

Centre for Addiction and Mental Health Research Report 2005–2006





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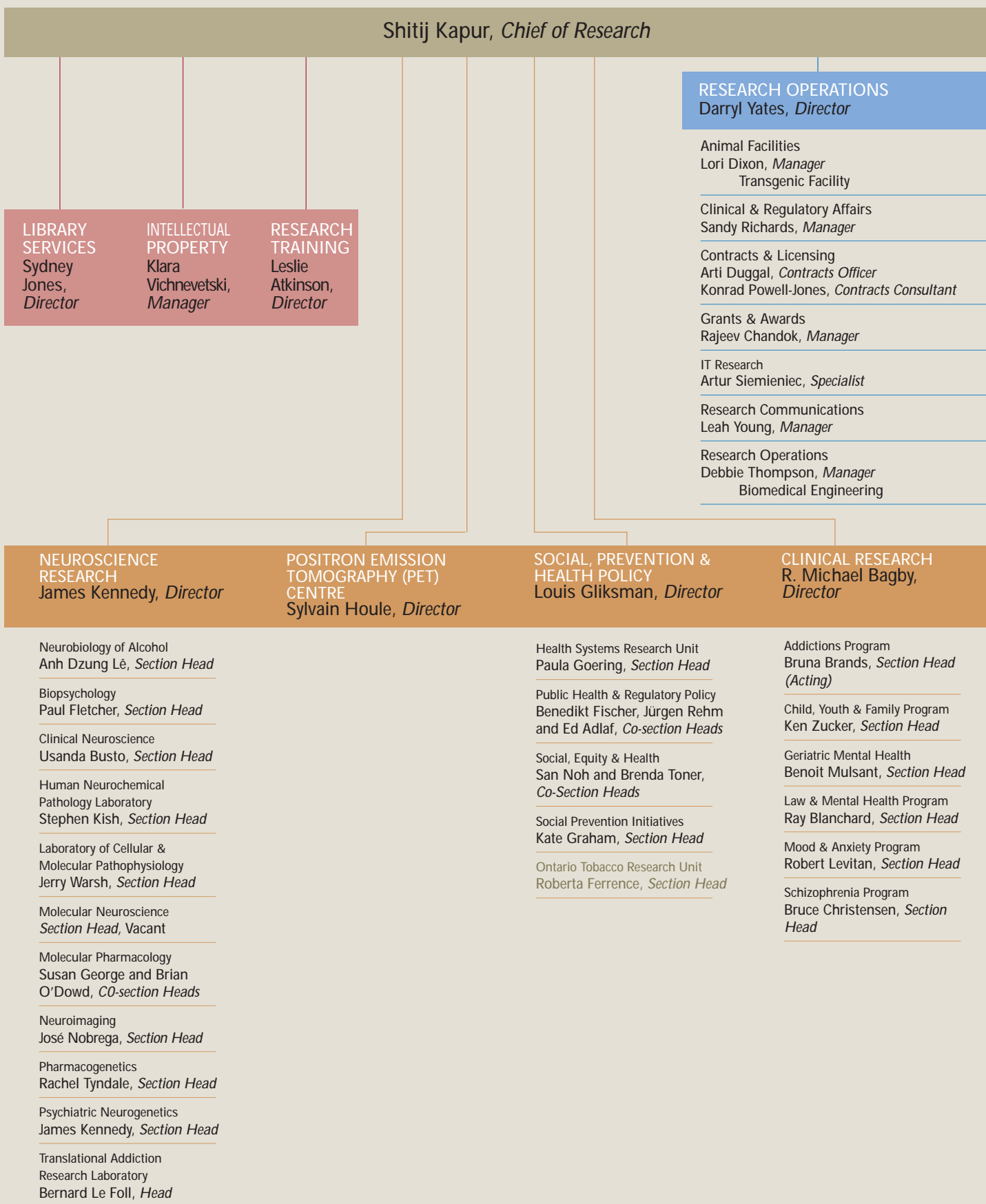
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MISSION: Improving the lives of those affected by addiction and mental health problems and promoting the health of people in Ontario and beyond.

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.

Research office structure



GUIDING PRINCIPLES FOR RESEARCH AT CAMH

- Research is critical to CAMH's vision and strategic goals. As a health care organization fully affiliated with the University of Toronto, CAMH is committed to providing the highest level of care in a setting that excels in education and research.
- Since mental health, illness and addictions are powerfully influenced by biological, psychological and diverse social factors, CAMH research will achieve a balance and integration across these perspectives.
- In choosing its areas of research, CAMH is committed both to research that affects the problems of today and the fundamental sciences that will form the basis of advances in care and prevention in the future.
- Within its chosen areas of endeavour, CAMH will strive to innovate and discover new knowledge that is recognized to be excellent by internationally competitive standards.
- CAMH will conduct its research with the highest ethical standards.
- CAMH is committed to achieving the highest level of training experience for its professional students, graduate trainees and post-doctoral fellows.
- CAMH will endeavour to apply the findings of its research throughout its organization, and extend the reach and impact of its research by collaborations with partners from the public and private sectors.
- CAMH is committed to sharing the knowledge it generates with the clients, family members and community, in a manner that responds to and is respectful of their needs.



SHITIJ KAPUR
Chief of Research

“This highly integrated urban village is allowing us to create a new model of research that will generate a cauldron of spontaneous interaction among researchers, clients and other CAMH programs and departments.”

Message from the Chief of Research

At CAMH, we are home to the largest mental health and substance use research facility in Canada. This year, our scientists accumulated almost \$38 million in funding—a record—and shared their findings with colleagues and the community at home and around the world.

But while research at CAMH goes from success to success, we also know that the scientific world is changing. We realized that if we want to remain competitive and keep up the momentum that our recent history has generated, we need a strategy to guide our scientific efforts.

As a result, the research program undertook an extensive strategic planning exercise this year. We gathered input and feedback from our scientists and other research staff, as well as from private consultants and external international scientific experts. This process enabled us to develop a plan that will guide the future of CAMH research, and will be integrated with the ongoing renewal of the CAMH Strategic Plan.

The renewed vision for research at CAMH emphasizes excellence in science, focus in our efforts, relevance to CAMH's mission, and integration across the scientific domains.

It is this element of integration that will bring us our greatest success in the coming years. Within the research program, we are committed to working together so that our scientists conduct collaborative research across disciplines that catalyses change in how people receive care.

And in relation to CAMH as a whole, our extensive planning process will enable the research program to integrate smoothly with CAMH's new vision for mental health and substance use. As we transform our Queen Street site, we will create facilities that support clients' dignity, recovery and transition back into the community, while integrating the best in research, clinical care, teaching, health promotion and policy at one site.

This highly integrated urban village is allowing us to create a new model of research that will generate a cauldron of spontaneous interaction among researchers, clients and other CAMH programs and departments. This exciting environment will greatly increase our opportunities to work together to generate timely and relevant research. We will also be in a better position to translate these scientific discoveries into improved clinical care, prevention and intervention initiatives, and public policy.

