

UNIVERSITY OF OTTAWA
INSTITUTE OF MENTAL HEALTH RESEARCH (IMHR)

ANNUAL REPORT 2010-2011



RESEARCH AT THE ROYAL...

INSPIRING MINDS, ADVANCING DISCOVERY



University of Ottawa
Institute of Mental
Health Research



Services de santé
Royal Ottawa
Health Care Group



Spiritual Healing

by Christian Morrisseau

Renowned Woodland artist Christian Morrisseau created the painting featured on the cover of this report, and its sections interspersed throughout its pages. It is called *Spiritual Healing*. A member of the Keewaywin First Nation, Mr. Morrisseau is the son of Norval Morrisseau, who was once called the 'Picasso of the North.'

In keeping with Woodland tradition, Mr. Morrisseau's images do not perfectly replicate parts of nature but instead, seek out the spirit or essence of parts of nature featured in his paintings. He calls his technique "depicting the soul of the object."

In describing this painting, Mr. Morrisseau says, "Through many generations, we have considered that colours and images can influence our state of mind and consequently the life path choices we make. The two men on the boat are different aspects of the same person. One reflects the real or material world, and the other, the spiritual world. Together, they represent self-healing."

The painting is filled with other representations of healing including the flowers that represent new growth in life and the healing from their colours. The animals and fish, according to the artist, are taking notice of the way healing is taught, depicting knowledge translation.

Annual Report 2010-2011

IMHR At A Glance

The University of Ottawa Institute of Mental Health Research (IMHR) was established in 1990 by the Royal Ottawa Health Care Group (The Royal) and the University of Ottawa. In helping to fulfill the role of The Royal as a tertiary diagnostic, treatment, and education centre, the IMHR continually strives to promote, support, integrate, and disseminate basic and clinical research knowledge through collaborative efforts and networks. With The Royal, the IMHR is developing leading-edge multidisciplinary research programs with the ultimate goal of fostering innovative ways of treating mental illness.

Mission

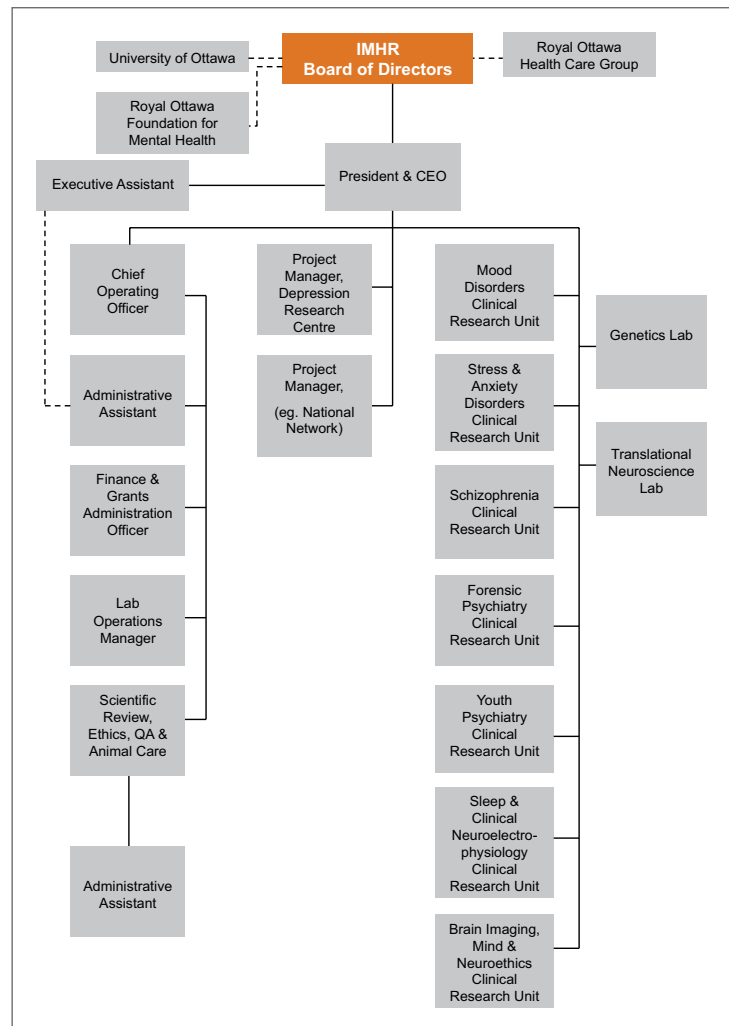
To create scientific knowledge to improve mental health and well-being locally and globally.

Vision

To be a premier research institute with national and international centre of excellence status that continuously improves mental health and well-being through leadership, collaborative discoveries and innovation in research, patient care and education.

Values

Excellence, collaboration, integrity, respect, compassion, wellness and equity.



Credits:

Photography: Valberg Imaging

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Spiritual Healing Painting: In part donated by Yvon Lapierre

Table of CONTENTS

Inspiring Achievement	6
Message from the President and CEO of IMHR and the Chair of the IMHR Board of Directors	6
Research Today to Transform Tomorrow	8
Exchanging Knowledge	8
Sharing Ideas Today for Results Tomorrow.....	9
The Year in Numbers.....	10
Strategic Directions	11
Inspiring Discovery.....	12
The Royal's Depression Research Centre: Transforming the Way Major Depression is Treated	12
Boosting the Success Rate for Treating Depression.....	16
Inspiring Hope.....	17
Hope Is Here for Marie.....	17
Unravelling the Depressed Brain's Secrets	18
Understanding the Concept of 'Self' in Suicidal Teens	19
Connecting the Dots Between Abnormal Sleep and Depression.....	20
Understanding Mental Illness in Teens.....	22
Let's Get Kids Talking About Mental Illness	23
Taking the 'Guesswork' Out of Treatment.....	24
The Emotional Expression Study	25
Inspiring the Future	26
IMHR's Young Researchers	26
Young Researchers' Conference Builds Connections from 'Lab to Life'	27
Inspiring Partnerships.....	28
Our Partners.....	28
Board of Directors.....	30
Scientific Advisory Board	32
Inspiring Numbers	33
Inspiring Linkages	34
The Royal Ottawa Foundation for Mental Health: Making Links with the Broader Community	34



Inspiring ACHIEVEMENT

Message from the President and CEO of IMHR and the IMHR Chair of the Board of Directors

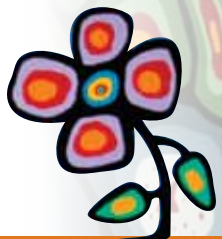
Inspiring discoveries and outreach were the watchwords for the University of Ottawa Institute of Mental Health Research (IMHR) in 2010–2011. Our outstanding scientists, clinicians and students (over 100) continued to transform the way we detect, prevent, and treat mental illness. In an attempt to share the fruits of research, we have markedly increased our public and scientific lectures, symposia and media presentations. In order to further advance discoveries and to share our findings more widely, we have also forged the creation of the Pan-Canadian Depression Research and Intervention Network (with its hub at The Royal), which will be linked to the U.S. National Depression Network.

