



Memorandum

Secretariat

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TO: Senate

FROM: Stephen Stropole, Secretary-General

SUBJECT: Open Discussion on Research Funding and Support

DATE: December 2, 2015

DOCUMENT #: D15-22

ACTION REQUIRED: INFORMATION APPROVAL/DECISION

ISSUE: Background documents in support of the open discussion on “Research Funding and Support”

BACKGROUND

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RATIONALE:

Following a review of topics suggested by Senators, the Senate Steering Committee selected “Research Funding and Support” as the topic for the December 2, 2015 Senate meeting.

PRIOR

CONSULTATION:

Senate Steering Committee
A working group was struck to develop background documentation.

**SUSTAINABILITY
CONSIDERATIONS**

N/A

**IMPACT OF
DECISION AND
NEXT STEPS**

Follow-up action may result from the Open Discussion.

**MOTION OR
RESOLUTION
FOR APPROVAL:**

N/A

APPENDICES:

Appendix A: Questions and Background Information
Appendix B: Tri-Agency Funding Trends

Open Discussion: Research Funding and Support

Questions and Background Information Senate, December 2, 2015

This discussion follows on from questions raised at the Senate meetings of May 12 and September 24, 2015. The respective Senate Minutes containing the questions and responses may be found at:

https://www.mcgill.ca/senate/files/senate/minutes_senate_may_12_2015_-final.pdf
https://www.mcgill.ca/senate/files/senate/senate_minutes_sept_24_2015.pdf

Both questions addressed the issue of access to funding for investigator-driven research due to factors such as:

- Changes in granting council funding schemes which allocate a significant portion of available funding to targeted vs. investigator-driven grants;
- Increasing competition for available and flattening investigator-driven funds;

While early signals from the new federal government point to potential changes in research funding policy and priorities, it may be some time before changes emerge at the granting councils level. Pending such changes, important questions remain with respect to what McGill can do internally to deal with the existing realities of research funding, particularly in addressing the impact of the flattening of investigator-driven research funding, and adequate support for core research infrastructure.

The following questions are proposed to guide Senate's open discussion on December 2.

Question 1: How can/should McGill support academic staff and help manage their research careers?

Getting that first grant (until relatively recently) as young faculty has been *relatively* easy compared to getting a first and second grant renewal. What effects and impact is this phenomenon having on McGill researchers? How can McGill better help in supporting applications for grant renewal?

What are the implications of the research funding climate for the ability of faculty to fulfill the tenure criteria on research and scholarly performance, and should McGill adapt its tenure criteria to acknowledge such implications?

There is a growing awareness that advances in solving major research issues/problems require inter/transdisciplinary approaches. Granting agencies are encouraging grant applications that require the building of teams across Departments, Faculties, Universities and with the private sector and government researchers. How can/will McGill help researchers, departments and faculties break out of their silos to facilitate interdisciplinary teams? Even if we can break down the silos are there programs in Canada to fund interdisciplinary research, especially research programs and projects that cross Tri-Council domains?

Question 2: How can/will McGill University sustain its research infrastructure?

Funding agencies like CFI help universities and researchers acquire new technologies and sophisticated cutting-edge equipment. However, there is limited funding to maintain and operate such equipment over the long term. Perhaps more importantly, there are few sources of funding specifically earmarked for core research infrastructure (e.g. the ordinary instrumentation such as centrifuges, autoclaves, dishwashers, ice machines, research-related library acquisitions) that sustain daily activities in research labs. Researchers end up using research grant operating funds to buy and maintain such equipment. Nominally, there are funds to support the indirect costs of research, but these are limited and there is no specified percentage that trickles down to departments where they are needed. What are your experiences in this regard? How can we collect useful data on the variety and extent of infrastructure support needed? How can McGill ensure funding and the continuity of expertise for the upkeep of older infrastructure? Could a portion of indirect costs funding be allocated to support research infrastructure, and how might this be done?

An additional background document showing tri-council funding awards for selected years since 2001-02, together with an appendix indicating investigator-driven and targeted research areas for each funding agency is appended.

Recent news articles in the *Ottawa Citizen* provide insight and perspective on the current research funding environment, and may be found at:

<http://ottawacitizen.com/news/local-news/ottawa-researcher-no-longer-advises-students-to-become-scientists-due-to-the-dismal-outlook>

<http://ottawacitizen.com/storyline/scientists-demoralized-by-lack-of-funding-and-peer-review-reform-demand-changes-at-1b-health-research-agency>

A subsequent open discussion may be appropriate to deal with related questions such as:

- how McGill can influence/change the federal and provincial investments in research, and be a leader for its sister institutions in lobbying provincial and federal governments;
- the relationship between research funding and graduate education.

2015-11-27



Open Discussion at Senate: Tri-Agency funding

Context

This report was prepared to provide data and analysis in preparation for the Open Discussion at Senate on the topic of Tri-Agency funding on December 2, 2015.

It describes the Tri-Agency funding from 2002 to 2014 both in terms of actual amounts of awarded dollars for research and adjusted to inflation (consumer price index, Statistics Canada). Furthermore, the report illustrates the amount of Tri-Agency research funding that is for investigator-driven research and the amount that is for targeted initiatives.

Key Observations:

- The annual envelope for total research funding for the Tri-Agency (NSERC, CIHR and SSHRC) has increased by 93% from 2002 to 2014. When adjusted to inflation, the increase is 54%.
- The increase in total research funding changes slope in 2007/2008:
 - 01/02 to 06/07: the envelope increased annually by an average of 11% (actual) and 9% (adjusted to inflation) for a total of \$564M (47%).
 - 07/08 to 13/14: the envelope increased 0.5% (actual) and when adjusted to inflation it has decreased by 1% annually for a total of -\$125M (-6%).
- All three agencies are following this trend (adjusted to inflation):
 - 01/02 to 06/07 increases: CIHR \$223M (45%); NSERC \$212M (38%); SSHRC \$130M (90%)
 - 07/08 to 13/14 decreases: CIHR -\$58M (-7%); NSERC -\$36M (-4%); SSHRC -\$31M (-10%)
- Tri-Agency funding for investigator-driven research of the total Tri-Agency envelope:
 - Decreased from 81% of total Tri-agency funding in 2009 to 77% in 2014.
 - In dollars (adjusted to inflation) this represents a decrease of \$163M over the 5 years (from \$1,798M to \$1,635M) representing a drop of 9% of the total Tri-agency funding.
- Tri-Agency funding for targeted research (definition below) of the total Tri-Agency envelope:
 - Increased from 18% of total Tri-agency funding in 2009 to 24% in 2014.
 - In dollars (adjusted to inflation) this represents an increase of \$80M over the 5 years (from \$412M to \$492M) representing 20% of the total Tri-agency funding.

1. Tri-Agency Funding

Table 1: Total Tri-Agency Awards x\$1M (grants, career awards, scholarships, CRCs and NCEs) actual and adjusted to consumer price index

Year	Actual	Adjusted
01/02	1,194 \$	1,194 \$
02/03	1,370 \$	1,332 \$
03/04	1,556 \$	1,486 \$
04/05	1,723 \$	1,610 \$
05/06	1,869 \$	1,713 \$
06/07	1,959 \$	1,757 \$
07/08	2,239 \$	1,963 \$
08/09	2,221 \$	1,942 \$
09/10	2,267 \$	1,946 \$
10/11	2,325 \$	1,939 \$
11/12	2,325 \$	1,911 \$
12/13	2,300 \$	1,873 \$
13/14	2,301 \$	1,838 \$

* adjusted to Consumer Price Index (Source: Statistics Canada)

Graph 1: Total Tri-Agency Awards x\$1M - actual and adjusted to consumer price index (Year 01/02 =100)

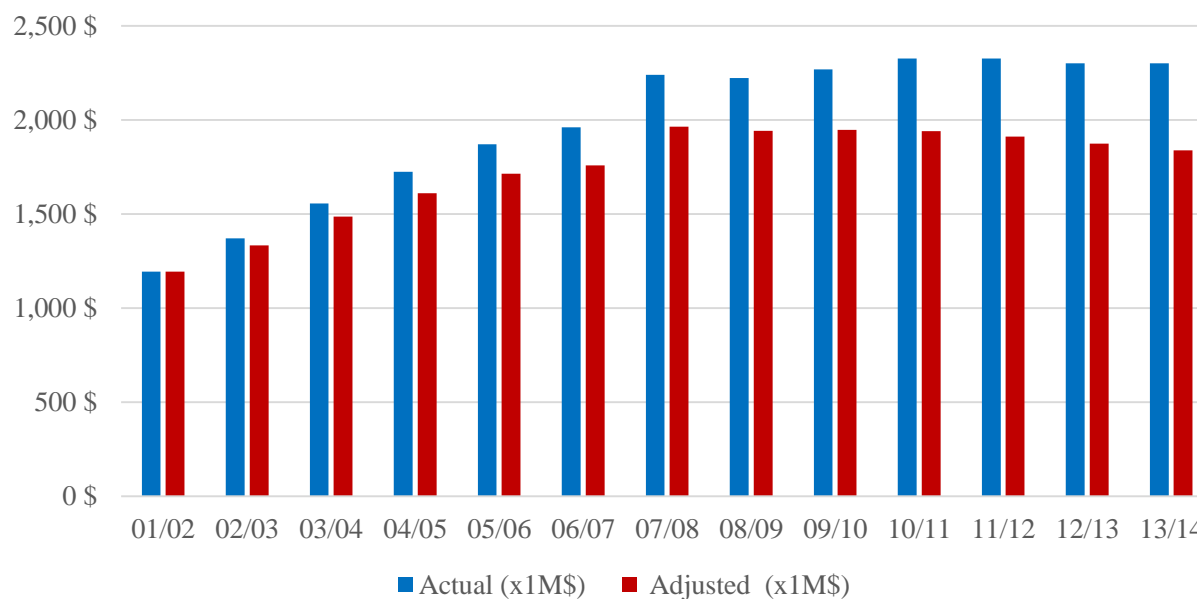
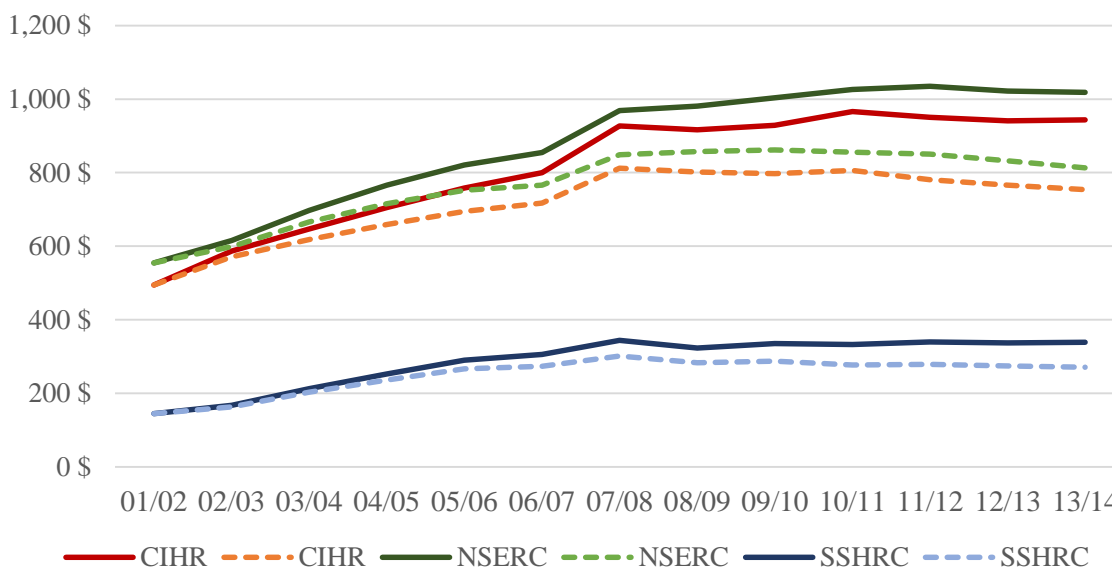


Table 2: Tri-Agency awards per agency x\$1M (grants, career awards, scholarships, CRCs and NCEs) - actual and adjusted to consumer price index (Year 01/02 =100)

Year	CIHR	CIHR*	NSERC	NSERC*	SSHRC	SSHRC*
01/02	495 \$	495 \$	555 \$	555 \$	144 \$	144 \$
02/03	587 \$	571 \$	615 \$	599 \$	167 \$	163 \$
03/04	647 \$	618 \$	697 \$	666 \$	212 \$	203 \$
04/05	705 \$	659 \$	766 \$	716 \$	253 \$	236 \$
05/06	758 \$	695 \$	821 \$	752 \$	290 \$	266 \$
06/07	800 \$	717 \$	855 \$	766 \$	305 \$	274 \$
07/08	927 \$	812 \$	969 \$	849 \$	344 \$	302 \$
08/09	917 \$	801 \$	981 \$	857 \$	323 \$	283 \$
09/10	929 \$	798 \$	1,003 \$	861 \$	335 \$	287 \$
10/11	967 \$	806 \$	1,026 \$	856 \$	332 \$	277 \$
11/12	951 \$	781 \$	1,035 \$	851 \$	339 \$	279 \$
12/13	941 \$	766 \$	1,022 \$	832 \$	337 \$	274 \$
13/14	944 \$	754 \$	1,018 \$	813 \$	339 \$	271 \$
Grand Total	10,565 \$	9,273 \$	11,363 \$	9,973 \$	3,722 \$	3,259 \$

* adjusted to Consumer Price Index (Source: Statistics Canada)

Graph 2: CIHR, NSERC, SSHRC Awards x\$1M - actual and adjusted to consumer price index Year 01/02 =100. Solid lines are actual dollars while the dotted lines are indexed.



2. Investigator-driven and Targeted Research

Definitions:

- **Investigator-driven research:** Research where the researchers design and lead the study independent of the sponsor in the area of research of their choosing. .
- **Targeted research:** Research where the research area is defined by the sponsor, either at a broad level, e.g. environment, or a more specific level, e.g. NSERC Collaborative Research Development Grant funding to McGill’s researcher Ian Strachan, *The net change in greenhouse gas emissions from the creation of reservoirs in the boreal landscape.*

Methodology:

More than 520 Tri-Agency programs were classified in the two categories defined above accounting for 98% of the total funding. This covers all Tri-Agency programs for direct support including research grants, career awards, student support, Canada Research Chairs, and Networks of Centres of Excellence. Indirect support and the agencies’ operating funds were excluded. The amounts in all tables below are adjusted to consumer price index (Year 08/09 =100)

The Canadian University Research Funding System, a comprehensive study conducted by Global Advantage Consulting Group, showed a similar result for 2014 Tri-Agency funding. David Watters, President and CEO, summarized their findings in a [Presentation to Universities Canada](#).

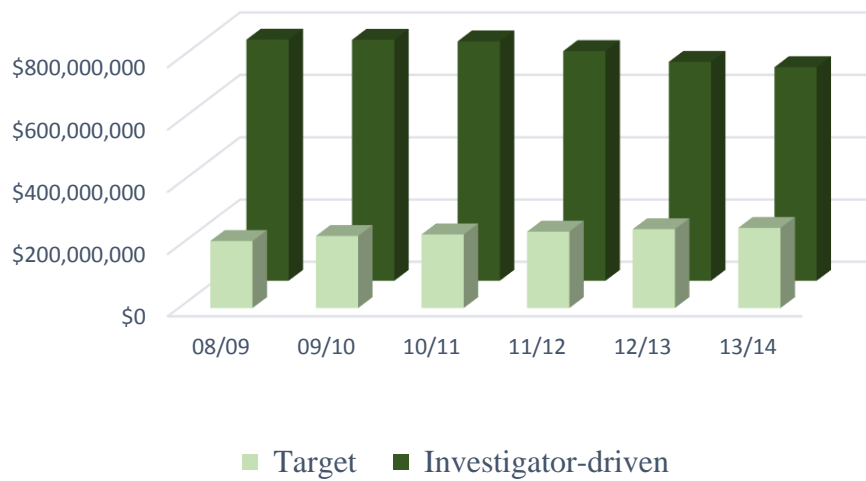
Table 3: Tri-Agency funding: Share of *investigator-driven* programs of total funding envelopes (%) from 2009 to 2014.

	08/09	13/14
NSERC	78%	73%
CIHR	80%	78%
SSHRC	90%	84%
Tri-Agency total	81%	77%

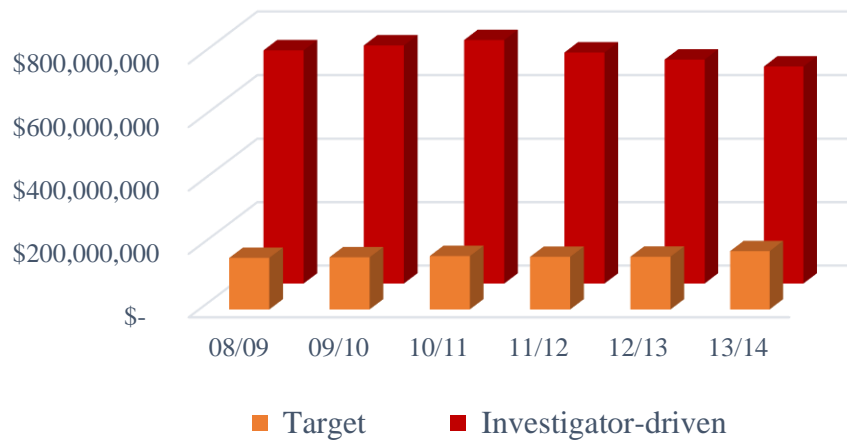
Table 4: Tri-Agency – funding for *targeted* and *investigator-driven* programs (x \$1M)

	NSERC		CIHR		SSHRC	
	Target	Investigator-driven	Target	Investigator-driven	Target	Investigator-driven
08/09	\$215.80	\$774.35	\$162.75	\$735.08	\$33.13	\$288.16
09/10	\$231.87	\$773.85	\$164.74	\$750.53	\$32.65	\$298.88
10/11	\$236.88	\$768.92	\$168.73	\$767.31	\$33.64	\$291.55
11/12	\$245.94	\$737.75	\$166.10	\$728.19	\$41.02	\$281.68
12/13	\$253.72	\$703.09	\$166.45	\$706.04	\$47.37	\$268.38
13/14	\$257.85	\$686.12	\$184.08	\$684.23	\$50.14	\$264.22
% change	+19%	-11%	+13%	-7%	+51%	-8%

Graph 3: NSERC—
funding 6 year
funding trend for
targeted and
investigator-driven
awards



Graph 4: CIHR—
funding 6 year
funding trend for
targeted and
investigator-driven
awards



Graph 5: SSHRC—
funding 6 year
funding trend for
targeted and
investigator-driven
awards



Appendix A: Research Funding by Agency

Definitions

- **Investigator-driven research:** Research where the researchers design and lead the study independent of the sponsor in the area of research of their choosing. .
- **Targeted research:** Research where the research area is defined by the sponsor, either at a broad level, e.g. environment, or a more specific level, e.g. NSERC Collaborative Research Development Grant funding to McGill's researcher Ian Strachan, *The net change in greenhouse gas emissions from the creation of reservoirs in the boreal landscape*.

NSERC	
Investigator-driven	Targeted
<ul style="list-style-type: none"> • Discovery-Individual • Discovery-Group • Sub-Atomic Physics Envelope • Equipment • Applied Research Tools and Instruments Grants • Major Facilities Access Grants • University Faculty Award • Research Tools and Instruments • Special Research Opportunity Program- Project • Promo science • Scholarships • Fellowships • Awards 	<ul style="list-style-type: none"> • Collaborative Research and Development • Strategic Projects • Strategic Networks • Industrial Research Chairs • College and Community Innovation Program • Engage • Engage Plus • Discovery Frontiers • Cooperative Activities • Collaborative Health Research Program (with CIHR) • Idea to Innovation • Automotive Partnership Canada Project • Chairs in Design Engineering - Research • NSERC/NRCan/AECL Generation IV Energy Technologies Program • Technology Access Centre • Applied Research- Levels 1, 2, and 3 • NRC-NSERC-BDC Nanotechnology Initiative • Government of Canada`s Program for International Polar Year • Climate Change and Atmospheric Research Initiative • Northern Research Chairs Program • Special Research Opportunity Programs • Strategic Workshops Program • G8 Initiative Research Councils on Multilateral Research Funding Special Opportunities • Miscellaneous Grants

SSHRC	
Investigator-driven	Targeted
<ul style="list-style-type: none"> • Insight • Insight Development • Standard Research Grants (no longer active) • Research/Creation Grants • Institutional Grants • International Opportunities Fund • Aid to Small Universities • SSHRC Gold Medal for Achievement in Research • Presidential Fund for Innovation and Development • Aid to Scholarly Journals/Publications • Aid to Occasional Research Conferences and International Congress • Public Outreach • Connection programs • Knowledge Impact • Scholarships • Fellowships • Awards 	<ul style="list-style-type: none"> • Partnership • Partnership Development Grants • Community-University Research Alliances (CURA) (no longer active) • Major Collaborative research Initiatives Program (MCRI) (no longer active) • Strategic Research Clusters Design Grants • Canadian Initiative on Social Statistics (CISS) Data Training Schools • Sport Participation Research Initiative • The Social Economy Suite • International Community-University Research Alliances (CURA) - SSHRC/IDRC • Automotive Partnership Canada • College and Community Innovation Program • Digging into Data Challenge

CIHR	
Investigator-driven	Targeted
<ul style="list-style-type: none"> • Operating Grants • Randomized Controlled Trials • Clinical Trials • Institute Support Grant • New Investigator • Team Grants, Emerging Team Grants • Catalyst Grants • Network Catalyst Grants • Knowledge Synthesis • Scientific Director Research Program Supplement • Canadian Light Source • CIHR/Regional Partnership Program/Operating • Individual Group Project - Operating • CIHR Research Resource Grant Program • CIHR Group Program • CIHR Clinician Scientist - Phase 2 • Strategic Training Program Grant • CIHR Centres for Research Development: Understanding/Addressing Physiological and Social Environments • Randomized Controlled Trials: Mentoring • President's Fund • Knowledge Translation • Promotions • Multi-User Equipment & Maintenance Grants • Advancing Technology Innovation Through Discovery • Meetings Planning and Dissemination Grants • CIHR Journalism Award • Meetings Planning and Dissemination Grant: Knowledge Translation • Knowledge to Action • CIHR Café Scientifique Program • Scholarships • Fellowships • Awards 	<ul style="list-style-type: none"> • Operating Grants- Priority Announcements • Canadian Longitudinal Study on Aging • CIHR Network Environments for Aboriginal Health Research • China-Canada Joint Health Research Initiative • POP I and POP II • Industry-Partnered Collaborative Research • Collaborative Health Research Project (with NSERC) • University – Industry Program • Pfizer Operating Grant in Disease Prevention and Management • International Collaborative Indigenous Health Research Partnership Chronic Disease • CIHR/SME Collaborative Res Program-Randomized Controlled Trials • Chair: CIHR/SME Collaborative Research Program • Vaccines of the 21st Century • Influenza Research Network • Strategic Patient-Oriented Research (SPOR) • Drug Safety and Effectiveness Network (DSEN) - Observational Studies • Reducing Health Disparities & Promoting Equity for Vulnerable Populations – ICE • Canadian Epigenetics, Environment and Health Research Consortium (CEEHRC) Epigenomics Platform - Epigenomic Mapping Centres (EMC) • International Polar Year • Canadian Initiative on Soc Stats (CISS) Data Training Schools & Res Data Centres • Healthy Pregnancy for Great Life Beginnings • Transplantation Research • Grand Challenge in Global Health • Healthy Developmental Trajectories of Infants Children and Youth • Rapid Funding for DSEN • Training Program to Enhance the Quality of Life • Built Environment: Population Health Intervention Research • PHAC/CIHR Influenza Research Network • CIHR Research Chairs/ Applied Research Chairs • Strategic Training Initiative in Health Research

CIHR	
Investigator-driven	Targeted
	<ul style="list-style-type: none"> • Strategic Training Init. Health Res-Training Program Grants to Enhance Quality • CIHR ICR National Tumour Banking Network • International Collaborative Indigenous Health • Research Partnership Grant on Resilience • Mental Health in the Workplace: Delivering Evidence for Action • Rural and Northern Health Research: NETS • Genomics and Personalized Health • Enzyme Replacement Therapy for Fabry Disease • Special Projects • CEEHRC Epigenomics Platform - Epigenomic Data Coordination Centre (EDCC) • Preventive Health Care Evidence Review and Synthesis Centre • Canada-UK Partnership on Antibiotic Resistance • Resuscitation Outcomes Consortium • Newfoundland & Labrador Centre for Applied Health Research`s Contextualized Health Research Synthesis Program • Canadian Health Services Research Foundation (CHSRF)/CIHR Regional Training Centres • Other: Canada-UK Aging Initiative • Synapse – CIHR Youth Connection Program • HIV/AIDS Community Based Research (CBR) Program - General - CBR Facilitators • Canadian Council on Animal Care • Canadian Cochrane Network and Centre (CCNC)