CAMH will be a unique and welcoming hospital for the 21st century, providing a healthy environment to promote healing, reduce stigma and generate groundbreaking discoveries in mental health and substance use.

As I noted above, 2005–2006 was also a year of significant scientific achievement. Through the profiles that follow, and a listing of some of our discoveries, highlights, awards and recognition, you will get a snapshot of the highly relevant work our scientists produced.

None of this could happen without the dedication of our scientists, research staff, students, post-doctoral fellows and volunteers. I am grateful for their countless hours of hard work and determination, which make everything we do here possible.

I thank you for taking the time to read this report. Best wishes for 2006–2007.

Shitij Kapur, MD, PhD, FRCPC
Chief of Research

About research at CAMH

Introduction

Research at CAMH transforms lives. Through the work of our scientists, we are improving the lives of individuals and families affected by mental health and substance use problems. CAMH science is not only improving treatment and care today, but is also setting directions for tomorrow's mental health and substance use care.

This year's report highlights some of the ways CAMH scientists transform lives, and make research relevant from the laboratory to the living room.

Areas of research

From CAMH's inception, research has been a central part of our work. With the merger of our four founding institutions in 1998, CAMH became the largest mental health and substance use research centre in Canada, and one of the largest in the world. This has allowed us to develop unrivalled depth and breadth in scientific discovery, and has focused our research efforts on understanding and improving the treatments for mental health and substance use problems.

Research at CAMH brings together internationally recognized scientists, state-of-the-art facilities, a range of professional training and a province-wide network of community program staff. These resources are interlaced across four areas of scientific focus:

- Neuroscience Research
- Clinical Research
- Social, Prevention and Health Policy Research
- PET Centre.

NEUROSCIENCE RESEARCH

The Neuroscience Research Department focuses on the mechanisms in the brain that underlie mental illness and addiction, and the mechanisms that are involved in their respective treatments. The department studies all levels of the brain—from molecules to brain cells to the whole brain—in three areas of research: molecular medicine, psychiatric genetics, and clinical and behavioural neuroscience.

Neuroscience research is divided into the following areas:

- Neurobiology of Alcohol
- Biopsychology
- Clinical Neuroscience
- Human Neurochemical Pathology Laboratory
- Laboratory of Cellular and Molecular Pathophysiology
- Molecular Neuroscience
- Molecular Pharmacology
- Neuroimaging
- Pharmacogenetics
- Psychiatric Neurogenetics
- Translational Addiction Research Laboratory.

CLINICAL RESEARCH

The Clinical Research Department is involved in research, treatment and education. This department contributes to these areas through scientific publications, presentations, and the sharing of knowledge with clinicians and the community at large. Clinical Research is divided into five sections:

- Addictions
- Child, Youth and Family
- Law and Mental Health
- Mood and Anxiety Disorders
- Schizophrenia.

SOCIAL, PREVENTION AND HEALTH POLICY RESEARCH

The Social, Prevention and Health Policy Research Department conducts innovative, topical research using the latest methodological and statistical techniques. This work provides scientific evidence to inform policy decisions, health system redesign and other interventions. This restructured department comprises four integrated sections, each of which collaborates with the other research departments, clinical services and the Policy, Education and Health Promotion department:

- Health Systems Research Unit
- Public Health and Regulatory Policy
- Social, Equity and Health
- Social Prevention Initiatives.

PET CENTRE

The PET Centre is dedicated to brain research using positron emission tomography (PET), a form of brain scan. Its main focus is on studying chemical brain messengers through PET methods, to better understand the neurochemical root of mental illness and addiction. The ultimate goals are to:

- improve the lives of clients and their families by enhancing the effectiveness of existing treatments and reducing side-effects
- encourage innovative approaches to drug development by using PET in the early stages of evaluating new drugs.

Currently, research in the PET Centre is focused on radiochemistry and PET methodology, schizophrenia, and mood neurochemistry. Moving forward, the PET Centre will expand its core activities and collaborate with clinicians in the fields of substance use and geriatrics.

Sources of funding, 2005–2006

American Foundation for Suicide Prevention
Auto21 Networks of Centres of Excellence
Borderline Personality Disorder Research Foundation
Cambridge Memorial Hospital
Canadian Centre on Substance Abuse
Canadian Diabetes Association
Canadian Food Inspection Agency
Canadian Foundation for AIDS Research
Canadian Health Services Research Foundation
Canadian Heritage and Multiculturalism
Canadian Institutes of Health Research
Canadian Lung Association
Canadian Psychiatric Research Foundation
Canadian Tobacco Control Research Initiative
Centre for Addictions Research of British Columbia
Centre for Research on Violence Against Women and Children
Centres for Disease Control and Prevention
Change Foundation
Citizenship and Immigration Canada
Community University Research Alliances
Cure Autism Now Foundation
Department of Health and Human Services
Douglas Hospital Research Centre
Eli Lilly Canada
GlaxoSmithKline Research and Development Limited
Grey Bruce Health Services
Health Canada
Heart and Stroke Foundation of Ontario
Hospital for Sick Children Foundation
Janssen-Ortho Inc.
Joint Centre of Excellence for Research on Immigration and Settlement
Kyowa Pharmaceuticals Inc.
Lesbian Health Fund
National Alliance for Research on Schizophrenia and Depression
National Cancer Institute of Canada
National Center for Environmental Health
National Institute of Mental Health
National Institute on Alcohol Abuse and Alcoholism
National Institutes of Health
Natural Sciences and Engineering Research Council of Canada
Neuronetics Inc.
Norfolk General Hospital
Novartis Pharma Canada Inc.
Obsessive Compulsive Foundation
Ontario Mental Health Foundation
Ontario Ministry of Children and Youth Services
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 Problem Gambling Research Centre
Ontario Public Health Association
Ontario Research and Development Challenge Fund
Ontario Tobacco Research Unit
Pan American Health Organization
Parkinson Foundation
Parkinson Society of Canada
Pfizer Consumer Healthcare Division
Physician's Services Incorporated
Providence Continuing Care Centre
The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO
Public Health Agency of Canada
Sanofi-Synthelabo Canada Inc.
Scottish Rite Foundation
Social Sciences and Humanities Research Council of Canada
St. Joseph's Health Centre
Stanley Medical Research Institute
Thunder Bay Regional Health Sciences Centre
University of Toronto
University of Toronto, Dean's Fund
Wellesley Central Health Corporation
World Health Organization
Yamanouchi USA Foundation

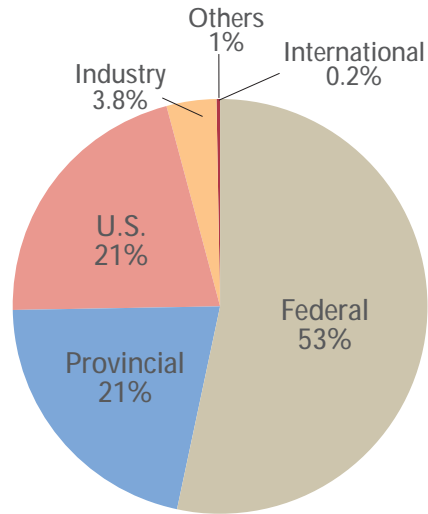
Special thanks to the CAMH Foundation donors for their ongoing support for research at CAMH. The mission of the CAMH Foundation is to raise funds to support the work of CAMH, which includes not only research, but also clinical care, education, health promotion and public policy.

