

# Applying Behavioural Science to the Government of Canada's Response to COVID-19

Progress Update: COVID-19 Vaccine Intentions Research

September 11, 2020



Government  
of Canada

Gouvernement  
du Canada

Canada

# Overview

Over the past several weeks, significant progress has been made on our research applying insights and approaches from Behavioural Science to understanding and driving COVID-19 vaccination intentions. This brief will present the following:

1. **Background and methods:** The pressing need to understand and drive intentions to be vaccinated, and our approach to generating and testing promising behaviourally-informed strategies
2. **Findings and Insights:** Key insights and findings regarding intentions to be vaccinated and factors to drive them
3. **Next Steps:** Upcoming efforts to design and test high-performing communications approaches and messages





# Background and Methods

**1** Background  
and Methods

**2** Findings  
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## While a majority of Canadians say they intend to get a COVID-19 vaccine, not all do

- Multiple large-scale national studies, including the COSMO Canada study, have shown that, while a majority of Canadians say they intend to get the COVID-19 vaccine, many are still hesitant:
  - COSMO Canada: 64% say they would get a COVID-19 vaccine and 11% say they would not (July 22)
  - Angus Reid Poll: 78% say they would get a COVID-19 vaccine 14% say they would not (July 24)
  - Ekos Risk Monitor: 72% say they would get a COVID-19 vaccine and 24% say they would not (July 25)
- To effectively move the needle, we must identify **who these hesitant individuals are** and **generate a fuller understanding of their concerns** (i.e. statistically significantly related factors associated with hesitation) in order to build a robust, effective, and data-driven strategy for building trust and confidence and intentions to be vaccinated.



## Our objectives and outcomes use insights and approaches from BeSci to understand why and develop solutions

- Leveraging insights and methods from behavioural science (BeSci), our objectives are to:
  - Identify key segments of the population that are currently unlikely to get a COVID-19 vaccine and are influenceable (**the moveable middle**)
  - Identify informational and behavioural barriers and drivers of intentions to be vaccinated within these segments (and others)
  - Design and test evidence-based messages and communications approaches to identify those with greatest intentions to be vaccinated - particularly among hesitant segments - that could be implemented on a broad scale
- In support of these objectives we are working through a program of research with various partners (details in Annex A), whose findings will:
  - Add depth and granularity to our understanding of vaccine hesitancy in Canada,
  - Identify factors associated with COVID-19 vaccine hesitancy among Canadians,
  - Point to promising strategies for effective messaging regarding the COVID-19 vaccine, and
  - Reveal new lines of inquiry ripe for additional research

## Background and Methods

# Progress to Date

Under this program of research, to date, we have:

1. **Progressively increased the quantity and depth of vaccination-related questions in the COSMO Canada Study** across seven longitudinal waves in close collaboration with our internal partners, in particular;
2. **Completed and collated several reviews of the BeSci literature**, including examination of the relationship between trust/transparency in government and vaccination uptake; and
3. **Fielded an exploratory online study (N = 850)** in close collaboration with our external partners. It measured beliefs, attitudes and past behaviour related to vaccination in general; knowledge about vaccines and the vaccine development process; fears or discomforts related to vaccination in general, and the COVID-19 vaccine in particular.





# Findings and Insights

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## Longitudinal Study

# COSMO Canada

In April 2020, the World Health Organization (WHO) released a suite of resources (collectively titled [the WHO Behavioural Insights Tool](#)) to support nations in continuously and effectively monitoring of knowledge, risk perceptions, and behaviour related to COVID-19.

Leveraging these tools, PCO has led **Canada's COVID-19 Snapshot Monitoring Study (COSMO Canada)** through eight waves of data collection (and counting). With each wave producing more than 3000 variables and tens of thousands of observations from a representative sample of over 2000 Canadians, it is the GC's most extensive COVID-19 longitudinal behavioural database.







## Reminder: COSMO Canada Findings

Overall, the percentage of Canadians who agree they would get a COVID-19 vaccine that was available and recommended for them has declined between March to May, but remained stable since May at around 63%.

Using advanced statistical modeling, including principal component analysis, we identified meaningful correlations:

- Certain **demographic characteristics are showing weak associations with vaccine confidence** -- e.g., while Canadians aged 18-34, people with income lower than \$40K, and Indigenous respondents are less likely to agree that they would be vaccinated, these characteristics do not explain much variation in reported intentions.
- Multiple **self-reported attitudes and behaviours are showing stronger associations** -- e.g. Canadians who follow recommended health behaviours, use traditional media sources, trust government and traditional media, worry about their personal/community's health and safety, and DO NOT feel that COVID-19 is overblown are more likely to agree they would be vaccinated. The converse is true for Canadians who are less likely to agree.
- Additionally, Canadians who **use social information sources (social media, friends and family) are less likely to agree they would be vaccinated**, indicating that social media and word of mouth strategies will be very important for designing an effective communications campaign.



