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ORGANS  
& TISSUES

COVID-19 Seroprevalence Report

# **COVID-19 Seroprevalence Report**

**March 18, 2021**

**Report #6: January 2021 Survey**

## Summary

### January 2021

#### January 1-27, 2021 (n=34,921)

- Seroprevalence in January was 1.99% (95% CI 1.84, 2.15)
- Across Canada seroprevalence remained the highest in Manitoba (3.92% (95% CI 2.92, 4.93)) and lowest in PEI (0%)
- Seroprevalence increased significantly in Ontario (1.16% vs 1.82%) and in Alberta (2.12% to 3.41%) from December 2020 until January 2021
- Consistent with previous surveys, donors aged 17-24 years old the highest seroprevalence rate (3.45% (95% CI 2.87, 4.02)).
- Disparities by socioeconomic status and racialized groups widened. Donors living in the most materially deprived neighbourhoods were nearly 4-times more likely to be positive than those living in affluent neighbourhoods (4.04% compared with 1.17%) . Racialized groups of donors were two time more likely to be positive than self identified white donors (3.37% compared to 1.66%)
- Detailed comparison with the previous survey (December 2020) is included.

### December 2020

#### December 10-23, 2020 (n=16,961)

- Seroprevalence in December was 1.37% (95% CI 1.18, 1.56)
- Regional variation: Across Canada seroprevalence remained the highest in Manitoba (3.02% (95% CI 1.75, 4.29)) however this was a significant decrease from the last report.
- Donors aged 17-24 years old remained the age group with the highest seroprevalence (2.75% (95% CI 2.01, 3.49))
- Disparities by socioeconomic status widened, donors living in the most materially deprived neighbourhoods were 3-times more likely to be positive than those living in affluent neighbourhoods (2.2% compared with 0.72%)
- **New:** Longitudinal data on repeat donors illustrating waning S/co ratios over time

### November 2020

#### November 7-25, 2020 (n=17,049)

- Seroprevalence in November was 1.51% (95% CI 1.31, 1.71)
- Regional variation: Seroprevalence increased mostly in Western Canada. Highest rates were observed in the Prairies; Manitoba's rate increased to 8.56% (95% CI 6.51, 10.62) and Saskatchewan's rate increased to 4.2% (95% CI 2.3, 5.8). There was a slight decrease in Ontario to 0.77% (95% CI 0.56, 0.97%) and PEI remained at 0.
- Donors aged 17-24 years old had the highest seroprevalence rates 2.97% (95% CI 2.20, 3.37%) while donors 40-59 years old 1.09% (95% CI 0.80, 1.38%) had the lowest rates.
- **New:** Revised time series (Additional data from the correlates of immunity study from April until Aug 31, 2020 are included in this report)
- Comparison of Wave 1 (May-July) to November 2020

## October 2020

### October 12-31, 2020 (n=16,811)

- Seroprevalence increased significantly in October to 0.88% (95% CI 0.73, 1.04) (p=0.04).
- Regional variation: Manitoba's seroprevalence rate increased to 2.96% (95% CI 1.70, 4.23), the highest in Canada. Ontario remained stable at 0.87% (0.65, 1.08)
- New: Heat maps to illustrate inter-provincial variation (by economic regions)
- Disparities widen: Donors that self-identified as white (0.75%; 95% CI 0.61, 0.92) had significantly lower seroprevalence compared to other racialized groups (1.82%; 95% CI 1.21, 2.62)

## Wave 1

### May 9, 2020- July 21, 2020 (n=74,642)

- Seroprevalence was estimated at 0.70% (95% CI 0.63, 0.77)
- Regional variation: Ontario, 0.88% (95% CI 0.78, 0.99) had the highest seroprevalence, very low seroprevalence in Atlantic provinces.
- Disparities: Donors that self-identified as white (0.66%; 95% CI 0.59, 0.74) had lower seroprevalence compared to racialized groups (1.09%; 95% CI 0.84, 1.34)

## Introduction

SARS-CoV-2 is a novel coronavirus first identified in Wuhan, Hubei province China in late 2019. It is responsible for a respiratory illness, coronavirus infection disease (COVID-19). Some people become extremely ill and can die from complications, while others experience mild symptoms or may not be aware of their infection at all. With less than 500 confirmed cases across Canada, by March 23<sup>rd</sup>, 2020, strict physical distancing measures were implemented. As a direct result, the first wave of the epidemic peaked by the end of April and plateaued in July and August. A resurgence of infections began in late September 2020 and continued to grow across Canada until December. Yet, these statistics do not convey the true infection rate because some infections will not cause illness, others may not be severe enough for people to seek testing, and testing may be disproportionately directed to outbreaks. Testing for SARS-CoV-2 antibodies is important to understand what proportion of the population have detectable antibodies (the seroprevalence) and to monitor infection over the course of the pandemic. This information will improve mathematical models to predict the course of infection and inform public health policy.

Blood donors are reasonably representative of healthy Canadians between the ages of 17 and about 60. There are people over 60 who donate blood, although there are fewer as age increases. Canadian Blood Services has blood collection sites in all large cities and many smaller urban centres in all provinces except Quebec but people in rural areas may have less opportunity to donate. Blood donations are not collected in the northern territories.

In partnership with the COVID-19 Immunity Task Force, Canadian Blood Services is testing samples left over from donations for SARS-CoV-2 antibodies. **The current report summarizes the seroprevalence estimates from residual blood from donors in January 2021.**

## Methods

### Blood donor eligibility

Before each donation blood donors must answer screening questions to ensure that they are in good health and do not have risk factors for infections that may be transmitted to blood recipients. There is no evidence that SARS-CoV-2 can be transmitted through blood transfusion, but it is important to ensure other donors and staff are safe while in the blood clinic. Donors are asked if they have had COVID-19 or been in contact with someone who has. They are deferred from donation for 2 weeks if they have been in contact with someone who was infected, and if they have had the infection deferral is for two weeks after symptoms disappear (3 weeks if hospitalized). Donors also have their temperature checked before they enter the clinic, and their hemoglobin level is checked before they can donate.

### Blood samples

Just before a donor gives their blood donation, several small tubes of blood are collected for infectious disease and other testing. An extra sample is taken, called the retention sample, in



case extra testing is required. Only about 20% of these retention samples are needed. For seroprevalence testing plasma from the 80% of retention samples not needed for operational testing was aliquoted and frozen at -20°C or colder, starting on May 9, 2020.

## **Periodicity**

All retention samples were tested for SARS-CoV-2 antibodies until July 21, 2020 (Wave 1). From August 2020 until December 2020, only samples from approximately the last two weeks of each month were tested (although most samples from August and September have not yet been tested). In January 2021 all samples were tested. **This report includes samples from January 1-27, 2021.**

## **SARS-CoV-2 antibody testing**

All plasma samples were tested using the Abbott Architect SARS-CoV-2 IgG assay (chemiluminescent microparticle immunoassay (CMIA)) which utilizes the nucleocapsid antigen. This assay was assumed to have 92.7% (90.2-94.8%) sensitivity and 99.9% (99.4 – 100%) specificity (1). Testing was conducted at Canadian Blood Services in Ottawa.

## **Ethical issues**

All data were de-identified by the information technology team at Canadian Blood Services by providing a random identification number. Demographic variables were extracted from the Canadian Blood Services donor database (e.g. donation date, birth year, sex, racialized groups, Forward Sortation Area of residential postal code) and linked to the test data. In the donor pamphlet “What you must know to donate blood” which donors must read before each donation, and in the pamphlet entitled “What happens to your blood donation?” donors were informed that their blood will be tested for routinely tested infectious disease markers and other tests as required. Information about the study was made available on the website in late June, prior to commencing testing. Donors were not informed of their results because confirmatory/supplemental testing was not carried out. This study was approved by the Canadian Blood Services Research Ethics Board.

## **Data management and analysis**

De-identified demographic data were analysed by the Canadian Blood Services Epidemiology & Surveillance Department. Socioeconomic status was estimated by quantiles of the Pampalon Material and Social Deprivation Indices (MSDI). MSDI was derived from 2016 Statistics Canada census, aggregated from postal codes to the dissemination area (DA) level (the smallest geographic unit available in the Canadian census, consisting of 400–700 persons). Because blood donors tend to live in areas close to a blood clinic there will be higher concentrations of donors in certain areas compared with the general population, and lower concentrations in other areas. To make inference to the general population, weighting factors were applied based on the donor's residential Forward Sortation Area (FSA), age group and sex. Data were weighted based on Statistics Canada data (catalogue # 98-400-X2016008). For FSAs with few donors, several FSAs were combined, generally to include at least 500 donors. For data with no FSA

recorded or if not in a province where blood is collected (0.2% of samples) weighting was based on FSA of the blood centre.

The seroprevalence was calculated as the number of positive samples divided by all samples tested. Ninety-five percent confidence intervals were calculated based on the Exact method. The adjusted seroprevalence and confidence intervals present the weighted data adjusted for sensitivity and specificity of the assay using the Rogan-Gladen equation (2). SARS-CoV-2 seroprevalence was stratified by geography (regions, province, economic regions (maps) and selected metropolitan cities), sex, age groups, self-reported ethnicity and social and material deprivation indices. Temporal trends at two-week intervals were evaluated by geographical region by linear regression. Statistical comparisons between groups were carried out using logistic regression.

## Results

Between January 1 and January 27, 2021, a total of 34,921 unique donors were tested for SARS-CoV-2 antibodies. Over half (57%) were from male donors, all age groups were represented however the majority were from donors 40 years and older. Samples tested were represented of donation rates by each province (Table 1).

Table 2 shows the unadjusted and adjusted SARS-CoV-2 seroprevalence rates by sociodemographic variables for all Canadian provinces (except Quebec and territories). Overall seroprevalence was 1.99% (95% CI 1.84, 2.15) a significant increase from December 2020 (1.37% (95% CI 1.18, 1.56) ( $P>0.001$ )).

We found seroprevalence differed by age groups with the highest rates among donors aged 17-24 years old 3.45% (95% CI 2.87, 4.02%). Compared to December 2020, there was a significant increase in seroprevalence rates among donors 25-39 years old and 40-59 years old (Table A2). Donors that self-identified as white had a significantly lower seroprevalence rate (1.66%; 95% CI 1.49, 1.82) compared to all other racialized groups (3.30%; 95% CI 2.78, 3.83) ( $P>0.001$ ). Donor's living in the most materially deprived neighborhoods were nearly four-times more likely to be positive compared to those living in more affluent neighborhoods (4.04% compared to 1.17%).

Table 3 compares SARS-CoV-2 seroprevalence by province. Manitoba remained the province with the highest adjusted rate (3.92% (95% CI 2.92, 4.93) followed by Alberta 3.41% (95% CI 2.89, 3.94) and the lowest in Prince Edward Island and New Brunswick. Tables A1.1-A1.5 summarize all provincial rates stratified by age and sex.

Figure 1 illustrates temporal trends of SARS-CoV-2 seroprevalence from April 4, 2020 until January 27, 2021 by approximately two-week intervals<sup>1</sup>. After a stark increase in seroprevalence at the end of November, rates declined in early December. However, since December rates have been steadily increasing. This increase in seroprevalence is driven by

<sup>1</sup> Data from the CIHR funded "Correlates of Immunity" study, that samples 1500 donors per month from April 2020-March 2021 were included to create this report

higher rates in Alberta and Ontario (Figure 2A stratifies monthly temporal trends by regions; Appendix Figure 2A provides biweekly summaries).

Figure 3 illustrates significant inter-regional variations within each province. For example, in Manitoba in populations with greater than 80 samples tested; seroprevalence rates ranged from 1.2% (95% CI 0, 3.2%) in Interlake to 15.2% (95% CI 7.2, 23.24%). Table A5 lists all regional seroprevalence rates compared to the last two months (November and December 2020). Table 4 summarizes SARS-CoV-2 seroprevalence by cities. The highest seroprevalence was observed in Edmonton 3.74% followed by Calgary 2.87%, Toronto 2.44% and Winnipeg 2.45%.

Given seroprevalence in Ontario is lower than expected. We compared seroprevalence trends in Ontario compared to Toronto (Figure 4). While in December Toronto's seroprevalence was more than two times Ontario's seroprevalence rate (including Toronto), in January we found this differentiation shrunk considerably.

## Conclusion

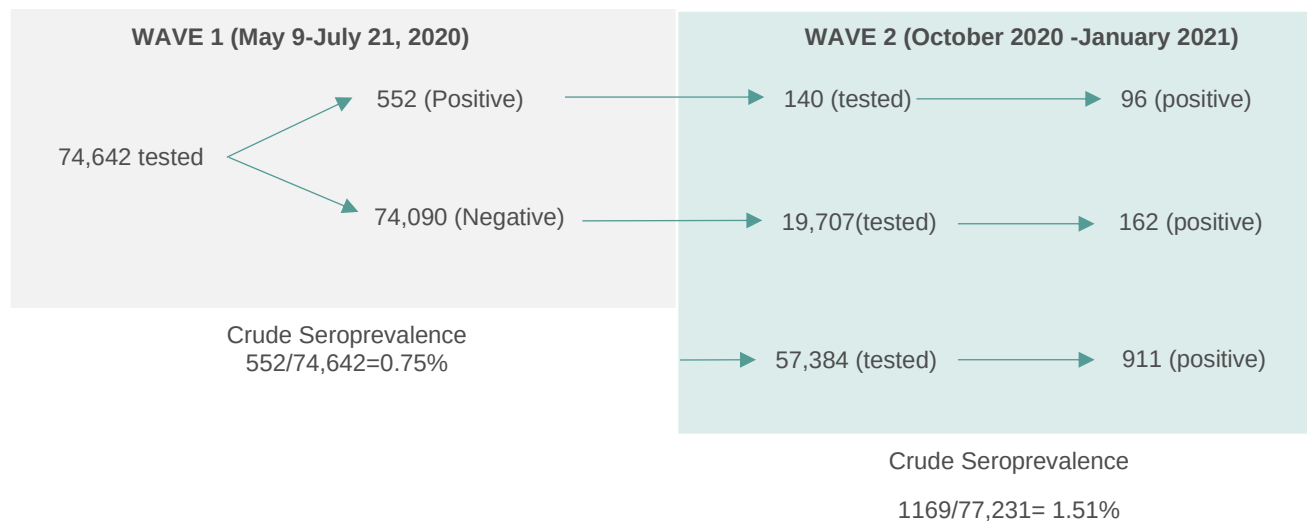
Overall seroprevalence of SARS-CoV-2 remained low in Canadian blood donors between January 1-27, 2020 (2%) but there was significant regional variation. There was also some evidence of a spill over effect from younger adults to older adults as seroprevalence increased significantly among donors 25-59 years old in January compared to December. Racialized groups and donors living in material deprived neighbourhoods remained more likely to have antibodies compared to white donors and the disparities are widening. Overall lower rates than expected may be a result of waning antibody (see points for interpretation). While the donor selection criteria ensure blood donors are healthy, caution should be exercised in extrapolating findings to all healthy Canadians adults because donors self-select to be blood donors, in some areas access to a donation clinic may be limited and because there are fewer elderly donors.

