Centre for Addiction and Mental Health
Research Report 2008–2009

IMPACT

Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

MISSION

Improving the lives of those affected by addiction and mental health problems and promoting the health of people in Ontario and beyond.

VISION

Strong and healthy communities, in which people with addiction and mental health problems can access appropriate and effective services and live as full participants.

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Letter from the Vice-President of Research

How do you measure a year? For the Research program at the Centre for Addiction and Mental Health, one of our most important measures in 2008–2009 is impact, based on how CAMH is making a difference in peoples' lives.

The breadth and depth of our research into mental illness and addiction enables CAMH to help create positive change on many levels. The very scope of CAMH's Research program—the most comprehensive of any mental health facility in Canada—means that our clinicians can offer clients a range of treatments and approaches. Similarly, research expands both the knowledge base and the toolkits of all our helping professionals.

Together with our client, family, professional, community, scientific, academic, political, and industry partners, we are improving diagnosis, prevention, intervention, treatment, and public policy initiatives.

Discovery is the critical first step, while sharing new knowledge is equally important. Exchanging knowledge is how research becomes hope in action—a critical tool in fighting stigma. That is yet another way in which research has impact.

Incremental gains in our knowledge create impact over time, while some specific findings and major discoveries can affect prevention, intervention, treatment, or policy within a year or two. In both ways, CAMH has a profound effect on the broader community and our health care system across Ontario.

When it comes to clinical research, one of our key gains cannot be measured by any scientific instrument. By sharing their perspectives with us, clients and families are helping us to broaden our perspective on research. Community engagement within our research program is already benefiting from the contributions of our new Community Advisory Committee for Research. The insights and guidance that our community partners share are invaluable to me personally. All at CAMH stand to gain from the committee's contribution.

Meanwhile, the quality of CAMH research—as measured in publications, grants, and awards—is recognized for excellence by our peers across Canada and internationally.

I want to take this opportunity to extend thanks to everyone who made 2008–2009 an outstanding year of achievement. Congratulations to more than 500 staff and students, in our satellite sites as well as Toronto, for your tireless dedication to research excellence. Collaboration with our colleagues across CAMH and in the CAMH Foundation is also essential to our success, and I thank all for your support and keen interest in working together. Finally, none of our successes would be possible without the support of provincial, national, and international funding agencies, as well as individual and family donors.

The field of mental illness and addiction has reached a turning point, and it will take all of us to keep the momentum going in the years ahead. Working together, we are transforming the lives of people affected by addiction and mental illness.

Bruce G. Pollock, MD, PhD, FRCPC

VICE-PRESIDENT, RESEARCH

About Research at CAMH

CAMH is home to the largest mental health and addiction research facility in Canada. We are dedicated to enhancing our understanding of these complex disorders and improving diagnosis, prevention, intervention, treatment, and public policy initiatives.

Our Research Program brings together four areas of scientific focus:

Clinical Research

Clinician scientists bridge the dual roles of researcher and health care provider. Their therapeutic relationship with clients allows them to conduct research that expands on what we have learned from the laboratory as well as investigating new areas of interest. Their findings from this client-based research can then be used to improve how we diagnose and care for people affected by mental health and substance use problems. This department is also actively involved in sharing new or improved treatment knowledge with other clinicians and the community, through publications, presentations, and workshops.

Neuroscience

Neuroscience research at CAMH is focused on innovative approaches to improving our understanding and treatment of mental illness and addiction. Neuroscientists weave together expertise in molecular medicine, clinical and behavioural neuroscience, and psychiatric genetics, building a foundation of scientific information that will transform care both today and in years to come.

The PET Centre

Researchers in CAMH's PET Centre are using positron emission tomography (PET), an advanced brain imaging technology, to study how brain chemistry is altered by mental illness and addiction, and how it is modified by various types of treatment. Their research, which integrates basic and clinical research, identifies important brain changes in disease, optimizes the effectiveness of existing treatments, and contributes to the discovery of new therapies to improve the life of patients. The scientists are also using PET to investigate depression and schizophrenia in women and older adults, two populations often ignored in research. CAMH is fortunate to have the only PET Centre in the world fully dedicated to research in mental health and addiction. It has attracted leading scientists to its multidisciplinary team.

Social, Prevention and Health Policy Research

This department addresses mental health and addiction issues from a social, prevention, and policy perspective—not only in Ontario, but across Canada and globally. This dynamic group of scientists works on a wide range of research, spanning studies of substance use and abuse in subpopulations and in the general population; studies investigating potential benefits to particular communities of changes in alcohol policy; the development of prevention approaches for particular groups; and the evaluation of the effectiveness of mental health services. This research influences government direction and policies in ways that better meet clients' and family members' needs, and leads to more effective treatment and prevention programs.

CAMH RESEARCH HAS:

- More than **100** internationally recognized scientists, including six Canada Research Chairs and **10** endowed university chairs and professorships
- More than **500** staff and students
- A comprehensive library with collections in mental health, gambling, alcohol, tobacco, and other drugs including **40,000** monographs, **277** current print journals, **5,883** electronic journals, and **1,500** videos
- Extensive professional training opportunities
- Specialized research administration staff encompassing a number of service areas that manage the day-to-day activities for CAMH research

THIS YEAR CAMH:

- Mentored more than **130** undergraduate and graduate students and postdoctoral fellows
- Provided more than **30,000** full-text articles from the Virtual Library, an increase of **30 per cent** over last year
- Received **262** grants and contracts
- Increased our number of grant applications by **24 per cent** and our number of successful applications by **16 per cent** since last year
- Generated **72,094** hits on EurekAlert, an international science-specific news distribution website, an increase of **112 per cent** over 2007–2008
- Garnered **1,540** Research media mentions, a **21 per cent** increase from last year
- Received **58,765** hits to the Research home page in 2008–2009, a **25 per cent** increase over last year
- Welcomed **5** full-time scientists to the Research program
- Filed **6** patent applications (**3** for new technologies), reviewed **9** invention disclosures submitted by scientists, negotiated **1** option agreement, had **1** patent issued, and increased our licensing revenue by **38 per cent**

IMPACT on the health care system

Housing first: Developing the evidence

When it comes to homelessness and mental illness, treating people first and talking about housing later may not be the best answer.

With that in mind, CAMH researchers are doing something that is "unlike anything else anyone in the mental health field has been able to do before," says Dr. Paula Goering. Under her guidance, the Mental Health Commission of Canada has designed and is now implementing a pioneering $110-million homelessness research initiative for five Canadian cities.

The project will provide housing first, rather than wait until a client completes treatment. This initiative is an extraordinary opportunity to improve our health system by implementing evidence-based practices on a large scale and finding out how they work in a Canadian context, says Dr. Goering. Each site's support component must help people who are at risk and vulnerable to find safe and sustainable housing.

