

CORRECTIONAL SERVICE CANADA

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Prevalence of SARS-CoV-2 Antibodies among Federally Incarcerated Men

Almost all (98.3%) incarcerated men offenders who provided a valid dried blood spot (DBS) sample were positive for SARS-CoV-2 antibodies.

Why we did this study

In collaboration with Public Health Agency of Canada (PHAC) and the University of Ottawa, Correctional Service Canada (CSC) conducted the 2022 National Health Survey. One of the study objectives was to determine the prevalence of SARS-CoV-2 antibodies and whether they are derived from immunization or infection among federally incarcerated men.

What we did

Institutional Health Services staff approached eligible offenders to participate in the National Health Survey, which consisted of two parts: 1) a self-report questionnaire, and 2) a dried blood spot (DBS) sample to test for infectious diseases. To participate, offenders must have provided consent, been able to participate in French or English, and been continuously incarcerated in a federal prison for six months prior to the start of the study. Offenders did not have to participate in the DBS collection to be included in the questionnaire portion of the survey. The DBS samples were collected between September 2022 and January 2023 and were mailed to PHAC for analysis of SARS-CoV-2 antibodies. Findings were sent to CSC’s Research Branch for linkage with questionnaire data. Valid DBS data were obtained for 734 men offenders.

What we found

Just under 8% of participants had inconclusive results due to DBS samples providing an insufficient quantity for the assay — these participants were excluded from the analyses. Results were disaggregated by region, institutional security level, and ethnocultural group. The majority of the sample were positive for SARS-CoV-2 antibodies (98.3%). Positivity rates were broken down into three reactivity patterns: probable natural infection alone (1.6%), probable natural infection alone or natural infection and vaccination (70.5%), and probable vaccine induced immunity (26.3%). Table 1 displays all the results by region, institutional security level, and ethnocultural group.

Table 1. SARS-CoV-2 Reactivity Patterns among Sub-Groups of Men

Sub-group	Negative	Positive: Natural infection OR natural infection and vaccination	Positive: vaccine induced immunity
	% [95% CI]	% [95% CI]	% [95% CI]
Region			
Atlantic	3.3 [0.4, 11.4]	70.5 [57.4, 81.5]	26.2 [15.8, 39.1]
Quebec	1.2 [0.2, 3.3]	74.2 [68.5, 79.4]	24.6 [19.5, 30.3]
Ontario	0.6 [0.1, 3.4]	80.4 [73.4, 86.2]	19.0 [13.3, 25.9]
Prairie	0.0 [–, –]	67.9 [56.8, 77.6]	32.1 [22.4, 43.2]
Pacific	4.6 [1.5, 10.3]	59.1 [49.3, 68.4]	36.4 [27.4, 46.1]
Security			
Min	1.0 [0.1, 5.5]	72.7 [62.9, 81.2]	26.3 [17.9, 36.1]
Med	0.8 [0.2, 2.4]	75.3 [70.6, 79.7]	23.9 [19.6, 28.5]
Max	5.8 [1.9, 13.1]	60.5 [49.3, 70.9]	33.7 [23.9, 44.7]
Multi	1.6 [0.2, 5.7]	70.2 [61.3, 78.0]	28.2 [20.5, 37.0]
Ethno.^a			
White	0.3 [0.1, 1.8]	72.6 [67.3, 77.5]	27.1 [22.2, 32.4]
Indig. ^b	2.5 [0.9, 5.3]	70.0 [63.5, 75.4]	27.9 [22.3, 34.0]
Black	5.1 [0.6, 17.3]	89.7 [75.8, 97.1]	5.1 [0.6, 17.3]
Other	2.4 [0.2, 8.2]	69.4 [58.5, 79.0]	28.2 [19.0, 39.0]

Note. CI = confidence interval. ^aPositive: Probable natural infection alone’ group is merged with the ‘Positive: Natural infection OR natural infection and vaccination’ group. Due to rounding, percentages across reactivity categories may not add up to 100%. ^bEthnocultural grouping based on self-reported information. ^cIndigenous.

What it means

The percentage of incarcerated men who tested positive for SARS-CoV-2 antibodies (98.3%) matched the rate of Canada’s general adult population as of August 2022 (98.1%)¹. The Pacific region and maximum-security institutions demonstrated the largest proportion of probable vaccine induced immunity. However, these groups, as well as Black men, made up the largest proportion of those who tested negative for antibodies. Results from the Pacific region should be interpreted with caution due to small sample size. The current findings regarding maximum-security institutions align with other research demonstrating reduced rates of vaccination in maximum-security sites recorded throughout the pandemic² due to high rates of refusals³. Lack of trust in the medical field may have impacted Black men’s willingness to receive the vaccination⁴. Few cases were conclusively positive due to probable natural infection alone, suggesting that vaccination played a large role in providing antibodies.

For more information

For questions and/or more information, please email the [Research Branch](#). You can also visit the [Research Publications](#) section for a full list of reports and one-page summaries.

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¹ Statistics Canada. (2023). *Between April and August 2022, 98% of Canadians had antibodies against COVID-19 and 54% had antibodies from a previous infection*. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/230327/dq230327b-eng.htm>

² Correctional Service Canada. (2023). *Vaccines administered to inmates in the federal correctional system*. Retrieved from: <https://www.canada.ca/en/correctional-service/campaigns/covid-19/vaccine-csc/vaccine-table.html>

³ Ortiz-Paredes, D., Varsaneux, O., Worthington, J., Park, H., MacDonald, S. E., Basta, N. E., Lebouché, B., Cox, J., Ismail, S. J., & Kronfli, N. (2022). Reasons for COVID-19 vaccine refusal among people incarcerated in Canadian federal prisons. *PLoS one*, 17(3), e0264145. <https://doi.org/10.1371/journal.pone.0264145>

⁴ Kennedy, B. R., Mathis, C. C., & Woods, A. K. (2007). African Americans and their distrust of the health care system: Healthcare for diverse populations. *Journal of Cultural Diversity*, 14(2), 56-60.