CIHR Institute of Circulatory and Respiratory Health

Annual Report
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Contents

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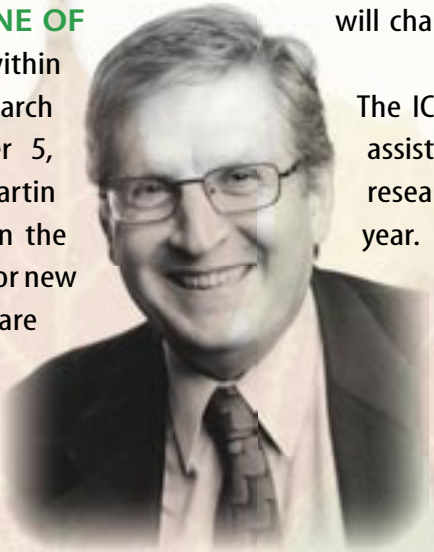
Message from the Scientific Director



THIS PAST YEAR HAS BEEN ONE OF tremendous transformation both within the Canadian Institutes of Health Research (CIHR) and outside. On December 5, 2002, Federal Finance Minister Paul Martin announced a 15% or $75M increase in the CIHR budget. The total funds available for new research funding allocations by CIHR are a total of $157M. At the same time, the needs of the research community and in turn those of the CIHR Institutes have mushroomed. Throughout 2001 and 2002, ideas and information from many sources including the Institute of Circulatory and Respiratory Health (ICRH) Institute Advisory Board, as well as funding partners, have spawned a range of ICRH research priorities. Priorities will evolve based on disease burdens, opportunities for advances, advice from researchers, the direction of public policy, emerging technologies, partner support and other forces. As well, the Research Pritorities and Planning Committee of CIHR has earmarked a beginning set of cross-cutting research activities, spanning Institutes and CIHR themes (see Table 1). Clinical Research, Rural and Remote Health, Canadian Longitudinal Study of Aging, and Regenerative Medicine are examples of such. These initiatives in development may evolve into large-scale programs in the coming years. As well, CIHR and the Institutes have a somewhat expanded menu of funding vehicles (e.g., Interdisciplinary Capacity Enhancement [ICE]) to enable teams of researchers to accomplish the goals of strategic research endeavours. The suite of funding vehicles will change as needs and gaps are identified.

The ICRH has experienced satisfaction from assisting the circulatory and respiratory research communities through the past year. Although it is difficult to single out the most important steps forward, there are exemplary initiatives to mention. A special call for Institute Establishment Grants by ICRH aided in the recruitment of three stellar researchers from the United States, Australia and Denmark. The ICRH, in collaboration with the Heart and Stroke Foundation, funded seven outstanding Strategic Training Programs. Crucially, we have continued to build a network of circulatory and respiratory health research organizations, especially through Partners Forum, a program which facilitates an annual meeting of such partners to discuss and develop action plans for areas of common interest. Of most importance, the spirit, energy and creativity of the Canadian health research community has yielded new programs, new discoveries, and new impact on the public wellbeing. Thanks to everyone who has pushed the horizons.

Sincerely,

Bruce M. McManus, MD, FRCPC, PhD
Scientific Director
CIHR Institute of Circulatory and Respiratory Health

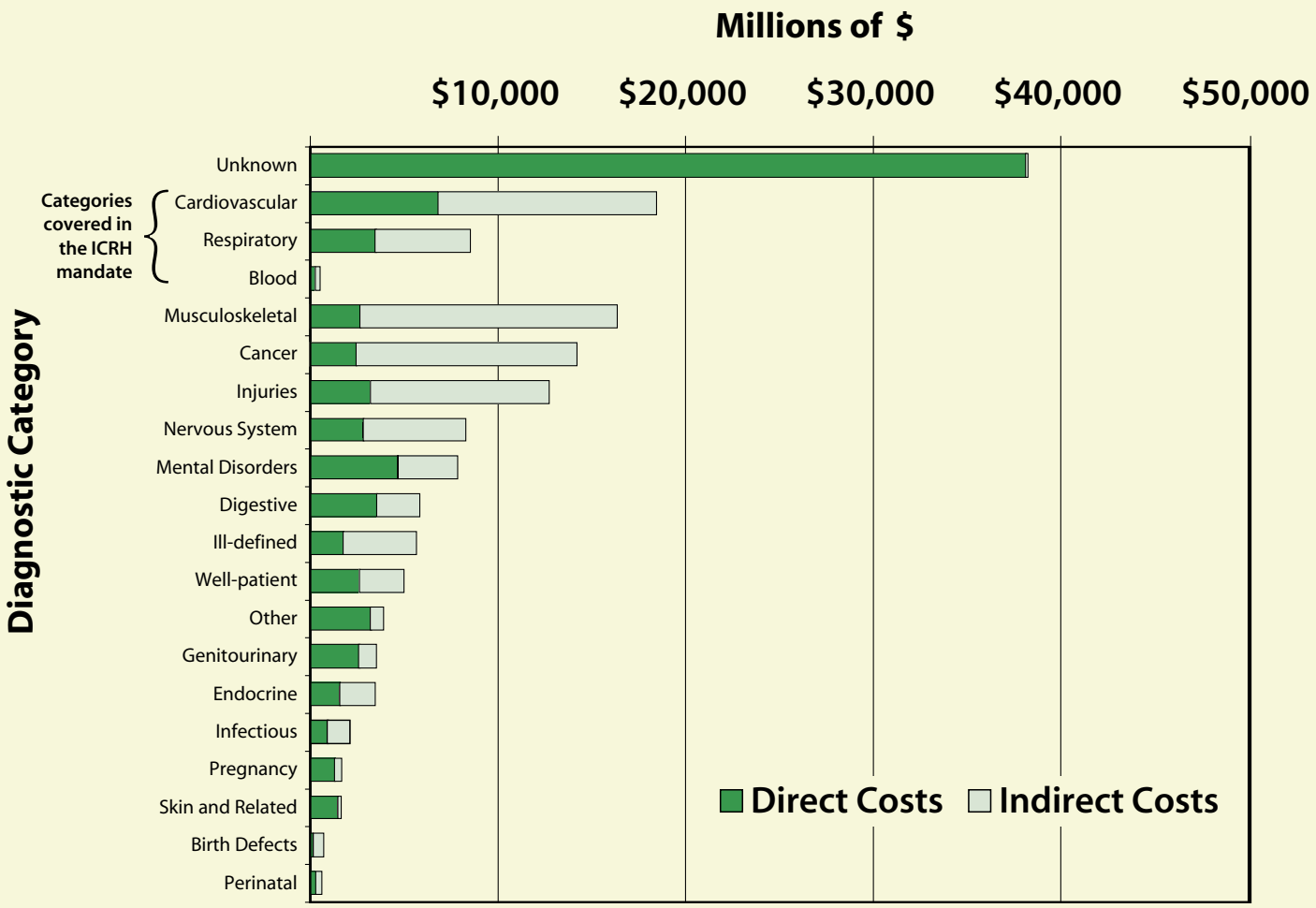
Profile of ICRH

ICRH IS ONE OF 13 VIRTUAL INSTITUTES OF the Canadian Institutes of Health Research (CIHR), and supports research into the causes, mechanisms, prevention, screening, diagnosis, treatment, support systems, and palliation for a wide range of conditions associated with the heart, lung, brain (stroke), blood vessels, blood, critical and intensive care, and sleep. The social and economic burden of circulatory and respiratory diseases in Canada and worldwide is huge.

A recent Health Canada report shows that circulatory and respiratory diseases continue to rank number one in terms of known causes of total health care costs (see Figure 1). CIHR support for circulatory and respiratory health research is driven by the adverse social and economic impact of circulatory and respiratory diseases in Canada. In fiscal year 2002-2003, CIHR spent almost $123 million on circulatory and respiratory health research (see Appendix 1).

Figure 1. Direct and indirect costs of various diagnostic categories (male and female, all ages)

(Adapted from Economic Burden of Illness in Canada, 1998, Health Canada)



Outstanding Research

ICRH HAS STRIVEN TO DEVELOP AND SUPPORT research initiatives that are beyond the scope of CIHR's traditional operating grants program. These initiatives are characterized by being national in scope and responsive to emerging research priorities that resonate with the Canadian community. The initiatives are developed in collaboration with other organizations and Institutes and encourage researchers from diverse disciplines and research themes to work together.

Strategic Initiatives Launched This Fiscal Year

In May 2002, ICRH and the Heart and Stroke Foundation (HSF) continued their research collaboration and launched a series of initiatives utilizing the New Emerging Team (NET) Grant program. Five research areas were targeted:

1. ***Fetal-Maternal Influences on Circulatory and Respiratory Diseases***
   This initiative, launched in collaboration with the Institute of Human Development, Child, and Youth Health responded to epidemiologic evidence that suggests early genetic and environmental interactions play a pivotal role in contributing to an individual's overall risk profile for developing chronic circulatory and/or respiratory diseases.
2. ***Interaction of Genes and Environment in Determining Susceptibility to Circulatory and Respiratory Disorders***
   This initiative was designed to support additional teams focused on the interplay between genetic and environmental factors in the manifestation and progression of circulatory and respiratory diseases and disorders. It was anticipated that newly funded teams would collaborate with the three Interdisciplinary Health Research Teams (IHRTs) already funded by the ICRH-HSF collaboration.

Dr. Francine G. Smith, a CIHR-funded renal physiologist in the Department of Physiology and Biophysics at the University of Calgary, is studying the body's response to changes in blood volume as seen in the human infant at birth.

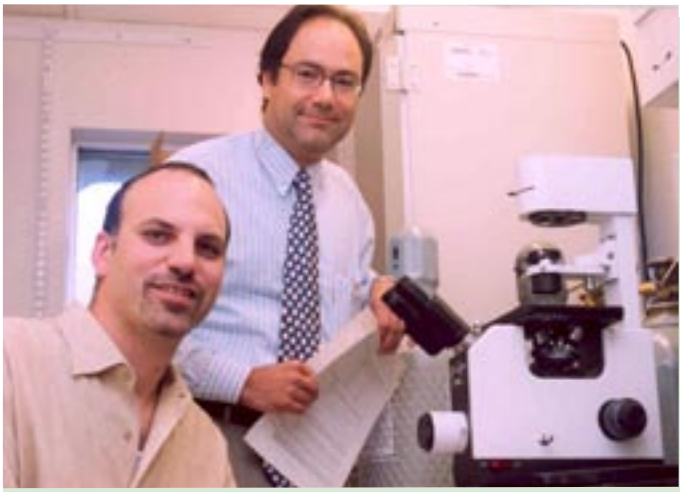
3. ***Novel and Integrative Approaches to the Assessment, Care and Management of Patients with Circulatory and Respiratory Diseases***
   This topic was built on the recommendations from many recipients of the New Frontiers Program (NFP) workshop grants and was highly supported by voluntary organizations at Partners Forum II. This initiative encouraged the exploration of novel management and care strategies (such as tele-health/telemedicine, and physician/pharmacist/nurse team-based care) that take advantage of new technological tools and human resources.
4. ***Obesity-Associated Vascular and Respiratory Conditions***
   Obesity-related complications in the vasculature, and circulatory and respiratory systems account for significant health care costs. This initiative was developed in cooperation with the Institute of Nutrition, Metabolism and Diabetes, which also launched a comprehensive Obesity/Healthy Body Weight Initiative. Obesity research was also

widely supported by voluntary organizations that attended Partners Forum II.

