Building a Better Canada through Research Hospitals

- Research hospitals are national assets. They are patient care organizations with a tripartite mandate of care, training and research. The majority of heath research relies on their leadership and support.
- Employing over 600,000 Canadians, they advance the economy through stable employment and returns in health, life sciences, research, innovation and commercialization

"Research in Canadian post-secondary institutions and research hospitals creates new insights and leads to the technological breakthroughs of tomorrow…" Budget 2016, p. 113

A Year in Review for 2016

- **H10 asked for:** Recognition of the role of research hospitals, immediate restorative funding for the CIHR, and the ability to compete for infrastructure funding.
- **Budget 2016:** Thank you for the name recognition; largest unfettered increase for CIHR ($30M/yr) and $2B Strategic Investment Fund for infrastructure to which we could apply.
- **Strategic Investment Fund:** Submitted >35 projects (of~ 600) for >$257.5M (of $2B). Issues in application, but appreciated policy intent. So far: 2 wins; mostly rejections; awaiting news.
- **Government consultations:** We participated in Pre-Budget, Science Review, Income Tax, INFRAconsults, Let'sTalkClimateAction, Let'sTalkSustainability, and Innovation Agenda.

H10 Requests for Budget 2017

1. **Secure Restorative Funding for CIHR:** $150 M added to A-base budget **per year** over each of next five years to restore Canada's competitiveness in health research in light of neglect since 2010.
   Fact Sheet 1
2. **Provide Direct Eligibility for Infrastructure and Innovation Support:** Allow research hospitals to compete directly for funds; crucial to green, public safety, infrastructure Plans.
   Fact Sheet 2
3. **Secure an Innovation Supercluster in the Health and Life Sciences:** We ask that the health and life sciences be supported as one of Canada's world-leading innovation clusters.
   Fact Sheet 3

Looking Forward

- **Canadian policy and funding framework for research hospitals:** Allowing the federal government to optimize the role of research hospitals nationally and globally while fostering their sustainability (tax policy, research, innovation, infrastructure, environment, heritage, etc.).
  Fact Sheet 4

