



# CATALYSING COLLABORATIONS Report

“Exploring the Future Based on Lessons Learned”

Created by:

Health Innovation Initiative – Science & Policy Exchange – imagine ideation

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- *Health Innovation Initiative* (HI2) is a non-profit organization that aims to strengthen health innovation in Canada by bridging gaps between academia, industry, clinical practice, government, and communities.
- *Science & Policy Exchange* (SPE) is a student led non-profit organization that aims to assemble students and leaders in government, industry, research, and the community to exchange ideas on science and policy issues.
- *imagine ideation* is a firm that specializes in business, operations, communications, and strategy facilitation and consulting. We move ideas forward through connected experiences and ecosystem diplomacy.

## Citation

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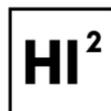
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## Land Acknowledgements

HI2, SPE, and imagine ideation are based in Tiohtiá:ke/Montreal. As such, we would like to begin by acknowledging that the land and water on which we gather is the traditional and unceded territory of the Kanien'keha:ka (Mohawk) - a place which has long served as a site of meeting and exchange amongst First Nations including the Kanien'kehá:ka of the Haudenosaunee Confederacy (also referred to as the Iroquois or Six Nations Confederacy), Huron/Wendat, Abenaki, and Anishinaabeg. We offer our respect to the traditional custodians of this land, the Kanien'keha:ka (Mohawk). We accept responsibility to contribute toward revealing and correcting miseducation as well as renewing respectful relationships with Indigenous communities through our teaching, research, and community service.



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# Executive Summary

Since the onset of the COVID-19 pandemic, we have seen an increasing need for inter-sectoral collaborations in response to complex public health and economic challenges. This is evident from Canada's response to the pandemic, which is built on collaborations across all sectors of Canada's economy, including the government, the private sector, researchers, innovators, and healthcare workers. These collaborations have led to increased support for innovation in health sciences and the empowerment of scientific entrepreneurship. While the crisis has been an impetus for such collaborations, it is important that this momentum be sustained to aid in Canada's economic recovery and response to future health crises. How, then, can we maintain support for innovation and entrepreneurship that both aligns with Canada's economic growth plans and increases preparedness for future challenges?

On July 16th, 2020, Science & Policy Exchange, in collaboration with Health Innovation Initiative and imagine ideation, organized the online event "*Catalysing Collaborations: Exploring the Future Based on Lessons Learned.*" With an emphasis on the current state of collaborations between the government, researchers, and healthcare workers, the panelists voiced their insights, concerns, and suggestions based on what the COVID-19 pandemic has revealed about 'initiating and maintaining collaborations.' Throughout the event and in discussions with the broader community following the event, we further identified barriers to and actions for enabling effective collaborations during and beyond the COVID-19 pandemic.

This document provides an overview of some of the themes that emerged through this event, supplemented by additional research and follow-up discussions among organizers and participants. The contents of this document do not represent the views or words of any one party, and they should neither be held responsible nor quoted.

- **Panelists**

- Rachel Bendayan: MP for Outremont, Parliamentary Secretary to the Minister of Small Business, Export Promotion and International Trade, Lawyer
- Tatiana Ruiz: Neuroscience PhD Candidate, Teaching Assistant for "NEUR-710: Lab-to-World Entrepreneurship" at McGill, Member of the international ventilator Code Vie Challenge, Co-founder of AltPAP Innovation
- Alexandre Magdzinski: ER Nurse, Vice President of the Quebec Nurses' Association, McGill Lecturer on Nursing Innovation and Policy

- **Moderator**

- Anthony Ilukwe: Software Engineer, Co-Founder of Lixr AI, Vice President, Canadian International Council Toronto

- **Partners**

- [Health Innovation Initiative](#)
- [Science & Policy Exchange](#)
- [imagine ideation](#)

- **Promotional Partner**

- [Startup Canada](#)

# Event Registrants

Individuals provided demographic data on their location, preferred pronouns, professional identification, and sector as a mandatory part of their event registration. Eighty-seven individuals registered for this event, coming from diverse sectors and professions and from eight countries across the globe. Most registrants identified their location as Canada. As registrants had the option of selecting multiple responses to the questions regarding their profession and sector (Figures 3, 4, and 5), single individuals may be represented in multiple categories.

Figure 1 presents the number of registrants in each Canadian province. Registrants came from 8 countries across the globe, including Canada (75), the USA (6), Mexico (1), France (1), the UK (1), Brasil (1), Bangladesh (1), and Singapore (1). Individuals in North America accounted for 86% of total registrants. In Canada, registrants identified as being located in Quebec (48), Ontario (20), Alberta (2), Manitoba (2), British Columbia (1), Nova Scotia (1), and Saskatchewan (1).

