



Deriving National SARS-CoV-2 Seroprevalence and Symptomology Estimates from Self-Collected Biospecimens and Questionnaire Data

CITF Scientific Meeting – March 9, 2023

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Delivering insight through data for a better Canada

Conflict of Interest Declaration

Statistics Canada has no conflict of interest to declare.

The Canadian COVID-19 Antibody and Health Survey was funded by the Public Health Agency of Canada (PHAC). Statistics Canada receives funding from PHAC for COVID-19 and non-COVID-19 initiatives.



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Agency of Canada

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COVID-19
IMMUNITY
TASK FORCE

GROUPE DE TRAVAIL
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FACE À LA COVID-19



Statistics
Canada

Statistique
Canada

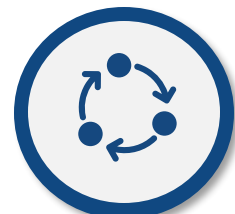
Canada's National Statistical Agency



- Comprehensive and high quality survey frames
- Weighted adjustments and representative findings



- Extensive data collection and methodological infrastructure
- Data linkage platform with numerous health and non-health data



- Advanced analytic cloud-based workspace enables collaboration within a secure environment for study partners

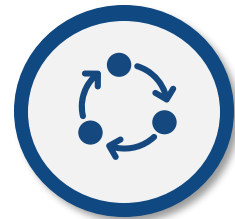
Canadian COVID-19 Antibody and Health Survey (CCAHS)



Estimate the prevalence of **Post-COVID-19 Condition, contributing factors and impacts** in Canada



Assess the **antibody/immunity profiles and acute infection status** of Canadians



Evaluate how a wide-scale survey-based methodology that includes self-administered biospecimen tests can be used to estimate the national seroprevalence of SARS-CoV 2 infections

Survey Design



N = 106,000



10 Provinces



18 +



3 Waves of Collection: April, May, June

Survey Components

Electronic Questionnaire

Step

1

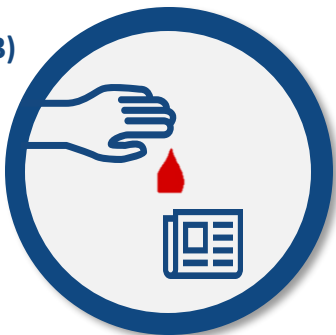


- Secure Access Code

Dried Blood Spot

Step
(W1-3)

2



- Instructional Brochure and Video

Saliva Sample

Step
(w2-3)

3



- + Infographic

Laboratory Analysis

Step

4

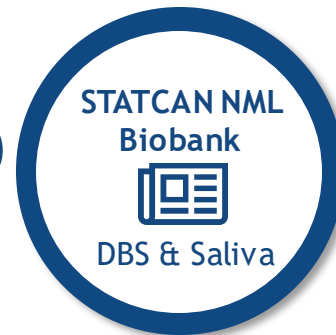


- **DBS sample:** Antibodies from infection &/or vaccination
- **Saliva sample:** Current or recent infection, variant, viral sequence

