BATTLING CHILDHOOD AGGRESSION
Psychology Professor Wendy Craig tackles bullying and its life-long effects

EXPLORING HUMAN DIMENSIONS: HOW QUEEN’S RESEARCH TOUCHES PEOPLE AT HOME AND ABROAD
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(e)AFFECT is published twice a year by the Office of the Vice-Principal (Research) and highlights research happening at Queen’s. The mission of our office is to stimulate, enhance and facilitate ethical research and scholarship at Queen’s by providing leadership, support and services to advance Queen’s position as a research-intensive university, while raising awareness of the excellence of Queen’s research and providing accountability to our stakeholders.

In short, we see our goal as:
Helping people achieve excellence in research and scholarship.

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It is with great pleasure and excitement that I introduce to you the inaugural edition of (e)AFFECT – the first research publication of its kind at Queen's.

The idea of a research magazine evolved from the realization that a gap existed in communicating our research and scholarly work to the people and organizations we know would love to hear about it. The discoveries emerging from this university have an impact. Our research makes a difference. Our research matters. From the passion and dedication of our researchers, scholars, students and trainees, and their desire to affect the lives of people everywhere and effect positive change in the world, (e)AFFECT was born.

It is our vision that this biannual publication will become a vehicle to present some of the highlights of our work at Queen's and to offer perspectives on the depth and breadth of what we do. The focus of (e)AFFECT is you, and how the research conducted at Queen's touches you and makes a difference in our modern world.

The theme of this issue is Exploring Human Dimensions. We will explore society, culture, human behavior and the enhancement of human health and wellness. In our main feature you will meet Wendy Craig, a Queen's psychology professor and scientific co-director of PREVNet, a Canada-wide research network whose goal is to eliminate bullying – a behaviour that not only impacts the bullying victim both physically and mentally, but the bully, too, and the people around them who might play a role in managing it.

We have also profiled a variety of researchers who examine diverse issues. Dr. Udo Schuklenk, a bioethicist and professor of philosophy, examines the social and ethical aspects of assisted suicide; the recent work of Dr. Michael Green, associate professor of Family Medicine and Community Health and Epidemiology, aims to understand the issues and challenges doctors face in remote First Nations communities, such as finding culturally sensitive strategies to provide quality health care to Aboriginal patients; Dr. Mark Rosenberg, professor of geography, investigates the relationships between vulnerable populations such as the elderly and access to services such as health care; Dr. Peter Harrison, Queen's School of Policy Studies Director and Chair of the International Polar Year 2012 From Knowledge to Action Conference, is an expert in Arctic and northern policy issues; and Dr. David McDonald, professor and Head of Global Development Studies, co-leads the Municipal Services Project (MSP), an international research effort that examines alternatives to privatization for the delivery of essential services such as electricity, health, water and sanitation.

I hope you find all of our features interesting and enlightening. To those who support our research endeavours in the numerous ways that you do, please enjoy this first edition of (e)AFFECT. I welcome your feedback and encourage you to explore, discover, and engage in the research enterprise at Queen's.

Dr. Steven N. Liss
Vice-Principal (Research)
Killam Fellowships: Canada Council for the Arts

**Drs. Kerry Rowe** (Civil Engineering) and **Suning Wang** (Chemistry) have been awarded 2012 Killam Research Fellowships for their work in ecology and the environment. The Killam Fellowship is one of Canada's most distinguished research awards. The two-year $140,000 grant relieves professors from teaching and administrative duties so they can concentrate on research.

Dr. Rowe will study the long-term performance of landfill systems by examining the effectiveness of modern barrier systems and developing guidelines for the design of barrier systems and landfill operations. Dr. Wang will advance research on blue phosphorescent compounds for high-efficiency organic light-emitting devices. These could be used in light bulbs that consume less energy than incandescent light bulbs, but don’t use the toxic metals present in fluorescent light bulbs.

The Order of Canada

**Dr. Noel James** (Geological Sciences and Geological Engineering) was recently appointed a Member of the Order of Canada. Established in 1967, the three-tiered Order is one of Canada's highest honours. Dr. James teaches about oceanography, carbonate rocks and the geological evolution of North America, was recognized for his seminal work in the field of carbonate sedimentology.

The Order of Ontario

**Dr. Arthur McDonald** (Physics, Engineering Physics and Astronomy) has been named to the Order of Ontario, the province’s highest official honour. It recognizes current or former long-time residents of Ontario who have demonstrated a high level of individual excellence and achievement in any field benefiting the people of Ontario or anywhere in the world. His citation reads “Arthur McDonald of Kingston, a respected physicist who led the Sudbury Neutrino Observatory scientific team confirming that neutrinos have mass. This changed the basic understanding of physics for these fundamental particles, a very significant scientific discovery.”

Queen's Prizes for Excellence in Research

**Drs. Victor Snieckus** (Chemistry) and **Zongchao Jia** (Biomedical and Molecular Sciences) are the 2011 winners of the Queen’s Prizes for Excellence in Research. The $5,000 awards recognize outstanding research contributions of scholars at Queen’s.

Dr. Jia is a Killam Research Fellow and Canada Research Chair in Structural Biology. His research group has determined that certain bacteria, including *E. coli*, have evolved by making an enzyme called AceK that allows them to survive under nutrient-deficient conditions. By revealing AceK’s three-dimensional structure, Dr. Jia’s group has gained understanding into how this enzyme works and how it might be locked into the high-nutrient environment.
state, which would reduce the bacteria’s chances of survival under low-nutrient conditions (such as those in drinking water).

Dr. Snieckus holds the Alfred Bader Chair in Organic Chemistry and is Director of Snieckus Innovations, a new Queen’s initiative based at Innovation Park in Kingston. He is internationally recognized for major technologies for molecule assembly and assisting the pharmaceutical and agrochemical industries in the development of new drugs and crop-yield enhancing agents.

Queen’s University Faculty of Health Sciences: Basmajian Award

Dr. Ian Janssen (School of Kinesiology and Health Studies) received the Mihran and Mary Basmajian Award ($5,000 and lecture) for Excellence in Health Research for 2010/2011. The award is given annually to a member (or members) of the full-time staff of the Faculty of Health Sciences judged to have made “the most meritorious contribution to health research during the previous year or several years.” Dr. Janssen delivered the Basmajian Lecture on December 15, 2011.

Vanier Medal: Institute of Public Administration of Canada

Queen’s Chancellor, Dr. David Dodge, has been awarded the 2011 Vanier Medal by the Institute of Public Administration of Canada. Named in honour of Canada’s second Canadian-born Governor General, the Right Honourable Georges P. Vanier, the medal is given annually to a person who has shown distinctive leadership and made significant contributions to the fields of public administration and public service in Canada.

