

COVID-19 PANDEMIC – RAEB'S EVIDENCE UPDATE

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

• April 20, 2020 •

FEATURED

- Rapid responses for Ontario's health sector
- 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

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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.

• Efficacy and Safety of Commercial N95 Masks and Face Shields

The US Food and Drug Administration recently authorized the use of NIOSH-approved air purifying respirators in health care settings during the response to the COVID-19 public health emergency. The ECRI Institute supports this [see infographic], as does Health Canada.

Beyond Expiry Date from Long Term Storage	Non-clinical NIOSH Masks	Reuse - UV Disinfected Masks	Reuse Vaporized Hydrogen Peroxide Decontaminated Masks	Reuse - Other Reprocessed Masks	Homemade Masks
OK	OK	OK As Last Resort	OK As Last Resort ASP Battelle	NO Being investigated	NO

In a [video](#) released on

March 25, 2020, ECRI addresses considerations surrounding the N95 respirator shortage, and recommends the non-clinical use of NIOSH masks. A [report](#) from Health Canada suggests that health care providers use commercial-grade N95 masks in a health care setting during the COVID-19 outbreak if alternatives are not available. Commercial- and medical-grade N95 respirators are of similar structure and design; however, the manufacturing setting and the quality management system applied may differ. Commercial N95 respirators are not tested for fluid resistance of any type. To expand the availability of N95 respirators during the pandemic, equivalent alternate standards may also be acceptable, including those that are approved or certified under standards used in other countries that are similar to NIOSH-approved N95 respirators. For example, this includes KN95 respirators (including those with head straps or ear loops) that meet standards GB 2626-2006, GB 2626-2019, and GB 19083-2010. The Government of Canada has developed [detailed specifications](#) for personal protective equipment such as disposable N95 respirators.

• Conserving, Re-using, and Re-Purposing Masks in COVID-19

Health care institutions are facing shortages of PPE – including N95 face masks – that health care workers need to treat COVID-19 patients. Currently, mask reprocessing methods using UV, heat/microwave, and chemical decontamination are available, each with limitations. The scientific consortium, [N95Decon](#), has released technical reports and guidelines for using three recommended methods of N95 decontamination: 1) heat; 2) ultraviolet C; and, 3) hydrogen peroxide vapour treatments. N95Decon's recommendations align with those provided by the Office of the Chief Science Advisor of Canada and the US Center for Disease Control.

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.

- **Inadequate precautions and insufficient protection may have resulted in deaths of health care workers in China**
[April 15, 2020](#). As of February 24, 2020, 4.4% of all COVID-19 patients were health care workers, and 23 of them died after being infected, potentially due to inadequate precautions and insufficient protection in the early stages of the epidemic. [Read](#).
- **Evidence-based guidance for compassionate care during the COVID-19 pandemic**
[April 14, 2020](#). Medical experts are calling for evidence-based national guidance in modern compassionate care during the pandemic. Some guidance currently exists, such as [VitalTalk](#), a 'playbook' that was developed to support health care professionals in having difficult but necessary conversations related to COVID-19. [Read](#).
- **Projecting the transmission dynamics of SARS-CoV-2 through the post-pandemic period**
[April 14, 2020](#). A US-based study used mathematical modelling to project that recurrent wintertime outbreaks of COVID-19 will probably occur after the initial, most severe pandemic wave, suggesting prolonged or intermittent social distancing may be necessary into 2022. [Read](#).
- **Universal screening for SARS-CoV-2 recommended for pregnant women admitted for delivery**
[April 13, 2020](#). Drawing on patient data collected between March 22-April 4, 2020, medical experts from the New York-Presbyterian Allen Hospital and Columbia University Irving Medical Center recommend universal SARS-CoV-2 testing among all pregnant patients admitted to labour and delivery. [Read](#).
- **WHO resource tracks the development of a COVID-19 vaccine**
[April 10, 2020](#). The WHO is curating a [list of vaccine candidates](#), of which two are currently undergoing clinical evaluation: an adenoviral vector-based approach by CanSino Biological Inc. and the Beijing Institute of Biotechnology, and an RNA product by Moderna Inc. and the US National Institute of Allergy and Infectious Diseases. [Read](#).
- **Public health interventions associated with the epidemiology of the COVID-19 outbreak in Wuhan**
[April 10, 2020](#). A series of multifaceted public health interventions (i.e., cordons sanitaire, traffic restriction, social distancing, home confinement, centralized quarantine, and universal symptom survey) implemented between December 8, 2019 and March 08, 2020 was temporally associated with improved control of the COVID-19 outbreak and may inform public health policy in other countries. [Read](#).
- **New population-scale COVID-19 diagnostics**
[April 8, 2020](#). Researchers propose LAMP-Seq, a barcoded Reverse-Transcription Loop-mediated Isothermal Amplification (RT-LAMP) protocol, could dramatically reduce the cost and complexity of population-scale testing. [Read](#).