Reporting & Biobanking

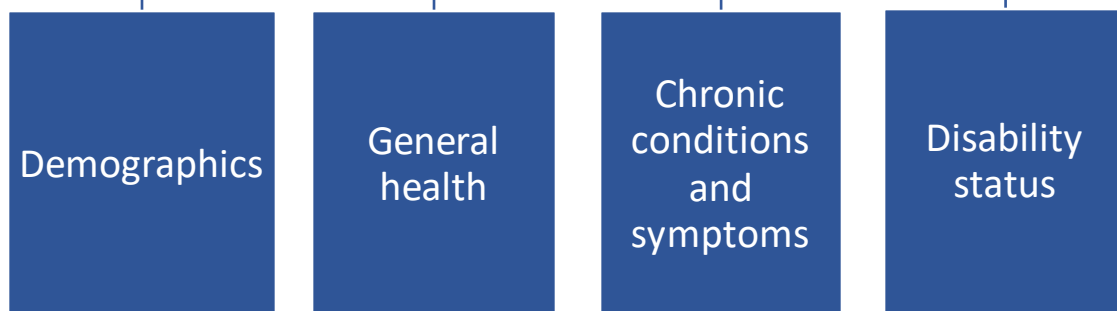
Step

5

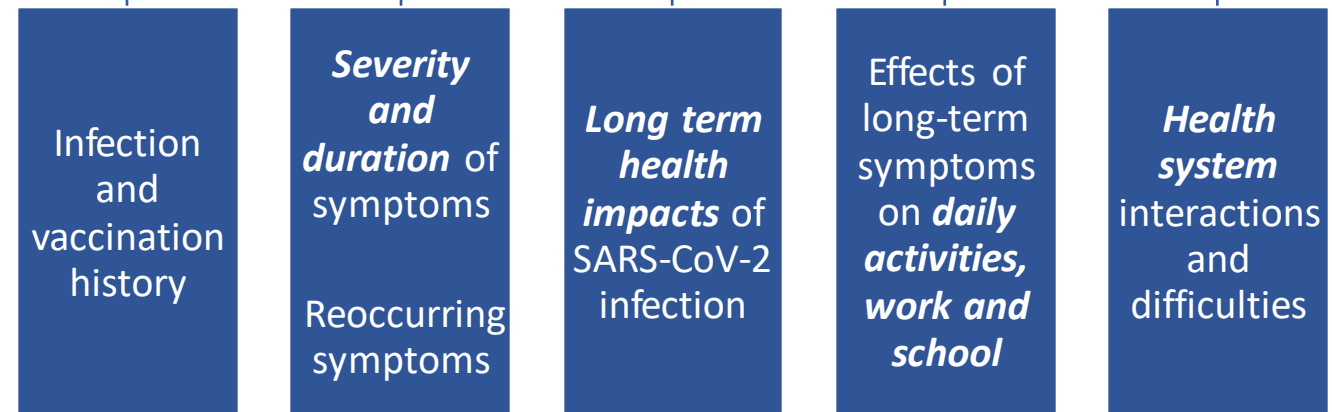


Electronic Questionnaire Content

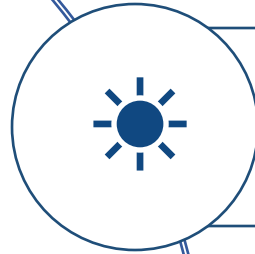
Demographics and General Health



Experiences and Impacts of the COVID-19 Pandemic

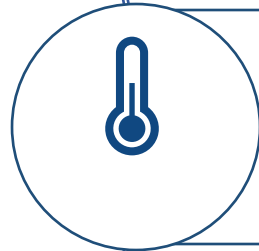


Infections During the Summer of 2022

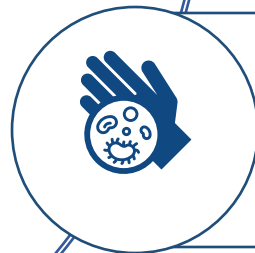


On an average day during summer 2022, **1.8%** or about **500,000** Canadian adults would have tested positive through a PCR test

Key findings from Saliva testing



35% of Canadian adults who had a current or recent infection **did not know or suspect** having the virus – they were **unaware** of their infection



14.4% of Canadian adults who showed detectable amounts of the virus during the summer reported that they first tested positive for COVID-19 **more than three months earlier – potential indicator of reinfection**

<https://www150.statcan.gc.ca/n1/daily-quotidien/221017/dq221017b-eng.htm>

*Numbers are based on data released in December 2022 and subject to change with the final dataset

Post COVID-19 Condition

Long term COVID-19 Symptoms: Experienced symptoms 3 or more months after testing positive



By the end of May 2022, **28.6% of Canadians had tested positive for COVID-19** and an additional **9.0% suspected** they have had COVID-19.



12.8% of Canadian adults who had or thought they had COVID-19 still experienced symptoms three or more months after infection.

- **1.3 million Canadians or 4.5% of the adult population**



Most common unresolved symptoms: **fatigue (72%), cough (40%), shortness of breath (39%), and brain fog (33%)**