Each site will focus on a distinct group of homeless people living with mental illness. The Toronto project, beginning in September 2009, will investigate the effectiveness of providing housing for 300 homeless individuals with severe and moderate mental

Dr. Paula Goering, Dr. Tony George, Dr. Kwame McKenzie

health needs; housing allowances and support will also be offered, through an Assertive Community Treatment team or an Intensive Case Management team. The study will also examine ethnoculturally diverse groups. CAMH's Dr. Tony George and Dr. Kwame McKenzie are co-investigators on the project. It is led by the City of Toronto Shelter, Support and Housing Administration, in partnership with CAMH and the Centre for Research on Inner City Health at St. Michael's Hospital in Toronto.

Collectively, this national service and research effort will develop a body of evidence to help Canada become a world leader in providing services to homeless people living with mental illness.

Save $1 billion and 800 lives: Potential solutions for substance abuse

Studies investigating the cost of illness are valuable indicators of the overall economic burden of substance abuse. But they do not offer solutions. The report *Avoidable Cost of Alcohol Abuse in Canada 2002*—Canada's first systematic estimate of the avoidable costs of alcohol abuse, and the first study of its kind worldwide—provided data that has the potential to influence prevention and intervention strategies.

Led by Dr. Jürgen Rehm, the report *Avoidable Cost of Alcohol Abuse in Canada 2002* estimated the potential economic impact of:

- Increasing alcohol taxation
- Lowering the blood alcohol concentration (BAC) legal limit from 0.08 per cent to 0.05 percent
- Introducing zero tolerance BAC for all drivers under age 21
- Increasing the legal minimum drinking age from 19 to 21 years of age
- Introducing a Safer Bars intervention
- Using brief interventions (routine screening with concise advice for people with alcohol problems by primary care physicians or other health professionals)

Even under very conservative assumptions, applying these interventions would result in annual savings of:

- **800** lives
- **$1 billion**
- **26,000** years of life lost to premature death
- **88,000** acute care hospital days in Canada per year

"This study shows the benefits potentially available to the community as a whole by directing public resources to specific policies, strategies, and programs. It also helps identify information gaps, and target problems and potential solutions," he explains.

Teen survey results influence health promotion strategies

An estimated 79,000 students in grades 7 to 12 reported participating in the "choking game." Psychological distress was prevalent, with just under one third of students reporting symptoms of depression, anxiety, or social dysfunction, while about 3 per cent reported a suicide attempt in the past year. Approximately 30 per cent of students reported being bullied at school. About one quarter of students reported binge drinking, and a similar proportion used cannabis. These were just some of the highlights released from the 2007 Ontario Student Drug Use and Health Survey (OSDUHS) *Mental Health and Well-Being Report* and *Drug Use Report*, which in turn informed some positive systems change.

These data were used to establish intervention and prevention priorities by some of Ontario's Local Health Integration Networks and many public health units, including the Toronto Public Health Unit. It used the data to inform a drug strategy focus on prevention, harm reduction, treatment, and enforcement. CAMH's Policy, Education and Health Promotion program used data from the 2007 report in its pamphlet *Partying and Getting Drunk*, geared to inform young people about both the dangers of binge drinking and how to get help.

"It's really gratifying to see these data applied to public health strategies and tools that will help young people in Ontario make healthier choices," says study coordinator Ms. Angela Paglia-Boak.

Forensic mental health services: Is a pilot project on housing making a difference?

Caring for clients goes beyond the walls of CAMH. The community, families, clinicians, and researchers are learning how the social determinants of health—which are sometimes called "a home, a job, and a friend"—have an impact on CAMH clients. In 2008–2009, we worked hard to make a difference in the conditions that can help people stay well and live in the community.

In 2006, Premier Dalton McGuinty announced a $20 million expansion of hospital- and community-based services for people in the criminal court system who are living with a mental illness. This initiative includes services such as the Transitional Rehabilitative Housing Pilot projects, which have been funded in Ottawa and Toronto.

CAMH's Dr. Joan Nandlal is co-leading an evaluation of the project with Dr. Tim Aubry from the University of Ottawa. They are assessing the extent to which the project is helping forensic mental health clients successfully transition back into the community.

Forensic mental health clients often have a difficult time accessing generic mental health housing, says Dr. Nandlal. This project provides an opportunity to examine an innovative pilot program in an under-researched area. This research will contribute to the knowledge base of forensic mental health services by describing in detail how housing and support can be combined to support forensic clients in the community. Dr. Nandlal expects that the findings will prove helpful to the Ministry of Health and Long-Term Care in replicating similar housing rehabilitation programs elsewhere in Ontario.

Seeing the difference $167 million makes

Systems Enhancement Evaluation Initiative

In 2005, nine research studies began exploring the system impact of $167 million of new community mental health funding in Ontario. In 2009, the results from the Systems Enhancement Evaluation Initiative showed that:

- More people were able to access community mental health services
- New funds were used to innovate and develop more effective programs

However, the results also showed that our enhanced community mental health system still does not have the capacity to serve all those in need.

Co-ordinated by CAMH's Health System Research and Consulting Unit, Dr. Paula Goering led a team of clients and family members, CAMH researchers—including Dr. Janet Durbin, Dr. Elizabeth Lin, and Dr. Carolyn Dewa—service providers and decision-makers, on this four-year observation and evaluation of extraordinary system change. These collective efforts have the potential to foster even more positive change for people living with mental illness and their families.

Throughout the Initiative, the Ontario Mental Health and Addictions Knowledge Exchange Network (OMHAKEN) supported the project in its efforts to share research findings with clients and survivors, families, practitioners, systems planners, decision-makers and other stakeholders during the four-year evaluation process. Using a network-of-networks approach, OMHAKEN was a critical link to a diverse community that helped ensure the research was timely and relevant. OMHAKEN is continuing its work to support knowledge sharing between mental health and addiction researchers and research stakeholders across Ontario.

For more information on what happened and what differences we can see as a result of this substantial investment in Ontario's community mental health system, visit www.ehealthontario.ca for a copy of the Initiative's final report, *Moving in the Right Direction*.

IMPACT on client care

Culture and depression: More individualized diagnosis and treatment

The expectation that East Asian people emphasize physical symptoms of depression (e.g., headache, poor appetite) is widely acknowledged, yet the few available empirical studies report mixed data on this issue. A 2008 study* teased out some of the culture-specific tendencies that may help clinicians to individualize their approach to depression in a multi-ethnic population such as Ontario's.

Dr. R. Michael Bagby of CAMH worked with partners, including Dr. Andrew G. Ryder of Concordia University, and collaborators Xiongzhao Zhu, Shuqiao Yao, and Jinyao Hi of the Second Xiangya Hospital of Central South University, China. The team tested two central ideas:

- East Asian participants would emphasize somatic or physical signs of depression more than Euro-Canadian participants
- Euro-Canadian participants would emphasize psychological symptoms of depression (e.g., report feeling sad or a loss of self-confidence) more than East Asian participants

Study data demonstrate consistently more reporting of psychological symptoms in Euro-Canadian participants than in participants from China. The findings suggest that individuals

Dr. R. Michael Bagby

from both cultures experience physical symptoms of depression, but there is a tendency for Western cultures to emphasize psychological symptoms.