## Reminder: COSMO Canada Findings (continued)

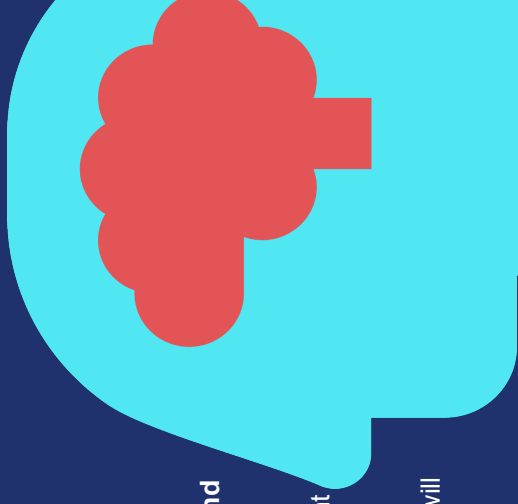
- Concerns around the lack of research and testing, the safety of a vaccine, and the newness of the vaccine have been the most prevalent reasons for not wanting to receive a safe vaccine once developed
- Additionally, 76% of Canadians agree that if a safe and effective vaccine is developed but there is not enough for everyone when it first becomes available, members of specific groups should be prioritized.
  - The most commonly identified groups for priority vaccination include the elderly, individuals with underlying medical conditions, healthcare workers and frontline/essential workers.
- Early analysis of our comprehensive mask-wearing data mirrors some of these patterns (i.e., certain characteristics predictive of vaccine hesitancy are also associated with low uptake of mask wearing)
  - This is beginning to reinforce and add nuance to our understanding of 'cynical spreaders', or individuals that disregard most, if not all, COVID-19 precautions

Latest Insights

## Vaccination Intentions Study #1

Using an online experimentation platform, we can **rapidly run 'deep-dive' explorations in priority areas, and rigorously test messaging using randomized controlled evaluation designs**. Our first of three vaccine studies is complete, and collected data from a representative sample of 850 Canadians on psychological and other drivers of COVID-19 vaccine hesitancy. Key population segments emerged and key features to highlight to build intentions were identified.

All insights will go onto to inform the development and testing of our second study – a messaging trial – that will test the impact of various communication strategies on vaccine intentions across segments.





## Index of Findings

### Part I: Intentions to be vaccinated

- Four primary segments
- Variation across key demographic characteristics
- Variations across perceptions of risk related to COVID-19

### Part II: Factors associated with intentions

- Knowledge of and confidence in the vaccine development, testing, and regulation
- Trust in scientists and elected officials

### Part III: Key features to highlight to build intentions and risks to consider

- Vaccine effectiveness, dosage, and origin
- Social norms and trusted messengers
- Risks: Novelty, origin, side effects



## Four primary segments

We identified four primary segments of Canadians based on their self-reported intentions to get a COVID-19 vaccine.

**If a COVID-19 vaccine became available to you, would you get it or not?**

| Strong Supporters                                                                                                                                                                                                    | Choice Deferrers                                                                                                                                                                                               | Hesitators                                                                                                                                 | Non-Supporters                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Yes</b></p> <p>I would get a COVID-19 vaccine as soon as it became available to me</p> <p><b>41%</b><br/>of the sample</p> |  <p><b>Yes</b></p> <p>I would get a COVID-19 vaccine, but would want to wait a bit*</p> <p><b>35%</b><br/>of the sample</p> |  <p><b>Unsure</b></p> <p><b>12%</b><br/>of the sample</p> |  <p><b>No</b></p> <p>I would not get a COVID-19 vaccine</p> <p><b>12%</b><br/>of the sample</p> |

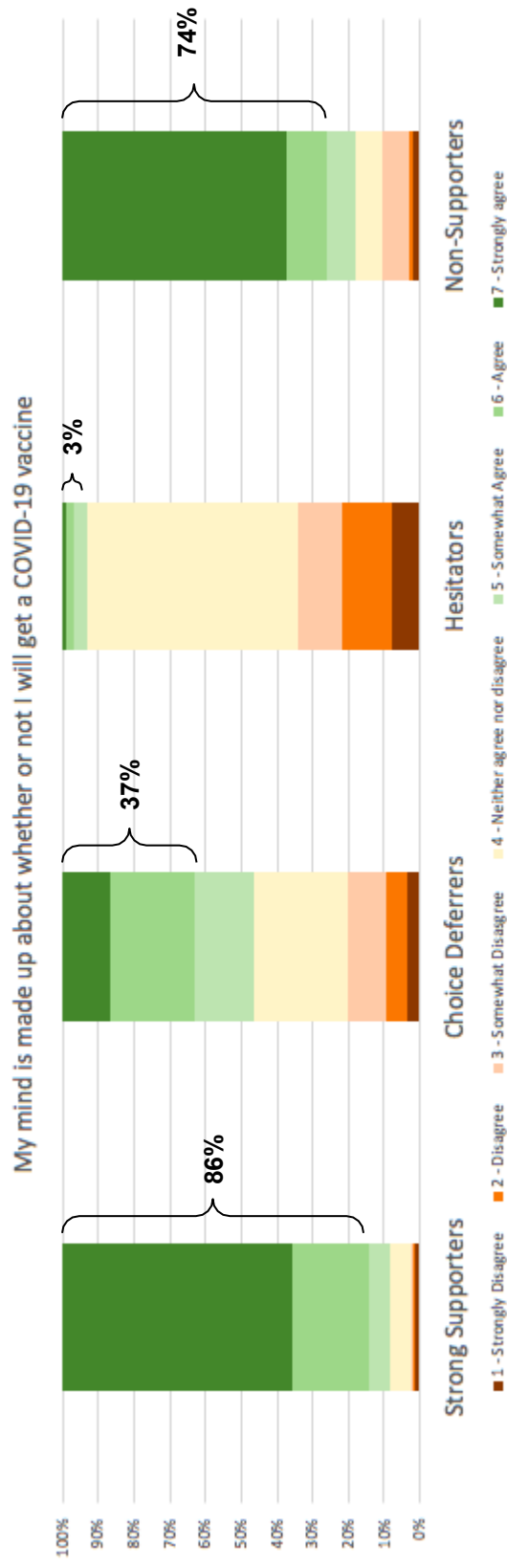
\*Of those that report they would want to wait a bit, 13% want to wait a few weeks, 41% want to wait 1-2 months, and 28% say they'd want to wait several months. 18% say they'd wait a year or more.



