

CADTH Health Technology Review

Considerations for the Use of COVID-19 Rapid Antigen Tests

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Acknowledgements: CADTH would like to thank all contributors for their time and perspectives, including Michaela Knot and Mahadeo Sukhai, CNIB Foundation; Jennifer McDonell and Julie Kelndorfer, Multiple Sclerosis Society of Canada; Lisa Salapatek, Ontario Caregiver Organization; Carrie Costello, Children's Hospital Research Institute of Manitoba; Linda Wilhelm and Laurie Proulx, Canadian Arthritis Patient Alliance; and Mary Reeves, who lives with osteoarthritis and vision impairment in New Brunswick.

ISSN: 2563-6596

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Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

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Context

Testing is an important and evolving factor in the management of the COVID-19 pandemic. Testing — regardless of setting or test type — provides a snapshot of a person's current infection status by detecting the presence of SARS-CoV-2 proteins (rapid antigen tests) or nucleic acids (molecular tests).¹ COVID-19 rapid tests may be used to help quickly identify and isolate people who have COVID-19. This includes people who don't have any symptoms.¹ In some cases, serial testing (multiple tests over several days) may be done to increase the accuracy of the test.¹ The use of rapid COVID testing has the potential to benefit a wide range of people. The ability to use these tests without the supervision of a health care professional, and with a short turnaround time, means more people can be tested more quickly, potentially resulting in less productive time lost to waiting for tests and for results. Rapid tests can provide accurate results in less than 30 minutes compared with 1 or more days for laboratory testing results. For testing to be an effective part of public health strategy, it must be easily and equitably available to all who need it.²

Most rapid tests procured and distributed by governments for use by the public have been rapid antigen tests. Some of the tests were authorized for point of care use (sample collection and test use by or trained by a health care professional) and distributed for self-testing while others were authorized for both point of care and self-test use. Self-tests procured by governments may not be the same as those available for purchase by individuals. For additional information on tests that have been authorized for use in Canada, Health Canada publishes a list of Authorized COVID-19 Medical Devices.³

In December 2021, free rapid tests were being distributed in New Brunswick, Nova Scotia, Saskatchewan, Quebec and Ontario at pop-up testing sites, libraries, health centres, stores, or pharmacies.⁴ Rapid test kits were offered to students and children in Alberta, Ontario, Saskatchewan, Nova Scotia, Prince Edward Island, and Quebec. B.C. expanded the distribution of rapid tests to additional community locations, the education sector, and other priority populations, while non-profits, charities, and Indigenous community organizations could access free tests through the Canadian Red Cross.^{4,6} Tests can be purchased when stock is available. By June 2022, Health Canada had authorized 18 different self-testing devices.³

Objectives

The key objectives of this Environmental Scan are to:

- Explore the accessibility of COVID-19 testing devices, in the context of different community needs, for example, parents testing young children, those with vision loss, or limited manual dexterity.
- Identify examples of urgent public health needs related to self-testing for these populations.

Purpose

The purpose of this Environmental Scan is to present health care stakeholders in Canada with an overview of community views about COVID-19 testing devices, a description of some of the published literature, and a summary of some considerations related to the use of COVID-19 tests by different groups. This report is not a systematic review and does not involve critical appraisal or include a detailed summary of study findings. Rather, this report presents an overview of the technology and considerations on the use of COVID-19 rapid tests. It is not intended to provide recommendations.

This Environmental Scan does not include an assessment of the clinical or cost-effectiveness of the technology area; thus, conclusions or recommendations about the value of the technology or place in therapy are outside of the scope of this report. Additionally, this Environmental Scan does not endorse 1 form of testing device over others.

Methods

Approach

CADTH involves patient groups, families, and community to improve the quality and relevance of our work, ensuring that those affected by the health technology assessments have an opportunity to contribute to them. CADTH has adopted a Framework for Patient Engagement in Health Technology Assessment.⁷ The framework includes standards for patient involvement in individual assessments and is used to support and guide our activities involving community collaborators in this report.

Consultations

Targeted consultations were sought with community organizations to identify barriers or accessibility concerns with use of COVID-19 rapid tests. Individuals and organizations contacted for this report, and selected websites were identified by CADTH's patient engagement team and network of liaison officers situated across Canada. The Multiple Sclerosis Society of Canada sought experiences from the information, support, and referral service (MS Navigator Program) and the CNIB Foundation explored accessibility of specific Health Canada-approved rapid tests. The Ontario Caregivers Organization and Children's Hospital Research Institute of Manitoba reached out to their own membership, inviting comments.