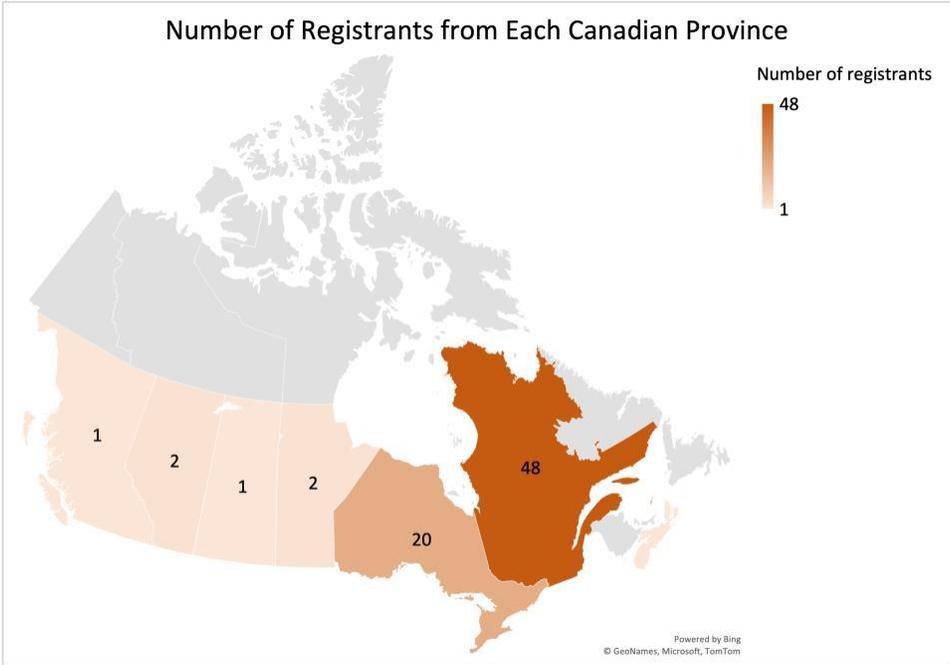


Figure 1. The number of registrants in each Canadian province.

Figure 2 presents the preferred pronouns of the participants. Sixty-one of the registrants preferred the pronouns “she/her,” 25 of the registrants preferred “he/him,” and one registrant preferred another pronoun.

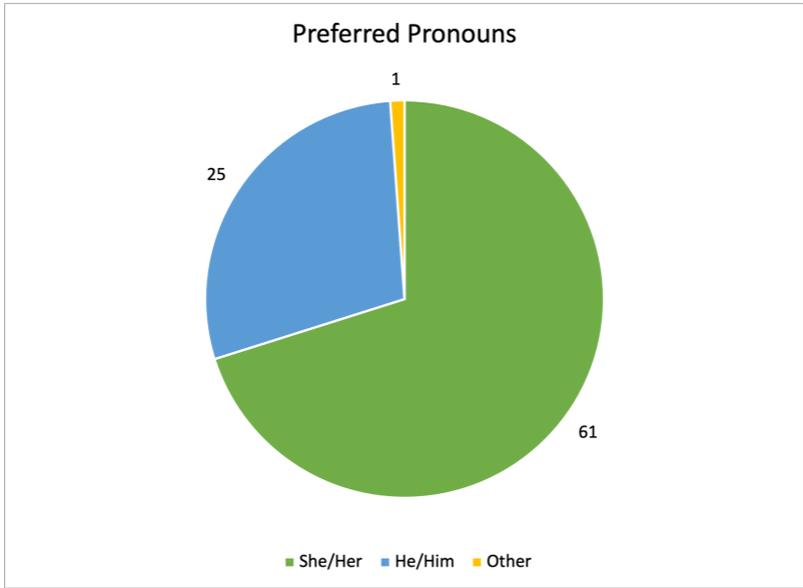


Figure 2. The preferred pronouns of registrants.

Figure 3 presents the professional identifications of all registrants. The majority of registrants professionally self-identified as students (35), researchers (30), and/or entrepreneurs (24), while there was modest representation from healthcare practitioners (14), public servants (9), academics (9), community organizers (8), business owners (6), and lower representation from policymakers (5), artists (3), and journalists (1). Eleven (11) individuals selected “other.” Responses for “other” included group specialist, advocacy, intellectual property, analyst, regulator, organization, project coordinator, non-profit, employment counsellor - community worker, and former academic administrator.

