



BACKGROUNDER: Key Messages and Asks for the Health Research and Innovation Ecosystem

Research Canada's Pre-Budget 2023 Fall-Winter Advocacy Campaign

The Messages:

1. Canada's health care system is in crisis and needs the best available science to facilitate highly effective responses *now*.
2. Underinvestment in health research is not an option.
3. A well-supported research workforce that reflects the fullness of humanity and human potential is the foundation of a vibrant, innovative and sustainable research system.
4. Realizing the full health, social and economic potential of Canada's health research and innovation ecosystem and ensuring a more prepared, resilient and sustainable ecosystem in the future requires a strong, active and engaged life sciences industry.

Message 1: Canada's health care system is in crisis and needs the best available science to facilitate highly effective responses *now*.

Examples of health system crisis/collapse:

- **QUOTE:** "The thought of anyone waiting longer than they have to in a waiting room and something happening to them because of that is every health-care worker's nightmare. It's just something that we don't want to think about but, unfortunately, there are stories (about this happening) coming across the country right now." Dr. Roderick Lim, medical director and section head, London Health Sciences Centre's pediatric emergency department¹
- Unprecedented health care practitioner shortages²
- Emergency room closures in Ottawa, southwestern Ontario, Quebec and other locales³
- Lengthy ER wait times in major cities^{4,5}

¹ T. Wright (October 30, 2022). **Canada's ER crisis: Doctors urge governments to stop finger-pointing and find solutions.** *Global News*.

² T. Wright (August 23, 2022). **Code Blue: A Global News series delving into Canada's health-care crisis.** *Global News*.

³ J. P. Tasker (September 21, 2022). **'This is a crisis': Head of medical association warns that the health-care system faces 'collapse'.** *CBC News*.

⁴ Ibid.

⁵ T. Wright (August 23, 2022). **Code Blue: A Global News series delving into Canada's health-care crisis.** *Global News*.

- Cancellation of “non-urgent” surgeries at children’s hospitals in Ontario in the wake of surging respiratory illnesses in children⁶
- Many patients presenting to hospitals and health clinics with more advanced stages of illness after delayed medical care⁷

Health research is part of the solution to the health care crisis and is vital to reducing costs and protecting our health system against future crises.

- Fundamental science drives discoveries that will save lives and enhance quality of life.
- Clinical research ensures that patients ultimately benefit from innovations.
- Population and health services research is necessary to fully understand and anticipate the needs of Canada’s diverse population and evaluate how we can organize and operate our health systems more effectively, more accessibly and more equitably.

A lot of critical health research happens in hospitals and academic health sciences centres; clinical research is a necessary step in every innovative health solution’s journey from lab to patient. When the health system is in crisis, however, this clinical research cannot happen. Financial and staffing resources need to be diverted to help fill some of the gaps in our health care system. As a result, we are delaying—if not outright losing—the adoption of potentially life-changing innovations into our health system.

- This crisis has shone a bright light on the fact that research systems in our hospitals and other settings are not resilient. They are underfunded, human-resource constrained and extremely vulnerable. This needs to be rectified in order to ensure a healthy future for Canadians and to protect the future of our health research ecosystem.

Health research and innovation are ultimately for the patients. Without a functioning health care system, the life saving and life changing innovations coming out of our research ecosystem have nowhere to go—to the detriment of patients.

- Recent funding commitments like the establishment of a Canadian innovation and investment agency and the launching of the Biomanufacturing and Life Sciences Strategy “are welcome; however, they largely support individual health-care silos, not the fundamental system reforms needed for innovation to truly benefit Canadians. Without an effective adoption strategy, it’s likely that innovations and solutions emerging from these investments will never reach frontline providers and patients.”⁸

The Ask: All levels of government need to work collaboratively and listen to the voices of our health care experts and scientists to address the immediate crisis and ensure the long-term sustainability of the health system.

- Research Canada does not have all of the answers to this crisis, but we understand well the impact that it is having and will continue to have on patients, health care professionals

⁶ R. Zandbergen (November 23, 2022). [Parents fear ‘crisis’ in children’s care after several Ontario hospitals cancel surgeries.](#) *CBC News.*

⁷ T. Wright (August 23, 2022). [Code Blue: A Global News series delving into Canada’s health-care crisis.](#) *Global News.*

⁸ P.E. Cloutier, N. D. Fraser (October 25, 2021). [No more reports: Canada needs a strategy to put health-care innovations into action.](#) *The Hill Times.*

and our research ecosystem. Resolving the crisis requires research: fundamental science to drive discoveries that will save lives and enhance quality of life; clinical research to ensure that patients ultimately benefit from innovations; population and health services research to understand and anticipate the needs of Canada's diverse population and evaluate how we can organize and operate our health system more effectively, more accessibly and more equitably.

