

Dean's Annual Report - 2010



Once again, McMaster University has been ranked as one of the world's leading universities for its proven record of innovation and outstanding contributions to learning and discovery.

I appreciate the opportunity to share with you some of the Faculty of Health Sciences' contributions to that success through its many advancements in education, research and care in 2010.

OVERVIEW

In 2010, McMaster University ranked in the Top 100 universities in the world in both the Times Higher Education World University Rankings and the Academic Ranking of World Universities (ARWU). McMaster is one of only four Canadian universities to make the Top 100 of both lists. The ARWU ranking includes more than 1,200 higher-education institutions and bases its findings on several criteria of academic and research performance, including number of highly cited researchers, number of Nobel Prize winners and number of scholarly articles that appear in prestigious scientific journals.

The Faculty of Health Sciences trains a full-range of health care professionals at the Michael G. De-Groote School of Medicine, the schools of nursing and rehabilitation science and in programs for Bachelor of Health Sciences, physician assistant and midwifery education, along with our graduate programs.

We are proud that our students are among the most satisfied of those at higher education institutions in Canada. In the Globe and Mail's annual Canadian University Report, McMaster students gave the University top marks for quality of education, career

preparation, academic reputation of faculty members and overall student satisfaction.

For the fourth consecutive year, **McMaster ranked sixth in Canada in the medical/doctoral category in Maclean's** annual university rankings. McMaster scored high marks for its total research funding, high-quality teaching and overall reputation. The university was also recognized for producing the leaders of tomorrow and stood out as one of Canada's most innovative campuses.

Over the past year, there have been many important scientific discoveries in the Faculty as it continues to advance its international standing through the pursuit of excellence in health sciences.

In the 2009-10 year, **the Faculty of Health Sciences administered \$120 million in medical research** ranging from basic science to clinical trials. That number was more than \$291 million when combined with research by our faculty members at our academic hospital partners, Hamilton Health Sciences and St. Joseph's Healthcare Hamilton. The ability of our faculty members to attract research funding is the reason why McMaster University has been named in the top tier of Canada's top 50 research universities, maintaining its sixth place rank.

For the last six years, McMaster has also ranked among the top two or three Canadian universities for biomedical and health care research funding among Canada's 16 medical faculties by the Association of Faculties of Medicine of Canada. In the last decade, our research revenue has grown exponentially as we have attracted support from government, industry, non-profit organizations and donors.

Enrolment in the Faculty of Health Sciences has reached more than 5,000 students, in undergraduate and graduate programs and the collaborative nursing program offered by our academic partners at Mohawk College and Conestoga College.

MICHAEL G. DEGROOTE SCHOOL OF MEDICINE

In November 2010, the Michael G. DeGroote School of Medicine graduated its first class **physician assistants**. The new type of health-care professionals, who work directly under the supervision of a physician, are now employed across the province in a range of specialties including emergency medicine, family medicine, internal medicine, critical care and orthopedic surgery.

The graduation of the first class of medical students from the **Waterloo Regional Campus** was another milestone for the Michael G. DeGroote School of Medicine. Four graduates remain in the Waterloo Region for their family medicine residency. The Waterloo Regional Campus also held a grand opening ceremony to mark the official launch of its permanent home on the University of Waterloo's Downtown Kitchener Health Sciences Campus. The celebration was held in April 2010.

Meanwhile, construction is ongoing for the permanent home of the Michael G. DeGroote School of Medicine's **Niagara Regional Campus**. Currently located at the St. Catharines General Hospital, the medical school will move into Brock University's new \$111.4 million Cairns Family Health and Bioscience Complex in 2012.

The regional campus will occupy one-third of the St. Catharines building's ground floor and it will feature a continuous presence room with an open videoconference link to the Hamilton and Waterloo campuses.

Also this year, a new teaching unit opened in Burlington. The **Halton McMaster Family Health Centre** on Harvester Road is a community-based family practice teaching unit which will provide care for Halton residents while training new doctors and other health-care professional students of McMaster University. The centre is the result of collaboration between four community physicians, McMaster University, the City of Burlington and Halton Region.

Enrolment at Michael G. DeGroote School of Medicine continued to grow this year. The first-year class

sizes of the Waterloo Regional Campus and the Niagara Regional Campus each reached 28 students, while the Hamilton campus welcomed a class of 150. Altogether, the medical school is educating 588 medical students across three campuses as well as more than 820 medical residents and fellows.

A new medical admissions tool known as **CASPer (Computer-Based Assessment for Sampling Personal Characteristics)** was introduced this fall by the Michael G. DeGroote School of Medicine.

