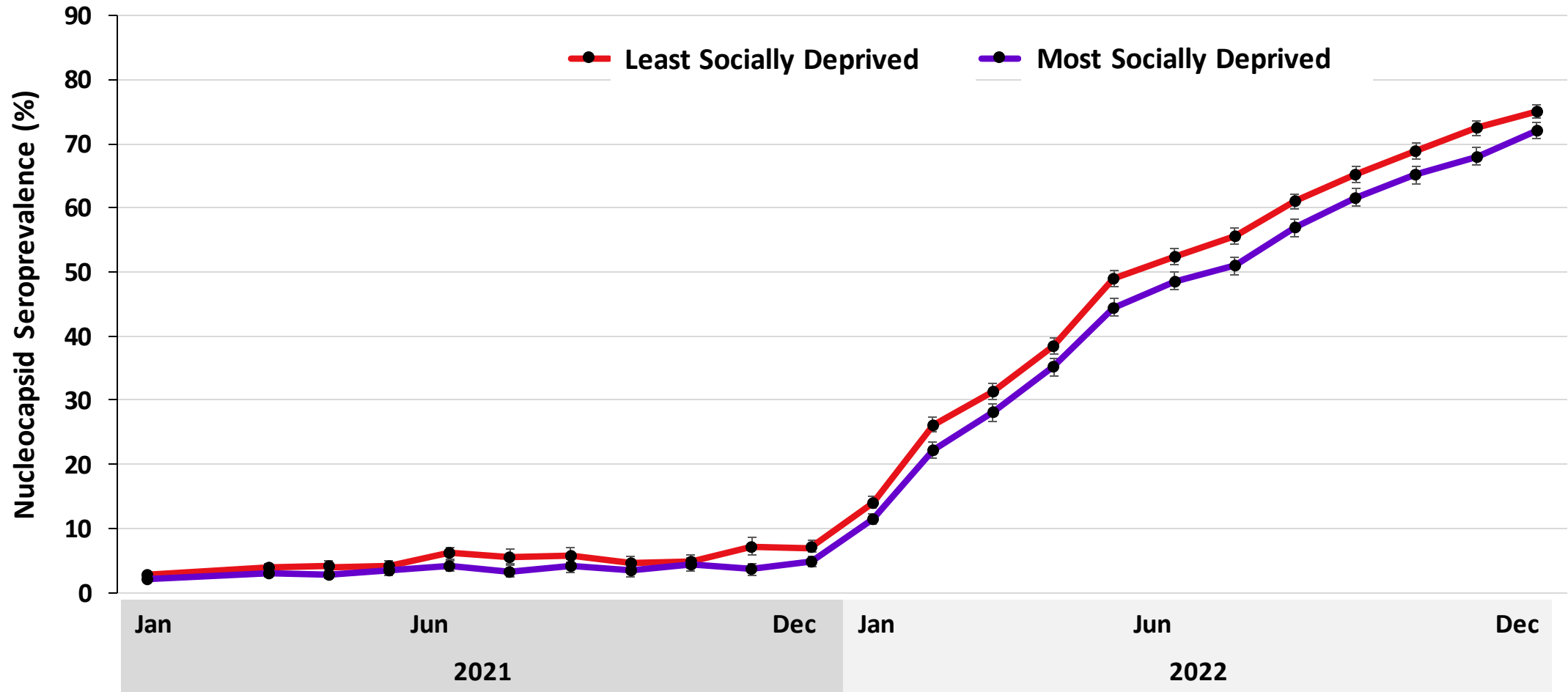
Anti-N Percent Positive in White and Racialized Donors January 2021 to December 2022