- We encourage all levels of government to put politics aside, work collaboratively and heed the calls of associations who understand the needs of our health system best, including the Canadian Medical Association, the Canadian Nurses Association and HealthCareCAN.⁹

Message 2: Underinvestment in health research is not an option.

The best available science must be incorporated into policy and operational decisions within our health care system to facilitate highly effective responses to future health crises. Canada's health research ecosystem proved during the COVID-19 pandemic how effective and productive it can be when all parts work collaboratively towards a common goal, but it also suffered tremendously—and it is still recovering today.

- The research enterprise as a whole suffered, with interruptions and delays to projects and a loss of charitable funding to health charities, working in concert with academic health science centres.¹⁰

Canada is not competitive among its global peers, nor has it been for several years.

Canada is the only nation in the G7 whose R&D spending as a percentage of GDP shrank over the past two decades, and the gap continues to widen.^{11,12}

- The U.S. spends \$160.12 (Canadian dollars) per capita on health research funding via its National Institutes of Health (NIH).¹³ Canada's per capita spending is \$34.38 through the Canadian Institutes of Health Research (CIHR).¹⁴ Even our Tri-Agency spending, encompassing all research, is eclipsed by the U.S., at \$82.59 per capita.¹⁵

⁹ The Canadian Press. (November 4, 2022). **Canadian governments must fix health-care crisis, workers and advocates urge.** *Global News*.

¹⁰ Research Canada letter to the Prime Minister. April 3, 2020.

¹¹ Compared to the United States (3.5%), France (2.4%), Germany (3.1%), Belgium (3.4%) China (2.4%) Denmark (2.9%), Japan (3.3%), & the Netherlands (2.3), Canada spent 1.7% in 2020. OECD, gross domestic spending on R&D.

¹² Report of the Standing Committee on Science and Research. Success, Challenges and Opportunities for Science in Canada, June 2022. P. 10-11.

¹³ Combining data from Congressional Research Service. National Institutes of Health Funding: FY1996-FY2023, updated May 20, 2022, and United Nations. World Population Prospects.

¹⁴ Combining data from Canadian Institutes of Health Research. CIHR Grants and Awards Expenditures, 2021-22 and Statistics Canada. The Daily: Canada's Population Estimates, Sept. 29, 2021.

¹⁵ Ibid and data from National Sciences and Engineering Research Council of Canada. NSERC Investments across Canada in 2019-20 and Social Sciences and Humanities Research Council.

- Reversing this trend through a meaningful investment at scale in health research, using a whole-of-government approach, is key to attracting vital foreign direct investment (FDI), which will benefit Canadian industry, private sector partners and researchers in our universities, colleges and academic health science centres.
- Progress on important measures like the Biomanufacturing and Life Sciences Strategy will be impeded without real investments in the health research ecosystem.¹⁶ Canada can be a “branch plant” biomanufacturing country, or we can become a respected competitive force as an innovation hub and an attractive destination for new companies, FDI and talent.

Investment in basic research is an important driver of economic growth, global competitiveness and a healthier population.¹⁷

- Knowledge transfer between companies is an important driver of innovation. Easy technology transfer, cross-border scientific collaboration and policies that fund basic research can foster the kind of innovation we need for long-term growth.
- Inventions draw on basic scientific knowledge.
 - Fundamental science provided the building blocks for the scientific community’s response to the COVID-19 pandemic and was the foundation for the rapid development of diagnostics, therapeutics and vaccines to combat the virus.¹⁸
 - While commercially oriented R&D is important to bring innovations to market, basic research expands the knowledge base needed for breakthrough scientific progress.
 - Basic research is not tied to a particular product or country and can be combined in unpredictable ways and used in different fields. This means that it spreads more widely and remains relevant for a longer time than applied knowledge.
- Innovation is a key driver of productivity growth.
 - A 10 percent permanent increase in the stock of a country’s own basic research can increase productivity by 0.3 percent. The impact from foreign basic research is even bigger. That may not sound like much, but it adds up. Small increases over time improve living standards.
- While we may not see the results right away, balanced investment policies “would start to pay for themselves within about a decade and would have a sizeable impact on incomes.”¹⁹

PATIENT STORY: Joshua Johnston, trigeminal neuralgia patient at the University Health Network’s Krembil Brain Institute. “I genuinely believed that I was about to die.” Patients with trigeminal neuralgia, like Joshua Johnston, often suffer excruciating pain. Dr. Mojgan Hodaie

¹⁶ As expressed by BioCanRx, Submission to the Standing Committee on Science and Research, March 2022.