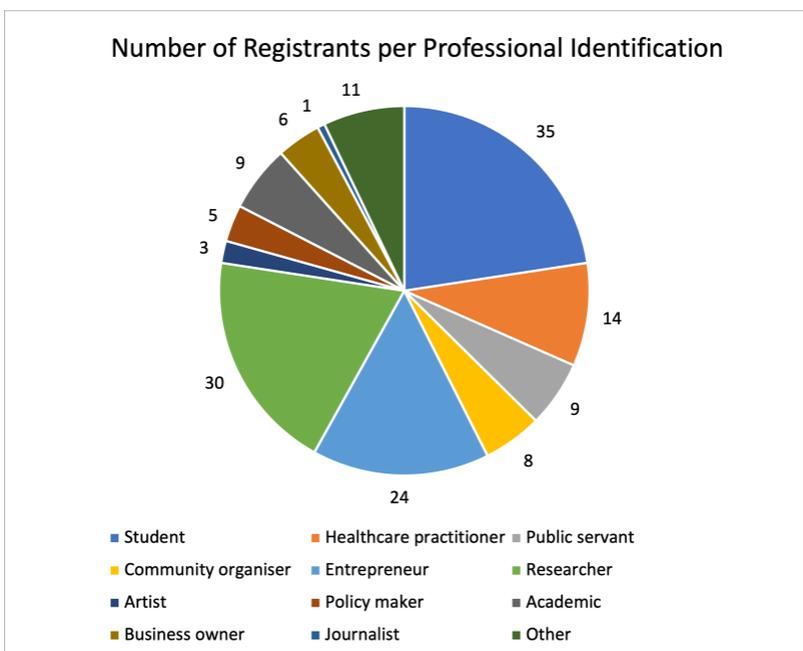


Figure 3. The professional identification of registrants.

Figure 4 presents how registrants identified with diverse sectors. Since individual registrants were able to select more than one sector, the number of responses exceeds the number of registrants. The registrants' sectors included research (45), healthcare (35), academia (32), entrepreneurship (26), non-profit organizations (21), government (14), industry (14), community organizations (11), and/or media (4). Seven (7) individuals selected "other." Responses to "other" included local government, intellectual property, regulator, coordination, public affairs, education, and N/A.

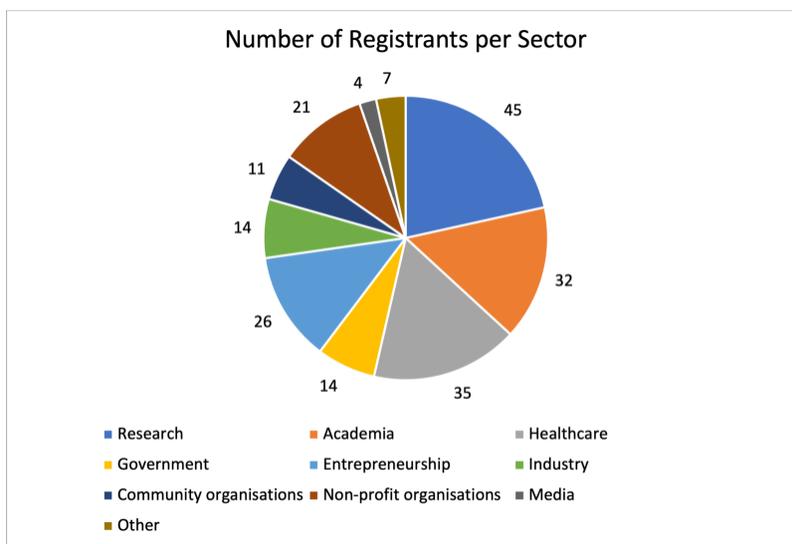


Figure 4. The identification of registrants with different professional sectors.

Represented by a "collaboration connectome," Figure 5 maps the collaboration landscape reached by this event by showing the distribution of professionals represented across sectors. A wide diversity of interactions is represented, where thicker lines correspond with industries that were more highly represented among registrants from a given profession (e.g., 29 registrants indicated that they were students who were involved in research), whereas thinner lines correspond with sectors with lower representation among registrants from a given industry (e.g., 4 registrants indicated that they were researchers who were involved in community organizations). The absence of a line between a professional identification and a sector indicates that none of the registrants identified with a given profession and sector (e.g., 0 registrants indicated that they were healthcare practitioners who were involved in media). In addition to showing inter-individual diversity across sectors, these data are also indicative of intra-individual diversity (e.g., 1 registrant indicated that they were an entrepreneur who was involved in healthcare, entrepreneurship, industry, and non-profit sectors).

Sample size and potential sampling biases should be taken into consideration in the interpretation of these data as their representation is limited to registrants for this particular event. These data may be the first step towards more comprehensive mapping of the collaboration landscape. Being able to identify areas of low representation and no representation across this landscape may be helpful in finding specific pain-points in the cross-sectoral collaborative journey, as well as targeted solutions.