Queen’s University arts education professor Rena Upitis is one of the developers of iSCORE, a new, free, online music instruction tool designed to support music study and instruction.

“There is no other tool like it,” Dr. Upitis says of iSCORE, an online, bilingual module. “Not only is it geared to students born into a digital world, but it is the first tool to support the largely ignored population of teachers – studio teachers, some 50,000 of them across Canada – who give music lessons to millions of Canadian students.”

iSCORE supports music-making with a wide range of features including a personalized homepage that enables students to set goals and priorities, an embedded recorder allowing students to record and save practices and performances, links to composition and sequencing tools, interactive plans and feedback from teachers. iSCORE is available at iscore.rcmusic.ca.
DECADES OF DISCOVERY:
RESEARCH PERMEATES QUEEN’S HISTORY

After its founding in 1841, Queen’s supported a variety of research activities, but identifying a particular point when research became a strategic focus for the university is hard to pinpoint. The university took tentative steps toward support of innovation and commercialization as early as the 1920s and 1930s, but Queen’s present position as Canada’s 6th most-research-intensive university* stems from decisions beginning in the late 1960s, when an influx of new faculty and the establishment of the School of Graduate Studies and Research provided a significant boost to Queen’s research capacity.

Pre 1960

1927 Dr. William Mackintosh is Professor and Head of the Economics Department. He later wins the inaugural Royal Society of Canada’s Innis-Gérin Medal, the Society’s highest honour for a Social Scientist.

1930s Queen’s makes a $4,000 investment in the medical research of Dr. Hendry Connell, an eye, ear, nose and throat doctor, whose enzyme solution, Ensol, for treating cataracts showed early (although, subsequently unfulfilled) promise as a cancer treatment.

Post 1960

1960s the School of Graduate Studies and Research is established.

1970s the Office of Research Services is established with a focus on the negotiation of research grants and contracts.

1977 Queen’s hires its own in-house patent agent due to the growth in the number of invention disclosures from staff and faculty.

1978/79 Queen’s research revenue is approximately $6M.

1995 the Office of the Vice-Principal (Research) is established in response to the explosion of research programs introduced by the federal government. Dr. Suzanne Fortier is named the first Vice-Principal (Research) (1995-2000).

1991 Queen’s is named an inaugural member of the G10, an alliance of Canada’s top ten research-intensive universities. The G10 has grown and is now known as the U15.

1992 Dr. John Smol (Biology) receives Queen’s first Steacie Prize and Dr. Henry Becker (Chemical Engineering) is awarded Queen’s first Killam Prize.

1993/94 Queen’s research revenue is approximately $68M.

*See page 31 for details.
2000/01 Queen’s breaks the $100M mark in research revenue due to its competitiveness in research programs supported by the Canada Foundation for Innovation (CFI) and its matching provincial programs.

2003 the Queen’s University Strategic Research Plan (SRP) for the Canada Research Chairs and CFI programs, led by Dr. Kerry Rowe, Vice-Principal (Research) (2000-2010), was approved by Senate (update January 2006).

2003 Queen’s ranks 1st in the Maclean’s rankings for number of research awards and prizes per full-time faculty against other Canadian universities. Queen’s maintains this ranking to date.

2003 Dr. Art McDonald (Physics, Engineering Physics and Astronomy) receives Queen’s first NSERC Gerhard Herzberg Canada Gold Medal for Science and Engineering.

2006 Sudbury Neutrino Observatory (SNO) is awarded the inaugural NSERC John C. Polanyi Award.

2008 Dr. David Lyon (Sociology) receives a $2.5M SSHRC Major Collaborative Research Initiatives (MCRI) grant for the New Transparency Project.

2010/11 Queen’s total sponsored research income is $163.3M.

2011 Renewal of the Queen’s University Strategic Research Plan. Led by Dr. Steven Liss, Vice-Principal (Research), a 12 to 14 month process with broad consultation is undertaken. Final draft is presented to Senate in April 2012. Check it out on the Strategic Research Plan Web Forum: www.queensu.ca/vpr/apps/blog

2011 PREVNet receives a $1.6M grant from the Networks of Centres of Excellence Knowledge Mobilization (NCE-KM) Initiative.

2011 PARTEQ is awarded with provincial funding to build an Angel Network. To date, PARTEQ has returned more than $30 million to the university and its inventors and has facilitated the creation of 44 worldwide spinoff companies that have attracted more than $1 billion in investment.

2012 (e)AFFECT, the Queen’s Research Magazine, is launched in May 2012.

2012 marks the 20th anniversary of Dr. Susan Cole and Dr. Roger Deeley’s discovery of the gene coding for a multidrug resistance protein now known globally as MRP. The 1992 discovery addressed a fundamental question in cancer research: why did patients who were undergoing treatment for some types of cancer develop resistance to chemotherapy drugs? Cole and Deeley showed that the presence of MRPs in cancer cells was a factor. By cloning and testing the protein, they demonstrated that MRPs effectively prevented cancer-killing drugs from working by pumping the drugs out of the cancer cells before they had a chance to work. Since then, MRP technologies based on Cole and Deeley’s work have been patented and licensed to 16 companies worldwide, making MRP Queen’s most-licensed technology to date.

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DID YOU KNOW…?
The colour motion picture process, Technicolor™ was discovered in 1917 by Herbert Thomas Kalmus, an MIT graduate who came to Queen’s in 1910 as assistant professor of physics in the then-School of Mining. The discovery’s success was assured in 1938-39 when it was adopted by Walt Disney and MGM studios. Technicolor™ was the mainstay of the global film industry and was the most widely used colour process in Hollywood for nearly 50 years before being overtaken by competing technologies. Kalmus has a star on the Walk of Fame in Hollywood, California.

“DID YOU KNOW…” will be a recurring feature in (e)AFFECT. If you know of a Queen’s research discovery you would like to see in an issue of the magazine, contact research@queensu.ca.
Bullying at its extreme can be high-profile and horrifying, such as when one or two disaffected youth go on a shooting rampage at a school, or when a gay student Kills himself after months or years of taunting about his sexuality. It can also be quiet and escape public notice, as when the “mean girl” in the class makes your daughter cry by repeatedly pulling her pigtail, snickering all the while.

Whether it makes the headlines or not, bullying and its consequences are big problems, and Wendy Craig is determined to fix them.