At our research institute, we continue to draw deeply on the profound discoveries emanating from “The Decade of the Brain,” which advanced our understanding of brain function and then on “The Decade of the Genome,” which unraveled the makeup of the entire human genome. At the IMHR, we are using this knowledge to investigate the causes of mental illness, focusing on how a patient’s brain chemistry, genes and environment interact to produce mental ill health.

We are at the exciting cusp of a major social revolution that is starting to bring mental health “out of the shadows at last”, as stated by Senator Kirby. Our Institute is benefitting from the diminishing stigma against mental illness, as people are speaking more freely and openly about it than ever before. This is translating into substantial new investments of money and brainpower both provincially and federally. For instance, the Ontario government just launched the Ontario Brain Institute. At the federal level, we have witnessed the launch of the Mental Health Commission of Canada, and the more recent commitment of \$100 million for neuroscience research (in its 2011 budget). These testify to the growing awareness of the importance of brain function in mental health and mental illness. The IMHR has begun readying itself to partner in these dynamic new developments, capitalizing on the fact that our Institute is in the right place at the right time.

Perhaps no mental illness takes such a toll on our society as depression. We are therefore very excited by discoveries made at the Institute’s Depression Research Centre last year. We broke new ground in investigating how environmental factors such as stress and trauma may alter the expression of our genes to promote

Inspiring ACHIEVEMENT



Inspiring ACHIEVEMENT

depression and suicide. Our research focussed on how early life environmental factors stage the trajectory to risk or resiliency to mental illness. The work of our Canada Research Chair holders, Drs. Pierre Blier and Georg Northoff has begun to revolutionize the way we select and use different treatment modalities. By combining two or more drugs that work through different mechanisms, Dr. Blier's studies are doubling the remission rate of depression from about 30 percent to over 50 percent.

Another groundbreaking front for the Depression Research Centre last year was the area of biomarker development for depression. These biomarkers provide much needed objective tools to supplement the traditional diagnostic procedures (relying largely on patients' own descriptions of their symptoms). For instance, just as we use electrocardiogram (EKG) to identify heart problems, IMHR scientists use electroencephalogram (EEG) to pick up abnormal brain activity "signatures" of depression. Like the use of x-rays to detect broken bones, we are using brain imaging to not only identify brain regions with abnormal activity characteristic of depression, but also to help guide individualized treatments. We are also working on the development of a "blood test" to identify genes that predispose you to depression and to help guide the selection of the most appropriate antidepressants.

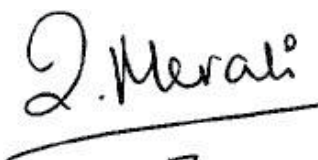
Thus, at The Royal's Depression Research Centre, we are very proud of focussed work being carried out to


James Morrissey, Chair

create a novel and systematic approach to research-informed diagnosis and treatment of depression. Using this evidence-based information, we then develop personalized treatment recommendations to gets patients well quickly. Because depression is so prevalent and carries the largest burden of illness in Canada (costing over \$51 billion, annually), this work is poised to have a positive impact both in social and economic domains.

We believe that IMHR's objectives and achievements are aligned with the strategic directions of the Royal Ottawa Health Care Group of "Advancing Care through Discovery", and those of the University of Ottawa, which recently launched the Brain and Mind Institute (of which we are a founding partner). Finally, our work is strategically congruent with the recent federal governmental initiatives including the Canadian Institutes of Health Research (CIHR) strategy on patient-oriented research, neuroscience research (budget line item), and the Mental Health Commission of Canada.

The stars are aligning well for the IMHR's initiatives. We are very excited and hopeful that we will bring a better understanding and treatment of mental illness - particularly depression - to the forefront where they belong. A hopeful and inspirational future indeed.



Zul Merali, President and CEO

Inspiring ACHIEVEMENT



Research Today to Transform Tomorrow

As our annual report reveals, IMHR scientists continue to break new ground in a number of key research and knowledge translation areas, particularly in the area of depression. Our clinical trials pave ‘new roads’ through evidence-based positive results. Our studies on the linkages between depression and other mental illnesses have informed new clinical approaches that are gaining attention worldwide. Our teams of scientists are some of the best in the world. This year, they have garnered the following recognition and awards:

Dr. Elliott Lee received the “Award for Excellence” in Leadership/Manager Competency, from the Faculty of Medicine, University of Ottawa, in November 2010.

Dr. Paul Fedoroff’s recently published article was awarded the “Most Destigmatizing Paper” award by the Canadian Psychiatry Association.

Dr. Pierre Blier:

1. Has been nominated by the University of Ottawa for a second term of the Tier I Canada Research Chair, in Psychopharmacology. This is the highest honor the government of Canada can bestow upon its scientists.
2. Was awarded the Heinz Lehman Award, by the Canadian College of Neuro-Psychopharmacology (2010). This award, in honor of Heinz Lehmann, is given in recognition of outstanding contributions to research in neuropsychopharmacology in Canada.
3. Was awarded the Collegium Internationale Neuro-Psychopharmacologicum Basic Research Award, in 2010.
4. Received international recognition for several of his scientific papers including: Blier, P., Ward, H.E., Tremblay, P., Laberge, L., Hebert, C., Bergeron, R.

Combination of antidepressant medications from treatment initiation for major depressive disorder: a double-blind randomized study, *American Journal of Psychiatry* 167: 281-288, 2010.

- Featured in the Editorial by RUSH, A.J. Combining antidepressant medications: a good idea? *American Journal of Psychiatry* 167: 241-243, 2010.

This was selected by the editors as one of top six papers in 2010; Editorial: 2010 in review Freedman et al, *American Journal of Psychiatry* 167: 1431-1434, 2010.

Dr. Georg Northoff was also recognized nationally and internationally. Some of his awards included:

1. A Tier I Canada Research Chair, in Mind, Brain Imaging and Neuroethics by the Government of Canada (2009-2016)
2. EJLB-CIHR Michael Smith Chair in Neurosciences and Mental Health

The EJLB Foundation, the Canadian Institutes of Health Research (CIHR), the CIHR Institute of Neurosciences, Mental Health and Addiction (INMHA) and The Royal Society of Canada (RSC), developed the EJLB-CIHR Michael Smith Chair in Neurosciences and Mental Health in honour of Dr. Smith, who demonstrated exceptional commitment to research in mental health, and more specifically to Schizophrenia.

Exchanging Knowledge

Generating scientific knowledge and translating that knowledge into clinical practice in order to revolutionize mental illness detection, prevention and treatment is a key objective of the IMHR. But if our work stays within the four walls, we are only doing part of our job. An important part of our work is to translate and transfer this knowledge to our partners to benefit our community. Indeed, our motto has always been “from the neuron to the neighbourhood”.

Trainee Awards

David J. Hayes, who works under the supervision of Dr. Georg Northoff, was awarded a Canadian Institutes of Health Research Postdoctoral Fellowship Award

Takashi Nakao, who works under the supervision of Dr. Georg Northoff, was awarded a Japan Society for the Promotion of Science (JSPS) Award (2011 – 2013)

Derek Fisher, Natalia Jaworska and Crystal Villeneuve, graduate students who work under the supervision of Dr. Verner Knott, were each awarded a coveted Canadian Institutes of Health Research Doctoral Studentship. These are highly competitive awards accorded to the best graduate students in Canada.