According to Dr. Bagby, "The onset of depression triggers a biological response that takes place within the individual's specific social context. This results in a cascade of experiences in the body and mind that are interpreted through a particular cultural lens. Our study data may enhance clinicians' awareness of how culture can affect the way that people talk about their symptoms. In turn, this understanding will help clinicians bring greater awareness to their diagnosis, and follow up by offering the most appropriate treatment options."

These data do not constitute a norm for depression worldwide, Dr. Bagby cautions. More research could shed light on whether individuals from East Asia experience the psychological symptoms of depression, or whether they experience them but tend not to report them, he adds.

Future research could help us to understand in more detail how biology, culture, and individual differences interact in depression. In turn, the results could help physicians to fine-tune their approach to diagnosis and treatment of depression among Ontario's ethnically diverse communities.

* "Cultural shaping of depressive symptoms: Somatization and psychologicalization in China and North America?" *Journal of Abnormal Psychology, 117* (2), 300–313.

Developmental influences on mental disorders in children

How does science help improve children's health? CAMH has two investigations that will do just that. The projects fall into three stages:

- Understand how babies' brains develop
- Predict which children are at higher risk for attention-deficit/hyperactivity disorder (ADHD) and food addictions that can lead to lifetime obesity
- Design interventions for these debilitating disorders

As Dr. James Kennedy and Dr. Robert Levitan explain, growing evidence suggests that the origins of many illnesses lie in early development. The reason why developmental risk factors such as low birth weight are linked to specific disorders is still a mystery.

Some answers will be achieved through the Maternal Adversity, Vulnerability and Neurodevelopment (MAVAN) project—a study started in 2004 that is investigating the combination of genes and environmental factors that may affect child development. The MAVAN project, of which Dr. Kennedy is co-principal investigator and Dr. Levitan is a member of the research team, is tracking 500 mothers and their children, studied from pregnancy to age five. Using the project data, Dr. Kennedy and Dr. Levitan are working on two studies that will provide much-needed information on why some children are at higher risk for ADHD and food addiction.

The ADHD study is investigating how factors such as maternal stress, smoking, and alcohol use may interact with a child's genes and lead to this most commonly diagnosed psychiatric disorder in children. The food addiction project is using information on children's weight gain and eating behaviour, combined with genetic information, to determine if some children are predisposed to develop impulsive food behaviour that leads to obesity.

By identifying genetic and environmental factors that put children at risk for developing ADHD and food addiction, Dr. Kennedy and Dr. Levitan are hopeful that scientists can then develop and test interventions that will prevent these disorders.

Clues to improved long-term recovery in anorexia nervosa

Anorexia nervosa, an eating disorder characterized by self-starvation leading to extremely low body weight and other symptoms such as distorted body image, affects approximately one per cent of Ontario's female population. In severe cases, this complex disorder can lead to death.

Previous research has found that many people with anorexia are unable to maintain a normal body weight, even after successful weight restoration programs and therapies, explains Dr. Allan S. Kaplan. "This is frustrating for physicians because we don't know what really causes this disorder, and it's extremely difficult to treat. As a result, anorexia nervosa often leads to significant medical and psychiatric complications and subsequent severe disability for patients."

A just-published study* of almost 100 patients, led by Dr. Kaplan, offers clues to improved long-term recovery for people struggling with anorexia. The data showed that the most powerful predictors of weight maintenance were the level of weight restoration at the end of acute treatment and avoiding weight loss immediately following intensive treatment.

"We focused on predictors of weight maintenance in this study," says Dr. Kaplan, "because identifying these factors may help design better weight maintenance treatments, which would help both physicians and patients."

This is the first paper to definitively show that early weight loss after weight restoration in adults with anorexia nervosa may be a risk factor for long-term poor outcome. According to Dr. Kaplan, the study results suggest that better outcome may be achieved if patients reach a higher normal weight during a structured treatment program. Preventing weight loss immediately following discharge from such a program appears to be a key factor in effective long-term recovery, he explains.

* "The slippery slope: Prediction of successful weight maintenance in anorexia nervosa." *Psychological Medicine, 39* (6), 1037–1045.

A new era of research and care

In August 2008, CAMH announced a landmark investment of $15 million by the Canada Foundation for Innovation (CFI). The largest single grant in our history and the only mental illness–focused project funded, this support comes from the Large-Scale Institutional Endeavours component of CFI's Research Hospital Fund. It kicked off a $38 million project enabling CAMH to build new research facilities as part of our bold redevelopment project. Our goal is to transform lives across six research themes: addiction, community health and knowledge exchange, mood disorders, neuroimaging, pharmacogenetics and neuroscience, and schizophrenia.

"We have witnessed a turning point in the history of mental illness and addiction research, thanks to the generosity, support and faith of CFI," says Dr. Bruce G. Pollock, Vice-President of Research. "Due to stigma, psychiatry and addiction treatment are behind many other areas of medicine. This support provides many of the tools we need to dramatically improve client, community, and workplace health."

With the additional financial support coming from donors through the CAMH Foundation, this pioneering project will:

- Optimize treatment across mental illness and substance use disorders, including the development of personalized treatment based on molecular genetics
- Translate discoveries into improved clinical practice, as well as prevention and intervention strategies
- Reach out to underserved and understudied communities such as First Nations, remote populations, women, older adults, and children

Construction for the first phase of the project will begin by March 2010.

IMPACT on research capacity

International collaboration builds skills and finds answers

University students' drug use in El Salvador and Argentina; violence, drugs and gender connection in Trinidad and Peru: at first glance these topics may seem removed from CAMH, but they are not. A team of Research Program staff, led by Dr. Louis Gliksman, are mentoring scientists in Latin America and the Caribbean on projects that will identify the causes of and solutions to drug-related problems in these regions.

With the help of CAMH's Office of International Health, led by Mr. Akwatu Khenti, and the support of Health Canada, in the summer of 2009 scientists came to CAMH for a 10-week training program. Working with our scientific leaders in understanding and preventing drug use, they are developing research projects to be conducted in their home countries. But the capacity building doesn't end with the program: Dr. Gliksman and his team will continue to mentor the participants until their research projects are completed, assisting with data analysis, and preparing the material for publication and for presentation at scientific conferences. For the past two years graduates have won awards from the U.S. National Institute on Drug Abuse to present their findings at its International Forum. This international recognition is a reflection of the program's success.