Craig is a Queen’s psychology professor and scientific co-director (with Dr. Debra Pepler of York University) of Promoting Relationships and Eliminating Violence Network (PREVNet), a Canada-wide network that brings together organizations that work with children and youth, governments, university researchers and graduate students and child-health practitioners. The network partners work to expand knowledge about the causes of bullying and aggression and develop and disseminate programs to eliminate violence and promote healthy relationships.

Says Craig: “What we want to do with PREVNet is get research findings that have the potential to make a difference and impact on how children and youth function out to the people who most need it – the practitioners, educators, adult leaders, and parents – so that they can use the information on the front lines.”

PREVNet was established in 2006 as a part of the federal Networks of Centres of Excellence (NCE) program. Six years later it has 62 expert researchers from 27 Canadian universities, and 51 national organizations involved in 85 different knowledge dissemination projects addressing PREVNet’s four core areas of focus: education about bullying; assessment of the extent of bullying in schools and communities; intervention and prevention strategies to reduce the incidence of bullying; and public policy that supports children’s right to be safe. Today, with help from $1.6 million in second-round NCE funding, the core focus is on ten “signature projects” whose outcomes can impact children and youth in all the places they live, learn, play and work.

One signature project, being carried out in conjunction with the Public Health Agency of Canada, has involved populating a website – the Canadian Best Practices Portal – with a series of tested and proven violence-prevention programs. “Our partners, educators and other frontline workers now have a place to go to find programs that we know work and have evidence to support their effectiveness,” says Craig. Another signature project is called Walking the Prevention Circle. This project, co-led by Shelley Cardinal, an Aboriginal consultant with the Canadian Red Cross, acknowledges the history, challenges and potential of Aboriginal individuals and communities as it explores issues relating to abuse, neglect and interpersonal violence. Designed for adults, the program empowers participants to name and reclaim the past, and begin the transition from the cycle of violence to the circle of healing, a journey that begins with awareness and moves toward prevention. From small beginnings, it is now being rolled out across Canada.

Over the last 20 years, there has been a sea change in the knowledge of bullying and its effects. What we now know and understand about bullying has changed our views. We now know that bullying is not just a common part of growing up whose unpleasant effects are short-lived. In fact, research by Craig and others clearly shows that children who are victimized and children who bully often do not get over their experiences. Children who are victimized may later have clinical depression, anxiety, and low self-esteem. Girls may develop eating disorders. The children who bully are at risk, too: those who engage in regular and frequent bullying are at higher risk of engaging in delinquency and sexual harassment, and more likely to join a gang. They are also more likely to be physically aggressive with their romantic partners. The effects of social ostracism, another form of bullying, can be just as long-lived and devastating as the physical sort. A recent analysis of the subject
PREVNet showed that having poor social relationships is as big a contributor to early death as smoking, drinking, and obesity.

Another important finding from research is that bullying can actually affect a child’s physical development. Some chronically victimized children may exhibit a lasting stress response that causes changes in brain function. “Negative social experiences impact the genetic expression of certain behaviours and traits, which has potential long-term implications. In the long term, problem behaviours may be passed onto the next generation,” says Craig.

The public also knows more about bullying, largely because youth violence is more common in the news – from notorious cases such as the Columbine High School shootings in 1999 to the more recent death of Jamie Hubley, a gay Ottawa teenager whose suicide in October 2011 was attributed to years of relentless teasing by his school peers. These and scores of other wrenching stories over the years have raised awareness about bullying. Significantly, in virtually all of the most egregious cases of bullying and youth violence, the perpetrators of the acts were themselves bullying victims at one time or another.

Another form of bullying that has become widespread in the last 10 years or so is electronic bullying, the practice of using the electronic media to intimidate and harass others. PREVNet researchers have found that girls are more likely to bully electronically than boys, but the prevalence of the behaviour is increasing among the latter. In some ways, electronic bullying is even worse than face-to-face bullying because it can exacerbate existing problems. In other words, says Craig, “the experience of being bullied electronically increases the risk for experiencing depression over and above face-to-face bullying.”

One unique aspect of electronic bullying is that children who are victimized can feel as if there’s no escape from it. With traditional schoolyard bullying the child can go home and, one hopes, gain a sense of security. But for today’s teenagers, cell phones and social networking sites such as Facebook are integral to their social life. Teens are glued to their electronic devices, so if they’re being bullied electronically, they may feel it’s impossible to ignore.

Of course, because electronic bullying takes place online, the audience for it is potentially huge. Humiliating or compromising videos and photographs, or nasty rumours about a person, can be seen or read by potentially hundreds or millions of people. Making matters worse, the viewers may snicker at what they’re seeing but fail to connect the material to an actual human being who may be suffering greatly from the exposure. “This broader audience, and the desensitization it engenders, greatly increases the impact of electronic bullying,” says Craig.

Since most traditional bullying takes place at schools, it seems logical that teachers would be equipped with professional knowledge and skills to nip bullying in the bud or handle ongoing cases. Not so: Bill Beasley, an Alberta teacher and Queen’s alumnus, who hosts a much-visited website called www.bullying.org, notes that bullying is one of the biggest non-academic problems for teachers, yet they get virtually no formal training for dealing with it.

For her part, Craig lectures about bullying to teacher candidates at the Queen’s Faculty of Education, but admits that this is not enough. Addressing this lack is another PREVNet signature project: an online magazine called MyHealth. Schools can subscribe to it so that teachers and students can read articles, written by youth, about health topics including bullying. PREVNet’s
role is to provide the evidence-based background material to the writers. “The idea is that the magazine will reach every youth and educator across the country so that they’ll have a sense of how to recognize bullying in their classroom, what strategies will work, which ones don’t, and how to pick bullying prevention programs for your classrooms that do work,” says Craig.

Another key PREVNet role is to help more than 82 graduate students in its network to develop their own research knowledge and skills. The students do this by working on real-world problems with actual clients. For instance, for the past two years, a PhD student in psychology at Queen’s has been evaluating a mentoring program for Big Brothers Big Sisters of Canada as part of her dissertation. This student is solving an applied problem and bringing science to practice in a new and innovative manner. “Both the student and the organization benefit,” says Craig. “The student has an innovative learning opportunity, and the organization gains research capacity to inform their practices.”

The next step for PREVNet, apart from completing the current signature projects, is to figure out how to bring PREVNet research to wider audiences so that it actually changes public attitudes and behaviours. This work isn’t new: in 1997 Craig was interviewed about bullying on Oprah. For the past nine years, PREVNet has lent its expertise to the StandUp! Campaign aired on The Family Channel during the annual Bullying Awareness Week in November. This year, Craig gave bullying prevention advice to the pop superstar Lady Gaga, a former bullying victim who in late February launched the Born This Way Foundation, whose tagline is “Empowering Youth, Inspiring Bravery.”