## Some segments have made up their minds, others have not

In the current sample, a majority of **Strong Supporters** (86%) and **Non-Supporters** (74%) agree or strongly agree that their minds are made up about whether or not they will get a COVID-19 vaccine, suggesting that they may be much less influenced by our efforts.

Dissimilarly, just 37% of **Choice Deferrers** and only 3% of **Hesitators** agree or strongly agree that their minds are made up. These segments are our “moveable middle” and may be our best targets for public engagement and education.





## Demographic variation across the segments

In the current sample, **Strong Supporters** tend to be older in age (55+,  $p < .001$ ). A large proportion of **Choice Deferrers** are between the ages of 18 and 34 ( $p < .001$ ), which is unique relative to other segments.

**Non-Supporters** are more likely to be women ( $p = .018$ ), and both **Non-Supporters** and **Hesitators** report significantly lower household incomes ( $p = .005$ ).

|                   | Age   |       |       | Gender |       | Household Income |                   |           |
|-------------------|-------|-------|-------|--------|-------|------------------|-------------------|-----------|
|                   | 18-34 | 35-54 | 55+   | Men    | Women | < 60,000         | 60,000 to 100,000 | > 100,000 |
| Strong Supporters | 30.6% | 30.1% | 39.3% | 56.4%  | 43.4% | 43.8%            | 30.7%             | 25.5%     |
| Choice Deferrers  | 45.5% | 26.8% | 27.8% | 47.2%  | 51.5% | 46.5%            | 30.6%             | 22.9%     |
| Hesitators        | 30.3% | 35.3% | 28.4% | 50.0%  | 50.0% | 62.2%            | 22.2%             | 15.6%     |
| Non-Supporters    | 32.7% | 41.3% | 26.0% | 40.2%  | 57.8% | 61.2%            | 23.3%             | 15.5%     |

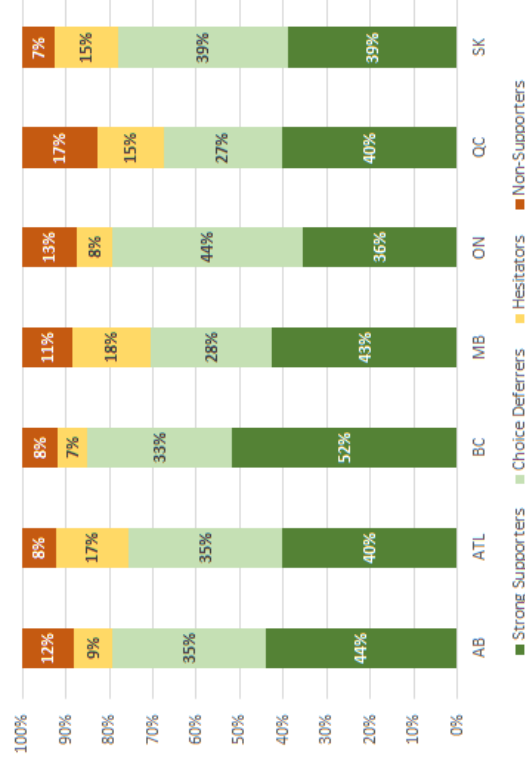


## Demographic variation across the segments

In the current sample, more than half of respondents in Ontario, Saskatchewan and the Atlantic provinces fall into ‘moveable middle’ segments (i.e., **Choice Deferrers** and **Hesitators**)

Segments vary by highest level of formal education completed. **Strong Supporters** are more likely to hold bachelor and postgraduate degrees. Conversely, **Non-Supporters** and **Hesitators** are more likely to have attained a high school diploma or less.