Sharing Ideas Today for Results Tomorrow

Our researchers continue to share their groundbreaking discoveries in many ways, including through our series of public lectures and our annual mental health symposium. The aim of both of these fora is to help inform and educate clinicians, scientists and the public so that more of us have the tools we need to tackle mental illness head on.

Our slate of information-sharing lectures and symposia include:

IMHR's Research Lecture Series at The Royal

- May 7, 2010 **Recovery from Mental Illness: An Exploratory Study of Multiple Stakeholders' Perspectives**
Dr. Myra Piat
- June 4, 2010 **Neurobiological Changes Related to Cognitive Behavioural Therapy: How Neuroscience Will Lead to Better Therapy**
Dr. Jeanne Talbot
- November 5, 2010 **Depression in Women Across the Life Cycle: A Closer Look at Windows of Risk**
Dr. Claudio N. Soares
- November 12, 2010 **Does the Right to Self-Determination Include the Right to Make 'Bad' Choices in the Therapeutic Encounter?**
Steve Abdool
- November 30, 2010 **Thyroid Hormone Augmentation in Treatment Refractory Depression**
Dr. Gabriela V. Obrocea
- December 3, 2010 **Improving Outcomes in the Treatment of Depression: From Guidelines to Personalized Medicine**
Dr. Sid Kennedy
- February 4, 2011 **Deception and the Brain Sciences – Myths or Opportunities**
Dr. Georg Northoff
- March 4, 2011 **Stroke Recovery: New Insights into the Science of Brain Repair and Rehabilitation**
Dr. Dale Corbett
- March 25, 2011 **3rd Annual IMHR Young Researchers' Conference: Lab to Life – Translational Mental Health Research**
Keynote Speaker:
Dr. Gustavo Turecki
Speakers:
Rachel Scott-Mignon, Dr. Vanessa Taler, Dr. Hanan Abramovici, Dr. Luc Boulay
Workshop: Forensic Risk Assessment
- Dr. Michael Seto

Centennial Public Lectures

- July 15, 2010 **Relationship of Sleep Disturbances to Mental Illness**
Dr. Alan Douglass
- Nicotine Addiction and the Brain in Psychiatric Disorders**
Dr. Verner Knott
- October 14, 2010 **100 Years of Sex Crimes: Past, Present and Future**
Dr. Paul Fedoroff
- December 9, 2010 **New Discoveries on the Impact of Antidepressant Drugs on Brain Structure and Function**
Dr. Pierre Blier
- Brain Imaging of the Depressed Self**
Dr. Georg Northoff

Conversations at the Royal Series

- March 31, 2011 **A search warrant for the brain. How does a German philosopher end up as a Canadian psychiatrist?**
Dr. Georg Northoff

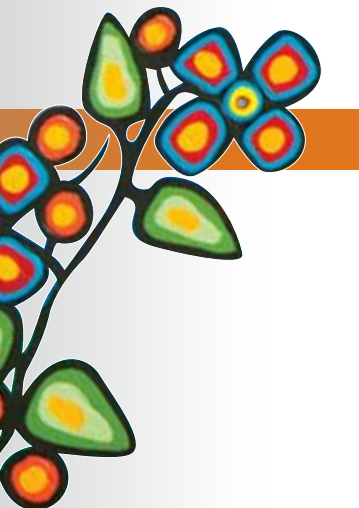
Open Minds Across Canada Mental Health Symposium 2010

- October 28, 2010 **Getting Real About Youth Mental Health**
Dr. Ian Manion
- Growing Up Shy: Challenges and Hopes for Anxious Youth**
Dr. Martine Flament
Youth Speakers
Lyndsea Simser and Fiona Cooligan

IMHR Annual Public Lecture

- September 27, 2010 **Injured Brain, Recovering Mind**
Dr. Jill Bolte Taylor
A personal story of recovery from a devastating stroke. This inspiring experience points to the amazing plasticity of the brain and its capacity to heal. This was a sell out event with over 300 people in attendance. Dr. Taylor is considered to be one of the top 100 most influential people in the world today.

The Year in Numbers



Number of...

Researchers (Scientists, Associate Scientists, Clinical Scientists)	=	31
Affiliate Scientists and Visiting Scholars	=	21
Research Trainees	=	102
Research Support Staff	=	32
Volunteers	=	30
Peer Reviewed Publications	=	127
Books and Chapters	=	26
Research Grants and Contracts	=	70

Research Space:

Finished Research Space	=	23,000 sq. ft.
Future Brain Imaging Suite (shell)	=	4,400 sq. ft.
Clinical research projects during reporting year	=	93
Basic research projects during reporting year	=	40

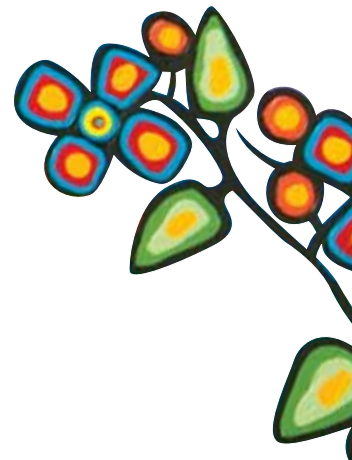
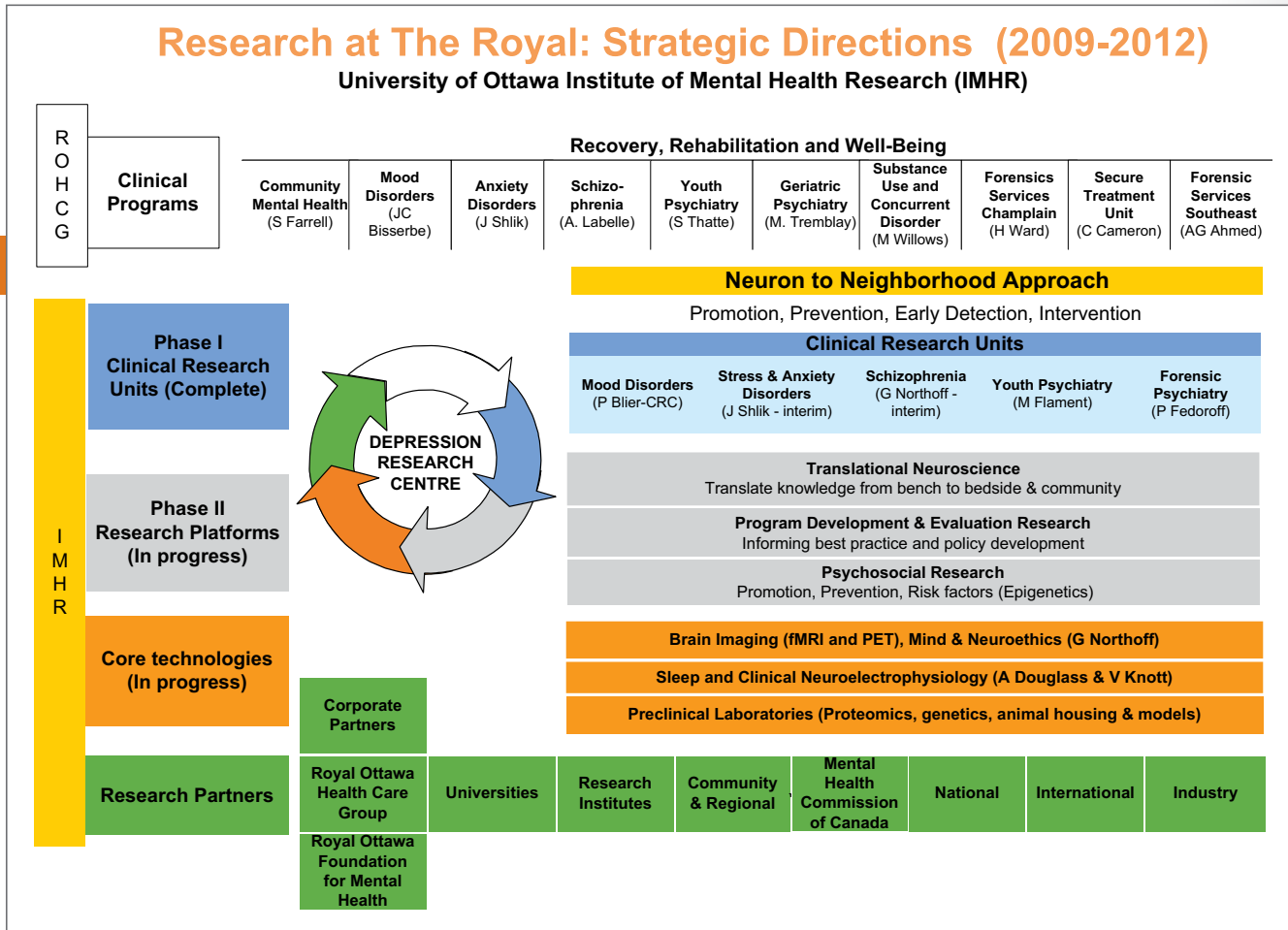