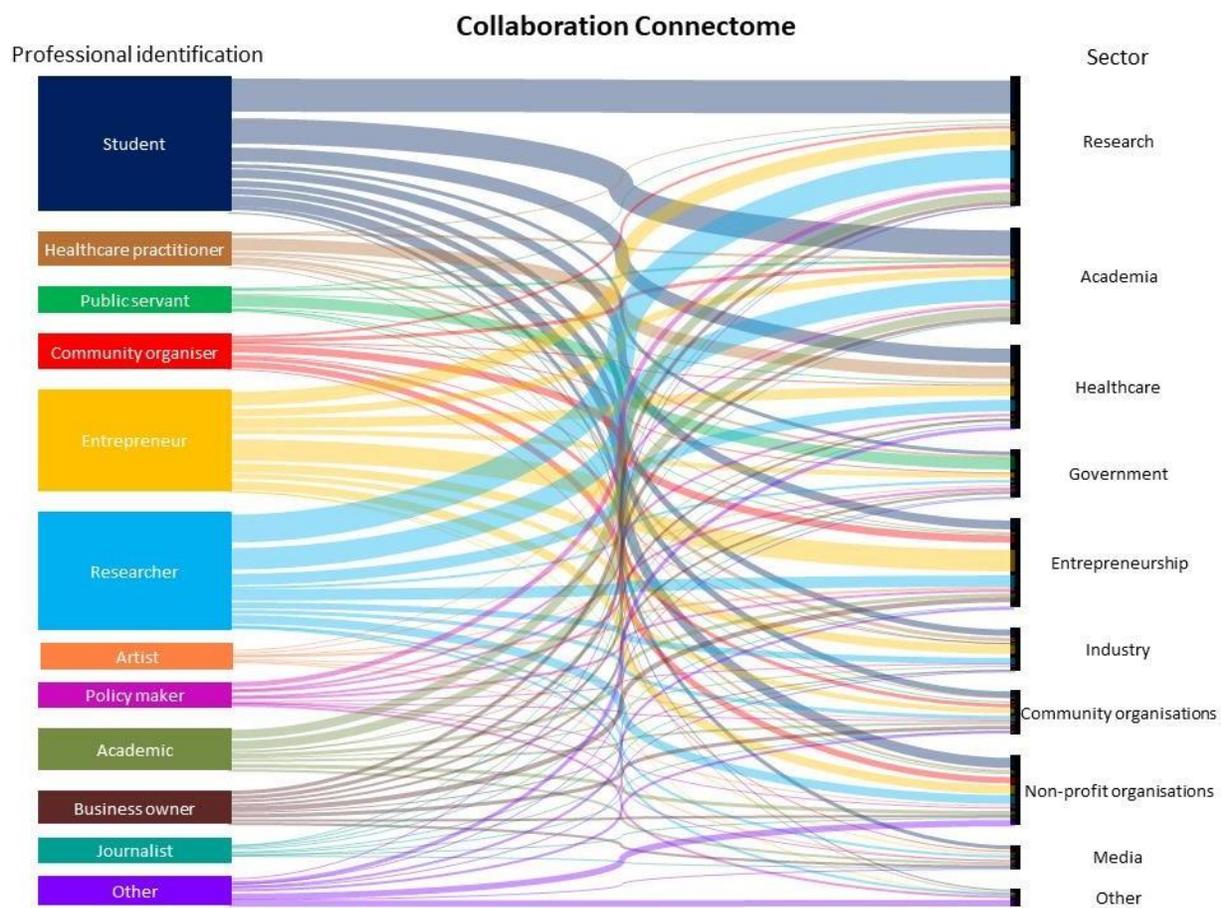


Figure 5. The connectedness of registrants' professional identification with their different professional sectors.

# 0. Takeaways

## Recommendations across sectors

- Voice**
  - Identify and clearly communicate the challenges your sector faces.
- Learn**
  - Get to know the other sectors.
  - Be a good listener to the other sectors' needs and receptive to change (e.g., frequent changes in healthcare's critical needs, policies, and markets).
- Integrate**
  - Network and connect.
  - Actively engage with other sectors.
  - Foster collaborative skills, training, projects, and initiatives.
  - Make accessibility across the chain of command easier for the engagement of professionals outside of your sector.