To make a donation, call 416 535-8501 ext. 4093, or donate online at www.supportcamh.net.

Breakdown of funding by source

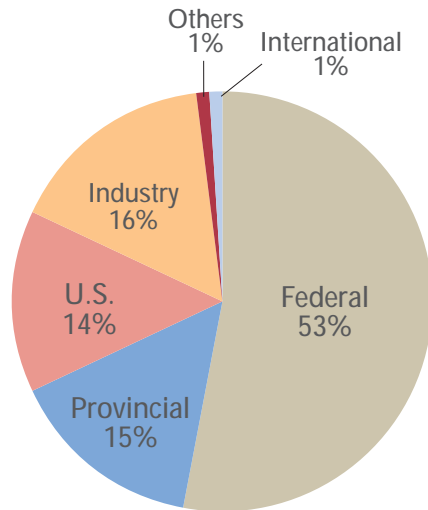
2005–2006
\$

Federal	19,813,269
Provincial	8,043,810
U.S.	7,994,415
Industry	1,444,628
International	55,502
Other*	527,832
TOTAL	37,879,456



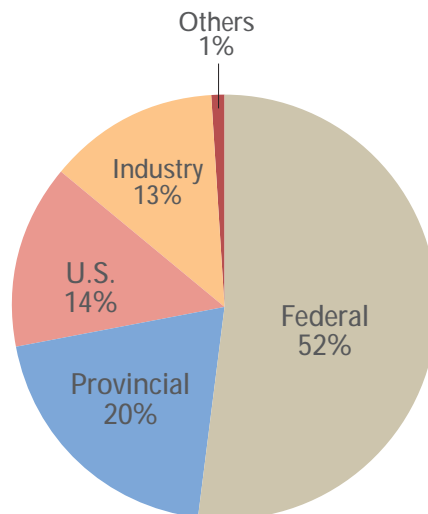
2004–2005
\$

Federal	18,161,500
Provincial	5,218,126
U.S.	4,843,972
Industry	5,569,674
International	245,380
Other*	500,722
TOTAL	34,539,374



2003–2004
\$

Federal	17,345,195
Provincial	6,563,472
U.S.	4,742,631
Industry	4,388,871
International	
Other*	503,142
TOTAL	33,543,311



* "Other" includes all grants from Canadian universities and private (non-profit) foundations.



“To find the answers we must try new approaches—possibly combinations of approaches—and be open to new ideas.”

Neuroscience research: Using genetics to unlock autism's mysteries

Autism is a severe, complex developmental disorder that affects the way a person communicates and relates to others. It has a stronger genetic component than any other neuropsychiatric disorder. Though autism impacts hundreds of thousands of families around the world, little is known about its causes.

Through his work in the Neurogenetics section of CAMH's Neuroscience Department, Dr. John Vincent is helping to unlock the mysteries of autism. "We are still at the understanding phase of autism," says Dr. Vincent. But by remaining open to a range of experimental approaches, he hopes to discover whether one gene, several or many genes, environmental influences or a combination of these factors causes the disorder.

A recent study by Dr. Vincent and colleagues* provided further evidence to support the theory that a particular gene cluster—GABA receptor genes—might be involved in the origins of autism. They discovered that two brothers with autism both had an identical change to the same chromosome (chromosome 4p) within this cluster of genes. Analysis of this change—a large segment of the chromosome was inverted—suggests that this specific gene cluster may be relevant to the causes of autism. This finding is in line with a number of previous studies that have implicated a role for the neurotransmitter GABA (gamma-amino butyric acid) in autism.

Through an international collaboration, Dr. Vincent is also taking a different approach to understanding autism. In a preliminary study using large families with autism in Pakistan, Dr. Vincent and colleagues are treating autism as a single gene disorder.

They hope to learn from unique features of the population they are studying. In many families in Pakistan, intra-family marriages are very common. This means that if there is a genetic abnormality, it gets passed on and stays in the family. As a consequence, rare recessive diseases (which occur only if both parents carry the relevant gene) can recur with great frequency within the family.

Dr. Vincent hopes that by studying this genetically unique population, his team will find enough evidence to identify a specific autism gene or genes, or to narrow down the region of investigation to a small part of one chromosome. They could then combine this family data with existing information from other lines of research to identify a new gene in a specific region.

Researchers still have many more questions than answers about autism. Dr. Vincent's diverse approach is perhaps our best chance at understanding this complex disorder.

"In the years to come," says Dr. Vincent, "we may find that the combined effect of a number of genes may cause autism. In other cases it may be caused by a single gene, which may be inherited recessively or may mutate randomly during genetic transmission. We just don't know yet. To find the answers, we must try new approaches—possibly combinations of approaches—and be open to new ideas."

* Vincent, J.B., Horike, S.I., Choufani, S., Paterson, A.D., Roberts, W., Szatmari, P. et al. (2006). An inversion inv(4)(p12-p15.3) in autistic siblings implicates the 4p GABA receptor gene cluster. *Journal of Medical Genetics*, 43 (5), 429-434.



JEAN ADDINGTON

“If we can show that meaningful recovery and even illness prevention are possible, it will be a major step in reducing stigma.”

Clinical research: A new era for psychotic illness

For psychotic illnesses such as schizophrenia, early detection is a key to effective treatment. At CAMH, identifying and treating early signs of psychosis is the focus of the PRIME (Prevention through Risk Identification, Management and Education) Clinic.

As a clinician-scientist and Director of the PRIME Clinic, Dr. Jean Addington's research focuses on identifying people at risk for developing a psychotic illness and improving prediction of psychosis. She takes a psychosocial approach to developing interventions designed to help prevent or delay the onset of a psychotic illness.

Using newly established criteria, Dr. Addington is able to identify the 25 to 35 per cent of young people at risk for psychosis who are the most likely to actually develop a psychotic illness. These are people who already experience early warning signs such as social withdrawal, trouble thinking clearly, or confusion about what is real or imaginary. By focusing efforts on these high-risk individuals, "we have an opportunity to identify and treat young people in the very early stages of illness," says Dr. Addington. "This means we may be able to help stop the illness from developing. At the very least, we can give them better tools to manage their illness, should it develop."

Young people who come to the PRIME Clinic have been unable to find help elsewhere, and need support. They receive extensive assessment and treatment through the clinic's research studies. These two studies are PREDICT and ADAPT.

PREDICT is a monitoring study that aims to improve the ability to identify people at risk of developing a psychotic illness. Most at-risk individuals who develop a psychotic illness will do so within the first year of showing symptoms. The PREDICT study, a National Institute of Mental Health-funded collaboration with colleagues at Yale University and the University of South Carolina, aims to develop a better model of prediction and to determine if there are variables that will help researchers better understand who might go on to develop a psychotic illness.