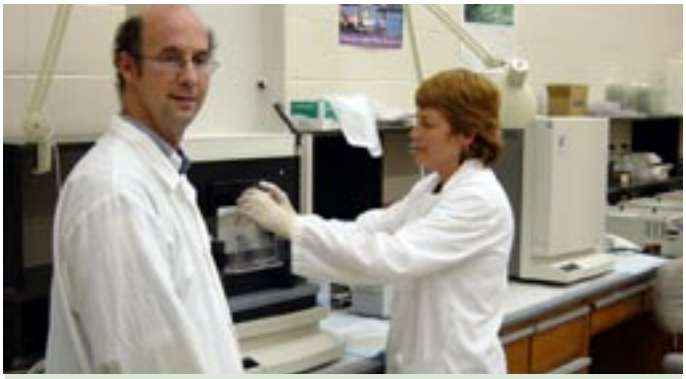
5. ***Self-Regeneration, Repair and Replacement of Damaged and Diseased Cells, Tissues and Organs in Circulatory and Respiratory Diseases***
   Regenerative medicine is viewed as an important developing research theme that could prove beneficial for the treatment of degenerative chronic circulatory and respiratory diseases (i.e., stroke, heart failure, hematopoietic disorders, emphysema and cystic fibrosis). This topic also emerged as one of the cross-cutting initiatives of CIHR.

ICRH also played a supporting role in several initiatives led by other CIHR Institutes in the spring and fall of 2002:

1. ***Population-Based Health and Health Service Data in Canada: Current Status and Future Health Research Potential (led by the Institutes of Population and Public Health [IPPH] and Health Services and Policy Research)***
2. ***Building Healthy Communities Through Rural and Northern Health Research (a cross-cutting initiative of CIHR that is supported by all 13 Institutes)***



Drs. Arya M. Sharma (left) and Bernardino Trigatti (right) of the New Emerging Team program on Obesity and Atherothrombosis at McMaster University, are seen here discussing new findings on the role of scavenger receptors in cholesterol regulation.



Dr. Louis Perusse from the Division of Kinesiology at Laval University is seen here with one of his research assistants using a DNA sequencer. He is leading a New Emerging Team Program grant that aims to integrate genetic information with the prevention and treatment of obesity. (From left to right: Dr. Louis Perusse and Ms. Manon Belair.)

3. ***Global Health Research Program Development and Planning Grants (led by IPPH)***
4. ***Knowledge Translation Strategies for Health Research (supported by all 13 Institutes)***

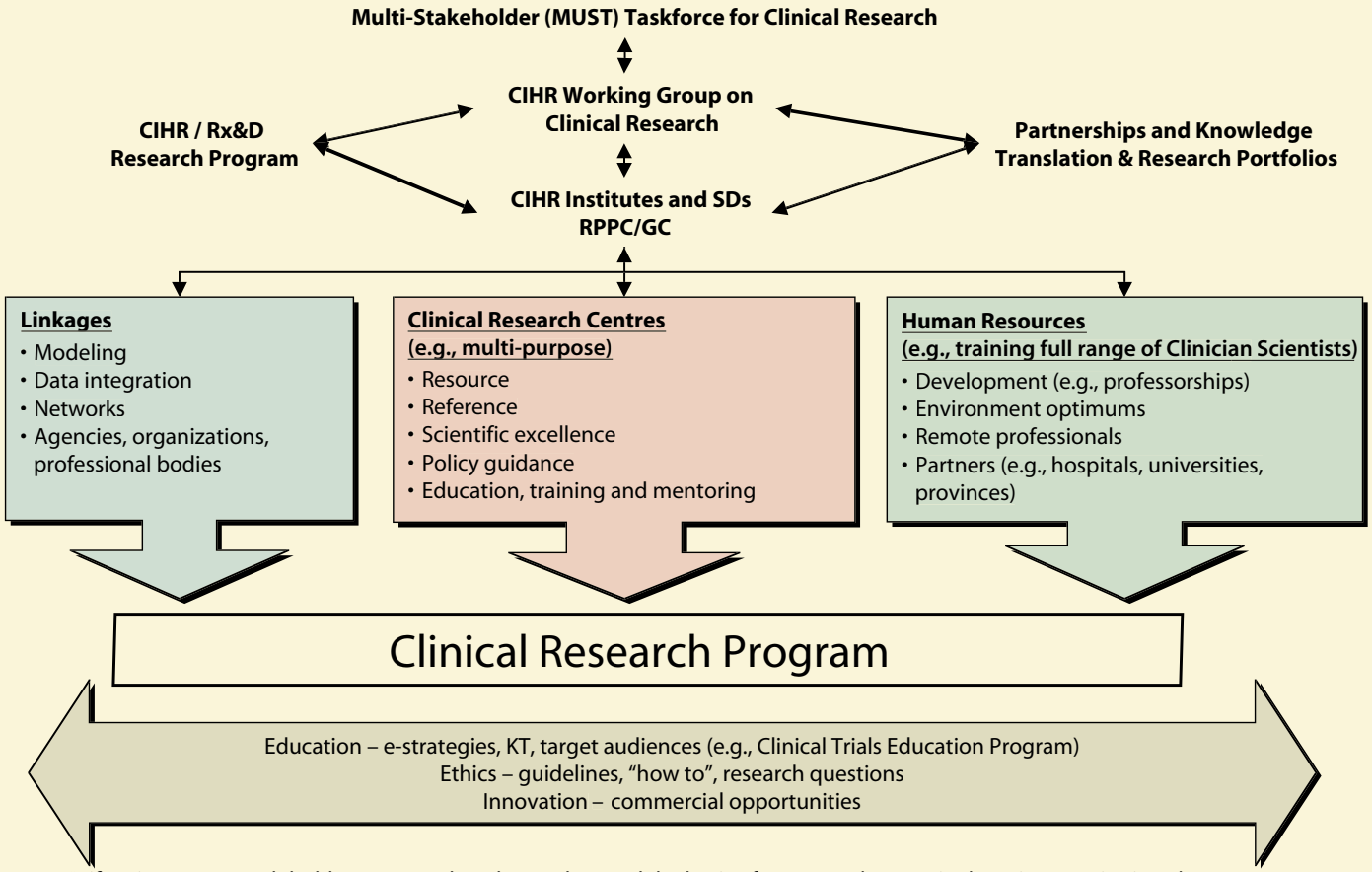
ICRH was also pleased to participate with the Institute of Infection of Immunity in a new initiative led by the Canadian Cystic Fibrosis Foundation, which was launched in March 2003:

1. ***Targeting the Basic Defect in Cystic Fibrosis: Request for Applications to Develop Novel Therapeutic Approaches (also known as BREATHE – Basic Research and Therapy)***
   The goal of this initiative is to hasten the translation of knowledge acquired from the discovery of the gene responsible for cystic fibrosis, and develop novel therapeutic approaches for altering the course of cystic fibrosis.

During the months prior to the end of the 2002-03 fiscal year, ICRH worked with a number of organizations/ agencies, CIHR Institutes and researchers toward developing and participating in new initiatives of relevance to ICRH's mandate including tobacco research, palliative and end of life care, and gender and sex determinants of disease. Efforts were also made to further support the regenerative medicine research theme.

Figure 2. Canadian leadership in clinical research*

(Prepared by Dr. Bruce McManus, CIHR Institute of Circulatory and Respiratory Health, version 9, October 2003)



*Life sciences research holds as a central goal to understand the basis of *cause, pathogenesis, detection, monitoring, therapy, palliation and prevention of human disease.* Thus, a strong and dynamic clinical research enterprise is essential to the health and well-being of Canadians, as well as to our institutions and knowledge-based economy.

Abbreviations: CIHR, Canadian Institutes of Health Research; GC, Governing Council; KT, Knowledge Translation; RPPC, Research Priorities and Planning Committee; Rx&D, Research and Development; SDs, Scientific Directors.

CIHR Clinical Research Initiative

CIHR is taking bold steps to enhance the clinical research capability of Canada. CIHR embraces the broad dimensions of clinical research including studies of new therapies in case series and in various levels of clinical trials, including drugs, devices, modes and models of care delivery. Clinical research embodies what is often termed patient-oriented research (POR), wherein evaluation of patients is carried out in settings from primary to quaternary care, as well as translational research, wherein basic science concepts are brought to bear on clinical questions. To be successful, a comprehensive Canadian program in clinical research would include such elements as improved linkage capabilities (e.g., for data integration), multi-purpose reference and resource centres, enhanced human resource capacity and professional environments, education programs, ethics programs and an innovation strategy (see Figure 2).

Table 1. CIHR cross-cutting initiatives

INITIATIVE	CIHR CHAMPION(S)
Canadian Lifelong Health Initiative	Dr. John Frank, Scientific Director, Institute of Population and Public Health Dr. Réjean Hébert, Scientific Director, Institute of Aging Dr. Michael Kramer, Acting Scientific Director, Institute of Human Development, Child and Youth Health Dr. Roderick McInnes, Scientific Director, Institute of Genetics
Clinical Research Initiative	Dr. Bruce McManus, Scientific Director, Institute of Circulatory and Respiratory Health
Global Health Initiative	Dr. John Frank, Scientific Director, Institute of Population and Public Health
Health and the Environment Initiative	Dr. Roderick McInnes, Scientific Director, Institute of Genetics
Intentional and Unintentional Injury Initiative	Dr. Morris Barer, Scientific Director, Institute of Health Services and Policy Research
Reducing Health Disparities Initiative	Dr. Miriam Stewart, Scientific Director, Institute of Gender and Health
Regenerative Medicine Initiative	Dr. Rémi Quirion, Scientific Director, Institute of Neurosciences, Mental Health and Addiction
Rural and Northern Health Research Initiative	Dr. Jeff Reading, Scientific Director, Institute of Aboriginal Peoples' Health
Tobacco Initiative	Dr. Rémi Quirion, Scientific Director, Institute of Neurosciences, Mental Health and Addiction

Undoubtedly, clinician scientists have a key role to play in the delivery of the Canadian clinical research enterprise given that they contribute to the pool of health research knowledge and facilitate the translation of this knowledge into improved health services and products for all Canadians. ICRH has championed the cause of clinician scientists, and more broadly, the Canadian clinical research enterprise on behalf of CIHR. The CIHR Clinical Research Initiative is led by ICRH and is one of the cross-cutting initiatives at CIHR (see Table 1).