The web-based test is the result of seven years of work at McMaster to design an instrument that will screen for exemplary medical school applicants and make it easier to narrow down to the number who receive interviews. The test, based on the successful Multi-Mini Interview (MMI), assesses interpersonal skills and decision-making. The MMI has been shown to predict success both in medical school and on subsequent qualifying exams.

SCHOOL OF NURSING

At the School of Nursing, three faculty members were selected by their peers to be among the top 100 nurses in Canada. **Alba DiCenso, Jennifer Skelly** and **Sue Matthews** each received a Centennial Award from the Canadian Nurses Association, as part of their celebration of a century of leadership. DiCenso, a professor and the director of the Ontario Training Centre in Health Services and Policy Research, was recognized as an international expert in evidence-based nursing and advanced nursing practice.

The citation for Skelly, an associate professor, recognized her as an international expert in continence. Matthews, an assistant clinical professor, is the past Ontario vice-president, operations and chief of practice, for the Victorian Order of Nurses and vice-president, patient services and chief nursing executive, for the Niagara Health System.

The National Collaborating Centre for Methods and Tools (NCCMT), based in the School of Nursing, has received a \$7.5 million award from the Public

Health Agency of Canada. The centre, led by professor Donna Ciliska, supports the use of evidence to inform public health practice and policy.

SCHOOL OF REHABILITATION SCIENCE

The McMaster Occupational Therapy program has received an accreditation award for seven years, the highest possible award for a program. The accreditation is done by the Canadian Association of Occupational Therapists, which was most impressed with the program's collaboration with the clinical community.

GRADUATE PROGRAMS

This academic year saw the launch of a unique **Master of Science Program in Global Health**, a partnership between McMaster and Maastricht University in the Netherlands.

The collaborative initiative is in response to the growing need for a well-prepared global health workforce to address today's most pressing health problems that know no national boundaries.

UNDERGRADUATE PROGRAMS

Eileen Hutton, assistant dean of McMaster's midwifery program, is the first midwife to hold an endowed professorship in the Netherlands. She has been appointed to the new role as professor of the Midwifery Science Division at Vrije University (VU) and VU Medical Centre in Amsterdam for a five-year term.

She will maintain her McMaster roles as assistant dean and director for the McMaster Midwifery Education Program and associate professor with the Department of Obstetrics and Gynecology.

Educational milestones were celebrated in 2009-10 by the Bachelor of Health Sciences (B.H.Sc.) Program and the School of Rehabilitation Science. The B.H.Sc. program marked its 10th anniversary, while the SRS celebrated 20 years of excellence during the 2009-10 academic year.

STUDENT AND POSTDOCTORAL AWARDS

I'm pleased to announce that several of our graduate students, postdoctoral fellows and medical residents have been recognized this year for their outstanding promise within their chosen fields.

Six doctoral students in the Faculty of Health Sciences have been honoured with 2010 Vanier Canada Graduate Scholarships, a prestigious doctoral award to attract and retain world-class PhD students. This year's recipients include: **Rebecca Ganann**, School of Nursing; **Christine Kerr**, Department of Pathology and Molecular Medicine; **Regan Patrick**, Neuroscience Graduate Program; **Rhandi Senaratne**, Medical Sciences Graduate Program; **Andy Kin On Wong**, Medical Sciences Graduate Program; and **Soumaya Zlitni**, Department of Biochemistry and Biomedical Sciences.

Postdoctoral fellows **Khalid Al-Nedawi** and **Zai-Sheng Wu** were named the 2010 recipients of the Michael G. DeGroote Fellowship Awards. The awards, established by Hamilton philanthropist Michael G. DeGroote, support post-doctoral fellows pursuing health sciences research at McMaster University.

Eva Szabo, a postdoctoral fellow in the McMaster Stem Cell and Cancer Research Institute, received an Elevate Strategic Fellowship, which provides PhD holders with fellowships to partner with Ontario companies and institutions. Her research is dedicated to furthering understanding of how cells from adult skin can be converted to cells by a process called cellular reprogramming.

THE YEAR IN HEADLINES

During the past year, many of our researchers in the Faculty have showcased their discoveries to the world through widespread coverage in the national and international media. A few of those in the spotlight include:

Rick Adachi was the lead investigator of a large, international osteoporosis study found postmenopausal women at risk for hip and other osteoporosis-related fractures fail to appreciate their actual risk of debilitating bone breaks.

Mick Bhatia and his research team discovered how human skin can be turned into blood. In the foreseeable future people needing blood transfusions will be able to have blood created from a patch of their own skin. International media attention was like a tidal wave.

John Cairney led a study that showed children with development coordination disorder, often described as clumsy, are at greater risk of being overweight or obese.

Catherine Hayward and her research team uncovered the genetic cause of Quebec Platelet Disorder and developed a genetic test for the condition — a major advance in diagnosing a serious and unusual bleeding problem.