The ADAPT study, funded by the Ontario Mental Health Foundation, compares two psychological treatments for people at risk of developing a psychotic illness. The goal is to see if psychological intervention can reduce early symptoms and prevent or delay the onset of a psychotic illness.

Dr. Addington's research at PRIME is the beginning of a new era for psychotic illness. By demonstrating that there is a whole spectrum of psychotic illness, her work is helping the world see schizophrenia not just as a severe and chronic mental illness. "If we can show that meaningful recovery and even illness prevention are possible, it will be a major step in reducing stigma," says Dr. Addington.

Her important work is also a stepping-stone for further investigation. Identifying at-risk individuals requires a tremendous amount of effort. By identifying a sample of people who are at the very early stages of psychosis, Dr. Addington is opening the door for further research in areas such as genetics.



JÜRGEN REHM

Social, prevention and health policy research: Investigating the costs of substance abuse

To develop effective public policy on issues such as substance use, accurate data are needed on the epidemiology (distribution and impact) of substance use problems and on intervention strategies. These data must cover both the effectiveness and the cost-effectiveness of initiatives to address substance use problems.

Dr. Jürgen Rehm, Co-Section Head, Public Health and Regulatory Policy, is a leader in generating and analyzing the scientific data needed to inform public policy on, for example, strategies to reduce alcohol- and tobacco-related harm. Dr. Rehm and his team evaluate the economic costs of substance use and abuse, provide exact data on epidemiology and give guidance on alcohol policy.

“For example, we provide data on both the benefits and the harm resulting from alcohol consumption,” says Dr. Rehm. “We also provide information on the dimensions of alcohol use underlying these effects, such as how alcohol is consumed and how much is consumed. This information is being used to inform a national strategy designed to reduce alcohol-related harm.”

Dr. Rehm was the lead investigator on the report *The Costs of Substance Abuse in Canada 2002*, which was released in spring 2006. Funded by the Canadian Centre for Substance Abuse and more than 10 other Canadian institutions, this landmark study investigated the impact of substance abuse on Canadian society. It estimated the effects of tobacco, alcohol and illegal drugs in terms of death, illness and economic costs in 2002.

The study revealed that substance abuse places a significant burden on the Canadian economy. It has both a direct impact on health care and criminal justice costs, and an indirect toll on productivity resulting from disability and premature death. The study showed that the total annual cost of substance abuse in Canada is \$39.8 billion (based on 2002 data)—a cost of \$1,267 to each Canadian.

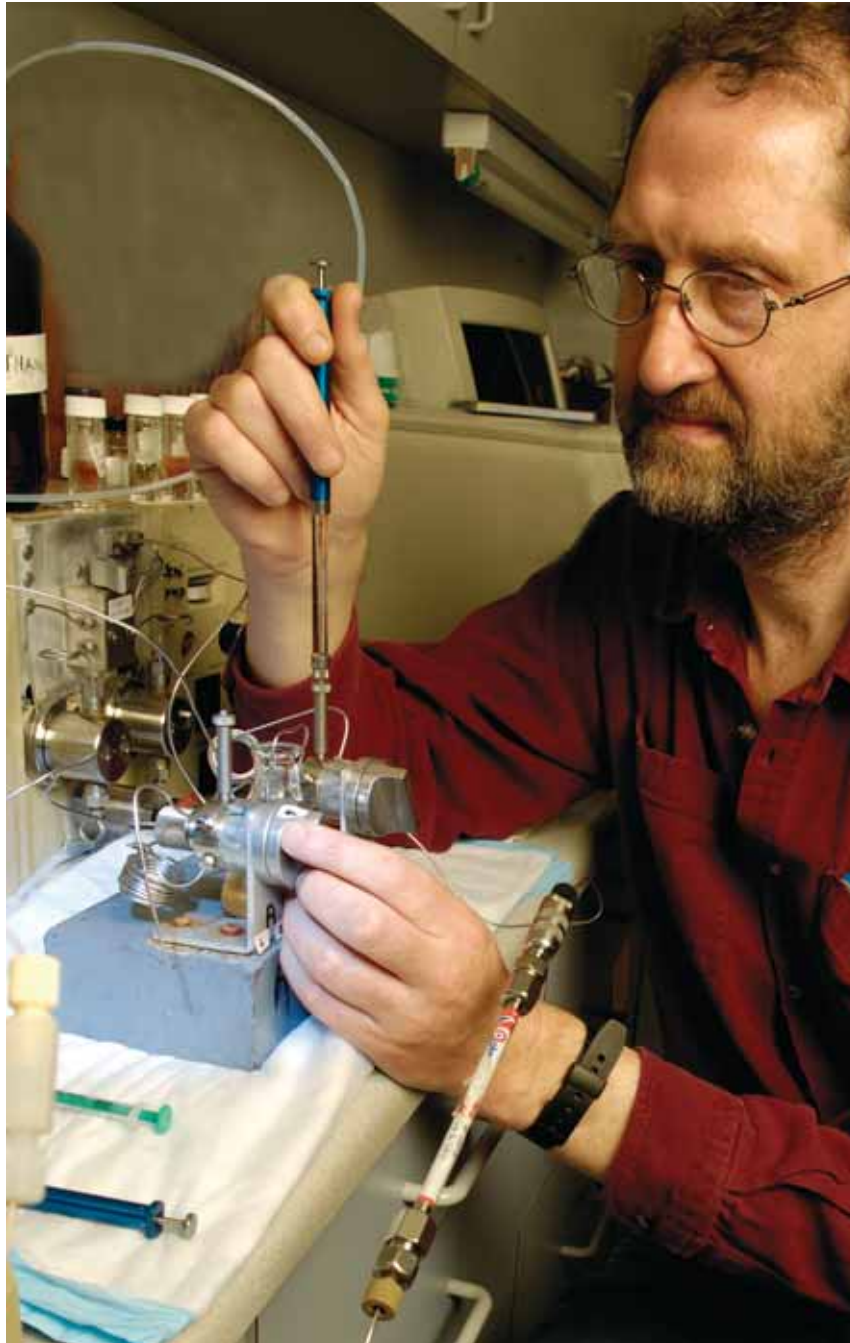
“The methodology for this study is complex and it’s important to note that estimating social costs is not a simple accounting exercise,” says Dr. Rehm. “The study results are based on well-documented economic theories and hypotheses, and represent an accurate estimate of the impact of substance abuse in Canada. In all cases where we could have used different assumptions to estimate costs, we routinely adopted the most conservative approach.”

For Dr. Rehm, estimating social costs is only the first step. “Our next task is to develop a comprehensive analysis of avoidable costs,” he says. “Then we can provide valuable economic information that can be used as a foundation for a more efficient allocation of resources.”