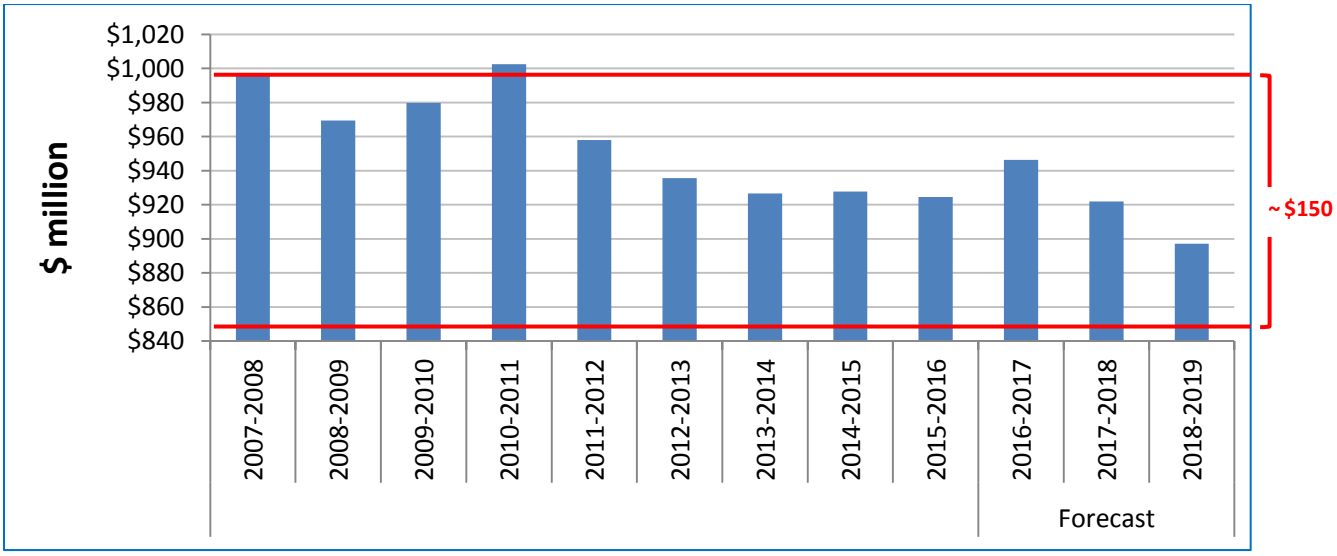
Secure Restorative Funding for CIHR

(Fact Sheet 1)

A Year in Review: Budget 2016 provided the largest unfettered increase to the federal granting councils in a decade. Specifically, for CIHR, the Budget provided for $30M in additional funding each year. The Federal Budget called for a Science Review, possibly stimulated by concerns in the research community. The report is due end of December. The Association of Early Career Health Researchers was formed. CIHR called an emergency meeting to deal with issues of peer review.

Why is further funding for CIHR necessary now?

- **Budget**: With the exception of Budget 2016, CIHR's core budget has not increased since 2010.



- **International: Our health research spending is falling behind that of other countries.**

Region	Health Research Expenditure ($M)	Total Health Expenditure ($M)	Health Research Expenditure / Total Health Expenditure
United States	$ 130,383	$ 2,900,000	4.5%
Australia	$ 5,500	$ 130,000	4.2%
United Kingdom	$ 8,500	$ 235,000	3.6%
Canada	$ 6,400	$ 214,900	2.9%