<https://www150.statcan.gc.ca/n1/daily-quotidien/221017/dq221017b-eng.htm>

<https://www150.statcan.gc.ca/n1/daily-quotidien/221208/dq221208a-eng.htm>

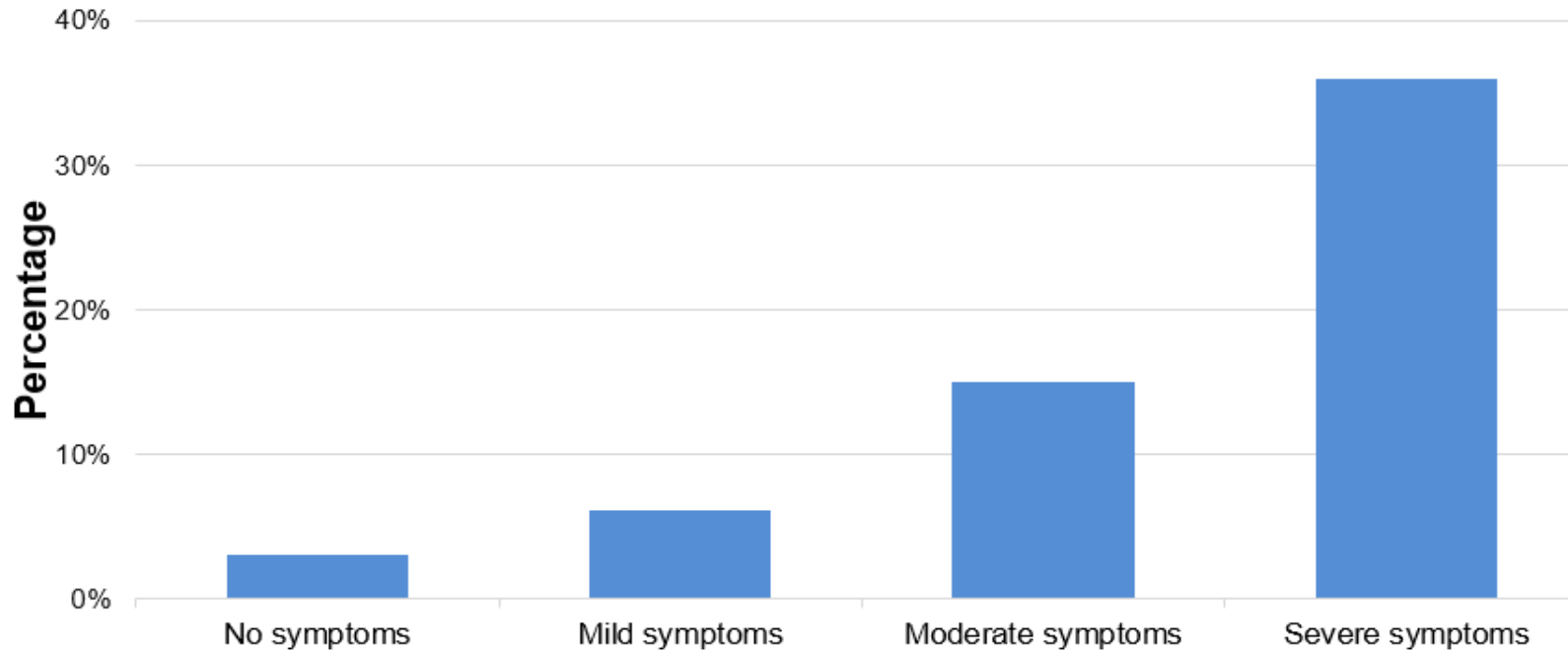
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Key findings from survey results



Severity of Long Term Symptoms

Increased severity of symptoms at the time of infection is predictive of the likelihood of experiencing long-term (≥ 3 Months) symptoms