Other countries are tapping into Dr. Rehm’s scientific expertise, and have asked him to provide epidemiological analyses to inform their public policy. Currently, Dr. Rehm works with the Pan American Health Organization to develop recommendations for alcohol interventions in Central and South America. He is also part of a team working to develop strategies to reduce premature alcohol-related death in Central and Eastern European countries that recently joined the European Union.

Dr. Rehm’s research puts him in the forefront of reducing the harm that stems from substance abuse. The interventions and guidance that he and his team provide inform public policy that will have a profound benefit for many people, both in Canada and around the world.

ALAN WILSON



“People kept saying it wouldn’t work,” says Dr. Wilson. But CAMH scientists made it happen.

PET Centre: Radiochemistry breakthrough improves mapping of the brain

Dr. Alan Wilson of the PET Centre leads a radiochemistry team that produces radiotracers. These radioactive chemical compounds are the foundation of positron emission tomography (PET), an advanced imaging technique that makes a three-dimensional map of the brain. As a radiotracer decays, the energy it creates allows scientists to photograph and study areas of the brain.

“To be safe for use in human studies, the tracers must decay quickly,” says Dr. Wilson. “Because of this, we have to make fresh tracers for each experiment, and do it all within in an hour to ensure the compound has enough radioactivity to be effective.”

Dr. Wilson is continually working on creating new radiotracers, which will provide more information on addictions and on illnesses such as Parkinson’s disease and schizophrenia. In the June 2005 issue of the *Journal of Medicinal Chemistry*, Dr. Wilson and other CAMH colleagues* reported on their groundbreaking work in developing the first dopamine D2 agonist radio-tracer used in humans.

Neurotransmitters (chemical messengers), such as dopamine, work by binding to receptors (specialized brain cells that receive the chemical messages). For example, dopamine binds to a receptor called D2. Dopamine is an agonist transmitter: rather than blocking the receptor, it causes the receptor to do what it is designed to do. Dr. Wilson’s new agonist radiotracer will allow researchers to better understand how dopamine and the D2 receptor work.

Scientists around the world have tried to make agonist radiotracers for the past 15 years. “People kept saying it wouldn’t work,” says Dr. Wilson. But CAMH scientists made it happen.

Using schizophrenia as an example highlights the significance of this achievement. Most receptors, including D2, exist in either a high or low affinity state. This means that either a large or a small amount of dopamine binds to the receptor. One theory in schizophrenia research is that people with this illness have more high affinity D2 receptors.

To test this theory, researchers needed a radiotracer that could tell the difference between high and low affinity states. But traditional antagonist radiotracers can’t tell the difference between the two states. They bind equally well to both high and low affinity receptors.

Thanks to Dr. Wilson’s pioneering work, researchers can now determine the location and number of specific receptors. “In schizophrenia research, scientists can use this information to show how the brains of people with the illness differ from those of healthy people,” says Dr. Wilson. “This gives a clear picture of the illness and may lead to improved treatment.”

In addition to furthering schizophrenia research, this important discovery also has implications for the study and understanding of movement disorders and addictions.

For Dr. Wilson, the next step is developing more new radiotracers. He has already begun work on new tracers for adenosine A2A receptors and peripheral benzodiazepine receptors. If he’s successful, these tracers will benefit research—and ultimately treatment—in a variety of mental health and substance use areas.

* Wilson, A.A., McCormick, P., Kapur, S., Willeit, M., Garcia, A., Hussey, D. et al. (2005). Radiosynthesis and evaluation of [11C]-(+)-4-propyl-3,4,4a,5,6,10b-hexahydro-2H-naphtho[1,2-b][1,4]oxazin-9-ol as a potential radiotracer for in vivo imaging of the dopamine D2 high-affinity state with positron emission tomography. *Journal of Medicinal Chemistry*, 48 (12), 4153–4160.

LESLIE ATKINSON



Research training

With more than 100 post-doctoral fellows and graduate research students at CAMH, we play a major role in training scientists. Their interests encompass science from the molecular level to the macro-level, from the neuron to the neighbourhood. But what they share is a dedicated interest in substance use and mental health problems. These future scientists will play a huge role in focusing and advancing tomorrow's research agenda, both in Canada and internationally.

To promote CAMH's leadership in research training, the Research Office appointed Dr. Leslie Atkinson Director of Research Training in winter 2006. In this newly created role, Dr. Atkinson capitalizes on several factors unique to CAMH, including:

- the diversity of its science
- the demonstrated willingness of CAMH scientists to collaborate across disciplines
- the proximity of CAMH to the University of Toronto and a matrix of surrounding universities
- a special expertise in concurrent mental health and substance use problems.

In his new role, Dr. Atkinson will seek to increase the amount of training at CAMH and to improve its quality. "We aim to more fully integrate training with university departments, to co-ordinate training in substance use and mental health, and to establish CAMH-led courses," says Dr. Atkinson. The ultimate goal is to prepare future researchers to excel in an era of changing technologies and increasingly interdisciplinary research.

Recognition within research: Inaugural CORE Awards

Studies show that timely, specific and sincere recognition for a job well done is the greatest motivator for staff performance. Staff who feel appreciated for their work give more effort and perform better. Recognition also improves morale and can help to build a culture of excellence.

In 2005, we launched the CORE (CAMH Outstanding Research Employee) Awards. These awards honour dedicated research support staff who show excellence in one (or more) of five areas:

- research practices and conduct
- continual learning
- innovation and solutions
- teamwork and collaborative efforts
- quality assurance and accountability.

“This initiative was a great opportunity to recognize the hard work of research staff at all levels and across all disciplines,” says CORE Awards Committee Chair Sandy Richards, Manager of Clinical and Regulatory Affairs. “In this first year, the committee was thrilled with the amount of response and the calibre of the nominees. We started off the CORE Awards with a bang, and it can only get better from here.”

Congratulations to the 2005 CORE Award recipients:

NEUROSCIENCE RESEARCH

Tuan Nguyen
Roger Raymond

CLINICAL RESEARCH

Bronwyn MacKenzie
Vytas Velyvis

SOCIAL, PREVENTION AND HEALTH

POLICY RESEARCH

Joanne Cordingley
Gina Stoduto

PET CENTRE

Anahita Boovariwala
Armando Garcia

Congratulations also to all the 2005 CORE Award nominees:

Carol Borlido
Eliza Burroughs
Jennifer Crosbie
Giannetta Delbove
Renee Desmond
Bramilee Dhayanandhan
Theresa Fan
Spencer Fraser
Ivana Furimsky
Ewa Hoffmann
Doug Hussey
Anca Ialomiteanu
Nicole King
Kathryn Knight
Shauna Kushner
Gloria Leo
Kimberly Lewis-Ng
Selina Li
Zhauxia Li
Alain MacDonald
Steve Mann
Alvina Ng
Jun Parkes
Olga Vuksic

Special thanks to all who took the time to submit nominations, and to the CORE Awards Committee for organizing such a wonderful first event.