In recent months, under the auspices of the CIHR Clinical Research Initiative and the CIHR Working Group on Clinical Research, the Multi-Stakeholder (MUST) Taskforce for Clinical Research was convened to advise on processes and programs to enhance the infrastructure and environments for training, retraining and retaining clinician scientists and in the advancement of clinical research in Canada. Formal reports summarizing the key recommendations from the Working Group and the MUST Taskforce will be available shortly.

CIHR Global Health Research Initiative

The Global Health Research Initiative (GHRI) refers to a Memorandum of Understanding between CIHR, the International Development Research Centre (IDRC), the Canadian International Development Agency (CIDA) and Health Canada, to strengthen and build capacity for global health research in Canada and in developing countries, and to strengthen the effectiveness of overseas development assistance. To accomplish its mission, the GHRI partners work in collaboration with the members of the ever-growing Coalition for Global Health Research-Canada (CGHRC) and their friends in community-based organizations, non-governmental organizations, and governments in the developed and developing world.

Within CIHR, the GHRI is one of the strategic initiatives that cut across all the Institutes and research themes (see Table 1). The GHRI is led by the Institute of Population and Public Health, in cooperation with other supporting CIHR Institutes. ICRH has played a key role in this initiative this past year and has contributed in numerous ways.

In 2002, the GHRI launched the Global Health Research Planning and Research Program Development Grants Program. The CIHR-led one-year grant program supports proposals for a multi-partner planning phase to develop subsequent proposals for a spectrum of grants for building the capacity of Canada's research community in this field. CIHR and the IDRC supported 31 of the 71 applications. ICRH joined the nine Institutes contributing to the program and co-supported two projects relevant to circulatory and respiratory health (see Appendix 2).

ICRH, along with the GHRI and five other CIHR Institutes, supported the 9th Canadian Conference on International Health (CCIH) held in Ottawa, in October 2002. In addition, the ICRH participated in the joint 2nd Annual Meeting of the CGHRC and 6th Annual Meeting of the WHO/PAHO Canadian Collaborating Centres, a one-day pre-conference workshop supported by the GHRI partners and hosted by the CCIH.

In January 2002, the Health Secretariat of the UnitedMexican States, represented by the Institutos Nacionales de Salud (INS), and CIHR, represented by ICRH, signed a Letter of Intent to initiate negotiations for the purpose of establishing agreements, programs and specific projects of cooperation to develop health research, research training, clinical training, and knowledge translation, based on equality, reciprocity and mutual benefit. In October 2002, ICRH, in collaboration with the GHRI and the CIHR International Affairs team, hosted a return visit of approximately 20 researchers from Mexico including approximately ten Directors General from various INS Institutes that was led by Dr. Misael Uribe, Coordinator General of INS. Activities throughout the three-day visit were designed to further solidify relationships between CIHR and INS and included:

- Building Partnerships: A Mexico-Canada Collaborations Workshop. Over 40 participants from Canada and Mexico met to develop a concrete plan designed to build and strengthen health research ties between Mexico and Canada.
- Letters of Intent between the National Institutes of Psychiatry, and Neurology and Neurosurgery of the INS Mexico, and the Institute of Neurosciences, Mental Health and Addiction. These Letters of Intent will stimulate and facilitate further collaboration between Mexico and Canada in the broad spectrum of neurosciences research and knowledge translation.
- 9th Canadian Conference on International Health, Ottawa, Ontario. Mexican delegates participated in the joint 2nd Annual Meeting of the Coalition for Global Health Research Canada (CGHRC) and 6th Annual Meeting of the WHO/PAHO Canadian Collaborating Centres where building capacity in global health research was the topic of the day.
- Visits across Canada. After their visit to Ottawa, a number of the Mexican guests were hosted by various Canadian institutions and organizations including the Hospital for Sick Children in Toronto, Ottawa Heart Institute in Ottawa, University of Ottawa Health Research Centre in Ottawa, Health

Dr. Kathryn King, a CIHR-funded nurse scientist in the Faculty of Nursing at the University of Calgary, is leading the Women's Recovery from Sternotomy (WREST) study that aims to demonstrate that women's use of a supportive undergarment following cardiac surgery improves their comfort and recovery, and is a safe and cost-effective intervention. (From left to right: Ms. Helen Dowey, Ms. Marlene Donahue, Dr. Kathryn King and Dr. Andrew Maitland.)

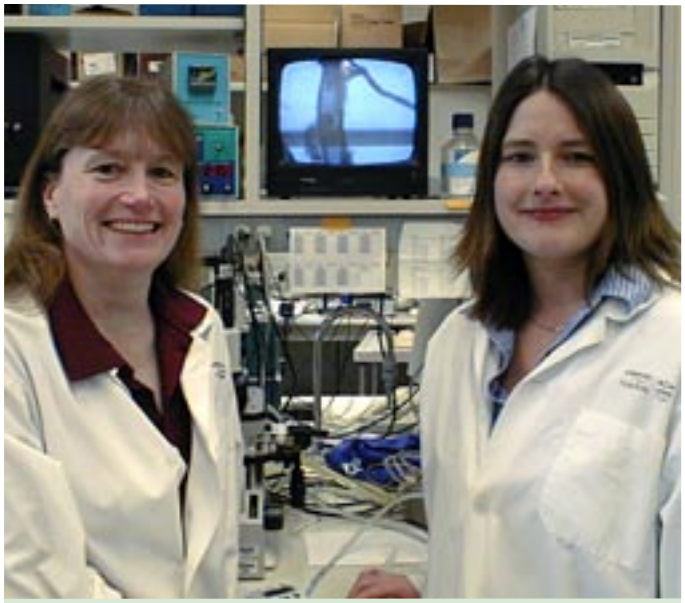
Canada's Level IV laboratory in Winnipeg, and the Canadian Cardiovascular Society.

In November 2002, the ICRH joined a delegation of 17 Canadians including the GHRI partner organizations and members of CGHRC in Africa to participate in the Global Forum for Health Research (GFHR)[1] meeting, Forum 6, as well as a satellite meeting of the conference, the 1st meeting of the Afri-Canada Working Group hosted by the GHRI in Arusha, Tanzania.[2] The Canadian model for the national coordination of health-research-related development assistance and collaboration drew much attention from the over 700 participants at Forum 6 and through the well-received and multi-lingual plenary presentations by Drs. Jerry Spiegel and John Frank about the CGHRC and the GHRI, as well as through the Market Place where the Canadian story was disseminated to all who stopped by the active display booth.

Gender and Sex Determinants of Circulatory and Respiratory Health

ICRH, the Institute of Gender and Health, and the HSF have been working together for the past two years to formulate a national research strategy for sex, gender and circulatory health. A study group has been convened to conduct an environmental scan of research in this area, including current evidence, gaps in knowledge, and future directions. The National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health (NIH) informed partners that they had also identified topics

Dr. Salim Yusuf from the Department of Medicine at McMaster University is leading INTER-HEART, a global research program in cardiovascular disease and prevention that aims to determine the association between risk factors and acute myocardial infarction within defined populations and to assess the relative importance of risk factors across these populations. (From left to right: Dr. Stephanie Ounpuu, Mr. Steven Hawken and Dr. Salim Yusuf.)



Dr. Sandy Davidge (left) from the Departments of Obstetrics and Gynaecology and Physiology at the University of Alberta is seen here with her PhD student, Ms. Christy-Lynn Cooke (right). These CIHR-funded researchers are studying the effects of the female hormonal environment on blood vessel function and the effect of oxidative stress on hormonal levels in pregnant and aging women to determine why cardiovascular risk increases in post-menopausal women.

[1] The GFHR, a Geneva-based foundation established in 1998, has as its goal "..to help correct the 10/90 gap in health research." The GFHR meets annually and supports a range of networks and partnerships focused on research into the causes, treatment and prevention of conditions that constitute the main health problems in low and middle-income countries.

[2] The Afri-Canada Working Group: The CGHRC and GHRI partner organizations have formed an alliance with the African Health Research Forum (AfHRF) entitled the Afri-Canada Working Group in order to help Canada deliver on its 2002, G8 commitment to increase investment in health research under the Africa Action Plan. The CGHRC and GHRI are determined to help Canada deliver on this commitment. The objective of the alliance is to link the AfHRF's networks with those of the CGHRC and GHRI partners to collaborate on African health research priorities. The Afri-Canada Working Group held its first meeting on November 11 at the DikDik Hotel in Arusha, Tanzania.

Ms. Patricia Camp (right) who holds a CIHR-funded fellowship in the Individual Interdisciplinary Studies Graduate Program at the University of British Columbia is seen here working with a potential participant in her doctoral study on gender differences in chronic obstructive pulmonary disease.

relevant to gender and sex determinants of cardiovascular disease, including obesity, diabetes and cardiovascular disease, and hormone therapy and cardiovascular disease. Through cooperation with NHLBI, delegates participated in the following meetings and workshops on behalf of ICRH, IGH, and HSF in an effort to gather current evidence to develop the research initiative:

- Society for Women's Health Research, Madison Wisconsin, July 24, 2002, Sex Differences in Cardiovascular Health and Disease
- National Heart, Lung, and Blood Institute of the NIH, Baltimore, Maryland, October 2-4, 2002, Women and Ischemia Syndrome Evaluation Workshop — Diagnosis and Pathophysiology of Ischemic Heart Disease
- National Heart, Lung, and Blood Institute of the NIH, Bethesda, Maryland, October 23-24, 2002, Menopausal Hormone Therapy Meeting

Specific areas, including gender and sex determinants of atherosclerotic disease risks including metabolic syndrome and acute coronary syndrome were identified as priorities for research support. Additional input from the Institute Advisory Board and the respiratory community led the partners to explore gender and sex research priorities related to lung disease (including airways diseases and lung cancer). We were very pleased that the Canadian Lung Association, in collaboration with the Association pulmonaire du Québec, stated their intent to support the respiratory portion of this initiative. These are important research questions given that gender and sex may be key determinants of circulatory and respiratory health and disease, and such is only beginning to be recognized. It is anticipated that the partners will launch a Request for Applications in 2003-04.