¹⁷ P. Barrett, N.J. Hansen, J.M. Natal, D. Noureldin (October 6, 2021). **Why Basic Science Matters for Economic Growth.** *International Monetary Fund.*

¹⁸ P.E. Cloutier, D. Gordon-El-Bihbety (April 16, 2021). **Federal government must support health research for post-COVID economic recovery.** *HRI Portal.*

¹⁹ P. Barrett, N.J. Hansen, J.M. Natal, D. Noureldin (October 6, 2021). **Why Basic Science Matters for Economic Growth.** *International Monetary Fund.*

found a way to help. In 2020, Johnston was referred to Dr. Hodaie. By then, he was out of options. “I had no hope until I met her,” he says.²⁰

The Ask: The Government of Canada needs to double research funding to the Tri-Agency and commit to an annual increase that will keep pace with inflation and global benchmarks.

- This increase in funding must maintain a balance with investments in infrastructure and people.

Message 3: A well-supported research workforce that reflects the fullness of humanity and human potential is the foundation of a vibrant, innovative and sustainable research system.

If Canada is to correct historical and contemporary injustices, maximize our innovative potential and create a globally competitive environment for research talent, we must better support and enable diverse researchers at all stages of their training and careers.

QUOTE: “A healthy ecosystem is a diverse ecosystem. As an early-career Indigenous scholar, I have witnessed the barriers that restrict who can participate in, remain in, and benefit from science and innovation. To embody our health research ecosystem adage, we must dismantle these barriers and cultivate an environment that is safe and equitable for all. This must happen at all levels and in all sectors to foster true, transformative change.” Dr. Taylor Morriveau, University of Manitoba, Children’s Hospital Research Institute of Manitoba and Research Canada Board Director.²¹

Diversity is critical to strengthening Canadian society.

- When it comes to health research, the entire research ecosystem benefits from and recognizes the value of a diversity of peoples, approaches and career stages. Novel discoveries and research programs that deliver impact to a wide range of communities depend on nurturing and developing the broadest and brightest talent pool within the health research ecosystem.
- A lack of diversity among researchers has been identified as a factor in certain groups being underrepresented in research and clinical trials, and therefore being underserved by a system which is supposed to serve them equally. It cannot be this way. Supporting researchers who reflect the population can lead to research design and questions that are relevant to the population.
- Canada has important work before it on the path toward Truth and Reconciliation, which includes supporting health research that will benefit Indigenous communities. Creating a diverse, inclusive and innovative research ecosystem requires a commitment to decolonizing research institutions and systems and an investment in targeted supports and policies that encourage and uplift Indigenous researchers, research priorities and ways of knowing. Similarly, a diverse research ecosystem, with specific supports, is

²⁰ Glynis Ratcliffe (2021). “**I genuinely believed that I was about to die.**” *Krembil Magazine* 2021.

²¹ Provided to Research Canada November 28, 2022.

essential to tackling racism, sexism and other forms of discrimination that are barriers to justice and dignity for Black and people of colour researchers, as well as those from other underrepresented and equity-deserving groups.

Canada's early-career researchers—including graduate students, postgrads and postdoctoral fellows (PDFs)—are struggling to afford the basic necessities as a result of rising inflation, a high cost-of-living and stagnated wages.

- For example, the value of Canada Graduate Scholarships for master's and doctoral students has “not changed since the program was created in 2003,” despite continually rising inflation.²²
- We live in a globally competitive research environment and other countries are making significant awards available to diverse researchers at all stages of their careers. This is especially true for early-career researchers. A postdoctoral fellow in Canada makes an average of \$51,913 per year compared to the equivalent of \$87,576 Canadian dollars in the U.S.²³ As such, Canada must ensure that researchers of diverse backgrounds receive enhanced and fulsome support that ensures livable and competitive wages across the career spectrum.
- Moreover, the pandemic has had a particularly harsh impact on early-career and female researchers. Providing effective investments specifically for researchers from such groups will help close the gap made wider by the pandemic.

The Ask: The Government of Canada needs to better support and enable a flourishing and diversified talent base in Canada, with a focus on Indigenous researchers, Black and people of colour researchers, early-career researchers, and other underrepresented and equity-deserving groups.