Additionally, websites of organizations serving older adults (Canadian Seniors Association, Canadian Association of Retired Person), parents (Toronto District School Board), new immigrants (CultureLink), underserved communities (Canadian Red Cross, Black Health Alliance, Black Creek Community Health Centre, Vaughan Community Health Centre, Saskatoon Public Library, and Halifax Public Library), and Indigenous communities (First Nations Health Authority) were searched for information on rapid antigen tests or at home tests. CADTH's Implementation Support and Knowledge Mobilization team also spoke with senior management with the Covid-19 Response Team in the New Brunswick Department of Health; leaders at a large long-term care centre in New Brunswick; Nova Scotia long-term care; Manitoba public health and primary care; and Newfoundland and Labrador long-term

care, public health, and education; on the distribution and use of self-testing in their communities. Information from provincial ministry of health websites, published studies on barriers to use of COVID-19 rapid antigen testing, national and local media, and private suppliers of tests, was used for context.

Synthesis

Notes obtained through telephone and video consultations were hand-written. Key points from notes and comments obtained through email consultation were grouped into themes under the objectives of this Environmental Scan.

Findings

Self-testing for COVID-19 infection is quick and convenient. For those with symptoms, it supports rapid diagnosis without the risk of infecting others to travel for testing. For those without symptoms, it can provide information and reassurance before, or following, group interactions. It can be used frequently for families with young children who are not yet eligible for vaccination or by those at increased risk to infection. For testing to be an effective part of public health strategy, it must be easily and equitably accessible to all who need it.

The consultations identified that factors related to location, physical mobility, vision, language, culture, clarity in instructions, age, willingness to test, availability of tests, and cost can affect the ability to use rapid tests for COVID-19. Details on each of the factors identified during consultations follow.

Clean and Safe Surroundings

In addition to a rapid test, a clean surface, clean hands, privacy to do a nose swab, an uninterrupted 20 to 30 minutes, and a timer, are required to complete a self-test. Tests should not be stored in vehicles, mailboxes, lockers, or in rooms where the temperature may be or become colder than 2C or hotter than 30C.⁸ As such, those who are inadequately housed face barriers to self-testing.

Manual Dexterity

Separate packages for the cassette, assay buffer, and swabs need to be torn open, and the cap to the assay buffer opened. Those with limited hand movement and/or strength (for example with arthritis) have physical difficulty manipulating the packing and squeezing the assay. Fine motor control is needed to guide the swab into the nose, transfer swab to assay, and to control the drops into the cassette well. Those with hand tremors (for example with multiple sclerosis or Parkinson disease) may be concerned about spilling the liquid and wasting a test, especially when a person has a limited supply of tests. Staff at long-term care homes noted that resources were needed to assist visitors with testing.

Vision

Those with sight loss are unable to independently read the printed instructions, place components together, add the drops into the cassette well, or verify the results of rapid antigen tests. Providing instructions in braille, large print, digital or audio formats can begin to

address this issue.⁹ In discussions with CNIB Foundation staff, we learnt that some tests have instructions that can be read via a screen reader, but some images lack descriptive text and use of tables in some instructions scramble the order of steps, when using a screen reader. Even with support for instructions, barriers remain in counting the drops into the cassette well and reading the result as expressed by colour based (and often faint) bands. A test with a tactile or audio result, or with digital app to view and announce the result, could be useful. Similarly, other tactile indicators should be developed to assist with assembly and use at each step of the testing process, as appropriate. For example, a tactile indication of which side of the swab should be inserted into the nose, or where to insert the liquid solution without compromising the test and/or its results.

In the UK, (not in Canada) Be My Eyes Specialized Help¹⁰ connects a person with vision loss with a volunteer with public health training to guide the person through the steps of doing a swab using a mobile device or computer with a camera. As each test is different, the volunteer needs experience with a range of tests. In Canada, ensuring staff at public health agencies and pharmacies providing tests are able to walk through each step of the testing process with an individual with sight loss would help meet the needs of the community. Willingness to have a volunteer also learn the test result is a privacy consideration.