Mr. Akwatu Khenti, Dr. Louis Gliksman

"This is the fourth year we've held this training session, and each year the projects and collaborations get stronger," says Mr. Khenti. "Our international participants and local CAMH hosts learn a lot from each other. More importantly, we are conducting research that will provide real tools to address the complex illicit drug use problems that Latin American and Caribbean countries face," he says.

In the fall, Dr. Gliksman will share his expertise with an international team to develop the study *The Drug-Violence Nexus in the Americas: A Gender Perspective*. Working with scientists in 10 Latin American and Caribbean countries and the Inter-American Drug Abuse Control Commission, the study aims to understand the causes of and develop solutions for drug use and violence.

The Commission's mission is to strengthen the capacity of people and institutions, explains Dr. Gliksman, and this is the perspective he's taking on this project. "The scientists from the participating countries identified the link between drugs and violence as a problem, so it's our job to share our expertise in a collaborative way so everyone benefits from the process of developing a research project and the resulting data. It's also important to recognize that this project is a reciprocal relationship. We learn just as much from our international participants as they do from us," he says.

Training tomorrow's science leaders

Training and mentoring emerging scientific leaders enhances our capacity for research excellence, since these students use their education to advance mental health and addiction research. This year, the Office of Research Training, under the guidance of Dr. Allan S. Kaplan, continued to improve the training experience of CAMH's graduate students and fellows.

The research trainee database developed in 2007 now provides a comprehensive list of all students, their research projects, and their supervisors. The database also tracks students' career paths once they become full-time CAMH staff or move on to other organizations. "Knowing where our trainees continue their career helps us understand the full impact of CAMH training on the field of mental health and addiction research," says Dr. Kaplan.

In 2008–2009 trainees had the opportunity to take part in a formal orientation. This half-day course ensured that trainees were aware of and complied with CAMH regulations, including those related to patient confidentiality, the ethical conduct of research, and patient and staff safety.

Dr. Kaplan also introduced a more rigorous and transparent process for adjudicating CAMH's annual postdoctoral fellowship awards. Applications have more than doubled since 2006, with a record-breaking 28 applications submitted for the 2009–2010 fellowships. This speaks to the quality of training that postdoctoral fellows know they can receive at CAMH, notes Dr. Kaplan.

Invisible no longer: Exploring mental illness in African and Caribbean diaspora in Canada

"Worldwide studies have shown that people of African and Caribbean descent have higher rates of mental illness, especially problems with depression and stress. What we need to know is whether this is true in Toronto and if so, why," says Dr. Kwame McKenzie. "We will start by identifying the problems and then move on to working out how to prevent them."

The start was the November 2008 conference, The Causes of Mental Illness in the African and Caribbean Diaspora in Canada, organized by Dr. McKenzie. Experts in international policy, social work, and psychology from the Caribbean, the United Kingdom, the United States, and Toronto began an evidence-based exploration into the causes of mental illness in this population in Canada. This long-established visible minority is almost *in*visible when it comes to research into mental health and well-being.

Two initiatives grew out of the conference that will keep knowledge exchange on this important topic flowing. A new website will keep conference participants connected and engaged, and Dr. McKenzie is the principal investigator on a Canadian Institutes of Health Research collaborative grant application that will look at the causes of mental health problems in Black Canadians. Both projects have the potential to generate new research and new services for these important communities.

Links to past and present support research

The CAMH Library and Archives is a critical gateway to information that supports ongoing educational needs and our multidisciplinary research. While the Research Program is the largest and most active user group, other CAMH staff, clients, health care professionals, and the public continually access Canada's largest collection of mental health and addictions material.

In addition to highly specialized resources and a Virtual Library, the CAMH librarians are skilled professionals who are able to provide unparallelled expert service to all users. This year, working with their colleagues from the 10 hospitals fully affiliated with the University of Toronto, CAMH's librarians taught more than 1,000 students and residents in health science faculties how to hone their research habits and conduct research using library services. The library also conducted many formal and informal in-house training sessions to assist research staff to navigate CAMH's and the University of Toronto's library resources.

The Library and Archives also provides a historical perspective for mental illness and addiction that informs ongoing research, providing a link to past treatment philosophies, settings, and therapies. In 2008–2009, the CAMH Archives was active in the University of Toronto's centenary commemorative events for the Department of Psychiatry. With a historical seminar series, guest lectures, and illustrated historical vignettes, this year-long event looked back at the ideas, events, and personalities from the first 100 years of the department, featuring a broad range of CAMH scientists.

PHOTO BY RICK CHARD

IMPACT in the community

Bisexual community reports need for improvements in mental health services

Existing mental health services do not adequately meet the needs of bisexual people, according to the results of the Bisexuality, Mental Health and Emotional Well-Being Research Project. The project is a joint initiative of CAMH's Dr. Lori Ross and Ms. Anna Travers at the Sherbourne Health Centre, and was funded by the Research Program's Community Research Capacity Enhancement Program. The results demonstrate that the marginalization of bisexual people extends to the health care system, with far-reaching negative effects on their mental health and well-being. The research made a number of suggestions for fostering a more inclusive and effective mental health system for bisexual people, including specialized education for health care providers and the public, along with increased resources for mental health.

Ms. Anna Travers, Dr. Lori Ross

Connecting with our communities

As the Research Program matures and continues its excellent work, and coupled with the changing landscape of health care and health science, we recognized the need to do more to connect with our community partners. The Community Advisory Committee for Research is one step in ensuring that CAMH research responds to the needs of our communities.

Many hours of strategic thinking and consultation went into building this committee, explains Dr. Bruce G. Pollock. With other members of the Research Program he worked closely with partners in CAMH's Policy, Education and Health Promotion department to develop a committee that would meaningfully involve people from diverse backgrounds and perspectives, and encourage positive change for the Research Program.

At the inaugural meeting in January 2009, 10 committee members representing clients, families, community stakeholders, and research staff began the structured discussion and consultations that will lead to a more responsive and inclusive Research Program and stronger community partnerships. The Committee's work will also shed light on improving the translation of basic science, clinical research, and regulatory and systems research into improved community practice.

For Ms. Jennifer Chambers, joining the committee was a vital step to better connect research and clients. "Research has rarely had a collaborative relationship with clients, and the knowledge gleaned from studies has often been interpreted and evaluated according to professional perspectives. We hope that clients' involvement in the research advisory committee can help to shift the lens, so clients are included in the research process as intelligent sources of research questions, interpretation, and evaluation."

Families and physicians benefit from new diagnostic kit

Autism spectrum disorder (ASD) includes several conditions that affect the way a person communicates verbally and nonverbally, and interacts socially. These inherited developmental disabilities affect hundreds of thousands of families around the world. Four times as many males are affected as females. Health care professionals currently rely on reported symptoms and signs to diagnose ASD, but a genetic discovery is poised to change this practice.