Special honours and recognition

Ed Adlaf was appointed lead consultant for the Global Audit of Youth Drug Use. The purpose of the report is to compile and review the extent of drug use among 15- and 16-year-old youth worldwide, and trends between 1998 and 2005. The work is under the auspices of the United Nations Office on Drugs and Crime (UNODC).

Ofer Agid received a 2005 NARSAD (National Alliance for Research on Schizophrenia and Depression) Young Investigator Award. With this award, he will use brain imaging of patients taking certain antipsychotics to study the drugs' effect on the extrastriatal dopamine D2 receptor system, a different pathway than usually analyzed.

Michael Bagby and Tony Toneatto co-ordinated the academic conference entitled “Gambling Research Day: Linking Clinical Research with Practice.”

The Association of Faculties of Medicine of Canada (AFMC) chose Bruce Ballon as the winner of this year's AFMC-GlaxoSmithKline Young Educator Award. This award recognizes individuals who have made major contributions to medical education and who are in the early years of their academic career.

John Cairney received his first Canada Research Chair in Psychiatric Epidemiology. Dr. Cairney's inaugural appointment will help him, as he investigates the cause and consequence of mental well-being, to gain a better understanding of the social determinants of mental health among people with low incomes, children with physical disabilities, and single mothers.

Russell Callaghan presented the paper “Inpatient Detoxification and Intravenous Drug Use in Northern B.C.” at the Aboriginal Youth in Crisis Task Force meeting. Dr. Callaghan also presented the paper “Inpatient Substance-Abuse Detoxification in Northern British Columbia: A 6-year Study” for the Centre for Addictions Research of B.C.

Special honours and recognition, continued

John Cunningham consulted on the content for the Alcohol Help Centre, an Internet-based intervention for people with drinking problems.

Jeff Daskalakis was one of fifteen 2004 NARSAD Young Investigators selected to present at this year's annual NARSAD Scientific Symposium. Chosen from almost two hundred 2004 Young Investigators, Dr. Daskalakis spoke on his work with rTMS treatment on patients with schizophrenia. He also received a 2006 Young Investigator award.

Carolyn Dewa joined the Ontario Ministry of Health and Long-Term Care's Depression Strategy Advisory Committee.

Peter Farvolden presented on Internet-based treatment for panic disorder at the Anxiety Disorders Association of Canada's second biannual conference.

Susan George and Brian O'Dowd edited a book entitled *G Protein-Coupled Receptor-Protein Interactions*. It outlines how these receptor-protein interactions organize signal transduction and control intracellular activities. Chapters offer updates on the principles and technology, as well as stepwise protocols for methods currently applied to the analysis of receptor-protein interactions.

The Health Systems Research and Consulting Unit (HSRCU) is the Co-ordinating Centre for the Mental Health System Enhancement Evaluation Initiative (SEEI) project, lead by Paula Goering. SEEI represents a broad collaboration of researchers from Ontario, along with partners from the Canadian Mental Health Association, Ontario; the Ontario Federation for Community Mental Health and Addictions Services; the Ontario Mental Health Foundation; and CAMH's Policy, Education and Health Promotion department. This project was made possible by \$3.2 million in funding from the Ministry of Health and Long-Term Care. SEEI will evaluate the effects of

significant government investments made over four years in key areas of the mental health service system.

The research studies will take place in two phases and will be supported by a knowledge exchange network. Phase 1 includes two studies:

- Study 1, "Understanding Our Mental Health System," co-led by Janet Durbin and Brian Rush, monitors the impact of new resources, relying mainly on existing provincial health administrative data.
- Study 2, "The Matryoshka Project," led by Carolyn Dewa, will collect information to obtain an in-depth picture of young people experiencing a first psychotic episode; and people with mental illness in contact with the criminal justice system. This study will take place in six communities.

Seven Phase 2 studies are underway, and will complement the Phase 1 studies.

Umesh Jain received the Naomi Rae Grant Award. This award is given each year by the Canadian Academy of Child and Adolescent Psychiatry, to a child psychiatrist who has made a significant contribution to the lives of children through community work.

Shitij Kapur received the Dr. Paul Janssen Schizophrenia Research Award of the Collegium Internationale Neuropsychopharmacologicum. This award is given to a young investigator who has performed outstanding research in the basic or clinical neuroscience of schizophrenia.

Dr. Kapur also received the Society of Biological Psychiatry's AE Bennett Award, and his Canada Research Chair in Imaging Technologies in Human Disease and Preclinical Models was renewed for an additional five years.

Fang Liu received an Honourable Mention for NARSAD's 2005 Daniel X. Freedman Award, which recognizes NARSAD Young Investigators who have distinguished themselves through outstanding basic science research.

Robert Mann was appointed as a member of the Drugs and Driving Advisory Council for MADD Canada.

Jeff Meyer received the Canadian College of Neuropsychopharmacology's Young Investigator Award. Dr. Meyer's contributions included new advances in understanding monoamine abnormalities in depression and in measuring how much antidepressant gets to target sites during treatment.

Arturas Petronis chaired the educational session "Epigenetics" at the 13th World Congress on Psychiatric Genetics.

Arun Ravindran was recently elected to the Fellowship of Great Britain's Royal College of Psychiatrists. This award is for Dr. Ravindran's outstanding academic and/or clinical contributions to psychiatry.

Paula Ravitz was selected as the Association of Academic Psychiatry Regional Teacher of the Year Award for Region XI (Canada). Dr. Ravitz also received the University of Toronto Department of Psychiatry's Ivan Silver Award for Excellence in Continuing Mental Health Education.

Neil Rector was appointed to the editorial boards of *Cognitive Therapy and Research*, *Journal of Cognitive Psychotherapy: An International Quarterly*, and *Cognitive and Behavioral Practice*. Dr. Rector was also appointed to the American Psychiatric Association's Best Practices Training Grid for People with Serious Mental Illness.

Special honours and recognition, continued

Jürgen Rehm was invited to be Chair of Health Canada's Surveillance Advisory Committee. The committee's goal is to develop a plan for future surveillance in the area of alcohol and illicit drugs, which would enable health care planning for Canada in the next decade.

Also, Dr. Rehm became a member of the Board of the Jellinek Fund. The Fund's main task is to select the winner of the Jellinek Award, considered the most prestigious prize in the area of alcohol studies.

Lori Ross participated as an organizing committee member for the Queer Mothering conference, organized by the Association for Research on Mothering. Dr. Ross assisted in speaker selection and program planning.

Brian Rush acted as a Scientific Advisor to the CAMH Quality Improvement Council Provincial Capacity Assessment Project. Dr. Rush is also consulting on the evaluation of a six-site project for the National Youth Addiction Model, for national implementation in Chile.

In partnership with the Ministry of Health Promotion and Pfizer Consumer Healthcare, Peter Selby launched a study aimed at helping Ontarians quit smoking. The first study of its kind in Canada, the STOP (Smoking Treatment for Ontario Patients) Study will distribute free nicotine replacement therapy to a group of eligible smokers and monitor the therapy's effectiveness in aiding the quitting process. Participants will also be given helpful information and resources, such as counselling, to help in the quitting process.