## Points for Interpretation

1. Blood donors are a healthy sub-set of the adult Canadian population. Important points to keep in mind with regards to representativeness of the sample are:
  - blood donors self-select to donate blood therefore those who choose not to donate blood for whatever reason are not included in the sample.
  - Blood donations are collected from people aged 17 years and older, however there are relatively few donations from elderly donors.
  - Blood donations are collected in larger cities and many smaller urban areas, but people in rural areas may be under-represented. Canadian Blood Services does not collect blood in the northern territories or the province of Quebec.
2. Data were weighted for age, sex and location to more closely reflect the Canadian population. For example, the unweighted SARS-CoV-2 seroprevalence for the full sample

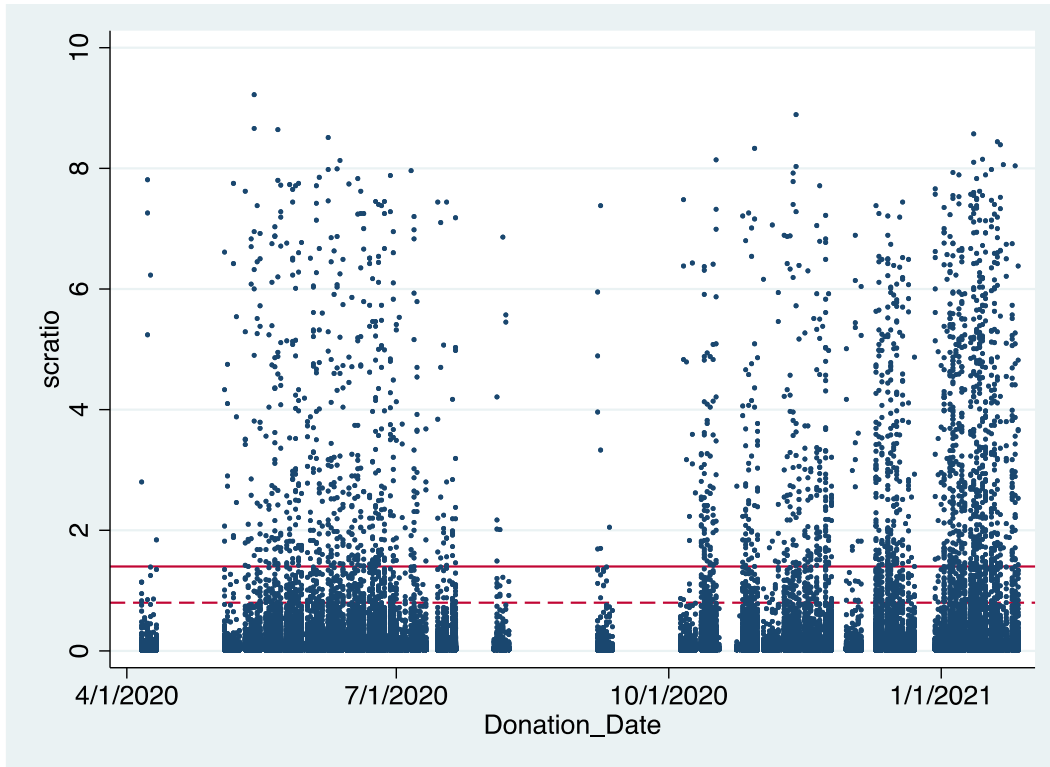
was 2% (95% CI 1.86, 2.16)), and after weighting factors applied it was 2.06% (95% CI 1.90, 2.22), then after the weighted seroprevalence was adjusted for sensitivity and specificity, 1.99% (95% CI 1.84, 2.15).

3. The sensitivity and specificity of the Abbott assay were obtained from a report from the United Kingdom. The manufacturer indicates higher sensitivity. A study from Denmark indicates sensitivity may be slightly lower.
4. The sensitivity and specificity of the assay are very good, but it is still possible that some true positives may be missed, and some positive results may be false. Confirmatory testing has not been performed. The seroprevalence was adjusted for sensitivity and specificity using a well-established mathematical formula. The Abbott assay used by Canadian Blood Services detects IgG antibodies to the SARS-CoV-2 nucleocapsid protein. IgG develops during infection but may not be present early in the course of infection. Donors are deferred if they have recent COVID-19 infection, but asymptomatic early stage infections may not be detected. Due to a variety of biological factors, donors may have variable antibody responses to different binding sites on the SARS-CoV-2 virus (e.g. Spike, receptor binding domain of Spike, nucleocapsid protein).
5. In total, 35,070 samples from January were tested. Of these 148 were a donation from donors who had been tested more than once during the January sampling period. None of these repeated donors were positive. Repeat tested samples were excluded from the present analysis. Analysis is presented for the 34,921 unique donors in this study period.
6. It is common for blood donors to donate multiple times over a year. The following flow diagram highlights donors that were tested multiple times over the sampling period of May 9, 2020 to January 27, 2021. Of the 552 positive donors in wave 1, 140 were re-tested in wave 2 and 96/140 (69%) remained positive. Of the 74,090 negative donors in wave 1, 19,707 were re-tested in wave 2 and 162/19,707 (0.82%) seroconverted. Wave 2 included 57,384 naïve donors (to the seroprevalence study), of whom 911 were positive (1.59%).



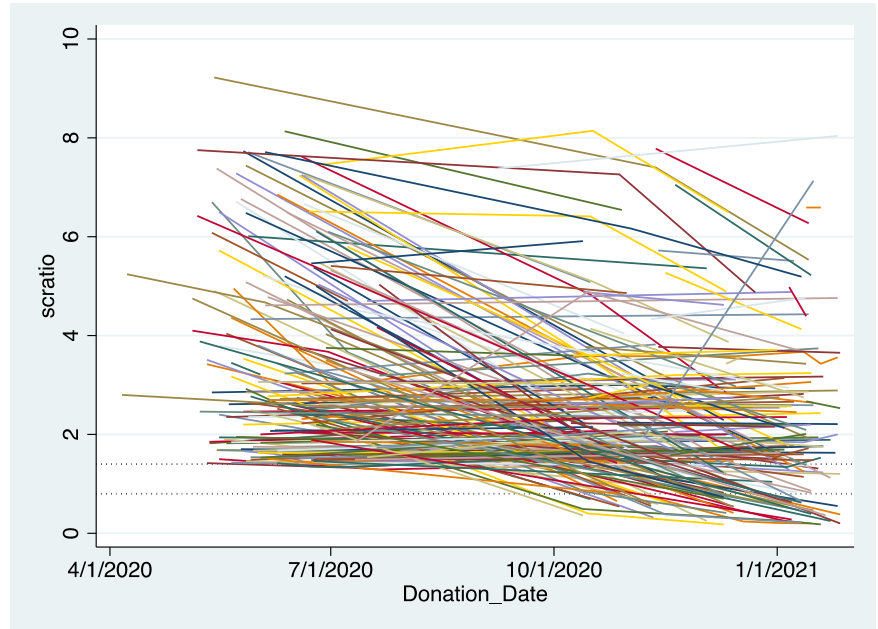
7. There is growing evidence that SARS-CoV-2 antibody levels begin to wane in some individuals by about 100 days post-infection. This is particularly evident using a nucleocapsid-based assay such as the one used in this study.

Multiple approaches are currently being investigated to account for waning antibody levels to adjust seroprevalence. Preliminary work below summarizes waning signals in our donor population.



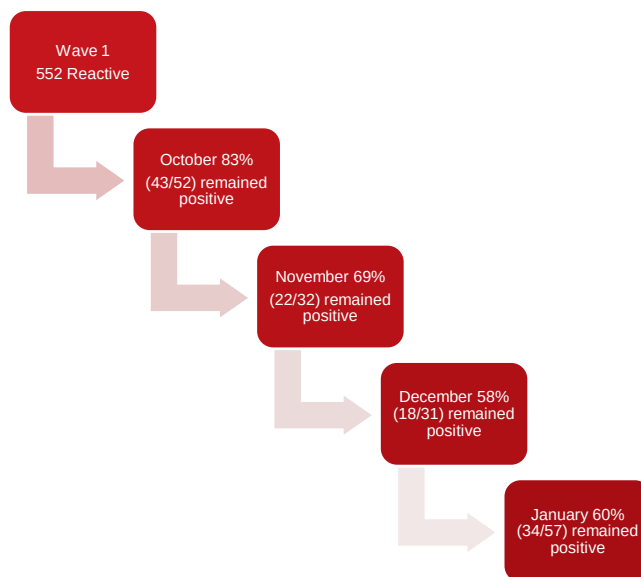
Cross-sectional assessment of sample to cut-off (S/Co) ratios from April 9, 2020 until January 27, 2020, of all retention samples tested with a S/Co ratio greater than 0.1 are illustrated in the figure above. Solid red line indicates manufacturers 1.4 threshold to identify reactive samples. Dotted red line (0.8) represents manufacturers updated “grey zone” classification of reactive samples. The concentration of samples between 0.8-1.4 compared to >1.4 appears to be increasing over time with each wave, suggesting a waning nucleocapsid signal.

We evaluated S/Co kinetics among seropositive donors with repeated samples tested. A total of 201 seropositive donors were identified as having at least 2 (max 9) measurements over a median of 21 weeks (IQR 9, 27), their median age at baseline was 48 years old (IQR 34, 61) and 137 (68%) were male. Baseline S/Co ratio was 2.8 (IQR 2.6, 3.0) and this decreased to 1.95 (IQR 1.41, 2.92) at donors last screening.



We used a generalized mixed effect linear model (random intercept for the individual donor) to estimate the rate of decline to be **-0.06 units/weeks (95% CI -0.07, -0.05)] (p-value <0.0001)**, this model takes into account the variance between donors. We found no association between age, sex, region, ABO blood group, the date of baseline donation with baseline S/co ratios or rate of decline (however sample size remains limited).

The effect of this decline is summarized by the following flow diagram; among donors that tested positive in the first wave, when retested in October, November, December or in January 2021, only 83%, 69%, 58% and 60% remained positive, respectively.



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## References

1. The National SARS-CoV-2 Serologic Assay Evaluation Group. Head-to-head benchmark evaluation of the sensitivity and specificity of five immunoassays for SARS-CoV-2 serology on >1500 samples. Available at: <https://doi.org/10.6084/m9.figshare.12593288.v1>.
2. Lang Z, Reiczigel J. Confidence limits for prevalence of disease adjusted for estimated sensitivity and specificity. Preventive Veterinary Medicine. 2014;113;13-22.

**Table 1.** January survey of 34,921 Canadian Blood Services donors

|                      | Number Tested | Percentage |
|----------------------|---------------|------------|
| <b>Sex</b>           |               |            |
| Female               | 15,102        | 43.2       |
| Male                 | 19,819        | 56.8       |
| <b>Age</b>           |               |            |
| 17-24                | 2,758         | 7.9        |
| 25-39                | 9,863         | 28.2       |
| 40-59                | 12,810        | 36.7       |
| 60+                  | 9,490         | 27.2       |
| <b>Province</b>      |               |            |
| British Columbia     | 6,418         | 18.4       |
| Alberta              | 7,189         | 20.6       |
| Saskatchewan         | 1,790         | 5.1        |
| Manitoba             | 1,878         | 5.4        |
| Ontario              | 14,286        | 40.9       |
| New Brunswick        | 1,130         | 3.2        |
| Nova Scotia          | 1,413         | 4.0        |
| Prince Edward Island | 318           | 0.9        |
| Newfoundland         | 499           | 1.4        |
| <b>Total</b>         | <b>34,921</b> |            |

Note: 35,070 donations were tested, if multiple donations were from the same donor only the first was counted.



