



CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

already
making a difference

CIHR Annual Report 05-06



Canadian Institutes
of Health Research

Instituts de recherche
en santé du Canada

Canada



Over-prescribing anti-psychotic drugs to seniors

Dr. Paula Rochon, a CIHR-funded researcher at the Institute for Clinical Evaluative Sciences in Toronto, has determined that seniors are prescribed too many anti-psychotic drugs within a short period of having been admitted to long-term care facilities, often without the benefit of specialist care. This over-prescription practice could be a measure used by physicians to calm anxiety levels of residents suffering from dementia. However, these therapies have also been associated with problems such as instability and falls and Parkinson-type symptoms, as well as an increased risk of stroke.

For more stories on how CIHR is Already Making a Difference, turn to page 29.

Canadian Institutes of Health Research
160 Elgin Street, 9th floor
Address Locator 4809A
Ottawa, Ontario K1A 0W9 Canada
www.cihr-irsc.gc.ca

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CIHR

already

making a difference

CIHR at a Glance

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. Its mandate is to create and translate new knowledge to help ensure improved health for Canadians, more effective health services and products and a strengthened Canadian health care system.

CIHR, which is composed of 13 Institutes, provides leadership and support to more than 10,000 researchers and trainees in every province of Canada. Through CIHR, the Government of Canada is supporting health research that addresses society's highest-priority health issues and contributing to economic growth and prosperity. CIHR is taking a problem- and outcome-based approach, linking researchers across all disciplines, from the social sciences to biomedical sciences, to informatics and engineering. Through its Institutes, CIHR is bringing health researchers together across disciplinary and geographic boundaries to address health research problems of importance to Canadians.

CIHR is also building partnerships, between researchers and the users of research in the health care system and in the private sector to ensure that research findings are applied where they are needed. CIHR is also developing innovative approaches to training the next generation of researchers, facilitating the development of multidisciplinary teams of young researchers.

CIHR ensures that the Government of Canada's health research investments reflect Canadian priorities by setting a strategic research agenda in partnership with the research community, voluntary sector organizations and policy makers.

CIHR's Institutes

Aboriginal Peoples' Health (CIHR-IAPH)

Aging (CIHR-IA)

Cancer Research (CIHR-ICR)

Circulatory and Respiratory Health (CIHR-ICRH)

Gender and Health (CIHR-IGH)

Genetics (CIHR-IG)

Health Services and Policy Research (CIHR-IHSPR)

Human Development, Child and Youth Health (CIHR-IHDCYH)

Infection and Immunity (CIHR-III)

Musculoskeletal Health and Arthritis (CIHR-IMHA)

Neurosciences, Mental Health and Addiction (CIHR-INMHA)

Nutrition, Metabolism and Diabetes (CIHR-INMD)

Population and Public Health (CIHR-IPPH)

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A Canadian prescription drug atlas

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President's Message



When CIHR was created in 2000, it was given a wide-ranging and ambitious mandate. When I was appointed CIHR's inaugural President, I was excited by this bold vision but also somewhat daunted by the long road ahead.

As this Report makes clear, I believe we are well along that road. We have moved carefully and deliberately from our origins as a largely reactive biomedical granting council to an outcomes-driven, excellence-based strategic research organization. We are meeting our mandate and, in the process, have developed new approaches and innovative programs to help Canada's research community reach its full potential. There has been a profound transformation in the way health research is conducted in Canada.

We know, however, that we can improve how we operate and that we can still do more – and we are conducting our own research on how to accomplish this.

After five years, as required by our legislation and by our commitment to accountability to Canadians, CIHR embarked on a significant and comprehensive evaluation by a prestigious International Review Panel made up of 27 outstanding research leaders from five countries, including the CEO of a Regional Health Authority. The Panel met with more than 100 young and well-established investigators, as well as with university and government leaders, partners in industry, the health charities and the provinces, and CIHR management and staff. Panel members also had access to detailed and extensive surveys of researchers from across Canada and an evaluation of each of CIHR's 13 Institutes.

The purpose of this landmark Review was to assist CIHR in learning from its first five years as it moves forward. In the spirit of accountability, CIHR will publish the Panel's recommendations once they are presented to its Governing Council in June 2006.

As an organization, I know CIHR will benefit from the recommendations of the International Review Panel. We have gone through tremendous changes and growth in the past six years, all part of the transition to a broadened mandate, a new structure and a far bigger constituency of

mission

Our primary mission remains to help Canadian researchers to create new knowledge and translate that knowledge to improve health, build an innovative health care system and a knowledge-based economy for the 21st century.

researchers. Some challenges we have met well; others, no doubt, could have been met better. And there are, inevitably, areas where we can improve how we do business to better serve both the research community and the users of research.

Our primary mission remains to help Canadian researchers to create new knowledge and translate that knowledge to improve health, build an innovative health care system and a knowledge-based economy for the 21st century. I take tremendous pleasure in seeing how CIHR's programs are supporting talented and committed Canadian researchers in all areas of health and how their research is leading to important new findings that will benefit all of us.

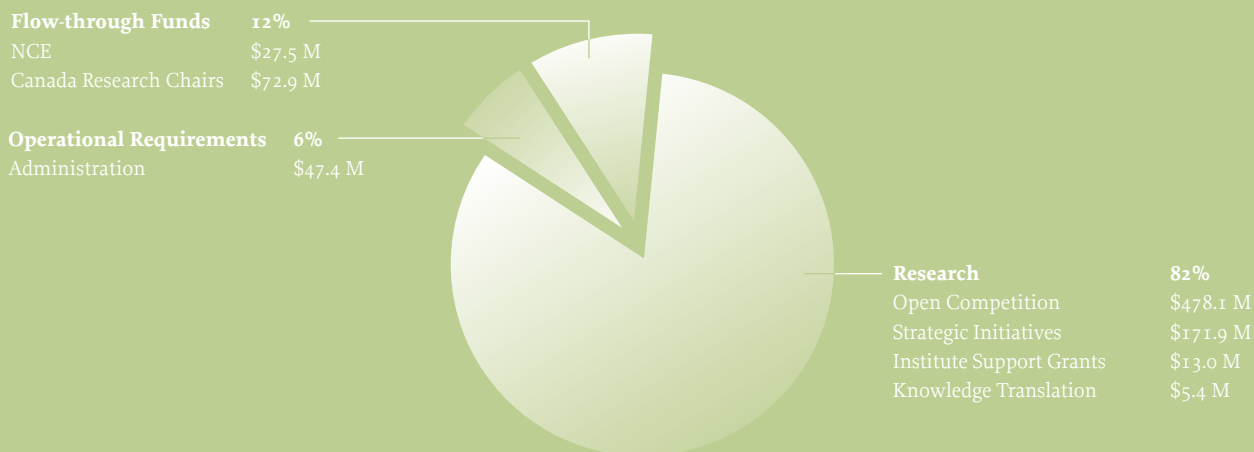
I invite you to read further to learn more about how CIHR is meeting the expectations of the Government of Canada and Canadian taxpayers and how, with your support, Canadian health researchers are making the discoveries that make a difference to Canadians.



Dr. Alan Bernstein, O.C., FRSC
President
Canadian Institutes of Health Research

2005-06 Expenditure by Research Area

(in Millions of Dollars)



TOTAL: \$816.2 MILLION

Note: Figures do not include refunds of previous years' grants and awards.

Breakdown by Strategic Outcome

(in Millions of Dollars)

<i>Health research</i>	475.6	58%
<i>Health researchers in innovative environments</i>	275.2	34%
<i>Transforming health research into action</i>	61.7	8%
TOTAL	812.5	100%

accountability

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– CIHR President Dr. Alan Bernstein

From February 13 to 15, 2006, CIHR welcomed a prestigious international panel of some of the world's pre-eminent researchers appointed to conduct the External Review of CIHR, the organization's first independent review.



Back row: Elio Riboli / Jeffrey Drazen / Lisa Berkman / Lawrence Green / Thomas Greenfield / Fiona Stanley / Gérard Bréart / D'Arcy Holman / Barry Bloom

Middle row: Karen Davis / Clifton Poodry / Bruce Ponder / Eric Meslin / Lynda Cranston / John Bell / Ralph Steinman / Edward McCabe / Eric Olson / Jack Guralnik

Front row: Pamela Mitchell / Roger Perlmutter / Alan Walker / Elizabeth Barrett-Connor / Steven Goldring / Barbara Starfield / Jacques Glowinski

Missing: Arnold Munnich

CIHR

update and overview

The year 2005-06 marked a period of assessment for CIHR, culminating in an evaluation by a prestigious International Review Panel. The Panel examined CIHR from the perspective of both its staff and its many stakeholders, including researchers, universities, the private sector, health charities and governments, to determine how well it is fulfilling its mandate.

CIHR is guided in its work by the five strategic directions set out in *Investing in Canada's Future: CIHR's Blueprint for Health Research and Innovation*, a strategic plan that charts a path for CIHR's next phase of growth. While these remain the "lights" that guide the organization, CIHR recognizes that how this is done will be affected by the results of the Review.

Since 2000, CIHR has grown tremendously. The staff has more than doubled, as we serve an ever-increasing number of researchers in a growing number of areas. The breadth of research undertaken reflects CIHR's wide mandate, as do the new ways of doing research that CIHR has pioneered:

- **Multidisciplinary research:** We fund teams that bring together researchers from many different disciplines, each bringing a particular perspective to bear on the issues that concern Canadians most. Multidisciplinarity is becoming an increasingly important way to address the complexities of health research; CIHR's innovative training program – the Strategic Training Initiative in Health Research – is preparing young researchers for the 21st century world of research.
- **Community-based research:** Research is not conducted in a vacuum; it can also involve communities, linked by geography, background or illness, that will use the results of research. Involving communities at every step of the process, from framing the research questions, to carrying out the research, to disseminating its results, ensures that the research is focused on the right questions and plays a tangible role in improving health.
- **Knowledge translation/commercialization:** Effective knowledge translation (KT) is critical to the application of new knowledge created through research – but only if it is carefully built into the research process, not as an afterthought. CIHR encourages researchers to incorporate knowledge translation into their research projects. It supports and recognizes KT excellence and acts as a KT resource for Canada. CIHR also supports the development of the environment, talent and programs necessary for Canada to reap the economic benefits of commercializing the results of health research, an important aspect of KT.

From the beginning, CIHR recognized that building a strong health research community across the entire spectrum of health research is essential if Canada is to benefit from the results of health research. CIHR also understands the need to be strategic, balancing the tremendous research opportunities with the exciting opportunities to harness that research for society. Accordingly, in 2002-03, following broad consultation with its stakeholders, CIHR developed its Blueprint, which lays out five strategic directions to guide CIHR over the next five years, while learning from and responding to the recommendations of the International Review Panel.

CIHR Strategic Directions

1. Strengthen Canada's health research community.
2. Address emerging health challenges and develop national research platforms and initiatives.
3. Develop and support a balanced research agenda that includes research on disease mechanisms, disease prevention and cure, and health promotion.
4. Harness research to improve the health of vulnerable populations.
5. Support health innovations that contribute to a more productive health system and prosperous economy.

2003-08

CIHR *meeting* its mandate

The Canadian Institutes of Health Research is mandated 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 takes an outcomes-based and multidisciplinary research approach to the health challenges facing Canadians and to the exciting scientific opportunities in this century of health research. This approach brings together research on biomedical, clinical, health services and systems, and the health of populations. With expenditures of \$816.2 million, CIHR funds more than 10,000 health researchers and trainees in universities, teaching hospitals and other health organizations and research centres across the country.

The *CIHR Act* calls upon CIHR to meet its mandate through activity in several different areas:

- (a) **Exercising leadership within the Canadian research community and fostering collaboration with the provinces and with individuals and organizations in or outside Canada that have an interest in health or health research.**

Some numbers

- Since 2000, CIHR has engaged in more than 400 partnerships, as measured by collaborative agreements, and has partnership arrangements with 333 partners from a wide array of sectors – federal departments, health charities, associations, industry, provincial governments and health research agencies, trade unions and international organizations. CIHR has also developed strong policy and research links horizontally across government.
- Through partnerships, CIHR has leveraged more than \$500 million in additional funding for health research between 1999-2000 and 2005-06.

Some examples

- CIHR's Institute of Cancer Research (CIHR-ICR) was instrumental in the establishment of the Canadian Cancer Research Alliance (CCRA), which brings together all the major organizations and agencies funding cancer research in Canada to develop a united research response for cancer control. Partners include the National Cancer Institute of Canada, the Canadian Association of Provincial Cancer Agencies, Health Canada and the Public Health Agency of Canada. CIHR-ICR has adopted the top six research themes of the CCRA as its strategic priorities leading, for example, to a \$13.6 million initiative in palliative care over seven years, partnered with many other cancer funding organizations.
- CIHR has played a leadership role in building momentum for the public registration of clinical trials. Since July 2004, CIHR has required that all randomized controlled trials it funds be registered. Following suit, in September 2004, many of the world's major medical journals decided only to publish results of registered clinical trials. And most recently, in April 2005, an international group of experts brought together by CIHR issued the Ottawa Statement, calling for public registration of all clinical trials. Public registration of all clinical trials is critical in ensuring that researchers, trial participants and their physicians have the most up-to-date information on the newest treatments.
- CIHR's Institute of Infection and Immunity (CIHR-III) and the Fonds de la recherche en Santé du Québec have together funded teams working on *C. difficile*, a bacterium responsible for over 200 recent deaths in Quebec hospitals.
- BREATHE, a partnership between the CIHR-III and the Canadian Cystic Fibrosis Foundation, is funding a team led by Dr. John Hanrahan (McGill) and including collaborators from the University of Montreal, the University of Sherbrooke and the University of Vermont. The team is looking at how to correct misfolding of the defective protein in the gene that causes cystic fibrosis.
- To identify research themes for future applied health services and policy research, CIHR's Institute of Health Services and Policy Research has engaged in two rounds of national consultations entitled Listening for Direction. The consultations were conducted in collaboration with the Canadian Health Services Research Foundation, the Canadian Institute for Health Information, the Canadian Coordinating Office for Health Technology

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Reducing overcrowding in the emergency room

The Vancouver Chest Pain Rule reduces emergency department overcrowding by determining which chest pain patients can safely be sent home sooner.