## How to engage and collaborate with...

- 1 Researchers and ECRs**
  - Connect and partner with individual students, student organizations, and student-led non-profits.
  - Offer paid internships and include scientists in your talent pool.
  - Collaborate with a research lab to conduct your product R&D.
- 2 Innovators**
  - Reach out to them, especially organizations.
  - Involve yourself in incubators and hackathon events to get familiar with the entrepreneurial space.
- 3 Healthcare professionals**
  - Include them in needs assessments and feasibility studies.
  - Offer paid internships and include healthcare professionals in your talent pool.
  - Include healthcare workers on steering committees and as part of the decision-making process.
- 4 Government**
  - Contact your local member of parliament.
  - Initiate a conversation about your interests and views on societal issues.
  - Identify how you can inform policies with information from actors on the ground.

## Recommendations for...

### **1 Researchers and ECRs**

- Practice ideations: Treat innovation like a trial and error experiment.
- Encourage and practice open science.
- Meet with your elected politicians on the ground.
- Maintain traceability of your research and try collaborating to avoid redundancy.
- Be modest and resilient.
- Be open to the value and inputs of other sectors as each avenue provides different perspectives on approaching a problem.
- Foster collaboration early on in your research project and experiments rather than at the end to truly benefit from it.
- Get training and exposure to the outside world.
- Discuss your research project with individuals from different sectors, even non-collaborators.

### **2 Innovators**

- Remember that you do not require exhaustive knowledge about your product/market to start innovating.
- Connect with scientific experts, students, and interest groups that work in your field and see them as partners in your enterprise.
- Seek scientific mindsets in your talent acquisition and collaborations.

### **3 Healthcare workers**

- Voice your concerns decision-makers within and outside your field.
- Establish direct contact with decision-makers.
- Get familiar with the concepts of innovation.
- Create opportunities where people can connect, network, and brain storm.

### **4 Government**

- Establish a more direct dialogue between all sectors, including direct communication streams (e.g., reaching out directly to nurse associations).
- Establish innovative modes of communication through collaborative platforms.
- Adapt communication channels to make them more accessible to sectors that could help inform policy.
- Communicate how important real-life information and communication are to elected officials and how this information filters up through the political chain.
- Amplify success stories regarding collaboration between government and other sectors.
- Create opportunities to allow the perspectives and voices of healthcare.

# 1. Introduction

Since the onset of the current health crisis (COVID-19), we have seen an increasing need for inter-sectoral collaboration. This is evident from Canada's response to the pandemic, which is built on collaborations across all sectors of the Canadian economy, involving the government, the private sector, researchers, innovators, and healthcare workers. These collaborations have led to increased support for innovation in health and science and empowered scientific entrepreneurship. While the crisis has been an impetus for collaboration, this momentum needs to be sustained to aid in Canada's economic recovery. How, then, can we continue to support innovation and entrepreneurship that aligns with Canada's economic growth plans to create solutions for future local and global problems?



We are all trying to reach similar outcomes. We are exploring different ways to do that through different perspectives.

On July 16th, 2020, Science & Policy Exchange, in collaboration with Health Innovation Initiative and imagine ideation, organized the online event “*Catalysing Collaborations: Exploring the Future Based on Lessons Learned.*” The panelists voiced their concerns and suggestions on what the current pandemic has revealed about ‘initiating and maintaining collaborations,’ emphasizing the varied collaborations between the government, researchers, and healthcare workers. Through the event, we identified barriers and action items that can enable effective collaborations to thrive in the present economy.

## 2. The current landscape of collaboration (with an emphasis on COVID-19 responses)

### 2.1. Government

In the early stages of the pandemic, the Canadian federal government rapidly partnered with the Canadian industry. Innumerable businesses and manufacturers engaged in these federal initiatives to retool their manufacturing facilities to produce personal protective equipment (PPE), increase their capacity to produce ventilators, or adapt their processes to produce other items for the fight against COVID-19.

During the pandemic, the government has also increased funds for academic and industrial research on COVID-19. Doing so has emphasized the importance of scientific discovery in finding solutions. Countless incidents across the world have shown us that a vivid sense of urgency is inherent in a global crisis. In recognition of this, the government has had to rapidly adapt its policies to the accelerated pace of research and innovation. For example, as a welcomed advancement, the government initiated the

[Roadmap for Open Science](#) plan to provide government-funded science and research projects with guidelines for open science. These guidelines will help in facilitating the use of data generated by academic communities to set timely evidence-informed health policies. The initiative also highlights the government's interest in collaborating with researchers to inform policy while acknowledging the opportunities for freedom of research within the scientific and academic communities.

The urgent need for creative solutions has led many scientists and researchers to work on similar projects during the pandemic (e.g., finding innovative ways to provide oxygen therapy). However, collaborations amongst them have been difficult as most of them have had to rely on existing platforms, such as Google Docs, to promptly share their work. The lack of open science and familiarity with platforms to share data and findings have been major hurdles against synergizing researchers' expertise to advance research and technology further and faster.