“ **The Hon. Michael Kirby**

Inaugural Chair of the Mental Health Commission of Canada

There is widespread agreement across the entire mental health community – not just in Canada but in other OECD countries – that recovery must become the goal of the mental health system. It continues to be the role of the Mental Health Commission to promote a recovery-based system. Central to recovery is discovery: the discovery of better ways to detect and treat mental illnesses. The IMHR’s Depression Research Centre is one of Canada’s most promising mental health research centres, leading – and discovering – innovative methods of early detection and treatment of depression. Of special importance, the centre’s knowledge transfer and uptake component that will enable end-user communities, including patients, families and general physicians alike, to benefit. While I credit the work of the Commission for beginning and continuing the journey that has taken mental illness ‘out of the shadows at last’, it is the work of the dedicated scientists and researchers at institutions such as the IMHR that will ultimately improve the quality of life for patients and their families. ”

Strategic Directions



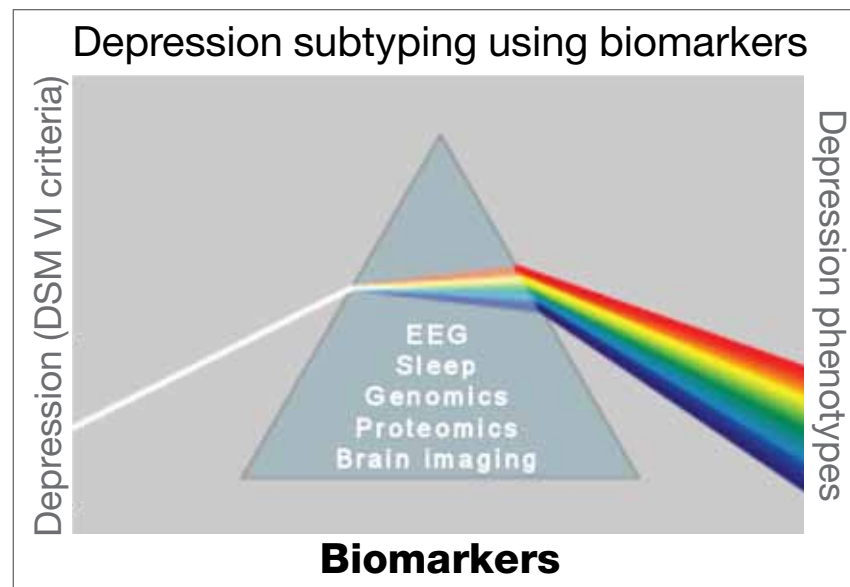


Inspiring DISCOVERY

The Royal's Depression Research Centre: Transforming the Way Major Depression is Treated

This decade has witnessed unprecedented progress in neuroscience, neuroimaging and genetics research, providing hope for imminent breakthroughs in our knowledge and understanding of the causes and effective treatment of mental illness.

This year has witnessed ground-breaking research conducted at the University of Ottawa Institute of Mental Health Research (IMHR) that is poised to transform the way major depression is treated in Canada and throughout the world.



Inspiring DISCOVERY

“Based on controlled studies, we have shown that starting with two anti-depressant medications (with different modes of action) is more beneficial than the traditional approach of using a single drug and waiting weeks to see if it works.”

— Dr. Pierre Blier.

Inspiring DISCOVERY



The IMHR is the third largest mental health research institute in Canada. In partnership with the Royal Ottawa Health Care Group, the IMHR strives to fulfill its mission to continuously improve mental health and well-being through leadership, collaborative discoveries and innovation in research, patient care and education. It has set its sights on a lofty vision: to be a premier research institute with national and international status. And though young in its years, it is well on its way to getting there.

The centrepiece of the Institute is the Depression Research Centre, established over a year ago. At the Centre, leading-edge multidisciplinary research is taking place, thanks to a unique collaboration between experts in psychopharmacology and psychotherapy, brain imaging and electrophysiology, genetics and sleep scientists. They are all working together to realize one common goal – to give new hope to people suffering from depression.

Now affecting almost three and a half million Canadians, depression strikes all demographics, regardless of gender, age and background. It is the single greatest cause of workplace disability and bears both a huge economic or financial burden and human or social cost.

“Our goal is to get people better faster,” says Dr. Zul Merali, President and CEO of the IMHR. “We want to use a systematic approach, very customized to the patient and informed by research.”

Through its interdisciplinary and multidisciplinary collaborations, the Centre is currently conducting ground-breaking research in the areas of: mood and anxiety disorders, schizophrenia, youth psychiatry, forensic psychiatry, sleep disorders, genetics and neuroelectrophysiology. Making this work even more robust is the integration into our infrastructure of a variety of research platforms, including neuroimaging, translational neuroscience and program evaluation.

This approach enhances the Centre’s ability to facilitate the integration of its findings from basic research into clinical care. For example, by unraveling the biological and psychosocial factors contributing to mental illness and by pinpointing the biological markers and triggers behind various psychological disorders, it will be possible to translate the researchers’ findings into developing innovative ways to treat mental illness – and to customize treatment for each patient.