Find out more on page 31.



← **Portable heart monitor.**



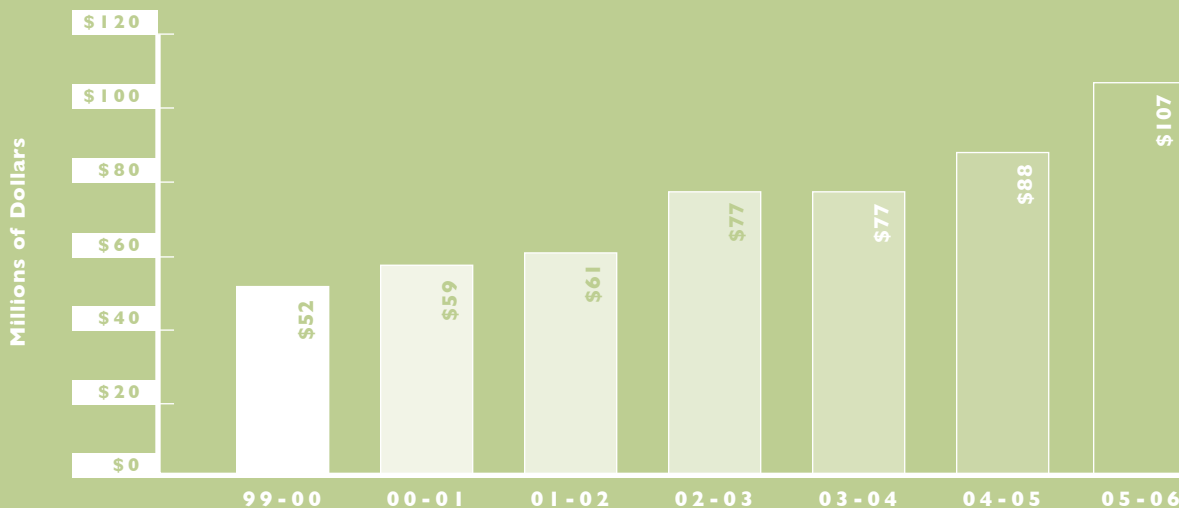
Eastern Ontario hospital.

Assessment, the Advisory Committee on Governance and Accountability of the federal/provincial/territorial Conference of Deputy Ministers of Health, and Statistics Canada. The second round of consultations, completed in 2004, identified ten priority research areas which are being implemented through the strategic initiatives of the Institute and the other partners in the consultations.

- To demonstrate its commitment to working together to promote, advance and support population and public health research, infrastructure development, capacity building and knowledge exchange, CIHR's Institute of Population and Public Health has joined with the Canadian Population Health Initiative of the Canadian Institute for Health Information, the Canadian Public Health Association (CPHA) and the Public Health Agency of Canada in a landmark cooperative agreement, signed in 2005. This agreement governs partners' work on important joint projects, such as the annual CPHA National Conference.
- CIHR's Institute of Gender and Health launched a partnership with the Ontario Women's Health Council, planning to invest approximately \$7.7 million in research training and career awards across the full spectrum, from master's students to senior investigators.
- The International Collaborative Indigenous Health Research Partnership on Resilience, a partnership involving CIHR's Institute of Aboriginal Peoples' Health, the Health Research Council of New Zealand and the National Health and Medical Research Council of Australia, is examining health issues of importance to Aboriginal peoples.
- The CIHR Institute of Musculoskeletal Health and Arthritis (CIHR-IMHA) is an active member of the Canadian National Action Network of the Bone and Joint Decade, an international effort dedicated to improving the quality of life of individuals around the world who suffer from musculoskeletal disorders and injuries. In October 2005, CIHR-IMHA, as part of the Network, was host to the International Steering Committee and Annual Meeting of the National Action Network for the Bone and Joint Decade, held in Ottawa.

The Power of Partners

Partner Contributions Total More than \$500 Million



- (b) **Creating a robust health research environment in Canada, based on internationally accepted standards of scientific excellence and a peer review process, that will attract, develop and keep excellent researchers and provide them with the opportunity to contribute to the improvement of people's health in Canada and the world.**

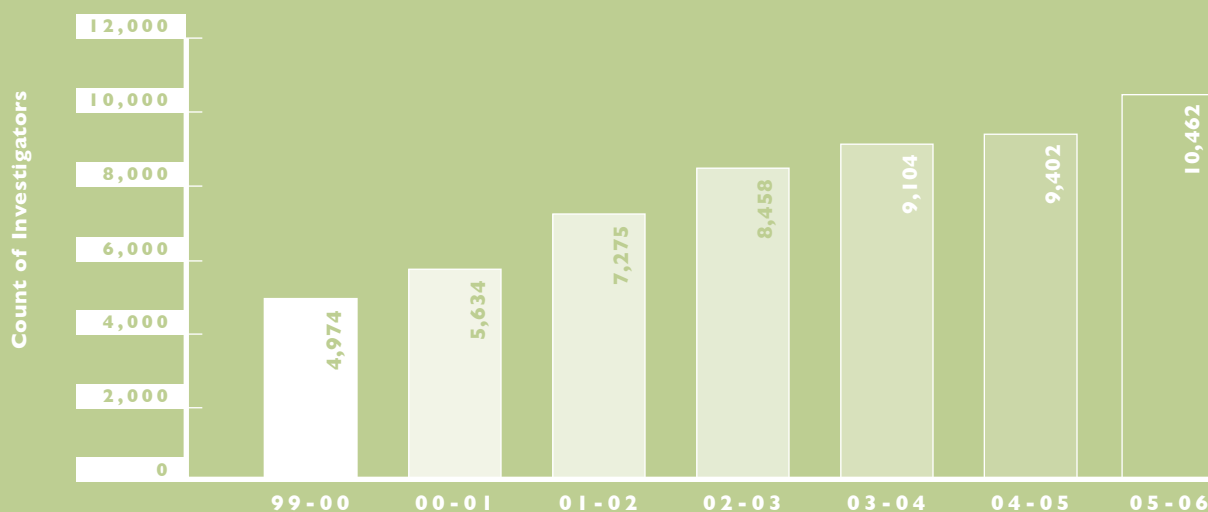
Since 1999-2000, the number of health researchers funded by CIHR has more than doubled.

One of CIHR's new initiatives, the New Emerging Teams Program, is used by its Institutes in areas where additional research capacity is needed (e.g., Rural and Northern Health Research; Suicide Prevention Targeting Aboriginal People) to:

- create or develop new competitive research teams;
- foster multidisciplinary and cross-theme research;
- train and establish new investigators; and
- create a team environment that favours the development of new fundable research projects.

Since 2001, CIHR and its partners have provided \$65.6 million for the creation of 152 New Emerging Teams.

Number of Health Researchers Funded by CIHR per Fiscal Year, 1999-2000 to 2005-06

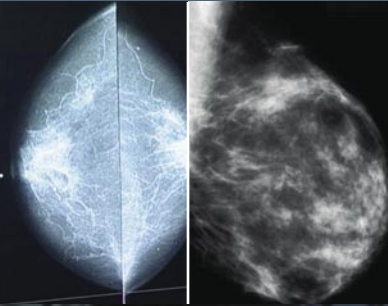


Early detection of breast cancer

Digital mammography is more accurate than film mammography in detecting breast cancer earlier in women who are under 50, have dense breasts, or are pre-menopausal.

Find out more on page 33.

View of breast cancer tumour using digital mammography (left) and traditional x-ray technology (right).



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Breast cancer survivor Cheryl Kardish-Levitan has run more than 20 marathons and estimates that she has raised more than \$75,000 for cancer research over the years.



(c) Forging an integrated health research agenda across disciplines, sectors and regions that reflects the emerging health needs of Canadians and the evolution of the health system and supports health policy decision-making.

CIHR's innovative Institute structure brings together researchers, research funders and those who use the results of research, through its Institute Advisory Boards (IABs). The IABs collectively set research priorities in the areas of health that concern Canadians most. Each of CIHR's 13 Institutes has developed a strategic plan, in consultation with its stakeholders. The result is a series of national research agendas on everything from obesity, to access to quality care, to regenerative medicine. CIHR, through its problem-based, multidisciplinary approach, brings together researchers from across the spectrum of health research disciplines, from biomedical sciences, to informatics and engineering, to social sciences and humanities. Since its creation, CIHR has seen a 20-fold increase in its funding of health services research and a 10-fold increase in its funding of population health research.

CIHR has actively contributed to the development of public policy concerning health and health research. This has been a new role for a research agency in Canada. A few examples of significant areas of impact on public policy over the last five years include:

- Guidelines for Human Embryonic Stem Cell Research.
- Privacy and Confidentiality in Health Research: The work done by CIHR's Ethics Office on Privacy and Confidentiality in Health Research was timely and has been widely praised by both researchers and privacy commissioners.
- Randomized Trials: CIHR's decision to require that information about all randomized controlled trials that it funds must be entered into an international registry demonstrated CIHR's commitment to transparency, and attracted much favourable comment.

- **Wait Times: In 2005, CIHR's Institute of Health Services and Policy Research, in partnership with the provincial and territorial ministries of Health and CIHR's Institutes of Cancer Research and Musculoskeletal Health and Arthritis, launched a rapid-response request for applications to assemble research syntheses of the best available evidence to help inform the development of evidence-based benchmarks for medically acceptable wait times, in cancer, joint replacement and sight restoration. These syntheses were critical to the announcement by provincial and territorial ministers of Health in December 2005 of the first-ever common benchmarks for the provision of selected medical treatments and screening services.**

- Gender/Sex-based Analysis: In tandem with the US National Institutes of Health and Health Canada, CIHR is promoting the use of gender- and sex-based analysis among researchers and reviewers.

- CIHR's Institutes of Genetics, Health Services and Policy Research, and Population and Public Health, together with the Canadian Coordinating Office for Health Technology Assessment and the Heart and Stroke Foundation of Canada, have funded a partnership on Addressing Health Care and Health Policy Challenges of New Genetics Opportunities. The program funds research to better equip health care providers, administrators and policy makers to improve the health of populations and strengthen the health care system in Canada in the face of rapid growth in new technologies and understandings associated with the "genetics era".



Wait time research funded through a unique partnership between CIHR and the provinces and territories produced information critical to the December 2005 announcement of the first-ever wait time benchmarks.

Surviving a heart attack: Cardiopulmonary resuscitation (CPR) works

Citizen-initiated CPR is strongly associated with better quality of life for those who suffer cardiac arrest outside of hospitals, but it happens too rarely in many communities.

Find out more on page 37.



Close-up of CPR dummies.



CPR training course at St. John's Ambulance.

(d) Encouraging interdisciplinary, integrative health research through the creation of Health Research Institutes that:

- **together pertain to all aspects of health;**
- **include bio-medical research, clinical research, research respecting health systems, health services, the health of populations, societal and cultural dimensions of health and environmental influences on health, and other research as required;**
- **work in collaboration with the provinces to advance health research and to promote the dissemination and application of new research knowledge to improve health and health services; and**
- **engage voluntary organizations, the private sector and others, in or outside Canada, with complementary research interests.**

CIHR's 13 Institutes, working with partners, select and fund research priorities and support the research community working in the areas covered by each Institute's mandate. Below are some examples of the many innovative ways in which each Institute achieves those goals:

- CIHR's Institute of Circulatory and Respiratory Health, the Canadian Stroke Network, the Heart and Stroke Foundation of Canada, and AstraZeneca Canada Inc. are partnering in a major health research training initiative called Focus on Stroke, collectively investing \$1.5 million to encourage students, recent graduates and postgraduates to train in the field of stroke and to conduct research into one of Canada's biggest public health concerns.
- CIHR's Institute of Aboriginal Peoples' Health has established eight Aboriginal Capacity and Developmental Research Environments (ACADRE) centres to develop a network of supportive research environments across Canada that facilitates the development of aboriginal capacity in health research.
- CIHR's Institute of Aging has formed the Cognitive Impairment in Aging Partnership, which involves 13 partners, including the US National Institute on Aging, five multinational pharmaceutical companies, two provincial funding agencies and the Alzheimer Society of Canada. To reduce the prevalence and impact of cognitive impairment, the partners have developed a National Research Strategy.
- CIHR's Institute of Cancer Research has galvanized research on palliative and end-of-life care, a historically neglected and under-funded area. Together with eight partner organizations and the support of seven other CIHR Institutes, the Palliative and End-of-Life Care Initiative has invested \$13.6 million in building multidisciplinary research teams.
- CIHR's Institute of Gender and Health co-leads, along with CIHR's Institute of Population and Public Health, the Reducing Health Disparities Initiative, a national strategic research initiative involving multiple national and international partners. With an emphasis on high-quality research, the involvement of policy makers, practitioners and the general community and the transfer of useful knowledge, the initiative aims to contribute to national and international attempts to overcome health status inequities. To date this partnership has allocated approximately \$16 million in research funding to support 44 interdisciplinary research teams, focusing on Aboriginal peoples, immigrants, refugees, the disabled, the poor, the homeless, the elderly, children and youth in disadvantaged circumstances, people

with poor literacy skills and women in precarious circumstances. These vulnerable populations are more likely than others to become ill and less likely to receive appropriate health services.

