

Restarting the Canadian Economy as It Recovers from the COVID-19 Pandemic

Submission for the 2021 Pre-Budget Consultations

Recommendations

Recommendation 1: That the Government of Canada build upon its Budget 2018 funding commitments to fundamental science through the Tri-Council, by fulfilling the 2017 Fundamental Science Review's call for further investment to ensure that Canada is at the forefront of knowledge and cutting-edge advances against new and emerging health security threats like COVID-19, as well as the health challenges Canadians face throughout their lives.

Recommendation 2: That the Government of Canada provide direct Federal support to Academic Health Science Centres (AHSCs) that will further enable AHSCs to fulfil their strategically critical contribution to Canada's health and economic security; and, that the Government strengthen its involvement in these strategically important institutions, enhancing their stability and capacity to leverage philanthropic and industry funding dedicated to Canada's health and economic recovery.

Recommendation 3: That the Government of Canada build upon its 2019 investments in our next generation of highly skilled researchers, many of whom are facing significant setbacks in their research programs due to COVID-19 measures, by working to fulfil the 2017 Fundamental Science Review's call for further investment in direct federal awards for doctoral students, post-doctoral trainees and fellows.

Recommendation 4: That the Government of Canada invest in the digitalization of our health system so that high-quality data and digital technologies support healthcare decisions, empower patients as partners, drive research and innovation, promote economic prosperity, and underpin an efficient, effective and resilient learning healthcare system.

Recommendation 5: That the Government of Canada implement the recommendations of the *Report from Canada's Economic Strategy Tables: Health and Biosciences* to position Canada as a global destination for life sciences investment and talent, grow our health and biosciences firms, and create an environment for innovation critical to the sustainability of our health system and Canada's near- and long-term prosperity.

Canada's Health and Economic Security: Inextricably Linked

Research Canada applauds the Government of Canada for its exceptional leadership throughout the COVID-19 pandemic and for recognizing the crucial role played by health research and innovation ecosystem stakeholders in addressing this extraordinary public health crisis.

The pandemic has laid bare the inextricable links between health and economic security. Without a healthy workforce to engage fully in the economy and a secure health system that can minimize the risk and impact of acute public health events, economic activity is seriously impeded. Chronic disease—which has recently worsened in some cases due to unavoidable public health restrictions—carries its own economic burden through lost productivity¹ and added demands on the public healthcare system.² Far from a cost, international research shows that the broader health system contributes positively to a country's economic performance, and health research and innovation are fundamental to ensuring health security by minimizing the risk and impact of the myriad of health concerns facing its population.³

This emergency has displayed the strength of Canada's health research and innovation ecosystem, preventing additional deaths and supplying the expertise required to emerge from lockdown and restart our economy. We urge the Government of Canada, through Budget 2021, to recognize the inextricable linkages between our economy and the health system, from basic research to commercialization to adoption and scaling of innovation, by continuing to support the integrity of the entire health research ecosystem that enables Canadians to be full economic participants and is necessary to Canada fulfilling its potential as an innovation nation.

About Research Canada: Research Canada is a national alliance whose mission is to improve the health and prosperity of all Canadians by championing Canada's global leadership in health research and innovation.

Detailed Recommendations

Recommendation 1: Deepening Canada's Commitment to Fundamental Science

Within weeks of the first reported Canadian cases of COVID-19, our scientists had isolated SARS-CoV-2⁴ and begun testing a vaccine candidate in animals.⁵ Canadian researchers were the first in the world to profile the body's immune response to COVID-19 and confirm which molecules could be targeted to treat the disease's inflammatory effects.⁶ This would have been impossible without a robust and highly skilled fundamental science enterprise. Investing in

¹ OECD Observer No. 243:

https://oecdobserver.org/news/archivestory.php/aid/1241/Health_and_the_economy:_A_vital_relationship_.htm

² Conference Board of Canada (2013). *Health Matters: An Economic Perspective*. P. ii

³ World Health Organization (2019). *Economic and social impacts and benefits of health systems*. P. 1

⁴ <https://sunnybrook.ca/research/media/item.asp?c=2&i=2069&f=covid-19-isolated-2020>

⁵ <https://www.cbc.ca/news/health/coronavirus-covid-19-video-intervac-saskatchewan-vaccine-1.5508114>

⁶ <https://news.westernu.ca/2020/06/research-score-breakthrough-in-bodys-response-to-covid-19/>

fundamental science is central to our readiness to respond to serious health threats, providing security and hope in the face of unknowns.