Excellent Researchers and a Robust Research Environment

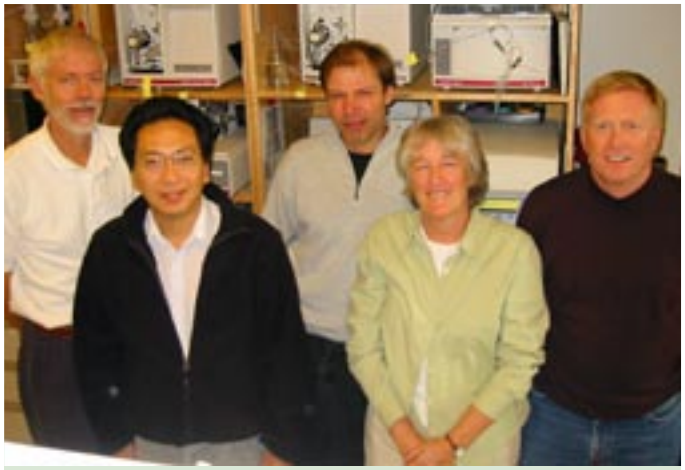
THE STRENGTH OF CANADA'S HEALTH research enterprise is highly dependent on the people who conduct and support research, and the infrastructure in place. New researchers, technicians, research assistants and students are needed to advance the fields of circulatory and respiratory research. Research 'stars' are also required to help attract the most promising trainees to work in Canada and to retain seasoned investigators. As indicated in the ICRH Strategic Plan, significant resources were committed to training, recruitment of researchers and assisting the research community in utilizing technology to advance research.

Strategic Training Initiative in Health Research

ICRH confirmed the ongoing commitment to research training by requesting applications, in collaboration with HSF, for Strategic Training Programs in Circulatory and Respiratory Health. Applicants were encouraged to develop programs that spanned disciplines and research themes, institutions, and included all types of health professionals. Ten applicants were provided with funds to further develop and hone their proposals. In March 2003, seven outstanding groups from across the country that conduct research in diverse areas of heart, lung and blood research were notified of their success in this competition. Several of these programs are the very first of their kind, including a national cardiovascular nursing training program, transfusion science program, and programs focusing on gasotransmitters, and on membrane proteins. Other programs focus more broadly on respiratory and cardiovascular diseases and stroke (see Appendix 2).

Dr. Ross MacGillivray from the Centre for Blood Research at the University of British Columbia is heading-up a Training Program in Transfusion Science wherein young scientists will receive world class training to become transfusion scientists of tomorrow and investigate such topics as artificial blood components. (Photographer: Martin Dee.)

Dr. Daren Heyland, recipient of a New Frontiers Program award and a physician scientist in the Department of Medicine at Queen's University, is examining patient preferences in the context of end of life care and clinical decision-making.



Dr. Dennis Vance and SCOLAR Training Program mentors from the University of Alberta are seen here with equipment to measure cholesterol and fat in tissue and plasma. (From left to right: Drs. Dennis Vance, Lou Agellon, Richard Lehner, Jean Vance and Gordon Francis.)

New Frontiers Program

In its second iteration, the New Frontiers Program (NFP) launched again in May 2002, offered two unique opportunities. First, in collaboration with HSF, Extension Grants were offered to previous NFP leaders to follow through on specific action steps defined during their workshops. It was anticipated that many NFP groups would compete for funding through the CIHR open grants competition or through other strategic initiatives.

Second, ICRH sought to support national workshops in six new priority areas. Following peer review and funding, workshop leaders worked closely with ICRH to develop an agenda and steering group that would lead to a national perspective and provide guidance to ICRH. It was anticipated that workshops would be held beginning in the spring of 2003 and conclude in early 2004.

Dr. Alan Mutch, a physician scientist, from the Department of Anesthesia at the University of Manitoba led a New Frontiers Program symposium entitled MedMath2003: Fractals, Networks and Power Laws: Their Importance for Medicine and Its Allied Sciences.

The first of these newly funded NFP workshops, *End of Life Care in Canada: Planning for a Quality Finish* was held in March 2003. Led by Dr. Daren Heyland (Queen's University), the workshop brought together scientists spanning disciplines and engaged in end of life/palliative care research in the non-cancer patient to understand current research capacity, develop research priorities, establish effective networking processes, and determine optimal infrastructural needs. Dr. Heyland was instrumental in bringing the circulatory-respiratory perspective to the national End of Life/Palliative Care Initiative which was in development during late 2002-early 2003 and which was co-led by the Institute of Cancer Research and Health Canada, and championed by Senator Carstairs.

For a full listing of the priority areas and funded NFP workshop leaders, see Appendix 2. ICRH has also supported various meetings and workshops that are in alignment with Institute priority areas (see Appendix 3).

Dr. Yvon Cormier a physician scientist from the Department of Medicine at Laval University and leader of the CIHR-funded Quebec Respiratory Health Training Program will contribute to the training of the next generation of respiratory researchers. He is seen here with members of his laboratory. (From left to right: Ms. Geneviève Dorion, Dr. Yvon Cormier, Ms. Marie-Renée Blanchet, Ms. Marie-Josée Beaulieu, Ms. Mélissa Girard and Ms. Evelyne Israël-Assayag.)

Drs. Joy Johnson (left) and Lorraine Greaves (right) from the British Columbia Centre of Excellence for Women's Health and principal investigators on a New Frontiers Program grant are developing surveys on teen girls and smoking for their study.

Dr. Duncan J. Stewart from the Department of Medicine at the University of Toronto received a New Frontiers Program extension grant for his work on gene and cell-based therapies for cardio-respiratory diseases. (From left to right: Dr. Duncan J. Stewart and Ms. Renee Suen.)

Institute Establishment Grants – Recruitment of International or Expatriate Stars in Circulatory and Respiratory Health

ICRH launched the Institute Establishment Grants program to facilitate the recruitment and/or repatriation of circulatory and respiratory researchers to Canadian institutions. This non-renewable grant provides one-time funds for research equipment, operating funds, stipends for trainees, salaries for technical assistance and a portion of the recruit's salary. Proposals from three Canadian institutions were approved, with recruits coming from three different countries (see Appendix 2).

National Research Forum for Young Investigators in Circulatory and Respiratory Health

In early 2003, the ICRH Institute Advisory Board made a commitment to host an inaugural National Research Forum for Young Investigators in Circulatory and Respiratory Health in cooperation with many health research partners. Dr. Naranjan S. Dhalla, Distinguished Professor and Director of the Institute of Cardiovascular Sciences from the University of Manitoba will host the Forum on behalf of ICRH, the first to take place May 6-9, 2004, in Winnipeg, Manitoba. The objectives of the Forum are:

- To celebrate and promote Canadian trainees and young investigators in the circulatory and respiratory research community including heart, blood vessel, stroke, lung, blood, sleep, critical and intensive care research
- To facilitate interaction, learning, sharing of knowledge and collaboration among trainees and researchers in the circulatory and respiratory research community
- To promote mutual respect and appreciation among researchers working in diverse disciplines and across research themes
- To engage disciplines like engineering, mathematics, physics, sociology, and dramatic arts not traditionally associated with circulatory and respiratory health research

Through the New Frontiers Program, Dr. Jean Bourbeau from the Department of Medicine at McGill University and Dr. François Maltais from the Department of Medicine at Laval University have led workshops that aim to explore building a research network to enhance capacity for sustainable collaboration in COPD. These workshops take advantage of existing infrastructure and experience of the Respiratory Network of the FRSQ.

This Forum will showcase trainees and young investigators through less than ten years as an independent investigator for the purpose of fostering exuberance, confidence, and diligence in the next generations of researchers. We anticipate that the Forum will become a landmark event wherein young investigators interested in the circulatory and respiratory sciences will have an opportunity to be featured in presentations based on their research programs, to learn about current circulatory and respirato ry research activity in Canada and elsewhere, to interact and share ideas with colleagues and mentors spanning disciplines and themes, and to participate in 'how-to' and 'what's new' workshops that cover a range of life skills (e.g., quality management in the laboratory, statistical and informatical strategies, networking, etc.). We see the Forum as stimulating many research collaborations and other avenues for personal development. Planning for this event has already begun. Many partners have already indicated that they will participate in this important event, which they see as one avenue for nurturing the next generation of circulatory and respiratory researchers.

Dr. Christian Deschepper, recipient of a New Frontiers Program award and from the Clinical Research Institute of Montreal (IRCM) is seen here with Mr. Bastien Llamas, a PhD candidate, examining videomicroscopy images of isolated cardiomyocytes.

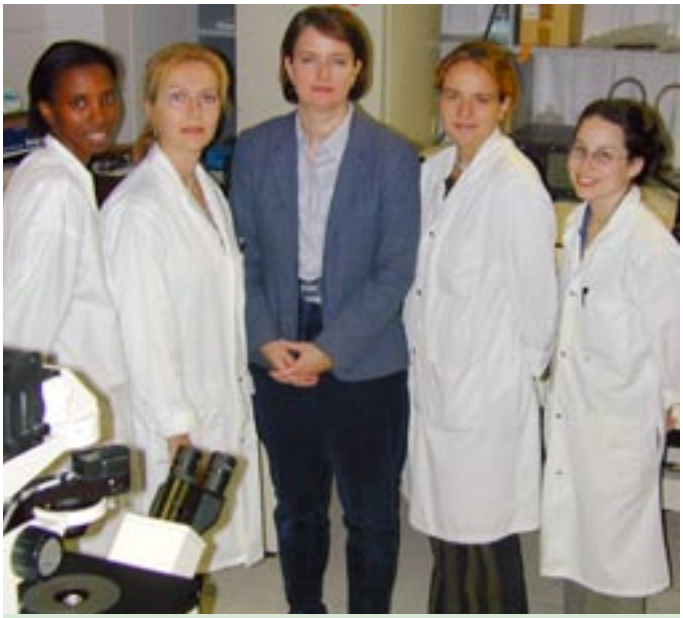
Dr. Olivier Lesur, a physician scientist in the Department of Medicine (MICU) at the University of Sherbrooke and team leader of the New Frontiers Program grant Sepsis Research in Canada, is studying sepsis from bench-to-bedside.

Quality Assurance Study

ICRH retained Copperleaf Consulting Group, Inc., in the fall of 2002 to conduct a primary and secondary research study to identify and examine the key variables, methods and approaches that impact quality in health research, with an emphasis on basic biomedical research. The study is intended to provide information that will help basic biomedical research laboratories foster environments to ensure the highest quality of their research. The main objectives of the study are:

- To provide 'best practice' information to Canadian biomedical research laboratories that will allow them to implement improvements as they see fit
- To provide ICRH with information that can be used in developing educational tools related to achieving quality research (e.g., workshops, training programs, templates, etc.)
- To contribute to the global advancement of health research by indicating where Canada stands in comparison to global standards and by sharing the results globally
- To keep the Canadian public informed of health research on a broad basis.