- CIHR's Institute of Genetics, in collaboration with two other Institutes, the Canadian Coordinating Office for Health Technology Assessment, the Heart and Stroke Foundation, and the Federal-Provincial-Territorial Task Group on Genomics and Health, has funded research addressing the health care and policy challenges associated with the rapid growth of new genetic technologies, to better equip health care providers, administrators and policy makers to deal with these challenges.
- CIHR's Institute of Health Services and Policy Research, in partnership with the Canadian Association for Health Services and Policy Research and Longwoods Publishing, has launched *Healthcare Policy*, a new Canadian journal for health services and policy researchers. The journal, which published its first issue in September 2005, is designed to stimulate communication among researchers and health care decision makers.
- CIHR's Institute of Human Development, Child and Youth Health is supporting research examining the interplay among biological, psychosocial, environmental and cultural influences on the development of healthy children and those with chronic physical or mental illness.
- CIHR's Institute of Infection and Immunity formed the Canadian Research Coalition for Safe Food and Water with more than 20 partners. The Coalition supports seven interdisciplinary research teams in their efforts to reduce the risk of food- and water-borne disease. This partnership successfully links researchers in federal government departments with those in universities and hospitals across Canada.
- CIHR's Institute of Musculoskeletal Health and Arthritis, recognizing that successful health research is tied to the availability of an array of tools, techniques and methodologies, launched the Inventions: Tools and Techniques in Health Research funding program, together with other CIHR Institutes. This program has funded an impressive array of research, including investigation into gene therapy, transplantation, and new analytical and diagnostic techniques.
- CIHR's Institute of Neurosciences, Mental Health and Addiction, with CIHR's Institute of Genetics, is the lead for CIHR's Regenerative Medicine and Nanomedicine Initiative. The program will invest more than \$12 million over six years, and emphasizes training and building multidisciplinary teams, including participants from the physical sciences and engineering. The National Research Council and the Natural Sciences and Engineering Research Council are among the many partners.
- CIHR's Institute of Nutrition, Metabolism and Diabetes (CIHR-INMD), in January 2004, created a web-based physical activity research platform, Canada on the Move (COTM), asking Canadians to "donate their steps to health research". COTM prompted widespread discussions on the need for more and better research on community- and population-level intervention and "natural experiments". Building on the lessons it has learned, CIHR-INMD is working in collaboration with other Institutes and partners to enhance the infrastructure and support for population-intervention research in Canada.
- CIHR's Institute of Population and Public Health, together with CIHR's Institute of Health Services and Policy Research, supports Summer Institutes, events that bring together expert tutors and students to improve their understanding and skills in building interdisciplinary partnerships, and allow students to interact with decision makers with interests in population health research. These events are also creating a Canadian research network of future young investigators.

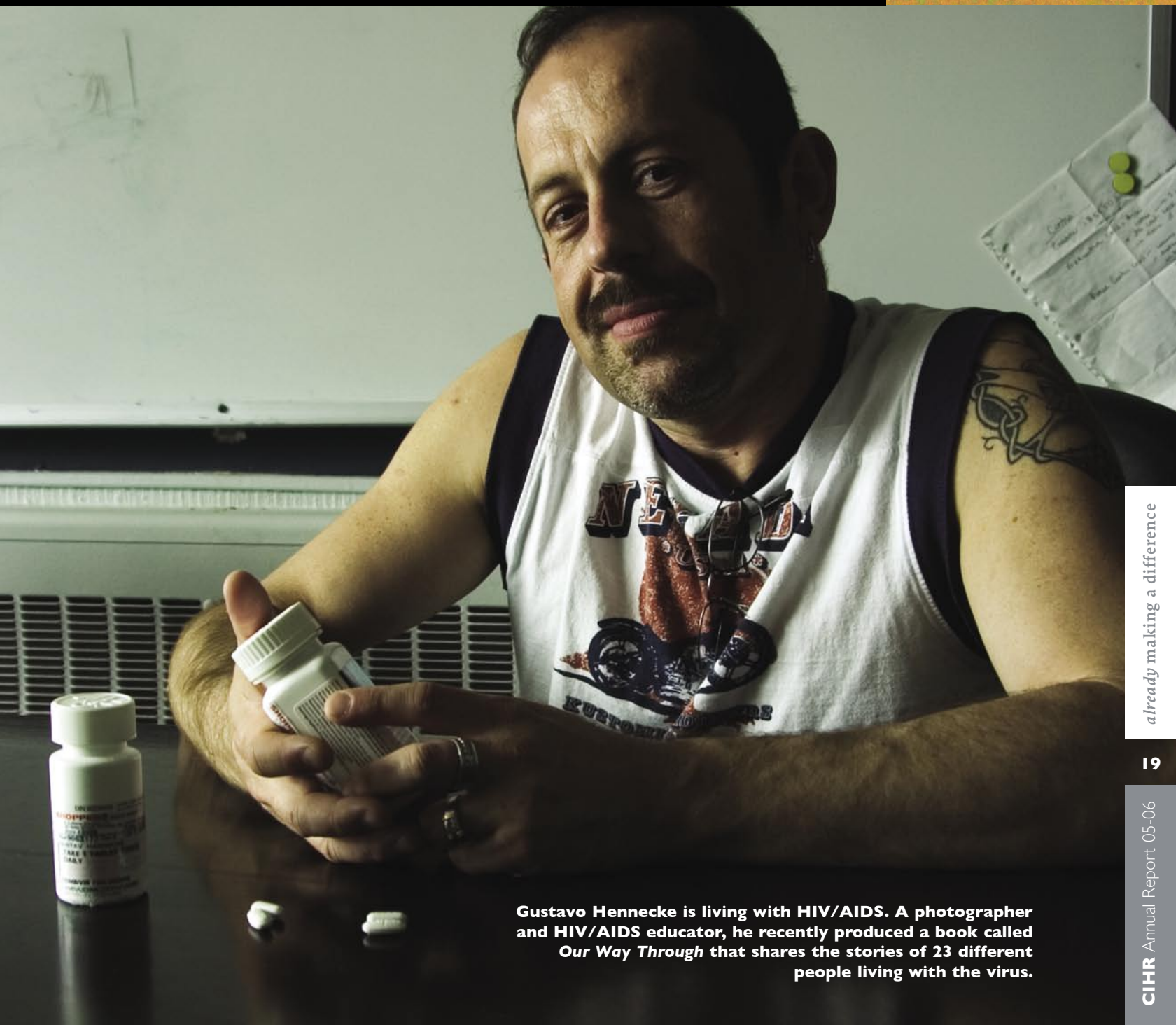
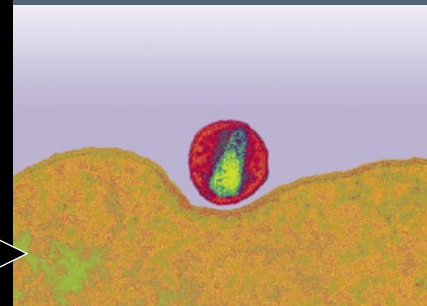
Reducing drug resistance in HIV patients

HIV patients who take their medications at least 90% of the time are less likely to develop drug resistance than those who take their drugs only 80 to 90% of the time.

Find out more on page 39.

*already
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HIV virus approaching a healthy cell.



Gustavo Hennecke is living with HIV/AIDS. A photographer and HIV/AIDS educator, he recently produced a book called *Our Way Through* that shares the stories of 23 different people living with the virus.

- (e) **Promoting, assisting and undertaking research that meets the highest international scientific standards of excellence and ethics and that pertains to all aspects of health, including bio-medical research, clinical research and research respecting health systems, health services, the health of populations, societal and cultural dimensions of health and environmental influences on health.**

The Open Operating Grants competition, representing 44% of CIHR's total grants and awards expenditures, funded more than 3,500 grants in 2005-06 on the basis of the excellence of the investigators' insights and creativity. Grants are awarded across all research themes and health research disciplines. "New" research disciplines are encouraged through the removal of systemic barriers in funding allocation and the creation of new peer review committees. Each year, CIHR has created new peer review committees that help to ensure that CIHR funding supports research across the whole range of important topics and disciplines.

New **Peer Review** Committees in areas of CIHR's broadened mandate

2000-01

Health Ethics, Law and Humanities

Health Information and Promotion

**Health Policy and Systems
Management Research**

2001-02

**Health Services Evaluation
and Interventions**

**Psychosocial, Sociocultural and
Behavioural Determinants of Health**

**Public, Community and
Population Health**

2002-03

Clinical Aspects of Aging

Children's Health

Gender, Sex and Health

Humanities Perspectives on Health

Knowledge Translation and Exchange

Movement and Exercise

Nutrition, Food and Health

Social Dimensions in Aging

2003-04

Behavioural Sciences

Medical Physics and Imaging

2004-05

Aboriginal Peoples' Health

2005-06

Palliative and End-of-Life Care

Pending

Environment and Health

Rural, Remote and Northern Health

Bioinformatics

Global Health

(f) Addressing emerging health opportunities, threats and challenges and accelerating the discovery of cures and treatments and improvements to health care, prevention and wellness strategies.

Results of the Toward Canadian Benchmarks for Health Services Wait Times Initiative in the areas of cancer, joint replacement and sight restoration, led by CIHR's Institute of Health Services and Policy Research, were used to inform the first Canadian wait times benchmarks, announced by provincial and territorial ministers of Health on December 12, 2005.

In 2003, when the SARS outbreak occurred, CIHR's Institute of Infection and Immunity spearheaded a rapid research response to develop new strategies for diagnosing and treating the virus. CIHR's Institutes of Population and Public Health and Health Services and Policy Research also responded by launching a rapid research response to assess the health care and public health systems' response to the outbreak.

While physical risks in the workplace are well-addressed, less is known about working conditions that can lead to or exacerbate mental illness and depression among employees – despite the fact that mental disability now accounts for anywhere from 30 to 40% of disability claims in the workplace. CIHR's Institute of Neurosciences, Mental Health and Addiction is leading a ten-year initiative and plans to invest \$3.2 million to learn more about mental health in the workplace, including research on reducing the stigma of mental illness, so that workers are less reluctant to seek help for their problems. By creating a solid base of research evidence, the initiative will provide a foundation for action to lessen the impact of mental illness in the workplace.

(g) Fostering the discussion of ethical issues and the application of ethical principles to health research.

CIHR has three main areas of activity with regard to ethics:

Research in ethics: CIHR funds a wide range of research on ethics. Estimated total funding on such research has increased from \$3.4 million in 2000-01 to \$8.4 million in 2005-06.

Ethics in research: CIHR has developed and supported policies, systems and practices designed to promote a culture of ethics and integrity in health research. In addition, it supports partnerships with key organizations in the broader research ethics community. Examples of accomplishments in this area include:

- The release, in 2002, of Pluripotent Stem Cell Research: Guidelines for CIHR-funded Research. These guidelines set out the conditions under which stem cell research is acceptable within the context of widely held principles and values in Canada. The guidelines were updated in 2005 to clarify their alignment with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS). The update also addressed timely issues, such as how human stem cell lines created outside Canada will be evaluated for compliance with these guidelines.
- CIHR Guidelines for Health Research Involving Aboriginal Peoples – Draft for Consultation (September 2005).
- Final report of the National Placebo Working Committee on the Appropriate Use of Placebos in Clinical Trials in Canada (July 2004, in partnership with Health Canada).
- Evolution of the TCPS.

Ethics advice on public policy relating to health and health research: To date, CIHR has made significant contributions to national health policy debates, supporting the development of regulatory frameworks and policies in critical areas such as stem cell research, privacy and governance of ethics involving humans in research.

(h) Promoting the dissemination of knowledge and the application of health research to improve the health of Canadians.

Research conducted but not applied cannot have an impact; this is why knowledge translation (KT) occupies a central role in CIHR's mandate. CIHR has defined KT as:

“the exchange, synthesis and ethically sound application of knowledge – within a complex system of interactions among researchers and users – to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products and a strengthened health care system.”

This definition is the foundation for CIHR's Knowledge Translation Strategy, 2004-2009. The strategy is designed to:

- support KT research;
- contribute to building KT networks;
- strengthen and expand KT at CIHR; and
- support and recognize excellence in KT.

Funded research in this area includes an integrated approach to KT to improve the quality of care; an examination of how CIHR-affiliated research organizations transfer research knowledge to decision makers; and an evaluation of an intervention to improve nurses' working lives through training in knowledge translation.

CIHR has also led several innovative projects designed to engage producers and users of knowledge in order to improve policies, programs and practices.

Partnerships for Health System Improvement is a program that supports teams of researchers and decision makers conducting applied health research useful to health system managers and/or policy makers. Funded grants are assessing, among other topics:

- the impact of secondary prevention clinics in Ontario;
- an integrated obesity care management system;
- organizational learning in primary health care innovation; and
- nurse staffing, interruptions in practice and patient safety outcomes.