**Table 2.** SARS-CoV-2 Seroprevalence by Sociodemographic Variables (January 2021 Survey)

|                                             | Unweighted    |                 |                  |                         | Adjusted         |                         |
|---------------------------------------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|                                             | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>                                  |               |                 |                  |                         |                  |                         |
| Female                                      | 15,102        | 286             | 1.89             | 1.68, 2.12              | 1.78             | 1.57, 1.98              |
| Male                                        | 19,819        | 414             | 2.09             | 1.89, 2.30              | 2.22             | 1.99, 2.46              |
| <b>Age</b>                                  |               |                 |                  |                         |                  |                         |
| 17-24                                       | 2,758         | 94              | 3.41             | 2.76, 4.15              | 3.45             | 2.87, 4.02              |
| 25-39                                       | 9,863         | 246             | 2.49             | 2.20, 2.82              | 2.49             | 2.14, 2.84              |
| 40-59                                       | 12,810        | 230             | 1.80             | 1.57, 2.04              | 1.70             | 1.46, 1.95              |
| 60+                                         | 9,490         | 130             | 1.37             | 1.15, 1.62              | 1.28             | 1.04, 1.52              |
| <b>Ethnicity<sup>1,2</sup></b>              |               |                 |                  |                         |                  |                         |
| White                                       | 25,983        | 448             | 1.72             | 1.57, 1.89              | 1.66             | 1.49, 1.82              |
| Indigenous                                  | 415           | 5               | 1.20             | 0.39, 2.79              | 1.05             | 0.00, 2.14              |
| Asian                                       | 1,387         | 37              | 2.67             | 1.89, 3.66              | 2.74             | 1.82, 3.65              |
| Other racialized groups                     | 3,172         | 115             | 3.63             | 3.00, 4.34              | 3.95             | 3.23, 4.66              |
| <b>Social Deprivation Index<sup>3</sup></b> |               |                 |                  |                         |                  |                         |
| 1 (least deprived)                          | 6,450         | 153             | 2.37             | 2.01, 2.77              | 2.47             | 2.07, 2.87              |
| 2                                           | 6,544         | 141             | 2.15             | 1.82, 2.54              | 2.19             | 1.81, 2.56              |
| 3                                           | 6,348         | 107             | 1.69             | 1.38, 2.03              | 1.69             | 1.35, 2.02              |
| 4                                           | 5,651         | 95              | 1.68             | 1.36, 2.05              | 1.66             | 1.30, 2.02              |
| 5 (most deprived)                           | 6,098         | 110             | 1.80             | 1.48, 2.17              | 1.70             | 1.35, 2.05              |

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| Material Deprivation Index <sup>3</sup> |               |            |             |                   |             |                   |
|-----------------------------------------|---------------|------------|-------------|-------------------|-------------|-------------------|
| 1 (least deprived)                      | 9,278         | 121        | 1.30        | 1.08, 1.56        | 1.17        | 0.93, 1.41        |
| 2                                       | 7,382         | 126        | 1.71        | 1.42, 2.03        | 1.67        | 1.36, 1.98        |
| 3                                       | 6,573         | 143        | 2.18        | 1.84, 2.56        | 2.17        | 1.80, 2.54        |
| 4                                       | 5,128         | 116        | 2.26        | 1.87, 2.71        | 2.26        | 1.83, 2.68        |
| 5 (most deprived)                       | 2,730         | 100        | 3.66        | 2.99, 4.44        | 4.04        | 3.28, 4.80        |
| <b>Total</b>                            | <b>34,921</b> | <b>700</b> | <b>2.00</b> | <b>1.86, 2.16</b> | <b>1.99</b> | <b>1.84, 2.15</b> |

<sup>1</sup> Self-reported ethnicity was missing for 3,964 (11.4%) donors; 95 were positive, adjusted SARS-CoV-2 seroprevalence of those missing ethnicities was 2.50% (95% CI 1.97, 3.02)

<sup>2</sup> All racialized groups together resulted in adjusted SARS-CoV-2 seroprevalence of 3.37% (95% CI 2.84, 3.91)

<sup>3</sup> Postal Codes were missing for 3,830 (10.97%) donors; 94 were positive, adjusted SARS-CoV-2 seroprevalence among missing postal codes was 2.32 (95% CI 1.80, 2.84)

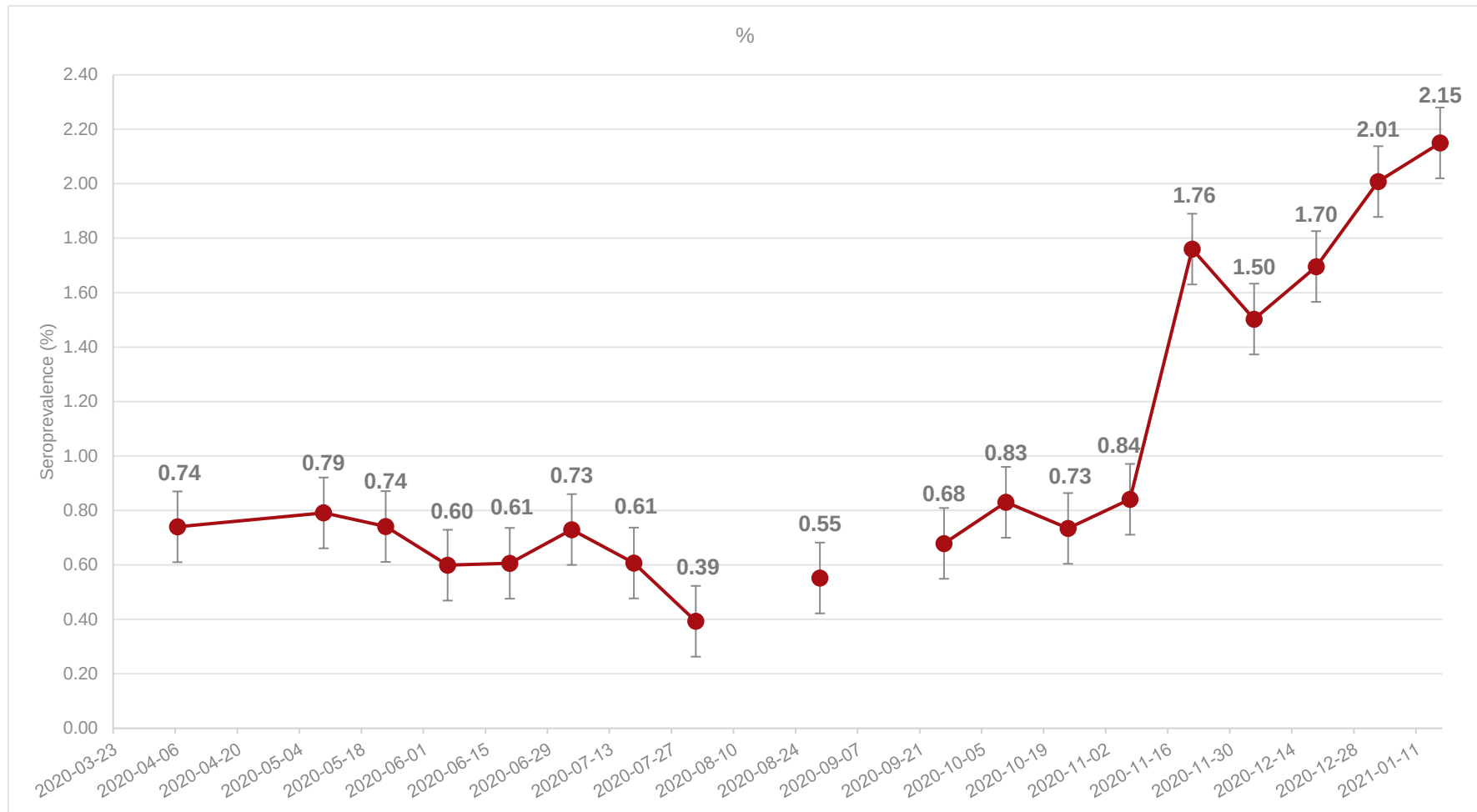
**Table 3.** SARS-CoV-2 seroprevalence by province (January Survey)

|                           | Unweighted    |                 |                  |                         | Adjusted         |                         |
|---------------------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|                           | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| British Columbia          | 6,418         | 95              | 1.48             | 1.20, 1.81              | 1.48             | 1.16, 1.81              |
| Alberta                   | 7,189         | 223             | 3.10             | 2.71, 3.53              | 3.41             | 2.89, 3.94              |
| Saskatchewan              | 1,790         | 40              | 2.23             | 1.60, 3.03              | 2.46             | 1.59, 3.33              |
| Manitoba                  | 1,878         | 68              | 3.62             | 2.82, 4.57              | 3.92             | 2.92, 4.93              |
| Ontario                   | 14,286        | 257             | 1.80             | 1.59, 2.03              | 1.82             | 1.61, 2.04              |
| New Brunswick             | 1,130         | 5               | 0.44             | 0.14, 1.03              | 0.27             | 0.00, 0.66              |
| Nova Scotia               | 1,413         | 9               | 0.64             | 0.29, 1.21              | 0.56             | 0.09, 1.03              |
| Prince Edward Island      | 318           | 0               | 0                | 0.00, 1.15              | 0                |                         |
| Newfoundland and Labrador | 499           | 3               | 0.60             | 0.12, 1.75              | 0.42             | 0.00, 0.97              |
| <b>Total</b>              | <b>34,921</b> | <b>700</b>      | <b>2.00</b>      | <b>1.86, 2.16</b>       | <b>1.99</b>      | <b>1.84, 2.15</b>       |

**Table 4.** SARS-CoV-2 seroprevalence in selected cities (January Survey)

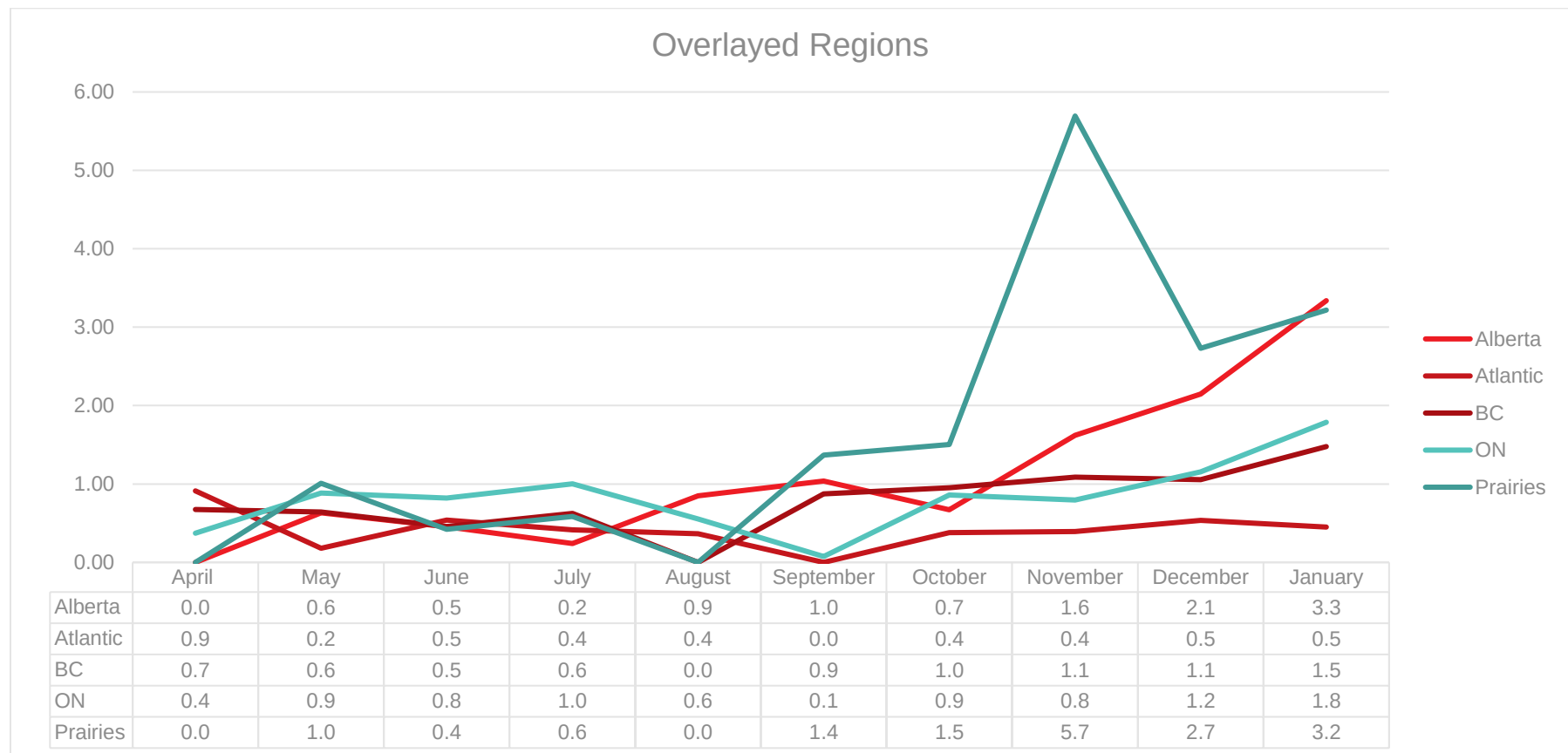
|           | Unweighted    |                 |                  |                         | Adjusted         |                         |
|-----------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|           | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| Vancouver | 3,649         | 66              | 1.81             | 1.40, 2.30              | 1.83             | 1.30, 2.30              |
| Calgary   | 2,596         | 67              | 2.58             | 2.01, 3.27              | 2.87             | 2.10, 3.68              |
| Edmonton  | 2,417         | 83              | 3.43             | 2.74, 4.24              | 3.74             | 2.80, 4.68              |
| Ottawa    | 1,340         | 10              | 0.75             | 0.36, 1.37              | 0.78             | 0.30, 1.26              |
| Toronto   | 4,364         | 100             | 2.29             | 1.87, 2.78              | 2.44             | 2.00, 2.89              |
| Winnipeg  | 1,131         | 27              | 2.39             | 1.58, 3.45              | 2.46             | 1.40, 3.51              |