Another step is to mobilize communities. PREVNet already has reached into mental health centres, schools, parent organizations and other groups, but these parties need to better communicate with each other. “How in the community do we break those silos and get them coordinating together to make differences?” says Craig. “That’s the next step in the evolution.”
In 1993, Sue Rodriguez, a Victoria, B.C. resident suffering with amyotrophic lateral sclerosis (ALS), initiated a controversial and important national discussion in Canada on the issues surrounding end-of-life decision-making by petitioning for the right to choose assisted suicide. Her petition was denied – but since that hallmark decision Canadians have continued to form opinions about assisted dying, euthanasia and the quality of their end-of-life experiences.

Now, with new end-of-life cases coming before the Supreme Court, the Royal Society of Canada has re-ignited that debate with a review led by Queen's researcher and bioethicist Dr. Udo Schuklenk that examines public policy and public opinion about how we want to die.

Schuklenk joined Queen's four years ago as the Ontario Research Chair in Bioethics and Public Policy and is editor and author of two leading bioethics journals, five books and over 100 peer-reviewed articles. He was chosen by the Royal Society to lead a panel of experts from across a broad scope of disciplines, including health law and policy, bioethics, clinical medicine and political philosophy. The panel was charged with exploring the emotional and often controversial issues around end-of-life decision-making, including social attitudes, demographics, ethical concerns, Canadian experiences at the end of life, and international practices and statistics.

Schuklenk says that the review – and subsequent discussions at all levels – are timely and necessary. "Public support for the decriminalization of assisted suicide and voluntary euthanasia remains high, and yet these activities remain prohibited under the Criminal Code of Canada," says Schuklenk. "Our role was to address the very important social and ethical issues around end-of-life decision-making to help Canadians and policy makers have a knowledgeable discussion around these critical matters."

Along with providing an objective review of these issues, the report also examined a wide range of related policies and practices affecting Canadian experiences at the end of life, including the use of palliative care, mortality trends, location of death and the prevalence of advance directives, which outline wishes for care at the end of life should an individual be unable to communicate.

The report also provided important data around similar practices in other countries, particularly to address what Schuklenk describes as the "slippery slope" argument.

"There is always concern that by decriminalizing assisted dying, we will increase the chance of abuse of the practice," he says. "In fact, we found that decriminalization tends to lower the incidence of abuse."

Given our aging population, Schuklenk says that it’s time for Canadians and governments to have important conversations about end-of-life care and practices. "There’s no doubt that these discussions are controversial and at times difficult," he says. "But they are conversations that every Canadian deserves to have."
Between 1995 and 2003, Dr. Michael Green was a physician and Chief of Staff at a small hospital in Moose Factory, Ontario. The issues and challenges he encountered working in the remote First Nations community cultivated an interest in research and broader health-system issues.

That interest eventually led Green to Johns Hopkins University, where he earned his Masters in Health Policy and Management. Eight years ago he landed at Queen’s, where today he’s an active physician with a 600-patient roster and an associate professor in the Departments of Family Medicine and Community Health and Epidemiology. He’s also Director of the Queen’s Centre of Health Resources and Policy Research. As part of the latter role he’s currently involved with two major research projects that hearken back to his previous work in northern Ontario.

The first is called Educating for Equity, an international five-year initiative that includes research partners in Canada, Australia and New Zealand. The project’s Canadian arm is funded by $1.25 million from the Canadian Institutes of Health Research (CIHR) and includes researchers from the University of Calgary, the Northern Ontario School of Medicine and the University of British Columbia (UBC). Their collective purpose is to learn how medical education can improve the ability of practicing doctors to care for Aboriginal patients with chronic diseases, particularly Type II diabetes.

The study isn’t about the medical aspects of care, such as which drugs to prescribe. Instead, it’s more concerned with identifying culturally sensitive approaches to care that might help Aboriginal patients feel safer in a health care setting. The issue is critical: diabetes is rampant on native reserves across Canada, and to deal effectively with the disease patients need more than just a few trips to the doctor’s office. They must participate in their own care by watching their diet, exercising, and monitoring their blood sugar, for example.

The trouble is most physicians on reserve are non-native and come from a dramatically different cultural background than their Aboriginal patients. As a result, they may unwittingly dispense unrealistic or impractical advice – for instance, recommend a diet of fresh fruit and vegetables that is either unavailable or unaffordable in a northern community – or convey it in a manner that causes some patients to consciously or unconsciously recall previous experiences with racism or discrimination. Exacerbating the problem is that few non-native physicians remain for a long time in reserve hospitals, which makes it hard for them to build trust with their patients.

“Time to develop trust is important,” says Green, who is the project’s principal investigator. “If it’s not there, Aboriginal patients may feel like it’s not safe to open up.”

In the first year, the Educating for Equity researchers have reviewed the literature on effective chronic-disease treatment for Aboriginal people, and interviewed Aboriginal patients, individually and in focus groups, about their experiences with physicians. Through the Indigenous Physicians Association of Canada, they’ve also reached out to Aboriginal doctors to ask them what they think other doctors should know or be thinking about when they provide diabetes care to Aboriginal patients.

Ultimately, the goal is to develop an educational program that can be delivered to practicing physicians across Canada that will help them deal with Aboriginal patients in a more culturally appropriate manner. The next step will be to create a similar program for medical students and residents.

Green’s other research project, also funded by CIHR and in partnership with UBC, the University of Northern British Columbia, the Manitoba Centre for Health Policy and the Institute for Clinical Evaluative Sciences (ICES), is investigating the approaches used on and off First Nation reserves to deal with the 2009 H1N1 flu pandemic in Ontario, Manitoba and British Columbia. Did the virus have a greater impact on reserves than off, a scenario that was often portrayed as fact in media reports? Was the impact the same in all provinces? How did the approaches to treat the problem differ, and which approaches worked best?

“We’d like to learn how the policy environment may have influenced the actual outcomes in terms of hospitalizations related to pandemic influenza in each of the provinces,” says Green. “In future pandemics, knowing the most successful approaches will help us develop consistent guidelines on how to manage and treat a new strain of influenza.”
THE GEOGRAPHY OF POPULATIONS:
MARK ROSENBERG
BY NED DICKENS

Young Mark Rosenberg expected to be an English major when he arrived at the University of Toronto in the 1970s. Instead, a group of excellent young professors, some of whom went on to become some of the most influential geographers anywhere, caught his imagination and encouraged him to pursue graduate studies in geography at the London School of Economics, which, despite its name, is in effect a university of the social sciences.