Mark Loeb conducted a landmark infectious disease study that found vaccinating children and adolescents against influenza can provide the same level of protection for the wider community.

John Marshall and **Stephen Collins** collaborated on studies of people who became ill following the tainted water tragedy in Walkerton, Ont. Their research led to a breakthrough in the underlying causes of a post-infection bowel disorder.

Shamir Mehta designed and executed a large international study that found patients undergoing angioplasty benefited from a more aggressive antiplatelet regimen in which they received a double dose of the blood thinner.

Gerry Wright led a research study that uncovered how bacteria recognize and develop resistance to a powerful antibiotic, vancomycin, used to treat superbug infections. This is the first step in developing

antibiotics to overcome resistance which is causing dangerous, even fatal, infections.

John You discovered use of prenatal ultrasounds in pregnant women increased by 55 per cent within a decade, suggesting a need to review current practices.

NEW RESEARCH CHAIRS

Other highlights of the past year include the announcement of several new endowed chairs and Canada Research Chairs. These faculty members are engaging in world-class research, as well as training the next generation of clinician scientists:

Joseph Beyene, associate professor in the Department of Clinical Epidemiology and Biostatistics, was named the John D. Cameron Endowed Chair in the Genetic Determinants of Chronic Diseases. The biostatistician brings his expertise in integrative genomics to work with a team of clinical researchers and basic scientists to make new discoveries in the rapidly expanding field of population genomics.

Christoph Fusch, professor in the Department of Pediatrics and head of the Neonatology Division at McMaster University, has been appointed the Hamilton Health Sciences Foundation/Jack Sinclair Chair in Neonatology. The current focus of his research is on evidence-based strategies to improve outcomes of premature infants and high-risk term neonates. A key area is identification of factors that will optimize normal brain development and function in infants born very preterm.

David Meyre, the new Tier 2 Canada Research Chair in Genetic Epidemiology, came to McMaster from the Institut de Biologie de Lille in France. The associate professor in the Department of Clinical Epidemiology and Biostatistics studies the genetic determinants of obesity and Type 2 diabetes. His research is focused on the interaction of genes and ethnicity, and genes and the environment, with the goal of better genetic prediction of high-risk individuals.

Guillaume Paré, assistant professor in the Department of Pathology and Molecular Medicine and the Department of Clinical Epidemiology and Biostatistics, has been named the Tier 2 Canada Research Chair in Genetic and Molecular Epidemiology. Paré is director of the Genetic and Molecular Epidemiology Laboratory. His research focuses on using genetic and molecular markers to help prevent strokes.

Parminder Raina, professor of clinical epidemiology and biostatistics, was appointed to a Tier 1 Canada Research Chair in Geroscience. Raina is leading the Canadian Longitudinal Study on Aging (CLSA) to bring together the capacity, knowledge and expertise of experts in the physical, psychological and social health domains to unlock some of the greatest mysteries of aging that impact the health of Canadians over time.

Michael Surette, who joined McMaster in fall 2010 from the University of Calgary, was named to the Tier 1 Canada Research Chair in Interdisciplinary Microbiome Research. The professor of medicine, biochemistry and biomedical sciences is studying the relationships between microbes and humans in health and disease. This research has the potential to transform the ways human health is understood and to prevent, diagnose and treat a wide range of conditions.

Mark Tarnopolsky, professor in the Department of Pediatrics and Department of Medicine, was named the inaugural holder of the McMaster Children's Hospital/Hamilton Health Sciences Foundation Chair in Neuromuscular Disorders. His primary research is in mitochondrial disease and mitochondrial dysfunction in aging. His current focus is discovering and evaluating therapies that enhance muscle function in people with acquired and genetic neuromuscular disorders and mitochondrial dysfunction.

RESEARCH INSTITUTE OPENINGS

The Faculty of Health Sciences was proud to celebrate the grand opening of two new research institutes in 2010:

In October, the ribbons were cut to officially open the **Farncombe Family Digestive Health Research Institute**, located on the third floor of the Health Sciences Centre. The 1,800 square feet of space includes a unique atrium, new offices and laboratories, as well as a new metagenomics platform for the study of the intestinal microbes. The institute was established in 2008 with a \$15-million gift from the Farncombe Family of Oakville.

Hamilton's role as one of the world's leading centres in cardiac, vascular and stroke research was amplified in March with the grand opening of the **David Braley Cardiac, Vascular and Stroke Research Institute** at the Hamilton General Hospital site. The research institute brings together two world-renowned research teams led by **Salim Yusuf** and **Jeffrey Weitz**, both professors in the Michael G. DeGroote School of Medicine.

