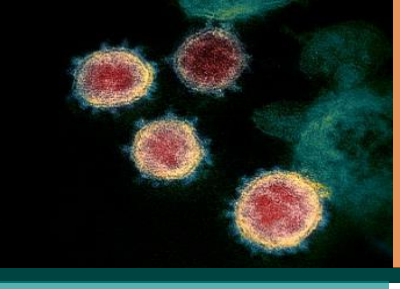
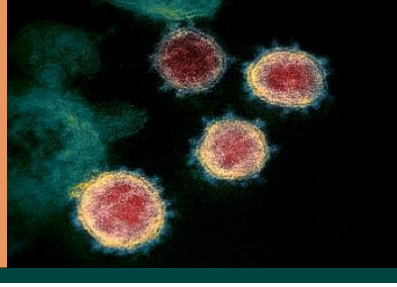


COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• August 4, 2020 •



FEATURED

- Research evidence
- 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

CONTACT RAEB

Anne Hayes, RAEB Director
Andrea Proctor, Evidence Synthesis
Emre Yurga, Economic Analysis and Evaluation
Erika Runions-MacNeil, Research Planning and Management

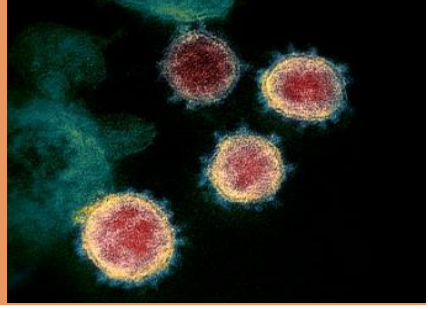
RESEARCH EVIDENCE

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

- **Evaluation of COVID-19 vaccine in primates**
  July 28, 2020. A study evaluated the efficacy of a messenger RNA (mRNA) vaccination in eight primates. After receiving the vaccination and being exposed to the COVID-19 virus, there was no viral replication detectable in any of the animals' noses, and limited inflammation or detectable viral genomes or antigens were identified in animals' lungs. *Read*.
- **Time is of the essence: Containment of COVID-19 in Switzerland**
  July 25, 2020. A modelling study (preprint) in Switzerland assessed how the timing of non-pharmaceutical interventions (NPIs) influences the dynamics of COVID-19. Results suggest that one week of early exponential spread of COVID-19 required 3.1 weeks of lockdown to reduce the number of infections to the same level, and that March 2020 NPIs (closing schools and shops, prohibiting gatherings) prevented thousands of COVID-19 deaths in Switzerland. *Read*.
- **The Global Health Security (GHS) Index and COVID-19 responses**
  July 25, 2020. In November 2019, the GHS Index was released as the first detailed assessment and benchmarking of 195 countries to prevent, detect, and respond to infectious disease threats. A study found a discrepancy between the GHS index rating of four indices (i.e., total cases, total deaths, recovery rate, and total tests performed) and the actual performance of select countries during the pandemic, with an overestimation of the preparedness of some countries scoring highly on the GHS index and underestimation of the preparedness of other countries with relatively lower scores on the GHS index. *Read*.
- **Effective contact tracing for COVID-19: A systematic review**
  July 25, 2020. Observational and modelling studies suggest that contact tracing is associated with better control of COVID-19. Its effectiveness likely depends on a number of factors, including how many, and how fast, contacts are traced and quarantined, and how effective quarantines are at preventing further transmission. A cautious interpretation suggests that to stop the spread of COVID-19, public health practitioners have two to three days from the time a new case develops symptoms to isolate the case and quarantine at least 80% of its contacts, and that once isolated, cases and contacts should infect zero new cases. *Read*.

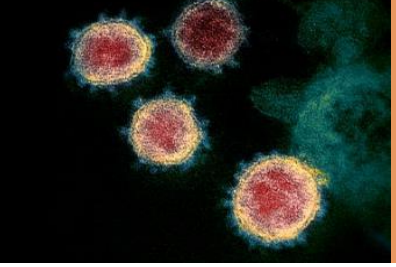
RESEARCH EVIDENCE cont'd

- COVID-19 mortality is negatively associated with test number and government effectiveness
  July 24, 2020. A study, based on data comprising 169 countries, suggested that increasing COVID-19 testing, improving government effectiveness (i.e., capacity to formulate and implement sound policies to tackle the outbreak), and increasing hospital beds may have the potential to attenuate COVID-19 mortality. *Read*.
- Ecology and economics for pandemic prevention
  July 24, 2020. A study assessed the cost of monitoring and preventing zoonotic disease spillover, which is driven by the unprecedented loss of tropical forests and the burgeoning wildlife trade, and estimated that the costs of zoonotic pandemic prevention strategies for 10 years is approximately 2% of the costs of the COVID-19 pandemic. *Read*.
- Hydroxychloroquine with or without azithromycin in COVID-19
  July 23, 2020. A randomized controlled trial involving 667 hospitalized patients in Brazil with confirmed or suspected mild-to-moderate COVID-19 examined the efficacy of hydroxychloroquine and azithromycin. The study suggested that the use of hydroxychloroquine, alone or with azithromycin, did not improve clinical status at 15 days compared with standard care (i.e., routine tests, addition of ventilatory support measures, as well as use of glucocorticoids, other immunomodulators, antibiotic agents, and antiviral agents). *Read*.
- Neonatal management and outcomes during the COVID-19 pandemic
  July 23, 2020. A study on neonates born to mothers testing positive for SARS-CoV-2 at delivery in three New York City hospitals suggested that perinatal transmission of COVID-19 is unlikely to occur if correct hygiene precautions are undertaken (e.g., wear a surgical mask and practice proper hand hygiene before contact with neonates), and that allowing neonates to room in with their mothers and direct breastfeeding are safe. *Read*.
- COVID-19 — Implications for the US health care system
  July 22, 2020. A commentary noted that COVID-19 has spawned four intertwined health care crises in the US health care system, including: undermined insurance coverage due to a sudden surge in unemployment, deep financial losses for health care providers, substantial racial and ethnic disparities in COVID-19 impacts, and a crisis in public health. The country's ability to cope with future epidemics and serve the basic health care needs of Americans could be improved with federal policy reform, and other changes. *Read*.
- The key to China's virus-control campaign
  July 21, 2020. A study in China and the US compiled a database of serial intervals of COVID-19 (i.e., the time between illness onset in successive cases in a transmission chain) in mainland China demonstrating that mean serial intervals shortened substantially from 7.8 to 2.6 days between January 9 to February 13, 2020. The study concluded that the change is driven by enhanced non-pharmaceutical interventions, especially case isolation. *Read*.