Understanding of Instructions

More recently, self-testing packages include written instructions in English and French. Instructions are detailed, technical, and require a high level of literacy to understand. Many test manufacturers have produced procedure cards, with diagrams and simplified instructions, included within the test pack, or simple instructions and short videos available on their website. Videos and plain language instructions tend to only be available in English. The Government of Ontario has produced fact sheets on why to test, when to test, and what to do with the result, to support rapid testing, in 25 different languages.¹¹

In the effort to widely distribute rapid tests, health centres, schools, churches, and community organizations have divided larger boxes of tests into smaller packages to share the limited supply with more people. Boxes of 25 were divided into packages of 5 or 2. Photocopies of simple instructions were typically included; but not consistently. As described by 1 Ontario parent, “I have managed to receive the rapid tests through the kids’ schools, but they have often been lacking the instructions for how to use it. We end up googling them, but I can imagine if tests are being dismantled (which they have been due to short supply) then it can be hard to figure it out how to use them. I consider my digital health literacy as pretty high.”

Culturally Appropriate Support

The First Nations Health Authority provides guidance on lateral kindness and COVID-19 testing, in addition to videos and written resources by First Nations health providers on using rapid tests available to Indigenous communities.¹²

Community health centres have shared links to resources on why test and what to do if testing positive, on their own websites and social media channels. For example, to address hesitancy and a lack of trust, especially among marginalized populations, Black Creek Community Health Centre in Toronto, hired members of the community to conduct daily outreach in the community, distributed rapid tests in community, and provided resources to support rapid testing.¹³

In a regional meeting of Long-Term Care and Personal Care Homes at Western Health in Newfoundland, it was noted that guidance on appropriate use of rapid antigen tests for various types of users is important to ensure appropriate and effective use of this limited resource.

Willingness to Nose Swab

The idea that a nasal swab is painful was a predominant perceived barrier to COVID-19 testing in a 2020 survey of 1,288 individuals, recruited from a volunteer participant registry in Arkansas, US.¹⁴ The mucous membrane lining the nose has many nerve endings. Insertion of the swab can result in discomfort, sneezing, teary eyes, coughing, gagging, or pain. Discomfort, or fear of discomfort and pain, is compounded if there is uncertainty in how far to insert the swab.

For parents or family caregivers swabbing another person's nose, it can be hard to determine how far the swab is in the nose and to keep the swab steady during the swirl. As described by 1 Manitoba parent, as compared to a swab for a PCR test, "with antigen tests the time period needed to try and get 5 good swirls in each nostril is much more difficult and I am always worried about going too far or not far enough and how to really count swirls around the nose with someone who is fighting and keeps pulling their head one way and then another is a challenge."

For older and/or neurotypical children, family caregivers may be able to use reasoning to encourage the child to swab themselves or allow themselves to be swabbed. The IWK Health Centre created a resource to support use of Covid-19 rapid tests in children and youth. It includes practical advice and language suggestions, such as when swabbing "it's like painting the inside of your nose," and advice on depth of insertion.¹⁵

Clarity on Where to Swab

Ontario Health¹⁶ suggests that in addition to the collection method option as described in the test kit insert, users may choose to perform combined oral and nasal sampling as it may increase test sensitivity. Six Canadian provinces have recommended dual throat and nose swabbing when performing a self-test in response to the emergence of the Omicron variant. Findings from 3 pre-print, non-peer reviewed publications¹⁷ indicate that using combined nasal plus throat, instead of nasal samples alone, resulted in greater detection rates without having an impact on true negative rates. Health care providers, pharmacists, and media have also suggested this approach. There is uncertainty if this is appropriate for all test, or for which rapid tests, and how this technique impacts accuracy of results. The New Brunswick Department of Health reported some concern regarding the use of a swab that is scored close to the tip, and the possibility of unintended breakage while swabbing the throat.

Safe Disposal

Instructions on some tests indicate disposal according to the appropriate biohazard waste disposal protocol. An example of this is the rapid antigen test Rapid Response (BTNX) distributed by the Ottawa Carleton District School Board in December 2021 for community use. However, local authorities in some regions, including Ottawa,¹⁸ have directed households to dispose of self-tests in a plastic bag within their regular garbage collection. Batteries used in molecular test, at home, also need safe disposal. Leaders at a long-term care centre in New

Brunswick noted that the tests created a large amount of biohazard waste and added cost for disposal.