## 2.2. Academia



As PhD students, many of us know that we will not become academics, but we do not feel prepared to be industry people.

The urgent need for creative solutions has led many scientists and researchers to work on similar projects during the pandemic (e.g., finding innovative ways to provide oxygen therapy). However, collaborations amongst them have been difficult as most of them have had to rely on existing platforms, such as Google Docs, to promptly share their work. The lack of open science and familiarity with platforms to share data and findings have been major hurdles against synergizing researchers' expertise to advance research and technology further and faster.

## 2.3. Frontline healthcare workers and administration

Healthcare workers have been at the forefront of the pandemic response. Their position enables them to first notice when and what issues and needs will be exacerbated. As the eyes and ears of the healthcare system, they are often able to spot challenges and strengths before decision-makers. They also play a large role in implementing solutions and the pandemic response (i.e., they are the ones providing the oxygen therapy).



Frontline workers can identify immediate and future needs on the ground and in real-time.

However, it has been hard for them to communicate real-time information and observations (i.e., what has been happening on the ground) openly to decision-makers. This could be due to the lack of direct communication channels between decision-makers and the frontline force. Therefore, decisions have fallen short in encapsulating the reality of the situation.

Instead, the communication is taking place through intermediaries in a hierarchical manner. The top-down nature of the public healthcare system has made it difficult for them to communicate their concerns in a timely manner to decision-makers. The disconnect between decisions and frontline evidence is part of the reason why implemented decisions have not met the expected outcomes (e.g., in CHSLDs and long-term care homes). These communication barriers have always existed, but their impact is more pronounced during the pandemic.

### 3. Barriers to collaboration

#### 3.1. Lack of transparency and open communication

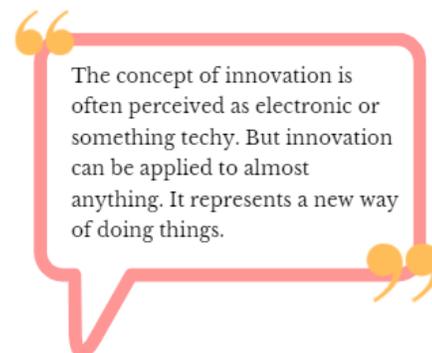


Transparency and open communication are lacking between the government and research entities. For example, the process in which the government selects research grants is not well communicated to researchers. While grants are selected exclusively by science experts and are not influenced by politicians, the process is not well-communicated. This lack of clarity can make researchers see elected officials and policymakers as individuals to convince rather than partners to collaborate with.

The lack of transparency also impairs effective collaboration among researchers. Some of the contributing factors are (1) the lack of incentives for open science and familiarity with supporting platforms that can accommodate sharing data, findings, and projects, and (2) the need for recognition by the academic community and peers, which can make researchers reluctant to share their work with the public. This issue is deeply rooted in academic culture, where individual recognition and prestige are often rewarded and valued more than constructive collaboration and shared credit. This can lead to a deceleration in knowledge transfer and potential research redundancy, which can negatively impact collaborations amongst researchers and intersectoral collaboration.

#### 3.2. Misconceptions

Misconceptions across the different sectors hinder effective collaboration. Our panelists pointed out some common misconceptions. For example, the role and ability of frontline healthcare workers in informing decisions have often been underestimated, although frontline healthcare workers have been experiencing the health crisis firsthand and therefore know where the need for innovative solutions lie. They may also have crucial insights into how to feasibly implement these solutions and monitor the solutions' success. There is a lack of awareness regarding the importance and impact of professions such as nursing.



Another misconception is that the government is often perceived as a distant entity, far from what is happening on the ground. Many of its members work with and around the general public regularly and share their observations with individuals higher on the chain of command. Additionally, there is a disconnect in understanding how the government works. Hence, the government is often viewed by the public as a homogeneous entity that is political by nature. Mechanisms stemming from the government are often associated with politics and politicians. That is not always the case, especially in the research grant selection process, which is led by science experts and excludes politicians.

Moreover, researchers often perceive themselves as incapable of entering the entrepreneurial world and tend to underestimate their knowledge. In general, researchers have a restricted perception of the applicability of their expertise beyond the scientific field, often neglecting the impact they can have on policy, decision making, innovation, entrepreneurship, and healthcare. In the context of a health crisis, applied research (e.g., COVID-19 vaccine development) is given more importance than research in the fundamental sciences. However, the latter is equally vital to understand and prepare for future health crises.

### 3.3. Hierarchy

Hierarchical communication and the absence of direct correspondence, often caused by the presence of intermediaries, can impede effective collaboration. This detachment is apparent in the present scenario between healthcare workers and decision-makers.