Carol Strike facilitated and organized several workshops for front line service workers and physicians, including the workshops "Improving Pathways to Care for Suicidal and Substance Using Men," for the Canadian Association for Suicide Prevention, and "Best Practices for

Needle Exchange Programs in Ontario," for A Skills Building Workshop: The Impact of Crack Smoking and Crystal Methamphetamine Use on Hepatitis C Transmission for Drug Users in Ontario. Susan Anstice and Natasha Berkley also helped organize this workshop.

Brenda Toner presented on cognitive behaviour therapy for IBS (irritable bowel syndrome) at the Sixth International Symposium in Functional Gastrointestinal Disorders.

Nigel Turner designed a course for Ryerson University on problem gambling theory and treatment.

Rachel Tyndale received funding for her project entitled Pharmacogenetics of Nicotine Addiction and Treatment (PNAT). This five-year program will increase understanding of the genetic bases of nicotine addiction and the genetic influences on responses to pharmacotherapy to aid smoking cessation. The long-term objectives of this work are to better individualize treatment for nicotine dependence, to facilitate the development of novel medications and to reduce the impact of smoking as a major health problem.

Also, Dr. Tyndale received the Canadian College of Neuropsychopharmacology's 2006 Innovations in Neuropsychopharmacology Research Award, in recognition of the outstanding, innovative nature of her research contributions.

Jessica Warner was short-listed in the English non-fiction category of the 2005 Governor General's Literary Awards for her book *The Incendiary: The Misadventures of John the Painter, First Modern Terrorist*. This book profiles the career of a Scottish sociopath who set fires in the hope of achieving fame in revolutionary America.

Trevor Young was awarded the Canadian College of Neuropsychopharmacology's Heinz Lehmann Award. This prestigious award recognizes Dr. Young's outstanding contributions in neuropsychopharmacology research in Canada.

In addition, Dr. Young was elected to the status of Distinguished Fellow of the American Psychiatric Association (APA). This honour is in recognition of his eminent career as a member of the APA and his many contributions to professional and academic life.

Ken Zucker was appointed to the American Psychological Association's Task Force on Gender Identity, Gender Variance and Intersex Conditions. The charge of the Task Force is to develop recommendations to address issues such as how the association can best meet the needs of psychologists and students who identify as transgender, transsexual or intersex.

Research highlights

Usoa Busto, Beth Sproule and colleagues published results on the risks and benefits of sedative hypnotics (sleeping pills) for treating insomnia in elderly people. This study showed that while sedative use improved sleep quality, it also increased the risk of adverse events. The authors concluded that in elderly people, particularly those at risk for falls or cognitive impairment, the benefits of sedative use are marginal and are outweighed by the risks.

John Cairney examined the associations between social position and mental health, and explored whether differences in distress and depression by social position can be accounted for by differences in the major components of the stress process model. The study showed that mental health in later life is determined in part by age, gender, marital status, education, and ethnocultural factors. This is because a person's position in the social structure shapes the stressors he or she encounters and the resources the person has at his or her disposal to cope with stress.

Kate Graham released the results of the GENACIS (Gender, Alcohol and Culture: An International Study) Canada survey. This survey examined the relationship between gender and drinking patterns, as well as the interaction of gender and alcohol consumption in relation to issues such as social and health consequences of drinking, partner violence, depression and social roles—both at the national level and as part of cross-national comparisons. This work was part of a multinational collaboration involving about 30 countries around the world.

Umesh Jain chaired a group of Attention-Deficit/Hyperactivity Disorder (ADHD) specialists who published the Canadian ADHD Practice Guidelines (CAP-Guidelines). This comprehensive document sets standards for assessing and treating ADHD patients across the lifespan.

Zachary Kaminsky, Arturas Petronis and colleagues developed a novel method for fast determination of DNA methylation status, using an adaptation of the SNaPshot technique. Using a degenerative primer design, the method was able to accurately determine the percentage of DNA methylation to within 5 per cent. Adapting the SNaPshot primer design in this way will allow epigenetics researchers to interrogate site-specific DNA methylation differences in GC-rich regions in a high throughput manner.

Anh Dzung Lê and colleagues found experimental evidence to support the theory that a shared genetic determinant accounts for co-abuse of the most frequently used drugs in the world: nicotine and alcohol. The results of this study provide a better understanding about the co-abuse of these drugs.

Robert Levitan, James Kennedy and colleagues investigated the serotonin-1Dbeta receptor gene and severity of obsessive-compulsive disorder (OCD) in women with bulimia nervosa (BN). Their study showed that in women with BN, the G861C polymorphism of the 5HT-1Dbeta receptor gene does not appear to be associated with the generation of OCD symptoms; however, it might directly or indirectly be associated with a modulatory effect on syndrome severity in individuals otherwise predisposed to OCD. While preliminary and in need of replication in other samples, this is the first association study to suggest how a particular gene might influence OCD pathology in people with eating disorders.

Elizabeth Lin, Paula Goering and colleagues released *Hospital Report 2004: Mental Health*. This is the second Hospital Report for adult inpatient mental health care in Ontario prepared by the Hospital Report Research Collaborative. Results show strength in the delivery of inpatient mental health care, consistent with the values of mental health reform.

Benoit Mulsant, Bruce Pollock and colleagues investigated maintenance treatment of major depression in elderly people. Their study showed that patients 70 years of age or older with major depression, who responded to initial treatment with paroxetine and psychotherapy, were less likely to have recurrent depression if they received two years of maintenance therapy with paroxetine. Monthly maintenance psychotherapy did not prevent recurrent depression.

Carles Muntaner reported on the nature and prevalence of extended work schedules across the nursing profession. The study showed that one-quarter of the nurses with more than one job worked 50 or more hours per week. They were also more likely to work many days consecutively, without sufficient rest between shifts, and to work during scheduled time off. Single parents were as likely as those with more than one job to work 13 to 15 hours per day and many days consecutively.

Sridhar Natesan, Shitij Kapur and colleagues compared loxapine, a typical antipsychotic, to isoloxapine, an antipsychotic that shows atypicality in some animal models. They conducted this study to understand the mechanisms underlying the differential typical/atypical profiles in these two drugs. Loxapine's behaviour as a typical antipsychotic is most likely due to its disproportionately high D2 occupancy. Appropriate action at D2 receptors in vivo, rather than the high 5-HT2/D2 ratio, seems to be critical in determining why isoloxapine behaves like an atypical antipsychotic.

Two clinical scientists, Gary Remington and Shitij Kapur, who work with patients with schizophrenia collaborated with animal behaviour expert José Nobrega to establish whether drug-dosing pattern might influence risk of motor movements in a rat model of tardive dyskinesia. The scientists found that when antipsychotic drugs were given by a single daily injection, relatively few motor movements

Research highlights, continued

developed even after many weeks of treatment.