Rosenberg arrived in the U.K. during a period of great ferment that changed the country’s social and political life, as Margaret Thatcher’s Conservatives had just come into power and were implementing sweeping reforms. Witnessing that transformation whetted the Canadian student’s appetite for research and fueled a lifelong commitment to social justice. After graduating from LSE, he spent five years in the private sector in Canada that included a stint as an Angus Reid pollster during the 1984 federal election when the Liberals lost to Brian Mulroney’s Progressive Conservatives. Meanwhile, he applied for an academic position at Queen’s – once, twice. The third time he was successful. Today, 27 years later, he’s still with the Department of Geography.

“What we try to do is to understand how sociological and economic change, demographics and public policy all come together and express themselves geographically,” says Rosenberg. “I’ve been interested from the start in why some people have greater access to services than others.”

Rosenberg has always worked to expose and address inequality, but also points out that it is the nature of a healthy society to have changes in government and ongoing debate, reconsideration, and reconfiguration of public policy. What he and his team of graduate students and research assistants try to do, regardless of the party in power, is to identify inequalities – such as differences in access to health care, education, or housing – particularly as they affect vulnerable populations. Much of his work has involved older populations, but he’s also studied women’s and Aboriginal people’s health to identify health care and service delivery needs and to suggest how they might be addressed or even anticipated. For example, while the average age of First Nations people in Canada is still lower than the national average, and problems like youth addiction and teen suicide are as serious as ever, the fastest-growing demographic in that population is seniors. Rosenberg’s research suggests that public policy must respond to this trend with increased emphasis and resources for the needs of First Nations seniors.

For much of the last half dozen years, Rosenberg has worked with the Chinese Academy of Science’s Institute for Geographical Sciences and Natural Resources Research to study China’s own elderly population and how to help them think through the issues they face. Once again, Rosenberg is conscious of being a witness to a remarkable moment in history as China continues to transform itself at a dizzying rate.

Rosenberg also co-chairs the Earth Systems Science Partnership’s joint project on Global Environmental Change and Human Health, which brings together scientists from around the world to investigate how climate change is affecting health both globally and regionally.

Modestly bypassing his own significant contributions to the study and practice of geography, Rosenberg says he’s most proud of his graduate students.

“Some papers you write have a short shelf-life and your former students are your real legacy,” says Rosenberg. “Too many people today outside the university fail to understand how important it is to bring students and professors together face-to-face in the academy and to work on projects. There is no substitute for it.”
REVEALING THE STRUGGLES OF CANADIAN WOMEN LIVING IN POVERTY: MARGARET LITTLE

BY ALEC ROSS

When Margaret Little was a masters student at Queen’s, she was a regular volunteer at Bridge House, a temporary shelter in Kingston for women in crisis. Often the women’s partners were in prison, and the women themselves were receiving some form of social assistance. Many of them spoke to Little, who had once been a journalist and had no problem getting people to open up. She was amazed at how challenging their lives were – and she vowed to learn more about them.

That was more than 25 years ago. Today, Little is a professor of Gender Studies and Political Studies at Queen’s and one of Canada’s leading activist scholars on single women living in poverty.

Her first book, No Car, No Radio, No Liquor Permit: The Moral Regulation of Single Mothers in Ontario, 1920-1997, chronicles how years of Ontario government policy has worked against low-income single mothers and effectively denied them the same rights and liberties as other Ontarians. In the early days of social assistance, single moms had to prove they were “fit and proper.” They were not allowed to own a car, a radio or a liquor permit. Neighbours would watch them closely and report all a single mom’s activities to the welfare administrators.

Although the welfare rules have altered over time, some of the same attitudes towards low-income single moms exist today. For more than 30 years, welfare rates have been too low to cover rent, food, utility bills and other necessities of life. “You can’t survive on the welfare rate,” explains Little. “If you pay the rent, you can’t feed your kids.”

Making matters worse, a welfare-fraud hotline established by the Conservative government of Mike Harris in the 1990s still exists today. “Anyone who has a grudge against a single mom on welfare can call this hotline anonymously and jeopardize a mom’s welfare cheque,” says Little.

Welfare recipients are always looking over their shoulders for doing things that most Canadians take for granted – as Little found while working at Bridge House.

“I’d ask someone to come and have a beer or a coffee with me, but they’d say they couldn’t because someone might see them spending money on drink and report them to the welfare authorities,” recalls Little. “I thought, ‘Oh my gosh, they feel like they’re living in a police state.’”

Since then, through interviews with hundreds of low-income women across Canada, Little has gathered stories and gained insight into federal and provincial social policies that often perpetuate the very problems they’re supposed to solve.

In her spare time, Little works on three projects: white feminist racism; abused women’s experiences of Canadian housing policy; and First Nations women’s experience of violence and Canadian social policy.
HUMAN MOBILITY RESEARCH CENTRE (HMRC)

HMRC is a partnership between Queen’s University and Kingston General Hospital (KGH) and serves as a point where researchers in medicine, engineering, health sciences, and information technology can collaborate and innovate. HMRC provides shared research space and services for clinicians, orthopaedic surgeons, university faculty, students, and industry partners. The centre is located at KGH and Hotel Dieu Hospital and includes specialized, state-of-the-art labs for connective tissue bio-stimulation, tissue processing, software development, gait analysis, and prosthesis design. Here we focus on one of their four theme areas: computer-assisted therapies.

Drs. David Pichora, John Rudan, Tim Bryant and Manuela Kunz examine a wrist. This team of experts has combined their strengths in computer science, mechanical and materials engineering, biomechanics and surgery to help revolutionize the process of computer-assisted surgery.
The HMRC has translated and adapted their computer-assisted technologies for application to a wide range of orthopaedic procedures. These advances have resulted in less invasive surgeries, improved surgical outcomes and a reduction in the length of hospital stays.

The team has designed and commissioned the world’s first computer-assisted operating suite equipped with an angiography/computed-tomography (A/CT) unit, which uses x-rays to create thin cross-section images through bone and soft tissue, then assembles them into three-dimensional representations. This unique facility is used daily for the development and evaluation of new surgical procedures.
The Centre for Neuroscience Studies (CNS) at Queen’s University is a hub of multidisciplinary research and teaching aimed at improving understanding of brain function and how new therapies and diagnoses can play an important role in the prevention and treatment of diseases like Parkinson’s, Alzheimer’s, stroke, obesity, Fetal Alcohol Spectrum Disorder, schizophrenia, behavioral disorders and depression. The CNS is an internationally recognized team of over 70 basic, clinical and social scientists with expertise in molecular, cellular, systems, behavioural, cognitive, social, clinical and perceptual aspects of neuroscience. They are based at the Faculties of Arts and Science, Education and Health Sciences. Meet some of them:

**Dr. Mary Olmstead**, professor of psychology, and her research team study the biological basis of impulsive action. Recently they identified how neural connections are strengthened when animals learn to inhibit a response. This suggests that impulse control may be learned, and that manipulations that target specific brain mechanisms may be effective tools for treating impulse control disorders.