- **Scientific Community Demoralized: Trust needs to be restored.**

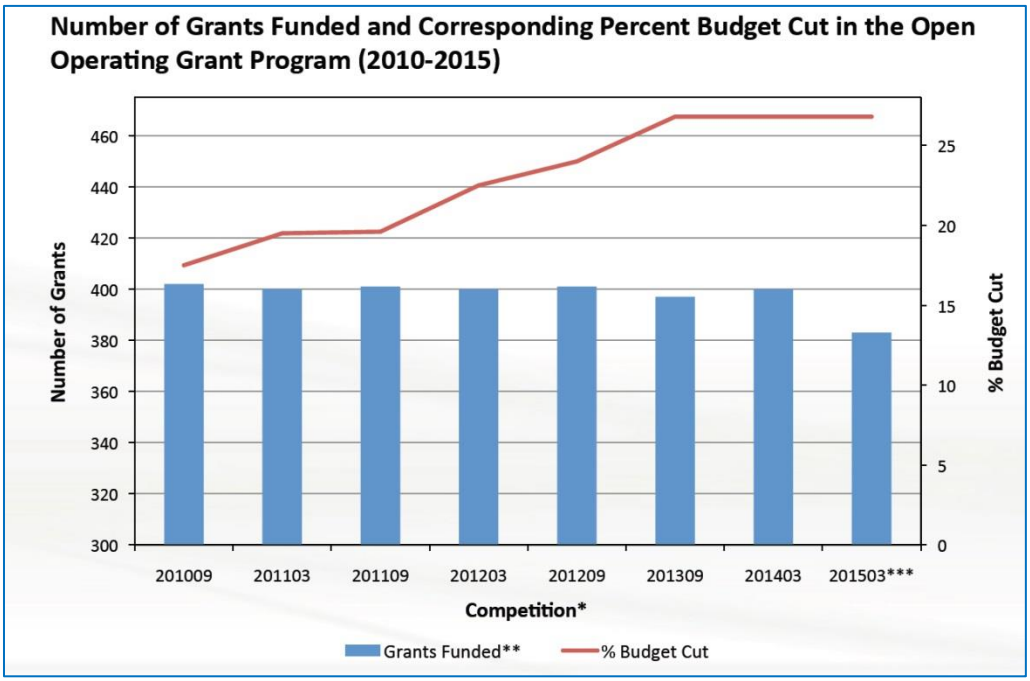
IMPACT OF THE CIHR REFORMS ON CANADIAN HEALTH RESEARCH: A PAN-CANADIAN SURVEY

Survey Summary Report

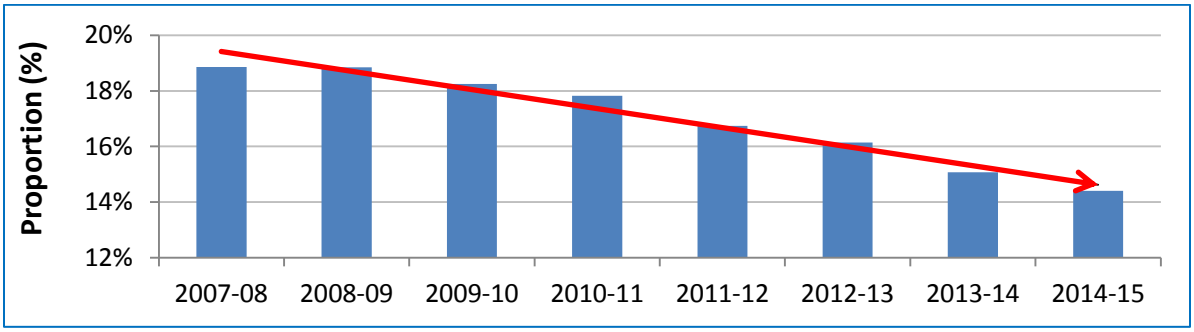
Pushback from scientists forces overhaul of funding system in Canada

IVAN SEMENIUK - SCIENCE REPORTER
The Globe and Mail
Published Thursday, Jul. 14, 2016 7:49PM EDT
Last updated Friday, Jul. 15, 2016 11:02AM EDT

- **Declining Success Rates:** In 2007-2008, CIHR received 3625 application and had a 22.5% success rate. In 2013-2014 there were 5389 applications and 15% success. Applies across men, women, and Canada Research Chairs who are having trouble getting CIHR grants.



- **Early Career Researchers:** The number of grants awarded to early-career researchers has dropped from almost 20% to less than 15%.



H on the Hill

Ensure Research Hospital Eligibility for Federal Infrastructure Support

(Fact sheet 2)

A Year in Review: Budget 2016 committed significant infrastructure funds to stimulate the economy. INFRAConsults and various environment consultations were conducted. We saw the effects of disasters in different parts of the country. The Strategic Investment Fund was launched. An Infrastructure Bank has been announced. Research hospitals can benefit Canada in next steps.

Why are we asking for research hospital eligibility to infrastructure funding federally?

- **Deferred Maintenance:** Canada's hospitals are worth $160 billion, but have accumulated deferred maintenance of ~$28 billion. Last non CFI federal injection: 1966 Health Resource Fund Act.

- **Research and innovation:** Research hospitals are essential for universities, colleges and industry to conduct health and life science research and are training and employment grounds for students.
- **Economy:** Building hospitals is big business. 14 of Top 100 Infrastructure Projects are hospitals ($10.6 B of total $ 162 B). Fixes the workplaces over 650,000 Canadians.

Top100 Canada's Biggest Infrastructure Projects

Rank	Hospital	Infrastructure project cost ($)
16	CHUM Redevelopment	$ 2,600,000,000
52	CHU Ste-Justine	$ 939,600,000
60	Providence Care Hospital	$ 810,000,000
69	BC Children's & Women's Hospital / Health Centre Redevelopment	$ 676,000,000

- **Environment and Safety:** Hospitals operate 24/7. They have significant chemical, waste, energy, water, transportation, food, pharmaceutical, physical plant, and purchasing requirements. Old is inefficient and behind the times in terms of environmental innovation. Canadian hospitals account for 8% of public green-house gas emissions and 10% of total public energy consumption. They don't resist disaster right now. In other countries it is illegal to build hospitals that are not resilient.