These investments in fundamental science also yield economic returns and are essential to our collective prosperity as a nation. For example, basic science findings become building blocks for private industry where R&D investment yields an average of 30 percent return.⁷ The Government's historic 2018 investment of \$925 million over five years through the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC) made great strides in this regard. Despite this investment, Canada still trails the OECD in R&D spending as a percentage of GDP.⁸ Canada needs to amplify its investments in fundamental science if we are to compete as a leading innovation nation, reap the economic benefits of research and tackle the health challenges that threaten our economic security.

Recommendation 2: Direct Support and Stability for Academic Health Science Centres (AHSCs)

Canada's leading research hospitals account for nearly \$3 billion of this country's biomedical sciences research activity⁹ and employ more than 20,000 highly skilled researchers and staff in Ontario alone. AHSCs are home to specialized core research and healthcare facilities, making them critical institutions in the development of vaccines and treatments, the rollout of clinical trials related to COVID-19 and other ongoing health concerns impacting Canadians. Yet, their future is at risk due to the suspension of pre-existing work to re-focus capacity on COVID-19, which caused a sudden and substantial loss of funding from industry and charitable research sponsors. A survey of 24 of these institutions forecast losing nearly half a billion dollars in funding between April and October.¹⁰

We are grateful that the Federal Government recognized the importance of extending emergency wage subsidies to personnel working in this sector, which is largely supported by third-party funders. The Government has an opportunity to further strengthen this sector through direct Federal support to protect its ability to conduct collaborative research activities that are critical to our health and economic security.

Recommendation 3: Support for Trainees and Post-Doctoral Fellows

Graduate students, trainees and post-doctoral fellows (PDFs) are integral to the research workforce, critical to the development of the highly qualified personnel necessary for Canada's

⁷ Advisory Panel for the Review of Federal Support for Fundamental Science. *Investing in Canada's Future*. 2017. P. 25

⁸ OECD (2020), Gross domestic spending on R&D (indicator). doi: 10.1787/d8b068b4-en (Accessed on 15 July 2020)

⁹ Research InfoSource. Inc. News release: "Hospital Research Spending Subdued." Nov. 14, 2019.

¹⁰ <https://www.healthcarecan.ca/2020/04/10/urgent-federal-support-needed-now-for-health-research-in-times-of-covid/>

knowledge economy and, in the case of PDFs, vital to supporting top-flight research projects.¹¹ However, many budding researchers' projects were put in limbo and their funding became uncertain when research labs shut down.¹² More than 70 percent of Canadian post-doctorate holders said their research activities had been moderately to severely affected by the pandemic.¹³ Early indications suggest that women, members of marginalized groups and international students, who often rely on financial support through direct federal awards, have been disproportionately impacted.¹⁴ While the Federal Government's 2019 commitment to \$114 million over five years for graduate student awards was welcome, fulfilling the 2017 Fundamental Science Review's investment recommendations for doctoral students, trainees and PDFs will ensure that they weather the storm and flourish in post-pandemic Canada.

Recommendation 4: Digitalizing Canada's Health System

The pandemic has highlighted the power of data and digital tools to protect Canadians and target scarce healthcare resources. Countries that have been most successful in managing aspects of the pandemic have benefitted from prior investments in health digitalization.¹⁵ Digital tools have demonstrated their utility in engaging patients more fully in their care plans, leading to both individual and system benefits.¹⁶ Digitalized health also represents an economic opportunity; globally, this market was poised to be worth \$233 billion this year.¹⁷

The pandemic has also exposed the work that remains, including the imperative for harmonized data collection. The potential is enormous. Using data analytic processes effectively could save Canadian healthcare at least \$10 billion annually.¹⁸ Digitalization could ensure that the research questions that are pursued and funded are grounded in data-driven evidence, allowing research to become a part of healthcare delivery by creating a learning system that is constantly improving. In addition to the estimated \$408 million boost in productivity that virtual healthcare as a standard of care could provide,¹⁹ digitalization also offers the opportunity to conduct some aspects of clinical research virtually.