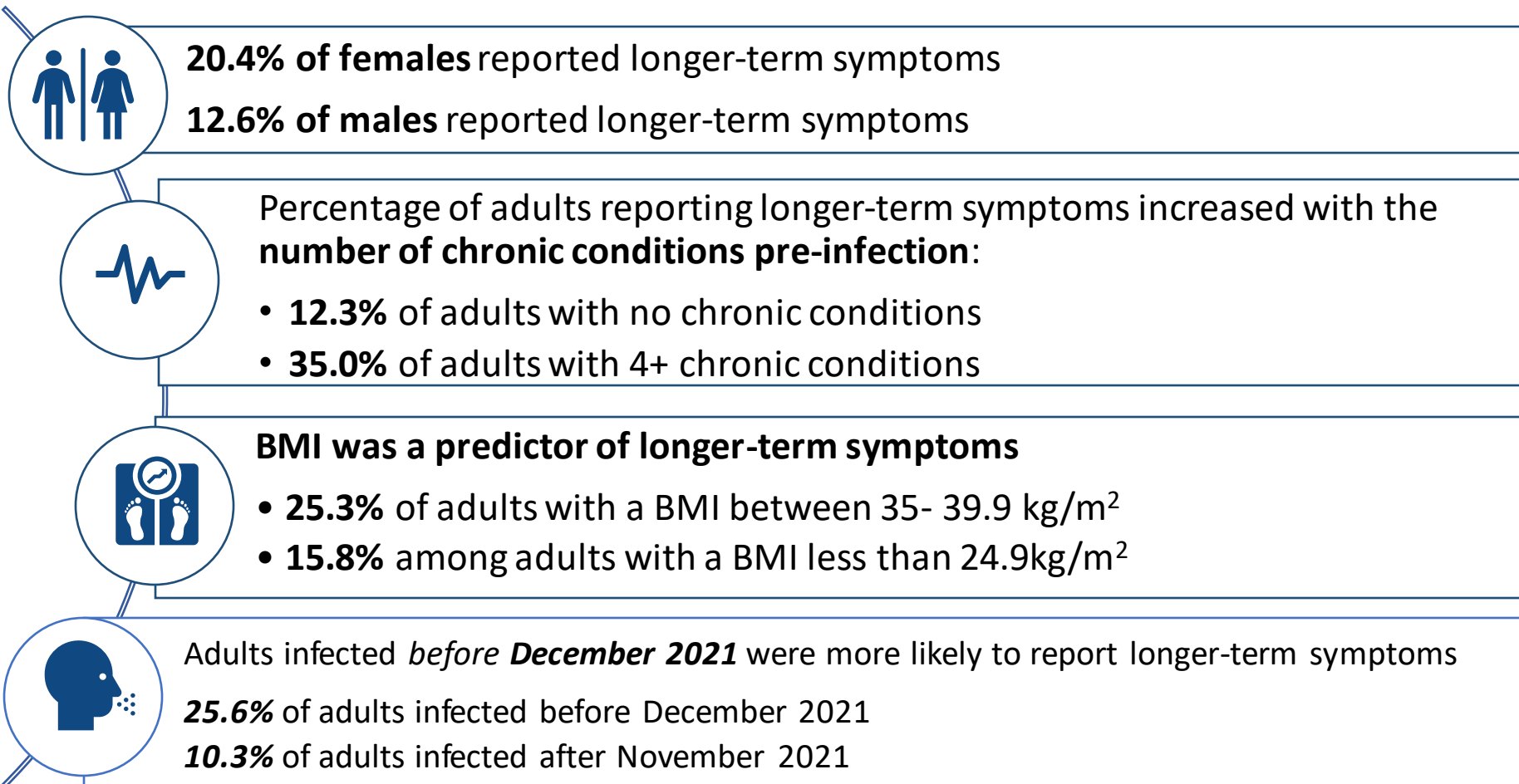


Severity of symptoms during initial COVID-19 infection

<https://www150.statcan.gc.ca/n1/daily-quotidien/221017/dq221017b-eng.htm>

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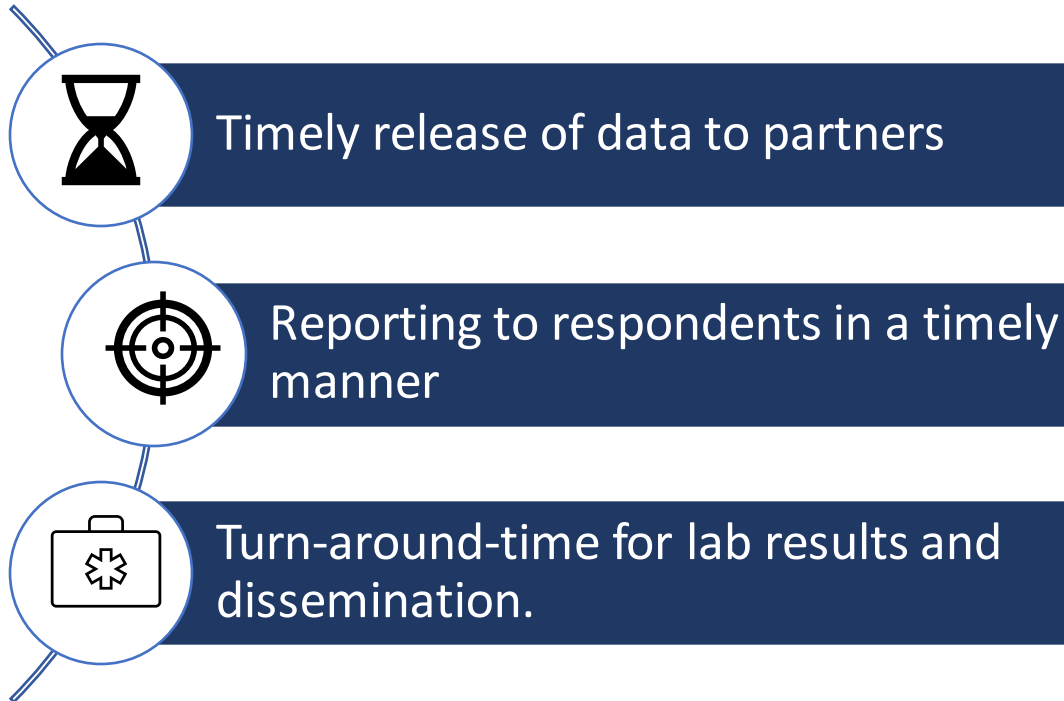
Post-COVID-19 Condition Risk Factors