What are we doing about this persistent problem?

- In a recent survey, hospitals identified 444 physical plant initiatives intended to repair, retrofit or rebuild facilities so that they are cleaner, greener, more efficient, sustainable and resilient.

Primary Purpose(s)	# of projects in 2012 (%)	# of projects in 2016 (%)
Green/Environmental Technologies/Renovations	83 (22%)	264 (59%)
Research and/or Teaching Residents/Students	66 (17%)	35 (8%)
Emergency Departments/Acute Care/ICU	62 (16%)	114 (26)
Primary Care/Ambulatory /Day Clinics/Community	56 (15%)	29 (6%)
Rehabilitation, Healthy Aging and Long Term Care	28 (7%)	17(4%)
Women and/or Children's Health	18 (5%)	4 (0.5%)
Mental Health Services	12 (3%)	8 (2%)
Total*	**381**	**444**

What has the Federal Government done about this problem?

- Federal Government allowed hospitals to apply to an infrastructure fund (Strategic Investment Fund) which was targeted at legacy research, innovation and commercialization projects.

What happened during the Strategic Investment Fund program?

- We are certain that 13 research hospitals in 5 provinces submitted 35 projects worth $257.5M.
- We are told that there may be up to an additional 20 projects worth ~$250M also submitted.
- We are aware 2 research hospitals so far have succeeded (Horizon and Vitalité in NB).
- Hospitals which are independent legal entities were asked to get a University President signature.
- Some universities cited risk and prioritization, declined signatures, rendering applications ineligible
- Provinces often did not appreciate communities replaced provinces' matching fund requirements
- Some provinces may have had incentives to focus on universities. Missed opportunity for Canada.

How does our current ask support the Federal Agenda? *(from mandate letters)*

Minister of Finance	*"…develop the Canada Infrastructure Bank to provide low-cost financing (including loan guarantees)… Work with the Minister of Environment and Climate Change in creating a new Low Carbon Economy Trust to help fund projects that materially reduces carbon emissions under the new pan-Canadian framework."*
Minister of Infrastructure	*"…goal will be to begin to rebuild Canada for the 21st Century. This will require significant new investments in … green infrastructure, and social infrastructure … key strategic infrastructure that will increase trade and economic growth."*
Minister of Environment	*"Your overarching goal will be to take the lead in implementing the government's plan for a clean environment and a sustainable economy. Your key priority will be to ensure that our government provides national leadership to reduce emissions, combat climate change and price carbon."*

H on the Hill

Secure an Innovation Supercluster in the Health and Life Sciences

(Fact Sheet 3)

Year in Review: ISED's website describes the prowess of Canada's Health and Life Sciences Sector in terms of the pharmaceutical, biologics, device and government, academic and industry partnerships. Despite this, there is no infrastructure to support it. With the inception of an innovation agenda, we'd like to see the Health and Life Sciences Sector in Canada united.

1. Many collaborators in the health and life sciences; no organizing framework or table

…and others.

2. Big collaborators are big R&D Spenders:

- Of Canada's top 100 R&D private sector spenders who spend 12.8B in total, about one quarter are health and life science companies.
- Canada's research hospitals contribute $2.6B in total R&D spending ~ 10% of the total top 100 private sector R&D spenders in all sectors and about 25% of all R&D in universities.
- Between 2004 and 2013, hospital researchers were noted by STIC as the most frequent collaborators in the economy having co-authored 13% of all university publications.
- Clinical medicine, biomedical research and biology are high collaboration areas next further behind is aerospace.

