

# COVID-19 PANDEMIC

## RAEB'S Evidence Update

Highlights of health research synthesized by the Research, Analysis and Evaluation Branch

September 14, 2020

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### Evidence Products Produced with Our Partners

The COVID-19 Evidence Synthesis Network is comprised of groups specializing in evidence synthesis and knowledge translation. The group has committed to provide their expertise to provide high-quality, relevant, and timely synthesized research evidence about COVID-19 to inform decision makers as the pandemic continues. Please contact [Evidence Synthesis Unit](#) for the full read of these evidence products.

### COVID-19 Testing Strategies in Non-Canadian Jurisdictions

(Produced in collaboration with McMaster Health Forum, Canadian Agency for Drugs and Technologies in Health, and the Evidence Synthesis Unit)

**Molecular Tests:** Reverse transcription-polymerase chain reaction (RT-PCR) or rapid-PCR tests are the most commonly used. They are typically used for those exhibiting COVID-19 symptoms or at particular risk due to either their living arrangements (e.g., congregate housing) or employment (e.g., frontline health care workers). Australia, China, Hong Kong, Germany, Israel, Japan, New Zealand, and Singapore use RT-PCR for high-risk individuals (e.g., frontline health care workers, migrant workers, tourism industry workers) or widespread testing in localized areas of concerns (e.g., schools, airports, towns).

**Antigen Tests:** This test detects specific proteins on the surface of the virus. Antigen testing is offered in France which is fully covered through health insurance, and in the District of Columbia (US) where it is offered in select physician offices.

**Serologic Tests:** This test detects antibodies that the immune system develops in response to the virus. Potential uses of this test include rapid return-to-work screening. All US states (except Alaska) use serologic tests to monitor the immune status of individuals. In Australia, persons who have symptoms for more than one week are eligible for a serologic testing, with a follow up PCR test for positive COVID-19 results.

**Innovative Surveillance Testing:** Some jurisdictions are exploring different surveillance strategies such as wastewater monitoring (e.g., Australia, Italy, Netherlands, New Zealand) and are using different testing methods that are less intrusive (i.e., saliva and self-administered short nasal swabs; New York).

## Provider-Led Virtual Care in Ambulatory Care Settings

(Produced in collaboration with McMaster Health Forum, Canadian Agency for Drugs and Technologies in Health, and the Evidence Synthesis Unit)

**Type of Technology Used:** There is a greater use of synchronous virtual care technologies, particularly video consultations, compared to asynchronous technologies.

**Type of Patients Consulted:** Across Canada, the US, and Australia, the following medical specialities use virtual care technology for patient-provider interactions: complex conditions; mental health and substance use; cancer care; endocrinology care; outpatient care; obstetrics and gynaecology care; remote and rural care; pulmonary care; spinal care; aging and geriatrics care; cardiac care; inpatient care; sexual health; optometry; genetics; surgery; nephrology; respirology; neurosurgery; rehabilitation services; group patient education; and neurology.

### **Quadruple-Aim Impact and Effectiveness:**

Health Outcomes: Virtual care technologies may be effective in improving clinical outcomes and the efficacy of virtual care may be dependent on the technological modality being used.

Cost-Effectiveness: Virtual care technologies have been demonstrated to be cost-effective in comparison to in-person care.

Patient Experiences: At the pan-Canadian level, patients are less satisfied with virtual care compared to in-person care and tend to be more satisfied with telephone consultations compared to synchronous video or asynchronous messaging. In Australia, however, patient experiences with virtual care are overall positive compared to in-person care. Common themes of patient

satisfaction include increased access and equity, reduced travel times, increased quality of care, and increased access to timely supports and care.

Provider Experiences: In Australia, provider experiences with virtual care technology are overall positive compared to in-person care. Common themes of provider satisfaction include reduced travel time, increased patient consultations, increased geographic coverage, reduced burden on the health care system, increased quality of care, and increased time of service.

**Analysis for Ontario:** There are five health systems in Ontario that use virtual care services, including the Ontario Telemedicine Network (telephone, videoconferencing); Hamilton Health Sciences (telephone, videoconferencing); University Health Network (telephone, videoconferencing, remote monitoring); Humber Hospital (telephone, videoconferencing); London Health Sciences Centre (telephone, videoconferencing); and Ottawa Hospital System (videoconferencing).

## Research Evidence and 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.

### Infection Prevention and Control in Specific Settings

#### ***Journal of the American Medical Association (JAMA): Incidence of nosocomial COVID-19 in patients hospitalized in Boston, Massachusetts***

**Sept 9, 2020.** This study of patients at a medical centre with rigorous infection control measures (i.e., COVID-19 units with airborne infection isolation rooms, personal protective equipment [PPE], PPE donning and doffing monitors, universal masking, restriction of visitors, and liberal RT-PCR testing of symptomatic and asymptomatic patients) reported that nosocomial COVID-19 (i.e., risk of hospital-acquired infection/disease) was rare during the height of the pandemic. These findings suggest that rigorous infection control measures may be associated with minimized risk. [Article](#).

### Case Testing and Screening

#### ***Canadian Medical Association Journal (CMAJ): Active testing of groups at increased risk of acquiring SARS-CoV-2 in Canada: Costs and human resource needs***

**Sept 9, 2020.** This data analysis suggests that the strategy of active testing of groups at increased risk of acquiring SARS-CoV-2 (i.e., contacts of people who are positive for SARS-CoV-

2, hospital employees, community health care workers and people in long-term care facilities, essential business employees, and school children and staff) appears to be feasible and supports the safe reopening of the economy and schools more broadly. This strategy also appears to be more affordable compared with the \$169.2 billion committed by the federal government as a response to the pandemic as of June 2020. [Article](#).