Psychology assistant professor, **Dr. Elizabeth Kelley**, is gaining a better understanding of children and adolescents with autism spectrum disorders (ASD). Her research studies vary widely in their scope: everything from investigating adolescents with ASD’s experiences with being victimized by their peers, to understanding the relationship between brain functioning and social understanding in middle childhood, to training adolescents’ attentional control using videogames, to exploring the imitation abilities of preschoolers with ASD.
Department of Medicine geriatrician, Dr. Angela Garcia, and her team at Kingston’s Hotel Dieu Hospital are investigating the brain structures and normal cognitive changes that occur throughout aging and in patients with dementia. The team uses use non-invasive tools – such as functional magnetic resonance imaging (fMRI) – that can provide reliable measures with no discomfort.

Dr. John R. Kirby, professor of education and psychology, researches the psychology of reading. His research projects include the development of the cognitive processes underlying learning to read (especially phonological awareness, naming speed, orthographic processing, and morphological awareness), dyslexia in children and university students, cognitive processes in reading comprehension, and learners’ use of text and graphics in studying.

Department of Psychology Head, Dr. Richard Beninger, studies how the brain messenger chemical, dopamine, provides insights on some of the symptoms of schizophrenia. For decades, schizophrenia patients have been treated with drugs that reduce the action of dopamine in the brain, but it remains unclear how dopamine works. Dr. Beninger’s research showing that dopamine affects the importance that humans place on other people sheds light on how over-activity of this chemical could lead to schizophrenic delusions, and how drugs used to treat schizophrenia can reduce these symptoms.

Dr. James Reynolds, Department of Biomedical and Molecular Sciences, conducts basic biomedical and clinical studies on Fetal Alcohol Spectrum Disorder (FASD). One overarching goal of his research program is to investigate the mechanisms and consequences of developmental brain injury caused by prenatal exposure to alcohol. Another goal is to evaluate the efficacy of therapeutic interventions to mitigate the brain injury and consequent neurobehavioural dysfunction associated with FASD.
GLOBAL REACH

FROM POLE TO POLE
THE RECENT IPY CONFERENCE BROUGHT TOGETHER RESEARCHERS FROM THE WORLD’S ARCTIC NATIONS. QUEEN’S WAS AT THE FOREFRONT.

BY CHRISTINA ARCHIBALD

Having received more than 2000 abstracts from over 45 countries, the International Polar Year (IPY) 2012 From Knowledge to Action Conference was one of the largest polar conferences in history. And at the helm of this international event, held in Montreal from April 22-27, was none other than Queen’s School of Policy Studies Director, Stauffer-Dunning Chair, and IPY 2012 Conference Chair, Peter Harrison.

A professional geographer by trade, he is a Fellow, Governor and Vice-President of the Royal Canadian Geographical Society and a Fellow of the Royal Geographical Society. Harrison’s research, writing and teaching focus on ocean and coastal management, particularly with reference to the Arctic Ocean and Arctic and northern policy issues.

This experience, complemented by a 30-year career as a senior public servant in federal departments including Natural Resources Canada, the Department of Fisheries and Oceans, the National Research Council of Canada, and Indian Residential Schools Resolution Canada, make him a central figure in Canada in terms of northern and Arctic policy.

His selection first as Deputy Minister Champion for Canada’s $150-million investment in research for the International Polar Year (2007-2008), and then as Chair of the 2012 conference, was a natural continuation of this career trajectory. Both are roles he’s embraced with relish.

“As the final conference of IPY, the From Knowledge to Action conference represented both a significant ending as well as an exciting beginning,” says Dr. Harrison. “We saw a significant outpouring of research findings, but we didn’t just involve the research community. We really pushed for a human dimension to this conference, so there was a huge emphasis on indigenous knowledge and knowledge transfer and the use of knowledge by the private and third sectors and key decision-makers.”

The emphasis on a human dimension, Dr. Harrison notes, was not without its challenges. As chair of a global conference examining both polar regions, he had to balance the requirements of north, south, east and west.

“The human dimension of the poles doesn’t really mean anything to a great number of countries, and it doesn’t mean anything for the Antarctic because no one lives there and there’s no indigenous population,” he says. “However, it means a lot and is extremely significant to circumpolar countries, and for Canada it’s critical.”

Dr. Harrison says indigenous involvement and cultural presence at the Montreal conference was significantly greater that at the previous global conferences in St. Petersburg (2008) and Oslo (2010). In addition to bringing in attendees from the circumpolar north, the 2012 conference organizers put a significant effort into working with First Nations and Inuit groups, and leaders from many groups were present throughout the conference. Aqqaluk Lynge, Chair of the Inuit Circumpolar Council (ICC) and President of ICC-Greenland, was one of several keynote speakers and attendees who helped to provide an indigenous perspective on issues like ocean management, melting sea ice, melting permafrost and changing migration patterns, which are some of the most significant issues affecting indigenous communities in the Arctic today.

Queen’s researchers Scott Lamoureux (Geography), Paul Grogan (Biology), Ryan Danby (Geography), Priscilla Ferrazzi (Law) and 15 other faculty members, fellows and graduate students also presented results and views on a range of pertinent topics from mental health and criminal justice, to environmental monitoring, permafrost disturbance, traditional knowledge mobilization, and sustainable energy plans.

For Harrison, the conference concretely established what the global research community has discovered during the past few years of intensive polar research and continued the momentum gained in terms of international cooperation and knowledge dissemination. On the domestic front, he hopes the conference contributed to an enhanced understanding about the Canadian north, why it’s important, and who its people are.

“It’s critical that we understand the role that the polar regions play in the Earth’s systems,” he says. “What happens at the poles will not only alter the polar environments, but will change the course of human and economic development at a planetary scale.”

To learn more about the IPY 2012 From Knowledge to Action Conference, visit: www.ipy2012montreal.ca
Privatization is the practice of selling off public services to for-profit organizations. A broad definition also includes the widespread practice of forming public-private partnerships. Its proponents say it cuts government costs while improving efficiency in the delivery of essential services for citizens.