¹¹ Advisory Panel for the Review of Federal Support for Fundamental Science. *Investing in Canada's Future*. 2017. P. 137

¹² https://theconversation.com/coronavirus-halted-years-of-research-and-canada-needs-a-strategy-to-fight-back-135805?utm_source=dlvr.it&utm_medium=twitter

¹³ Gibb, C. et al (2020). Limiting the negative impact of COVID_19 on Canadian postdoctoral scholars. *Canadian Science Policy Centre*

¹⁴ Private correspondence between Research Canada and Shawn McGuirk, Science & Policy Exchange, July 8, 2020.

¹⁵ Whitelaw, S. et al. (2020). Applications of digital technology in COVID-19 pandemic planning and response. doi: 10.1016/S2589-7500(20)30142-4

¹⁶ <https://www.endocrineweb.com/professional/endocrinology/6-ways-emerging-technology-improves-patient-engagement>

¹⁷ Canada's Economic Strategy Tables: Health and Biosciences. *The Innovation and Competitiveness Imperative: Seizing Opportunities for Growth*. 2018.

¹⁸ Canada Health Infoway. Big Data Analytics in Health – White Paper. 2013. P. 25.

¹⁹ Canada Health Infoway. *Mobile Health Computing between Physicians and Patients – White Paper*. 2014. P. 30.

New policies that enable data collection, sharing and analytics and support acceptance and adoption of innovative digital technologies must be enacted at a faster pace to achieve better health outcomes for patients, ensure health system sustainability and promote research and innovation, leading to a stronger economy.

Recommendation 5: Implementing the Report of the Economic Strategy Tables: Health and Biosciences

An effective vaccine is the most powerful tool to address COVID-19 and return to economic prosperity. Our capacity to develop vaccines and treatments depends on a fully supported health research ecosystem, including the health and biosciences sector. More than 900 firms, employing more than 91,000 people,²⁰ are translating and commercializing our basic science discoveries into solutions for Canada and the world. The *Health and Biosciences Economic Strategy Tables Report of 2018* is the roadmap to ensuring this industry not only has a future in Canada but doubles in size to \$26 billion in annual exports. These goals require policies to incentivize Canadian healthcare entities to adopt *value-based* Canadian innovations, such as cost-saving digital technologies. A modern and viable regulatory, pricing and policy landscape, in line with other jurisdictions, is urgently needed to support a stable and predictable environment that encourages innovation and investment and supports patients.²¹ Policies to attract and keep world-class research talent, at risk during the lockdown, will ensure Canada's long-term competitiveness. All these factors, along with better access to domestic capital, are necessary to support the scaling of homegrown firms that can attract further investment and propel this industry into a global force. Now is a prime opportunity to support our made-in-Canada industry, ensuring Canadians are not left behind in the global rush to a COVID-19 vaccine, and that Canada has a robust sector to help us face the health challenges to come.

Conclusion

COVID-19 has laid bare the inextricable link between our economic security and our health security. As we want to ensure our economic recovery is complete and not sidetracked, we must continue to invest in the health research and innovation ecosystem that has helped us weather this storm and fill the gaps we know exist, readying us for what is to come. There is no better time for Canada to support health research and take it to fresh heights in the ways we have described, for the sake of our population's health and for the economy that provides Canadians our envied way of life.

²⁰ Canada's Economic Strategy Tables: Health and Biosciences. *The Innovation and Competitiveness Imperative: Seizing Opportunities for Growth*. 2018. PP. 3, 19.

²¹ Letter to Prime Minister Trudeau from Canadian Organization for Rare Disorders and Myeloma Canada, April 8, 2019.