Regional Differences by Segment



Educational Differences by Segment



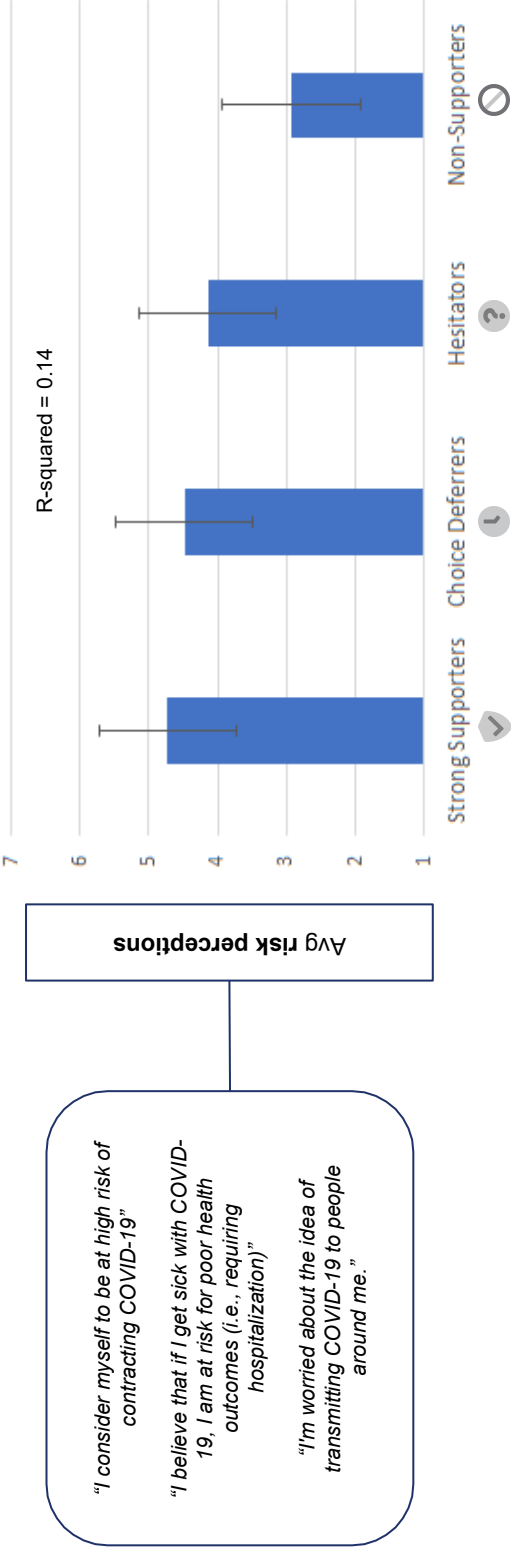




# Risk perceptions across the segments

On average, **Non-Supporters** hold significantly lower risk perceptions about COVID-19 relative to **Strong Supporters**, **Choice Deferrers**, and **Hesitators** ( $p < 0.001$ , respectively).

Specifically, **Non-Supporters** are less worried about transmitting COVID-19 to people around them, less likely to feel that are at risk of poor health outcomes if they become infected, and less likely to consider themselves to be at high risk of contracting COVID-19. **Hesitators** also hold significantly lower risk perceptions relative to **Strong Supporters** ( $p = 0.001$ ).