**Figure 1.** Overall temporal trends of SARS-CoV-2 seroprevalence by two-week intervals from April 2020-January 2021.



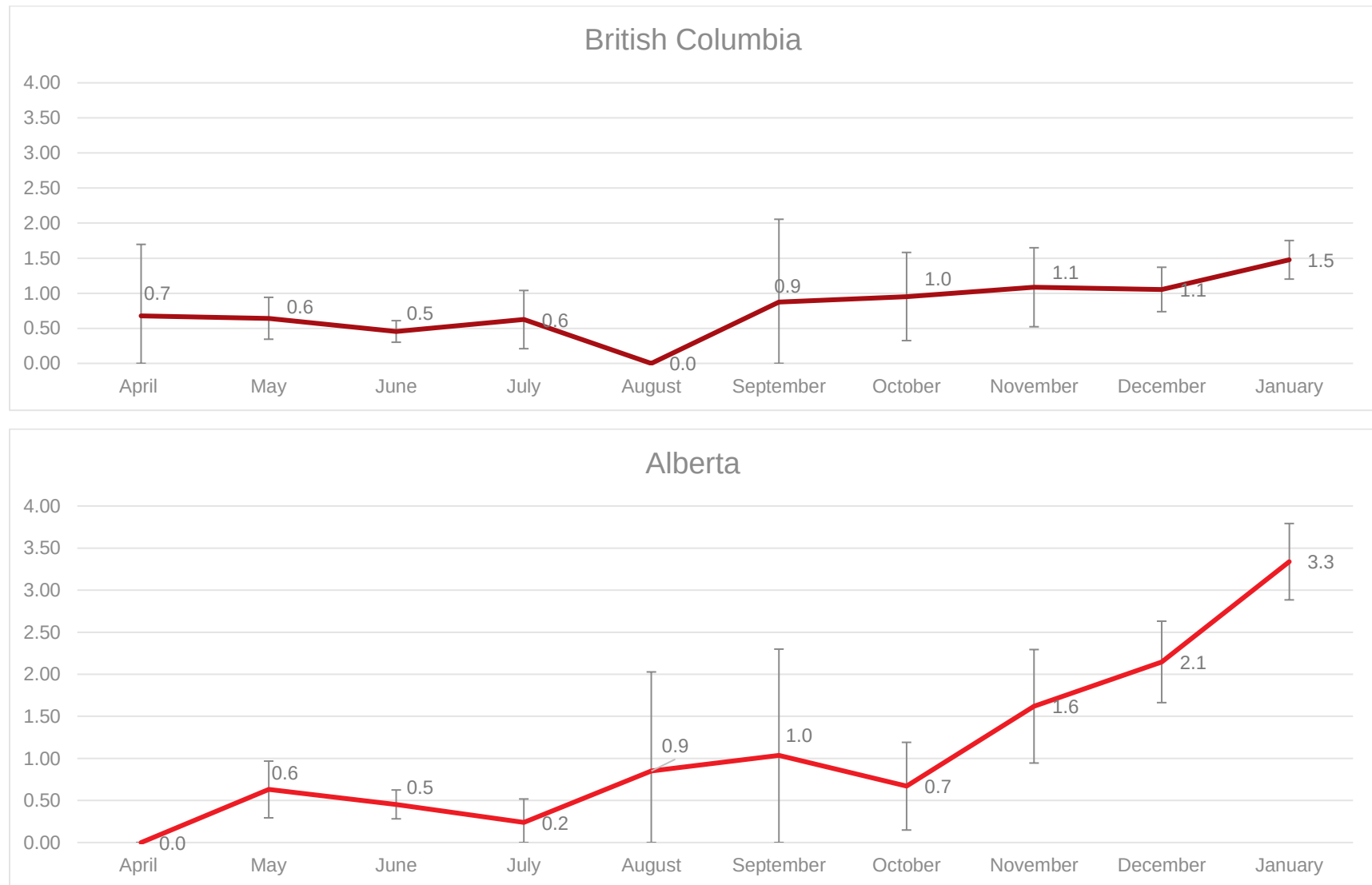
Notes: SARS-CoV-2 seroprevalence rates (95% CI), that have been weighted and adjusted for test characteristics. Data from the CIHR funded study (Correlates of Immunity) from April 9-January 31, 2020 have been included. There is a significant linear temporal trend.

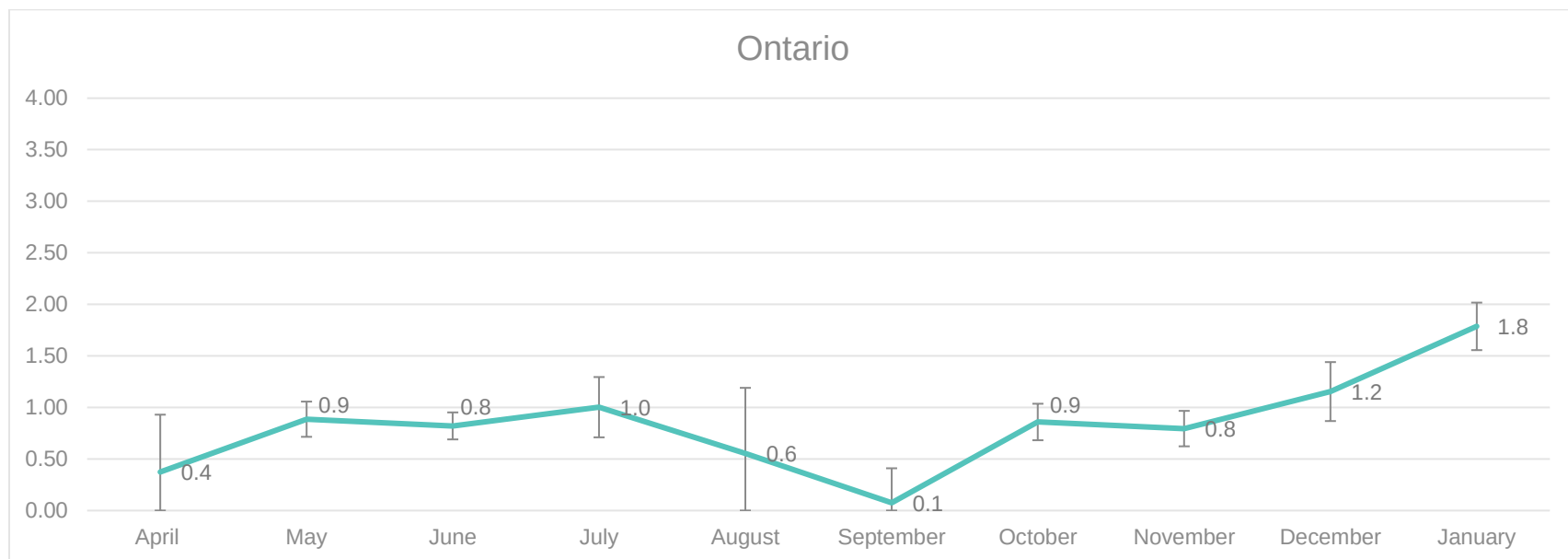
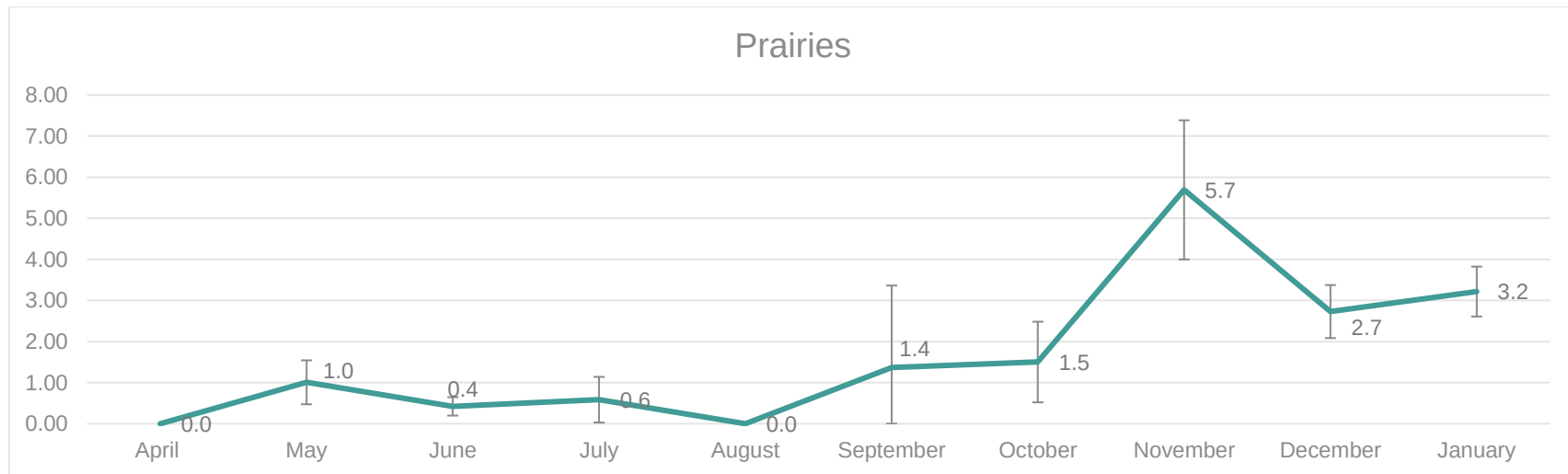
**Figure 2A.** Overall temporal trends of SARS-CoV-2 seroprevalence monthly from April-December 2020.

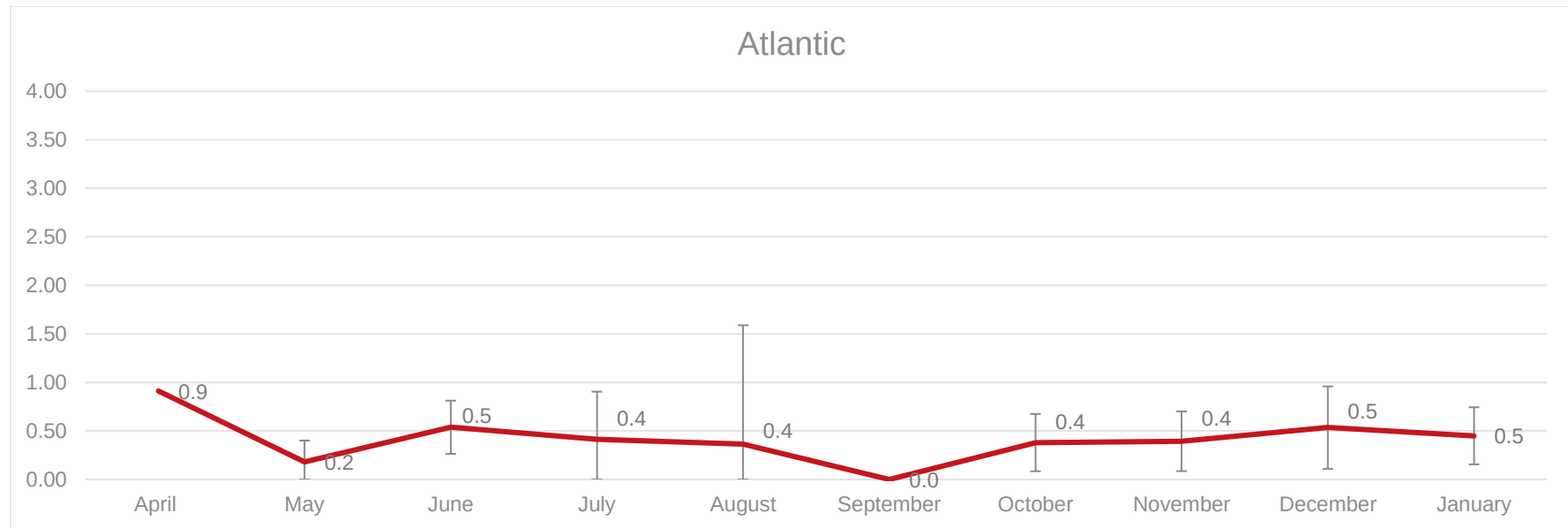


Note: SARS-CoV-2 seroprevalence rates (weighted and adjusted for test characteristics). Data from the CIHR funded study (Correlates of Immunity) from April 9-January 31, 2020 have been included.

**Figure 2B.** Overall temporal trends of SARS-CoV-2 seroprevalence monthly from April 2020-January 2021.



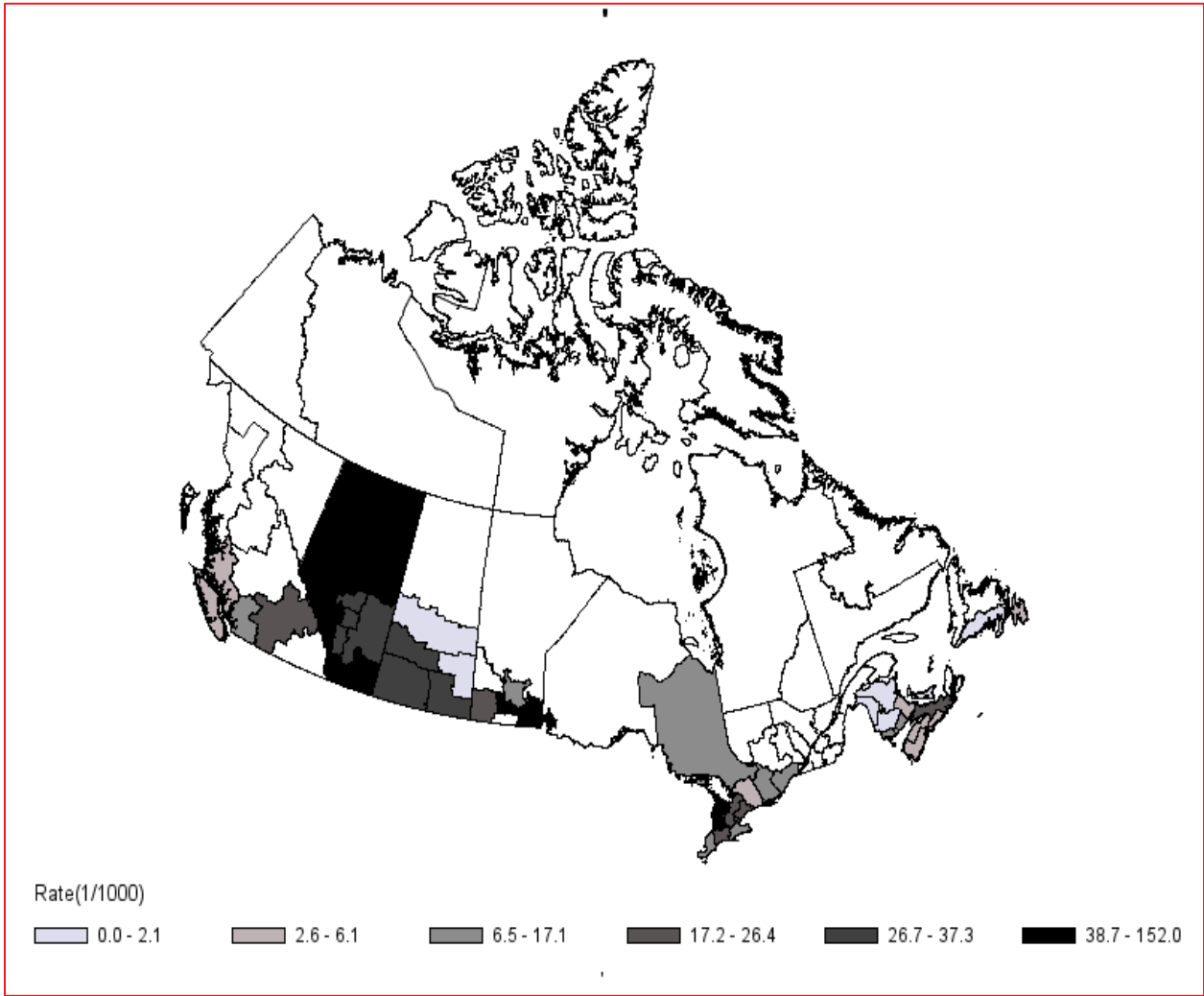




Note: SARS-CoV-2 seroprevalence rates (95% CI), that have been weighted and adjusted for test characteristics. Data from the CIHR funded study (Correlates of Immunity) from April 9-August 31, 2020 have been included. **Y-axis is different for the Prairies.**



**Figure 3A.** SARS-CoV-2 seroprevalence by economic regions **per 1000 donors** (January 2021 survey)



. Table A5 summarizes SARS-CoV-2 seroprevalence by economic regions.