Dr. David McDonald, professor and Head of Global Development Studies at Queens, has been challenging privatization through his co-leadership of the Municipal Services Project (MSP). The ambitious undertaking, originally launched in 2000 and funded in Canada by the International Development Research Centre of Canada (IDRC), includes researchers from universities, activist and labor groups and nongovernmental organizations around the world.

The project’s first two phases examined electricity, water, health care and waste management privatization in South Africa. MSP researchers discovered that while privatized utilities reaped profits and wealthy citizens enjoyed a reliable supply of high quality services, millions of low-income South Africans had their services cut off because they couldn’t pay their bills. This widespread hardship among the most vulnerable populations was a direct result of the application of market-oriented management principles that are part and parcel of the ideology of privatization, says McDonald. “Privatization erodes the public service ethos,” he says. “All of a sudden it’s acceptable to cut people off for not paying their bills because it improves the bottom line, even if the service is owned and operated by the state. The goal of cost recovery becomes more important than trying to figure out how to help poor people by cross-subsidizing those services.”

The MSP published dozens of papers and six books on the topic and produced radio documentaries that reached millions of people. It also attracted much attention from government policymakers, unions and the public. Nevertheless, powerful free-market interests continue to spread the privatization gospel around the world.

That done, the MSP research teams conducted a “mapping exercise” of public services in the healthcare, water and electricity sectors in over 40 countries in Asia, Africa and Latin America. Their goal was to find noteworthy examples of “successful” public services based on their criteria. The fruits of the research are contained in the recently published book, Alternatives to Privatization: Public Options for Essential Services in the Global South.

“The book is an attempt to say, here’s what we mean by public, here’s what we mean by successful, and here are a series of examples of these services in different sectors,” says McDonald.

The MSP’s next step is to expand on major themes identified in this work. One of the early by-products is a second book called Remunicipalization: Putting Water Back into Public Hands, a slimmer volume that contains case studies of cities that experienced failure with water privatization and have since made water public again. The Canadian city of Hamilton is one of the examples, along with Paris, Buenos Aires, Dar es Salaam and a series of municipalities in Malaysia.

For more information on the MSP, visit: www.municipalservicesproject.org
THE NEXT GENERATION

Last year, to celebrate the 10th Anniversary of the Canada Research Chairs (CRC) program, Queen’s University Vice-Principal (Research) launched a writing contest for current graduate students working with CRCs at Queen’s. Both masters and doctoral students were encouraged to submit entries. The contest sought to showcase the research of a Queen’s CRC through engaging stories that highlighted the successes of students’ research experience and demonstrated the research’s benefits to society.

Here are abridged versions of the winning stories:

At Home in the Cold
BY CHRISTOPHER P. GARNHAM, PHD
In most freezing environments on Earth, life not only persists – it thrives. Ice-laden polar oceans, whose temperatures reach down to -1.9°C, abound with species of fish impervious to the frigidity. The sub-polar land masses and snow-capped mountains, where temperatures drop below -50°C, are home to many species of insects. How can these organisms survive such harsh conditions?

In one word: antifreeze – the proteinaceous kind forged by the intense selective pressures of a freezing environment. Antifreeze proteins (AFPs) are specifically capable of halting ice growth, and their evolution has allowed numerous species to expand into environments previously inaccessible.

Typically, uncontrolled ice growth within an organism will result in its death. AFPs prevent ice growth by irreversibly bonding to the surface of ice crystals. This adsorption lowers the freezing point of a solution, which lowers the freezing point of the organism, therefore enhancing sub-zero survival.

AFPs are found not just in fish and insects, but in organisms including plants, bacteria, and fungi. Indeed, new AFPs are continually being discovered, and a number of these discoveries are made in the lab where I conduct my research – Dr. Peter Davies’ lab in the Department of Biochemistry. The primary focus of my PhD research has been the characterization of an AFP produced by an Antarctic bacterium.

I’ll never forget the first time I saw my protein at the atomic level, using a technique termed X-ray crystallography. All the hard work I put in had finally paid off. I was looking at something nobody else in the world had ever seen. The structure of my protein explained how it functions at the molecular level in particular, and more importantly, how all AFPs might function at the molecular level in general.

Being a fledgling scientist is not the world’s most glamorous job. However, there is no substitute for the feeling you get when you make a discovery that produces new knowledge. It’s addictive, and makes you want to come back for more.

The Dirt on the Value of Soil
BY ERIN JAGGARD, MSC
Since the advent of agriculture, soil cultivation has degraded soil quality. One of the many quantitative methods scientists use to measure soil quality is soil organic carbon (SOC) content. Soils under long-term cultivation demonstrate a decrease in SOC levels, whereas soils under conservation cropping systems depict the opposite trend. Lower SOC levels result in a decline in soil quality and increased releases of carbon from soil into the atmosphere. Thus, land use and land-use change contribute significantly to rising carbon dioxide (CO2) levels in the atmosphere.

Understanding how land use influences the climate system is the focus of my research group led by Dr. Neal Scott, Department of Geography
Land-use change is not the only culprit responsible for rising CO₂. The burning of fossil fuels contributes about four times the amount of CO₂ to the atmosphere as land-use change. The ideal solution to rising CO₂ concentrations and SOC losses would be to find a new energy source that could also enhance SOC. The use of biomass as an energy source is one alternative. Switchgrass, an herbaceous grass species, presents an opportunity to increase SOC stocks. Its harvested biomass can serve as an energy source in several ways, or as a raw material in bio-based products.

Establishing switchgrass in lands previously under long-term cultivation produces exponential increases in SOC and offsets CO₂ for a few reasons. First, these crops serve as a soil cover, and thus mitigate erosion. Second, the deep, prolific roots, which can equal the amount of above-ground biomass, sequester carbon.

My research explores the soil processes associated with the capture of carbon in soil following switchgrass establishment in southeastern Ontario. Marginal agricultural lands near major urban centers provide an appropriate geographical venue to cultivate switchgrass as a feasible bioenergy feedstock.

A low-carbon economy, which requires us to evaluate and modify energy policy and global carbon stocks, should consider SOC as a crucial metric. The establishment of a market-based mechanism should reward landowners for the management of soil through conservation agricultural practices. Such practices serve to mitigate climate change and enhance the fertility of our soils for all that soils can provide.

Holding Corporations to Account
BY JENNIFER A. QUAIĐ, PHD CANDIDATE

On what basis, if at all, should corporations be held criminally responsible for wrongful conduct that causes harm?

Public awareness of this question has increased in recent years. Events such as the tragic Westray mine disaster in 1992, the discovery of multiple incidences of accounting and financial fraud on Wall Street, and the BP oil spill in the Gulf of Mexico and others have left the public with a strong sense that corporations can do things serious enough to warrant being held to account under the criminal law. Yet, often this does not happen. Why?