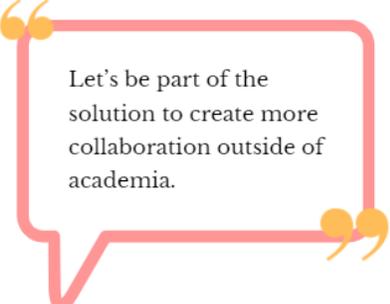
There are systemic structures and barriers that have made it challenging for staff on the ground to voice their concerns higher up within the healthcare system. Opportunities to bring the perspectives and voices of healthcare workers to the attention of decision-makers, both within and beyond healthcare, have been impacted by this reality.

While acknowledging that efforts are being made in this area, a similar disconnect was voiced as existing between the research community and policymakers. Limited opportunities to contribute to policymaking and the direction of research priorities were identified as a barrier for students and others who are on the ground.

### 3.4. Restrictions of the academic environment and training programs

Academic culture and programs that train frontline healthcare workers can often neglect the need for interdisciplinarity and collaborative skills. There is a lack of awareness and education as to why these skill sets are important in daily practice. This represents a major barrier to effective collaboration.





Let's be part of the solution to create more collaboration outside of academia.

Another limitation of the academic environment is that it insufficiently provides students with a sense of agency and information on pathways outside academia. The academic publishing system - the main “metric” of academic research excellence - is often fast-paced, proprietary, and driven by end results. Therefore, it does not encourage researchers to collaborate in real-time and undergo iterative review processes at different research stages. A frequent issue in academia is that groups begin collaborating towards the end of projects (when formalized views of results are available). Collaborating at the end, rather than at the start, limits the benefits of collaborative efforts, which include brainstorming ideas, working with a diverse number of people for longer periods, and becoming accustomed to different perspectives.

## 4. Recommendations

### 4.1. Researchers and ECRs

- ✚ Seek interdisciplinary mentorship and teams to create opportunities to practice ideation and applying innovation concepts to projects and challenges.

- ✚ Treat innovation as an iterative and experimental process while learning along the way. The level of expertise required at the start of the creative process is often overestimated and can be strengthened throughout the process.

- ✚ Become aware of different forms of open science and what options are available to your specific circumstances. If possible, advocate for and practice open science in your institution. For example, make your data accessible or publish in open access journals. If your research establishment does not have platforms or mechanisms that support open science, contact your superiors to see how you can contribute to or initiate this movement.

- ✚ Reflect on and express your challenges and opportunities to various stakeholders in the community. For example, reach out to your local Member of Parliament for guidance. Meet with your elected politicians, either directly or through organizations and associations (e.g., Canadian Science Policy Conference’s “Science meets the Parliament” event)



Updating your Member of Parliament on your community needs and work being done in your community can help them communicate this information in various settings. They can also help connect you with different parts of the federal government.

✚ Maintain traceability of your research and collaborate to avoid redundancy. This usually involves maintaining a detailed lab notebook, collaborating with peers, and communicating your research to scientific audiences (conferences, publications etc.), professional audiences from other sectors (e.g., integration in Continuing Professional Development hours for healthcare professionals or demonstrations at industry trade shows), and the general public (e.g., the Pint of Science series, articles in popular science magazines, presenting talks at public forums, or social media engagement).

✚ Try to be modest and perceive science as a tool for change in addition to it being a means for personal accomplishments. Researchers tend to build their professional value on their knowledge and on the novelty of their research. It is important to rethink the notion of research excellence and incorporate incentives that value collaboration and open science alongside novelty and individual professional development.

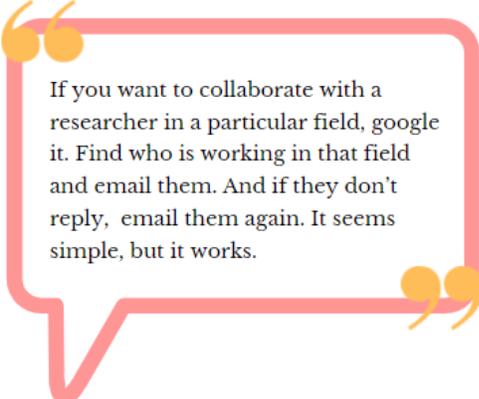
✚ Consider the value of the perspectives provided by other sectors since each field has different approaches to solving a problem. Often, academia values narrow expertise, but other sectors value a broader skill set.

✚ Integrate collaboration early in your research project and experiments rather than at the end to truly benefit from it.

✚ Expose yourself to different sectors and get the proper training that helps you gain skills that facilitate collaboration (e.g., science communication and project management). There is a need for academic institutions and other organizations to provide more resources and tools for the diversification of skill sets. However, this might also require individual responsibility for pursuing collaborative skills.