**Figure 3B.** SARS-CoV-2 seroprevalence by economic regions **per 1000 donors** (inter-regional variation January survey)

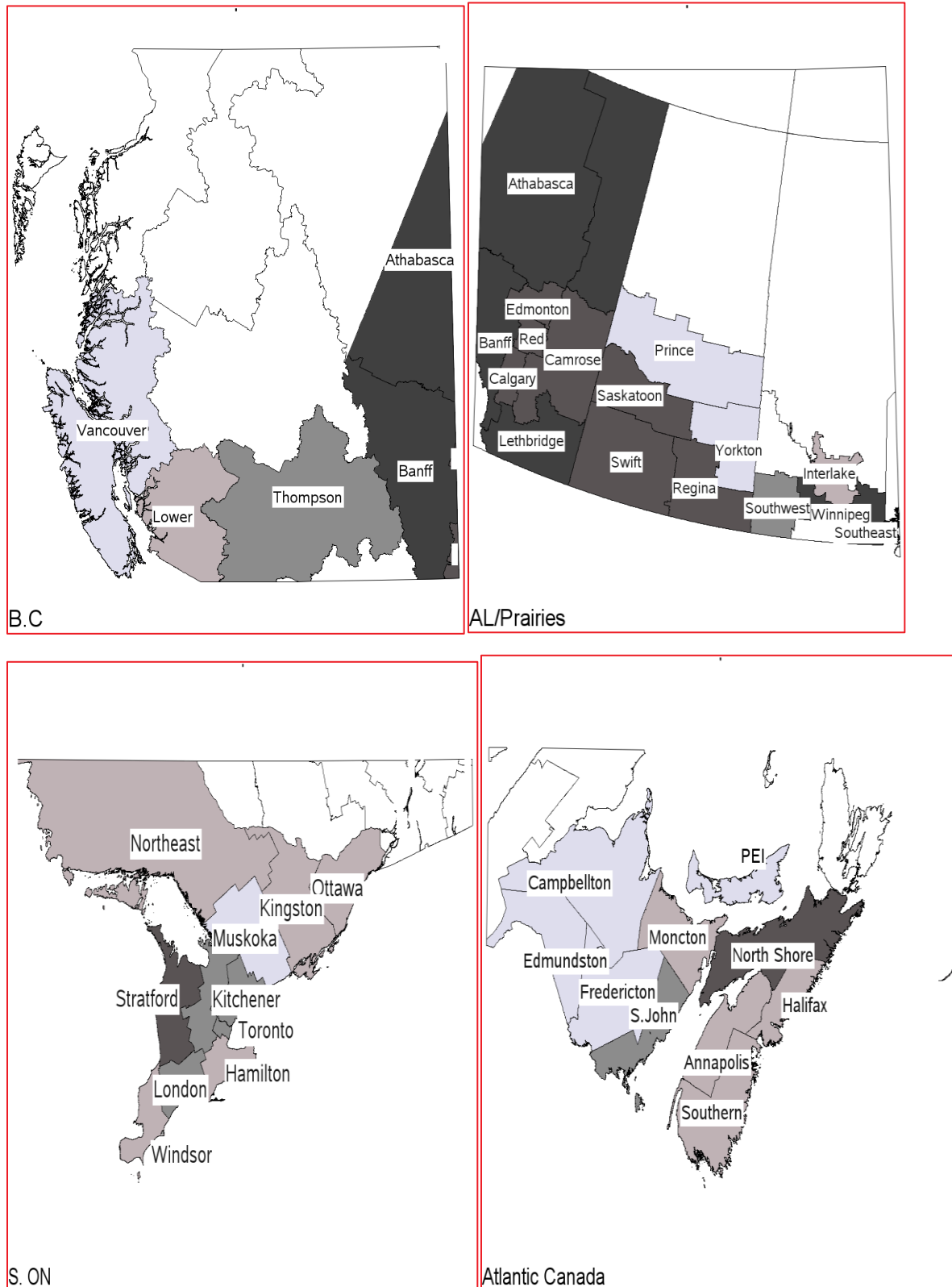
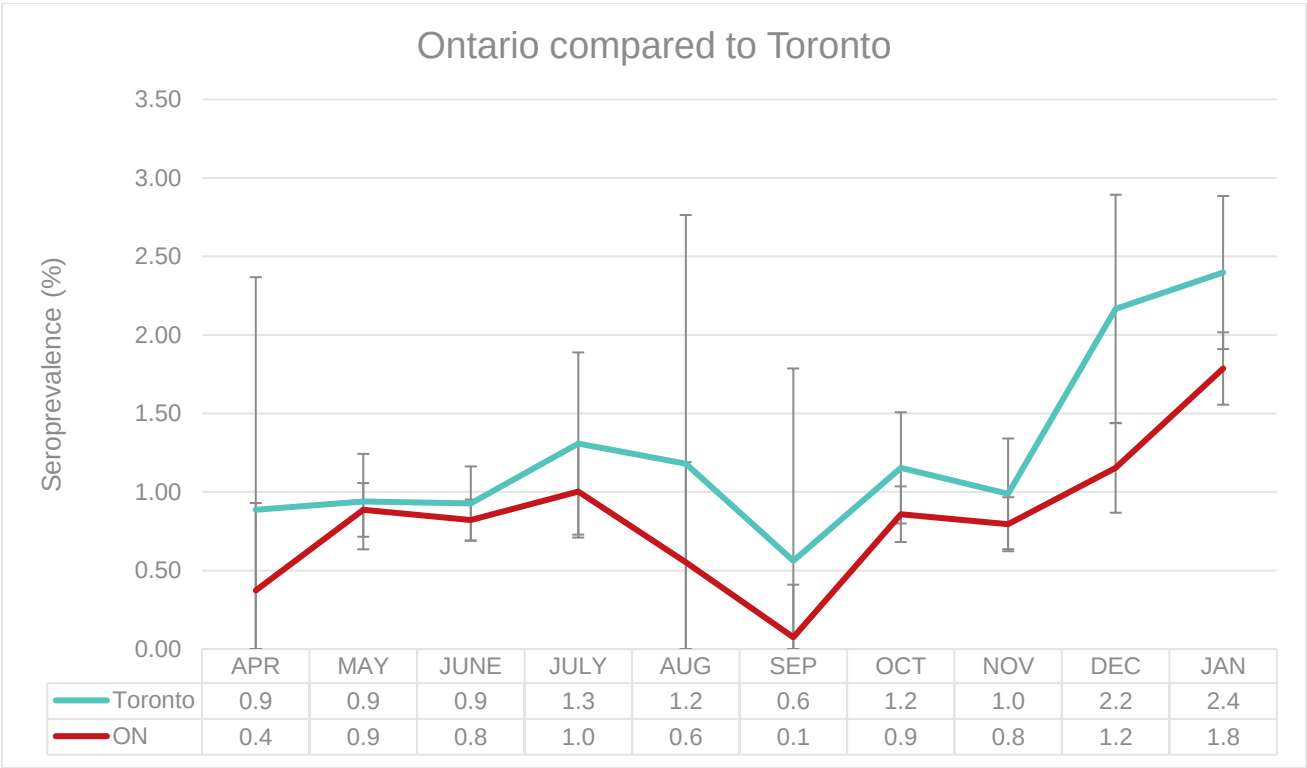


Figure 4. Seroprevalence overall in Ontario compared to Toronto



## Appendix – Regional SARS-CoV-2 seroprevalence by sex and age (January 2021)

**Table A1.1** British Columbia

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 2,799         | 41              | 1.46             | 1.05, 1.98              | 1.47             | 1.02, 1.92              |
| Male         | 3,619         | 54              | 1.49             | 1.12, 1.94              | 1.50             | 1.03, 1.96              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 447           | 7               | 1.57             | 0.63, 3.20              | 1.57             | 0.59, 2.55              |
| 25-39        | 1,924         | 32              | 1.66             | 1.14, 2.34              | 1.69             | 0.98, 2.39              |
| 40-59        | 2,192         | 31              | 1.41             | 0.96, 2.00              | 1.34             | 0.81, 1.87              |
| 60+          | 1,855         | 25              | 1.35             | 0.87, 1.98              | 1.45             | 0.87, 2.04              |
| <b>Total</b> | <b>6,418</b>  | <b>95</b>       | <b>1.48</b>      | <b>1.20, 1.81</b>       | <b>1.48</b>      | <b>1.16, 1.81</b>       |

**Table A1.2** Alberta

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 3,186         | 103             | 3.23             | 2.65, 3.91              | 3.36             | 2.62, 4.09              |
| Male         | 4,003         | 120             | 3.00             | 2.49, 3.57              | 3.47             | 2.73, 4.22              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 595           | 30              | 5.04             | 3.43, 7.12              | 5.50             | 3.68, 7.32              |
| 25-39        | 2,142         | 84              | 3.92             | 3.14, 4.83              | 4.13             | 3.09, 5.18              |
| 40-59        | 2,650         | 77              | 2.91             | 2.30, 3.62              | 3.03             | 2.19, 3.86              |
| 60+          | 1,802         | 32              | 1.78             | 1.22, 2.50              | 1.88             | 1.05, 2.71              |
| <b>Total</b> | <b>7,189</b>  | <b>223</b>      | <b>3.10</b>      | <b>2.71, 3.53</b>       | <b>3.41</b>      | <b>2.89, 3.94</b>       |

Table A1.3 Saskatchewan

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 748           | 15              | 2.01             | 1.13, 3.29              | 2.02             | 0.90, 3.14              |
| Male         | 1,042         | 25              | 2.40             | 1.56, 3.52              | 2.91             | 1.57, 4.26              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 149           | 7               | 4.70             | 1.91, 9.44              | 5.11             | 1.69, 8.53              |
| 25-39        | 496           | 19              | 3.83             | 2.32, 5.92              | 3.96             | 1.84, 6.08              |
| 40-59        | 632           | 6               | 0.95             | 0.35, 2.05              | 0.96             | 0.00, 1.96              |
| 60+          | 513           | 8               | 1.56             | 0.68, 3.05              | 1.56             | 0.22, 2.90              |
| <b>Total</b> | <b>1,790</b>  | <b>40</b>       | <b>2.23</b>      | <b>1.60, 3.03</b>       | <b>2.46</b>      | <b>1.59, 3.33</b>       |

Table A1.4 Manitoba

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 881           | 28              | 3.18             | 2.12, 4.56              | 3.23             | 1.95, 4.51              |
| Male         | 997           | 40              | 4.01             | 2.88, 5.42              | 4.65             | 3.09, 6.20              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 175           | 8               | 4.57             | 1.99, 8.81              | 5.30             | 2.17, 8.43              |
| 25-39        | 496           | 26              | 5.24             | 3.45, 7.59              | 5.55             | 3.20, 7.90              |
| 40-59        | 674           | 18              | 2.67             | 1.59, 4.19              | 2.77             | 1.30, 4.24              |
| 60+          | 533           | 16              | 3.00             | 1.73, 4.83              | 3.16             | 1.43, 4.89              |
| <b>Total</b> | <b>1,878</b>  | <b>68</b>       | <b>3.62</b>      | <b>2.82, 4.57</b>       | <b>3.92</b>      | <b>2.92, 4.93</b>       |

Table A1.5 Ontario

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 6,000         | 95              | 1.58             | 1.28, 1.93              | 1.57             | 1.29, 1.84              |
| Male         | 8,286         | 162             | 1.96             | 1.67, 2.28              | 2.10             | 1.77, 2.43              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 1,189         | 42              | 3.53             | 2.56, 4.74              | 3.66             | 2.84, 4.49              |
| 25-39        | 4,006         | 82              | 2.05             | 1.63, 2.53              | 2.07             | 1.61, 2.53              |
| 40-59        | 5,385         | 92              | 1.71             | 1.38, 2.09              | 1.63             | 1.29, 1.97              |
| 60+          | 3,706         | 41              | 1.11             | 0.80, 1.50              | 1.02             | 0.72, 1.33              |
| <b>Total</b> | <b>14,286</b> | <b>257</b>      | <b>1.80</b>      | <b>1.59, 2.03</b>       | <b>1.82</b>      | <b>1.61, 2.04</b>       |

Table A1.5 Atlantic Provinces

|              | Unweighted    |                 |                  |                         | Adjusted         |                         |
|--------------|---------------|-----------------|------------------|-------------------------|------------------|-------------------------|
|              | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval | Percent Positive | 95% Confidence Interval |
| <b>Sex</b>   |               |                 |                  |                         |                  |                         |
| Female       | 1,488         | 4               | 0.27             | 0.07, 0.69              | 0.18             | 0.00, 0.46              |
| Male         | 1,872         | 13              | 0.69             | 0.37, 1.18              | 0.62             | 0.17, 1.07              |
| <b>Age</b>   |               |                 |                  |                         |                  |                         |
| 17-24        | 203           |                 | 0                | 0.00, 1.80              | 0.00             | 0.00, 0.00              |
| 25-39        | 799           | 3               | 0.38             | 0.08, 1.09              | 0.24             | 0.00, 0.72              |
| 40-59        | 1,277         | 6               | 0.47             | 0.17, 1.02              | 0.42             | 0.00, 0.87              |
| 60+          | 1,081         | 8               | 0.74             | 0.32, 1.45              | 0.62             | 0.08, 1.16              |
| <b>Total</b> | <b>3,360</b>  | <b>17</b>       | <b>0.51</b>      | <b>0.30, 0.81</b>       | <b>0.39</b>      | <b>0.14, 0.65</b>       |