Trust in Results

A repeated theme was mistrust in the accuracy of the results, especially a negative test result. We heard this concern from individuals, health care providers, patient organizations, and caregiver organizations. A 2021 German study of 4,026 participants exploring drivers and barriers of people's willingness to use rapid tests: gaps in understanding of the results; and the psychological and behavioural consequences of positive and negative results, sheds some light. Over a quarter of participants expressed doubts on the validity of the tests, with participants overestimating the number of test results that would turn out positive.¹⁹

Caregivers also expressed concern, especially when caring for vulnerable individuals and discerning whether to seek medical care, if the negative test was reliable in the presence of symptoms. If tests were easily available in the community, families would repeat tests over several days or seek a test from a different manufacturer, if symptoms continued. We also heard that having test kits at home can promote anxiety and over testing. Additional guidance on appropriate use of rapid testing, for different circumstances (symptomatic, asymptomatic, improving, or deteriorating symptoms, a positive case in a family all with negative tests) would be appreciated to assure appropriate and effective use of a limited resource.

In some long-term care residences, there is concern that although serial testing does increase the sensitivity, visitors and family members are testing just once to make decisions and not testing on a regular basis. There is a risk that if 1 has a negative test then they may choose to ignore symptoms. Decision-makers emphasized that rapid antigen testing is just 1 part of an overall testing strategy to prevent the spread of infection.

One option that may increase trust in test results is the use of multiplex tests that can test for other viruses (such as influenza A, influenza B, and respiratory syncytial virus) alongside COVID-19 with a single sample and testing device. Several of these tests have been [authorized for point of care](#) use in Canada. These tests might provide an alternate diagnosis for symptomatic patients testing negative for COVID.

Children and Toddlers

Families are encouraged to test young children at home, to make decisions on attendance at daycare or school.^{20,21} Some rapid tests are indicated for children 5 years and older, others for 3 years and older; and others 2 years and older. Tests indicated for use in toddlers may not be available or easily accessible in all communities. Parents may feel uneasy or be unwilling to take on the responsibility of doing a nose swab with a crying or squirming child. Instructions that advise that 2 people may be needed to test a child at home would be difficult for a single parent household to implement.

Older Adults

Statistics Canada found that older adults and those without a child at home were less likely to use a rapid antigen test, in a February/March 2022 survey of 36,857 Canadians aged 15 and older.²² Statistics Canada caution against making inferences to the overall Canadian population, as the crowdsourced data was not collected using probability-based sampling. We did not find advice on COVID-19 testing on the websites of the Canadian Seniors Association,

nor the Canadian Association of Retired Person. This may change as awareness and use grows of Paxlovid (nirmatrelvir; ritonavir) to treat mild to moderate COVID-19 in those at high risk for progression to severe illness. Older adults may be more likely to face vision and/or manual dexterity challenges than the general population and may need assistance in rapid testing. Personal care workers may not have the same access to test and training to use rapid tests, as staff in long-term care settings.

Availability

All respondents spoke about early (and ongoing for some) challenges with availability of rapid tests. Most provinces restricted free distribution to specific communities and had limited tests to distribute. As described by 1 respondent: "People are usually grateful that they can get the test kits," and others described gratitude and acceptance with what was available. However, a first-come, first served model of community distribution can reduce equity as it requires individuals to learn about where to access tests and to leave home to collect or purchase a test. An Ontario caregiver explained, "My parents only have rapid tests in their home because I provided for them. They did not know how to get any." The need for an accessible ordering system for people with sight loss was also highlighted.

Cost

From the test-user perspective, cost can be a barrier to testing. When not available at free distribution centres, public were/are purchasing them from retail stores. Rapid Test and Trace,²³ an online store for Health Canada authorized tests, sells CovClear COVID-19 Rapid Antigen Test (2 Pack) for \$19.99 or Artron COVID-19 Rapid Antigen Test (5 Pack) for \$45.00, plus the cost of shipping. In Newfoundland, a package of 2 rapid tests costs approximately \$25 and is the equivalent to 2 hours of wages for a minimum wage worker.²⁴ The price of tests and availability varies in different regions of the province. For example, a pharmacy in Happy Valley-Goose Bay, Labrador is selling a pack of 2 rapid tests for \$46.²⁴ Isolating with symptoms of COVID-19 in the absence of a self-test, may result in lost education, lost work, and lost wages.²⁴ Subsidies, private insurance coverage, or reimbursement for tests conducted or dispensed by pharmacists are ways that may support low-income, high-risk, or vulnerable populations in the future if and when more tests are authorized for sale in Canada and/or if there is a reduction in the free distribution of tests.