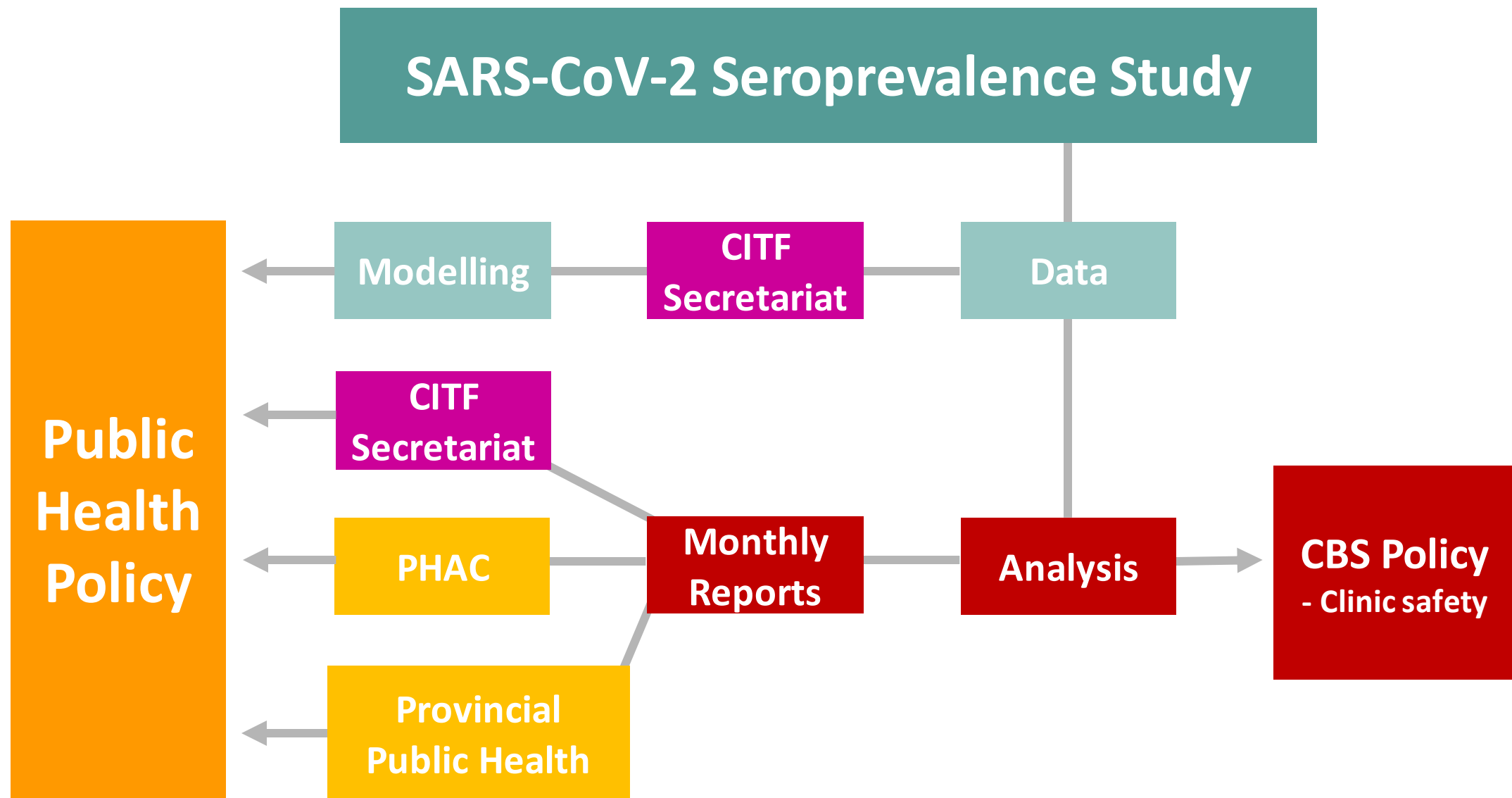


Anti-N Percent Positive by Material Deprivation Quintiles January 2021 to December 2022