**Table A2.** Comparison of SARS-CoV-2 seroprevalence by socio-demographic variables December 2020 to January 2021)

|                         | WAVE 2: DECEMBER 2020 |                 |                  |                         | JANUARY 2021  |                 |                  |                         | December 2020 compared to January 2021 (p-value) |
|-------------------------|-----------------------|-----------------|------------------|-------------------------|---------------|-----------------|------------------|-------------------------|--------------------------------------------------|
|                         | Unadjusted            |                 | Adjusted         |                         | Unadjusted    |                 | Adjusted         |                         |                                                  |
|                         | Number Tested         | Number Positive | Percent Positive | 95% Confidence Interval | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval |                                                  |
| Sex                     |                       |                 |                  |                         |               |                 |                  |                         |                                                  |
| Female                  | 8,240                 | 106             | 1.06             | 0.84, 1.28              | 15102         | 286             | 1.78             | 1.57, 1.98              | 0.0000                                           |
| Male                    | 10,769                | 179             | 1.67             | 1.39, 1.95              | 19819         | 414             | 2.22             | 1.99, 2.46              | 0.0047                                           |
| Age                     |                       |                 |                  |                         |               |                 |                  |                         |                                                  |
| 17-24                   | 1,737                 | 45              | 2.63             | 1.95, 3.32              | 2758          | 94              | 3.45             | 2.87, 4.02              | 0.0865                                           |
| 25-39                   | 5,211                 | 77              | 1.36             | 1.00, 1.72              | 9863          | 246             | 2.49             | 2.14, 2.84              | 0.0000                                           |
| 40-59                   | 7,319                 | 103             | 1.17             | 0.89, 1.45              | 12810         | 230             | 1.70             | 1.46, 1.95              | 0.0079                                           |
| 60+                     | 4,742                 | 60              | 1.02             | 0.72, 1.31              | 9490          | 130             | 1.28             | 1.04, 1.52              | 0.1808                                           |
| Ethnicity               |                       |                 |                  |                         |               |                 |                  |                         |                                                  |
| White                   | 14,289                | 192             | 1.16             | 0.97, 1.35              | 25,983        | 448             | 1.66             | 1.49, 1.82              | 0.0002                                           |
| Indigenous              | 233                   | 4               | 3.34             | 0.74, 5.94              | 415           | 5               | 1.05             | 0.00, 2.14              | 0.0618                                           |
| Asian                   | 776                   | 11              | 1.02             | 0.24, 1.79              | 1,387         | 37              | 2.74             | 1.82, 3.65              | 0.0130                                           |
| Other racialized Groups | 1,698                 | 38              | 2.57             | 1.78, 3.36              | 3,172         | 115             | 3.95             | 3.23, 4.66              | 0.0167                                           |
| Con't to next page      |                       |                 |                  |                         |               |                 |                  |                         |                                                  |

| Social Deprivation Index   |               |            |             |                   |               |            |             |                   |                   |
|----------------------------|---------------|------------|-------------|-------------------|---------------|------------|-------------|-------------------|-------------------|
| 1 (least deprived)         | 3,603         | 61         | 1.56        | 1.13, 1.99        | 6,450         | 153        | 2.47        | 2.07, 2.87        | 0.0041            |
| 2                          | 3,485         | 48         | 1.31        | 0.91, 1.71        | 6,544         | 141        | 2.19        | 1.81, 2.56        | 0.0035            |
| 3                          | 3,496         | 57         | 1.51        | 1.07, 1.94        | 6,348         | 107        | 1.69        | 1.35, 2.02        | 0.5320            |
| 4                          | 3,151         | 47         | 1.04        | 0.65, 1.43        | 5,651         | 95         | 1.66        | 1.30, 2.02        | 0.0310            |
| 5 (most deprived)          | 3,019         | 37         | 1.28        | 0.84, 1.72        | 6,098         | 110        | 1.70        | 1.35, 2.05        | 0.1596            |
| Material Deprivation Index |               |            |             |                   |               |            |             |                   |                   |
| 1 (least deprived)         | 5,246         | 53         | 0.79        | 0.52, 1.06        | 9,278         | 121        | 1.17        | 0.93, 1.41        | 0.0518            |
| 2                          | 4,171         | 64         | 1.49        | 1.09, 1.89        | 7,382         | 126        | 1.67        | 1.36, 1.98        | 0.4852            |
| 3                          | 3,374         | 55         | 1.44        | 1.02, 1.87        | 6,573         | 143        | 2.17        | 1.80, 2.54        | 0.0163            |
| 4                          | 2,437         | 41         | 1.48        | 0.98, 1.99        | 5,128         | 116        | 2.26        | 1.83, 2.68        | 0.0318            |
| 5 (most deprived)          | 1,526         | 37         | 2.3         | 1.53, 3.07        | 2,730         | 100        | 4.04        | 3.28, 4.80        | 0.0033            |
| <b>Total</b>               | <b>19,009</b> | <b>285</b> | <b>1.36</b> | <b>1.18, 1.53</b> | <b>34,921</b> | <b>700</b> | <b>1.95</b> | <b>1.80, 2.09</b> | <b>&lt;0.0001</b> |

Note: Data from the CIHR funded study (Correlates of Immunity) has been appended to December data.



**Table A3.** Comparison of SARS-CoV-2 seroprevalence by province (December 2020 to January 2021)

|                           | WAVE 2: DECEMBER 2020 |                 |                  |                         | JANUARY 2021  |                 |                  |                         | December 2020 compared to January 2021 (p-value) |
|---------------------------|-----------------------|-----------------|------------------|-------------------------|---------------|-----------------|------------------|-------------------------|--------------------------------------------------|
|                           | Unadjusted            |                 | Adjusted         |                         | Unadjusted    |                 | Adjusted         |                         |                                                  |
|                           | Number Tested         | Number Positive | Percent Positive | 95% Confidence Interval | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval |                                                  |
| British Columbia          | 3,577                 | 40              | 1.02             | 0.65, 1.39              | 6,418         | 95              | 1.48             | 1.16, 1.81              | 0.0801                                           |
| Alberta                   | 4,339                 | 89              | 2.12             | 1.55, 2.68              | 7,189         | 223             | 3.41             | 2.89, 3.94              | 0.0020                                           |
| Saskatchewan              | 1,510                 | 33              | 2.27             | 1.13, 3.41              | 1,790         | 40              | 2.46             | 1.59, 3.33              | 0.7981                                           |
| Manitoba                  | 1,325                 | 41              | 3.1              | 1.88, 4.31              | 1,878         | 68              | 3.92             | 2.92, 4.93              | 0.3204                                           |
| Ontario                   | 6,319                 | 72              | 1.16             | 0.93, 1.40              | 14,286        | 257             | 1.82             | 1.61, 2.04              | 0.0001                                           |
| New Brunswick             | 482                   | 3               | 0.78             | 0.00, 1.61              | 1,130         | 5               | 0.27             | 0.00, 0.66              | 0.2130                                           |
| Nova Scotia               | 978                   | 6               | 0.62             | 0.00, 1.30              | 1,413         | 9               | 0.56             | 0.09, 1.03              | 0.8794                                           |
| Prince Edward Island      | 208                   | 0               |                  |                         | 318           |                 |                  |                         |                                                  |
| Newfoundland and Labrador | 271                   | 1               | 0.19             | 0.00, 0.76              | 499           | 3               | 0.42             | 0.00, 0.97              | 0.6055                                           |
| Total                     | 19,009                | 285             | 1.36             | 1.18,1.53               | 34,921        | 700             | 1.95             | 1.80, 2.09              | <0.0001                                          |

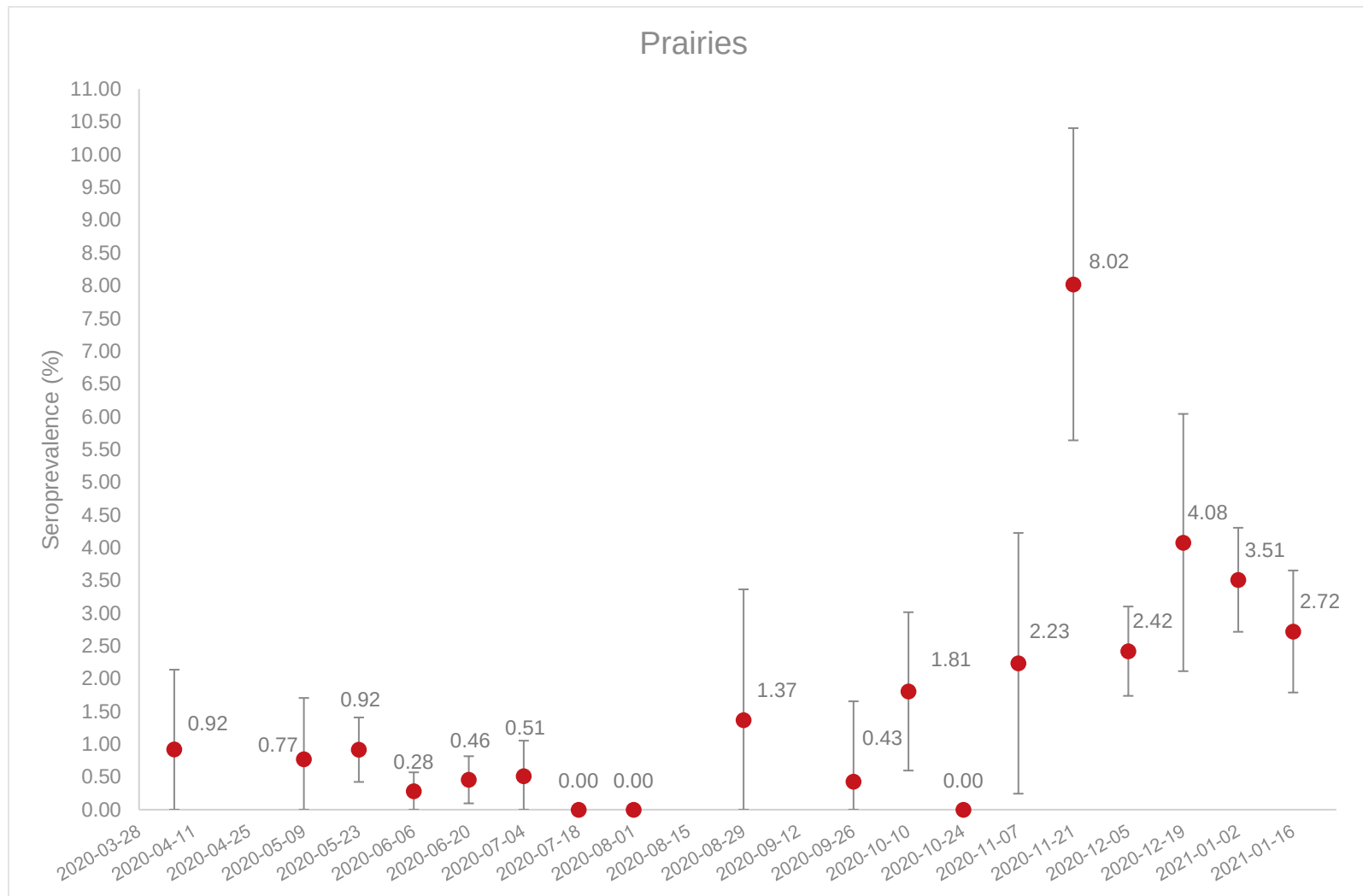
Note: Data from the CIHR funded study (Correlates of Immunity) has been appended to December data.