Knowledge Translation Casebooks about Canadians transforming research results into action were published by CIHR in 2005-06, one on population health and one on health services. The casebooks, designed to help researchers, policy makers and community members learn from the experiences of others, include original submissions from across Canada focusing on lessons learned from successful – and not-so-successful – knowledge translation activities. They demonstrate the impact of research evidence in shaping changes to policy and practice.

The **Knowledge Exchange Task Force (KETF)**, formed in 2004, is an innovative approach to KT based on patients' involvement. The group comprises patients and consumers representing a broad range of organizations focusing on musculoskeletal diseases and conditions who are committed to increasing public knowledge, awareness and research in this area. KETF members are “research ambassadors”. They invite leading researchers to make presentations, and then translate and share the research findings to a broader audience.

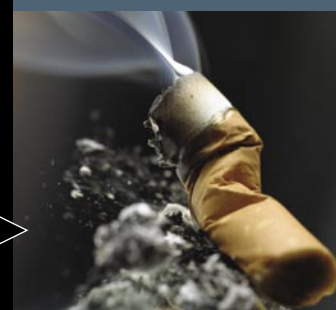
Teens and smoking

Smoking just one or two cigarettes may be all it takes for some adolescents to become addicted, with girls more likely than boys to report signs of addiction.

Find out more on page 41.

*already
making a difference*

Anti-smoking groups and legislation are helping reduce tobacco addiction.



Several members of Exposé, the largest youth-led, school-based, anti-tobacco youth initiative in Canada.



(i) Encouraging innovation, facilitating the commercialization of health research in Canada and promoting economic development through health research in Canada.

CIHR's innovative and dynamic commercialization strategy is mobilizing research, developing people and building partnerships. CIHR is implementing this strategy with a coherent suite of programs to move research from the laboratory to the marketplace. The programs build on CIHR's funded research, which yields the new concepts and materials that fuel the cycle of innovation.

Over the past five years, through its innovation and commercialization programs, CIHR and its partners have invested more than \$350 million to move innovative research forward. Through its focus on commercialization, CIHR is playing a central role in encouraging innovation that will result in solutions to the health problems that concern Canadians most, as well as contribute to economic growth, investment and high-quality jobs.

CIHR has developed the Proof of Principle (POP) Program to fill a critical gap in funding at the early stage of commercialization, between the traditional role of granting agencies in supporting discovery research, and demonstration of "proof of principle" for an innovation, at which stage private sector investors become interested.

The POP Program has enabled CIHR-funded researchers to move closer to commercializing their discoveries. Since 2001, more than 160 projects have been funded. Of the projects that have matured sufficiently to be evaluated, 63%, or 49 projects, resulted in new patents being funded; 21%, or 16 projects, had intellectual property licensed; and 14%, or 11 projects, contributed to new company formation.

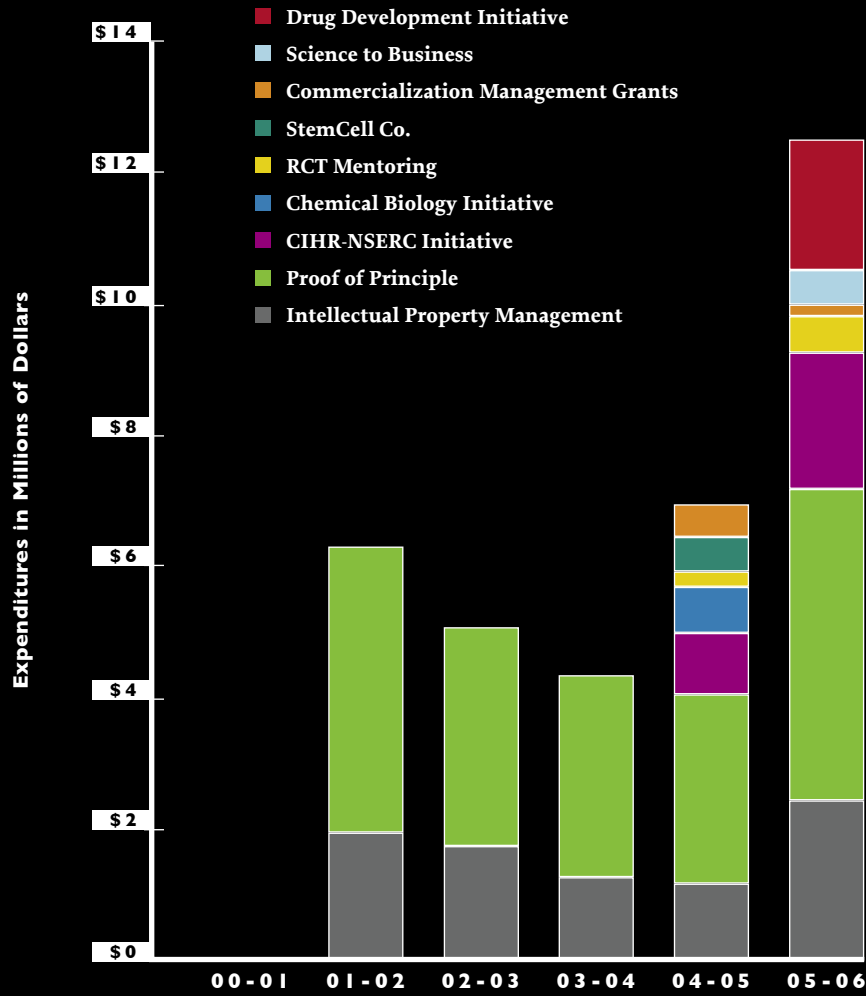
For instance, Amorfix Life Sciences Ltd., based in Toronto, has its origins in CIHR-funded research. Support from a POP grant enabled it to raise \$4 million and the company began trading on the TSX venture exchange on October 3, 2005. The company is developing new diagnostic tests to safeguard against prion-based diseases in the human blood supply.

In March 2006, Neuromed, another company whose origins began with CIHR funding, signed a \$475 million licensing deal with Merck and Co. Inc., the largest biotech licensing deal in Canada's history. Neuromed's experimental drugs for chronic pain and anxiety are based on the CIHR-funded research of the University of British Columbia's Dr. Terrance Snutch into calcium channels. Changes in these channels can lead to conditions including migraine headaches, epilepsy, hypertension and stroke.

CIHR is also building capacity for commercialization. Analyses of Canada's capacity to innovate consistently point to the lack of business and financial managers with an understanding of science and research. CIHR's new Science to Business Program helps to generate that human capital by providing partnered funding to business schools with science and technology-based MBA programs to recruit and subsidize people with PhDs in science interested in entering the business world.

Commercialization

CIHR Total Commercialization Program Expenditures, 2000-01 to 2005-06



(j) Building the capacity of the Canadian health research community through the development of researchers and the provision of sustained support for scientific careers in health research.

The **Strategic Training Initiative in Health Research**, a new initiative pioneered by CIHR, supports 87 innovative, effective, interdisciplinary and internationally competitive research training programs (RTPs) that:

- embrace diverse research disciplines and methodological approaches to resolve major health issues and scientific challenges;
- integrate training and discussion on the ethical conduct of research and related ethical issues;
- develop and measure individual participants' communication, teamwork and leadership skills, including grant writing and peer review; and
- incorporate effective research strategies that translate knowledge into practice.

Training initiatives cover such areas as neurophysics – applying material sciences and photonics to neurosciences – based at Laval University. The RTP on communication and social integration in healthy aging, based at the University of Toronto, links researchers from six different Canadian universities and won the American Psychological Association Award for Innovative Practices in Graduate Education in February 2005.

Canada Research Chairs: CIHR has seven hundred chairs in health research. Half are Tier 1 chairs, for outstanding researchers acknowledged by their peers as world leaders in their field, who receive an award of \$200,000 annually for seven years, renewable through review. The other half are Tier 2 chairs, for exceptional emerging researchers acknowledged by their peers as having the potential to lead in their field. They receive \$100,000 annually for five years, renewable once through review.

(k) Pursuing opportunities and providing support for the participation of Canadian scientists in international collaboration and partnership in health research.

The **Global Health Research Initiative** brings together CIHR, the International Development Research Centre, the Canadian International Development Agency and Health Canada to fund research collaborations with lower-income nations to investigate important health issues. To date, more than 60 research teams bringing together Canadian researchers with their colleagues from low- and middle-income countries have been funded.

Over the past year, CIHR has established partnerships with Japan (neurosciences, aging), India (diabetes), Mexico (tuberculosis) and China (five areas, including child health and infectious diseases).

Canadian researchers can also develop new international collaborations and participate in major international research projects through **International Opportunity Grants**. These grants give researchers access to cutting-edge research and technologies not currently available in Canada. Since the program began, Canada has risen to largest “third-country” status in EU FP6 (a financial instrument to create a European Research Area) health-related projects.

(l) Ensuring transparency and accountability to Canadians for the investment of the Government of Canada in health research.

During its first six years of existence, CIHR has engaged in a multitude of activities to promote transparency and accountability to Canadians. In 2005-06, CIHR opened itself to the scrutiny of an International Review Panel, the results of which will be available in the summer of 2006. In addition, it continued work on a return on investment framework to better identify returns to Canadians and to the Government of Canada. Further, CIHR continued to communicate the results of the research it funds to the media, parliamentarians and the general public through several vehicles, including information kits, newsletters and brochures.

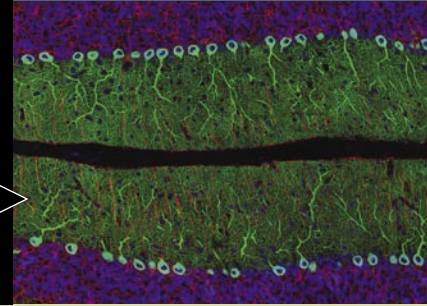
A new approach to fighting disease

Neuromed is the only biotech company in the world focused exclusively on developing calcium channel drugs for the treatment of human diseases.

Find out more on page 43.

Image of a calcium channel, a group of proteins that allow calcium ions to pass across cell membranes.

*already
making a difference*



Arthritis sufferer Diane Deschambault is part of Patient Partners, a group of persons with arthritis who literally use their bodies to help medical students and doctors learn how to perform an accurate joint count. The joint count is used as a tool to help diagnose rheumatoid arthritis.



CIHR Supports

- **more than 10,000 researchers working in over 250 institutions across Canada**
- **more than 2,000 people training in 87 interdisciplinary programs**
- **more than 1,800 graduate and post-doctoral awards**

Moving Forward

Over the past six years, more health research funding has become available to Canadian researchers. It has not, however, become more accessible. Applications for all of CIHR's programs have risen from 6,986 in 2000-01 to 11,819 in 2005-06, a 69% increase.¹ During a period in which CIHR's budget has more than doubled, the number of applications that should be funded, according to peer review, but cannot be funded because of lack of funds, has increased.

There is also a growing imbalance between the funding available for people and infrastructure, through the Canada Research Chairs and Canada Foundation for Innovation, and the funding for research through operating grants from CIHR. A commissioned economic analysis conservatively estimates this imbalance at about \$150 million per year.²

This continues to be a major problem for CIHR as it moves forward. Nonetheless, CIHR remains committed to meeting the needs of Canada's health research community and responding to the health issues that concern Canadians – and governments – most.

¹ Applications can be considered under more than one competition and are counted in each of these competitions respectively.

² Vern Hicks, MA, Health Economics Consulting Services. Balance of Funding in Canadian Health Research and Future Funding Requirements, March 1, 2006.

CIHR *already* making a difference

CIHR-funded researchers are making the discoveries that improve the health of Canadians, strengthen our health care system and support a growing economy. These are just some of them:

Quality, Accessibility and Costs of Care

Cancer

Proteomics

Cardiac Care

Infectious Diseases

Mental Health and Addiction

Commercializing Research Discoveries

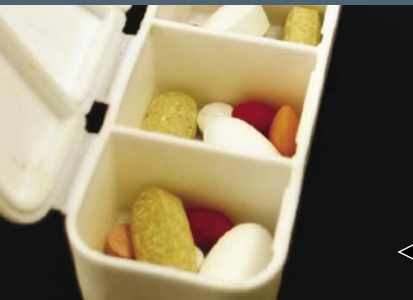
already
making a difference

Quality, Accessibility and Costs of Care

Wrestling with rising drug prices

Physicians who received a series of 12 issues of the *Therapeutic Letter* increased their prescribing of the recommended drugs by 30% in the three months following receipt of the *Letter*.

Find out more on facing page.



◀ Medication organizer.



Drug expenditures were expected to reach \$24.8 billion in 2005, up from \$16.7 billion five years ago.

Making hospital care safer

An estimated 7.5% of people hospitalized in Canada have experienced an adverse event as a result of their care, according to Canada's first-ever study on medical errors, funded in part by CIHR and carried out by **Dr. Ross Baker** of the University of Toronto and **Peter Norton** of the University of Calgary. Nearly 37% of these events were preventable, providing a scientific foundation for making hospital care safer. In response to this study, Canada's hospitals have adopted a six-point action plan to reduce adverse events; the implementation of the plan will be evaluated through December 2006 to determine its success in reducing the number of adverse events.

