

Ministry of Health COVID-19 Challenge Questions Expression of Interest

Ministry of Health

Expression of Interest

COVID-19 Challenge Questions Initiative

Before You Begin

Thank you for your interest in the COVID-19 Challenge Question Initiative, managed by the Ontario Ministry of Health. The objective of the COVID-19 Challenge Question Initiative is to connect researchers and knowledge users to accelerate the generation and translation of research and data analytic insights into actionable responses to the COVID-19 pandemic.

Researchers are requested to submit one Expression of Interest (EOI) per Challenge Question they plan to address. There are no limits to the number of EOIs you can submit. You can submit multiple EOIs.

EOI's are accepted on a rolling basis; there is no submission deadline. The EOI is required to participate in the Challenge Questions Initiative.

Please note that the COVID-19 Challenge Questions Initiative is not a research grant funding opportunity. It is an opportunity for integrated knowledge translation. Expressions of Interest to the Challenge Questions should have enough funding to undertake the work.

All information requested below is required.

The EOI is used to link researchers with the appropriate Ministry of Health knowledge users and to invite researchers to participate in a Challenge Questions Research Team. When you have completed your analysis, you will be asked to submit your Challenge Question answer using the Challenge Question Summary of Findings form. This form will be assessed by the Ministry of Health for its ability to convey findings to a policy maker, how well it adds to our understanding of the issue, and the feasibility or actionability of guidance provided.

Notification to collect personal information

The Ministry of Health (the Ministry) is subject to the Freedom of Information and Protection of Privacy Act (FIPPA), which governs how the Ministry collects, uses and discloses personal information.

Any personal information that you provide in the course of completing an Expression of Interest (the Personal Information) for the COVID-19 Challenge Question Initiative (Initiative) is collected by the Ministry as it is necessary for the proper administration of the Initiative and posting your EOI on the Ontario Health Data Platform microsite.

The Ministry's authority to collect the Personal Information complies with section 38(2) of FIPPA. If you have any questions about the collection of your Personal Information for the Purposes of the Initiative, please contact: ResearchUnit@ontario.ca.

Consent Statements

By submitting this application,

I agree that the Ministry may disclose Personal Information that I provided in my Expression of Interest form, where necessary, to those individuals and institutions involved in processing and evaluating my Expression of Interest and for matching me with knowledge users.

I agree to the Ministry publishing my name, institution, and plain language summary about my project on the Ministry of Health website and any internal OPS knowledge sharing platform.

I have read and understood this form

Date Completed: _____

Research Area:

Please select your Challenge Question's corresponding Research Area.

- Vaccination Strategy
 - Therapeutic Treatment Options and Outcomes
 - Pandemic Waves
 - Testing and Surveillance Strategies
 - Population Level Prevention and Containment Strategies
 - Health System Resourcing
 - Health Equity and Vulnerable Populations
-

Vaccination Strategy:

This research area assumes that a COVID-19 vaccine will become available in 2021. The research area will focus on informing an optimal COVID-19 vaccination strategy, including determining factors critical to vaccine targeting, messaging, access, roll-out, across the population to ensure efficient use of vaccine doses and minimized wastage.

All analyses should include consideration of population sub-groups for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faith communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Vaccination Strategy:

Please select the challenge question you will be answering.

- What are the factors critical to vaccine targeting, especially if vaccine supplies are initially insufficient for the entire population? What are potential criteria for prioritized early access and strategies for reaching these groups? Analysis should consider the expected vaccine timing, type, schedule, and supply, and population sub-groups that may increase the risk of COVID-19 transmission.
 - What are the key factors influencing vaccine uptake and coverage across the population? What are the drivers of vaccine hesitancy? How can we improve vaccine coverage?
 - What are the factors influencing access to COVID-19 and influenza vaccination? Analysis should consider changes in how people access their primary care practitioner. How can we improve access to both COVID-19 and influenza vaccination?
 - What is the relationship between COVID-19 vaccination status and broader health outcomes including COVID-19? What is the relationship between COVID-19 and influenza vaccination status, and broader health outcomes including COVID-19 and influenza?
 - How effective is the COVID-19 vaccine and how long does the conferred immunity last at population level? Does COVID-19 vaccination improve the broader health impacts of COVID-19 at the population level? Analysis should consider the expected vaccine timing, type schedule, and supply.
 - How does vaccination coverage, as well as the efficacy and safety profile of the vaccine, influence the need for ongoing surveillance testing?
-

Therapeutic Treatment Options and Outcomes:

This research area will focus on better understanding the relative efficacy and effectiveness of various therapeutic treatment options including drugs, and appropriate use of therapeutics to mitigate impact of the virus. Analysis should consider improving the supply chain for, and access to, various therapeutic treatment options.

