

# Imagine

The Impact of Health Research in Canada

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## ABOUT THE SERIES

This is the first issue in a series of supplements Research Canada is providing for Parliamentarians to:

-  Showcase advancements in Canadian health research and health innovation
-  Demonstrate how health research is reinventing health care
-  Highlight the voices of patients and Canadian thought leaders

Health research can truly reinvent healthcare when we see it as an investment in Canada's social and economic future.

# INNOVATIVE RESEARCH

## Helping Kids Recover from Concussions

Few people know that children and adolescents take longer to recover from concussions than adults. At the Montreal Children's Hospital (MCH) Concussion Clinic, physiotherapist and RI-MUHC clinician researcher Dr. Isabelle Gagnon has developed an innovative rehabilitation approach for children who are slow to recover after a concussion. "Most kids recover within a month with complete rest," she explains. "But if after that period there are still lingering symptoms, they can become depressed or anxious to go back to school or to sports. So we give them a controlled, low-intensity physical program to help with recovery."

Robert Santos was one of those kids who benefited from this new treatment. The 15-year old visited the clinic last July, after he suffered a concussion during a soccer game. "I was dizzy, I felt a lot of pressure in my head and I had headaches," he says. "When they told me to rest, I was mad at the fact that I couldn't play and that I had let my team down. But, after I started doing some exercise every day, like light jogging, riding a stationary bike or kicking some balls on a wall, I actually felt a lot better."

Working Internationally to Improve Outcomes after Traumatic Brain Injury, Dr. Gagnon's project receives funding from the CIHR to better coordinate research on mild traumatic head injuries on a national scale.

Similarly, the Institute of Neurosciences, Mental Health and Addiction, or INMHA (one of the 13 CIHR institutes), is taking part in an emerging international initiative on traumatic brain injuries. The aim of this initiative, which involves the U.S. National Institutes of Health and the European Commission, is to improve the outcomes of victims of head trauma and reduce the overall burden of these injuries by 2020.



## TRANSFORMING LIVES

We will see patients with diseases currently considered untreatable, experience the joy of healthier and longer lives. I see in this next decade major advances in the brain – both in terms of enhanced understanding of function as well as therapeutic intervention.

Gene therapy and RNA interference should start to deliver much needed advances in diseases of the central nervous system. Oncology will likely remain a significant therapeutic area of focus where stunning breakthroughs in immune-oncology and antibody-drug conjugates will enable greatly improved patient outcomes and enhanced treatment tolerability.

Chronic diseases such as pain and cardiovascular disease will likely see patient segmentation into genetic sub-populations with more targeted therapies available. Patients should be great beneficiaries of these unprecedented medical advances.

*Simon Pimstone, MD, PhD, FRCPC*

*President & CEO, Xenon Pharmaceuticals Inc., Clinical Associate Professor, Division of General Internal Medicine, University of British Columbia*

# CANADIAN HEALTH RESEARCH LEADS THE WAY

Canadians have a proud history of innovative contributions to understanding life, its complications and how to identify and treat specific health issues. These discoveries include the development of Pabulum to treat rickets, the discovery of insulin, cobalt-60 cancer therapy, the pacemaker and an artificial heart.

As Past Chair of the Health Research Caucus I have had the great privilege to host on Parliament Hill outstanding researchers from across this country. I am always in awe of their innovations and accomplishments.

Canadian scientists have identified stem cells implicated in various cancers: brain tumors, breast cancer, colorectal cancer and the delivery of antitumor agents for a number of cancers. They are applying stem cells to the treatment of osteoarthritis, diabetes, damaged heart tissue, MS and spinal cord injury among many others.

As we move toward the future, a major challenge and enormous opportunity lies in understanding the microbiome and engaging it in protecting health. The urgent need for new models for antibiotic capability must gain international recognition.

In Canada the lethargy in health care delivery is reaching a crisis point. This must change quickly so that Canadians can benefit in a timely fashion from the brilliant innovations arising from basic research.

*The Honourable Kelvin K Ogilvie,*

*Senator, Past Chair,  
Parliamentary Health  
Research Caucus*

“It is difficult to imagine what amazing health care techniques and technologies will be routine in ten years. What is certain, however, is that tomorrow’s miracles begin with today’s curiosity, vision and team work.”

*Suzanne Fortier,  
Principal and Vice-Chancellor,  
McGill University*

## A TRADITION OF EXCELLENCE AND COLLABORATION

Canada is a nation of innovators. On a per capita basis, Canada boasts the fourth-largest science and technology workforce in the world — and nowhere is our heritage richer and our potential greater than in health research. As we move forward as a country, we must continue to cultivate an asset that is absolutely essential to the future of our healthcare system, to our economy and to the wellbeing of our population.

Based on 2014 data compiled by SCImago, Canada’s published health research is among the most impactful in the world, ranking among the top five countries in six of the eight health research categories SCImago tracks (and in the top ten in all categories). And, propelled by targeted investments through signature federal programs Canada has distinguished itself as a place where transformative research will continue to flourish in areas where Canada enjoys a competitive scientific advantage. We are a country of profound ideas and great science; we have the foundation to make a powerful contribution to human health and wellbeing.

*Dr. Ryan Wiley,*

*Chair, Research Canada and President, Shift Health  
(From Introduction to MP Welcome Kit, 2016)*

# PATIENT VIEWPOINT

My life changed forever the day I was diagnosed with type one, insulin dependent diabetes. I will never forget the doctor telling me about needing to go on insulin injections immediately, and the need to test my blood glucose many times a day — not to mention the long list of potential complications.

I couldn't believe how much was invested in diabetes research and innovation. From the discovery of insulin to my new continuous glucose monitoring system, treatment for diabetes has come a long way. I realized that this wasn't a death sentence... it was a wake-up call to live a healthy life.

Shawn Shephard  
[www.sugarfreeshawn.com](http://www.sugarfreeshawn.com)



## SIGNATURE PROGRAM

The Canadian Institutes of Health Research (CIHR)

Created in 2000 under the authority of the CIHR Act, the CIHR is the Government of Canada's health research investment agency.

CIHR's mandate is to "excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system."

CIHR was designed to respond to the evolving needs for health research and seeks to transform health research in Canada by:

1. funding both investigator-initiated research as well as research on targeted priority areas
2. building research capacity in under-developed areas and training the next generation of health researchers
3. focusing on knowledge translation that facilitates the application of the results of research and their transformation into new policies, practices, procedures, products and services



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