Within the pages of this report are examples of some of the cutting-edge research being undertaken at the Centre and which are attracting a great deal of interest on both the national and international scientific stage.

Such transformative work is helping to position the IMHR as a premier research institute. Such innovative work is giving hope to the millions of Canadians who suffer from depression and whose lives may well be transformed.



“ There are strong links between depression and heart disease. People with mood disorders have a high risk of dying of cardiovascular illnesses and patients with untreated depression following a heart attack have a five times greater chance of having another attack in the next six months.

— Dr. Georg Northhoff.

”

Ground-breaking research elevating status of the Institute

The Centre has successfully recruited several distinguished scientists who are carrying out ground-breaking work in depression research:

Currently, based on double-blind studies, **Dr. Pierre Blier**, Canada Research Chair in Psychopharmacology, is using the synergy between pharmaceuticals to achieve remission in patients. Using two antidepressants of different classes instead of just one and waiting to see if it works, his studies show double the remission rates over very short periods of time.

Dr. Lisheng Du, in collaboration with **Dr. Paul Albert**, will assess the genetic profile of the patients to guide the selection of the most appropriate drug for the particular patient. Indeed, using a pharmacogenetic approach, one can select drugs based on whether a particular gene allele of the serotonin transporter gene is present or not, or whether someone is a rapid drug metabolizer (guiding the selection of appropriate drug dose).

Dr. Georg Northhoff, Canada Research Chair in Mind, Brain Imaging and Neuroethics, is using different imaging techniques such as magnetic resonance imaging and magnetic resonance spectroscopy to study the way that the brain functions in patients with depression. His hope is that brain-based diagnostic markers will be found to help physicians to quickly diagnose depression, and to determine the best individualized treatment for their patients. Should the patient receive drug treatment? Or, would s(he) be better suited to receiving psychotherapy?

In the Neuroelectrophysiology and Cognitive Research Laboratory, **Dr. Verner Knott** is mapping the human brain’s electrical signatures to ascertain whether the patient’s brain activity (EEG) shows the typical signature pattern of depression (like EKG for heart) – to confirm the diagnosis. What is even more exciting is the fact that using EEG, **Dr. Knott** will very quickly (within hours) be able to determine if the selected antidepressant medication might be expected to work. Without this window to brain function, one would typically have to wait for weeks to see if the drug will exert clinical improvement.

“

Phil Upshall

National Executive Director, Mood Disorders Society of Canada

For years, I have worked with national consumer, family, and caregiver organizations, governments at all levels, professional associations and service providers that focus on improving our mental health. And over those years, I have stressed the importance of helping Canadians understand that recovery from mental illness is possible. The work being carried out by The Royal’s Depression Research Centre underlines that possibility – giving new hope to people suffering from depression. This research-informed care is at the leading edge of care provision in Canada. I am excited to learn that this will form a hub of the Pan-Canadian Network of Depression Centres.

”



Inspiring DISCOVERY

Inspiring DISCOVERY

In the Sleep laboratory, **Dr. Alan Douglass** is looking at high rapid eye movements (REM) as a biological marker for depression and other psychological disorders. Depressed individuals display a characteristic increase in the density of REM. In addition, depressed individuals often display altered sleep patterns (or sleep architecture) or interruptions of breathing during sleep (sleep apnea). His sleep analyses will not only help diagnose depression, but will also identify sleep disorders if they co-occur with depression and offer appropriate treatment options. In the future, through such analyses, **Dr. Douglass** also hopes to identify individuals vulnerable to developing depression (genetic and other factors), so we can intervene early.

In the context of early detection and intervention, **Dr. Robert Milin** is studying the link between substance abuse and bipolar disorder and schizophrenia in teens. As a researcher, he is ready to unveil the first-ever study of a Canadian-developed school curriculum on mental health in local high schools this September. The findings have the potential to feed into a national mental health strategy for young people. **Dr. Martine Flament**, the Clinical Research Unit Director for Youth Psychiatry, is following a large group of adolescent high school students, to identify factors that contribute to suicidal ideation and depression. These studies will help identify risk and resiliency factors so that appropriate interventions can be made early enough to avert the negative consequences of depression and other mental health issues.



Allan Rock

President and Vice-Chancellor, University of Ottawa

As a Member of Parliament for nearly a decade and Canada's Minister of Health for several years, I have been a long-time advocate and proponent of health research at a national level. In my role as President and Vice-Chancellor at the University of Ottawa, I have become acutely aware of the issues around mental health and youth – and the need for early intervention and research. The fact that the youth suicide rate in Canada is the third highest in the industrialized world and that suicide is the second leading cause of death between 15 and 24 years of age, says to me that never has there been a greater need for research in this area. The work being undertaken by the University of Ottawa Institute of Mental Health Research, at the Royal's Depression Research Centre, has already had an impact on youth who need mental health care, leading to better long-term outcomes not only in Canada but internationally.



- Dr. Pierre Blier

Boosting the Success Rate for Treating Depression

Imagine that you have been battling depression for years without much success. On top of this, you find out that now you even have difficulty remembering things or concentrating. Could this be related to accelerated shrinkage (by one per cent every year) because of depression? That would be akin to kidney failure due to poorly controlled diabetes. That would be bad news.

But here's the good news, thanks to the work of **Dr. Pierre Blier**, head of IMHR's Mood Disorders Research Unit, and his team.

Using the conventional single-drug approach, typically only about a third of the patients get better. Following on the heels of laboratory research on the effects of antidepressants in experimental animals, Dr. Blier undertook a year-long study involving 27 people with severe depression and who had failed to respond to conventional treatment (with an average of six failed individual drug trials). Using a dual-medication approach, he administered two different antidepressants based on the findings of his research in the laboratory (from the bench to bedside).

The results of this more aggressive approach were astounding: almost half of the 27 previously non-responsive people got well and stayed free of depression for at least six months. What was even more striking was the fact that they regained some brain tissue that was lost during the period of depression when individual drugs were not working. In contrast, the patients who failed to respond to treatment continued to lose brain volume.

The next step is trying to figure out which drug combinations work the best on people. "Although we can't always predict which combination is going to work best," says Dr. Blier, "we choose ones that we think are going to produce the best response, based on the individual's profile. For example, if a depressed person has severe insomnia, we choose antidepressants with a sedative action so that the person can sleep better. In the meantime, we wait to see how both antidepressant drugs will work to treat the depression without causing intolerable side effects."

It's a tricky business. But a collaborative effort between Dr. Blier's team and a team at Columbia University in New York is certain to make inroads into this very grey area and pinpoint the kinds of medications that work best together. The collaborative study may also confirm his findings that early aggressive treatment using two medications is the right approach.

With funding from the American National Institute of Health, the study involves administering a different combination of antidepressants and other medications over 12 weeks to 120 people at each centre. "With such a huge group, the clinical findings are going to really show which two drugs work well together in treating particular symptoms," says Dr. Blier.