Zindel Segal contributed a chapter entitled “Mindfulness-Based Cognitive Therapy” to the book *Innovations in Clinical Practice: Focus on Adults and Families*. This chapter is a continuation of Dr. Segal’s extensive work in Mindfulness-Based Cognitive Therapy (MBCT), a sophisticated integrated treatment designed to prevent relapse and recurrence of depression in those who are in recovery.

Laura Simich authored a knowledge translation (KT) case entitled “Expanding Established KT Networks to Respond to a Community in Distress.” This case study discusses Dr. Simich’s research and support for the Toronto Tamil community after the tsunami in 2004. The case study is part of the Canadian Institute of Health Information’s casebook *Evidence in Action, Acting on Evidence*.

Carol Strike was the lead author and principal investigator for the *Ontario Needle Exchange Programs Best Practice Recommendations*. The document synthesizes Canadian and international literature on needle exchange programs. It also provides concrete recommendations for the operational and practical challenges—and the challenge of controversy—faced by needle exchange programs. This document is the first of its kind in Canada.

Dr. Strike and colleagues investigated factors predicting two-year retention in methadone maintenance treatment (MMT), and the impact of repeat treatment episodes on retention. The study showed that the odds of remaining in treatment for 730 days or more increased with age, and varied by region and provider type, but decreased with increasing number of treatment episodes. In comparison with other studies, these analyses showed much higher rates of retention in MMT, but suggest that repeat episodes may

not be as beneficial as existing research suggests. Retention in MMT beyond 12 or 24 months is important for positive treatment outcome.

Tony Toneatto led a pilot investigation comparing two treatments for concurrent alcohol dependence, and panic disorder with agoraphobia. In the subject sample that completed the study, the results showed that there were no group differences in frequency or quantity of alcohol consumption or in anxiety symptoms, either post-treatment or at a one-year follow-up. Both groups showed within-group improvements on measures of both alcohol and anxiety symptomatology. About one-third of the subjects made clinically relevant gains in both alcohol and anxiety symptoms. A brief behaviour therapy for concurrent alcohol dependence and agoraphobia appears encouraging.

Dr. Toneatto, Brian Rush, Karen Urbanoski and colleague published an article describing the prevalence and overlap of psychiatric symptoms among clients at a substance use treatment facility. The data showed a high rate of comorbidity between substance use and clustered psychiatric symptoms. Multi-morbidity was associated with selected social variables, in particular lower social support, higher rate of unemployment and female gender. Clients with more substance use disorders presented more psychiatric symptoms.

Rachel Tyndale and colleagues found that a variation in the CYP2A6 gene can affect the level of nicotine that people receive from nicotine patches. Her work indicated that people who metabolize nicotine slowly had higher levels of nicotine in their blood when using the patches than did those who metabolize it more quickly. These findings suggest that people with the gene for fast nicotine metabolism may need more of the smoking cessation chemical to calm cravings and help them stop smoking.

Dr. Tyndale and colleagues also found sex differences in response to nicotine. Using an animal model, this study showed that male mice that consumed high amounts of nicotine had higher levels of CYP2A4/5 protein levels (the mouse homologue of human CYP2A6). These mice also metabolized nicotine faster than the did those who consumed less nicotine. In contrast, female high- and low-nicotine consumers did not show pronounced differences in CYP2A4/5 protein levels or nicotine metabolism.

John Vincent and colleagues from the Hospital for Sick Children identified novel mutations in exon 1 of MECP2 in the gene that causes Rett syndrome, a disorder of mental retardation. This discovery has now been licensed as a test for the disorder and is available to the public.

Martin Zack investigated the effects of contingent gambling-drinking patterns, and the effects of problem drinking severity on implicit gambling-alcohol associations. The study showed that participants had a tendency to drink in response to gambling wins, and more severe alcohol problems coincided with stronger associations in memory between gambling wins and alcohol concepts. Such associations can promote drinking and its attendant effects (e.g., poor decision-making) in people with gambling problems. These associations may contribute to comorbid gambling and alcohol use disorders.



In memoriam: Hubert H.M. Van Tol, PhD September 20, 1959 – April 20, 2006

CAMH mourns the loss of a brilliant scientist, who died tragically this year in a bicycle accident.

Dr. Hubert Van Tol was known for his many contributions in molecular neuroscience, and was probably best known for his work in the field of molecular biology on dopamine receptors.

Born in the Netherlands, Dr. Van Tol trained at the University of Utrecht and received his PhD in 1987. In 1990, he was appointed to the former Clarke Institute of Psychiatry and the University of Toronto. Dr. Van Tol was Head of the Molecular Neurobiology and Transgenic Sections at CAMH, a Canada Research Chair in Neurobiology and a Professor in the University of Toronto's Department of Psychiatry. He held cross-appointments in the Departments of Physiology and Pharmacology, as well as the Institute of Medical Science.

Dr. Van Tol's numerous achievements during his career were highly regarded, and were recognized through awards such as the John Dewan Award, the Prix Galien, and the Joey and Toby Tanenbaum Distinguished Scientist Award for Schizophrenia Research.

Hubert was an important member of the Research Program, of CAMH and of the global scientific community. We know that he will be greatly missed.

Contact us

RESEARCH OFFICE

Brenda Newman
*Executive Assistant to
the Chief of Research*
416 535-8501 ext. 6176

NEUROSCIENCE RESEARCH DEPARTMENT

Sharah Mar
Administrative Secretary
416 535-8501 ext. 4962

SOCIAL, PREVENTION AND HEALTH POLICY RESEARCH DEPARTMENT

Michelle Tortolo
Administrative Secretary
416 535-8501 ext. 6173

CLINICAL RESEARCH DEPARTMENT

Natasha Bennett
Administrative Secretary
416 535-8501 ext. 6262

POSITRON EMISSION TOMOGRAPHY (PET) CENTRE

Diane David
Administrative Secretary
416 535-8501 ext. 4344

LIBRARY SERVICES

416 595-6144

INTELLECTUAL PROPERTY

Klara Vichnevetski
*Intellectual Property
Management Strategist*
416 535-8501 ext. 6056

RESEARCH OPERATIONS

Julie Grayson
Administrative Supervisor
416 535-8501 ext. 6065

Debbie Thompson
*Manager
Research Operations*
416 535-8501 ext. 4720

Rajeev Chandok
*Manager
Grants & Awards*
416 535-8501 ext. 6298

Encar Tiglao
*Administrative Secretary
Grants & Awards*
416 535-8501 ext. 4568

Arti Duggal
*Contracts and Licensing Officer
Contracts & Licensing*
416 535-8501 ext. 6126

Konrad Powell-Jones
*Contracts Consultant
Contracts & Licensing*
416 535-8501 ext. 6484

Sandy Richards
*Manager
Clinical & Regulatory Affairs*
416 535-8501 ext. 4304

Leah Young
*Manager
Research Communications*
416-535-8501 ext. 4932

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PROJECT CO-ORDINATION

Leah Young, Research, CAMH

EDITOR

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Richard Chard



For information about CAMH, please contact: Public Affairs
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Fax: 416 595-6881

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Toronto: 416 595-6111
Website: www.camh.net



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