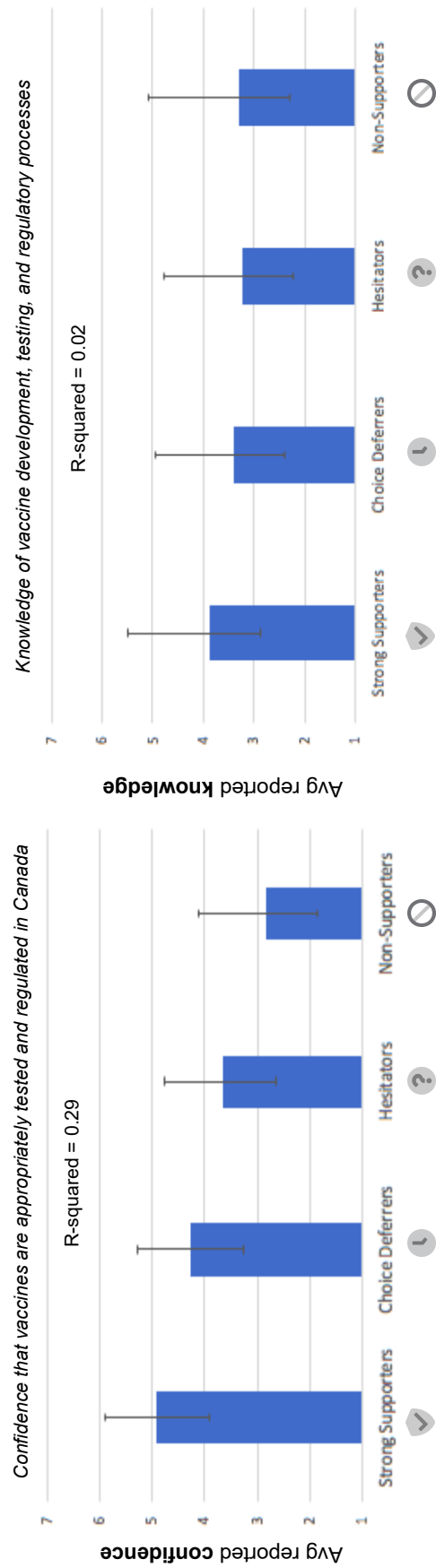




# Factors associated with intentions: confidence is key

Reported levels of confidence in the vaccine testing and regulatory processes in Canada has a meaningful and statistically significant association with intentions to be vaccinated against COVID-19 ( $p < 0.001$ ). The **Strong Supporters** segment was the most confident, followed by **Choice Deferrers** and **Hesitators**. **Non-Supporters** were the least confident.

While reported levels of knowledge in these processes were also statistically significantly related to intentions to be vaccinated ( $p = 0.001$ ), the association was not as strong, suggesting that we need to **focus on building confidence, not just knowledge**.



Y-axes are on a 7-point likert scale with 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = slightly agree, 6 = agree, 7 = strongly agree

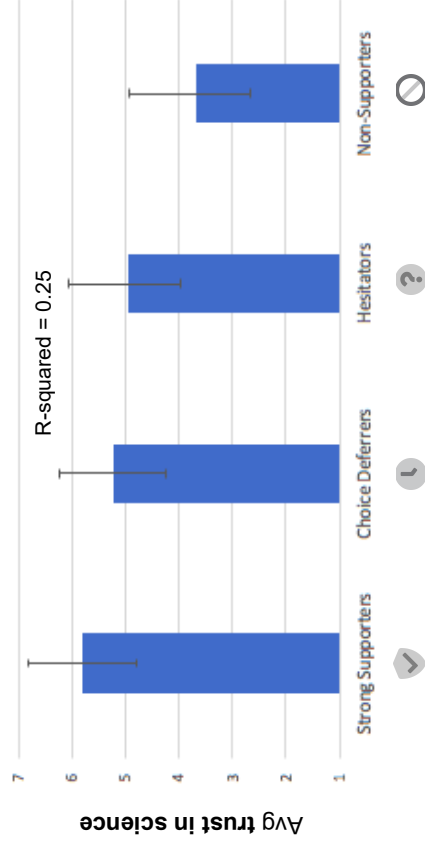


## Factors associated with intentions: trust in scientists is key

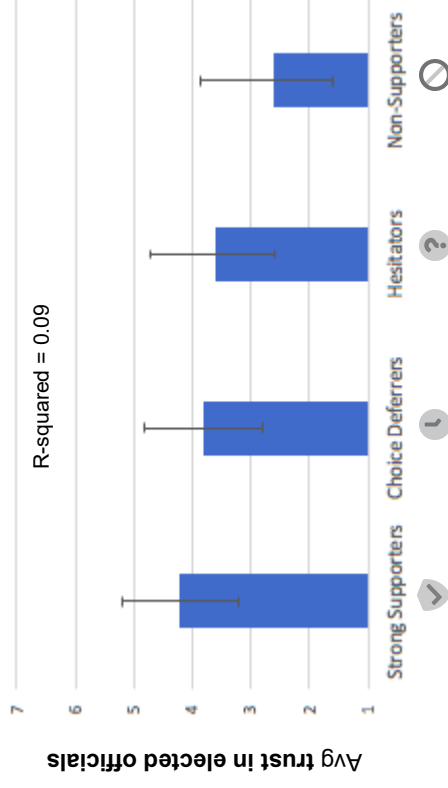
Similarly, we found reported levels of trust in scientists, medical scientists, and the scientific community has a meaningful and statistically significant association with intentions to be vaccinated against COVID-19 ( $p = 0.000$ ). **Strong Supporters** had the highest levels of trust, followed by **Choice Deferrers** and **Hesitators**. **Non-Supporters** had the lowest levels of trust.

While reported levels of trust in elected officials was also statistically significantly related to intentions to be vaccinated ( $p < .001$ ), the relationship was not as strong.