By clarifying how antidepressants work and by administering them from the start, Dr. Blier is helping to advance the treatment of depression. "With aggressive treatment it does not have to take months to bring depression into remission in the vast majority of cases."



The 4-wheel drive analogy

Some antidepressants work on some neurotransmitters; others work on other neurotransmitters. When you use them together, you get better results — it's what we call 'synergy.'

It's like getting stuck in the snow and you only have a car with either a front-wheel or rear-wheel drive. You may get unstuck, but it'll take more time; or you may stay stuck. But with a four-wheel drive, you have two sets of tires working on different parts of the car, but working in synergy to get you unstuck.

To use this analogy in the medical world, it's important not to administer two medications that essentially work on the same system — or the patient remains stuck.



“ We can't predict which combination of drugs is going to work better, but we choose a combination based in part on the benefits that these drugs can produce immediately.”



- Marie Pearce



Inspiring HOPE

Hope Is Here for Marie

Marie Pearce is in a much better place now than she was two to three years ago — and she has Dr. Pierre Blier’s work to thank.

Work place stress and Marie’s spiral into depression:

Marie was a top-level, high-performing manager at a corporation when she began to spiral downwards, her gradual depression triggered by a disagreement with a senior official at work. As she found herself being shut out, her work ignored, her performance questioned and team members receiving kudos while she was passed over for praise, she began to lose confidence in her abilities and herself. Her self-esteem became fragile and, more and more, Marie found it harder to get out of bed and go to work.

Even a short sick leave didn’t help — at the time Marie thought all she needed was rest and time away to sort herself out. “I cried before I got into the building, I cried at my desk and in the washroom,” she says. “The only place I felt safe was in my home.”

But then even home didn’t provide the joy it once held. A long-time SENS fan, Marie gave away her entire season tickets. She lost joy in gardening. Days and weeks went by when she had no idea what she did. “It was like living in a black hole. But I didn’t think I had depression. I just thought that if I could figure things out, everything would get back to the way it was,” Marie says.

It didn’t.

Marie’s usual doctor moved away and she ended up seeing a few physicians, who kept prescribing her sleeping pills. Marie became suicidal and one night in desperation drove to the Royal Ottawa Mental Health

Centre, for help. Told she needed a doctor’s certificate of referral, her latest doctor made the referral, and the next day Marie was invited to participate in a new research initiated treatment approach, through Dr. Blier’s double blind study.

When she entered the study program, Marie didn’t believe anyone could help her. “But Dr. Blier said he could, so I clung to his belief,” says Marie. That one small thread of hope kept her going — and away from the abyss.

Twelve weeks into the program, Marie began to notice small improvements in her quality of life. She remembers going out one day to look at the flowers blooming in her garden. After six months of treatment, Marie was feeling more confident and, having left her previous position, felt stable enough to start applying for work at a new organization.

It’s been over a year now. She is still on medication and checks in with Dr. Blier every six months, or if she’s feeling down that day.

And while her self-esteem isn’t yet where it used to be — “if I had a tyrant for a boss, I’m sure I would be back in a bad place” — she has hope for the first time in a long time.

“ The research study program was my lifesaver, she says.

Research provides the hope and new solutions. The Royal’s Depression Research Centre will provide research-informed innovative care for all who need it. ”



- Dr. Georg Northoff

Unravelling the Depressed Brain's Secrets

The brain may indeed be the final frontier. What we know about its mysteries, and why some people are more prone to depression, is an important and fascinating territory and a focus of research for Dr. Georg Northoff. Dr. Northoff, a recent recruit at the University of Ottawa Institute of Mental Health Research, is a world-renowned neuroscientist, psychiatrist and a philosopher.

By peeling back the “layers” of brain circuits to understand such a complex organ, Dr. Northoff, Director of the Mind, Brain Imaging and Neuroethics Research Unit, and his team of 15 scientists from around the world, are shedding light on an illness that affects millions of people worldwide. At the heart of Dr. Northoff’s research is the understanding that the brain is much more than a biological organ that reasons, processes and computes. It defines a person’s identity.

Understand this and what constitutes the “self” and you begin to understand how a combination of prescription drugs and psychotherapy influence brain function to treat mental illness.

By using advanced brain imaging tools, such as functional magnetic resonance imaging (fMRI), Dr. Northoff has found that virtually all people suffering from depression display abnormally high resting state brain activity compared to the low fluctuating wave patterns seen in the healthy (non-depressed) brain. It is akin to the diabetic having high levels of glucose. This high “resting state” activity predisposes a person to react abnormally — albeit negatively — to situations or events; to focus too much on themselves; to think negative thoughts; to derive little or no pleasure from normally enjoyable activities (core symptoms of depression).

Why is this so? What can be done to change this? These are the questions that Dr. Northoff set out to answer.

Besides genetics or biology, one’s past experiences (psychosocial factors) are also responsible for predisposing one to develop depression. It is this interplay between genes/biology and one’s environment that supports Dr. Northoff’s approach of using both drugs and psychotherapy in the treatment of depression.

Dr. Northoff plans to continue studying the impact of pharmacological and psychoanalytical interventions on brain function. His goal is to develop better therapeutic tools targeted to a person’s unique brain activation pattern and physiology.

“What are the brain’s secrets? How does something as seemingly objective as a brain produce something as subjective as a sense of self?” asks Dr. Northoff. “This really goes to the core of how we understand and treat depressed people moving forward, and why drugs provide only part of the solution.”

It’s a case of being in an overcrowded market

If you’re a normal, healthy person, you can separate out thoughts and feelings and rid yourself of those that are negative or unhealthy. But if you’re depressed, you can’t do this.

Think of the unhealthy brain as being stuck in an overcrowded market. When it’s in a high resting state, the brain can’t absorb new things or make new connections; like in a busy, overcrowded market, the brain is oversaturated and overwhelmed.