All analyses should include consideration of population sub-groups for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faith communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Therapeutic Treatment Options and Outcomes:

Please select the challenge question you will be answering.

- What is the relative efficacy and effectiveness of various therapeutic treatment options including therapeutic drugs and other forms of treatment? What are the factors influencing the relative efficacy and effectiveness of various therapeutic treatment options at population level? How can we improve clinical decision making regarding appropriate use of therapeutic drugs?
 - Can we predict the ideal mix of therapeutic drugs that will be needed for purpose of planning and resource allocation? Analysis should consider expected timing and supply of various therapeutics.
 - What is the most cost-effective approach to the use of therapeutics to mitigate population level impacts of COVID-19?
-

Pandemic Waves:

This research area will focus on improving our ability to predict the trajectory of COVID-19, understanding multiple COVID-19 waves, its interactions with influenza, and the relative impacts of various public health measures at the population level.

All analyses should include consideration of population, for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faith communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Pandemic Waves:

Please select the challenge question you will be answering.

- Can we better predict the trajectory of COVID-19 across multiple pandemic waves? What are the drivers of future pandemic waves?
 - What is the impact on pandemic waves of interactions between COVID-19 and influenza and/or other respiratory illnesses?
 - What is the relative impact of various public health measures on COVID-19 pandemic waves over time? How does compliance with public health measures at the population level affect future pandemic waves?
 - What is the potential impact of COVID-19 vaccination on future pandemic waves?
 - What impact does restarting the health system have on future pandemic waves?
 - Are there population characteristics or other risk factors that can predict where COVID-19 outbreaks are more likely to begin and expand quickly?
-

Testing and Surveillance Strategies:

This research area will focus on better understanding the best mix of population level testing and surveillance strategies including symptomatic testing alongside passive, active, sentinel and syndromic surveillance approaches. Areas of interest include analysis of various types of tests, testing levels and targeting strategies.

All analyses should include consideration of population sub-groups, for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faith communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Testing and Surveillance Strategies:

Please select the challenge question you will be answering.

- What is the ideal testing strategy (including testing in people with and without symptoms and with and without known exposures) to mitigate and contain the pandemic, while minimizing unnecessary testing and inefficiencies? What is the relative efficacy and effectiveness of various testing approaches in relation to mitigating the spread of COVID-19? What is the relative cost effectiveness of various testing approaches? Who should we test, how should we test, and where should we test? What proportion of the population are willing to be tested? What is the proportion already being tested routinely? What factors influence an individual's willingness to get tested?
- What is the efficacy and effectiveness of testing outside of the context of known exposures (i.e., not in an outbreak and not for contacts of a case), considering test sensitivities, testing frequency, test turnaround time, and inter-laboratory variability? What is the symptomatic testing capacity required for COVID-19 pandemic wave surges and peaks? Where is the best yield for asymptomatic or surveillance testing in relation

to mitigating spread? What is the best targeting strategy for asymptomatic testing and surveillance? What is the ideal frequency of testing outside of the context of known exposure to reduce the chance of outbreaks in high risk settings?

- What would be the impact of changing PCR test thresholds for screening asymptomatic low prevalence populations vs. diagnostic testing in higher risk populations?
 - How does turn-around-time of COVID-19 test results influence the spread of COVID-19 and efficiency of contact tracing?
-

Population Level Prevention and Containment Strategies:

This research area will focus on informing the most efficient and effective prevention and containment, including closing and re-opening strategies, understanding the interactions between various strategies, and compliance with prevention containment strategies in different settings, and among different population groups. Analysis should consider the required conditions for various stages of closing and re-opening, the interdependencies, and the health and well-being impacts of closing and re-opening.

All analyses should include consideration of population sub-groups, for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faitn communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Population Level Prevention and Containment Strategies:

Please select the challenge question you will be answering.