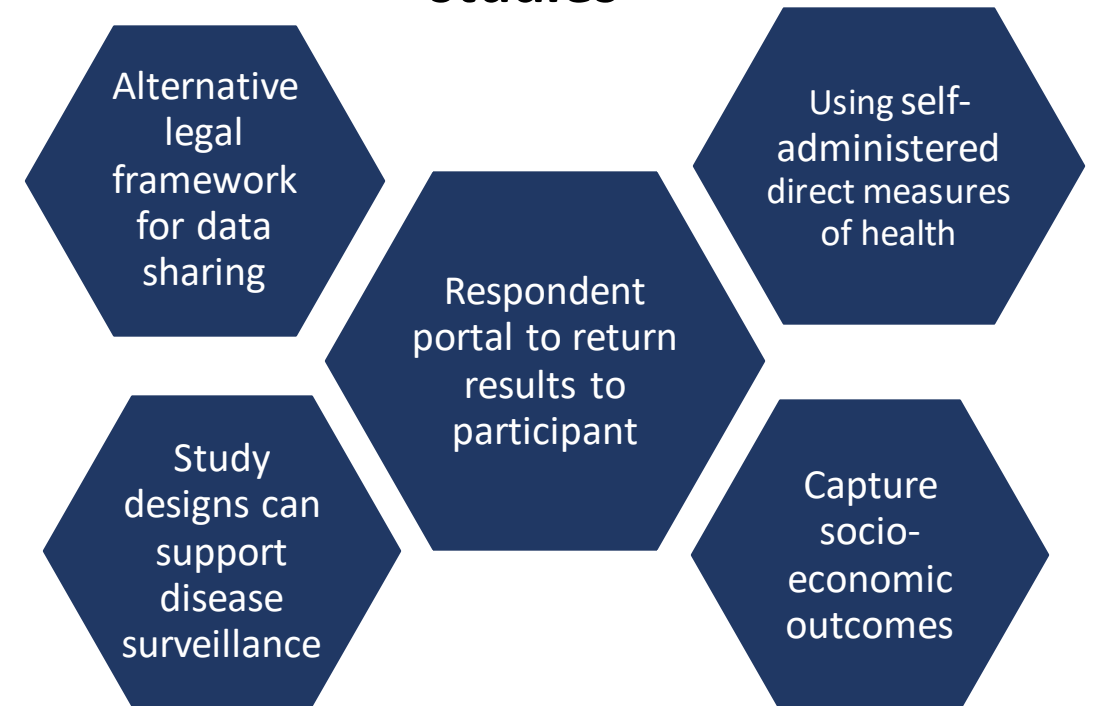
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Challenges and Solutions for Official Statistics

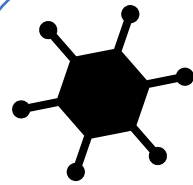
Challenges



Options for consideration in future studies



Future Analytical Products



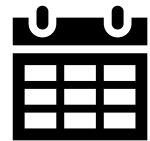
March 2023

- Official release of seroprevalence results
- Survey data becomes available for research (RDCs)



April-May 2023

- Release of CCAHS-2 public use microdata files



May 2023

- Release of results on healthcare access and experiences
- Neighborhood analysis of the impact of the pandemic

Acknowledgements



Statistics
Canada

Statistique
Canada



uOttawa

Marc-Andre Langlois, PhD



Sinai
Health

Lunenfeld-Tanenbaum
Research Institute

Anne-Claude Gringas, PhD



National Microbiology Laboratory



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