**Table A4.** Comparison of SARS-CoV-2 seroprevalence in selected cities (December 2020 to January 2021)

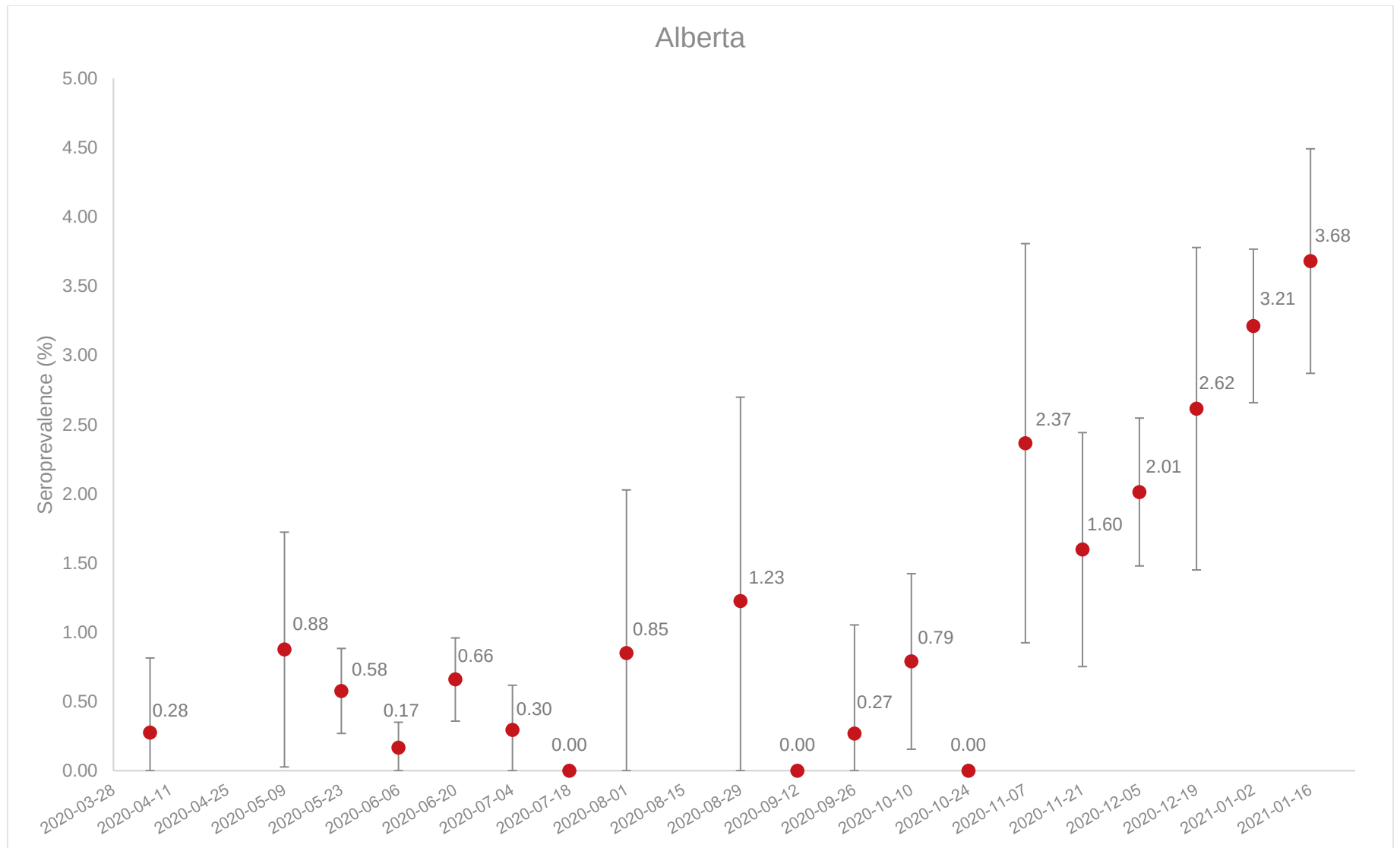
|           | WAVE 2: DECEMBER 2020 |                 |                  |                         | JANUARY 2021  |                 |                  |                         | December 2020 compared to January 2021 (p-value) |
|-----------|-----------------------|-----------------|------------------|-------------------------|---------------|-----------------|------------------|-------------------------|--------------------------------------------------|
|           | Unadjusted            |                 | Adjusted         |                         | Unadjusted    |                 | Adjusted         |                         |                                                  |
|           | Number Tested         | Number Positive | Percent Positive | 95% Confidence Interval | Number Tested | Number Positive | Percent Positive | 95% Confidence Interval |                                                  |
|           |                       |                 |                  |                         |               |                 |                  |                         |                                                  |
| Vancouver | 2,020                 | 26              | 1.22             | 0.68, 1.76              | 3,649         | 66              | 1.83             | 1.35, 2.30              | 0.1167                                           |
| Calgary   | 1,561                 | 22              | 1.28             | 0.53, 2.04              | 2,596         | 67              | 2.87             | 2.07, 3.68              | 0.0113                                           |
| Edmonton  | 1,460                 | 38              | 2.74             | 1.63, 3.84              | 2,417         | 83              | 3.74             | 2.81, 4.68              | 0.1932                                           |
| Ottawa    | 728                   | 5               | 0.54             | 0.04, 1.04              | 1,340         | 10              | 0.78             | 0.30, 1.26              | 0.5059                                           |
| Toronto   | 1,773                 | 33              | 2.22             | 1.61, 2.82              | 4,364         | 100             | 2.44             | 2.00, 2.89              | 0.5554                                           |
| Winnipeg  | 852                   | 16              | 1.77             | 0.60, 2.94              | 1,131         | 27              | 2.46             | 1.42, 3.51              | 0.4057                                           |

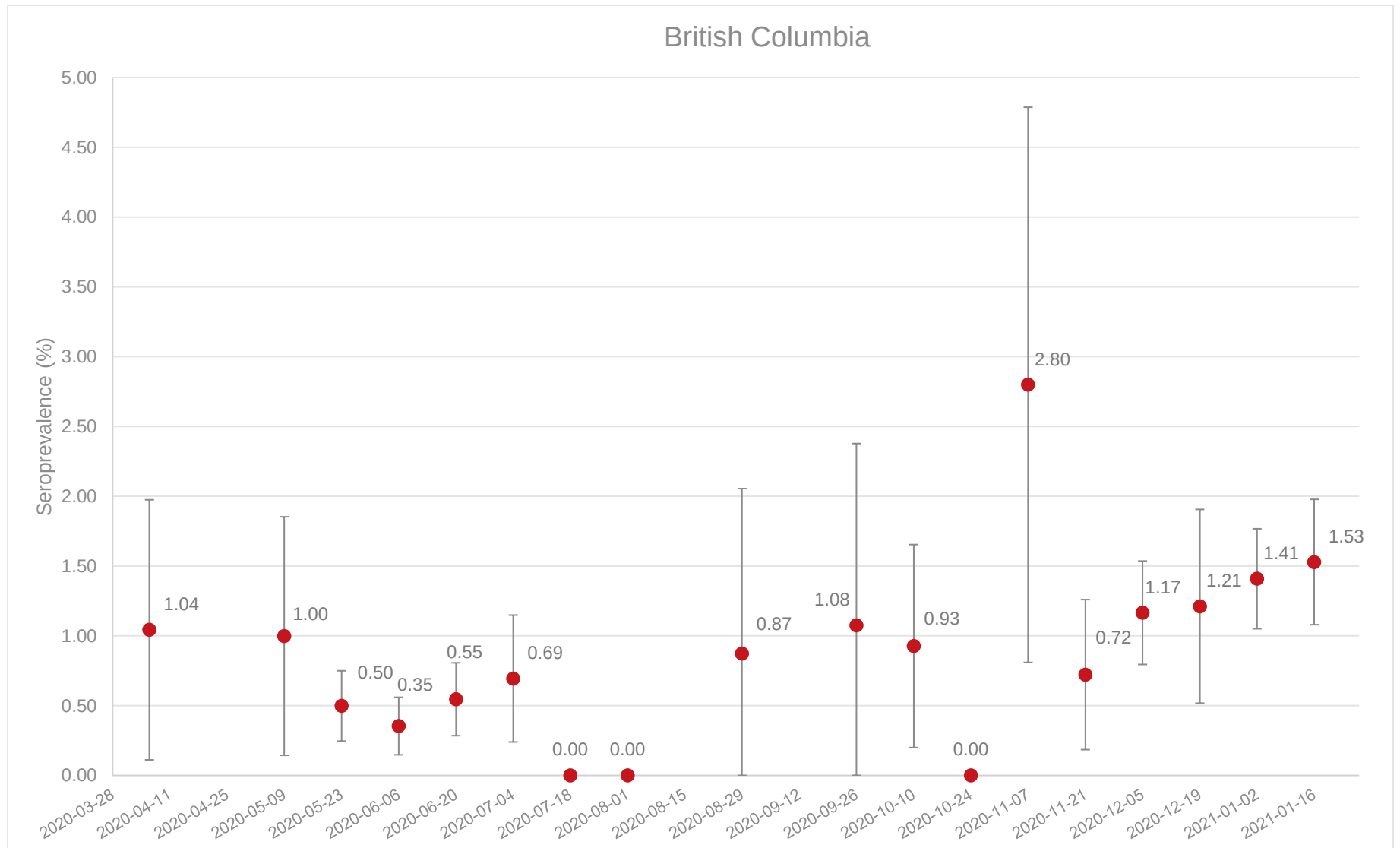
Note: Data from the CIHR funded study (Correlates of Immunity) has been appended to December data.

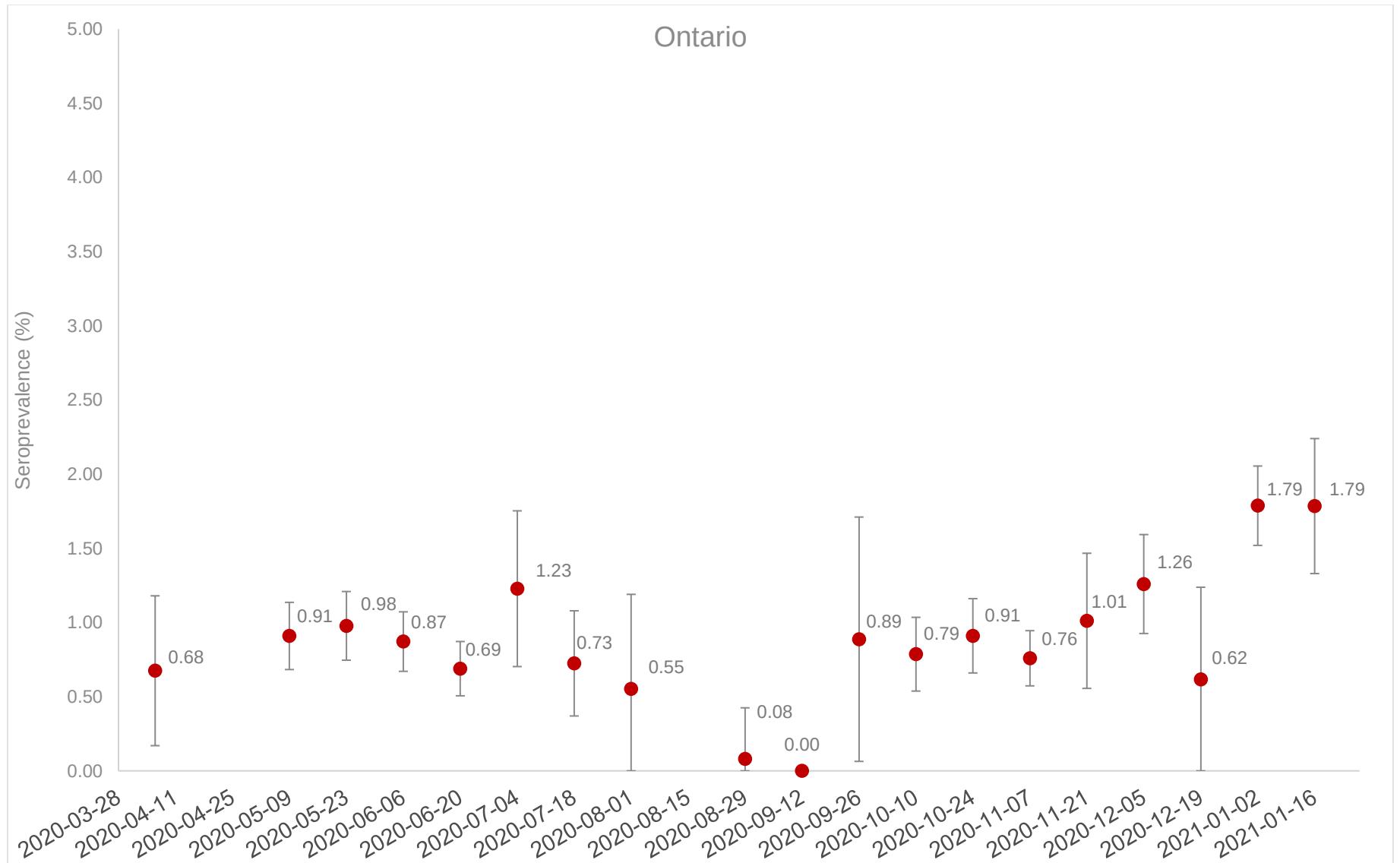
**Figure A-1A.** Temporal trends of SARS-CoV-2 seroprevalence bi-weekly from April 2020-January 2021 (by region)

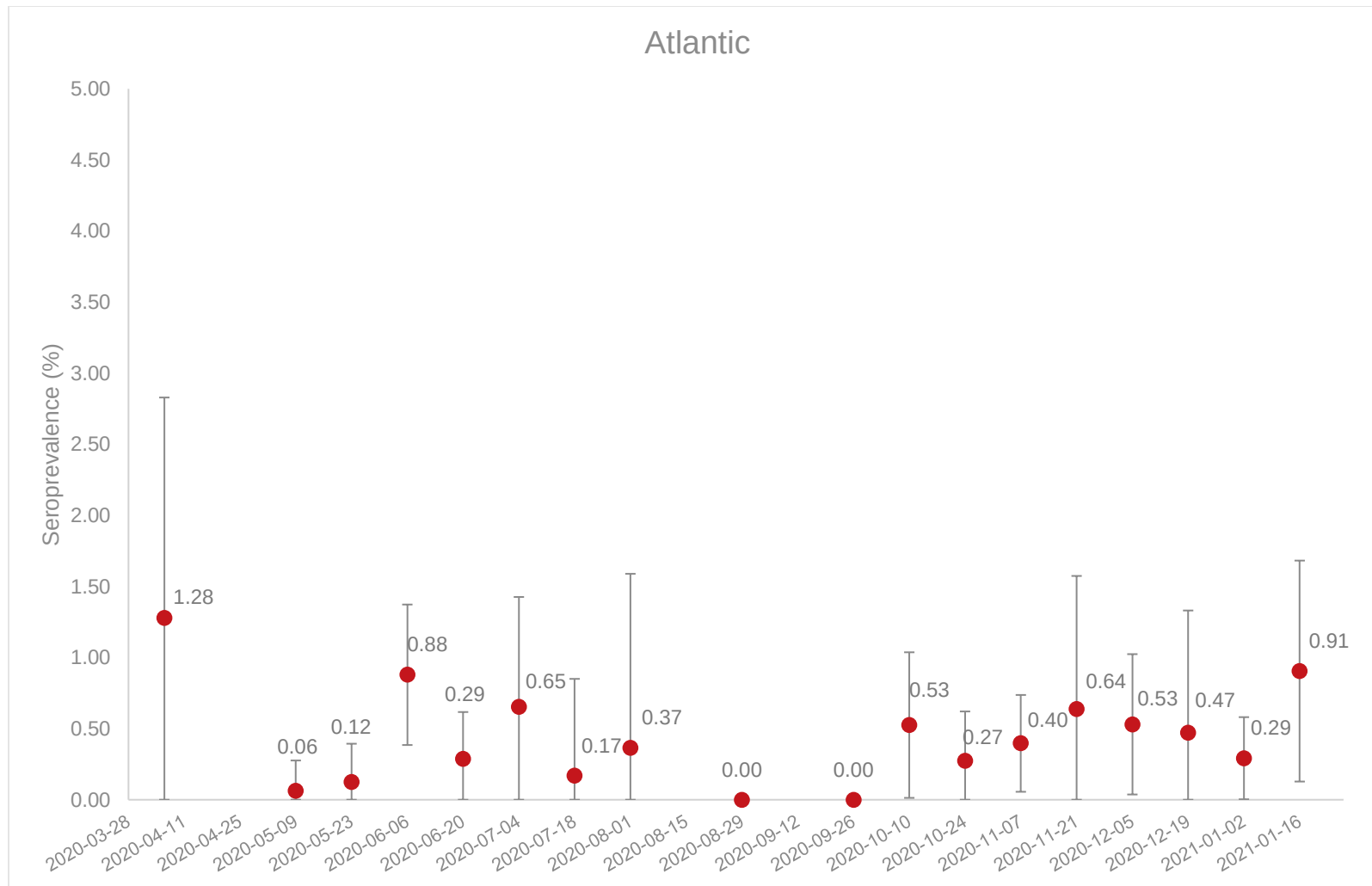


Note: SARS-CoV-2 seroprevalence rates (95% CI), that have been weighted and adjusted for test characteristics. Data from the CIHR funded study (Correlates of Immunity) from April 9-January 31, 2020 have been included. **Y-axis is different between regions.**