Working with colleagues at Toronto's Hospital for Sick Children, Dr. John Vincent of CAMH identified mutations associated with ASD in several genes. CAMH's Technology Transfer Office and our counterparts at SickKids filed for international patent protection of this discovery; the process of negotiating a licence agreement with a U.S.-based company for this inventive work continues. Once completed, the licence agreement will enable the company to pursue developing a diagnostic kit based on the genetic mutations identified by Dr. Vincent and his colleagues.

This ASD diagnostic kit will give physicians a tool that will provide a clear diagnosis and inform better treatment. Just as important, it will also provide families with much-needed answers about the causes of these complex disorders.

CAMH Research in the news

Sharing discoveries with radio and television outlets, newspapers and online publications is a vital way to connect the community with research that we do at CAMH. Here are a few highlights of our high-profile media stories this year:

Acetaldehyde in alcohol—no longer just the chemical that causes a hangover
Inhaled from the air and tobacco smoke, ingested in alcohol and foods, and produced in the human body during the metabolizing of alcoholic beverages, the organic chemical acetaldehyde is classified as a possible carcinogen by the International Agency for Research on Cancer of the World Health Organization. The average exposure to acetaldehyde from alcoholic beverages resulted in a lifetime cancer risk of 7.6/10,000, with higher risk scenarios in the range of 1 in 1,000, according to a new risk assessment study led by CAMH's **Dr. Jürgen Rehm** and colleagues from the Chemical and Veterinary Investigation Laboratory Karlsruhe in Germany. This means that the lifetime risks for acetaldehyde-related cancer from drinking alcohol greatly exceed the usual limits for cancer risks from the environment. In addition, heavy drinkers may be at increased risk due to exposure from multiple sources (e.g. air and food) and higher alcohol consumption.

Based on the data, the CAMH team made several recommendations, including that further risk assessments take into consideration all sources of exposure from this substance, since most to date are based on alcohol exposure.

Fluctuations in serotonin transport may explain winter blues

In the first study of its kind in the living human brain, **Dr. Jeffrey Meyer** and colleagues discovered greater levels of serotonin transporter in the brain in winter than in summer. Serotonin transporters remove the brain chemical serotonin, so this discovery suggests that there is more serotonin removal in the fall and winter as compared to spring and summer. These findings are an important lead in understanding how the seasons can cause a change in serotonin levels. The data offer an explanation for why some healthy people experience low mood and energy in the winter, and why there is a regular reccurrence of depressive episodes in fall and winter in some vulnerable individuals. The next steps will be to understand what causes this change and how to interfere with it.

Gene discovered for form of intellectual disability

Dr. John Vincent and his team discovered a new form of intellectual disability involving mental retardation along with the eye defect retinitis pigmentosa, and identified the gene that causes this disorder, CC2D2A. This discovery and subsequent findings will help scientists understand the developmental and biological processes involved in brain development, and may help identify ways to diagnose and treat intellectual disabilities.

Heritability may not be limited to DNA

DNA may not be the only carrier of heritable information. **Dr. Art Petronis** and his team detected evidence that a secondary molecular mechanism called epigenetics may account for some inherited traits and diseases.

The insights of epigenetics may shine a light on some mysteries of disease, such as the presence of a disease in only one identical twin, the different susceptibility of males (e.g., to autism) and females (e.g., to lupus), and fluctuations in the course of a disease (e.g., bipolar disorder, inflammatory bowel disease, multiple sclerosis). These findings represent a new way to look for the molecular cause of disease, and eventually may lead to improved diagnosis and treatment.

IMPACT | on the street

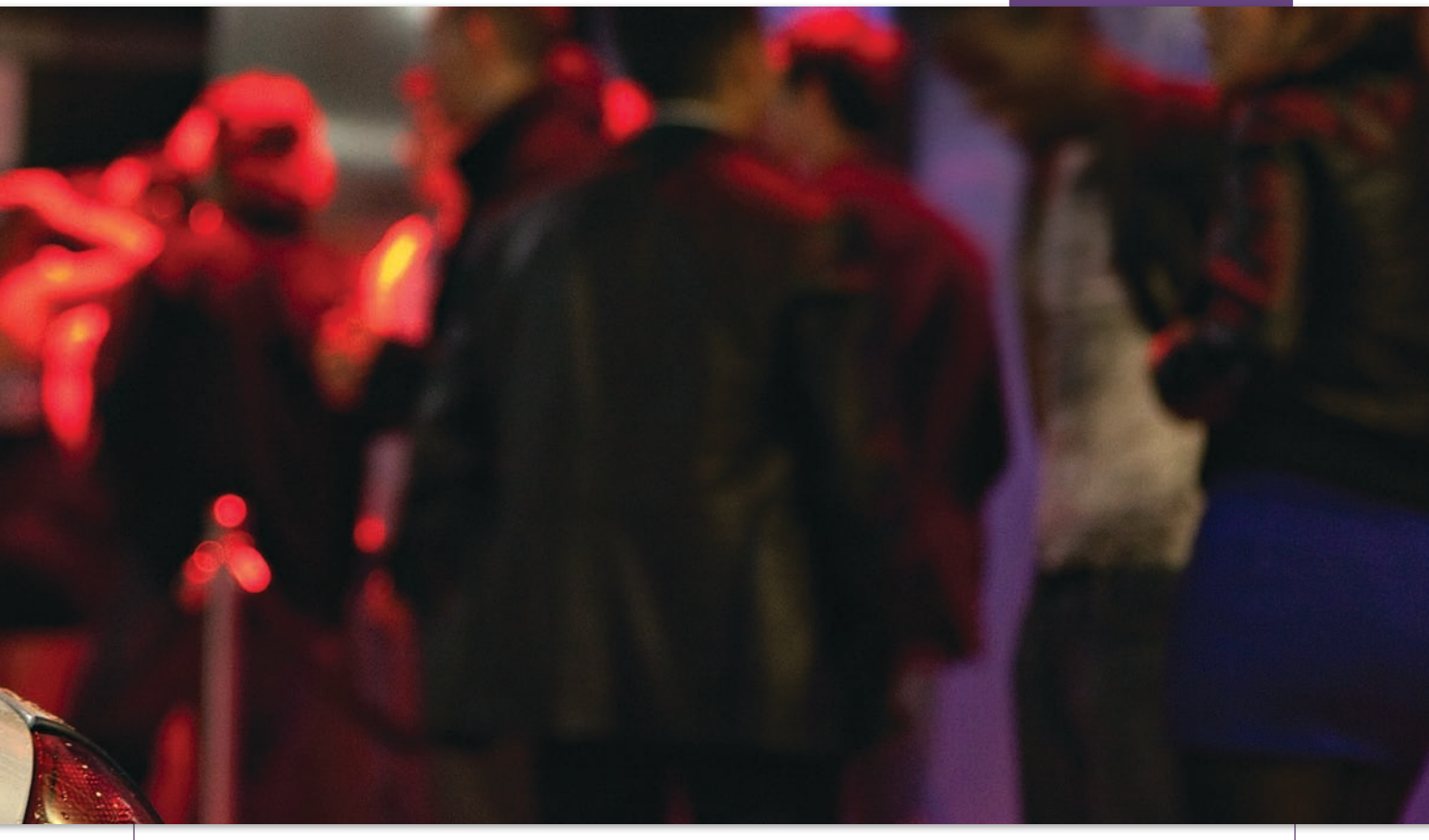
CAMH and community members tackle nightlife, drinking and violence

Rapid growth and change in barroom culture over the past few decades has resulted in an abundance of large-scale anonymous drinking environments, high levels of intoxication, and increased risk of violence.