Limitations

Care has been taken to ensure the information is accurate and complete, but it should be noted that information about COVID-19 changes and varies across Canada.

To produce this report, CADTH used a modified approach to engage patient and community organizations to meet decision-making needs, including a short project timeline of 4 weeks. Stakeholders were invited to participate within a set time, which can sometimes make it difficult for people to participate fully, on terms that work for them (e.g., daytime videoconferences).

Inviting written comments via email or participating in video conferences were key tools used to obtain the views of a wide range of stakeholders in Canada. However, people need access

to reliable technology, phone, and internet to collaborate with CADTH, which would exclude some voices. The distribution and diversity of the respondents may not be fully representative of all stakeholders. There may be other populations or communities who have concerns that could also affect the use rapid tests for COVID-19, which are not mentioned here.

The community was not involved in the topic selection or decisions about the scope of this report. People wanted to share concerns that were not part of the project scope, such as cost barriers or availability of tests, but the topic and question were identified before engagement.

Conclusions

Knowledge gained by rapid testing for SARS-CoV-2 can be empowering. Tests can rapidly provide information to individuals to determine need for isolation, to seek medical support, or to attend school, work, social events, or travel. A COVID-19 test can only be a self-test if everyone can use it without assistance. Inequity is increased if some in the community are unable to use a rapid test and cannot access the knowledge that the result of a rapid test offers. As part of the development, usability testing of devices including a broad diversity of human needs should be undertaken and reported. Each step of the testing process should be considered.

For broad community accessibility, rapid COVID-19 tests would have or be:

- alternatives to nose swabbing, such as saliva, buccal, or breath testing
- suitable for use with infants, especially those too young for vaccination
- low cost, and/or available in single packages to distribute cost over time
- produced and distributed quickly and widely, during future waves of infection
- little packaging. Clearly indicate disposal by domestic garbage collection
- used and stored beyond temperature ranges of 2C to 30C for use in homes or vehicles without climate control
- single component test. No mixing of components by user required
- tactile or audio results, or digital app to view and announce the result
- instructions in braille, large print, digital or audio formats
- videos and plain language instructions in additional languages to English and French.