Understanding patterns of prescription drug spending

Five per cent of Manitobans taking prescription drugs in 2000-01 accounted for more than 40% of prescription drug spending in the province, according to a study by CIHR-supported researcher **Dr. Anita Kozyrskyj** of the Manitoba Centre for Health Policy. The average patient within this 5% received 80 prescriptions for 12 different drugs, with an average annual total bill of \$3,424. If that average could be reduced by one drug per person, Manitobans would save more than \$8 million per year. Dr. Kozyrskyj says that better monitoring of patients could also help ensure they are taking the right drugs at the right dosages and aren't facing further harm by taking so many drugs.

A Canadian prescription drug atlas

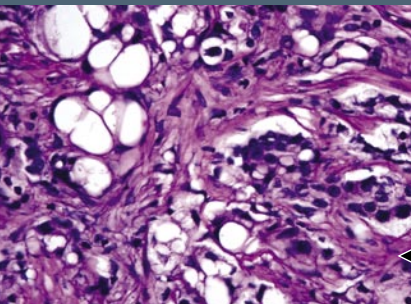
As a first step in understanding and containing rising prescription drug costs, **Dr. Steve Morgan** of the Centre for Health Services and Policy Research at the University of British Columbia has developed, with CIHR support, a Drug Utilization Atlas for British Columbia and now for all of Canada. This Atlas reveals differences in the pattern of drug utilization across Canada and within provinces. The Atlas will be useful to Ministry of Health officials as they move to contain rising drug costs.

Wrestling with rising drug prices

Dr. Malcolm Maclure, of the School of Health Information Science at the University of Victoria, is focusing his research on helping to avoid unnecessary drug cost growth while maintaining healthy outcomes for patients. Dr. Maclure's group evaluated the impact of programs to educate physicians on evidence-based drug therapies. For example, a series of 12 issues of the *Therapeutic Letter*, produced at the University of British Columbia, was sent to physicians over a five-year period. Dr. Maclure found that physicians who received issues of the *Letter* increased their prescribing of the recommended drugs by 30% in the three months following their receipt.

Reducing overcrowding in the emergency room

Dr. James Christenson, of BC Providence Health Care, developed a test for identifying the severity of chest pains. The test will help reduce emergency department overcrowding. The Vancouver Chest Pain Rule helps determine which chest pain patients can be safely sent home sooner, thereby reducing the need for prolonged emergency room observation, extensive rule-out protocols and expensive testing.



Cancer

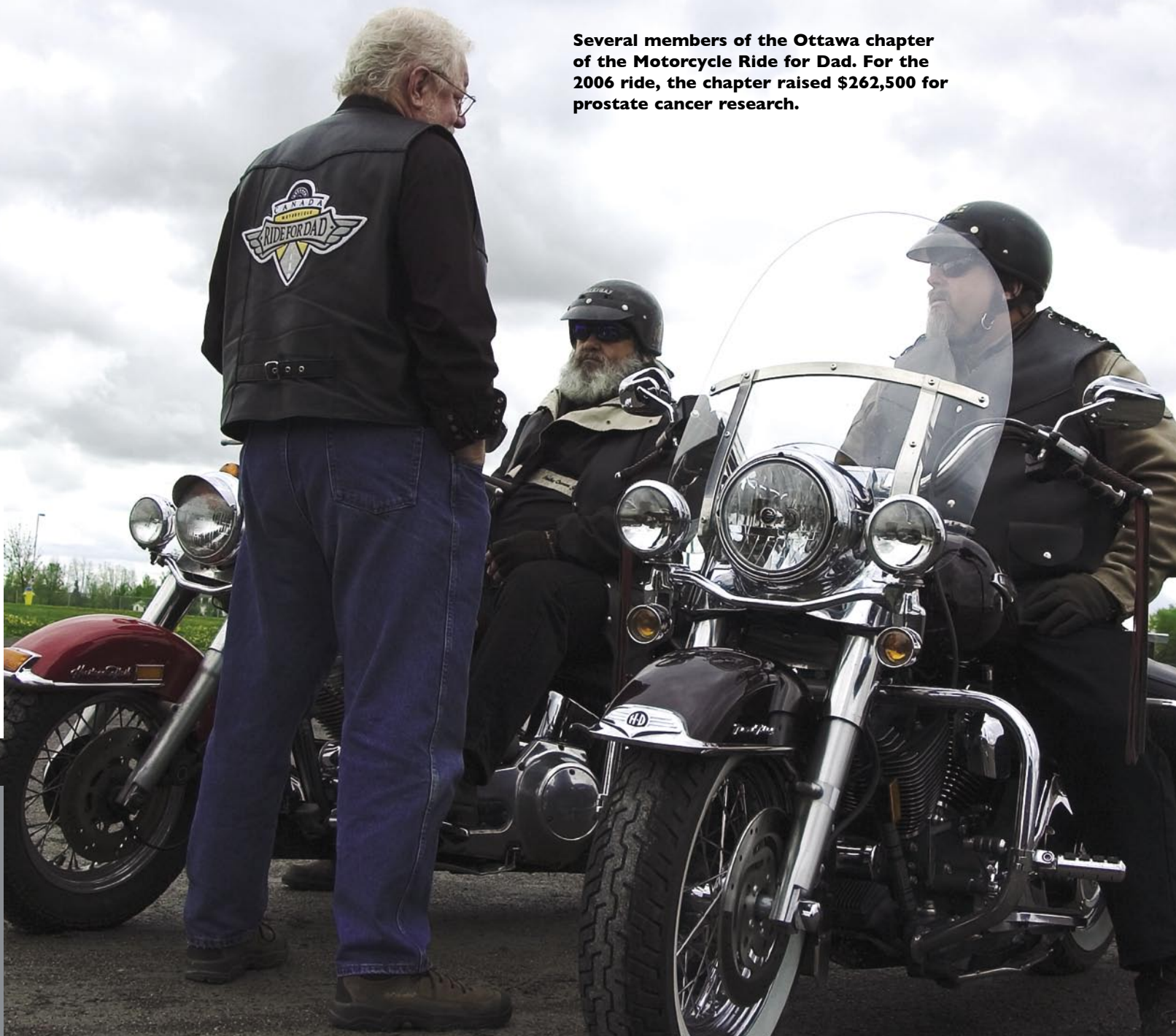
Improving treatment of prostate cancer

Men over 65 with prostate cancer benefit from surgery and radiation treatment as much as younger men.

Find out more on facing page.

← **Image of cancerous prostate tissue.**

Several members of the Ottawa chapter of the Motorcycle Ride for Dad. For the 2006 ride, the chapter raised \$262,500 for prostate cancer research.



New therapies for brain tumours

A new drug called temozolomide may prolong the lives of some people with the most common and deadliest type of brain tumour, glioblastoma. The drug, discovered by a team of Canadian and European researchers, prolonged the average survival rate of patients to 15 months, compared to 12 months in patients who only underwent radiation therapy. This is the first advance in managing this disease in 30 years. More than 1,100 Canadians are diagnosed with glioblastoma each year; most die within 9 to 12 months of diagnosis. The Canadian arm of the study was led by **Dr. Greg Cairncross**, a CIHR-supported researcher at the University of Calgary.

Early detection of breast cancer

Dr. Martin Yaffe, senior scientist in imaging research at the Sunnybrook and Women's College Health Sciences Centre in Toronto, has obtained evidence from a clinical trial that digital mammography is more accurate than film mammography in detecting breast cancer earlier in women who are under 50, have dense breasts, or are pre-menopausal. CIHR funding supported the development of the new digital mammography technique.

Hereditary colon cancer

Dr. Jeremy Jass, a CIHR-funded researcher at McGill University, has identified a type of colon cancer that is hereditary. In eleven of hundreds of families tested, he discovered disease patterns on polyps that don't fit with the known inherited conditions: familial adenomatous polyposis and hereditary non-polyposis colon cancer. This discovery will help in early diagnosis and treatment of patients at risk.

Improving treatment of prostate cancer

Dr. Shabbir Alibhai, a CIHR-supported researcher at the University Health Network and the University of Toronto, has shown that many men over age 65 benefit from surgery and radiation treatment for prostate cancer. Previous studies have shown that older patients often do not receive this potentially life-prolonging treatment.

Measuring the effects of cancer-fighting drugs

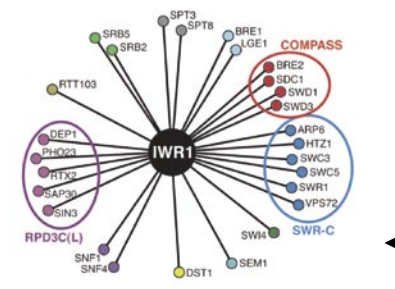
An international team, led by CIHR-funded **Dr. Bob Kerbel** of the Sunnybrook and Women's College Health Sciences Centre in Toronto, has discovered a way to measure the effects of a new class of drugs that help to prevent angiogenesis, or blood vessels that feed tissues such as cancerous tumours. Dr. Kerbel's research has important implications for improving the quality of life of cancer patients, decreasing the costs of new cancer treatments and, more importantly, potentially improving survival rates.

Proteomics

Mapping life-forming instructions

Researchers have identified close to 4,000 proteins and 550 protein complexes involved in 7,123 protein-protein interactions in yeast cells. Disease results when these complexes and interactions go awry.

Find out more on facing page.



Detail of protein interaction map.

View of a proteomics research lab.



Mapping life-forming instructions

Dr. Jack Greenblatt, of the University of Toronto, has recorded the most comprehensive and reliable map of protein interactions in a living organism to date. His work, conducted with **Dr. Andrew Emili**, used sophisticated proteomic techniques to identify close to 4,000 proteins and 550 protein complexes involved in 7,123 protein-protein interactions in yeast cells. Disease results when these complexes and interactions go awry. The structure of proteins and their interactions in yeast cells are virtually identical to those in humans.

Proteomics

the study of proteins – it involves study of what proteins look like (structure), study of interactions between proteins and study of the types of proteins expressed in different samples, such as healthy vs. diseased tissues.

The proteome is the complete set of proteins produced by the genome at any one time, approximately 60,000.

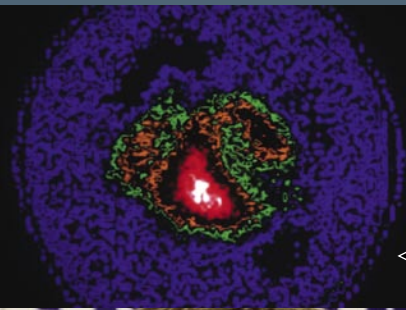
Cardiac Care

Averting subsequent heart attacks

All statins, cheap or expensive, are equally effective in preventing subsequent heart attacks in elderly patients who were prescribed them after a first heart attack.

Find out more on facing page.

◀ Nuclear medical scan of damaged heart muscle.



Pharmacists play a key role in counselling patients about their medications.

Preventing a heart attack: Lifestyle and risk

The global INTERHEART study, funded by CIHR and 38 other sources, showed that nine risk factors account for 90% of heart disease in every population on earth, according to **Dr. Salim Yusuf**, a lead investigator from McMaster University. These factors are: abdominal obesity, high cholesterol levels, high blood pressure, cigarette smoking, alcohol, diabetes, not eating fruits and vegetables, lack of daily exercise, and stress. This landmark study was published in the September 11, 2004 edition of the *Lancet* and was voted runner-up for the magazine's Scientific Paper of the Year. Among the implications of the study, the concept of a uniform preventative strategy for heart attack across the world is very attractive and of great potential impact.

Surviving a heart attack: Cardiopulmonary resuscitation (CPR) works

Dr. Ian Stiell, of the University of Ottawa, holds a Distinguished Investigator Award from CIHR. His recent research has shown that citizen-initiated CPR is strongly and independently associated with better quality of life for those who suffer cardiac arrest outside of hospitals. Given the low rate of citizen-initiated CPR in many communities, this research shows that local and national initiatives should vigorously promote the practice of bystander CPR.

Averting subsequent heart attacks

Statins are drugs that improve cholesterol levels, but which of the many available works best? A CIHR-funded study by **Dr. Louise Pilote** and colleagues (Montreal General Hospital) showed that all types, cheap or expensive, are equally effective in preventing subsequent heart attacks in elderly patients who were prescribed statins after a first heart attack.

Improving emergency room care

Overcrowding in the emergency room may be why fewer than half of all heart attack victims receive potentially life-saving drugs within the recommended 30 minutes of arrival, according to research by CIHR-funded **Dr. Jack Tu** and the Canadian Cardiovascular Outcomes Research Team. Better organization of emergency rooms, as well as routine monitoring of treatment times and a triage system that deals with chest pain patients immediately, could help to reach the 30-minute treatment goal.

already
making a difference

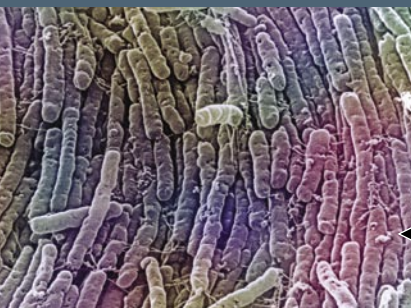
Infectious Diseases

Containing *C. difficile* infection in hospitals

The *C. difficile* strain that has plagued some Quebec hospitals is 20 times more toxic than many other strains of the infection, leading the province to improve its infection-control measures.

Find out more on facing page.

Scanning electron micrograph of *Clostridium difficile* magnified 16,000 times.



The mortality rate of hospital patients infected by *C. difficile* has increased by 400% since 1997.