**Table A5.** Comparing seroprevalence (from highest to lowest) by economic region per 1000 donors from November 2020 to January 2021

|                                        |      | November 2020 |    |      |            | December 2020 |    |      |             | January 2021 |    |      |             | Change* |
|----------------------------------------|------|---------------|----|------|------------|---------------|----|------|-------------|--------------|----|------|-------------|---------|
| Economic Region                        | ID   | Total         | +  | Rate | (95% CI)   | Total         | +  | Rate | (95% CI)    | Total        | +  | Rate | (95% CI)    |         |
| British Columbia/Yukon                 |      |               |    |      |            |               |    |      |             |              |    |      |             |         |
| Cariboo                                | 5950 | . .           |    |      |            | 5             |    |      |             | 15           | 1  | 5.17 | 0.00, 17.05 | +       |
| Thompson--Okanagan                     | 5930 | 115           | 4  | 3.58 | 1.68, 5.48 | 529           | 7  | 1.15 | 0.13, 2.16  | 913          | 17 | 1.93 | 0.98, 2.89  | +       |
| Lower Mainland--Southwest              | 5920 | 659           | 9  | 1.46 | 0.92, 2.01 | 1873          | 24 | 1.22 | 0.66, 1.79  | 3,628        | 62 | 1.71 | 1.25, 2.17  | +       |
| Vancouver Island and Coast             | 5910 | 94            | 0  | .    | .          | 699           | 3  | 0.27 | 0.00, 0.75  | 1,530        | 9  | 0.61 | 0.17, 1.05  | +       |
| Kootenay                               | 5940 | 2             | 0  | .    | .          | 9             |    |      |             | 20           |    |      |             | NC      |
| Yukon                                  | 6010 | 1             | 0  | .    | .          | 0             |    |      |             | 2            | 0  |      |             | NC      |
| Alberta                                |      |               |    |      |            |               |    |      |             |              |    |      |             |         |
| Athabasca--Grande Prairie--Peace River | 4870 | 7             | 0  | .    | .          | 112           | 1  | 0.86 | 0.00, 3.17  | 126          | 7  | 5.65 | 0.68, 10.62 | +       |
| Banff--Jasper--Rocky Mountain House    | 4840 | 70            | 0  | .    | .          | 96            | 1  | 0.72 | 0.00, 3.01  | 46           | 2  | 5.63 | 0.00, 13.91 | +       |
| Lethbridge--Medicine Hat               | 4810 | 6             | 0  | .    | .          | 89            | 7  | 7.95 | 0.75, 15.14 | 444          | 19 | 4.63 | 2.20, 7.06  | -       |
| Wood Buffalo--Cold Lake                | 4880 | 3             | 0  | .    | .          | 13            |    |      |             | 162          | 5  | 3.87 | 0.21, 7.53  | +       |
| Edmonton                               | 4860 | 518           | 11 | 2.28 | 1.30, 3.25 | 1,326         | 33 | 2.56 | 1.42, 3.69  | 2,300        | 79 | 3.74 | 2.78, 4.70  | +       |
| Camrose—Drumheller                     | 4820 | 14            | 0  | .    | .          | 195           | 10 | 6.08 | 1.69, 10.48 | 255          | 9  | 3.43 | 0.72, 6.14  | -       |
| Calgary                                | 4830 | 488           | 10 | 1.96 | 1.02, 2.90 | 1,519         | 23 | 1.37 | 0.57, 2.16  | 2,747        | 72 | 2.89 | 2.11, 3.68  | +       |
| Red Deer                               | 4850 | 85            | 0  | .    | .          | 361           | 7  | 2.31 | 0.26, 4.35  | 577          | 13 | 2.72 | 1.07, 4.36  | +       |
|                                        |      |               |    |      |            |               |    |      |             |              |    |      |             |         |



COVID-19 Seroprevalence Report

| Saskatchewan                 |      |       |    |      |              |       |    |       |             |       |    |       |             |    |
|------------------------------|------|-------|----|------|--------------|-------|----|-------|-------------|-------|----|-------|-------------|----|
| Swift Current--Moose Jaw     | 4720 | 81    | 11 | 14.3 | 8.92, 19.75  | 13    |    |       |             | 92    | 4  | 3.71  | 0.00, 8.38  | +  |
| Saskatoon—Biggar             | 4730 | 84    | 0  |      |              | 587   | 14 | 2.59  | 0.66, 4.52  | 771   | 22 | 3.27  | 1.75, 4.78  | +  |
| Regina--Moose Mountain       | 4710 | 105   | 0  |      |              | 541   | 6  | 1.15  | 0.00, 2.53  | 567   | 13 | 2.67  | 1.05, 4.29  | +  |
| Yorkton—Melville             | 4740 | 3     | 0  |      |              | 26    |    |       |             | 96    | 0  |       |             | NC |
| Prince Albert                | 4750 | 3     | 0  |      |              | 107   | 3  | 2.53  | 0.00, 6.88  | 190   | 0  |       |             | -  |
|                              | 4760 |       |    |      |              |       |    |       |             | 1     |    |       |             |    |
| Manitoba                     |      |       |    |      |              |       |    |       |             |       |    |       |             |    |
| North Central / Centre nord* | 4640 | 63    | 15 | 27.5 | 19.24, 35.76 | 23    | 3  | 12.65 | 0.00, 30.01 | 88    | 11 | 15.20 | 7.17, 23.24 | +  |
| Southeast / Sud-est          | 4610 | 10    | 0  |      |              | 67    | 3  | 5     | 0.00, 11.92 | 253   | 20 | 8.23  | 4.41, 12.06 | +  |
| Winnipeg                     | 4650 | 277   | 10 | 4.85 | 3.01, 6.70   | 150   | 10 | 7.13  | 1.69, 12.56 | 1,082 | 25 | 2.39  | 1.34, 3.45  | -  |
| Southwest / Sud-ouest        | 4630 | 1     | 0  |      |              | 85    | 2  | 2.51  | 0.00, 7.08  | 172   | 3  | 1.73  | 0.00, 3.99  | -  |
| Interlake                    | 4660 | 8     | 0  |      |              | 55    | 1  | 1.48  | 0.00, 5.85  | 141   | 2  | 1.15  | 0.00, 3.22  | -  |
| South Central / Centre sud   | 4620 | 2     | 0  |      |              | 150   | 10 | 7.13  | 1.69, 12.56 | 15    | 0  |       |             | -  |
| Parklands                    | 4670 | 1     | 0  |      |              | 2     |    |       |             | 9     |    |       |             | NC |
| North / Nord                 | 4680 | 2     | 0  |      |              | 4     |    |       |             | 4     |    |       |             | NC |
| Ontario                      |      |       |    |      |              |       |    |       |             |       |    |       |             |    |
| Stratford--Bruce Peninsula   | 3580 | 430   | 0  |      |              | 53    |    |       |             | 322   | 19 | 6.34  | 3.85, 8.84  | +  |
| London                       | 3560 | 876   | 13 | 1.52 | 0.49, 2.55   | 455   | 4  | 0.86  | 0.11, 1.61  | 1,078 | 29 | 2.65  | 1.74, 3.56  | +  |
| Toronto                      | 3530 | 3,301 | 28 | 0.85 | 0.45, 1.26   | 1,354 | 30 | 2.71  | 1.97, 3.46  | 4,346 | 92 | 2.30  | 1.87, 2.73  | -  |
| Kitchener--Waterloo--Barrie  | 3540 | 1,784 | 13 | 0.73 | 0.22, 1.24   | 893   | 7  | 0.72  | 0.22, 1.22  | 2,050 | 44 | 2.28  | 1.66, 2.89  | +  |
| Windsor--Sarnia              | 3570 | 844   | 8  | 0.97 | 0.13, 1.80   | 249   | 2  | 0.58  | 0.00, 1.45  | 986   | 18 | 1.62  | 0.86, 2.38  | +  |
| Hamilton--Niagara Peninsula  | 3550 | 1,367 | 9  | 0.68 | 0.11, 1.24   | 815   | 6  | 0.68  | 0.18, 1.19  | 1,690 | 20 | 1.03  | 0.56, 1.51  | +  |
| Northeast / Nord-est         | 3590 | 330   | 1  | 0.26 | 0.00, 1.03   | 140   |    |       |             | 539   | 5  | 0.86  | 0.11, 1.62  | +  |

# COVID-19 Seroprevalence Report

|                                              |      |       |   |      |             |     |   |      |             |       |    |      |                   |    |
|----------------------------------------------|------|-------|---|------|-------------|-----|---|------|-------------|-------|----|------|-------------------|----|
| Ottawa                                       | 3510 | 1,158 | 6 | 0.56 | 0.00, 1.13  | 689 | 5 | 0.57 | 0.05, 1.08  | 1,570 | 12 | 0.78 | 0.34, 1.22        | +  |
| Kingston--Pembroke                           | 3515 | 603   | 1 | 0.05 | 0.00, 0.44  | 401 | 2 | 0.31 | 0.00, 0.84  | 454   | 4  | 0.66 | 0.00, 1.41        | +  |
| Muskoka--Kawarthas                           | 3520 | 376   | 3 | 0.55 | 0.00, 1.53  | 401 | 2 | 0.31 | 0.00, 0.84  | 548   | 2  | 0.26 | 0.00, 0.73        | -  |
| Northwest / Nord-ouest                       | 3595 | 4     | 0 |      |             |     |   |      |             | 4     | 0  |      |                   | NC |
| <b>Nova Scotia</b>                           |      |       |   |      |             |     |   |      |             |       |    |      |                   |    |
| North Shore                                  | 1220 | 269   | 1 | 0.22 | 0.00, 1.09  | 107 | 1 | 1.58 | 0.00, 4.56  | 59    | 1  | 2.37 | 0.00, 6.56        | +  |
| Annapolis Valley                             | 1230 | 113   | 0 |      |             | 26  | 1 | 6.66 | 0.00, 18.28 | 249   | 2  | 0.62 | 0.00, 1.80        | -  |
| Southern / Sud                               | 1240 | 9     | 0 |      |             | 70  | 2 | 2.35 | 0.00, 6.74  | 300   | 2  | 0.50 | 0.00, 1.49        | -  |
| Halifax                                      | 1250 | 444   | 2 | 0.3  | 0.00, 1.05  | 457 | 1 | 0.08 | 0.00, 0.58  | 764   | 4  | 0.44 | 0.00, 1.03        | +  |
| Cape Breton                                  | 1210 | 7     | 0 |      |             | 141 |   |      |             | 4     | 0  |      |                   | NC |
| <b>New Brunswick</b>                         |      |       |   |      |             |     |   |      |             |       |    |      |                   |    |
| Saint John--St. Stephen                      | 1330 | 182   | 2 | 0.83 | 0.00, 2.94  | 127 | 2 | 1.98 | 0.00, 4.33  | 186   | 2  | 0.72 | 0.00, 2.20        | -  |
| Moncton--Richibucto                          | 1320 | 269   | 0 |      |             | 162 | 1 | 0.9  | 0.00, 2.35  | 361   | 2  | 0.44 | 0.00, 1.27        | -  |
| Campbellton--Miramichi                       | 1310 | 91    | 2 | 2.17 | 0.00, 6.85  | 5   |   |      |             | 221   | 1  | 0.21 | <b>0.00, 1.03</b> | +  |
| Fredericton--Oromocto                        | 1340 | 309   | 1 | 0.26 | 0.00, 3.62  | 18  |   |      |             | 218   | 0  |      |                   | NC |
| Edmundston--Woodstock                        | 1350 | 115   | 1 | 0.89 | 0.00, 3.62  | 76  |   |      |             | 118   | 0  |      |                   | NC |
| <b>Newfoundland</b>                          |      |       |   |      |             |     |   |      |             |       |    |      |                   |    |
| Avalon Peninsula                             | 1010 | 376   | 2 | 0.42 | 0.00, 1.28  | 124 | 1 | 0.49 | 0.00, 1.61  | 364   | 3  | 0.61 | 0.00, 1.38        | +  |
| South Coast--Burin Peninsula                 | 1020 | 2     | 0 |      |             | 6   |   |      |             | 109   | 0  |      |                   | NC |
| West Coast--Northern Peninsula--Labrador     | 1030 | 8     | 0 |      |             | 1   |   |      |             | 2     | 0  |      |                   | NC |
| Notre Dame--Central Bonavista Bay            | 1040 | 11    | 1 | 8.08 | 0.00, 26.57 | 74  |   |      |             | 5     | 0  |      |                   | NC |
| <b>PEI</b>                                   |      |       |   |      |             |     |   |      |             |       |    |      |                   |    |
| Prince Edward Island / Île-du-Prince-Édouard | 1110 | 190   | 0 |      |             | 165 |   |      |             | 316   |    |      |                   | NC |

Notes: January data is illustrated in Figure 2; Not all tested samples are summarized in this table \*Change: + Increase; – Decrease; NC, No Change (current month compared to previous month)