In November 2008, 150 bar owners and staff, scientists, police, regulatory representatives, public health staff, residents, policy-makers, and bar-goers came together for an open and honest discussion at Raising the Bar: Toronto Summit on Nightlife, Drinking and Violence. Their aim: understand the nature of the problem and discuss solutions for making Toronto's Entertainment District safer for the 28,000 people who flock there on any given weekend.

For co-chairs Dr. Kate Graham, head of the Social and Community Prevention Research unit, and Ms. Janet McAllister, program consultant in the Policy, Education and Health Promotion department, it was critical that this event represent as many perspectives as possible.

"Understanding the nightlife environment is a complex issue, and it will take many people working together to understand and prevent the high-risk behaviour that leads to violence," Dr. Graham explains.



Some of the potential solutions suggested at the summit by the various stakeholders included:

- Ensuring that all staff and managers have Safer Bars training, a CAMH program designed to reduce the risk of aggression, violence or injury for patrons, bar staff and the general public
- Developing an educational campaign focused on drinking in moderation
- Using plastic serving containers in the bar environment
- Holding patrons more responsible for their actions

The summit committee members, who represent stakeholders from bar owners to police officers, are interested in organizing more events to raise awareness and generate action about other important issues related to nightlife, drinking, and violence. They are exploring summits for youth, bar owners, residents, alcohol licensing agencies, and law enforcement agencies.

Taking science to the street: CAMH hosts first Café Scientifique

"So, it will take 10,000 hours of meditation and walking 10,000 steps to save companies $10,000," said Mr. Ted Cadsby, Chair of the CAMH Foundation's Corporate Leaders Program and member of the Board of Directors. He hosted CAMH's first Café Scientifique, which was sponsored by Canadian Institutes of Health Research. His jovial comment summed up the evening's discussion, Is Work More than Making a Living? The event brought together three researchers and almost 50 members of the public to provoke questions and provide answers around promoting and maintaining mental health in the workplace. You didn't need a science degree to take part in this event, just a deep-rooted interest in talking about mental health in the workplace.

CAMH's Dr. Carolyn Dewa kicked off the evening's informal discussion by talking about the costs associated with mental illness in the workplace. Dr. Guy Faulkner, associate professor in the Faculty of Physical Education and Health at the University of Toronto, then spoke about the link between physical activity and mental health. Rounding out the presentations was a look at the value of mindfulness meditation, a technique that involves focusing without self-judgment on one's present thoughts and actions, from CAMH's Dr. Zindel Segal.

With the complex issue of mental health in the workplace, there are no simple solutions. Our first Café Scientifique brought together scientific data and perspectives from the community to help us all learn how to promote and maintain mental health in the workplace.

Dr. Carolyn Dewa, Dr. Guy Faulkner, Dr. Zindel Segal

PHOTO BY THOMAS LACKEY

RESEARCH HIGHLIGHTS

Read on for examples of how we were recognized for scientific excellence, enhanced knowledge with new discoveries, and exchanged information that improves diagnosis, prevention, intervention, treatment, and public policy initiatives.

Awards and recognition

Dr. Ray Blanchard began work on the sexual and gender identity disorders working group for the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders.* Dr. Blanchard is also chairing the paraphilias sub-working group.

Canadian Institutes of Health Research (CIHR) awarded a $1 million, five-year operating grant to **Dr. James Cantor** to expand his neuro-imaging research program on pedophilia and other sexual disorders. The project will bring together researchers from CAMH's Law and Mental Health Program, the University Health Network, and Ryerson University. The results may provide new insights into how the brain manifests sexual interest in children, and lead to methods of early detection or prevention of the disorder.

Dr. John Cunningham received a four-year grant for more than $1 million from the National Institute on Alcohol and Alcoholism for his project titled "Ultra-brief intervention for problem drinkers." The objective is to conduct a randomized controlled trial of an ultra-brief, personalized feedback intervention for problem drinkers. An effective intervention of this type would yield significant public health benefit. Dr. Cunningham also presented his paper "Internet and new media as tools to recovery" at the 32nd annual conference of the Association for Medical Education and Research in Substance Abuse.

Dr. Vincenzo Deluca received the Rafaelsen Fellowship Award for Young Investigators from the Collegium Internationale Neuro-Psychopharmacologicum, the world's only truly global organization dedicated to neuropsychopharmacology.

Dr. Tony George was an invited speaker at the 3rd Annual National Conference on Dual Diagnosis. Dr. George spoke on "Translating neuroscience to the treatment of tobacco addiction in serious mental illness."

Dr. Paula Goering won the ninth annual Health Services Research Advancement Award. Presented by the Canadian Health Services Research Foundation, this prestigious award recognized Dr. Goering's significant contributions to advancing Canada's health services research community and evidence-informed decision making in the health system.

Dr. Joanna Henderson is part of a successful CIHR New Emerging Team grant application for $1.4 million over five years for the project "Optimizing the health of women with substance use issues and their children."

Dr. Yona Lunsky received the 2008 Ontario Association on Developmental Disabilities Professional Research Award.

Dr. Bob Mann was invited to make a presentation on "Prevention of substance misuse" to the Ontario ministries of Health Promotion and Health and Long Term-Care at a workshop focused on prevention of injury and substance misuse, Toronto, November 2008.

Dr. Kwame McKenzie was appointed to the Mental Health Commission of Canada Service Systems Advisory committee, which provides advice on the ingredients necessary to create high-performing mental health systems that meet the needs of people living with a mental illness. This committee produced recommendations for improving the mental health of Canadians from

continued...

diverse ethno-cultural, racialized, immigrant and refugee groups, and led the development of the first e-consultation survey that encourages the public to offer their recommendations on implementing the strategies outlined in the report.

Dr. Jeffrey Meyer received a Canada Research Chair in Neurochemistry of Major Depressive Disorder. Dr. Meyer will use brain imaging to understand the causes of major depressive disorder, and to understand why it is sometimes resistant to treatment. His work will enable the development of new and better treatment and prevention strategies. Dr. Meyer also received the Royal College of Physicians and Surgeons of Canada's Royal College Medal award in medicine. He is the only psychiatrist to receive this award since its beginning in 1949.