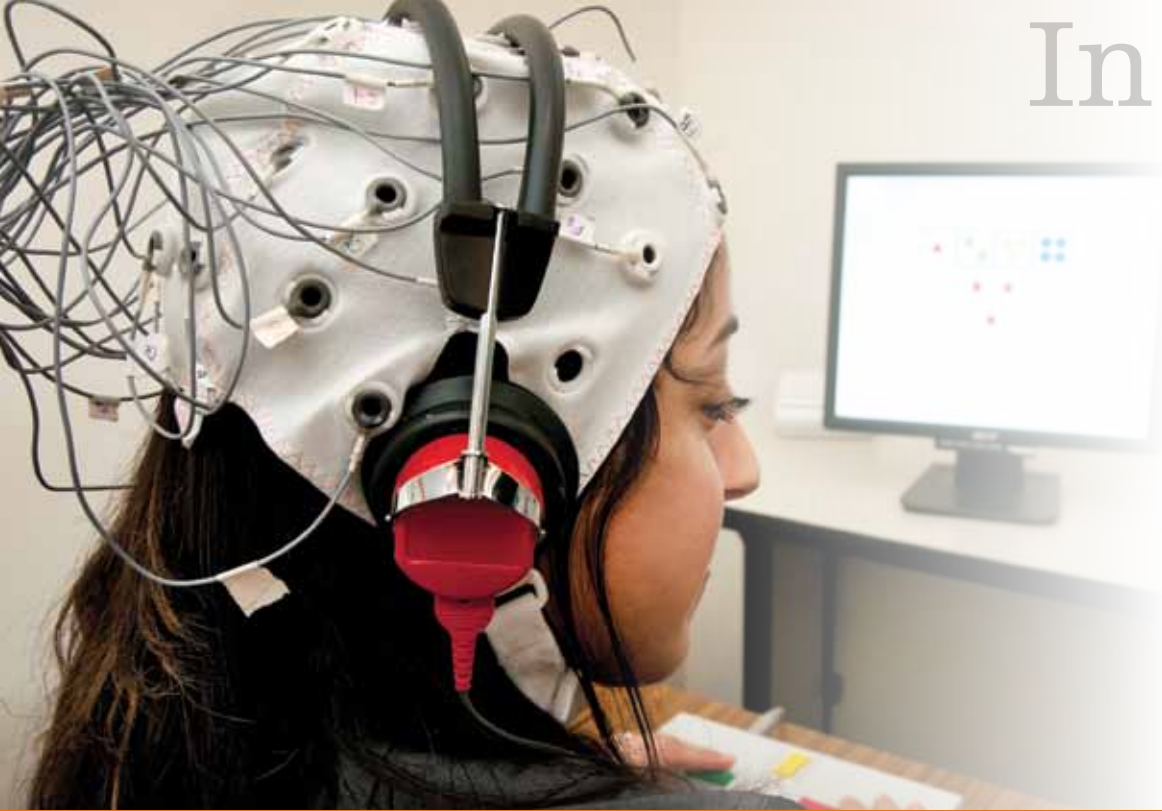
The person keeps thinking the same negative thoughts about themselves over and over again. Eventually (s)he becomes disconnected from others and the world around them. The result is a feeling of misery and depression.



95%

of all depressed people show high resting state brain activity, similar to fever in the case of an infection.

“ We need pharmacotherapy to open the ‘door’ into a person’s mind and psychotherapy to walk through it at the right moment, to ‘repair’ brain functioning. If we don’t walk through it at precisely the right moment, the door might shut again, this time even tighter. ”



Inspiring HOPE

Understanding the Concept of 'Self' in Suicidal Teens

When you lose all hope, you can't see a positive future for yourself. That's when suicidal thoughts occur.

"Why is the 'self' attributed so much to negative emotions and the feeling of worthlessness in teens?" asks Dr. Northoff. "In the case of teens, they undergo an existential crisis of their sense of 'self.' In other words, when they no longer feel or subjectively experience their own sense of self as such, they get despondent and feel that life is not worth living."

On the flip side, the concept of hope increases the drive to live.

"The more one is able to project one's own self into the future, one is less likely to have suicidal thoughts and, ultimately, suicide attempts," says Dr. Northoff.

The degree of hopelessness in people with depression is related to abnormally high brain activity in specific regions. Using magnetic resonance imaging (MRI) and other tools, Dr. Northoff is taking his passion for comprehending the relationship between the brain and the mind, and how this sheds more light on the suicidal teen. He is currently investigating how youth with a previous history of suicidal thoughts differ from those who have never had suicidal thoughts.

Given that the youth suicide rate has tripled since 1970, Dr. Northoff's work could shed new light into the relationship between a young person's thoughts and their brain neural circuits. He hopes that this study will offer a better understanding of how the brain works and how this changes with mental ill health, opening new therapeutic avenues.



- Dr. Verner Knott

- Dr. Alan Douglass

- Dr. Elliott Lee

Connecting the Dots Between Abnormal Sleep and Depression

“ One of the more clinically useful things we are doing is making a difference to their sleep cycle immediately; Once you fix the sleep disorder, then the person is better able to respond to the medication – and that is very gratifying for the patient and the clinician. ”

When people sleep and enter into the ‘dream stage’ of the sleep cycle, they display rapid eye movement (REM). There is strong evidence suggesting that the characteristics of such REM sleep may represent a biological ‘signature’ for depression. Furthermore, are there connections between interrupted breathing during sleep (sleep apnea) and other psychiatric conditions such as schizophrenia, or even early-onset dementia? Interesting questions — and the answers may just lie in the sleep laboratory at the IMHR.

Dr. Alan Douglass, Co-Director of the Sleep and Clinical Neuroelectrophysiology Laboratory, along with co-researcher, Dr. Elliott Lee, are adding to the body of evidence that abnormal sleep patterns accompany many psychiatric illnesses such as depression and schizophrenia.

Everyone goes into REM sleep, but depressed patients show more eye movement per minute — as much as 10 times higher — than non-depressed people. This could represent a robust diagnostic ‘signature’ for depression. What is also quite interesting is that high REM density abnormalities often precede the onset

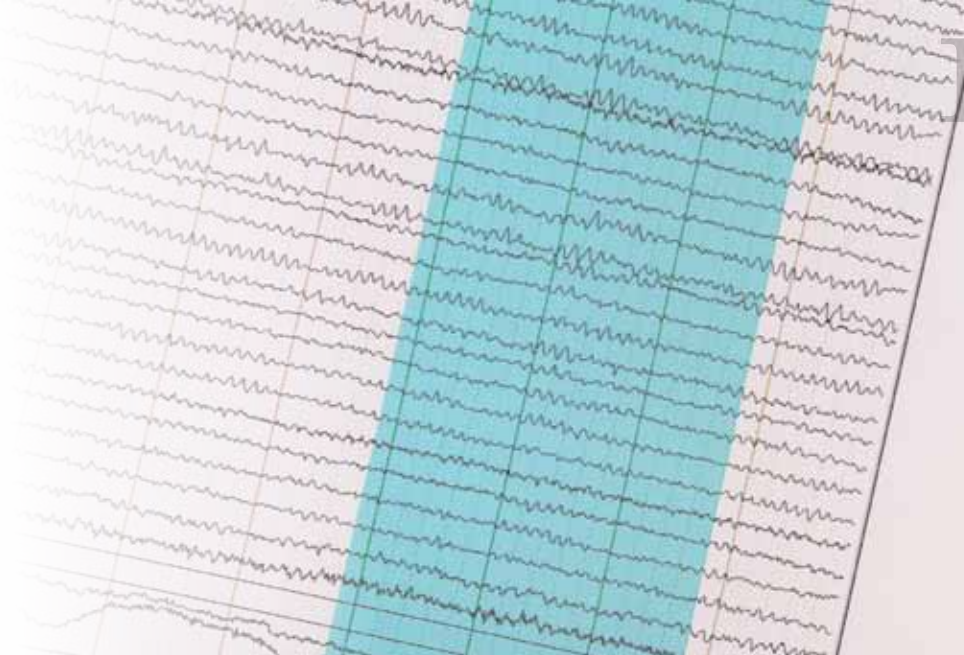
of depression. “If you take a teenager who is at risk of developing depression (i.e. a child of parents who have suffered from depression),” says Dr. Douglass, “chances are that teen will have high REM density.”