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RESEARCH EVIDENCE cont'd

- **Alternative treatments for coronavirus**

[April 2020](#). The US National Institutes of Health suggests that there is no scientific evidence that any of the alternative remedies reported in the media (e.g., herbal therapies, teas) can prevent infection with COVID-19. In fact, some of them may not be safe to consume. [Read](#).

- **Relationship between the ABO blood group and COVID-19 susceptibility**

[March 27, 2020](#). Based on a comparison of ABO blood group distribution in 2,173 COVID-19 patients in three hospitals in China, blood group A was associated with a higher risk for acquiring COVID-19 compared with non-A blood groups, and blood group O was associated with a lower risk for the infection compared with non-O blood groups. [Read](#).

JURISDICTIONAL EXPERIENCE

- **Guidelines on caring for patients with cancer in the COVID-19 era**

[April 16, 2020](#). Seven cancer centers in Europe reported how they have organized their health care systems to make their operations 'pandemic proof', providing guidelines for other health systems and pinpointing critical research priorities to enable evidence-based remodeling of cancer care during the COVID-19 pandemic. [Read](#).

- **European tracing app skirts privacy issues**

[April 14, 2020](#). Germany, France, and other countries are developing contact tracing apps using [Pan-European Privacy Preserving Proximity Tracing](#), which relies on short-range Bluetooth signals to gauge the proximity between two devices without logging their exact locations. [Read](#).

- **US national plan for COVID-19 case finding and contact tracing**

[April 10, 2020](#). Johns Hopkins' Center for Medical Security issued a national plan that estimates the need for approximately 100,000 (paid or volunteer) additional public health workers across the US to trace all contacts, safely isolate the sick, and quarantine those exposed. This would require Congress to approve approximately USD \$3.6 billion in emergency funding to state and territorial health departments. [Read](#).

- **FDA approves mass sterilization of surgical masks for re-use**

[March 29, 2020](#). To combat shortages of personal protective equipment, the US Food and Drug Administration approved non-profit Battelle's request to sterilize N95 masks using their Critical Care Decontamination System™ at maximum capacity of 80,000 masks per day. [Read](#).

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TRUSTED RESOURCES

Newly identified evidence sources on COVID-19 are profiled below. An up-to-date and comprehensive list of sources, organized by type of research evidence, is available on McMaster Health Forum's [website](#).

- **Ontario Health's Quality Business Unit** publishes [rapid health technology assessments](#) on COVID-19-related topics.
- **ICES** [features](#) its scientists in the news regarding COVID-19, and also profiles its past publications on the 2003 SARS outbreak.
- **The Ontario Hospital Association** developed a [resource page](#) to profile notable research and news updates related to COVID-19 from local and international sources according to various areas of focus.
- **The King's Fund** has created [Leading through Covid-19](#), a collection of quick-read practical guides and videos, which is updated weekly, to support leaders across the health care system.
- **The Norwegian Institute of Public Health** updates a living [evidence map](#) of human studies organized by eight areas of focus.
- **L*VE by Epistemonikos** profiles existing [systematic reviews](#) of effects and the primary studies, including trials, that were included in the reviews.
- **The Alliance for Health Policy and Systems Research** is supporting [Embedded Rapid Review \(ERA\) Platforms](#) in collaboration with local decision-making institutions in four countries (India, Georgia, Lebanon, South Africa).
- **Systematic Reviews for Animals and Food (SYREAF)** undertook a [rapid review](#) about pets and livestock. As little evidence was available on COVID-19, other human coronaviruses, SARS and MERS, were also assessed.

* 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*