- What are the unintended consequences of the COVID-19 prevention and containment measures in Ontario and their associated impact?
 - What are the most effective prevention and containment strategies to maintain opening of various sectors (including daycares, various levels of school and various business sectors)? What is the ideal mix of prevention and containment strategies? What are the most cost-effective prevention and containment strategies?
 - What are the factors to consider in determining whether to close or re-open various sectors (e.g., returning to Stage 1 or 2)?
 - What size and composition of cohorts/bubbles/social circles should be recommended to prevent and contain COVID-19 cases, in various settings, under different circumstances?
 - What are the key factors influencing compliance/adherence with prevention and containment strategies? Are there mitigating population characteristics that may inform compliance/adherence strategies, but also function to undermine them, that should be considered with any strategies?
 - What are the most critical factors influencing COVID-19 transmission at schools or daycares? Does school classroom characteristics/size influence COVID-19 spread? If so, how?
 - Is there an optimum number of case manager/contact tracers required to effectively trace and isolate all new COVID-19 cases and their close contacts? What is the number required for each position in relation to new cases each day?
-

Health System Resourcing:

This research area will focus on informing health system resourcing needed during surges and peaks, understanding of demands and impact on the broader health system and the related non-COVID-19 impacts.

All analyses should include consideration of population sub-groups, for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faitn communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Health System Resourcing:

Please select the challenge question you will be answering.

- What is the ideal level of health system resourcing to respond safely and effectively to surges / peaks in COVID-19 (i.e., PPE, HHR, ICU beds, ventilators, testing, non-ICU beds, drug supply, home monitoring requirements)? How can we best calibrate the response to specific neighborhoods experiencing outbreaks?
- What are the implications of COVID-19 response for non-COVID-19 health system resourcing needs? What are the implications for health and mental health demand, costs, and/or funding required? What are the implications for preventative care (e.g., cancer screening)? What is the impact of patient volumes entering emergency departments since they are unable to be seen by primary care due to lack of PPE?
- What do we understand of the medium and long-term health impact of COVID-19 (e.g., increased cardiac disease, neuropathies, mental health implications, testing and diagnosis, respiratory conditions requiring

oxygen) and what will be the future pressures on the health system (e.g., rehab, home care, complex continuing care)?

Health Equity and Vulnerable Populations:

This research area will focus on identifying and mitigating disproportionate impacts on populations vulnerable to COVID-19. Vulnerable populations in the context of the COVID-19 pandemic include those with specific needs and accommodations before/during/after, include consideration of population sub-groups, for example: sex, gender, and sexual orientation; people with high risk clinical characteristics; people with physical and/or mental health disabilities; Indigenous peoples and communities; immigrants and refugees; ethno-racial communities; Francophone communities; linguistic communities; religious/faith communities; homeless people; people living on a low income; people receiving social assistance; people using drugs; and people living in rural/remote or inner urban areas.

Challenge Questions - Health Equity and Vulnerable Populations:

Please select the challenge question you will be answering.

- What are the specific, quantifiable impacts of COVID-19 on populations vulnerable to COVID-19? What are the specific impacts of COVID-19 on vulnerable populations? What are the specific factors that influence or predict vulnerability as it relates to COVID-19 (e.g., clinical, sociodemographic, environmental, immunological, biochemical)? What are the non-COVID-19 impacts of COVID-19 for these populations (e.g., social determinants, broader health outcomes)? How has COVID-19 impacted access to care and treatment for conditions such as HIV or hepatitis C for vulnerable populations?
 - How can we best mitigate disproportionate impacts of COVID-19 on vulnerable populations and promote health equity?
 - Has COVID-19 exacerbated the ongoing opioid overdose problem? What are the impacts of COVID-19 on the opioid overdose problem? How is risk best mitigated for people who use drugs in the context of both COVID-19 and the opioid overdose crisis?
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Project Title:

Please provide up to three high level plain language summary bullets of project objective and/or, anticipated result / outcome of the project:

Description of Approach (750 words maximum):

Provide a brief description of your approach to answering the question (e.g. methodology, data sets used, analytical approach, etc.)

Timeline (250 words maximum):

Please include a description of your timeline (e.g. when do you expect to have results to provide an answer to your selected question and your Summary of Findings to the Ministry of Health).