Dr. Lorrie Kirshenbaum, a CIHR-funded researcher from the Department of Physiology and the Institute of Cardiovascular Sciences at the University of Winnipeg, and his team of researchers are trying to understand the molecular pathways and genetic factors that underlie the mechanisms of cardiac growth control and heart cell death. (From left to right, top row: Dr. C. Senerviratne, Mr. Joseph Bednarczyk, Ms. Karen Ens, Dr. Lorrie Kirshenbaum, Ms. Julie Roth and Ms. Erin Oliver-Landry. From left to right, bottom row: Ms. Kelly Regula, Ms. Floribeth Aguilar and Dr. Tong Zheng.)



Dr. Danielle Jacques, a CIHR-funded researcher from the Department of Anatomy and Cell Biology at the University of Sherbrooke is seen here with her students. They use 3-dimensional confocal microscopy to study the crosstalk between NPY and NPY receptors in the physiology and pathology of the cardiovascular system. (From left to right: Ms. Magda Descorbeth, Ms. Julie Riopel, Dr. Danielle Jacques, Ms. Chantale Provost and Ms. Claudine Perreault.)

Dr. Jun Wang, a CIHR-funded Postdoctoral Fellow in the Department of Pathology and Molecular Medicine at McMaster University, is searching for an improved new vaccine for Tuberculosis. (From left to right: Drs. Zhou Xing and Jun Wang.)

Dr. Eric Olson from The University of Texas Southwestern Medical Center at Dallas and inaugural recipient of the ICRH Distinguished Lecture and Prize is seen here delivering a talk on Transcriptional Control of Heart Development and Disease at the 2002 Canadian Cardiovascular Congress.

A Working Group of approximately ten leading researchers sensitive to and knowledgeable about quality assurance issues was convened to assist primarily with the development of a survey. This survey poses questions about how laboratories/organizations have proactively incorporated processes to foster a safe, efficient, and productive research and learning environment. Leading national and international researchers were invited to participate in the survey process. Information collected through literature searches, interviews and a survey of leading basic biomedical laboratories regarding the current state of quality assurance practices and best practices will be shared with the research community, industry and the public in the coming months.

ICRH Distinguished Lectureship and Prize

ICRH takes great joy in celebrating the successes of health researchers and acknowledging the tremendous contributions that exemplary researchers have made to the pool of scientific knowledge and those of great mentors to the next generation of researchers. To this end, and in honour of scholarship and creativity in the cardiovascular sciences, the ICRH, in collaboration with the Canadian Cardiovascular Society and the HSF, established the Inaugural Annual Distinguished Lecture

Dr. Anton Skaro from the Department of Surgery at Dalhousie University is seen here with a technician and a student examining a human coronary artery taken from a heart transplant recipient with allograft vasculopathy (intimal thickening). (From left to right: Ms. Julie Jordan, Dr. Anton Skaro and Ms. Ellen Vessie.)

Dr. Lin Nie, a CIHR-funded Post Doctoral Fellow in the Department of Medicine at McMaster University, is examining gene expression of calcium pumps in patients with end stage heart failure.

and Prize in the Cardiovascular Sciences in 2002. Dr. Eric Olson, a renowned researcher from the University of Texas Southwestern Medical Center at Dallas, Texas, was invited to deliver this inaugural lecture at the Canadian Cardiovascular Congress in October 2002. He was honoured for his extraordinary achievements in cardiovascular sciences and the impact of his work on cardiac development and cardiomyopathy in the USA and around the world. He was also honoured for his commitment to mentoring. Dr. Olson spoke on *Transcriptional Control of Heart Development and Disease*.

Clinical Trials Education Program

"There is great need to provide 'fertile soil' for conducting clinical research so as to identify new cures and preventative methods and thus provide a competitive edge for Canada among the leading countries of the World" (Dr. Alan Bernstein, February 2002). Currently, Canada lacks a standardized national training program for clinical trials, or courses designed to mentor the next generation of researchers in the conduct of randomized controlled trials. CIHR has a role to play in positioning Canada as a leader in clinical research and as the most preferred location to conduct, launch and lead challenging clinical trials. As such, CIHR

Dr. Patrick Parfrey from the Clinical Epidemiology Unit at Memorial University and his team of researchers, seen here, are focused on health care delivery research and study such things as clinical and genetic epidemiology of inherited diseases in Newfoundland. He is also leading the New Emerging Team grant, The Canadian Prevention of Renal and Cardiovascular Endpoints Trial.

and ICRH are leading the development of a national Clinical Trials Training and Mentoring Program. The proposed training and mentorship programs would build clinical research capacity in Canada with a view to expanding the pool of clinical trials researchers in the country. This Program will form part of the CIHR Clinical Research Initiative already described above.

This past year, numerous stakeholder groups were consulted regarding the need for and feasibility of such a Program. Based on positive feedback received during this consultative process, a three to five day general training program for those interested in doing clinical trials, and a two to three year mentoring program for those who aspire to become leading clinical trialists are currently under development. A National Curriculum Development Committee chaired by Dr. Martin Schechter from the University of British Columbia has been established. The intent is to roll out these training programs in the fall of 2003 once curricula have been developed for both Programs.

Partnerships and Public Engagement

PARTNERSHIPS ARE A KEY SUCCESS FACTOR in all of ICRH's work. The majority of research initiatives launched in 2002-03 have been done with a variety of partners, including voluntary organizations, government, pharmaceutical/industry, other CIHR Institutes and international organizations. New attempts have been made to increase the visibility of ICRH across the country and to inform the Canadian public of the outstanding research that is being conducted by Canadian scientists. ICRH is also gaining credibility and reputation as an organization that is responsive to the needs to the community it serves.

Partners Forum

For the second consecutive year, ICRH hosted Partners Forum, a program that brings together national organizations supporting circulatory and respiratory health research for the purpose of developing an integrative strategic research agenda. Delegates from over 20 organizations attended the Forum. Organizations identified a number of common priority themes, several of which were developed into Request for Applications (RFA) programs in the following months. Partners Forum II, planned for spring 2003, is focused on clinical research, knowledge translation, and databases, and promises to be beneficial for all participating organizations.

Dr. Alan Bernstein, President, CIHR, is seen here meeting with new faculty during his visit to the University of British Columbia to discuss the challenges and opportunities facing researchers early on in their research careers and how CIHR can contribute to their research careers.

Outreach in the Research Community

ICRH has made great efforts to ensure that the circulatory and respiratory research community as well as the broader health research community is apprised of its progress, programs and directions and those of CIHR. In an effort to ensure that researchers have an opportunity to provide critical feedback on ICRH activities, CIHR-funded researchers are invited to attend and give brief presentations during face-to-face meetings of the ICRH Institute Advisory Board. These 'Innovation Speakers' have an opportunity to dialogue with the Board and offer their perspectives on how they perceive CIHR and ICRH to be performing (see Table 2). In December of 2002, ICRH assisted with the organization

Dr. Shawn Aaron, an ICRH Innovation Speaker and a physician scientist in the Division of Respiratory Medicine at the University of Ottawa, and his team of researchers are studying the effectiveness of antibiotic therapy in patients with cystic fibrosis or chronic obstructive pulmonary disease. (From left to right, top row: Drs. Frank Chan, Shawn Aaron and Karam Ramotar. From left to right, bottom row: Ms. Wendy Ferris, Ms. Melissa St. Denis and Ms. Kathy Vandemheen.)

Table 2. Innovation Speakers

12TH IAB MEETING, JUNE 4, 2002, OTTAWA, ONTARIO	Dr. Tofy Mussivand	Ottawa Heart Institute Research Corporation
	Mr. Philip Links (PhD Candidate)	Ottawa Heart Institute Research Corporation
	Dr. Shawn Aaron	Division of Respiratory Medicine, University of Ottawa
14TH IAB MEETING SEPTEMBER 19, 2002, TORONTO, ONTARIO	Dr. Peter Backx	Department of Physiology, University of Toronto
	Dr. Dina Brooks	Department of Physical Therapy, University of Toronto
	Dr. Richard Leung	Department of Medicine, University of Toronto
17TH IAB MEETING, JANUARY 30, 2003, VANCOUVER, BRITISH COLUMBIA	Dr. Mark Fitzgerald	Centre for Clinical Epidemiology and Evaluation, Vancouver General Hospital
	Dr. Mark Scott	Department of Pathology and Laboratory Medicine, University of British Columbia
	Dr. Stephen Chung	British Columbia Transplant Society

and planning of Dr. Alan Bernstein's visit to the University of British Columbia. During his visit, Dr. Bernstein led an Open Forum wherein researchers had an opportunity to ask questions relating to CIHR activities, opportunities and the way ahead. Dr. Bernstein also met with small groups of researchers to discuss issues specific to their community.

ICRH publishes articles that speak to ICRH activities in circulatory and respiratory research as a way to inform its community of progress made. In February 2002, ICRH was invited to submit an article to CV Network, the official bulletin of the International Academy of Cardiovascular Sciences. The article highlighted ICRH's major achievements during its first years of operation. This publication reaches over 3,000 cardiovascular researchers worldwide.

Dr. Richard Leung, a CIHR-funded researcher from the Department of Medicine at the University of Toronto, is seen here analyzing a polysomnographic study. He participated in the September 2002 ICRH Institute Advisory Board meeting held in Toronto wherein he offered his perspectives on health research in a CIHR world.

In an effort to nurture its community, ICRH has supported various scientific meetings and workshops that align with the Institute's mandate (see Appendix 3). Likewise, Institute staff, especially the Scientific Director and Assistant Director, continue to participate in and deliver presentations at various national and international scientific meetings and

Dr. Carolyn Bennett (centre), MP for St. Paul's, Ontario, is seen here with the ICRH Institute Advisory Board and staff.

