

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

Highlights of health research evidence synthesized by the
Research, Analysis and Evaluation Branch (RAEB)

• January 18, 2021 •

FEATURED

- RAEB'S Rapid Responses for Ontario's health sector
- Research evidence and jurisdictional experience
- Trusted resources

ABOUT RAEB

Through research funding, brokering, translating, and sharing, we promote an enhanced evidence use capacity that supports all aspects of health policy, programming, and investment decision making. Services include:

- Literature reviews
- Jurisdictional scans
- Economic analysis
- Evaluation planning
- Research fund management
- Knowledge translation services

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RAEB'S RAPID RESPONSES FOR ONTARIO'S HEALTH SECTOR

Please contact [Evidence Synthesis Unit](#) for the full read of these rapid responses.

• Detection of COVID-19 by Dogs

There is limited research evidence to demonstrate the efficacy of using dogs to detect COVID-19. Information was identified from six jurisdictions (i.e., Finland, France, Germany, Iran, Lebanon, and the United Kingdom). Finland is the only identified jurisdiction to have implemented a COVID-19 detection program with dogs. Characteristics of COVID-19 detection programs are summarized as follows:

- **Type of Samples:** The types of samples taken vary widely, including skin, sweat, saliva, breath, and clothes/masks.
- **Settings:** Most of the samples are collected at hospitals or in other clinical contexts. Other prospective sites include border entries (e.g., ports).
- **Number of Dogs:** Most jurisdictions recruited six to eight dogs.
- **Breed of Dogs:** A range of dog breeds are involved in detection including German Shepherd, Labrador Retriever, Malinois, and Cocker Spaniel.
- **Length of Training:** Training ranges from one week to three months.
- **Method:** The method of sample collection is dependent on the type of sample being collected. In Finland, the passenger takes a skin swipe and drops the sample into the container provided. The dog and its trainer are behind a wall, where the dog sniffs the sample. If the result is positive, the passenger is directed to the Helsinki University Hospital's health information station for further instructions.
- **Results:** Testing accuracy is variable, ranging from 76% to 100%. In Finland, researchers report that testing has shown an accuracy level of nearly 100% (skin) even five days before actual symptoms appear. In Germany, dogs achieved an overall average detection rate of 94% (saliva).
- **Implementation:** Limited information is identified on the implementation of this type of detection program since most jurisdictions are still in the research/planning stages.

* Figures in the header: Transmission electron microscope image shows SARS-CoV-2, the virus that causes COVID-19, isolated from a patient in the United States. Virus particles are emerging from the surface of cells cultured in the lab. The spikes on the outer edge of the virus particles give coronaviruses their name, crown-like. *National Institutes of Health's National Institute of Allergy and Infectious Diseases – Rocky Mountain Laboratories*

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE

The research evidence profiled below was selected from highly esteemed academic journals and grey literature sources, based on date of publication and potential applicability or interest to the Ontario health sector.

TRANSMISSION

- ***Centers for Disease Control and Prevention: New COVID-19 variants***
[Jan 15, 2021](#). This report describes how multiple COVID-19 variants are circulating globally. In the UK, a new variant called B.1.1.7 has emerged with an unusually large number of mutations; this variant spreads more easily and quickly than other variants and has been detected in the US and Canada. In South Africa, another variant called 1.351 has emerged that shares some mutations with the variant detected in the UK. In Brazil, a variant called P.1 emerged and was identified in four travelers from Brazil, who were tested during routine screening at an airport outside Tokyo, Japan. P.1 contains a set of additional mutations that may affect its ability to be recognized by antibodies. [Read](#).

DISEASE MANAGEMENT

- ***JAMA: Medical oncology professionals' perceptions of telehealth video visits***
[Jan 14, 2021](#). This study suggests that oncologists have conflicting opinions regarding the clinical efficacy, quality of patient experience, accessibility, and financial impact of telehealth. Concerns regarding the clinical efficacy of a telehealth physical examination are the most commonly reported challenges for the virtual management of cancer during the COVID-19 pandemic. Future research regarding the efficacy of the virtual physical examination, as well as practice recommendations, are necessary given the rapid rise of telehealth for oncologic care. [Read](#).
- ***NEJM: Early high-titer plasma therapy to prevent severe COVID-19 in older adults***
[Jan 6, 2021](#). This study conducted a randomized, double-blind, placebo-controlled trial of convalescent plasma with high IgG titers against SARS-CoV-2 in 160 older adult patients within 72 hours after the onset of mild COVID-19 symptoms. Overall, the study found that early administration of the high-titer convalescent plasma reduced the progression of COVID-19. [Read](#).