3. Health and Life Sciences Puts Canada on the World Stage

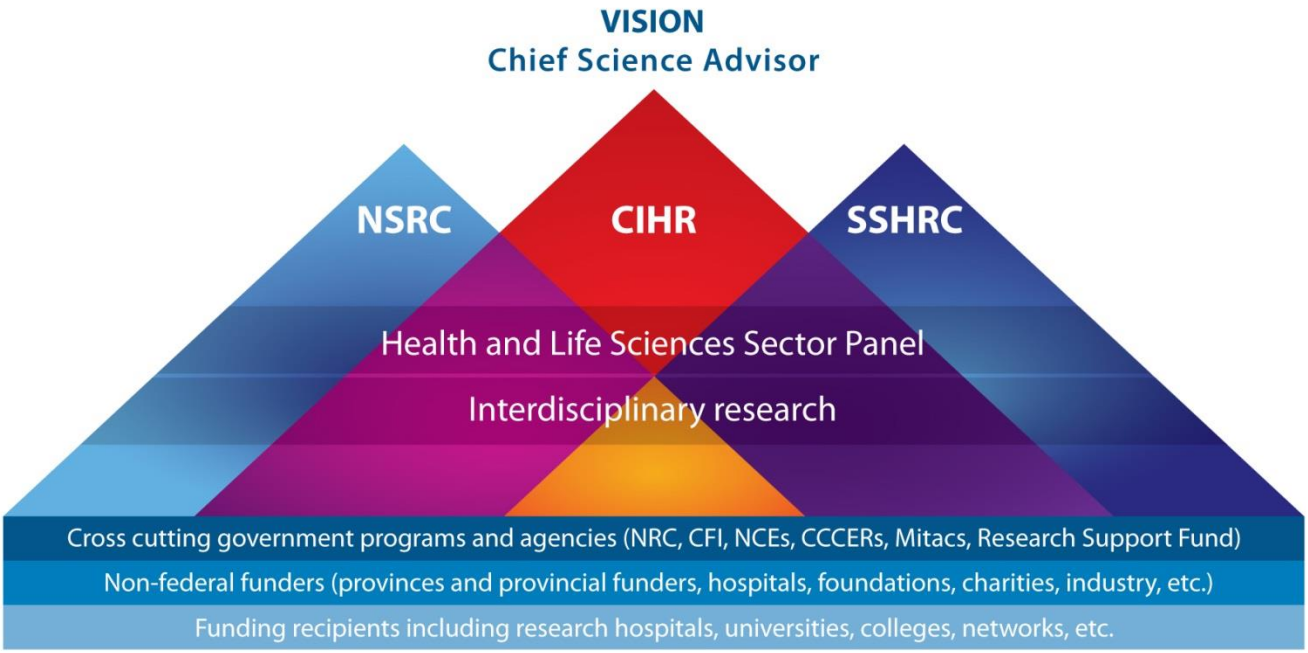
- Canada conducts about 10% of the world's active clinical trials; about 40% of these occur in research hospitals. About 10% of all medical device companies are spinoffs.
- Every research hospital has one or more Canadian or World "first" that has hit the media in the past five years
- Canada is the 10th largest world market for pharmaceuticals: 10 companies make up 50% of the market share in Canada. We have 2% of the world market for devices.
- Canada's research hospitals have a total budget (R&D and otherwise) of $45B about 6% of this is R&D.

4. Health and Life Sciences are stable employers and contributors to society

- Canada's research hospitals employ over 650,000 Canadians including an estimated 66,000 people in R&D. Canada's pharmaceutical companies employ an additional 33,000.
- Canada's research hospitals treat 99% of the top 13 most rare and complex diseases, support 55,000 trainees, and 45,000 volunteers.

Recommendations:
(1) A more coordinated health and life sciences research ecosystem and roundtable (Figure 1)
(2) A supercluster for the health and life sciences to unite all partners and compete globally
(3) Full recognition and independent application privileges for research hospitals

Figure 1: ***Proposal for a more coordinated health and life sciences research and innovation ecosystem***



H on the Hill

Top 10 Reasons Research Hospitals=National Assets

(Fact sheet 4)

HealthCareCAN
Leading. Innovation. Together.

Q: What is a research hospital?

"A patient care organization with a publicly stated tripartite mandate of patient care, training and research"

#

HealthCareCAN
Leading. Innovation. Together.