Table 3. Exemplary talks/visits made by the Scientific Director★ or Assistant Director#

VENUES	
Welcoming address, Partners Forum II, Ottawa, ON, April 3-4, 2002★	Co-Organizer and Co-Chair, XXIV International Congress of the International Academy of Pathology (IAP) & 15th World Congress of Academic and Environmental Pathology, Amsterdam, Netherlands, October 5-11, 2002★
World Hypertension League (WHL) meeting, April 10, 2002#	Health Research for Better Health: What is Possible in a CIHR World, UBC Faculty of Pharmaceutical Sciences Seminar Series, University of British Columbia, Vancouver, BC, October 22, 2002★
Cardiovascular Health for ALL 2002 (CVH 2002) Conference, Washington DC, April 10-13, 2002#	Return visit from Mexican delegates, Ottawa, ON, October 23-25, 2002★#
Tobacco Summit, Ottawa, ON, April 19-21, 2002#	Co-Chair, Scientific Session, and Presenter at Postgraduate Day, How to Write a Successful Grant Application and From Molecule to Population: Solving Research Questions Through a Holist Approach, Canadian Cardiovascular Congress 2002, Edmonton, AB, October 26-30, 2002★
World Congress of Cardiology, Sydney, Australia, May 5-9, 2002#	CIHR sponsored Global Health Research Workshop, Annual Meeting of the Canadian Society for International Health, Ottawa, ON, October 27, 2002#
Public Health Forum, Winnipeg, MB, May 25, 2002#	The Many Convergent Avenues to Heart Failure in Enteroviral Heart Disease, Heart & Stroke Foundation of Ontario Heart Failure Program Distinguished Lecture, London, ON, November 11, 2002★
Knowledge Translation (KT) Workshop, Calgary, AB, June 6-8, 2002#	G8 Summit – Global Forum on Health Research, Arusha, Tanzania, November 11-16, 2002#
Vagrancy in the Human Health Sciences: Early Horizons, Expanding Vistas, Compelling Directions, Highlights of Medicine Meeting in Association with Alumni at University of Saskatchewan, Saskatoon, SK, June 20-23, 2002★	World Class Health Through Private/Public Partnerships: Best Practice Models, 20:20 Health Vision, Saskatoon, SK, November 18-19, 2002★
Chair, Student Summer Research Day, St. Paul's Hospital, Vancouver, BC, August 16, 2002★	CIHR Awards Night: A Celebration of Excellence, Toronto, ON, November 20, 2002★
Member, Student Research Forum and Open House, University of British Columbia, Vancouver, BC, August 19, 2002#	Best Practices in Peer Review, hosted by HSF, Alymer, QC, November 22-23, 2002#
Visit to University of Ottawa, Ottawa, ON, September 16, 2002★	Introductory speaker, Alan Bernstein Distinguished Lecture, McDonald Research Laboratories/The iCAPTUR4E Centre, St. Paul's Hospital, Vancouver, BC, December 6, 2002★
The Future of Academic Medicine – Leading or Following? Trilateral Conference, Lincoln College, Oxford, England, September 20-23, 2002★	Realities and Opportunities: Creating a Vision for the Future, Enhancing Capacity in the Hospital-Based Clinical Health Research Workshop, Edmonton, AB, January 17-18, 2003★#
Advanced Strategies in the Treatment of End-stage Heart Failure: Destination Therapy and LVADs, Can We Afford VAD Therapy?, Heart Failure Society of America 6th Annual Scientific Meeting, Boca Raton, CA, September 24, 2002★	Chair, Frontiers in Cardiovascular Science Organizing/Scientific Committee, Vancouver, BC, February 2-4, 2003★
Achieving Quality Health Care, Royal College of Physicians & Surgeons Annual Conference, Ottawa, ON, September 25-27, 2002#	Developing a Nano-Medicine/Nano-Health Research Agenda for Canada, Conference Workshop, Montreal, QC, February 13-14, 2003★
Canadian Society for Clinical Investigation Annual Meeting, Ottawa, ON, September 26-27, 2002★	Obesity Advisory Board, GlaxoSmithKline, New York, NY, February 20-23, 2003★
4th Interdisciplinary Symposium on Atherosclerosis and Peripheral Vascular Diseases, Winnipeg, MB, September 27, 2002#	Technology Enabled Knowledge Translation Workshop, Wosk Centre, Vancouver, BC, March 27-28, 2003★#
Guest speaker, Heart and Stroke Foundation of Nova Scotia, Halifax, NS, October 1, 2002★	
NHLBI sponsored Women and Ischemia Syndrome (WISE) Workshop, Baltimore, MD, October 2-4, 2002#	
Telehealth Conference, Vancouver, BC, October 3-4, 2002, 2002★#	
Canadian Diabetes Association Conference, Vancouver, BC, October 3-5, 2002#	

workshops, and planning sessions (see Table 3). These are just a few examples that exemplify ICRH's commitment to maintain close communications and linkages with its community.

Reaching out to Political Leaders

ICRH recognizes the need to demonstrate to government officials the importance of and need for more research into the causes, mechanisms, palliation and prevention for a wide range of circulatory and respiratory diseases. Dr. Carolyn Bennett, MP for St. Paul's, Ontario, joined the ICRH Institute Advisory Board for a reception in September 2002 in Toronto. Our interactions with her were extraordinarily positive. Some of the topics covered during our conversations with Dr. Bennett included the need for such things as an improved peer review process, best practices for 'evidence-based policy,' improved modes for disseminating research findings to front-line clinicians, and marketable products. Other meetings with political and policy leaders are planned and held on an ongoing basis.

Translation and Use of Knowledge

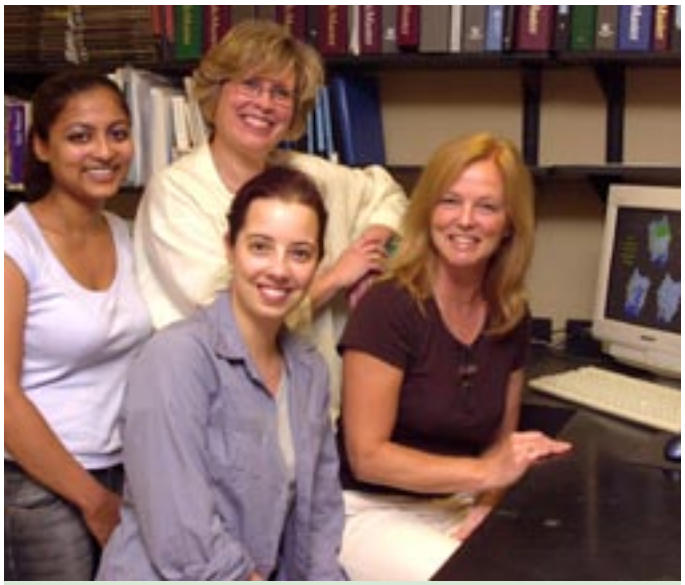
ICRH IS NOT ONLY CONCERNED WITH THE creation of new knowledge, but also the translation of this knowledge into improved health services and products for circulatory and respiratory diseases. Circulatory and respiratory researchers need to become more engaged in the transfer, application and translation of new knowledge into improved health services and health products, as active players in the full knowledge cycle.

Knowledge Translation Strategies for Health Research

ICRH participated in the spring 2002 Knowledge Translation Strategies for Health Research Request for Applications (RFA). The response to this initiative was overwhelming and reinforced the need for ICRH to support research that increases our understanding of the theory and practice of KT, and the need to integrate an understanding of KT principles and practice into the training and continuing education of health professionals. ICRH supported one grant in the area of knowledge translation (see Appendix 2).

ICRH was also heavily involved in the planning and organization of the *Technology Enabled Knowledge Translation (TEKT) Workshop* held in March 2003 at the University of British Columbia. Workshop participants had an opportunity to explore specific issues relating to research in, and evaluation of, knowledge and policy translation strategies, using information and communication technologies as enabling tools. A synthesis report based on this Workshop will outline an action plan, a long term vision, and immediate action steps to bring coordination and cohesion to these thoughts in order to pursue an agenda on TEKT.

Dr. Malcolm Maclure (right) from the School of Health Information Science (HEIS) at the University of Victoria and Ms. Carolyn Green (left), a PhD candidate, are seen here reviewing the interview form for their ICRH-funded knowledge translation study.



Dr. Catherine Hayward, a member of the MUST Taskforce and a CIHR-funded researcher from the Departments of Pathology and Molecular Medicine and Medicine, McMaster University, is seen here with students and staff reviewing the implications for blood coagulation in how the binding site for multimerin overlaps with a functionally important region in coagulation factor V (a protein essential for blood clotting that is stored bound to multimerin in platelets). (From left to right, top row: Ms. Samira Jeimy, Dr. Catherine Hayward and Ms. Nola Fuller. Bottom row: Dr. Dragoslava Kika Veljkovic.)

Through his research program, Dr. Don Sin, a CIHR-funded respirologist from the Department of Medicine at the University of Alberta, is working towards improving the process of care and health outcomes of asthmatic patients and patients with chronic obstructive pulmonary disease by improving linkages between hospital- and office-based care (from primary care providers).

Dr. Sylvie Robichaud-Esktrand from the University of Montreal, Faculty of Nursing, and the Montreal Heart Institute is seen here with colleagues testing a computerized tailoring feedback system that measures cardiovascular risk factors and behaviours in patients with coronary artery disease and Type II diabetes. (From left to right: Dr. Richard Gallo, Mr. Jean Laurier, Mr. Phillip Stébenne and Dr. Sylvie Robichaud-Esktrand.)

Infrastructure Needs

As already mentioned, the Multi-Stakeholder (MUST) Taskforce for Clinical Research was convened in 2002 by ICRH on behalf of CIHR under the auspices of the CIHR Clinical Research Initiative to advise on processes and programs to enhance the infrastructure and environments for training, retraining and retaining clinician scientists and in the advancement of clinical research in Canada. One of the preliminary draft recommendations that came out of deliberations of the MUST Taskforce was the need for networks of Clinical Research Centres that would serve as reference and resource centres for patient-oriented research. It has been proposed that these centres could house various core functionalities, including focuses of research excellence, policy guidance, and knowledge translation, as well as training and mentoring. The recent Romanow Commission supports CIHR's pursuit of establishing Centres for Health Innovation where health researchers, knowledge translators, policy analysts and other professionals are focused on improving the knowledge translation value and impact of health research. Such Health Innovation Centres would compliment the Clinical Research Centres.

Organizational Excellence

ICRH IS COMMITTED TO ACHIEVING THE HIGHEST level of organizational excellence. Institute staff, with guidance from the Institute Advisory Board (IAB), continually work towards improving the efficiency and effectiveness of the Institute.

ICRH Institute Advisory Board

The IAB has been actively engaged in such activities as determining the strategic research directions of the Institute, developing standardized policies and procedures, representing the Institute and delivering Institute-related talks at meetings and workshops, and promoting Institute activities within their communities. For example, at the request of the Board, a simple and standardized process for the allocation of ICRH funds to supplement meetings was instituted. Groups requesting financial support from ICRH for a workshop or meeting are now required to complete a 'Request-for-Support form.' An 'Early Response Team' comprising of IAB members is invited to review and evaluate these requests. Based on their feedback, a funding decision is made.

Regrettably, a few Board members indicated during this past year that they would step down from the Board as of August 31, 2003. We thank Drs. Yvon Cormier, Cameron Donaldson, Victor Dzau, Julia Levy, Marlene Rabinovitch and Salim Yusuf for the valuable contributions they made while serving on the Board and wish them the best of luck in their new endeavours. ICRH is in the process of identifying replacements for these individuals by September 2003.