Trust in scientists, medical scientists, and the scientific community



Trust in elected officials



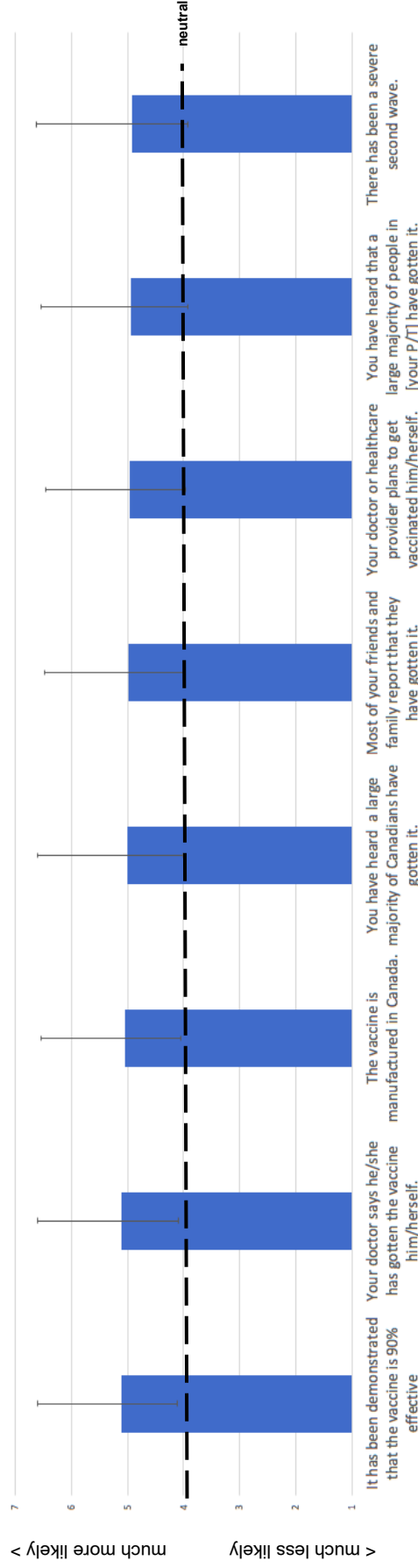
Y-axes are on a 7-point likert scale with 1 being "not at all trustworthy" and 7 being "completely trustworthy".



## Scenarios resulting in increased intentions

In this study, we asked participants to consider 48 hypothetical scenarios regarding the COVID-19 vaccine, and to assess whether it would make them more or less likely to get the vaccine. The majority of these were presented at random, such that we could assess their impact without being confounded by the presentation of alternative hypothetical scenarios.

These were the highest performing scenarios:



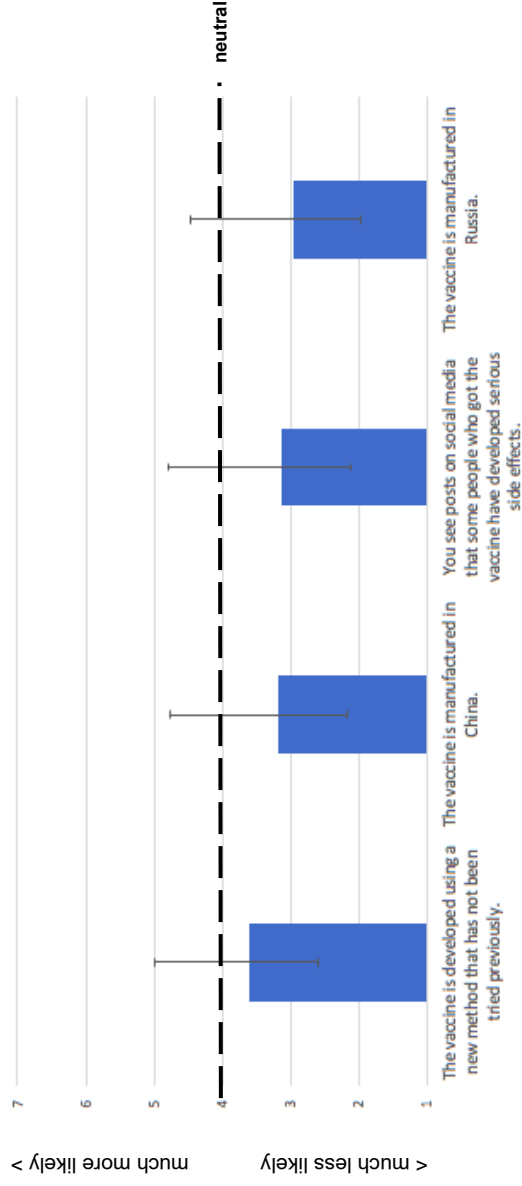
Y-axes are on a 7-point likert scale with 1 being "much less likely" and 7 being "much more likely" and 4 being "neutral".



## Scenarios resulting in reduced intentions

We also identified a number of scenarios or features that could be especially demotivating, including:

- That the vaccine is developed using a new method (type) that has not been tried previously
- That the vaccine is manufactured in China or Russia
- That the respondent sees posts on social media about serious side effects associated with the vaccine



Y-axes are on a 7-point likert scale with 1 being "much less likely" and 7 being "much more likely" and 4 being "neutral".