Dr. Daniel Mueller received a CIHR operation grant for his project "Genetics of antipsychotic-induced metabolic syndrome." This five-year, $800,000 initiative aims to identify variants in selected genes that might cause the development of metabolic syndrome (a group of serious side-effects such as weight gain, and blood sugar, cholesterol and fat molecule abnormalities) in patients with schizophrenia treated with newer antipsychotic medication (e.g., clozapine).

Dr. Joan Nandlal received Ryerson University's inaugural Master of Social Work Field Instructor of the Year award. Dr. Nandlal was honoured for her teaching methods that value and empower students working as part of the Community Research, Planning and Evaluation Team.

NARSAD recognized CAMH with six Young Investigator awards in 2008–2009. This award provides support for the most promising young scientists conducting neurobiological research. In 2008, **Dr. Vincenzo Deluca** received this award for "Suicidality in major psychosis: Promoter methylation analysis based on genomic imprinting in 5HT and NE system genes," and **Dr. Julia Sacher** received the award for her project "Neurochemical aspects of depression in women: Monoamine oxidase A in the postpartum period." In 2009, NARSAD honoured the following scientists and projects: **Dr. Ingrid Bacher**, "Prefrontal MAO-A binding in recovered depressed with comorbid cigarette smoking: Relationship to intoxication and abstinence states"; **Dr. Clement Hamani**, "Deep brain stimulation in an animal model of depression"; **Dr. Daniel Mueller**, "Lipogenesis gene variants in antipsychotic-induced weight gain in independent samples from the US and Germany"; and **Dr. Alexandra Soliman**, "Major depression and stress-induced MAO-A binding in the prefrontal cortex."

Dr. Art Petronis received a two-year grant from Genome Canada for his project, "Technologies for methylome studies." Valued at almost $800,000, this is the first time that CAMH has received an award directly from Genome Canada. Dr. Petronis was also the co-chair for "Genome 2.0: New Frontiers in Epigenomics." This one-day event brought together leading epigenomics researchers with more than 165 participants from academic organizations, government, and industry to discuss epigenetic regulation of gene expression with a focus on chromatin biology, DNA methylation, non-coding RNAs and technology development.

Dr. Bruce G. Pollock received the 2009 Jack Weinberg Memorial Award for Geriatric Psychiatry. This award honours a psychiatrist who has demonstrated special leadership and outstanding work in clinical practice, training or research initiatives in geriatric psychiatry.

Dr. Svetlana Popova received the Ole-Jørgen Skog Award at the 34th Kettil Bruun Society (KBS), Social and Epidemiological Research on Alcohol 2008 Symposium. The purpose of the award is to recognize the excellence of a paper presented by an early career scientist at the KBS Annual Symposium.

Dr. Tarek Rajji received a CIHR Fellowship Award for his project entitled "Nature, course, and predictors of cognitive and functional abilities in late-life schizophrenia: A longitudinal study." This fellowship provides support for highly qualified candidates at the post-PhD or postdoctoral health professional degree stages to add to their experience by engaging in health research.

Dr. Arun Ravindran received the 2008 Grant's Community Achiever award for service to the community. This award recognizes Dr. Ravindran's commitment to promoting mental health education and research in the Greater Toronto Area's South Asian community.

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Dr. Jürgen Rehm was re-appointed Chair in Addiction Policy at the Dalla Lana School of Public Health, University of Toronto. This five-year position recognizes Dr. Rehm's pivotal role in leading collaborative research and education initiatives addressing critical issues such as addiction policy, and innovative approaches for health promotion and disease prevention.

Dr. Beth Sproule was named preceptor of the year for the University of Toronto's Doctor of Pharmacy class.

Dr. Hiroyuki Uchida was named the 2009 Barry Lebowitz Early Career Scientist for his paper, "Sensitivity of older patients to antipsychotic motor side effects: A PET study examining potential mechanisms." The award is presented for the best unpublished paper by an early career investigator.

Dr. Aristotle Voineskos received a 2009 American Psychiatric Association / AstraZeneca Young Minds in Psychiatry International Award, recognizing and supporting promising young physician researchers working in core psychiatric areas with an emphasis on bipolar disorder and schizophrenia. Dr. Voineskos was one of just four recipients selected from an international pool of applications.

Dr. Ken Zucker began work as the chair of the working group making recommendations on sexual and gender identity disorders for the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*. Dr. Zucker is the only Canadian chairing one of the 13 committees struck by the American Psychiatric Association to revise the manual in 2012.

2009–2010 CAMH Postdoctoral Fellowship Award

Through CAMH's Postdoctoral Fellowship Awards, our scientific leaders mentor fellows as they make independent contributions to mental health and addiction knowledge by working on an existing or original research project. Full financial support is awarded to recipients who do not receive funding from outside CAMH, while partial support may be awarded to recipients who received external funding at a rate lower than CAMH offers. Congratulations to 2009–2010's full and partial Postdoctoral Fellowship Award recipients:

Dr. George Foussias
SUPERVISOR: Dr. Gary Remington
PROJECT TITLE: Investigations of the negative symptoms in schizophrenia: The role of motivational and hedonic deficits.

Dr. Romina Coppa Hoffman
SUPERVISOR: Dr. Paul Fletcher
PROJECT TITLE: Behavioural/ Dopamine stabilizers and schizophrenia: A promising new class of therapeutic agents.

Dr. Caroline McIsaac
SUPERVISOR: Dr. David Wolfe
PROJECT TITLE: Longitudinal profiles of dating aggression in middle adolescence: Exploring the role of romantic break-ups in promoting stability and change.

Dr. Gabrielle Novak
SUPERVISOR: Dr. Bernard LeFoll
PROJECT TITLE: Validating the role of CAMKII in nicotine dependence: From animals to humans.

Dr. Alexandra Soliman
SUPERVISOR: Dr. Jeff Meyer
PROJECT TITLE: Relatonship between acute stress and prefrontal MAO-A levels in health, recovered depression and neurotism.

Dr. Takuji Uemora
SUPERVISOR: Dr. Jerry Warsh
PROJECT TITLE: Understanding the role of the TRPMP2 gene in pathogenesis of bipolar disorder and as target of mood stabilizing pharmacotherapy.

Dr. Simone Vigod
SUPERVISOR: Dr. Paula Goering
PROJECT TITLE: Relationship between major depressive disorder and breast and cervical cancer screening compliance in Ontario women.

Dr. Peter Gianakopoulous
SUPERVISOR: Dr. John Vincent
PROJECT TITLE: The characterization of a novel MECP2 isoform and its role in Rett Syndrome.