Evaluation

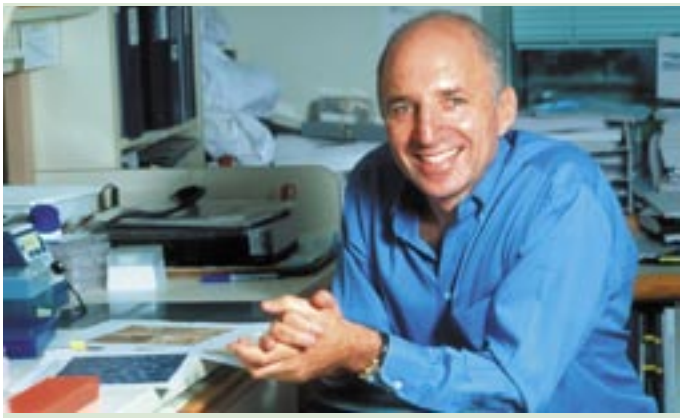
ICRH has been working on several fronts to develop and implement appropriate evaluation strategies. For currently funded research programs, ICRH and

ICRH staff, the Institute Advisory Board (IAB) and two Innovation Speakers (Drs. Mark Fitzgerald and Mark Scott) are seen here following the 17th IAB meeting held on January 30, 2003, in Vancouver, BC.

HSF worked with CIHR staff to develop a performance measurement survey to capture progress of the three large-scale Interdisciplinary Health Research Teams (IHRT) studying Genetic and Environmental Interactions in Circulatory and Respiratory Diseases. Joint planning meetings were held from October 2002 until late March 2003 to conceptualize a Reporting and Evaluation (RAS) session which would enable research program leaders to report on their scientific progress and receive constructive feedback for improving their programs from peers in the field of gene-environment interactions. The inaugural External Advisory Panel, consisting of Drs. Paula Gregory (Louisiana State University Health Sciences Center, New Orleans, LA), Michael Hayden (Centre for Molecular Medicine and Therapeutics, Vancouver, BC) and Stephen Young (Gladstone Institute of Cardiovascular Disease, San Francisco, CA) was confirmed in March 2003. The Reporting and Advisory Session is planned for June 2003.

Similarly, ICRH staff have been working in collaboration with staff from the Institute of Nutrition, Diabetes and Metabolism, CIHR staff and other partners to develop a performance measurement tool

for projects funded through the New Emerging Team (NET) Grant program. The survey, which is nearly



Dr. Michael Hayden, Director for the Centre for Molecular Medicine and Therapeutics (CMMT) at the University of British Columbia, will assist ICRH in monitoring the progress made by the three ICRH-funded Gene-Environment IHRT groups.

complete, will be introduced to applicants as a tool for assisting them in tracking and reporting progress pertinent to the goals of the NET program.

ICRH has also been involved actively in the ongoing development of an evaluation tool that will assess the success of Institutes in addressing the five areas discussed in this report (e.g., research, research environment, partnerships and public engagement, knowledge translation, organizational excellence). Work in this area is ongoing and a final report is expected in late 2003.

Collaboration

The ability of the ICRH team to fulfill its mandate has been strengthened by close and increased collaboration with colleagues at CIHR corporate offices in Ottawa and colleagues from the other 12 Institutes across the country. Formal teams have been assembled, linking ICRH team members with colleagues from various areas within CIHR, including Communications, Evaluation, Web Services, Finance, Knowledge Creation Program Delivery and Ethics. The result has been improved communication and a more synergistic approach to meeting goals. As an example, Dr. Karen Dewar heads the CIHR Program Delivery Unit, which manages the peer review and grants administration for ICRH initiatives. Dr. Dewar and her team have done an incredible amount of work in managing the peer review for a number of ICRH initiatives. They are also responsible for the respiratory and cardiovascular operating grant committees which operate through the open competition and provide regular updates regarding these committees to the Institute Advisory Board.

Appendices

Appendix I. The Big Picture – CIHR Funding of Circulatory and Respiratory Health Research

The following two tables reflect an estimate of CIHR's support of circulatory and respiratory health research. The numbers were generated by searching the CIHR database for grants and awards falling in the area of circulatory and respiratory health as follows:

1. The following words were used to search through the CIHR database: Anaemias OR Arrhythmias OR Asthma OR Atherosclerosis OR Blood OR Cardiology OR Cardiovascular OR Circulation OR Clotting OR Coronary OR Haematology OR Heart Failure OR Hypertension OR Lung OR Myocardial Infarction OR Respiration OR Stroke OR Thrombosis AND (Not Cancer) AND (Not Leukemia).
2. The CIHR database was searched for any grant or award holder who indicated on their application to CIHR that their project was related to the mandate of the CIHR Institute of Circulatory and Respiratory Health at either the primary or secondary level.

The amounts in these tables reflect in-year investments for projects that included, but were not necessarily exclusively related to, circulatory and respiratory health research. It is not possible to determine the proportion of a project amount that is relevant to a specific area of research, therefore the entire project amount can be reported multiple times across several Institutes, as estimated contributions to their areas of research. It would therefore be inappropriate to add up similar numbers from all the Institutes to determine CIHR's overall support of health research. Certainly, such a process would lead to a figure which exceeds the total dollars available to CIHR.

Appendix I continued

CIHR Funding for Circulatory and Respiratory Research

	2000-2001	2001-2002	2002-2003
CIHR Grants			
Operating Grants	$37,010,825	$46,807,874	$56,767,803
Individual Group Project Operating Grants	$7,138,110	$13,159,690	$13,492,957
Clinical Trial Programs	$8,202,485	$11,173,394	$15,017,895
Group Grants	$5,524,481	$3,621,969	$3,660,766
Equipment and Maintenance Grants	$1,380,986	$1,710,437	$1,775,402
NCE Operating Grants	$3,525,000	$3,525,000	$3,525,000
Miscellaneous (e.g., Workshops and Symposia)	$15,000	$19,875	$43,000
TOTAL	**$62,796,887**	**$80,018,239**	**$94,282,823**
CIHR Training Awards			
Clinician Scientists - Phase I	$287,290	$442,419	$273,948
Fellowships	$4,024,425	$5,176,577	$5,443,821
Studentships	$2,000,783	$2,044,052	$1,896,477
Exchanges	$6,000	--	--
TOTAL	**$6,318,498**	**$7,663,048**	**$7,614,246**
CIHR Salary Awards			
Scientists	$203,500	$232,273	$226,766
Chairs	$145,833	$197,500	$273,223
Investigators	$2,535,555	$2,586,928	$2,993,533
New Investigators	$2,424,484	$2,769,235	$3,425,277
Clinician Scientists - Phase II	$256,199	$279,501	$356,206
Senior Research Fellowships	$62,500	$87,516	$287,531
Career Awards	$68,958	$69,044	$103,125
TOTAL	**$5,697,029**	**$6,221,997**	**$7,665,661**
Strategic Initiatives - Grants			
Circulatory and Respiratory - CIHR	$2,152,149	$5,598,976	$5,184,859
Circulatory and Respiratory - Any Institute	--	$740,825	$5,614,899
Strategic Training Program Grants	--	$250,136	$1,888,779
TOTAL	**$2,152,149**	**$6,589,937**	**$12,688,537**
Strategic Initiatives - Awards			
Circulatory and Respiratory - Any Institute	--	$11,601	$401,436
TOTAL	**--**	**$11,601**	**$401,436**
GRAND TOTAL	**$76,964,263**	**$100,504,822**	**$122,652,703**

Appendix I continued

Number of CIHR Grants and Awards for Circulatory and Respiratory Research

	2000-2001	2001-2002	2002-2003
CIHR Grants			
Operating Grants	589	712	738
Individual Group Project Operating Grants	92	164	154
Clinical Trial Programs	38	43	52
Group Grants	18	25	20
Equipment and Maintenance Grants	15	21	17
NCE Operating Grants	1	1	1
Miscellaneous (e.g., Workshops and Symposia)	2	4	3
TOTAL	**755**	**970**	**985**
CIHR Training Awards			
Clinician Scientists - Phase I	7	9	7
Fellowships	162	184	192
Studentships	136	146	139
Exchanges	2	--	--
TOTAL	**307**	**339**	**338**
CIHR Salary Awards			
Scientists	3	3	4
Chairs	5	4	6
Investigators	46	47	53
New Investigators	57	67	80
Clinician Scientists - Phase II	4	5	7
Senior Research Fellowships	1	2	3
Career Awards	2	2	3
TOTAL	**118**	**130**	**156**
Strategic Initiatives - Grants			
Circulatory and Respiratory - CIHR	59	82	81
Circulatory and Respiratory - Any Institute	--	13	52
Strategic Training Program Grants	--	14	16
TOTAL	**59**	**109**	**149**
Strategic Initiatives - Awards			
Circulatory and Respiratory - Any Institute	--	1	22
TOTAL	**--**	**1**	**22**
GRAND TOTAL	**1239**	**1549**	**1650**

Appendix 2. Summary of ICRH funding – 2002/2003 (Strategic)