Containing *C. difficile* infection in hospitals

The strain of *C. difficile* that has plagued some Quebec hospitals is 20 times more toxic than many other strains of the infection, according to CIHR-supported researcher **Dr. Jacques Pépin** of the Centre hospitalier universitaire de Sherbrooke, who worked with researchers at the US Centers for Disease Control and Prevention. This represents a major change in the epidemiology and pathogenicity of *C. difficile*, which, until recently, was considered a nuisance pathogen with no measurable impact on mortality. The province has acted on recommendations from Dr. Pépin and other microbiologists and has increased the number of nurses assigned to infection control, improved its small-equipment maintenance and sterilization and is monitoring the use of antibiotics.

C. difficile outside the hospital

CIHR-funded researchers **Dr. Sandra Dial** and colleagues (McGill University) have discovered that drugs such as heartburn medications, which reduce gastric acidity, are potential risk factors for *C. difficile* infection outside of hospitals. The new research, published in the *Journal of the American Medical Association* in December 2005, focuses on community-acquired *C. difficile*, and is a follow-up to previous work by the same group that demonstrated an increased risk from these medications in hospital settings. Numerous studies worldwide have documented increases in hospital *C. difficile*-associated disease, but this study is the first to suggest this trend is mirrored in the general community.

Reducing drug resistance in HIV patients

Dr. Richard Harrigan, a CIHR-funded researcher at the BC Centre for Excellence in HIV/AIDS, has discovered that HIV patients who take their medications at least 90% of the time are less likely to develop drug resistance than those who take their drugs only 80 to 90% of the time. The study emphasizes the importance of following drug regimens as closely as possible.

Fighting the most dreaded viruses

Drs. Heinz Feldmann (University of Manitoba) and **Steven Jones** (BC Cancer Research Agency), two researchers funded by CIHR, in collaboration with international colleagues, have developed vaccines that have shown tremendous promise in providing protection against Ebola, Marburg and Lassa viruses in monkeys. The next step is to test the vaccines on humans to see if they stimulate a similar strong immune response. This research could translate into effective treatment for humans – and spell relief for health care workers on the frontline fighting these infectious diseases.

Mental Health and Addiction

Psychiatric illness in the prison population

Men and women in prison are more likely to have a severe psychiatric illness. The Jail Screening Assessment Tool can identify inmates in need of mental health services.

Find out more on facing page.

There are approximately 12,500 persons currently in custody at federal prisons across Canada.



One in ten men admitted to federal prisons is diagnosed with a mental disorder.

Teens and smoking

Smoking just one or two cigarettes may be all it takes for some adolescents to become addicted, according to research by **Dr. Jennifer O’Loughlin** of McGill University. Her study of more than 1,200 Montreal high school students also found that girls are more likely than boys to report symptoms of addiction. The study challenges the current belief that nicotine addiction can take up to three years to develop; it also highlights that nicotine dependence could be a stronger factor in why young people smoke than peer pressure or family members who smoke. The study is the first part of a six-year project examining the genetic and environmental factors involved in nicotine dependence among young people. It underscores the importance of starting prevention and smoking cessation programs earlier and will help in the development of more effective cessation programs.

Psychiatric illness in the prison population

Men in prison are two to three times more likely than men in the general population to have a severe psychiatric illness; female inmates are even more likely to suffer from serious mental disorders. **Dr. James Ogloff**, formerly of Simon Fraser University and now with Monash University in Melbourne, Australia, led a team that developed the Jail Screening Assessment Tool (JSAT) to provide guidelines for mental health screening of detainees. Testing has found the JSAT is a potentially effective tool to identify female inmates in need of mental health services and specialized placement.

Improving mental health services in rural areas

The Need to Know Team is a CIHR-funded collaboration of the Manitoba Centre for Health Policy, rural and northern regional health authorities and Manitoba Health, led by **Dr. Patricia Martens**. The team is a 2005 winner of the CIHR Knowledge Translation Award. Among its many products is a report on mental illness in rural Manitoba, which is being used as a critical planning resource for rural and northern regional health authorities. The report found that, between 1997 and 2004, more than one in four Manitobans had at least one mental illness diagnosis. During that time, they used nearly half the days that people spent in all Manitoba hospitals, underlining the need for health authorities to focus on issues related to improving care settings and services for those suffering from mental illness.

People with Alzheimer’s disease who live in rural or remote areas have limited access to the services they need and their family caregivers are often reluctant to use the services available to them, such as home care and support groups. **Dr. Debra Morgan** of the University of Saskatchewan has worked with communities and care providers to identify eight barriers to the use of formal services. The list includes the stigma of dementia, lack of privacy and anonymity, lack of awareness and lack of access to services because of distance. The study also proposed strategies to overcome these barriers, including making caregivers aware of available services and how they can help in the particular situation, as well as better public education to break down the stigma around dementia.

Over-prescribing anti-psychotic drugs to seniors

Dr. Paula Rochon, a CIHR-funded researcher at the Institute for Clinical Evaluative Sciences in Toronto, has determined that seniors are prescribed too many anti-psychotic drugs within a short period of having been admitted to long-term care facilities, often without the benefit of specialist care. This over-prescription practice could be a measure used by physicians to calm anxiety levels of residents suffering from dementia. However, these therapies have also been associated with problems such as instability and falls and Parkinson-type symptoms, as well as an increased risk of stroke.

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Commercializing Research Discoveries

Discovering drugs to treat human genetic diseases

Xenon Pharmaceuticals Inc. is one of Canada's largest privately-held biotech companies. Its annual payroll is about ten times CIHR's total investment in the original research that led to its founding.

Find out more on facing page.

← **Drug laboratory.**



already making a difference

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CIHR Annual Report 05-06

Over the past five years, CIHR and its partners have invested more than \$350 million to help commercialize research.

A new approach to fighting disease

Dr. Terrance Snutch of the University of British Columbia is an internationally acclaimed molecular neurobiologist who has won many awards for his research on calcium channels. These channels are involved in many physiological processes, including muscle contraction, hormone secretion and electrical signaling in the nervous system. Changes in calcium channels can lead to illnesses including migraine headaches, epilepsy, hypertension and stroke. With the knowledge gained through more than \$5 million in CIHR-funded research over the years, Dr. Snutch has created Neuromed, the only biotech company in the world focused exclusively on developing calcium channel drugs for the treatment of human diseases. With annual revenue/capitalization of over \$US49 million, Neuromed has focused on proven therapeutic targets and has rationally designed compounds to selectively target only those channels relevant to specific disease indications. This approach has led to the discovery of high-affinity, selective and orally available lead candidate calcium channel blockers. In March 2006, Neuromed signed a \$475 million licensing deal with Merck and Co. Inc., the largest biotech licensing deal in Canada's history.

Preventing mad cow disease and detecting other brain diseases

CIHR-funded neuroscientist **Dr. Neil Cashman** of the University of British Columbia has developed a diagnostic blood test to detect mad cow disease and other brain diseases like Alzheimer's, Parkinson's, and Lou Gehrig's diseases. To prevent humans from getting the variant Creutzfeldt-Jakob disease (vCJD) from tainted meat or from blood transfusions, there is an urgent need for a simple blood test that can be used in cattle and humans. A CIHR Proof of Principle (POP) grant helped establish a spin-off company, Amorfix Life Sciences Inc., which is now accelerating development of this technology. The blood test to detect these brain diseases and bovine prions, the infectious proteins that cause mad cow disease and the human form of vCJD, may be available in one to two years.

Discovering drugs to treat human genetic diseases

Xenon Pharmaceuticals Inc., a world-leading clinical genetics-based drug development company, is a spin-off firm of **Dr. Michael Hayden** of the University of British Columbia. Xenon is engaged in developing small molecule therapies based on the genetic causes of select metabolic, neurological and cardiovascular diseases. Today, Xenon is one of Canada's largest privately-held biotech companies and employs more than 80 persons. Xenon's annual payroll is about ten times CIHR's total investment in the original research that led to its founding.

Fighting cancer

Gemin X Biotechnologies Inc., from McGill University, was founded by **Dr. Philip Branton**, Scientific Director of CIHR's Institute of Cancer Research. Gemin X Biotechnologies specializes in the discovery and development of novel small-molecule cancer therapeutics based on the regulation of apoptosis, the body's natural ability to destroy injured or damaged cells. Gemin X has raised almost \$80 million to develop novel cancer treatments based on its new understanding of the molecular alterations that give rise to cancer. These approaches, which have already led to such blockbuster drugs as Gleevec and Herceptin, are promising to revolutionize cancer treatment.

CIHR

providing
stewardship and
accountability

CIHR reports to Parliament through the Minister of Health. Its Governing Council is chaired by CIHR's President and comprises 20 Canadians who have been appointed by Order-in-Council to renewable three-year terms. Council members represent a wide range of backgrounds and disciplines, reflecting CIHR's broad mandate and vision.

CIHR's Governing Council, 2005-06

Dr. Alan Bernstein

(Chair)

President

Canadian Institutes of Health Research

Dr. Stephanie Atkinson

Professor

Department of Pediatrics

McMaster University

Dr. Michel Bureau

Director General

Ministère de la Santé et des

Services sociaux du Québec

Dr. Harvey Chochinov

Professor

Faculty of Medicine

University of Manitoba

Dr. Alastair Cribb

Professor

Clinical Pharmacology

University of Prince Edward Island

Dr. Nancy Edwards

Professor

School of Nursing

Department of Epidemiology and

Community Medicine

University of Ottawa

Dr. Philippe Gros

Professor

Department of Biochemistry

McGill University

Dr. Kevin Keough

President and CEO

Alberta Heritage Foundation

for Medical Research

Dr. Victor Ling

(Associate Vice-Chair)

Vice President

BC Cancer Agency

Dr. Patrick McGrath

Professor

Department of Psychology

Dalhousie University

Dr. Louise Nadeau

(Vice-Chair)

Professor

Department of Psychology

University of Montreal

Dr. Rodney Ouellette

Director

Molecular Pathology Laboratory

and Head of Research

Dr. Georges-L.-Dumont Hospital

Dr. Carol Richards

Director

CIRRIIS Research Centre

Laval University

Morris Rosenberg (ex officio)

Deputy Minister

Health Canada

Dr. Janet Rossant

Chief of Research

Hospital for Sick Children

Joseph Rotman

Chairman and CEO

Roy. L. Capital Corporation

Dr. Jean Rouleau

Dean

Faculty of Medicine

University of Montreal

Dr. Robert Sheldon

Professor

Cardiovascular Research Group

University of Calgary

Arnold Steinberg

Principal, Retail and Investment Banking

Cleman Ludmer Steinberg, Inc.

Dr. Bill Thomlinson

Executive Director

Canadian Light Source Inc.

University of Saskatchewan

CIHR Institutes of excellence

CIHR is composed of 13 innovative Institutes. These Institutes bring together all partners in the research process – those who fund research, those who carry it out and those who use its results – to share ideas and focus on what Canadians need: good health and the means to prevent and fight diseases when they happen.

Each Institute is headed by a Scientific Director who is a leader in his or her field. Scientific Directors receive guidance from their Institute Advisory Board, made up of volunteers from all areas of the health research community.

**The following are CIHR's 13 Institutes
and their Scientific Directors.**



**CIHR Institute of
Aboriginal Peoples' Health**
Dr. Jeff Reading
University of Victoria



**CIHR Institute of Human Development,
Child and Youth Health**
Dr. Michael Kramer
McGill University



CIHR Institute of Aging
Dr. Anne Martin-Matthews
University of British Columbia



**CIHR Institute of Infection
and Immunity**
Dr. Bhagirath Singh
University of Western Ontario



CIHR Institute of Cancer Research
Dr. Philip Branton
McGill University



**CIHR Institute of Musculoskeletal Health
and Arthritis**
Dr. Cyril Frank
University of Calgary



**CIHR Institute of Circulatory and
Respiratory Health**
Dr. Bruce McManus
University of British Columbia



**CIHR Institute of Neurosciences,
Mental Health and Addiction**
Dr. Rémi Quirion
Douglas Hospital Research Centre
McGill University



CIHR Institute of Gender and Health
Dr. Miriam Stewart
University of Alberta



**CIHR Institute of Nutrition,
Metabolism and Diabetes**
Dr. Diane Finegood
Simon Fraser University



CIHR Institute of Genetics
Dr. Roderick McInnes
Hospital for Sick Children
University of Toronto



**CIHR Institute of Population
and Public Health**
Dr. John Frank
University of Toronto



**CIHR Institute of Health Services and
Policy Research**
Dr. Morris Barer
University of British Columbia

The Power of Volunteers

Volunteers are the backbone of CIHR's reputation for excellence. Our volunteers help to set research priorities and strategic directions, ensure that CIHR funding is allocated only to the very best research proposals and provide accountability to the people of Canada – the source of CIHR funding – and to the research community.

In particular, each year, more than 2,400 expert reviewers volunteer their time to one of CIHR's peer review committees, assessing the strengths and weaknesses of each of the many thousands of funding applications CIHR receives. Their work is supplemented by that of thousands of external reviewers who submit written reports for consideration by peer review committees. CIHR's peer review system ensures that CIHR's funding process is fair and open, that taxpayers' money is spent wisely and that only the best and the brightest researchers are funded.

Hundreds more serve as members of Institute Advisory Boards and committees of the Governing Council and as University Delegates, providing strategic advice to CIHR and its Institutes.

CIHR recognizes the dedication of its volunteers and thanks them for their continuing commitment to improving the lives of Canadians. A full list of all CIHR volunteers can be found in the companion volume to this report, entitled *The Power of Volunteers 2005-06*.