Discoveries

Depression symptoms are associated with significantly higher use of health care services following a heart attack, according to a study lead by **Dr. Paul Kurdyak**. In one of the first studies to quantify the relationship between depression symptoms, cardiac illness severity and their effect on health service consumption, the data showed that depression symptoms alone resulted in an increase in health service consumption, with a 9 per cent increase in heart-related hospitalizations, a 24 per cent increase in total re-hospitalization days, and a 43 per cent increase in non–heart related hospitalizations following discharge after a heart attack.

Research from **Dr. Carles Muntaner** highlighted the profound impact of employment conditions on health. Published in the World Health Organization's report *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health*, the data showed that workers who report employment insecurity experience significant adverse effects on their physical and mental health, and jobs with effort-reward imbalance (high demands, low control) are risk factors for mental and physical health problems.

In a report led by **Dr. Samantha Wells**, researchers questioned whether current licensing policies have contributed to a rise in the phenomenon of "pre-drinking" among young people. She explains that the policies such as later closing times and banning drink promotions or specials such as "happy hour" in bars and clubs may have the unintended consequence of encouraging young people to pre-drink, producing different social dynamics and possibly increasing the potential for violence and other alcohol-related problems.

Two studies led by **Dr. Brian Rush** found that multi-level integration is needed for mental health and substance use services to adequately address the needs of people diagnosed with co-occurring disorders. In a provincially focused study, Dr. Rush and his team found that mental health and substance use disorders co-occur in approximately 20 per cent—or one in five—of people treated for mental disorders in Ontario's hospitals and mental health clinics. In a second study, this one with a national scope, Dr. Rush found that almost 2 per cent of Canadians—or 435,000 adults—have both a mental illness and a substance use disorder. About 20 per cent of people with a mental disorder have a co-occurring substance use problem.

Dr. Carolyn Dewa revealed a troubling connection between expenses for physical illnesses and accessing antidepressant treatment. A worker on depression-related short-term disability is less likely to fill a prescription for antidepressant medication if the worker already is paying high out-of-pocket costs for medications to treat physical disorders such as heart disease or asthma. This phenomenon may be a barrier to accessing antidepressant treatment, which could delay taking necessary medication. However, workers on depression-related short-term disability were more likely to fill a prescription for antidepressant medication if they had previously purchased antidepressants.

Dr. Laura Simich began work on the Refugee Mental Health Practices study. It focuses first on uncovering successful mental health services and ways of providing support, and then on integrating these best practices into a beneficial system for service providers and new Canadians who need assistance. Dr. Simich's goals for the study are to help alleviate the disconnect between the experiences of refugees and service practice, enhance the tools available to organizations that assist refugees, and, ultimately, improve the mental health of new Canadians.

Fourth annual CAMH Outstanding Research Employee Awards

Congratulations to the 2008 CAMH Outstanding Research Employee (CORE) Awards recipients and nominees. Recognizing research staff and students who have made exceptional contributions toward the pursuit of research excellence, the awards continue to be a wonderful opportunity to honour and celebrate our outstanding staff and students.

Staff Recipients
Heather Bullock
Stephen Harding
Laura Miler
Alvina Ng

Student Recipients
Adbul Noor
Erik van Oosten

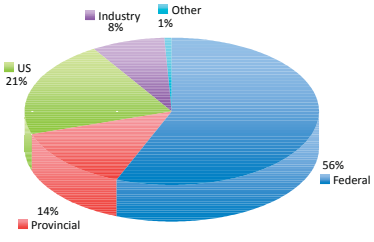
Nominees
Nancy Chau
Kathy Coen
Hillary Connelly
Melissa Daigle
Sarwar Hussain
Joselin Lai
Alain MacDonald
Regina Simon
Winston Stableford
Ivonne Suridjan
Rosely Flam Zalcman

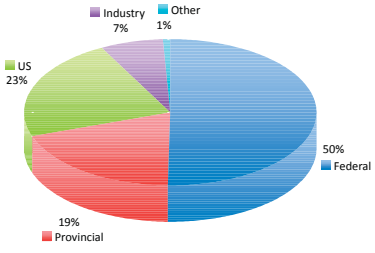
Breakdown of funding by source

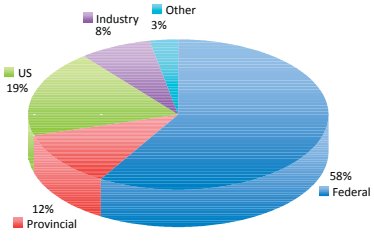
2008–2009	
Federal	$22,771,403
Provincial	$5,654,812
US	$8,503,743
Industry	$3,334,682
Other	$291,792
Total	**$40,556,432**

2007–2008	
Federal	$19,447,781
Provincial	$7,543,342
US	$8,753,525
Industry	$2,656,230
Other	$313,031
Total	$38,713,909

2006–2007	
Federal	$22,957,633
Provincial	$4,647,147
US	$7,280,838
Industry	$3,079,084
Other	$1,181,279
Total	$39,146,000







Sources of funding, 2008–2009

Abbott Laboratories
Addiction Services of Thames Valley
Advanced Neuromodulation Systems
Auditor General of Alberta
Autism Speaks
AUTO 21 Network of Centres of Excellence Research Awards
Bristol Myers Squibb
Broad Foundation
Canada Foundation for Innovation
Canada Mortgage and Housing Corporation
Canadian Centre on Substance Abuse
Canadian Diabetes Association
Canadian Health Services Research Foundation
Canadian Institutes of Health Research
Canadian Psychiatric Research Foundation
Canadian Tobacco Control Research Initiative
Cancer Care Ontario
Children's Hospital of Eastern Ontario
Citizenship and Immigration Canada
City of Hamilton
Fetzer Institute
Gain Collaborating Network
GlaxoSmithKline Research & Development Limited
Haliburton Kawartha Pine Ridge District Health Unit
Health Canada
Heart and Stroke Foundation of Canada
Leeds, Grenville and Lanark District Health Unit
Litebook Company Ltd.
Lundbeck Canada Inc.
Mental Health Commission Canada
Merck & Company Inc.
Ministry of the Attorney General
Miramichi Regional Health Authority
NARSAD
National Institutes of Health
New Brunswick Department of Health
Ontario Genomics Institute
Ontario HIV Treatment Network
Ontario Mental Health Foundation
Ontario Ministry of Community and Social Services
Ontario Ministry of Health and Long-Term Care
Ontario Ministry of Health Promotion
Ontario Ministry of Research and Innovation
Ontario Power Generation
Ontario Problem Gambling Research Centre
Ontario Tobacco Research Unit
Parkinson Society of Canada
Pfizer Canada Inc.
Prince Edward Island Department of Health
Public Health Agency of Canada
Regional Municipality of Durham
Regional Municipality of Ottawa
Regional Municipality of York
Rett Syndrome Research Foundation
Royal Le Page Foundation
SickKids Foundation
South African Medical Research Council
Sunnybrook Health Sciences Centre
University Health Network
University of Minnesota
Wellesley Institute
World Health Organization

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www.camh.net/research

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