### ***Annals of Internal Medicine: Salivary detection of COVID-19***

**August 28, 2020.** A study in Ottawa, Ontario found that standard diagnostic methods of nasopharyngeal and oropharyngeal swabs detected more COVID-19 cases (80.0%) than saliva testing (68.6%) among patients who were asymptomatic but at high risk or who were mildly symptomatic. Despite a lower estimated rate of detection relative to swab testing, saliva testing may be of particular benefit for remote, vulnerable, or challenging populations. [Article](#).

## Transmission

### ***National Collaborating Centre for Methods and Tools: What is the role of daycares and schools in COVID-19 transmission?***

**Sept 8, 2020.** This rapid evidence review found that the risk of transmission from children-to-children and children-to-adults in primary school and daycare settings appears low, particularly when infection control measures are in place. [Article](#).

### ***medRxiv: The role of masks in reducing the risk of new waves of COVID-19 in low transmission settings***

**Sept 3, 2020.** This modeling study (preprint) in New South Wales, Australia evaluated the risk of a new wave of COVID-19 in a setting with ongoing low transmission, high mobility, and an effective test-and-trace system with different assumptions about mask uptake (i.e., no mask use and near-universal mandatory uptake). The study reported that mandating the use of masks in community settings would significantly reduce the risk of an epidemic resurgence. [Article](#).

### ***Disaster Medicine and Public Health Preparedness: The role of masks in reducing the risk of new waves of COVID-19 in low transmission settings***

**Sept 2, 2020.** This review suggests that filtration effectiveness of cloth masks can range from 3% to 95%. In particular, the review notes that multiple layer (hybrid) homemade masks made from a combination of high density 100% cotton and materials with electrostatic charge are more effective than one made from a single material. The review further recommends adding an overhead knot or nylon overlay to provide optimal fit for cloth masks, switching masks every four hours, and storing them in dedicated containers while awaiting disinfection. [Article](#).

## Health Equity and Vulnerable Populations

### ***CMAJ: The influence of sex and gender domains on COVID-19 cases and mortality***

**Sept 8, 2020.** This analysis suggests that sex and gender affects the risk of acquiring SARS-CoV-2, the presentation of COVID-19, and disease management and outcomes. This analysis identified institutionalized gender inequality to be positively associated with the male-to-female ratio reported cases of COVID-19 among countries that report sex-disaggregated data; males account for more cases in countries with higher gender inequality. These findings suggest that institutionalized gender and culturally entrenched roles and norms may influence who is most at risk of acquiring infection or who is able to receive a test. [Article](#).

### ***Review of Economics of the Household: Women’s and men’s work, housework, and childcare before and during COVID-19***

**Sept 6, 2020.** This survey study suggests that the additional housework and childcare associated with COVID-19 falls on women regardless of their partners’ working arrangements and men whose partners continue to work at their usual workplace spend more time on housework than before. Moreover, analysis of work-life balance satisfaction shows that working women with children aged zero to five years find balancing work and family more difficult during COVID-19. [Article](#).

## Health Equity and Vulnerable Populations

### ***National Bureau of Economic Research: COVID-19 and crime: Effects of stay-at-home orders on domestic violence in Chicago, US***

**Sept 6, 2020.** This study reports that stay-at-home orders increased time spent at home, leading to a decrease in total calls for police service, but an increase in domestic violence-related calls for police service. Effects were larger in areas with a high proportion of renters. These effects for domestic violence calls, however, are at odds with reported domestic-related crimes and arrests by police officers, where official reports and arrests for domestic violence crimes fell by 8.7% and 26.3%, respectively. This study estimates that nearly 1,000 cases of domestic violence crimes were underreported between March and April 2020. [Article](#).

## Public Health Measures

### ***JAMA: Association of mobile phone location data indications of travel and stay-at-home mandates with COVID-19 infection rates in the US***

**Sept 8, 2020.** This study of anonymous mobile phone location data in the US reported that stay-at-home social distancing mandates were associated with a reduction in COVID-19 spread.

These findings support the efficacy of social distancing which could help during later periods of COVID-19 re-emergence. [Article](#).

***Organisation for Economic Co-operation and Development (OECD): The role of centres of government (CoGs) in building resilience to the pandemic***

**Sept 2, 2020.** This report discusses the high-level institutional arrangements put in place by governments to manage policy responses to the pandemic, with a special focus on CoG's leading or supporting role in three main dimensions: co-ordination and strategic planning, the use of evidence to inform decision-making, and communicating decisions to the public. [Article](#).

***Nature: Advantage of Alberta's digitalized health care system in the COVID-19 response***

**Aug 31, 2020.** Alberta's long-standing telehealth hardware, training, provider remuneration, and legislation infrastructure has enabled quick transition to virtual health care. The key factors in the management of COVID-19 in Alberta includes: the rapid launch of online screening and triage tools to guide testing and isolation; online result sharing; infected patient and contact tracing, including a smartphone exposure tracking application (ABTraceTogether); electronic best practice alerts and decision support tools; test and treatment order sets for standardized COVID-19 management; and continuous access to population level real-time data to inform health care provider, public health, and government decisions. [Article](#).

## Understanding the Disease

***JAMA: Comparison of clinical features of COVID-19 versus seasonal influenza A and B among children in the US***

**Sept 8, 2020.** This study of children in the US with COVID-19 or seasonal influenza reported no difference in hospitalization rates, intensive care unit admission rates, and mechanical ventilator use between the two groups. More patients were hospitalized with COVID-19 compared to the seasonal influenza and reported clinical symptoms of fever, diarrhea or vomiting, headache, body ache, or chest pain at the time of diagnosis. [Article](#).

## 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](#).

## 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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