## Scenarios to highlight or avoid by segment

|                                    | Strong Supporters                                                                                       | Choice Deferrers                                                                     | Hesitators                                                                         | Non-supporters                                                                                                                                                 |
|------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scenarios to promote</b>        | Your doctor or healthcare provider personally recommends you get the vaccine.                           | Your doctor or healthcare provider personally recommends you get the vaccine.        | Your doctor or healthcare provider personally recommends you get the vaccine.      | <b>None</b> of the 48 scenarios we tested resulted in increases in COVID-19 vaccine intentions (on average)                                                    |
|                                    | Your doctor or healthcare provider plans to get vaccinated him/herself.                                 | Your doctor or healthcare provider says he/she has gotten the vaccine him/herself.   | Your doctor or healthcare provider says he/she has gotten the vaccine him/herself. |                                                                                                                                                                |
|                                    | It has been demonstrated that the vaccine is [70%] [90%] effective.                                     | Most of your friends and family report that they have gotten the vaccine themselves. | The vaccine is manufactured in Canada.                                             |                                                                                                                                                                |
| <b>Scenarios to (try to) avoid</b> | The vaccine is manufactured in Russia.                                                                  | The vaccine is manufactured in Russia.                                               | The vaccine is manufactured in Russia.                                             | The vaccine is manufactured in China.                                                                                                                          |
|                                    | You see posts on social media that some people who got the vaccine have developed serious side effects. |                                                                                      | The vaccine is manufactured in China.                                              | This is the first vaccine the expert panel has reviewed and deemed safe to administer to the public, and you know there are two others currently under review. |
|                                    |                                                                                                         |                                                                                      | The vaccine is developed using a new method that has not been tried previously.    |                                                                                                                                                                |



## Key Takeaways

- **Majority of Canadians Plan to Get Vaccinated:** While most Canadians (76%) indicate they do plan to get the COVID-19 vaccine, about half do not want to get it right away. 12% of Canadians indicated they do not plan to get the COVID-19 vaccine. The remaining 12% are unsure.
- **Targeting the 'Moveable Middle':** We may be best served to target our communications efforts at Canadians who have not yet made up their mind about a COVID-19 vaccine and may be positively impacted by our efforts. The vast majority of those who intend to get the vaccine right away or do not intend to get it say they have made up their minds. The converse is true for those who plan to get it but want to wait a bit first and those who are unsure.
- **Building Confidence and Trust:** Certain factors are strongly associated with intentions to be vaccinated, chief among them confidence in Canada's vaccine testing and regulatory processes. Thus, building confidence and trust and confidence in these processes may be paramount.
  - While knowledge of these processes is also related to intentions, this relationship is relatively weaker. This finding mirrors others in the behavioural science literature that knowledge, in and of itself, may be insufficient to motivate behaviour change.
- **Increasing Salience of Key Features:** To the extent possible (and if true), it would be helpful for the following features of a COVID-19 vaccine to be made salient in order to further drive intentions to be vaccinated among our 'moveable middle':
  - That the vaccine is highly effective.
  - That the vaccine is manufactured in a trusted location/country (e.g. in Canada).
  - That a majority of Canadians, including Canadians in one's own Province or Territory, are planning to get the vaccine or have already gotten it themselves.
- **Leveraging Trusted Messengers:** The results also suggest that Canadians will look to their doctors and friends and family for guidance. We recommend developing a communications strategy and approach that enables doctors to be effective advocates of getting the vaccine with their patients and encourages those who have gotten the vaccine to make it known to their family and friends to further motivate intentions.



# Next Steps

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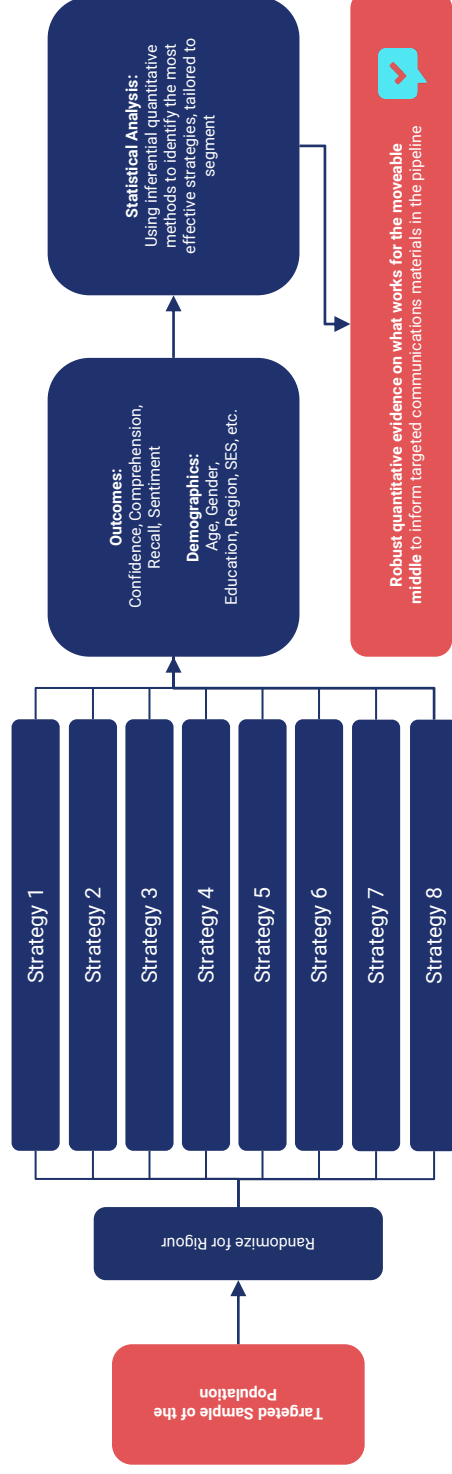