Challenge Questions Stream:

Please select your Challenge Questions Stream.

- OHDP Stream - Answering CQ with OHDP data
- General Stream - Answering CQ with other data sources

OHDP Application Status:

Please indicate the status of your OHDP application.

- I have started my OHDP Application or already submitted it
- I will be applying for access to OHDP (Application available here)

Ministry of Health
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Principal Investigator Contact Details:

Please enter your contact information below.

First / Given Name:

Last / Family Name:

Email Address:

Confirm Email Address:

Please double check the emails entered. Emails do not match.

Telephone:

Job Title:

Institution:

- Acadia University
- Algoma University
- Baycrest Centre for Geriatric Care
- Brescia University College
- Brock University
- Canadian Blood Services
- Canadian Memorial Chiropractic College
- Canadore College
- Cancer Care Ontario
- Carleton University
- Children's Hospital of Eastern Ontario
- Conestoga College Institute of Technology and Advanced Learning
- Élisabeth Bruyère Research Institute Inc.
- Fraser Health Authority
- Health Sciences North
- Holland Bloorview Kids Rehabilitation Hospital
- Hospital for Sick Children
- Institute for Work & Health
- Institute of Naturopathic Education and Research (Canadian College of Naturopathic Medicine)
- IWK Health Centre
- King's University College
- Kingston Health Sciences Centre
- Lakehead University
- Laurentian University of Sudbury
- London Health Sciences Centre Research Inc.
- McMaster University
- National Association of Friendship Centres
- Native Women's Association of Canada
- Nipissing University
- North York General Hospital
- Ontario Agency for Health Protection and Promotion
- Ontario HIV Treatment Network
- Ontario Institute for Cancer Research
- Ontario Shores Centre for Mental Health Sciences
- Ottawa Heart Institute Research Corporation
- Ottawa Hospital Research Institute
- Queen's University
- Royal Military College of Canada
- Ryerson University
- Saint Paul University
- Sheridan College
- Sinai Health System
- Sunnybrook (SHSC) Research Institute
- Thames Valley Children's Centre
- The Centre for Addiction and Mental Health
- The First Nations Information Governance Centre
- Thunder Bay Regional Health Research Institute
- Trent University
- Trillium Health Partners
- Unity Health Toronto
- University Health Network
- University of Guelph
- University of Ontario Institute of Technology
- University of Ottawa
- University of Ottawa Institute of Mental Health Research
- University of Toronto
- University of Waterloo
- University of Western Ontario
- University of Windsor
- Wellesley Institute
- Wilfrid Laurier University
- Women's College Hospital
- York University
- Other

(Type to begin searching. Please enter Other if your institution is not listed.)

Other Institution: _____

Department: _____

Institution's Address: _____

City: _____

- Province:
- Alberta
 - British Columbia
 - Manitoba
 - New Brunswick
 - Newfoundland and Labrador
 - Northwest Territories
 - Nova Scotia
 - Nunavut
 - Ontario
 - Prince Edward Island
 - Quebec
 - Saskatchewan
 - Yukon

Postal Code: _____

- Team:
- Please indicate how many members will be on the team supporting the work on the question.
- 0
 - 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10

Team Member 1: _____

First Name: _____

Last Name: _____

Institution: _____

Email Address: _____

Team Member 2: _____

First Name:

Last Name:

Institution:

Email Address:

Team Member 3:

First Name:

Last Name:

Institution:

Email Address:

Team Member 4:

First Name:

Last Name:

Institution:

Email Address:

Team Member 5:

First Name:

Last Name:

Institution:

Email Address:

Team Member 6:

First Name:

Last Name:

Institution:

Email Address:

Team Member 7:

First Name:

Last Name:

Institution:

Email Address:

Team Member 8:

First Name:

Last Name:

Institution:

Email Address:

Team Member 9:

First Name:

Last Name:

Institution:

Email Address:

Team Member 10:

First Name:

Last Name:

Institution:

Email Address:

Attestation:

I certify that the information submitted in this Expression of Interest form and any attachments is true, complete and accurate to the best of my knowledge.

Challenge Questions Initiative ID:

Below is your Challenge Questions Initiative ID (CQI ID). Please keep this ID for your records, you will need to enter it on your OHDP application. This ID will also be included in the email confirmation you will receive.

CQI ID:
