



Canadian Institutes of Health Research

Performance Report

For the period ending
March 31, 2001

Canada

Improved Reporting to Parliament Pilot Document

Each year, the government prepares Estimates in support of its request to Parliament for authority to spend public monies. This request is formalized through the tabling of appropriation bills in Parliament.

The Estimates of the Government of Canada are structured in several parts. Beginning with an overview of total government spending in Part I, the documents become increasingly more specific. Part II outlines spending according to departments, agencies and programs and contains the proposed wording of the conditions governing spending which Parliament will be asked to approve.

The *Report on Plans and Priorities* provides additional detail on each department and its programs primarily in terms of more strategically oriented planning and results information with a focus on outcomes.

The *Departmental Performance Report* provides a focus on results-based accountability by reporting on accomplishments achieved against the performance expectations and results commitments as set out in the spring *Report on Plans and Priorities*.

The Estimates, along with the Minister of Finance's Budget, reflect the government's annual budget planning and resource allocation priorities. In combination with the subsequent reporting of financial results in the Public Accounts and of accomplishments achieved in Departmental Performance Reports, this material helps Parliament hold the government to account for the allocation and management of funds.

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Foreword

In the spring of 2000 the President of the Treasury Board tabled in Parliament the document “Results for Canadians: A Management Framework for the Government of Canada”. This document sets a clear agenda for improving and modernising management practices in federal departments and agencies.

Four key management commitments form the basis for this vision of how the Government will deliver their services and benefits to Canadians in the new millennium. In this vision, departments and agencies recognise that they exist to serve Canadians and that a “citizen focus” shapes all activities, programs and services. This vision commits the government of Canada to manage its business by the highest public service values. Responsible spending means spending wisely on the things that matter to Canadians. And finally, this vision sets a clear focus on results – the impact and effects of programs.

Departmental performance reports play a key role in the cycle of planning, monitoring, evaluating, and reporting of results through ministers to Parliament and citizens. Earlier this year, departments and agencies were encouraged to prepare their reports following certain principles. Based on these principles, an effective report provides a coherent and balanced picture of performance that is brief and to the point. It focuses on results – benefits to Canadians – not on activities. It sets the department’s performance in context and associates performance with earlier commitments, explaining any changes. Supporting the need for responsible spending, it clearly links resources to results. Finally the report is credible because it substantiates the performance information with appropriate methodologies and relevant data.

In performance reports, departments strive to respond to the ongoing and evolving information needs of parliamentarians and Canadians. The input of parliamentarians and other readers can do much to improve these reports over time. The reader is encouraged to assess the performance of the organization according to the principles outlined above, and provide comments to the department or agency that will help it in the next cycle of planning and reporting.

This report is accessible electronically from the Treasury Board of Canada Secretariat Internet site:

<http://www.tbs-sct.gc.ca/rma/dpr/dpre.asp>

Comments or questions can be directed to this Internet site or to:

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Canadian Institutes of
Health Research
Performance Report

Submitted to Parliament
by the Minister of Health

Allan Rock

Table of Contents

Executive Summary	
President's Message	1
Bringing Health Research Home to Canadians:	
The CIHR Context	3
No longer business as usual	3
The Canadian Institutes of Health Research	3
The changing landscape	4
Impressive early results	5
Outstanding Research	7
Researchers in a Robust Research Environment	9
Partnerships and Public Engagement	12
Working together for a healthier Canada	12
A Wellcome incentive	13
Stem cell debate	14
Building bridges	14
Translation and Use of Knowledge	15
Economic benefits	16
Going private	16
Organizational Excellence	19
Financial Performance	21
Financial Summary Tables	22
Information	24
Contacts for further information	24
Legislation	24
Agency reports	24

Executive Summary

This is the first report on the performance of the Canadian Institutes of Health Research (CIHR). In less than a full year of operation, CIHR not only began to fulfill its mandate to fund and promote health research excellence in Canada, but it did so while establishing a unique organizational framework of thirteen virtual Institutes and appointing the Scientific Directors to lead the Institutes and the Advisory Boards to assist the Scientific Directors in their work.

The official launch of CIHR on June 7, 2000, ushered in a new era of federal government support for health research in Canada. Beginning with an initial operating budget of \$336 million, CIHR's broad and dynamic mandate was reinforced with an additional financial appropriation of \$65 million dollars for 2000–2001 that enabled CIHR to fund more than 500 additional researchers through a variety of operating grants and awards.

CIHR's vision recognizes the important contribution of all disciplines involved in human health and disease and the importance of translating new knowledge to improve the health of Canadians and strengthen the health-care system. Through a variety of innovative programs and partnerships, CIHR's first year focused on creating a robust research environment that was inclusive, innovative and transformative.

CIHR's performance in 2000–2001 is reported under seven categories:

1. Bringing Health Care Home to Canadians: The CIHR Context
2. Outstanding Research
3. Researchers in a Robust Research Environment
4. Partnerships and Public Engagement
5. Translation and Use of Knowledge
6. Organizational Excellence
7. Financial Performance

President's Message

*“What is now proved was once only
imagined.”*

WILLIAM BLAKE (1757–1827)

Without a doubt, the Canadian research community is in the midst of two revolutions: a revolution in the global understanding of human health and a revolution in the way we support and conduct health research in Canada. I am pleased to have this opportunity to report to Parliament and all Canadians that CIHR has met most of our initial objectives.

From its official launch in June 2000 to the end of March 2001, the Canadian Institutes of Health Research has revitalized the health-research community. In a matter of a few months, CIHR created 13 new Institutes, appointed world-class researchers as Scientific Directors to lead them, and then selected more than 200 Canadians from the public, private, voluntary and academic sector to advise the Scientific Directors in transforming health research in Canada.

CIHR will strive to excel in the creation of new knowledge and its translation into improved health for Canadians. Already, it has mobilized the health-research community and engaged governments, industry, universities, the voluntary sector and the Canadian public in an unprecedented partnership. Through CIHR, Canada is becoming the place to do research in the 21st century.

Health care in this country is not only a source of pride among Canadians, but it is also a symbol of our national identity. CIHR's inclusive, integrative and uniquely Canadian approach to health research has already captured the attention of the international research community.

With CIHR, for the first time, federal funding for health research embraces the full spectrum of human health from biomedical and clinical research to health services and systems and population health. CIHR's innovative, transdisciplinary approach to research holds tremendous potential for new discoveries, increased understanding of health and disease, and the translation of this knowledge into improved health for Canadians and the resulting enhanced social and economic outcomes.

CIHR has rejuvenated Canada's health research enterprise. It has established programs to build capacity within and taken steps to make Canada a more attractive research environment globally. It has invited Canada's stakeholders to play a role in developing the health-research agenda in Canada.

This inclusive strategy will improve cooperation and draw academics, health-care providers, policy makers, hospital workers, politicians, and representatives from industry and the voluntary sector together to make Canadians healthier and Canada stronger.

During the 2000–2001 fiscal year, CIHR made tremendous strides in positioning itself and Canada as a global model for innovation and excellence in health research. The efforts of all those involved in the organization and implementation of CIHR made it an exciting and invigorating time to be involved in the creation of a national health research agenda. The results of CIHR's first year are proof that the government's investment in CIHR has already produced important returns.

A handwritten signature in black ink, appearing to read "Alan Bernstein". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Alan Bernstein, PhD, FRSC
President, Canadian Institutes of Health
Research

Bringing Health Research Home to Canadians: The CIHR Context

Officially launched on June 7, 2000, the Canadian Institutes of Health Research (CIHR) required less than six weeks to put in place 13 “virtual” Institutes. Within a few short months, Scientific Directors were recruited and Institute Advisory Boards were appointed. With unprecedented speed, CIHR set about changing the face of health research in Canada.

No longer business as usual

A reflection of the Government of Canada’s long-term commitment to health research, CIHR’s mandate is “to excel, according to internationally accepted standards of excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products, and a strengthened health care system.”

The CIHR vision recognizes the important roles played by all disciplines with respect to human health and disease. It is becoming increasingly clear that improved health will be realized by leveraging our current knowledge and by converging the expertise within these various disciplines. The vision acknowledges that a problem-based approach to health and health research must bring together the very best minds, regardless of discipline or geography.

To this end, CIHR created “virtual” Institutes that are not buildings or research centres, but networks of researchers and related disciplines that span the country. These institutes foster a climate of excellence and innovation. In turn, this allows the health-research

communities in the private, public and voluntary sectors to accelerate our understanding of health and illness. The goal is to develop research initiatives that align Canada’s health priorities with opportunity — to take advantage of new research perspectives and approaches that will improve the quality of life for all Canadians.

The Canadian Institutes of Health Research

The CIHR Institute of Aboriginal Peoples’ Health supports research to address the special health needs of Canada’s Aboriginal people.

The CIHR Institute of Cancer Research supports research to reduce the burden of cancer on individuals and families through prevention strategies, screening, diagnosis, effective treatment, psycho-social support systems and palliation.

The CIHR Institute of Circulatory and Respiratory Health supports research into causes, prevention, screening, diagnosis, treatment, support systems, and palliation for a wide range of conditions associated with the heart, lung, brain, blood and blood vessels.

The CIHR Institute of Gender and Health supports research to address how sex (biological factors) and gender (socio-cultural experiences) interact with other factors that influence health to create conditions and problems that are unique, more prevalent, more serious or different with respect to risk factors or effective interventions for women and for men.

The CIHR Institute of Genetics supports research on the human genome and in all aspects of genetics related to human health and disease, including interaction of genes with physical and social environments.

The CIHR Institute of Health Services and Policy Research supports research to address the need for health systems, technologies and tools to promote health, prevent disease and deliver health care effectively for all sectors of the Canadian population.

The CIHR Institute of Healthy Aging supports research to promote healthy aging and to address causes, prevention, screening, diagnosis, treatment, support systems and palliation for a wide range of conditions associated with aging.

The CIHR Institute of Human Development, Child and Youth Health supports research to enhance maternal, child and youth health and to address causes, prevention, screening, diagnosis, treatment, short- and long-term support systems, and palliation for a wide range of health concerns associated with reproduction, early development, childhood and adolescence.

The CIHR Institute of Infection and Immunity supports research to enhance immune-mediated health and to reduce the burden of infectious disease, immune-mediated disease and allergy through prevention strategies, screening, diagnosis, treatment, support systems and palliation.

The CIHR Institute of Musculoskeletal Health and Arthritis supports research to enhance active living, mobility and movement, and dental health, and to address causes, prevention, screening, diagnosis, treatment, support systems and palliation for a wide range of conditions related to bones, joints, muscles, connective tissue, skin and teeth.

The CIHR Institute of Neurosciences, Mental Health and Addiction supports research to enhance mental health, neurological health, vision, hearing and cognitive functioning and to reduce the burden of related disorders through prevention strate-

gies, screening, diagnosis, treatment, support systems and palliation. Associated research will advance our understanding of human thought, emotion, behaviour, sensation (sight, hearing, touch, taste, smell), perception, learning and memory.

The CIHR Institute of Nutrition, Metabolism and Diabetes supports research to enhance health in relation to diet, digestion, excretion and metabolism; and to address causes, prevention, screening, diagnosis, treatment, support systems and palliation for a wide range conditions and problems associated with hormone, digestive system, kidney and liver function.

The CIHR Institute of Population and Public Health supports research into the complex interactions (biological, social, cultural, environmental) that determine the health of individuals communities and global populations, and into the application of that knowledge to improve the health of both populations and individuals.

The changing landscape

It has been said that the rate of growth in health-related knowledge in the 21st century will rival the accelerated rate of growth in information technology in the previous century. Achievements such as the mapping of the human genome have set the stage for discoveries in illness prevention, identification and treatment. Within this new knowledge universe, CIHR aspires to be a global model of an innovative and effective national research organization.

To meet this challenge, CIHR spent its first year establishing a sound organizational structure to create programs to fill gaps in Canada's research environment, to strengthen capacity and

support for researchers, to cultivate new partnerships, to promote research excellence and to translate research results into improved health outcomes and a stronger health-care system.

CIHR was created to improve the health of Canadians through research and its application. In its first year of operation, CIHR:

- engaged the international research community, the voluntary, public and private sectors, and the Canadian public in its efforts to encourage problem-based, cross-disciplinary approaches to health research;
- assumed leadership of the research-ethics agenda through the establishment of working groups on national issues like human embryonic stem cell research and privacy of information;
- facilitated research collaborations across boundaries through multi-disciplinary partnerships involving researchers from different locations, disciplines and countries, encouraging them to work together toward a common health goal;
- involved Scientific Directors and members of the Institute Advisory Boards in wide-ranging consultations with colleagues and stakeholders to help determine the research initiatives and priorities that will shape Canada's future health research agenda; and
- began developing thematic initiatives through the Institutes to respond to research questions and issues of importance to Canadians.

Impressive early results

After just one complete round of competition, the results are already changing the health-research landscape.

CIHR has positioned itself as Canada's meeting ground for health research by catalyzing and funding all approaches to health research.

Over 500 new researchers have been added to the CIHR roster.

In its first year, CIHR funded 30 large interdisciplinary research team projects representing an investment of more than \$80 million over five years, and involving over 500 investigators and community partners in over 100 institutions across Canada and around the world.

The Interdisciplinary Health Research Teams (IHRT) integrated the efforts of researchers from two or more of the major health-research communities (biomedical, clinical, health services and population health) while Community Alliances for Health Research teams (CAHR) linked researchers to community organizations.

Reducing head injury risks

Young hockey players, whether they are playing recreational or competitive hockey, risk head injuries, an issue of growing concern for players and parents as well as the volunteer and government organizations that support the sport. Dr. David Goodman of Simon Fraser University, heads a CAHR project whose aim is to reduce mild head injuries by better understanding how they happen and how often they occur. Based on the data gathered, the team will develop both assessment tools and guidelines for players wanting to return to play. The team's information will also be used to implement injury-prevention programs. This knowledge gained from this research would also apply to head injuries resulting from rugby, figure skating and snowboarding.

The research teams will investigate ways to improve both the health of individuals and Canada's health-care system. For example, there will be programs to find ways to meet the needs of older persons, programs to research child welfare services through effective intervention and programs to explore prevention of child abuse and neglect.

Another example is the work being done by the IHRT team led by Robert Bell of Mount Sinai Hospital. In order to develop better treatment protocols, Dr. Bell's group is examining methods of assessing disability after treatment for a type of musculoskeletal cancer.

Another CAHR team is being led by John O'Neil from the University of Manitoba. His group is studying the factors that could contribute to — or detract from — a First Nations controlled health-care system in Manitoba. The success of these projects has already helped to break down institutional distances while strengthening local clusters of excellence across Canada.

Presentation of Financial Information

Planned Spending	\$336,683,000	as in 2000–2001 Main Estimates
Total Authorities	\$401,292,134	as in 2000–2001 Public Accounts
Actual Spending	\$390,035,088	as in 2000–2001 Public Accounts

Outstanding Research

Integral to CIHR is the understanding that improved knowledge of the mechanisms of disease and prevention, a more effective health-care system and a more rapid translation of this knowledge into practice will have the most immediate impact on Canadians. Already, CIHR researchers have achieved impressive results.

The Edmonton Protocol

With the assistance of CIHR funding, Dr. Ray Rajotte and a skilled team of researchers at the University of Alberta were responsible for “the most significant development in diabetes research in the last 20 years.” Islet cells, located within the pancreas, stimulate the release of insulin. In diabetics, these cells are attacked by the body’s immune system leaving them unable to do their work. Without insulin, the body is unable to convert food into energy. Dr. Rajotte’s team has developed an alternative treatment for diabetes, known world-wide as the “Edmonton protocol,” a minimally invasive procedure that involves islet-cell transplantation. At least 14 people diagnosed with diabetes remain insulin-independent more than a year after treatment.

Over the past year, CIHR has put structures and programs in place that have started to transform the Canadian health-research enterprise. There is a renewed spirit, a revitalized optimism that will lead us into the 21st century, “the century of health research.”

CIHR is determined to keep Canadian researchers at the forefront of international achievement. Its virtual Institutes are the meeting grounds for Canada’s best and brightest — from every disci-

pline. Their work is reflected in the improved lives of thousands of people.

People with cancer

At the University of Calgary, respected cancer biologist and virologist Patrick Lee has focused on reovirus as his weapon of choice in the battle against malignant breast, lung and neck tumours. Unlike most viruses that cause sickness due to infection, reovirus latches onto and kills cancer cells while leaving healthy cells alone. Human clinical trials of a reovirus-based drug called Reosyn are scheduled to begin in May 2000.

People with heart disease

Atrial fibrillation is a condition where there is disorganized electrical conduction in the atria, the thin-walled chambers of the heart, resulting in ineffective pumping of blood into the ventricle. Two CIHR researchers from the Montreal Heart Institute, Dr. Denis Roy and Dr. Mario Talajic, have launched an international study that will involve 1,400 patients. Their goal is to reduce atrial fibrillation and heart failure by 25 percent.

People with HIV/AIDS

While drug therapies have dramatically improved the survival rates for AIDS victims, up to half of those treated experience only temporary benefits. CIHR is supporting a tri-national clinical trial, launched in March 2001, to look at alternative drug therapy combinations for AIDS patients around the world. The OPTIMA study (**OPT**ions **I**n **M**anagement with **A**nti-retrovirals) involves 22 hospitals in Canada,

25 hospitals in the United Kingdom and 30 Veterans Affairs hospitals in the United States. Leading the Canadian team is Dr. William Cameron of the University of Ottawa.

Diabetes in Aboriginal populations

At Sandy Lake, in northwestern Ontario, the rate of diabetes is five times the national average: one person in four has diabetes, and one in seven is glucose intolerant, a precursor to the disease. CIHR investigator, Dr. Bernard Zinman, and his team are developing a diabetes complications assessment kit. The cooperation of the community has left its citizens feeling not only better, but also slimmer than people in neighbouring communities.

People with Alzheimer's Disease

A CIHR Distinguished Investigator working at the University of Toronto, Dr. Peter St. George-Hyslop, has spent many years researching neurogenetic disorders, especially Alzheimer's Disease within families. His discovery and cloning of two novel genes, Presinilin 1 and 2, and the effects mutations in these genes have on human brains, has had a major impact on our understanding of the causes and risks of Alzheimer's Disease. St. George-Hyslop's work has laid the foundation for future therapeutic approaches to treating this disease.

Women under stress

Women are more likely than men to experience stress and overwork because of their multiple care and work responsibilities. How this affects their health and the connection between women's work — paid and unpaid — and their health, is a question Dalhousie University researcher Carol Amaratunga has begun to answer. Dr. Amaratunga is leading a CIHR-funded study called *A healthy balance: A community alliance for health research on women's unpaid caregiving*.

CIHR is the Government of Canada's response to the need for better health for all Canadians and an improved health-care system to deliver it. By funding innovative, transdisciplinary projects and creating new opportunities for national and international collaboration, CIHR will continue to foster outstanding research and make Canada the place to be for researchers in the 21st century.

Researchers in a Robust Research Environment

IN THE SPEECH FROM THE THRONE, GOVERNOR GENERAL ADRIENNE CLARKSON STATED:

“The Government will also provide a further major increase in funding to the Canadian Institutes of Health Research. The new funding will enable the Institutes to enhance their research into disease prevention and treatment, the determinants of health, and health-system effectiveness.”

This promise of enhanced funding in 2000–2001, meant CIHR increased both the number of grants awarded and the average value of each grant. Roughly 70 percent of its grants and awards budget went to support 3,251 grants, while 5 percent was spent on equipment and maintenance and 20 percent went to support 1,624 training awards, 644 career awards and approximately 3,000 trainees.

In 2000–01 the base budget of CIHR was \$401 million, a 29 percent increase over the 1999–2000 budget of \$311 million. For 2001–02, CIHR’s budget is set at \$554 million.

A commitment to the next generation

It is estimated that by 2010, as many as 100,000 new researchers and scientists will be required *in Canada alone*. The competition for those people will be fierce. To ensure that Canada remains attractive, CIHR instituted several new training and development awards to encourage bright new researchers in areas such as health services and nursing. The aim is to increase the capacity of Canada’s health-research enterprise.

CIHR’s commitment to a strong research environment requires stable

and dependable support for the next generation of researchers. In March 2000, CIHR awarded 407 training and salary awards to Canada’s most outstanding up-and-coming researchers.

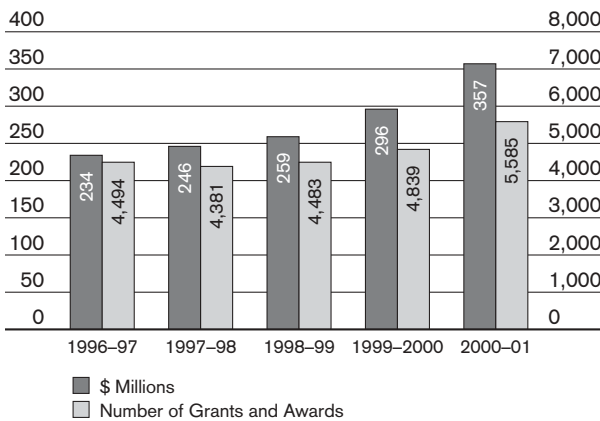
CIHR has also started building capacity through the Regional Partnership Program (RPP). Created in 1996 to respond to decreased funding for health researchers in Saskatchewan, Nova Scotia, Newfoundland and Manitoba, the program has since been extended to include Prince Edward Island and New Brunswick. Thanks to the RPP, more Manitoba research projects have been approved for funding and the

EXCELLENCE IN RESEARCH

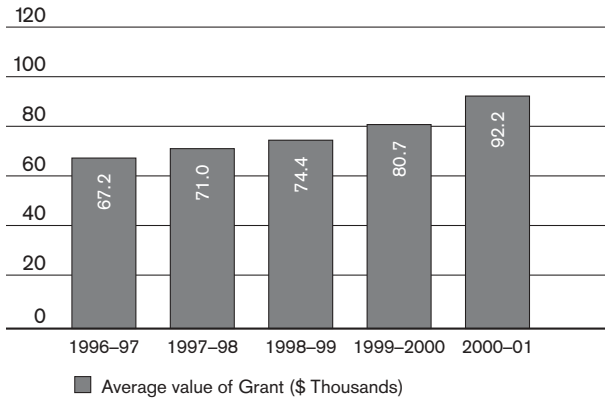
McGill Researcher receives Michael Smith Award for Excellence

In November 2000, Dr. Guy Rouleau of McGill University, was named the year 2000 recipient of the Michael Smith Award of Excellence for his groundbreaking work in neurogenetics. The findings of Dr. Rouleau and his colleagues in such areas as familial amyotrophic lateral sclerosis (ALS) have led to the development of prenatal and presymptomatic diagnostic tests for some of the most prevalent genetic diseases in Quebec. As a keen promoter of diagnostic testing in his province, Dr. Rouleau has set up a DNA and cell bank that contains samples from over 17,000 individuals with genetic diseases, as well as samples from their families.

Total Value and Number of Grants and Awards



Increases in Average Value of Operating Grants



creation of the Nova Scotia Health Research Foundation was accelerated.

CIHR's commitment to the program in 2000-2001 was \$4.4 million.

In the past year, CIHR expanded its research family to include the Arthritis Society of BC and the Yukon, the CLSC René Cashin in Quebec, Laurentian University, the University of Guelph and the University of Northern British Columbia. In a letter to Health Minister, Allan Rock, UNBC

researcher and assistant professor, Chow H. Lee was grateful to be "the

first researcher at UNBC who is fortunate enough to be funded by CIHR." Canadians, in turn, are fortunate to have Professor Lee working on their behalf. His important work could develop a novel therapy against a wide variety of cancers.

Extraordinary research can happen only in a well funded, robust environment, one grounded in solid planning and built on sound structures, one that is broadly based and internationally competitive. CIHR will create an environment that retains Canadian researchers while attracting researchers pursuing careers in other countries.

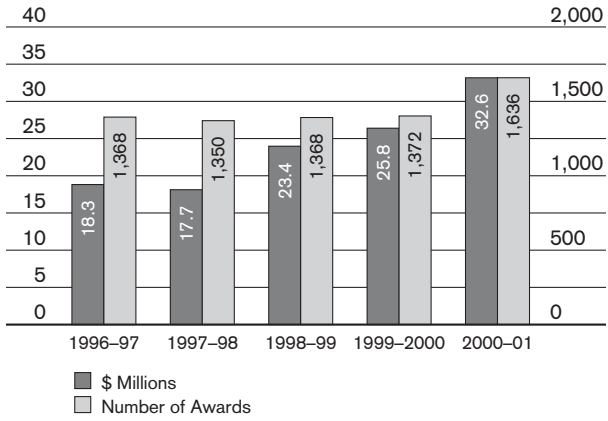
At CIHR, we believe we are creating such an environment, and Canadians will be healthier for it.

**EXCELLENCE IN RESEARCH
Health Career Awards**

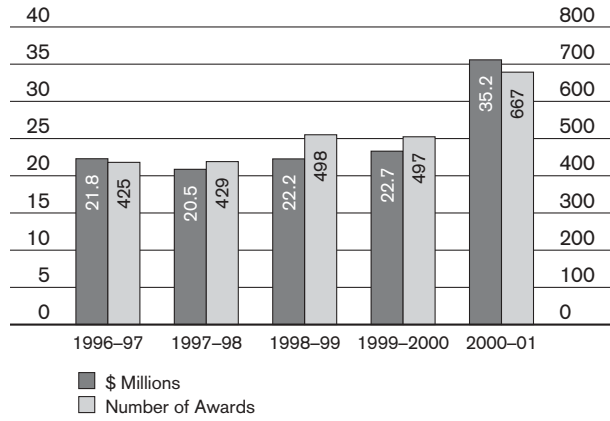
In June 2000, CIHR and the Social Sciences and Humanities Research Council (SSHRC) announced a transition program called Health Career Awards. The one-time awards were intended to reinforce CIHR's transdisciplinary approach to health research and help build a critical mass among health researchers from the humanities and social sciences.

Nearly one hundred salary and training awards worth \$7 million over three to five years were awarded. This included 32 Postdoctoral Fellowships, five Senior Research Fellowships, 15 Investigator Awards and 10 Senior Investigator Awards.

Training Awards



Salary Awards



CIHR was created as a result of consultations with a variety of stakeholders involved in a wide range of health issues. The cooperation and collaboration inspired by the development of CIHR sparked a number of exciting, transdisciplinary partnerships in areas such as cancer research, neuroscience, heart disease and stroke, diabetes and stem cell research.

In September 2000, CIHR and the Canadian Blood Services announced a partnership in transfusion science. This was followed by the Neuromuscular Research Partnership (NRP), involving CIHR, the Amyotrophic Lateral Sclerosis Society of Canada (ALS Canada) and the Muscular Dystrophy Association of Canada (MDAC). As part of the search for the cause, better treatment and cure of neuromuscular disorders, the NRP and CIHR awarded over \$1.1 million in grants to six Canadian researchers.

Working together for a healthier Canada

Breakthrough work — that has the potential to save millions of lives in Canada and around the globe — would simply not be possible without the cooperation of many partners and funders whose support helps CIHR achieve the synergies necessary to make great things happen.

Partnerships are a key component of CIHR's vision for health research. In addition to the partnerships through the Regional Partnership Program, CIHR holds five competitions each year under the University–Industry Program to encourage university investigators who have research with

From HOPE to DREAM

What began as HOPE, may well become a DREAM come true for McMaster University Professor of Medicine and CIHR researcher, Dr. Salim Yusuf. In the internationally recognized HOPE study (**H**eat **O**utcomes **P**revention **E**valuation) that concluded in 1999, Dr. Yusuf confirmed that the drug ramipril could not only substantially improve the survival rate in high-risk cardiovascular patients, but it could also lower the risk of subsequent heart attacks and strokes. While this ground-breaking research saved countless lives and millions of dollars, it was just the beginning.

During the study, researchers — quite unexpectedly — determined that ramipril also reduced self-reported cases of diabetes by 34 percent. Realizing the study was not designed specifically to test ramipril objectively to determine its ability to prevent diabetes, more work was needed. Enter the DREAM team: CIHR, King Pharmaceuticals, Aventis Pharma Inc., President Pharmaceuticals and SmithKline Beecham (now GlaxoSmithKline). This partnership has come together to fund the \$25 million DREAM study (**D**iabetes **R**eduction **A**pproaches with Ramipril and Rosiglitazone **M**edications). Initiated in November 2000, positive DREAM study results could well give ramipril the distinction of being the first drug ever to prevent a condition that afflicts 142 million people worldwide. The cost to treat diabetes in Canada alone is \$10 billion annually.

commercial potential to work with Canadian-based biotechnology companies. CIHR is also involved in a second five-year partnership with Canada's Research-based Pharmaceutical Companies that enables CIHR to leverage additional funding for applied

research and clinical trial add-ons at a ratio of 1:1 for salary and training awards, 1:2 for operating grants and 1:4 for clinical trials. With partnerships such as these, CIHR can turn every federal tax dollar invested in health research into at least \$1.36 in CIHR-supported research.

But it's not only partnerships with funders that are important. Partnerships with health-care providers, the voluntary sector, health advocates, government agencies, foundations, community groups, universities, teaching hospitals, regional health authorities, professional associations, societies and the private sector are also very important. CIHR is working to encourage and develop these relationships and solidify the bonds among all those interested in furthering the health-research agenda in Canada.

Partners are valuable for a whole host of reasons. They help identify health-research priorities and frame the relevant research questions. They also help fund the studies and trials, create databases, pay for salaries, operating costs and equipment and, in short, build on the Government of Canada's own investment in health research.

Health research has become so complex that research problems often require cross-disciplinary, cross-sectoral and even cross-border expertise in order to find solutions. Resolving many of today's research questions requires intellectual and physical resources that go well beyond the capacity of the average research team.

Scientific Directors and Institute-affiliated staff participated in extensive outreach and consultation activities including numerous Institute-sponsored and Institute-led workshops, focus groups and university visits. The Scientific Directors and their staff were involved in nearly 400 events from January to April 2001. Approximately one third were university visits, one third meetings with partners and one third other outreach type activities.

Whether its working with Canadian Blood Services to fund training positions in transfusion science or funding seminars to inform Canadians about opportunities for partnering with consortia in the European Union's five-year Framework Programs on Research and Development, CIHR is committed to working with others to build a healthier Canada.

A Wellcome incentive

An independent and private foundation that supports research and other scientific activities, the Burroughs Wellcome Fund joined forces with CIHR to fund the \$1.2 million CIHR/BWF Student Research Awards program. This program gives undergraduates in health-profession schools their first experience in health research. Over 300 students were selected from 16 institutions across Canada.

Stem cell debate

Public engagement is a two-way street. CIHR listens, but it has also spoken up on issues of importance to Canadians in its continuing effort to lead public debate. One such issue over the past year has been stem cell research.

The potential to develop treatments for a number of serious conditions — among them Alzheimer’s and Parkinson’s diseases as well as diabetes and spinal cord injuries — is enormous. The excitement in the research community is matched only by the ethical concerns research on human stem cells raises.

To further debate on the issue, in March, CIHR recently released a discussion paper called *Human Stem Cell Research: Opportunities for Health and Ethical Perspectives*. It was developed by CIHR’s Working Group on Stem Cells, a distinguished international team of experts in research, ethics and the law led by Dr. Janet Rossant of the Samuel Lunenfeld Research Institute of Mount Sinai Hospital.

The feedback generated by this paper will help form the Working Group’s final report to the Governing Council. This report, in turn, will shape the guidelines for funding human embryonic stem cell research.

Building bridges

Partnerships and public engagement are integral to CIHR’s vision and to its future success. A great deal of time over the past 12 months has been spent building partnerships, and engaging the research community, citizens and industry.

Translation and Use of Knowledge

If you think research is expensive, try disease.

MARY LASKER (1904–1994)

PHILANTHROPIST, PATRON AND HEALTH-RESEARCH ADVOCATE

Translating knowledge into useful, health-care practices is the cornerstone on which CIHR is built. Among CIHR's objectives is "accelerating the discovery of cures and treatments and improvements to health care, prevention and wellness strategies."

CIHR-funded researcher, Dr. Alastair Cribb, and his colleagues at the University of Prince Edward Island understand how important it is to make research relevant to people. Working at the molecular level, Dr. Cribb is trying to determine why drugs cause adverse reactions — anything from minor skin rashes to death — in humans and animals. Specifically, he is studying a group of antibiotics (sulfonamides), anti-convulsants and anti-inflammatory drugs. The implications of his work are obvious, but what is the practical use? Some day, he says, we may all be able to carry around genetic smart cards that would help physicians determine the safest and most effective drugs for each patient.

There are many other successful transfers of research knowledge into medical practice.

- With degrees in zoology and human biology, a PhD in anatomy, and a master's degree in business administration, Ottawa University's Dr. C. May Griffith made headlines last year by constructing an artificial cornea, the transparent sheath that covers the eye and protects it from the surrounding

environment. Extensive testing of the artificial cornea still needs to be done, but Dr. Griffith's discovery could lead to human transplants and may well eliminate the need for live animals in testing the toxicity of new drugs and other potentially irritating substances for the eye.

- Working in partnership with industry, Dr. Brett Finlay, a CIHR Distinguished Investigator at the University of British Columbia, has developed a vaccine that reduces the levels of E. coli bacteria in cattle. If current tests prove successful, it could reduce the risk of cattle contaminating water supplies, such as happened in Walkerton, Ontario, in 2000. Dr. Finlay says his team would also like to develop a variant of the vaccine for children against E. coli 157:H7, the bacteria that causes hamburger disease.
- Every year, 16,000 women in Canada, and countless more throughout the world, experience breech births. Until an international study was carried out by CIHR-funded clinical researcher Dr. Mary Hannah, women and their physicians had no solid evidence to help them make choices between vaginal or planned caesarian births. Evidence that planned caesarian births were safer for mother and baby was so overwhelming that the total was concluded larger. Now, those decisions can be made based on facts.

- Health economist Dr. Peter Coyte and his colleagues at the University of Toronto have developed a procedure that could save Canada's health-care system more than \$300 million each year. They found that children hospitalized with ear infections requiring the insertion of tubes are much less likely to need further surgery if they have the adenoid glands removed at the same time.

Economic benefits

Improved health is just one result of a strong health-research community. There are other, more tangible benefits, not the least of which are economic.

For example, applying the research carried out by Dr. Peter Coyte and his colleagues saves an amount of money each year equivalent to almost all the money CIHR spends on research annually. Not every project realizes these kinds of savings, of course, but a lot of CIHR-funded research holds similar potential for greater effectiveness and efficiency.

Research has an impact on productivity. This usually occurs because new knowledge brings with it new products or processes, or because the cost of supplying existing services is reduced. The value of this impact is determined by calculating the returns on the research investment. Research and development specialists agree that private investment in research provides a 20 to 30 percent annual rate of return — and a much greater return to society overall. The social rate of return averages about 50 percent.

Research Reduces Costs

One example of how research can reduce costs can be found in the Canadian Trial of Physiologic Pacing (CTOPP) led by Stuart Connolly of McMaster University.

Of the more than 10,000 pacemakers implanted annually in Canada, over 40 percent are dual-chamber types which cost \$2,500 more than single-chamber devices. Connolly's was the first randomized study to evaluate the benefits of dual-chamber heart pacemakers worldwide and the results were striking. Over the three years patients were monitored, researchers observed few advantages over the single chamber model which paces only the lower chamber of the heart.

CIHR continued support for Dr. Connolly's research will soon enable Canada's health-care system to profit from this new knowledge.

Going private

CIHR-funded research is the engine that drives the pipeline of commercialization from universities and teaching hospitals to spin-off biotechnology companies.

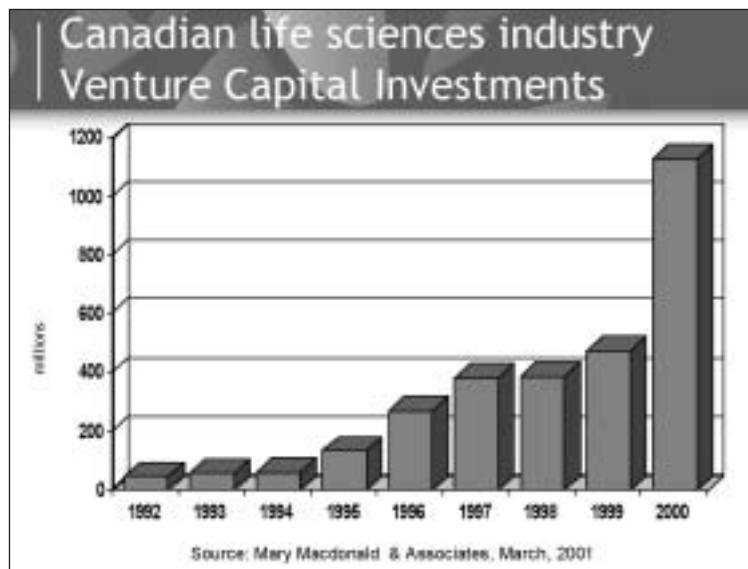
- **NeuroSpheres**, originally from the University of Calgary, is working on nerve cell regeneration.
- **Chronogen**, originally from McGill University, has new therapeutic drugs that slow the aging process.
- **WorldHeart Corporation**, originally from the University of Ottawa, created the first artificial heart.

But you can't bring this research to market unless you have the people who know how to bring it to market.

To address a shortage of technology development managers in Western Canada, CIHR, in partnership with Western Economic Diversification and the Natural Sciences and Engineering Council (NSERC), has provided \$163,000 to WestLink Innovation Network to train 20 interns to understand the process of the successful commercialization of new inventions. These interns will gain valuable, practical work experience through three, eight-month work terms in the technology-commercialization community.

Biotechnology is Big Business

- There are currently over 300 publicly listed Canadian health-related companies with a market value in excess of \$15 billion.
- Life sciences accounts for over 86,000 jobs in Canada.
- The biotechnology industry is growing at a rate of 10 to 20 percent per year.
- Canada is ranked number two in biotechnology in the world.
- There are a total of over 420 biotechnology companies in Canada.
- In 1999, the biotechnology industry employed over 11,000 people, had almost \$2 billion in sales and spent \$403 million on research and development.



In its first year CIHR moved toward developing the type of world-class organization its research commitments will demand. CIHR is determined to put structures in place that ensure efficiency and, as importantly, accountability. CIHR must develop capacity rapidly — an unprecedented level of effort is needed to link researchers and health-policy makers to ensure an efficient exchange of policy-relevant information. Major initiatives designed to ensure organizational excellence are currently underway.

Informing Canadians

CIHR's Web site (www.cihr.ca) hit the Internet the day CIHR was launched and received 26,515,441 hits in its first year, an average of over 72,000 *per day*. For researchers, the Web site is a vital link to research funding information and for Canadians, in general, it lets them know what CIHR is doing for them and how they, too, can get involved.

Getting to market

One of the best ways to recoup the health-research investment is to develop an ability to bring new technologies to market. CIHR has implemented a new program — the Proof-of-Principle (POP) program — that will facilitate and improve the efficiency of the commercial transfer of knowledge and technology resulting from CIHR-funded grants and awards. POP program grants will support research projects designed to establish the proof of an invention or discovery's principle and, as a result, improve the likelihood of its ultimate commercialization.

Online database

CIHR's website includes a searchable database to provide information on currently funded research. As well as the type of research funded, the data base can be searched based on the name of the researcher, the name and location of the institution where the research is being conducted, or the annual funding the research receives. The database is updated regularly.

Common curriculum vitae

In an effort to harmonize funding processes and policies and reduce duplication of effort on the part of researchers and research-funding agencies, CIHR is developing a common electronic curriculum vitae with the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC) and the major health charities.

Application assistance

Over the past year, workshops on grant craft have been conducted in 33 institutions across Canada. They were targeted particularly at the new health-research community in the social sciences and humanities to help them prepare grant applications to CIHR.

Financial Information Strategy (FIS)

By April 1, 2001, CIHR had put in place a new financial system in compliance with the government-wide Financial Information Strategy.

Review the Reviewers

CIHR created a Standing Committee on the Oversight of Grants and Awards Competitions to take a critical look at the performance and recommendations of the peer review panels for competition results. This new committee sends a signal to the research community that peer-review panel recommendations will be scrutinized following principles of fairness, equanimity and inclusiveness.

Putting out the welcome mat

CIHR has also moved to ensure that researchers working in the full spectrum of health research which now fall under CIHR's mandate (particularly in the social sciences relevant to health) will have a place where their applications can be reviewed expertly and fairly.

CIHR has created six new peer review committees: Health Ethics, Law and Humanities; Health Information and Promotion Research; Health Policy and Systems Management Research; Health Services Evaluation and Intervention Research; Psychosocial, Sociocultural and Behavioural Determinants of Health; and Public, Community and Population Health.

CIHR has achieved much in its first year and promises much more in the years to come. The first year has seen an increase in funding opportunities. CIHR is meeting the challenge by expanding our staff complement, increasing the number of partnerships and stretching our liaison capabilities. We are rethinking, retooling and redesigning for results. We are overhauling processes in an effort to ensure efficiency, effectiveness and quality results.

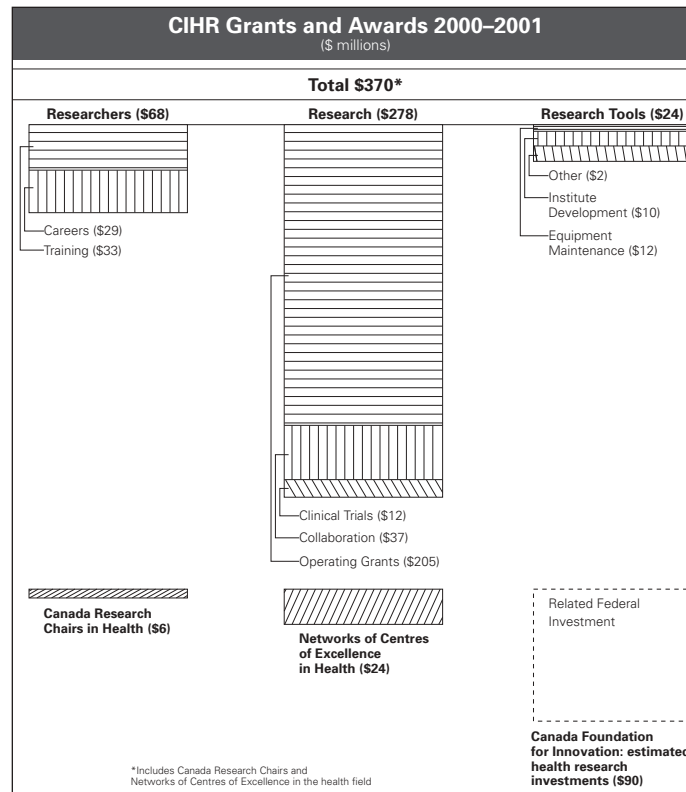
Financial Performance

The creation of CIHR as the lead health research agency for Canada has resulted in a new strategic structure for funding research. This new structure is based on 13 “virtual” Institutes and an emphasis on international leadership through national excellence in health research.

Under CIHR, there has been increased support for the direct costs of research programs through traditional operating grants, salary and training awards, offered through open competition as well as through partnerships with voluntary agencies, industry and the international community. Transition programs such as the Community Association for Health Research (CAHR) and Interdisciplinary Health Research Teams (IHRT) have also

prompted a great deal of interest in the broad health-research community while welcoming many new partners to the CIHR experience.

Funding excellent research that leads to discovery requires several unique planning characteristics, not the least of which is time. Research requires a steady and stable investment base, often over many years, before research bears fruit. Research also requires adequate money. To achieve internationally competitive levels of achievement, Canada’s health-research enterprise needs resources comparable to those offered elsewhere. This is critical if Canadian institutions want to recruit and maintain highly qualified researchers.



List of Financial Tables

Title of Table	Page
1. Summary of Voted Appropriations	22
2. Comparison of Total Planned to Actual Spending	22
3. Historical Comparison of Total Planned Spending to Actual Spending	23
4. Non-Respendable Revenues	23
5. Transfer Payments	23
6. Contingent Liabilities	23

Summary of Voted Appropriations Canadian Institutes of Health Research¹

Financial Table 1

2000–2001 Spending (Millions of dollars)

Vote		Planned Spending	Total Authorities	Actual
15	Operating expenditures	12.8	19.2	18.9
20	Grants and Awards	322.7	380.7	369.8
(S)	Contribution to employee benefit plans	1.2	1.3	1.3
	Totals	336.7	401.3	390.0

Note: Figures in the table may not appear to add correctly because of rounding.

¹ On June 7, 2000 the *Canadian Institutes of Health Research Act* established the Canadian Institutes of Health Research (CIHR) and CIHR assumed all activities, rights, properties and obligations of the Medical Research Council of Canada.

Comparison of Total Planned to Actual Spending

Financial Table 2

The creation and exchange of new health knowledge in support of the objective of CIHR

	Planned	Total Authorities	Actual
Full time Equivalents number	120	150	133
(Millions of dollars)			
Operating (includes contributions to employee benefit plans)	14.0	20.5	20.2
Capital	—	—	—
Grants and Contributions	322.7	380.7	369.8
Total Gross Expenditures	336.7	401.3	390.0
Less: Respendable Revenues ²	—	—	—
Total Net Expenditures	336.7	401.3	390.0
Less: Non-respendable Revenues ³	-0.7	-0.7	-0.9
Plus: Cost of services provided by other departments	0.6	0.6	0.9
Net Cost of the Program	336.6	401.2	390.1

Note: Figures in the table may not appear to add correctly because of rounding.

² These revenues were formerly called "Revenues Credited to the Vote".

³ These revenues were formerly called "Revenues Credited to the General Government Revenues" (GGR).

Historical Comparison of Total Planned Spending to Actual Spending

Financial Table 3

(Millions of dollars)

1998-1999 Actual	1999-2000 Actual	2000-2001		
		Planned	Authorized	Actual
271.4	310.5	336.7	401.3	390.0

Non-Respendable Revenues⁴

Financial Table 4

(Millions of dollars)

1998-1999 Actual	1999-2000 Actual	2000-2001		
		Planned Spending	Total Authorities	Actual
0.7	0.6	0.7	0.7	0.9

⁴ These revenues were formerly called "Revenues Credited to the General Government Revenues"

Transfer Payments (Grants and Awards)

Financial Table 5

(Millions of dollars)

1998-1999 Actual	1999-2000 Actual	2000-2001		
		Planned Spending	Total Authorities	Actual
259.2	269.3	322.7	380.7	369.8

Contingent Liabilities

Financial Table 6

(Millions of dollars)

List of Contingent Liabilities	Amount of Contingent Liability		
	March 31, 1999	March 31, 2000	Current as of March 31, 2001
Claims, Pending and Threatened Litigation			
Litigations	—	—	0.8
Total	—	—	0.8

Information

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Legislation

CIHR was created by an Act of Parliament through *An Act to establish the Canadian Institutes of Health Research, to repeal the Medical Research Council Act and to make consequential amendments to other Acts*, (48–49 Elizabeth II, C. 6) and was proclaimed in June 2000.

Agency reports

CIHR is required to submit to Parliament an Annual Report of the President.

A full list of CIHR publications is available on the CIHR Web site (www.cihr.ca) or from the CIHR's Communications Branch, located at 410 Laurier Avenue West, 9th Floor, Ottawa, K1A 0W9.

CIHR can also be contacted by e-mail at info@cihr.ca.