Management Discussion and Analysis

CIHR has been in operation for six years since being created by legislation in June 2000. The total CIHR budget for 2005-06, as appropriated by Parliament, has reached \$813.1 million.

Since its creation, the number of CIHR-funded grants and awards has climbed steadily to approximately 8,900 for a total investment of \$768.8 million¹ in 2005-06. CIHR continues to invest strategically by contributing \$27.5 million in funding Networks of Centres of Excellence and \$72.9 million in funding for Canada Research Chairs.

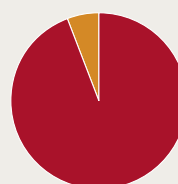
CIHR's operating expenditures in 2005-06 totalled \$47.4 million. Operating expenditures were comprised of \$29.6 million in salary and employee benefits (62%) and \$17.8 million in non-salary expenditures (38%).

Highlights

- The overall growth in CIHR's budget was approximately 7% over 2005-06.
- CIHR and its Institutes have over 330 established partnerships. Through partnerships, CIHR has leveraged \$516 million in additional funding for health research between 1999-2000 and 2005-06.
- CIHR invested approximately 62% of its base budget for grants and awards to support non-targeted, peer-reviewed investigator-initiated research projects through open competitions. As well, 38% of the budget was invested in targeted, strategic health research initiatives.¹
- The ratio of operating expenditures to total budget has been maintained under 6%.
- CIHR did not spend all available and planned funding in 2005-06, incurring a surplus of \$10.8 million in its Grants and Awards budget and \$1.4 million in its Operating budget.
- The lapsed funding in the Grants and Awards was the result of difficulties experienced by universities in filling Canada Research Chairs at the anticipated rate. Because of the financial arrangements in place for this program, there will be no impact on the capacity to fund health-related Chairs in coming years.
- The factors resulting in the Operating surplus include: staff not being hired at the rate expected thereby underutilizing the salary budget, projects being cancelled or not starting as quickly as planned and efficiencies identified in the peer review process.
- As part of the government expenditure reduction initiative, the CIHR reduced its Grants and Awards Budget for the 2005-06 fiscal year by \$20 million pertaining to reduced expenditures in the Canada Research Chairs program.

¹ These figures include Canada Research Chairs and Networks of Centres of Excellence.

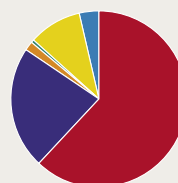
2005-06 Expenditures



Total Expenditures

\$812.5 Million

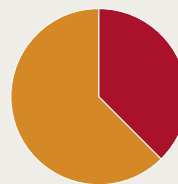
- Grants and Awards Expenses (94.2%)
- Operating Expenses (5.8%)



Grants and Awards Expenditures¹

\$768.8 Million

- Open Competitions (62.2%)
- Strategic Initiatives (22.3%)
- Institute Support Grants (1.7%)
- Knowledge Translation (0.7%)
- Canada Research Chairs (9.5%)
- Networks of Centres of Excellence (3.6%)



Operating Expenses

\$47.4 Million

- Other Operating Expenses (37.6%)
- Salaries and Employee Benefits (62.4%)

Note 1: Figures do not include Refunds of previous years' expenses. Figures may vary due to rounding.

Key Financial Results (Year 2005-06)

Operating Expenses *(in thousands of dollars)*

• Capital Asset Additions	1,477
• Salaries and Employee Benefits	29,594
• Other Operating Expenses	17,838
• Number of FTEs	332
• Percentage of Operating Expenses to Total	5.8%

Grants and Awards *(in thousands of dollars)*

• Open Competitions	478,109
• Strategic Initiatives	171,878
• Institute Support Grants	13,000
• Knowledge Translation	5,458
• Canada Research Chairs	72,900
• Networks of Centres of Excellence	27,500

Affiliation of Grants and Awards to Institutes

Primary Institute	CIHR Expenditures for 2005-06 <i>(in thousands of dollars)</i>	# Projects Funded	Percent of Total
Aboriginal Peoples' Health	\$11,075	92	1.7%
Aging	\$22,038	307	3.3%
Cancer Research	\$59,804	741	9.1%
Circulatory and Respiratory Health	\$77,189	870	11.7%
Gender and Health	\$11,586	122	1.8%
Genetics	\$69,257	738	10.5%
Health Services and Policy Research	\$25,693	384	3.9%
Human Development, Child and Youth Health	\$46,447	445	7.1%
Infection and Immunity	\$75,390	870	11.5%
Musculoskeletal Health and Arthritis	\$37,329	446	5.7%
Neurosciences, Mental Health and Addiction	\$96,765	1,218	14.7%
Nutrition, Metabolism and Diabetes	\$46,756	550	7.1%
Population and Public Health	\$24,313	329	3.7%
Unable to allocate	\$54,104	1,112	8.2%
Total	\$657,746	8,224	100.0%

Note: Applicants are asked to select a CIHR Institute whose research mandate is related to the application's research and objectives. The Primary Institute is the institute that they have selected as their first choice. The "Unable to allocate" represents the applicants who have not identified a CIHR Institute. Networks of Centres of Excellence, Canada Research Chairs, cost sharing agreements with other Government departments, endowments for health research and donations for research are not included in these figures.

Outlook 2006-07

Health research is a long-term endeavor that requires multi-year financial commitments. Thorough financial planning is required to manage risk associated with potential differentials between commitments to grants and awards and the funding expected from Parliament.

In the recent federal budget, CIHR received a budget increase of \$17 million. Since its inception six years ago, CIHR and the health research community in Canada have continued to benefit from budget increases. These increases have helped CIHR and its partners in the provinces, health charities and industry nourish the growth of a vibrant health research community. This community continues to demonstrate its potential for innovation and ground-breaking discoveries.

Despite the budget increase, our unallocated funds for 2006-07 are still lower than in previous years. CIHR is planning strategically in order to fulfill its mission and mandate. CIHR will continue to support and facilitate 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.

Auditor's Report and Financial Statements

Canadian Institutes of Health Research MANAGEMENT RESPONSIBILITY FOR FINANCIAL STATEMENTS

Responsibility for the integrity and objectivity of the accompanying financial statements of the Canadian Institutes of Health Research (CIHR) for the year ended March 31, 2006 and all information contained in these statements rests with CIHR's management. These financial statements have been prepared by management in accordance with Treasury Board accounting policies which are consistent with Canadian generally accepted accounting principles for the public sector, and year-end instructions issued by the Office of the Comptroller General.

Management is responsible for the integrity and objectivity of the information in these financial statements. Some of the information in the financial statements is based on management's best estimates and judgement and gives due consideration to materiality. To fulfil its accounting and reporting responsibilities, management maintains a set of accounts that provides a centralized record of CIHR's financial transactions. Financial information submitted to the *Public Accounts of Canada* and included in CIHR's *Departmental Performance Report* is consistent with these financial statements.

Management maintains a system of financial management and internal control designed to provide reasonable assurance that financial information is reliable, that assets are safeguarded and that transactions are in accordance with the *Financial Administration Act*, are executed in accordance with prescribed regulations, within Parliamentary authorities, and are properly recorded to maintain accountability of Government funds. Management also seeks to ensure the objectivity and integrity of data in its financial statements by careful selection, training and development of qualified staff, by organizational arrangements that provide appropriate divisions of responsibility and by communications programs aimed at ensuring that regulations, policies, standards and managerial authorities are understood throughout the organization.

The Standing Committee on Performance Measurement, Evaluation and Audit, appointed by the Governing Council of CIHR, has reviewed these statements with management and the auditors, and has reported to the Governing Council. The Governing Council has approved the financial statements.

The financial statements of CIHR have been audited by the Auditor General of Canada, the independent auditor for the Government of Canada.

Approved by:



Lucie Kempffer
Acting Vice-President, Services & Operations



Dr. Alan Bernstein, O.C., FRSC
President

June 2, 2006



AUDITOR'S REPORT

To the Canadian Institutes of Health Research and the Minister of Health

I have audited the statement of financial position of the Canadian Institutes of Health Research (CIHR) as at March 31, 2006 and the statements of operations, equity of Canada and cash flow for the year then ended. These financial statements are the responsibility of CIHR'S management. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these financial statements present fairly, in all material respects, the financial position of CIHR as at March 31, 2006 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

Nancy Y. Cheng, FCA
Assistant Auditor General
for the Auditor General of Canada

Ottawa, Canada
June 2, 2006

**STATEMENT OF OPERATIONS
FOR THE YEAR ENDED MARCH 31**

(in thousands of dollars)

	<u>2006</u>	<u>2005</u>
EXPENSES (Note 4)		
Health research	475,620	445,184
Health researchers in innovative environments	275,206	260,456
Transforming health research into action	<u>61,674</u>	<u>52,428</u>
TOTAL EXPENSES	<u>812,500</u>	<u>758,068</u>
REVENUES (Note 5)		
Health research	6,264	5,389
Health researchers in innovative environments	3,624	3,153
Transforming health research into action	<u>812</u>	<u>635</u>
TOTAL REVENUES	<u>10,700</u>	<u>9,177</u>
NET COST OF OPERATIONS	<u>801,800</u>	<u>748,891</u>

The accompanying notes are an integral part of these financial statements.

**STATEMENT OF FINANCIAL POSITION
AS AT MARCH 31**

(in thousands of dollars)

	<u>2006</u>	<u>2005</u>
ASSETS		
Financial assets		
Due from the Consolidated Revenue Fund	18,640	12,417
Accounts receivable:		
Other Federal Government departments	367	648
External parties	353	195
Advances	191	192
Total financial assets	19,551	13,452
Non-financial assets		
Prepaid expenses	542	200
Tangible capital assets (Note 6)	4,049	3,948
Total non-financial assets	4,591	4,148
TOTAL ASSETS	24,142	17,600
LIABILITIES		
Accounts payables and accrued liabilities:		
Other Federal Government departments	381	378
External parties	3,913	2,940
Vacation pay and compensatory leave	910	1,084
Deferred revenue (Note 7)	14,346	9,099
Employee severance benefits (Note 8)	4,633	3,826
TOTAL LIABILITIES	24,183	17,327
EQUITY OF CANADA	(41)	273
TOTAL LIABILITIES AND EQUITY OF CANADA	24,142	17,600

Contingent liabilities (Note 9)

Contractual obligations (Note 10)

The accompanying notes are an integral part of these financial statements.

Approved by Governing Council:



Dr. Alan Bernstein, O.C., FRSC
Chair

Approved by Management:



Lucie Kempffer
Acting Vice-President, Services & Operations

**STATEMENT OF EQUITY
FOR THE YEAR ENDED MARCH 31**

(in thousands of dollars)

	<u>2006</u>	<u>2005</u>
EQUITY OF CANADA, BEGINNING OF YEAR	273	729
Net cost of operations	(801,800)	(748,891)
Net cash provided by Government	790,458	739,093
Change in due from the Consolidated Revenue Fund	6,223	5,232
Services provided without charge by other Government departments (Note 11)	<u>4,805</u>	<u>4,110</u>
EQUITY OF CANADA, END OF YEAR	<u>(41)</u>	<u>273</u>

The accompanying notes are an integral part of these financial statements.

**STATEMENT OF CASH FLOW
FOR THE YEAR ENDED MARCH 31**

(in thousands of dollars)

	<u>2006</u>	<u>2005</u>
OPERATING ACTIVITIES		
Net cost of operations	801,800	748,891
Non-cash items:		
Amortization of tangible capital assets	(1,376)	(1,426)
Services provided without charge by other Government departments	(4,805)	(4,110)
	<u>(6,181)</u>	<u>(5,536)</u>
Variations in Statement of Financial Position:		
Increase (decrease) in accounts receivable and advances	(124)	310
Increase (decrease) in prepaid expenses	342	(350)
Increase in liabilities	(6,856)	(6,200)
	<u>(6,638)</u>	<u>(6,240)</u>
Cash Used by Operating Activities	<u>788,981</u>	<u>737,115</u>
CAPITAL INVESTMENT ACTIVITIES		
Acquisitions of tangible capital assets	<u>1,477</u>	<u>1,978</u>
Cash Used by Capital Investment Activities	<u>1,477</u>	<u>1,978</u>
FINANCING ACTIVITIES		
NET CASH PROVIDED BY GOVERNMENT OF CANADA	<u>790,458</u>	<u>739,093</u>

The accompanying notes are an integral part of these financial statements.

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED MARCH 31, 2006

1. Authority and Objectives

The Canadian Institutes of Health Research (CIHR) was established in June 2000 under the *Canadian Institutes of Health Research Act*, replacing the former Medical Research Council of Canada. It is listed in Schedule II to the *Financial Administration Act* as a departmental corporation.

CIHR's objective is to excel, according to international standards of scientific excellence, in the creation of new knowledge, and its translation into improved health, more effective health services and products, and a strengthened Canadian health care system. CIHR achieves these objectives through three strategic outcomes. The first strategic outcome is outstanding research, achieved by funding excellent and ethical health research across all disciplines that are relevant to health. The second strategic outcome is outstanding researchers in innovative environments, achieved by providing funding to develop and sustain health researchers in vibrant, innovative and stable research environments. The third strategic outcome is transforming health research into action, achieved by CIHR's knowledge translation activities and funding aimed to accelerate the transformation of research results into health benefits for Canadians and an improved health care system as well as helping to move new research breakthroughs toward potential commercial applications.