Message 4: Realizing the full health, social and economic potential of Canada's health research and innovation ecosystem and ensuring a more prepared, resilient and sustainable ecosystem in the future requires a strong, active and engaged life sciences industry.²⁴

The life sciences industry plays a unique and irreplaceable role in a functional health research and innovation ecosystem. It:

- contributes to basic and applied biomedical research at universities and institutes across Canada;
- helps academic health sciences centres drive drug discovery, enhance clinical services and improve patient outcomes;

²² Fundamental Science Review (2017).

²³ Combining data from talent.com, Salary search “postdoctoral researcher” and exchange rate of 1.37 CAD. Retrieved October 6, 2022.

²⁴ Report of Research Canada's Advisory Panel (2021). *Invigorating the Biopharmaceutical Sector's Contribution to Canada's Health Research and Innovation Ecosystem*.

- fuels the innovation pipeline and enhances the success of homegrown Canadian enterprises;
- develops talent by employing highly-skilled personnel and training the next generation of life sciences leaders; and
- spearheads initiatives aimed at preparing the health system for 21st-century innovations.

Persistent weaknesses in our partnership are handicapping the competitiveness of our ecosystem.

- Weaknesses in our partnership with the life sciences industry—and biopharmaceutical companies in particular—are compromising our ability to deliver innovations to patients.
- Industry-sponsored clinical trial activity has decreased more rapidly than in other jurisdictions, impacting early patient access to medicines.
- The environment for global pharmaceutical companies reflects broader industrial, capital and structural barriers for homegrown companies.

If we are to position our health research and innovation ecosystem for a powerful post-pandemic future, we need to cultivate an ambitious, futureproofed policy and investment environment that supports our ecosystem as a whole and positions Canada for sustainability, growth and leadership. We need an environment that:

- enables the critical role of the life sciences sector in advancing collaborative R&D in Canada;
- enlarges Canada’s share of global life sciences sector investment in infrastructure, research, training and jobs;
- expands and diversifies opportunities for training and employing, attracting and retaining highly-qualified personnel;
- accelerated the translation, commercialization and adoption of home-grown innovations; and
- fulfils the potential of our investments by ensuring health research and innovation enabled health care.

QUOTE: “Any regulation that is going to prevent or delay medicines for rare or ultra-rare diseases from coming to Canada is going to negatively impact us. As a community, we are always worried about access to equitable and effective care. With only supportive care, and with people [with sickle cell disease] now living past their 30th birthday, we are at a critical juncture: any delay in treatment accessibility – even by a year – increases the risk of major health complications.” Biba Tinga, President and Executive Director of the Sickle Cell Disease Association of Canada and mother whose son, Ismaël, was diagnosed with the rare disease.²⁵

The draft guidelines published by the Patented Medicine Prices Review Board (PMPRB) and currently undergoing consultation, and the process by which they have been developed are creating an environment adverse to the one Canada needs.

²⁵ Innovative Medicines Canada. (March 17, 2021). [Meet the Patients: Biba Tinga and her family’s journey with sickle cell disease.](#)

- If implemented as planned on January 1, 2023, these guidelines will mitigate the opportunity for the biopharmaceutical sector to play its critical role in advancing Canadian health research and innovation.
- Stakeholders across the ecosystem have raised concerns that these guidelines will make it even harder for Canadians to access new, life-saving medicines.
- Currently, only 18 percent of new medicines launched globally are available to Canadians on public plans. We *have* to get these reforms right or patients—especially those with rare diseases—will suffer.
- Getting these reforms right takes time and meaningful consultation with stakeholders—including patients, researchers and the biopharmaceutical industry. The expedited timeline of this consultation period and planned implementation is inadequate for the kind of consultation that an issue as important as patients’ access to medicines demands.
- **JANUARY 2023 UPDATE:** In late December, the PMPRB announced that they would be pausing the implementation of the new proposed Guidelines to allow for further consultation with stakeholders, just days before its planned implementation date of January 1. Unlike previous 6-month delays to the Guidelines’ implementation, the PMPRB has not set a new implementation date, instead leaving the Interim Guidance in place until further notice. While this is a step in the right direction, we need to do more to grow Canada’s innovation economy.

The Ask: The Government of Canada needs to work with life sciences companies and other stakeholders to cultivate an ambitious, futureproofed policy and investment environment that supports our ecosystem as a whole and positions Canada for sustainability, growth and leadership.