## Next Steps



# Study #2: Message Testing

- Study #2 - our next study to assess the potential impact of various messages - will launch shortly, in which we are exploring what types of communications approaches/strategies appeal to our 'moveable middle' segments. Approaches/strategies will be informed by the findings of Study #1 (i.e., designed around the scenarios to highlight to build intentions and risks to manage) and be developed in close collaboration with internal communications partners.
- Methodologically, we'll test eight different versions of public communication materials on a large representative samples of Canadians using a randomized controlled trial design, and conduct statistical analyses to identify the best-performers:



## Next Steps

### Study #3: Operational Transparency

- Our third study will investigate the relationship between operational transparency (i.e. showing/visualizing often hidden work performed by institutions, including government), trust, and intentions to be vaccinated.
- The aim is to test principles of operational transparency and identify strategies for effectively promoting understanding of and trust in the COVID-19 vaccine development and testing process.
- It will be undertaken in collaboration with partners from across the health portfolio as well as two academics from Harvard University studying operational transparency and increased valuation.

We are continuously iterating upon our questions, hypotheses, and recommendations based upon the evidence we generate and the needs of our partners.

This means we are always willing and able to integrate new perspectives into our multifaceted program of research.



# Questions or recommendations? Contact us.

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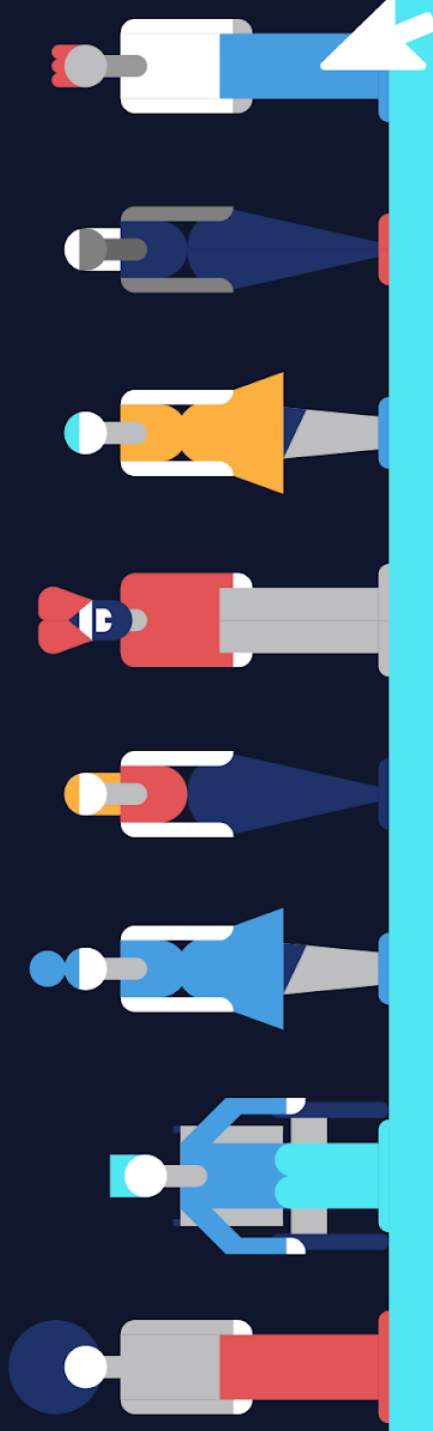
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## Annexes

## Research Activities and Collaborators

Our objectives will be achieved by triangulating insights from the following data sources and research activities:

- Advanced statistical modelling of longitudinal data from the COSMO Canada Study (Waves 1-8) to identify demographic and attitudinal predictors of pro- versus anti-vaccine attitudes and intentions;
- Continuous reviews and behavioural analysis of the latest academic and grey literature to keep pulse on global findings and expertise; and,
- A series of rapid, online experiments using randomized controlled evaluations to test messages with representative and targeted samples of Canadians.

Across this program of research, a number of internal and external partners are contributing subject-matter expertise and technical support as detailed below:

| GC Collaborators                                                                                                                                                                                                                                                                                                                                                                                      | External Academic Collaborators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Representatives of <b>HC/PHAC's Communications and Public Affairs Branch</b> (CPAB)</p> <p>Representatives of <b>PHAC's Centre for Immunization and Respiratory Infectious Diseases</b> (CIRID)</p> <p>Representatives of the <b>National Advisory Committee on Immunization</b> (NACI)</p> <p>Representatives of <b>PCO's Central Communications Hub / Advertising and Marketing</b> function</p> | <p><b>Professors from Harvard Business School</b> studying operational transparency and increased valuation - particularly relevant for the communication of vaccination development.</p> <p><b>Experts from the University of Waterloo</b> researching how people evaluate evidence when estimating the probability of uncertain events - particularly relevant for understanding and measuring intentions before a vaccine is developed.</p> <p><b>Research Scientists from the Government of Ontario's Behavioural Insights Unit</b> with methodological expertise in designing and analyzing online experiments - particularly relevant for ensuring maximum rigour and external validity.</p> |