CIHR is led by a President who is the Chairperson of a Governing Council of not more than 19 other members appointed by the Governor in Council. The Governing Council sets overall strategic direction, goals and policies and oversees programming, resource allocation, ethics, finances, planning and accountability.

CIHR has 13 Institutes that focus on identifying the research needs and priorities for specific health areas, or for specific populations, then developing strategic initiatives to address those needs. Each Institute is led by a Scientific Director who is guided by an Institute Advisory Board, which strives to include representation of the public, researcher communities, research funders, health professionals, health policy specialists and other users of research results.

CIHR's grants, awards, and operating expenditures are funded by budgetary lapsing authorities. Employee benefits are funded by statutory authorities.

2. Significant Accounting Policies

These financial statements have been prepared in accordance with Treasury Board accounting policies which are consistent with Canadian generally accepted accounting principles for the public sector, and year-end instructions issued by the Office of the Comptroller General. The most significant accounting policies are as follows:

(a) Parliamentary appropriations – CIHR is financed by the Government of Canada through Parliamentary appropriations. Appropriations provided to CIHR do not parallel financial reporting according to generally accepted accounting principles since appropriations are primarily based on cash flow requirements. Consequently, items recognized in the statement of operations and the statement of financial position are not necessarily the same as those provided through appropriations from Parliament. Note 3 provides a high-level reconciliation between the bases of reporting.

(b) Net cash provided by Government – CIHR operates within the Consolidated Revenue Fund (CRF), which is administered by the Receiver General for Canada. All cash received by CIHR is deposited to the CRF and all cash disbursements made by CIHR are paid from the CRF. The net cash provided by Government is the difference between all cash receipts and all cash disbursements including transactions between departments of the Federal Government.

(c) Due from the Consolidated Revenue Fund represents the amount of cash that CIHR is entitled to draw from the Consolidated Revenue Fund without further appropriations, in order to discharge its liabilities.

(d) Revenues

- Funds received from external parties for specified purposes are recorded upon receipt as deferred revenues. These revenues are recognized in the period in which the related expenses are incurred.
- Other revenues are accounted for in the period in which the underlying transaction or event occurred that gave rise to the revenues.

(e) Expenses – Expenses are recorded on the accrual basis:

- Grants and awards are recognized when the entitlement has been established, the recipient has met the eligibility criteria, and the commitment has been approved.
- Vacation pay and compensatory leave are expensed as the benefits accrue to employees under their respective terms of employment.
- Services provided without charge by other Government departments are recorded as operating expenses at their estimated cost.

(f) Employee future benefits

- i. Pension benefits: Eligible employees participate in the Public Service Pension Plan, a multiemployer plan administered by the Government of Canada. CIHR's contributions to the Plan are charged to expenses in the year incurred and represent the total obligation of CIHR to the Plan. Current legislation does not require CIHR to make contributions for any actuarial deficiencies of the Plan.
- ii. Severance benefits: Employees are entitled to severance benefits under labour contracts or conditions of employment. These benefits are accrued as employees render the services necessary to earn them. The obligation relating to the benefits earned by employees is calculated using information derived from the results of the actuarially determined liability for employee severance benefits for the Government as a whole.

(g) Accounts receivable – These are stated at amounts expected to be ultimately realized. A provision for doubtful accounts is made for any amounts where recovery is considered uncertain.

(h) Contingent liabilities – Contingent liabilities are potential liabilities which may become actual liabilities when one or more future events occur or fail to occur. To the extent that the future event is likely to occur or fail to occur, and a reasonable estimate of the loss can be made, an estimated liability is accrued and an expense is recorded. If the likelihood is not determinable or an amount cannot be reasonably estimated, the contingency is disclosed in the notes to the financial statements.

(i) Tangible capital assets – All tangible capital assets having an individual initial cost of \$5,000 or more are recorded at their acquisition cost. Amortization of tangible capital assets is done on a straight-line basis over the estimated useful life of the capital asset as follows:

Asset class	Amortization period
Informatics hardware	3-5 years
Informatics software	3 years
Office equipment	10 years
Motor vehicles	5 years

Amounts included in work-in-progress are uncompleted capital projects which are transferred to informatics software upon completion, and are then amortized according to CIHR's policy.

(j) Measurement uncertainty – The preparation of these financial statements in accordance with Treasury Board accounting policies which are consistent with Canadian generally accepted accounting principles for the public sector, and year-end instructions issued by the Office of the Comptroller General, requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses reported in the financial statements. At the time of preparation of these statements, management believes the estimates and assumptions to be reasonable. The most significant items where estimates are used are contingent liabilities, the liability for vacation pay and compensatory leave, employee severance benefits and the useful life of tangible capital assets. Actual results could differ significantly from those estimated. Management's estimates are reviewed periodically and, as adjustments become necessary, they are recorded in the financial statements in the year they become known.

3. Parliamentary Appropriations

CIHR receives most of its funding through annual Parliamentary appropriations. Items recognized in the statement of operations and the statement of financial position in one year may be funded through Parliamentary appropriations in prior, current or future years. Accordingly, CIHR has different net results of operations for the year on a government funding basis than on an accrual accounting basis. The differences are reconciled in the following tables:

(a) Reconciliation of net cost of operations to current year appropriations used

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Net cost of operations	801,800	748,891
Adjustments for items affecting net cost of operations but not affecting appropriations:		
Add (Less):		
Services provided without charge	(4,805)	(4,110)
Refunds of previous years' expenses	4,132	3,942
Employee severance benefits	(807)	(672)
Amortization of tangible capital assets	(1,376)	(1,426)
Vacation pay and compensatory leave	174	(296)
Other	(61)	15
	<u>(2,743)</u>	<u>(2,547)</u>
Adjustments for items not affecting net cost of operations but affecting appropriations:		
Add (Less):		
Acquisitions of tangible capital assets	1,477	1,978
Prepaid expenses	342	(350)
	<u>1,819</u>	<u>1,628</u>
Current year appropriations used	<u>800,876</u>	<u>747,972</u>

(b) Appropriations provided and used

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Parliamentary appropriations provided:		
Vote 10 – Operating expenditures	39,902	42,030
Less:		
Lapsed appropriation	(1,393)	(2,601)
	<u>38,509</u>	<u>39,429</u>
Vote 15 – Grants	768,980	712,033
Less:		
Lapsed appropriation	(10,832)	(7,344)
	<u>758,148</u>	<u>704,689</u>
Statutory contributions to employee benefit plans	4,219	3,854
Current year appropriations used	<u>800,876</u>	<u>747,972</u>

(c) Reconciliation of net cash provided by Government to current year appropriations used

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Net cash provided by Government	790,458	739,093
Refunds of previous years' expenses	4,132	3,942
Change in net position in the Consolidated Revenue Fund		
Variation in accounts receivable and advances	124	(310)
Variation in accounts payable and accrued liabilities	976	(2,164)
Variation in deferred revenue	5,247	7,396
Other adjustments	(61)	15
	<u>6,286</u>	<u>4,937</u>
Current year appropriations used	<u>800,876</u>	<u>747,972</u>

4. Expenses

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Grants and awards		
Open competitions	478,109	455,173
Strategic initiatives	171,878	156,589
Institute support grants	13,000	13,000
Knowledge translation	5,458	3,491
Canada research chairs	72,900	60,603
Networks of centres of excellence	27,500	25,000
Total grants and awards	<u>768,845</u>	<u>713,856</u>
Less: Refunds of previous years' grants and awards	(3,777)	(3,377)
	<u>765,068</u>	<u>710,479</u>
Operations and administration		
Salaries and employee benefits	29,594	27,499
Professional and special services	6,184	10,098
Travel	3,957	3,087
Accommodation	2,865	2,351
Amortization of tangible capital assets	1,376	1,426
Communication	1,308	1,351
Furniture, equipment and software	1,185	1,476
Other	963	301
Total operations and administration	<u>47,432</u>	<u>47,589</u>
Total expenses	<u>812,500</u>	<u>758,068</u>

5. Revenues

The following are the revenues earned for the year:

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Donations for health research	9,499	5,595
Cost sharing agreements with other Government departments	1,198	3,569
Endowments for health research	2	3
Other	<u>1</u>	<u>10</u>
Total revenues	<u>10,700</u>	<u>9,177</u>

6. Tangible Capital Assets

(in thousands of dollars)

Capital asset class	Cost				Accumulated amortization				2006 Net Book Value	2005 Net Book Value
	Opening balance	Acquisitions	Transfers, disposals and write-offs	Closing balance	Opening balance	Amortization	Transfers, disposals and write-offs	Closing balance		
Informatics hardware	1,658	159	-	1,817	995	275	-	1,270	547	663
Informatics software	5,232	1,318	24	6,574	2,282	1,065	-	3,347	3,227	2,950
Office equipment	345	-	-	345	54	35	-	89	256	291
Vehicles	23	-	-	23	17	1	-	18	5	6
Work-in-progress	38	-	(24)	14	-	-	-	-	14	38
Total	7,296	1,477	0	8,773	3,348	1,376	-	4,724	4,049	3,948

Amortization expense (in thousands) for the year ended March 31, 2006 is \$1,376 (2005 - \$1,426).

7. Deferred Revenue

Monies received as donations from various organizations and individuals for health research as well as interest on endowments are recorded as deferred revenue until such time they are disbursed in accordance with agreements between the contributor and CIHR or in accordance with the terms of the endowments.

The transactions relating to these accounts are as follows:

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Donations for health research		
Balance, beginning of year	9,097	1,700
<i>Add:</i>		
Donations received	14,449	12,833
Interest earned	297	159
<i>Less:</i>		
Grants expensed	9,499	5,595
Balance, end of year	<u>14,344</u>	<u>9,097</u>
Interest on endowments for health research		
Balance, beginning of year	2	3
<i>Add:</i>		
Interest earned	2	2
<i>Less:</i>		
Miscellaneous expenses	2	3
Balance, end of year	<u>2</u>	<u>2</u>
Total deferred revenue	<u>14,346</u>	<u>9,099</u>

8. Employee Benefits

Employees of CIHR are entitled to specific benefits on or after termination or retirement, as provided for under various collective agreements or conditions of employment.

(a) Pension benefits: CIHR's employees participate in the Public Service Pension Plan, which is sponsored and administered by the Government of Canada. Pension benefits accrue up to a maximum period of 35 years at a rate of 2 percent per year of pensionable service, multiplied by the average of the best five consecutive years of earnings. The benefits are integrated with the Canada/Quebec Pension Plans benefits and they are indexed to inflation. Both the employees and CIHR contribute to the cost of the Plan. CIHR's responsibility with regard to the Plan is limited to its contributions. Actuarial surpluses or deficiencies are recognized in the financial statements of the Government of Canada, as the Plan's sponsor.

The 2005-06 expense represents approximately 2.6 times (3.1 in 2004-05) the contributions of employees.

CIHR's and employees' contributions to the Public Service Pension Plan for the year were as follows:

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
CIHR's contributions	3,121	3,141
Employees' contributions	1,203	1,026

(b) Severance benefits: CIHR provides severance benefits to its employees based on eligibility, years of service and final salary. These severance benefits are not pre-funded. Benefits will be paid from future appropriations. Information about the severance benefits, measured as at March 31, is as follows:

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Accrued benefit obligation, beginning of year	3,826	3,154
Expense for the year	1,024	792
Benefits paid during the year	(217)	(120)
Accrued benefit obligation, end of year	<u>4,633</u>	<u>3,826</u>

9. Contingent Liabilities

A legal suit for employment equity was initiated by the Public Service Alliance of Canada against Her Majesty the Queen naming certain separate employer organizations of the Government of Canada, including the Canadian Institutes of Health Research (CIHR), as defendants. The amount of this claim, as it relates to CIHR, is estimated to be \$747,000. In management's opinion, the outcome of this litigation is not presently determinable and no estimated liability has been accrued or expense recorded in the financial statements.

The other legal suit pending is immaterial. In management's opinion, the outcome of this litigation is unlikely to result in a liability and no estimated liability has been accrued or expense recorded in the financial statements.

10. Contractual Obligations

CIHR is committed to disburse grants and awards in future years subject to the appropriation of funds by Parliament. In addition, the nature of CIHR's operating activities results in some multi-year contracts whereby CIHR will be committed to make some future payments when the goods or services are rendered. Future year contractual obligations are as follows:

<i>(in thousands of dollars)</i>	2007	2008	2009	2010	2011 and thereafter	Total
Grants and awards	715,279	538,987	340,635	192,182	129,600	1,916,683
Operating	2,256	1,380	90	75	-	3,801
Total	717,535	540,367	340,725	192,257	129,600	1,920,484

11. Related Party Transactions

CIHR is related in terms of common ownership to all Government of Canada departments, agencies, and Crown corporations. CIHR enters into transactions with these entities in the normal course of business and on normal trade terms. Also, during the year, CIHR received services which were obtained without charge from other Government departments as follows:

	<u>2006</u>	<u>2005</u>
	<i>(in thousands of dollars)</i>	
Accommodation provided by Public Works and Government Services Canada	2,865	2,351
Employer's contribution to the health and dental insurance plans provided by Treasury Board Secretariat	1,864	1,699
Audit services provided by the Office of the Auditor General of Canada	<u>76</u>	<u>60</u>
Total services provided without charge by other Government departments	<u>4,805</u>	<u>4,110</u>

12. Financial Instruments

The fair values of financial assets and liabilities approximate the carrying amounts of these instruments due to the short period to maturity.

13. Comparative Information

Certain comparative figures have been reclassified to conform to the current year's presentation.