References

1. Government of Canada. Where and how to get tested. *Testing for COVID-19: when to get tested and testing results*. 2022; <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/symptoms/testing/diagnosing.html#a2>. Accessed 2022 Jun 13.
2. Government of Canada. Information for patients: a guide to self-testing for COVID-19. 2022; <https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/testing-screening-contact-tracing/information-patients-guide-self-testing.html>. Accessed 2022 Jun 13.
3. Health Canada. Authorized medical devices for uses related to COVID-19: list of authorized testing devices. 2022; <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/medical-devices/authorized/list.html>. Accessed 2022 Jun 13.
4. Quebec releases 10 million free rapid COVID tests. *Montreal Times*. 2021; <https://mtltimes.ca/covid-19/quebec-releases-10-million-free-rapid-covid-tests/#:~:text=The%20Quebec%20government%20will%20be%20distributing%20over%2010,have%20started%20climb%20rapidly%20over%20the%20past%20week>. Accessed 2022 Jun 17.
5. Parchment A, Pawar KM, Bilhete B. Should I get a rapid test before a holiday gathering? We answer this and your other COVID-19 questions. *CBC News*. 2021 Dec 17; <https://www.cbc.ca/news/ask-rapid-tests-holidays-omicron-variant-faq-1.6285520>. Accessed 2022 Jun 13.
6. COVID-19 updated measures, boosters and rapid antigen testing in BC. *COVID-19 in BC*. Victoria (BC): Government of British Columbia; 2021 Dec 21: <https://news.gov.bc.ca/files/CovidMeasures.pdf>. Accessed 2022 Aug 15.
7. CADTH framework for patient engagement in health technology assessment. Ottawa (ON): CADTH; 2022: <https://www.cadth.ca/cadth-framework-patient-engagement-health-technology-assessment>. Accessed 2022 Jun 17.
8. Government of Prince Edward Island. COVID-19 rapid antigen tests (self-test kits). 2022; <https://www.princeedwardisland.ca/en/information/health-and-wellness/covid-19-rapid-antigen-tests-self-test-kits>. Accessed 2022 Jun 13.
9. Houde C. Putting accessibility to the test. *Canadian National Institute for the Blind (CNIB) Foundation*. 2022; <https://www.cnib.ca/en/blog/putting-accessibility-test?region=on>. Accessed 2022 Jun 13.
10. Edwards L. Taking a COVID test completely blind [video]. 2021; https://www.youtube.com/watch?v=wuX1hYUy_YE. Accessed 2022 Jun 13.
11. Government of Ontario. Rapid testing for at-home use. 2022; <https://www.ontario.ca/page/rapid-testing-home-use>. Accessed 2022 Jun 13.
12. Lateral kindness and COVID-19 testing. West Vancouver (BC): First Nations Health Authority; [2022]: <https://www.fnha.ca/Documents/FNHA-Lateral-Kindness-and-COVID-19-Testing.pdf>. Accessed 2022 Jun 13.
13. Black Creek Community Health Centre. COVID-19 testing and updates. [2022]; <http://www.bcchc.com/about-us/covid-19-testing-and-updates/> Accessed 2022 Jun 13.
14. McElfish PA, Purvis R, James LP, Willis DE, Andersen JA. Perceived barriers to COVID-19 testing. *Int J Environ Res Public Health*. 2021;18(5):2278. [PubMed](#)
15. IWK Health, Nova Scotia Health Authority. COVID-19 rapid testing toolkit. [2022]; http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=93858. Accessed 2022 Jun 13.
16. COVID-19 rapid antigen tests: how to collect a sample. Toronto (ON): Ontario Health; Government of Ontario; 2022: <https://www.ontariohealth.ca/sites/ontariohealth/files/2022-02/COVID-19RapidAntigenTests-HowtoCollectaSample.pdf>. Accessed 2022 Jun 17.
17. Self-collection of nose and throat swab samples for SARS-CoV-2 antigen testing. Ottawa (ON): CADTH; 2022: <https://www.cadth.ca/self-collection-nose-and-throat-swab-samples-sars-cov-2-antigen-testing>. Accessed 2022 Jun 17.
18. Ottawa Public Health. How do I dispose of used rapid antigen test kits? *Rapid antigen testing for workplaces*. 2022; <https://www.ottawapublichealth.ca/en/public-health-topics/rapid-antigen-testing.aspx#How-do-I-dispose-of-used-rapid-antigen-test-kits>. Accessed 2022 Jun 17.
19. Betsch C, Sprengholz P, Siegers R, et al. Empirical evidence to understand the human factor for effective rapid testing against SARS-CoV-2. *PNAS*. 2021;118(32):e2107179118. [PubMed](#)
20. Government of Manitoba. COVID-19 rapid antigen tests: information for Manitobans: about rapid antigen tests. [2022]; https://manitoba.ca/covid19/testing/print_rat.html. Accessed 2022 Jun 13.
21. Government of Prince Edward Island. Licensed child care centre guidance. 2022; <https://www.princeedwardisland.ca/en/information/health-and-wellness/licensed-child-care-centre-guidance>. Accessed 2022 Jun 13.
22. Statistics Canada. Impacts of COVID-19 on Canadians: testing and vaccination, February 21 to March 13, 2022. *The Daily*. 2022 Apr 07; <https://www150.statcan.gc.ca/n1/daily-quotidien/220407/dq220407a-eng.htm>. Accessed 2022 Jun 13.
23. Rapid Test & Trace. Get rapid testing for COVID-19: convenient virtual certifications for travel & work. 2022; <https://rapidtestandtrace.ca/>. Accessed 2022 Jun 17.
24. Roberts M, Roberts D. N.L. government says it has 'no control' over rapid test market. *CBC News*. 2022 Apr 29; <https://www.cbc.ca/news/canada/newfoundland-labrador/rapid-tests-cost-nl-1.6434367>. Accessed 2022 Jun 13.