RESEARCH EVIDENCE cont'd

- Possible vertical transmission of COVID-19
  July 21, 2020. A systematic review noted possible vertical transmission, where 17 newborns tested positive for COVID-19 across 50 studies (i.e., three neonates had elevated SARS-CoV-2 Immunoglobulin G (IgG) and Immunoglobulin M (IgM) levels, eight had placental tissues testing positive for the virus, three had positive RT-PCR test results of breast milk, and one had amniotic fluid testing positive). The study further suggested that more tests on amniotic fluid, placenta, breast milk, and cord blood are required. *Read*.
- Proportion of asymptomatic cases of COVID-19
  July 21, 2020. A systematic review of 41 studies including 50,155 confirmed COVID-19 cases in China estimated the proportion of asymptomatic patients to be approximately 15.6%. Nearly half of the patients with no symptoms at the time of detection developed later (i.e., 48.9% were pre-symptomatic at the time of testing). *Read*.
- Newfoundland and Labrador perspective – Is it safe to lift COVID-19 travel bans?
  July 18, 2020. A modeling study (preprint) in Newfoundland and Labrador predicted that upon full reopening of their border, every other day, a new COVID-19 case would enter the province. The study suggested that under current conditions, banning air travel from outside Canada is more efficient in managing the pandemic than fully reopening and quarantining 95% of the incoming population. *Read*.
- German study shows low COVID-19 infection rate in schools
  July 17, 2020. A study assessed the role of students and teacher in the transmission of the SARS-CoV-2 in Saxony, Germany and noted that after reopening of schools in May, only 0.6% of 2,000 school children and teachers tested positive for antibodies to COVID-19, suggesting that in low prevalence settings, social distancing strategies such as the reduction of students in different classes mixing at school, paired with symptom-based screening strategies, contact tracing, and quarantine measures, are likely as effective as full school closures. *Read*.
- Impact of mitigation strategies and underreporting of cases in South Korea, Italy, and Brazil
  July 2020. A modeling study revealed that effective social distancing and isolation policies, border control, and a high percentage of cases being reported helped South Korea to control the disease. In contrast, underreporting of cases was estimated to be very high in Brazil and Italy. In addition, the model estimated a poor isolation policy in Brazil, with a reduction of contact around 40%, whereas Italy and South Korea estimated numbers for contact reduction at 75% and 90%, respectively. *Read*.



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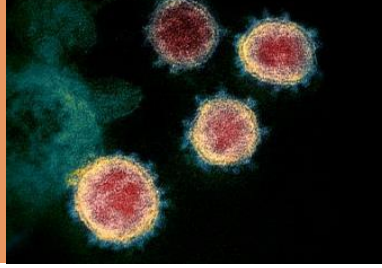

JURISDICTIONAL EXPERIENCE

- **Scaling up staffing roles in case investigation and contact tracing**
  July 24, 2020. The Centers for Disease Control and Prevention in the US describes the roles and responsibilities of key public health staff to support COVID-19 case investigation and contact tracing. To be most effective, these activities require staff with adequate training, language skills, cultural sensitivity, supervision, and access to social and medical support for clients and their contacts. *Read*.
- **The impact of the COVID-19 pandemic on families with children**
  July 22, 2020. A rapid review by the National Collaborating Centre for Methods and Tools (McMaster University, Ontario) provides insight into the experiences of families during the COVID-19 pandemic with evidence related to caregivers' employment and division of household labour, and the mental health and well-being outcomes of parents and children. Overall, evidence points to strain on families, especially for female caregivers and children, including reduced working hours for women with children and declining mental health outcomes for children. *Read*.
- **Rapid scaling up of COVID-19 diagnostic testing in the US — The NIH RADX initiative**
  July 22, 2020. In April 2020, Congress appropriated USD $1.5 billion to the National Institutes of Health (NIH) to increase national testing capacity for COVID-19. The NIH established the Rapid Acceleration of Diagnostics program (RADx) to support the development and deployment of accurate, rapid tests. Among the goals of RADx is to increase testing capacity to approximately 2% of the US population (6 million persons) per day by December 2020. *Read*.
- **Overview of new COVID-19 tests**
  July 17, 2020. An article summarized the variety of COVID-19 diagnostic tests, including RT-PCR (gold standard), and novel tests that remain in development around the world. The number of samples in one run, the time per run, and the accuracy of each test are included. *Read*.

TRUSTED RESOURCES

- The Evidence Synthesis Network (ESN) is a collaborative COVID-19 response initiative by Ontario's research and knowledge production community, focused on delivering timely synthesized research evidence. The ESN's website (esnetwork.ca) serves serves as a portal where research evidence requests can be submitted to the ESN; the website also and includes previously completed Evidence Synthesis 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.

* 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*