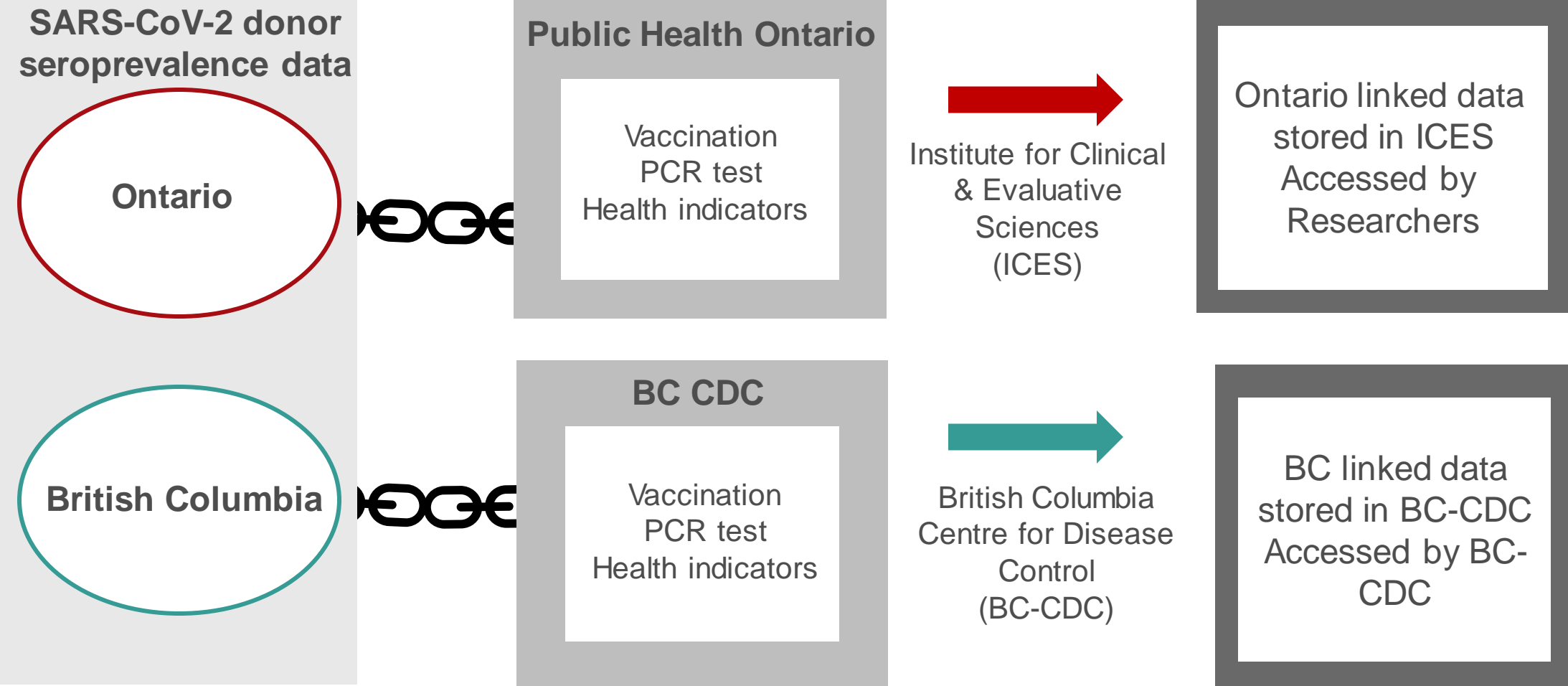


Anti-N Percent Positive by Social Deprivation Quintiles January 2021 to December 2022





Data Linkage



Conclusion

- Anti-S seropositivity reflected high vaccine uptake
- SARS-CoV-2 seroprevalence due to infection was low until 2022 but despite vaccination increased rapidly when the Omicron variant dominated
- Infection related seroprevalence was higher in the western provinces
- Racialization and material deprivation are important predictors of higher infection rates
- Ongoing monitoring of seroprevalence is important for public health policies



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