✚ You have the societal responsibility to make yourself heard and come up with solutions. You can do this by engaging with your community in the local start-up scene, practicing your science communication skills by writing blogs and opinion pieces, or joining a local policy group. If none exist, start your own!

## 4.2. Innovators



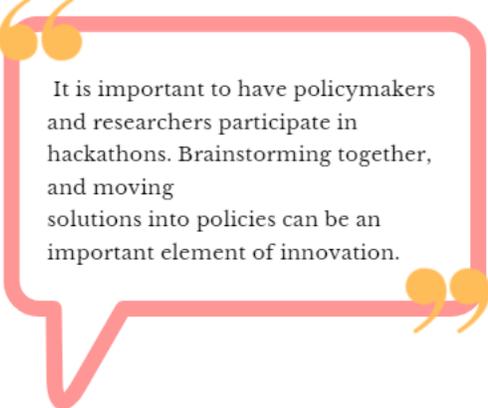
If you want to collaborate with a researcher in a particular field, google it. Find who is working in that field and email them. And if they don't reply, email them again. It seems simple, but it works.

✚ The level of knowledge about your product or market that is needed to start innovating is often overestimated. However, be cognizant of the social and ethical responsibilities of offering a product or service with an impact on human health and well-being. To ensure safety, resourcefulness and collaboration with experts can be helpful.

✚ Connect with scientific experts that work in your field and seek scientific perspectives in your talent acquisition and collaborations. This can be done by reaching out to graduate student associations and organizations (e.g., giving talks at graduate fairs).

## 4.3. Healthcare workers

✚ Voice your concerns by engaging decision-makers in your sector to provide opportunities for all to contribute to collaborative projects. Establish direct contact with decision-makers. This communication channel can help you in periods of crisis (e.g., like the current pandemic where frontline workers want contact with policymakers). This can be done by reaching out via social media (e.g., Twitter), writing letters or emails to key decision-makers in your field, or approaching their offices or representatives.



It is important to have policymakers and researchers participate in hackathons. Brainstorming together, and moving solutions into policies can be an important element of innovation.

✚ Become familiar with innovation and entrepreneurship through continuing education or collaboration with incubators, accelerators, and events/conferences that relate to innovation. If you are in a position to do so, create opportunities where people can connect, network and brainstorm with different sectors like government, scientists, and innovators (e.g., Hackathons). For example, accelerators and incubators are excellent ways to ease the communication between healthcare workers and other sectors.

✚ Be attuned to the activities and interests of academic institutions and health-related entrepreneurs. Reaching out to offer your insight and lived experiences could help inform their activities. Participating in their activities could help develop better solutions.

## 4.4. Government

✚ Establish a more direct dialogue between sectors, including direct communication streams, by reaching out to relevant stakeholders such as nurses' associations in the case of a health crisis.

✚ Establish innovative modes of communication by using collaborative platforms. This does not have to be elaborate or primarily digital but efficient enough to directly allow various stakeholders to voice their challenges to the government (e.g., holding frequent town halls).



In some ways, we are building the plane as we fly it. Every step of innovation can come with a little bit of fear. We are constantly adapting. There are many moving parts. But we will build it together.

✚ Adapt the system to the needs of the sectors to ease communication and not miss information for policy decision-making.

✚ Communicate the importance of real-life information to the government and elected officials and how this information filters up the political chain. In other words, show the public that the information they pass to elected officials can impact policymaking

## 5. Resources

- Canadian Institute of Health Research. International Collaborations. Retrieved from: <https://cihr-irsc.gc.ca/e/27172.html>
- Office of the Chief Science Advisor of Canada. Roadmap for Open Science. Retrieved from: [https://www.ic.gc.ca/eic/site/063.nsf/vwapj/Roadmap-for-Open-Science.pdf/\\$file/Roadmap-for-Open-Science.pdf](https://www.ic.gc.ca/eic/site/063.nsf/vwapj/Roadmap-for-Open-Science.pdf/$file/Roadmap-for-Open-Science.pdf)
- Science & Policy Exchange. Rethinking Federal Research Funding: Towards More Equitable Funding for Canada's Next Generation. Retrieved from: <https://www.sp-exchange.ca/rethinking-federal-research-funding>
- Gouvernement du Québec. Diagnostic d'adéquation formation compétences emploi : Secteur des sciences de la vie et des technologies de la santé. Retrieved from: <https://www.montreal-invivo.com/wp-content/uploads/2020/04/diagnostic-web.pdf>
- TRaCE McGill. TRaCE 2.0 – Quantitative Report. Retrieved from: <http://tracemcgill.com/wp-content/uploads/2019/07/TRaCE-2.0-quant-report-june-20-2019.pdf>