CASE TESTING AND SCREENING

- ***Annals of Internal Medicine: Sensitivity and costs of testing for SARS-CoV-2 infection with saliva versus nasopharyngeal swabs***
[Jan 12, 2021](#). This systematic review and meta-analysis examined the difference in sensitivity for SARS-CoV-2 detection between nasopharyngeal swabs and saliva and estimated the incremental cost per additional SARS-CoV-2 infection detected with nasopharyngeal swabs across 37 studies with 7,332 paired nasopharyngeal swab and saliva samples. The review found that saliva sampling seems to be a similarly sensitive and less costly alternative that could replace nasopharyngeal swabs for collection of clinical samples for SARS-CoV-2 testing. [Read](#).

RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE

UNDERSTANDING THE DISEASE

- ***Lancet*: Six-month consequences of COVID-19 in patients discharged from hospital**
[Jan 8, 2021](#). This study found that at six months after acute infection, COVID-19 survivors were mainly troubled with fatigue or muscle weakness, sleep difficulties, and anxiety or depression. Patients who were more severely ill during their hospital stay had more severe impaired pulmonary diffusion capacities and abnormal chest imaging manifestations, and are the main target population for intervention of long-term recovery. [Read](#).
- ***Nutrients*: Alternative protein sources during the COVID-19 pandemic**
[Jan 5, 2021](#). This review suggests that the COVID-19 pandemic is a call-to-action to support the implementation and expansion of three approaches, plant-based diets, insect-based foods, and cultured meat, to decrease the risks for transmission of novel human pathogens. [Read](#).

INFECTION, PREVENTION AND CONTROL IN SPECIFIC SETTINGS

- ***WHO*: Infection prevention and control (IPAC) guidance for long-term care facilities (LTCFs) in the context of COVID-19**
[Jan 8, 2021](#). This document is an update of the guidance published in March 2020 and contains new evidence and guidance, including the following: 1) updated results from published studies on the epidemiology and extent of SARS-CoV-2 infection among residents and staff in LTCFs, the effectiveness of IPAC precautions to prevent SARS-CoV-2 transmission in LTCFs, and the impact of IPAC precautions on mental and physical health and well-being of older people; 2) updated advice on IPAC precautions to prevent the spread of SARS-CoV-2 and to protect health workers and caregivers of patients with suspected or confirmed COVID-19 in LTCFs; 3) advice on early detection of and testing for SARS-CoV-2 among residents and staff in LTCFs; and 4) advice on policies for visitors to LTCFs and additional considerations on minimizing the mental and physical health impacts of restrictions and IPAC precautions implemented. [Read](#).

DATA ANALYTICS, MODELLING AND MEASUREMENT

- ***JAMA*: SARS-CoV-2 transmission from people without COVID-19 symptoms**
[Jan 7, 2021](#). This modelling study using data from China estimated that asymptomatic individuals account for more than half of all COVID-19 transmissions. In addition to identification and isolation of persons with symptomatic COVID-19, effective control of spread will require reducing the risk of transmission from people with infection who do not have symptoms. These findings suggest that measures such as wearing masks, hand hygiene, social distancing, and strategic testing of people who are not ill will be foundational to slowing the spread of COVID-19 until safe and effective vaccines are available and widely used. [Read](#).

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RESEARCH EVIDENCE/JURISDICTIONAL EXPERIENCE cont'd

HEALTH EQUITY AND VULNERABLE POPULATIONS

- ***JAMA: Using Lorenz Curves to measure racial inequities in COVID-19 Testing***
[Jan 8, 2021](#). This study demonstrates the inequitable allocation of COVID-19 testing relative to the disease burden between Black and White communities in Missouri, US. The underlying reasons for undertesting in particular communities include existing disparities in the health care infrastructure, access to health care, and mistrust of historically discriminatory health care system, all of which are manifestations of structural racism in the US health care system. Addressing these inequities requires proactive public health responses, such as targeted use of high-volume, saliva-based tests, and community-based testing campaigns. [Read](#).
- ***The American Journal of Clinical Nutrition: Diet quality and food security among adults during the COVID-19 lockdown in Quebec***
[Jan 5, 2021](#). This study suggests that the dietary habits and diet quality of adults in Quebec slightly improved (e.g., small improvements in the intake of whole grains, greens, beans, etc.), and the prevalence of food insecurity reduced (from 3.8% at baseline to 1.0%) during the COVID-19 lockdown. The study attributed the lockdown, social-distancing, and home-confinement measures during the early phase of the COVID-19 pandemic leading to reductions in the frequency of eating out and overall improvement in dietary habits and quality. [Read](#).

TRUSTED RESOURCES

- The Evidence Synthesis Network (ESN) is a collaborative COVID-19 response initiative by Ontario's research and knowledge production community. The [ESN website](#) is a portal where research evidence requests can be made and includes previously completed ESN briefing notes.
- An up-to-date and comprehensive list of sources, organized by type of research evidence, is available on McMaster Health Forum's COVID-19 Evidence Network to support Decision-making (COVID-END) [website](#).
- The [Ontario COVID-19 Science Advisory Table](#) is a group of scientific experts and health system leaders who evaluate and report on emerging evidence relevant to the COVID-19 pandemic, to inform Ontario's response to the pandemic.