FETAL-MATERNAL INFLUENCES ON CIRCULATORY & RESPIRATORY DISEASES – NEW EMERGING TEAM GRANT			FUNDING PARTNERS	AMOUNT
Graeme N. Smith*	Queen's University (Kingston, Ontario)	Pre-eclampsia: Fetal & Maternal Outcomes and Innovative Therapies	Heart and Stroke Foundation	$1,739,481 over 5 years
SELF-REGENERATION, REPAIR & REPLACEMENT OF DAMAGED & DISEASED CELLS, TISSUES & ORGANS - NEW EMERGING TEAM GRANT			**FUNDING PARTNERS**	**AMOUNT**
Jolanta Gutkowska*	Hôtel-Dieu de Montréal (Montréal)	Development of Cardiac Cell Replacement / Regeneration Therapies Based on Cardiomyogenic Action of Oxytocin	Heart and Stroke Foundation	$1,557,000 over 5 years
NOVEL & INTEGRATIVE APPROACHES TO ASSESSMENT, CARE & MANAGEMENT OF PATIENTS WITH CIRCULATORY AND RESPIRATORY DISEASES - NEW EMERGING TEAM GRANT			**FUNDING PARTNERS**	**AMOUNT**
Robyn M. Tamblyn*	McGill University	E-Integration in the Management of Respiratory and Circulatory Diseases: Elucidating the Multi-Level Mechanisms that Optimize Population Outcomes	Heart and Stroke Foundation	$1,499,466 over 5 years
OBESITY AND HEALTHY BODY WEIGHT INITIATIVE - NEW EMERGING TEAM GRANT			**FUNDING PARTNERS**	**AMOUNT**
Louis Perusse*	Université Laval	Gene-Environment interactions in Obesity: Integration of Genetic Information into the Prevention and Treatment of Obesity	Institute of Nutrition, Metabolism and Diabetes	$1,410,000 over 5 years
Arya M. Sharma*	Hamilton General Hospital (Ontario)	Obesity and Atherothrombosis	Institute of Nutrition, Metabolism and Diabetes	$1,499,650 over 5 years
GLOBAL HEALTH RESEARCH PROGRAM DEVELOPMENT AND PLANNING GRANTS			**FUNDING PARTNERS**	**AMOUNT**
Jean-Paul Collet	Lady Davis Institute for Medical Research (Montreal)	Proposal for Developing a Collaborative Research Program in China and Canada to Optimize Chronic Obstructive Pulmonary Disease (COPD) and Asthma Management	Institute of Population and Public Health	$90,670
Salim Yusuf	McMaster University	INTER-HEART: A Global Research Program in Cardiovascular Disease Prevention	Institute of Population and Public Health	$99,794
ICRH - INSTITUTIONAL ESTABLISHMENT GRANTS			**FUNDING PARTNERS**	**AMOUNT**
Gary R. Kachanoski	University of Alberta	ICRH Institutional Establishment Grant - University of Alberta		$334,569
John G. Kelton	McMaster University	ICRH Institutional Establishment Grant - McMaster University		$346,392
Michael V. O'Shaughnessy	University of British Columbia	ICRH Institutional Establishment Grant - University of British Columbia		$299,500
KNOWLEDGE TRANSLATION STRATEGIES FOR HEALTH RESEARCH			**FUNDING PARTNERS**	**AMOUNT**
Malcolm Maclure	University of Victoria (British Columbia)	Knowledge Translation for Chronic Disease Management in Primary Health Care Renewal in British Columbia	Knowledge Translation, CIHR	$50,000 over 2 years

* approved in March 2003; funding begins in April 2003

Appendix 2 continued

NEW FRONTIERS PROGRAM - DEVELOPMENT GRANTS			FUNDING PARTNERS	AMOUNT
Christian F. Deschepper	Institut de recherches cliniques de Montréal	Operational and Ethical Issues Associated with Banking Human Biological Materials		$99,240
Kevin Glasgow and Denis Prud'homme	Cardiac Care Network of Ontario and University of Ottawa	National Cardiac Registry Symposium		$80,000
Daren K. Heyland	Kingston General Hospital (Ontario)	End of Life/Palliative Care: Planning for a Quality Finish. A Multidisciplinary National Research Workshop		$50,800
Olivier J. Lesur	Université de Sherbrooke	Sepsis Research in Canada: "From Bench to Bedside"		$35,000
William A. Mutch	University of Manitoba	Fractals, Networks and Power Laws: Their Importance for Medicine and its Allied Sciences		$40,000
NEW FRONTIERS PROGRAM - EXTENSION GRANTS			**FUNDING PARTNERS**	**AMOUNT**
Heather M. Arthur	McMaster University	Mapping of National Assets Related to Cardiovascular Nursing Research Capacity	Heart and Stroke Foundation	$15,000
Jean Bourbeau	McGill University	Canadian COPD Cohort Study		$15,000
Lorraine J. Greaves	BC Centre of Excellence for Women's Health	Teen Girls and Smoking: Research Proposal Development	Heart and Stroke Foundation	$15,000
Malcolm King	University of Alberta	Aboriginal Community Consultation: Building a Tobacco Misuse Framework	Heart and Stroke Foundation	$15,000
Duncan Stewart	University of Toronto	Gene and Cell-Based Therapies for Cardio-Respiratory Disease	Heart and Stroke Foundation	$15,000
Jeffrey Weitz*	Hamilton Civic Hospital	A Multidisciplinary Approach to the Diagnosis, Prevention, and Treatment of Atherothrombosis		$67,000
STRATEGIC TRAINING PROGRAM GRANTS AND/OR PLANNING GRANTS			**FUNDING PARTNERS**	**AMOUNT**
Heather M. Arthur and Kathryn King*	McMaster University and University of Calgary	Training Program for the Development of Cardiovascular Nursing Research Capacity in Canada	Heart and Stroke Foundation	$1,800,00 over 5 years
Yvon Cormier*	Université Laval	Quebec Respiratory Health Training Program		$1,800,000 over 5 years
Larry Fliegel*	University of Alberta	Membrane Proteins and Cardiovascular Disease	Heart and Stroke Foundation	$1,671,000 over 5 years
Paul A. Morley	University of Ottawa	A National Stroke Training Strategy in Brain Repair - Development Grant	Heart and Stroke Foundation	$5,000
Ross T. Macgillivray*	University of British Columbia	Training Program in Transfusion Science	Heart and Stroke Foundation	$1,800,000 over 5 years
Peter D. Paré*	University of British Columbia	IMPACT: Integrated and Mentored Pulmonary and Cardiovascular Training	Heart and Stroke Foundation	$1,800,000 over 5 years
Quentin J. Pittman	University of Calgary	Training Program in Stroke and Brain Repair - Development Grant	Heart and Stroke Foundation	$5,000
Dennis E. Vance*	University of Alberta	The SCOLAR (Stroke, Cardiovascular, Obesity, Lipid, Atherosclerosis Research) Training Program	Heart and Stroke Foundation	$1,800,000 over 5 years
Rui Wang*	University of Saskatchewan	Gasotransmitter Research And Training (GREAT)	Heart and Stroke Foundation	$1,800,000 over 5 years

Appendix 3. Summary of ICRH funding – 2002/2003 (Development)

WORKSHOPS/SYMPOSIA/CONFERENCE SUPPORT	
Cardiovascular and Metabolic Disease, 46th Annual Meeting of the Canadian Federation of Biological Societies Meeting, June 11-15, 2002, Ottawa, ON	$10,000
CIHR Reception, 46th Annual Meeting of the Canadian Federation of Biological Societies Meeting, June 11-15, 2002, Ottawa, ON	$2,000
Chemistry Focus Workshop, CIHR Institute of Genetics, July 17-18, 2002, Edmonton, AB	$2,000
Sex Differences in Cardiovascular Health and Disease, Society for Women's Health Research, Scientific Advisory Meeting, July 23-24, 2002, Madison, WI	$3019.50 US
Behavioural and Social Sciences Health Research in Canada: Building an Integrated Future, September 29-30, 2002, Vancouver, BC	$2,500
The Neurologically Impaired Child: Understanding the Fetal/Neonatal Continuum, University of Saskatchewan, October 18-20, 2002, Saskatoon, SK	$10,000
Postgraduate Day, Canadian Cardiovascular Congress 2002, Canadian Cardiovascular Society, October 26, 2002, Edmonton, AB	$5,000
Canadian Cardiovascular Congress 2002, Canadian Cardiovascular Society, October 26-30, 2002, Edmonton, AB	$10,000
Poverty, Health & Equity: From Global Challenges to Innovative Solutions, Canadian Society for International Health's 9th Canadian Conference on International Health in 2002, October 27-30, 2002, Ottawa, ON	$5,000
Enhancing Capacity in Hospital-Based Clinical Research, Capital Health Authority, January 17-19, 2003, Edmonton, AB	$5,000
Frontiers in Cardiovascular Science, McDonald Research Laboratories/The iCAPTUR^{4}E Centre/University of Washington, February 2-4, 2003, Vancouver, BC	$5,000
Tissue Engineering and Artificial Organs Workshop, CIHR Institute of Neurosciences, Mental Health and Addiction, March 16-17, 2003, Toronto, ON	$15,000
Canadian Gene Expression Conference, March 25, 2003, Vancouver, BC	$1,000
CIHR Technology Enabled Knowledge Translation Workshop, March 27-28, 2003, Vancouver, BC	$30,000
Environmental Toxicology, ASIP workshop, Experimental Biology 2003, April 11-15, 2003, San Diego, CA	$1,000
Symposium on Molecular and Cellular Basis for Human Disease, June 6-7, 2003, London, ON	$1,000
College of Medicine Alumni Association Symposium, University of Saskatchewan, June 24-29, 2003, Saskatoon, SK	$5,000
Symposium sur le monoxide d'azote qui se tiendra, University of Montreal, June 27, 2003, Montreal, QC	$4,000
Canadian Thoracic Society (Asthma Committee) and Canadian Network for Asthma Care (CNAC) (Paediatric Consensus Group) meeting, regarding the management of paediatric asthma, June 2003, Ottawa, ON	$10,000
Advancing Autonomic Neuroscience after the Genome, 3rd International Conference of the International Society for Autonomic Neuroscience (ISAN 2003), July 4-8, 2003, Calgary, AB	$5,000
World Heart Federation Seminar 2003, July 12-25, 2003, Victoria, BC	$10,000
19th International Congress of Biochemistry and Molecular Biology, July 20-24, 2003, Toronto, ON	$5,000
Evaluation of the Significance of Metabolic Syndrome for Cardiovascular Risk in the Newfoundland population, University of Ottawa Heart Institute, Ottawa, ON	$15,000
IVBM 2004: The XIIIth International Vascular Biology Meeting, June 1-5, 2004, Toronto, ON	$15,000

Appendix 3 continued

RESEARCH PROJECTS - PLANNING AND DEVELOPMENT	
Meeting to prepare for a NCE in Reproductive Health, Proposal from Dr. Bill Fraser	$5,000
International Nomenclature for Congenital Heart Disease Project, Montreal Children's Hospital, Montreal, QC	$15,000
Healthy Pregnancy for Great Life Beginnings grant workshop, University of Western Ontario, London, ON	$8,000
Biomedical Beamline CFI application, University of Saskatchewan, Saskatoon, SK	$10,000
Longitudinal Study on Aging, CIHR Institute of Aging	$20,000
Population-Based Data for Health Research RFP, CIHR Institute of Population and Public Health / CIHR Institute of Health Services and Policy Research	$5,000
National Scan of Behavioural/Social Sciences and Humanities Current Capacity for and Engagement in Health Research, CIHR Institute of Population and Public Health, September 2002, Vancouver, BC	$5,000
The Cochrane Collaboration, James Wright, Cochrane Hypertension Review Group, July 1-Dec 31, 2002	$20,000
ICRH-HOSTED MEETINGS	
Partners Forum II, April 3-4, 2002, Ottawa, ON	$58,927
National Research Forum for Young Investigators in Circulatory and Respiratory Health, Dr. Naranjan Dhalla (Chair), Institute of Cardiovascular Sciences, University of Manitoba, Winnipeg, MB	$25,000