RESEARCH GRANTS

In addition to the research funding that our institutes have generated, we have also attracted grants from provincial and federal governments, non-profit organizations and corporations as well as much appreciated support of individual donors. Here are just a few highlights from the past year that show the range of the initiatives:

The McMaster Stem Cell and Cancer Research Institute received \$11.5 million to lead a world-class project to develop new stem cell-based therapies. The **Ontario Consortium for Regeneration-inducing Therapeutics (OCRiT)** is led by **Mick Bhatia**, scientific director of the institute. The collaborative initiative integrates robotics and high-performance computing to create an automated stem cell platform to identify new drugs capable of inducing stem cells in one's own body to repair damaged tissues.

A research team co-led by **Peter Szatmari**, a professor of psychiatry and behavioural neurosciences, was awarded an \$8.9 million grant from the provincial government to investigate the genetic basis of autism spectrum disorder. In June, Szatmari's research about

the genetic underpinnings of autism was published in the prestigious journal *Nature*.

Harriet MacMillan, a professor in Department of Pediatrics and the Department of Psychiatry and Behavioural Neurosciences, received a \$2-million grant from the Canadian Institutes of Health Research to establish the Centre for Research Development in Gender, Mental Health and Violence Across the Lifespan. The centre's research will increase understanding of the links between mental health issues and family violence.

Mark Loeb, professor of pathology and molecular medicine in the Michael G. DeGroote School of Medicine at McMaster University, received funding of \$10 million from the U.S. National Institutes of Health (NIH) to conduct a large scale international study on the genetic variations which predispose people to the dengue infection. The funds are from the Department of Health and Human Services, National Institute of Allergies and Infectious Diseases of the NIH.

FACULTY AWARDS

I am pleased to report that many of our faculty members have gained national and international recognition for their excellent work as teachers, clinicians and scientists. They include:

John Bienenstock, a McMaster scientist who has led the development of an understanding of how the immune system impacts the whole body, has been named a 2011 laureate to the Canadian Medical Hall of Fame that honours the nation's medical heroes who have contributed to improved health in Canada and around the world through discovery and innovation.

Mehran Anvari, a professor in the Department of Surgery, has been named a 2010 recipient of the ORION Leadership Award. The ORION Awards recognize individuals and groups who have led and championed the use of advanced and collaborative technologies to support research, education and dis-

covery in Ontario or on the global stage.

Stephanie Atkinson, Deborah Cook and Alba DiCenso were elected fellows of the Canadian Academy of Health Sciences on the basis of their demonstrated leadership, creativity, distinctive competencies and commitment to advance academic health sciences. Membership is considered one of the highest honours for members of the Canadian health sciences community.

Stephen Foster, an associate clinical professor of surgery, has been named the 2010 recipient of the Teasdale-Corti Humanitarian Award by the Royal College of Physicians and Surgeons of Canada. The award is given to a Canadian physician whose current practice reflects altruism and integrity, courage and perseverance in the alleviation of human suffering.

Brian Haynes, a professor of medicine, clinical epidemiology and biostatistics, has been named an Officer of the Order of Canada. He is recognized for his contributions as a world leader in medical information research, and for advancing evidence-based medicine in Canada and abroad.

Nick Kates was named an honorary member of the College of Family Physicians of Canada (CFPC). The professor holds appointments in the Department of Psychiatry and Behavioural Neurosciences and the Department of Family Medicine. He has been recognized for his contributions to advancing awareness, understanding and resources for mental health care in Canada.

Alan Neville, associate dean, education, for the Faculty of Health Sciences and immediate past assistant dean of the undergraduate medical education program, received three awards for his educational leadership in 2010: From the Association of Faculties of Medicine of Canada (AFMC), the President's Award for Exemplary National Leadership in Academic Medicine; from McMaster University, the President's Award for Excellence in Educational Leadership; and from the graduating medical students, the Ari Shali Teaching Award.

Paul O'Byrne, professor and chair of the Department of Medicine in the Michael G. DeGroot School of Medicine and director of the Firestone Institute for Respiratory Health at St. Joseph's Hospital, has been elected a fellow of the prestigious Royal Society of Canada in recognition of his lifelong contributions towards improving the lives of asthmatics around the world.

Karl Stobbe, the regional assistant dean for the Niagara Regional Campus of the Michael G. DeGroot School of Medicine, has been named the 2010 recipient of the John C. Sibley Award. The award is presented annually to a part-time faculty member in the Faculty of Health Sciences who has made outstanding contributions to the education of health professionals.

This report gives just a sample of the many outstanding faculty members who bring distinction to McMaster University through their research, teaching and clinical practice.

Our focus has always been on attracting the best minds and developing the next generation of gifted investigators. By putting people first, and investing in our students, faculty and staff, we will maintain our high international visibility for excellence in the health sciences.

Kind Regards,



John G. Kelton, MD
Dean and Vice-President
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