I believe the root of the problem lies in the basis of Canadian criminal law, which does not acknowledge the differences between corporations and human beings. Our current law focuses only on crimes made up of human acts and intentions that can be easily imputed to the corporation. It is ill-equipped to deal with those cases where the wrong is not the human behaviour itself, but the role the corporation plays in combining human activity in ways that cause harm, such as when there is a systemic failure to implement adequate corporate policies and procedures to protect against known risks – as was the case in Westray mine – or when the cumulative effect of what might be individually insignificant acts results in catastrophic harm, as with an oil spill or a ferry sinking.

The goal of my thesis, which is being supervised by Prof. Malcolm Thorburn, CRC in Crime, Security and Constitutionalism, is to use contemporary understanding of organizational behaviour to change how we think about corporate action and intention under the criminal law. In my view, re-imagining corporate criminal liability to better reflect how corporations actually behave is the best way to ensure that corporations, like human beings, are called to account on a sound basis – when the particular nature of their conduct and intentions demands it.

By focusing on when the wrongdoer is truly the corporation, we can rebut a long-standing criticism – that holding corporations criminally responsible is inappropriate, and even unfair, because it is merely a convenient way to get around cases where a human being can’t be held accountable for a crime. Second, by removing the need to analogize to human beings, we can craft offences and punishments adapted to the distinct attributes of corporate behaviour, thereby better aligning the law with our expectations of when corporations ought to answer criminally for the consequences of their wrongful conduct.
Q & A with Dr. Heather Stuart

Dr. Heather Stuart is a Queen’s professor of Community Health and Epidemiology who was recently named the first Bell Mental Health and Anti-Stigma Research Chair – the first of its kind in the world. Ned Dickens spoke with her to learn about her research, which is being undertaken in conjunction with partners across Canada.

**Q:** What sparked your interest in mental health issues?

**HS:** I grew up in Guelph, Ontario, where we lived on the grounds of what was then called the Homewood Sanitarium. Summers and part-time during high school I worked in virtually every department.

**Q:** How did you become involved with stigma research?

**HS:** About 15 years ago, Professor Norman Sartorius, who was the President of the World Psychiatric Association at the time, figured out that if we didn’t do something about stigma – that is, the negative public stereotypes about people with mental health issues – psychiatry was up against the wall. Even if we could provide better services, people wouldn’t access them because they were afraid of being labeled and of the discrimination that goes along with stigmatization. People who have mental illnesses are denied social rights and entitlements that the rest of us have and we all take for granted.

**Q:** Such as?

**HS:** Basic health care. I just had a fellow tell me the other day that he went to an [emergency ward] with a badly injured knee and they saw a psychiatric diagnosis on his chart. The first thing they did was to put him in a room and await a psychiatric consult. People are afraid of people who have a mental illness. We buy into all of the media stereotypes that “people like that” are dangerous and unpredictable.

**Q:** Aren’t psychiatric patients more likely to be the victims of crime than the general population?

**HS:** Yes. Think about why. They are living in the worst parts of most major cities because those are the only places where they can get a landlord to rent to them, where they are at huge risk of being assaulted, teased, bullied or robbed.

**Q:** How widespread is stigmatization?

**HS:** We have lots of anecdotal evidence that it’s widespread, but there’s been no epidemiology to actually quantify the extent of it. In order to get funding for programs to address it, you have to have persuasive evidence that the program works. So stigma research is not something that’s been funded because we haven’t had any evidence to show how important stigma prevention is.

*continued*
IN THEIR OWN WORDS

Q: What do you aim to accomplish in your research?
HS: We have to fill the holes in the evidence. First we worked out an instrument, a survey that allows us to gather consistent information from people about their attitudes about people with a mental illness. We had a little bit of information to start with, but our surveys made it clear that stigma experiences are huge problems for people.

Q: What’s next?
HS: What we really need now is more population-based data, because what we’ve got so far is from individual programs and we need to know about the rest of the world. We’ve worked with Statistics Canada and the Mental Health Commission of Canada to develop a stigma research module, and for the first time Statistics Canada will include it in their 2012 Mental Health Survey.

Q: You have said that it is more important to change behaviours than to change attitudes. Can you explain that idea?
HS: The little research we do have suggests that you can change people’s attitudes and it makes absolutely no difference to the way they act towards people with a mental illness. We can be told lots of things about mental illnesses. We can even feel sympathy, but the attitude is still “I really feel for these people, I think society should do more for them, but there’s no way I’m letting my daughter marry one.” The fear is still there.

So what we’re saying is that when we do these anti-stigma programs, it’s not enough to show that they produce changes in knowledge. That’s easy. It’s not even enough for us to show attitude change. We want to change behaviours. We hear people [with mental health issues] saying, “Frankly, I don’t care what you think about me, keep your opinions and attitudes to yourself. But, you’re going to treat me fairly.”

Q: But, as you say, that’s still anecdotal evidence.
HS: Exactly. If we’re ever going to really tackle the serious problem of stigma we have to have the evidence to know accurately what the problem is, where it is and under what circumstances, and what works in the fight to beat it. To know that, we need solid research, and that costs money. Somebody had to take the risk and say this is important, and that’s what Bell has done.
BY THE NUMBERS

Queen's is a research-intensive university, and it takes pride in the solid success of its researchers in securing funding, publishing in leading journals, and advancing frontiers of inquiry and scholarly work.

SPONSORED RESEARCH FUNDING 2010/11
Total $163.3M*

- Federal $98.3M
  - CIHR $16.9M
  - NSERC $25.8M
  - SSHRC $7.3M
  - CFI $12.3M
- Ontario $20.6M
- Foundations $16M
- Corporate $26.1M
- Other $2.3M

RESEARCH INFOSOURCE HIGHLIGHTS
Queen's Results

According to Maclean's magazine, Queen's ranks first in number of awards per full-time faculty member, and has maintained this ranking since 2003.

*Data provided by Queen's Financial Services.

**Data and rankings are published annually by RESEARCH Infosource Inc., a Canadian consulting firm that provides research intelligence for business and higher education, using data from Statistics Canada as well as the Canadian University R&D Database. For further details about how data are calculated, visit: www.researchinfosource.com.
Spotlight on Dr. Will Kymlicka

PROTECTING OUR RIGHTS

Dr. Will Kymlicka — one of the world’s leading experts on minority rights — helps governments worldwide address issues of ethnic and linguistic diversity to build more inclusive societies.

With his work appearing in more than 30 languages, Professor Kymlicka has far-reaching impact, and helps protect the rights and opportunities of people around the globe.