Members of HealthCareCAN:

Leading patient care organizations across the country including the majority of the country's research hospitals (AHSCs).

#

HealthCareCAN
Leading. Innovation. Together.

#1 Research hospitals= Here for All of Us

#

HealthCareCAN
Leading. Innovation. Together.

#2 Research hospitals= Jobs and Care

#

HealthCareCAN
Leading. Innovation. Together.

#3 Research Hospitals =Helping the broader agenda

Minister of Science "Examine options to strengthen ...support for fundamental research"

Minister of Health "Advance pan Canadian collaboration on health innovation.."

Minister of Innovation, Science & Economic Development "Develop an innovation agenda that includes..."

Minister of Finance "work to ensure that tax measures encourage innovation...".

#

HealthCareCAN
Leading. Innovation. Together.

#4 Research Hospitals = Top 100 Infrastructure Projects

Top100
Canada's Biggest Infrastructure Projects

14 Hospital Projects in Top 100

= $10.6B or 6.5% of total $162B costs

H on the Hill

#5 Research hospitals= health & life science partners

"From 2004 to 2013, hospital researchers were by far the most frequent collaborators, having co-authored 13.1 percent of all university researchers' publications...." (STIC, 2014)

"Consistent with the large number of collaborations between university and hospital researchers over the period, the highest collaboration rateswere in the fields of clinical medicine (35.6 percent), biomedical research (26.6 percent) and biology (26.0 percent). Among other fields, the only noteworthy collaboration rate was in earth and space sciences (20.7 percent)...." (STIC, 2014)

#

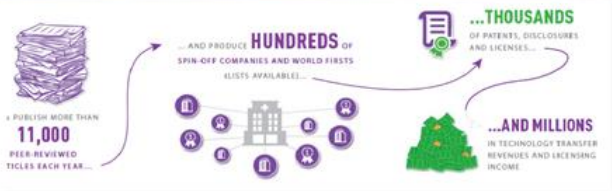
#6 Research hospitals= R&D Performer

health research in hospitals = 25% of *all* research in research universities

~6% of total Budget for R&D

#

#7 Research hospitals= Productivity



Innovation Sensation

Healthier Wealthier Smarter

Council of Academic Hospitals of Ontario

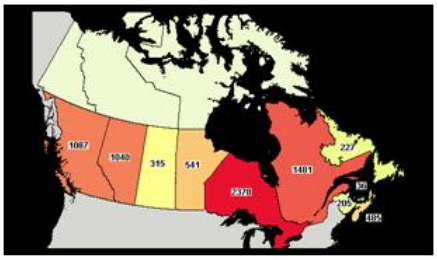
#

#8 Research Hospitals = Translation

#9 Research Hospitals = Clinical Trials

Canada conducts 10% of the world's listing of active clinical trials
(source: Clinical Trials.Gov)

42 research hospitals conduct about 36% of CTs in Canada
(source: extrapolation based on data from CAICR website).



(Number of active trials source: Clinical Trials.Gov)

#

#10 Research Hospitals = Canada on World Stage

Changes coming to B.C. cancer treatment system
July 21, 2016

Spinal Cord Injury Program at HSC Winnipeg first in Canada to receive accreditation
August 02, 2016

Vancouver Coastal Health sets new guidelines for treatment of opioid addiction
November 3, 2015

Women's College unveils Toronto's first [high-tech] outpatient hospital
June 12, 2013

Results of world's first study on new treatment for heroin addiction

Toronto hospital becomes world's first to treat brain tumour with non-invasive procedure
November 9, 2015

North American first in children: SickKids doctors destroy bone tumour using incisionless surgery
August 6, 2014

Researchers produce first widely protective vaccine against chlamydia
July 21, 2016

Where's Zika going next? Maybe China, India, or Nigeria
September 1, 2016

For Canadian 1sts Series: Visit www.healthcarecan.ca or follow us on Twitter until December 8, 2016!