With the advent of automatic detection systems that record REM activity, Dr. Douglass’s team has had the chance to examine this phenomenon in greater detail. In one study, he is probing how those with genetic vulnerability to depression may respond to drugs that either provoke or suppress REM activity. The goal is to see if those with the at-risk versions of the genes show higher REM density on the probe drugs. He hopes that his findings will eventually provide more understanding about the biological connection between REM activity and psychiatric illnesses.

What he can say unequivocally is that in patients with sleeping difficulties (chronic insomnia) without an obvious physical cause for the sleep disorder, this indicates presence of a psychiatric illness. Indeed, if there is no sleep apnea or a physical condition to explain the insomnia, about 75 per cent of patients



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will prove to have depression or anxiety disorders. Once their psychiatric illness is treated, the chronic insomnia is resolved. Treat the psychiatric illness and you treat the insomnia.

In patients who have a severe psychiatric illness for which they are being treated but are not getting well, Dr. Douglass has found that sleep apnea could be the culprit. In those cases, we recommend treating the insomnia first and then treat the psychiatric illness.

Over the next few years, Dr. Douglass will continue to probe the connection between sleep patterns and psychiatric illnesses. Better understanding will some day lead to better treatments and help patients respond to their medication.



The Hon. Bob Chiarelli

**Minister of Infrastructure,
Ontario Legislative Assembly**

The residents of Eastern Ontario are most fortunate to have access to one of Canada's leading providers of mental health care and research at The Royal. The impact of the groundbreaking research being carried out at its research institute, namely the University of Ottawa Institute of Mental Health Research (IMHR), reaches far beyond the borders of Ontario or even Canada, positioning the IMHR as a world-class leader in depression research. With major depression now a health care problem of epidemic proportion, it is critical that we continue to develop more effective treatments to get us ahead of this problem. The Royal's Depression Research Centre works with world-renowned researchers and scientists across the Province to transform the way major depression is diagnosed and treated. Our government is committed to work with the IMHR and its partners to ensure that Ontario positions itself as a global Network of excellence.



- Dr. Robert Milin



Understanding Mental Illness in Teens

Is there a link between substance abuse and mental illness in teens? If there is, how do we break the ‘stigma’ around mental illness and reach teens early enough for them to seek treatment if they are depressed or in distress? These questions lie at the heart of Dr. Robert Milin’s work as a clinician and researcher at the IMHR.

With teen substance abuse at alarmingly high levels, and with suicide the second-leading cause of death among young people between the ages of 15 and 25, it’s important to try to bridge the gap between what we know about adolescent mental disorders and substance abuse. It is also important to know how this knowledge can be used to help young people — before it is too late.

In one ground-breaking study, Dr. Milin and his colleague Dr. Anne Duffy, tracked the children of parents who have bipolar disorder, in order to get clearer insight into how bipolar disorder manifests itself — and when. The results published in national and international major psychiatric journals, show that the disorder presents itself in a particular sequence, starting with non-specific childhood disorders, to minor mood issues in the early teens, to major depression in later adolescence, and eventually to bipolar episodes later on.

“You cannot take a blood test for bipolar disorder,” says Dr. Milin. “But our early findings indicate that the way bipolar disorder presents itself could be a predictive model that we can use to help us understand which kids may be more prone to developing the disorder.”

In a CIHR-funded follow-up five-year study now taking place, the research team will be confirming its findings and assessing how early diagnosis can lead to more positive outcomes for these teens. Dr. Milin and colleagues are examining the impact of substance use on the manifestation of bipolar disorder.

In a related analysis of the study, Drs. Milin and Duffy found a link between substance abuse and bipolar disorder. “If we found a teen who had an issue with substance abuse, that teen was much more likely to develop psychotic symptoms.”

“What this tells us is that substance abuse exists before or during the very early stages of the onset of bipolar disorder. While we can’t show a clear cause-and-effect yet, all of our findings point to a strong link between substance abuse and mental health disorders,” adds Dr. Milin.

“Early intervention is so important,” says Dr. Milin. “We can do a much better job of treating a person if we get to him or her at a young age.”

““ The participants and the parents involved in the first bipolar study feel that research is important to understanding bipolar disorder better. Some of the original children are now parents and are eager to have their children involved in the second study.

“The study provides the opportunity for reflection on how one is doing and feeling.”
(anonymous participant)

“The study is very helpful and reassuring.” (anonymous parent) ”



Let's Get Kids Talking About Mental Illness

Mental illness continues to carry a stigma — particularly among young people. They hide their problems from family, friends and peers for as long as possible. Over 90 per cent of young people who commit suicide have a diagnosable mental illness. It is thus important to get mental illness out of the closet, before it is too late.

Dr. Milin is leading the first-ever study of a Canadian-developed school curriculum on mental health, that could inform the national mental health strategy for young people. The curriculum, developed by national partnerships, titled *Mental Health and High School Curriculum Guide: Understanding Mental Health and Mental Illness*, provides a complete set of educational tools to increase understanding of mental health for students. The curriculum provides teachers with the necessary knowledge and understanding, so that they can share this knowledge with the students in a supportive environment.

Dr. Milin and colleagues will be rolling out the curriculum guide in Ottawa schools this September in a large, randomized controlled trial. To assess their effectiveness, he will over the next 2 to 3 years, assess whether students retain this knowledge about mental illness, and if the stigma attached to mental illness is reduced. He will also determine whether teens change their attitudes and behaviors to the point where they may seek help for mental health-related problems or encourage their friends to do so, in a more timely manner. This three-pronged approach makes his study unique.

“If the curriculum guide makes a positive difference, we then will have the evidence we need to begin the process to make mental health a part of a school’s health and wellness curriculum,” Dr. Milin says.

90%

of teens who complete suicide have a diagnosable mental illness.

“ Major psychological disorders are prevalent in young people between the ages of 15 and 25. Yet, this age group is the least likely to seek treatment. A curriculum like the one we are rolling out, has the potential to encourage teens to seek help before their problems become much more serious. ”



- Dr. Verner Knott

Taking the ‘Guesswork’ Out of Treatment

The way we respond to the external world through, for instance, sounds and/or visual cues like sad or happy expressions, may help to determine whether we are depressed — and whether antidepressants are doing the trick.

Dr. Verner Knott and his team at the IMHR’s Neuroelectrophysiology and Cognitive Research Laboratory, measure how people respond to these external stimuli, by measuring brain’s electrical activity, like one monitors the heart’s electrical activity through an electrocardiogram (ECG). It is called mapping the human brain’s electrical signatures — and Dr. Knott’s findings are helping to take the ‘guesswork’ out of diagnoses and treatment of mental illness.

People who are depressed have altered brain neurotransmitter functioning, such as lower levels of serotonin, but not everyone who is depressed responds quickly to antidepressants (and some do not respond at all to some drugs) that restore neurotransmitter function. This is in part due to the fact that some individuals metabolize the antidepressant drugs fast and others have unique brain functioning abnormalities.

One way to improve this outcome is to find the right drug for each person. To do so, it would be very useful if we could first identify whether the selected drug is entering the brain and changing brain function. This way, you bypass all the waiting that usually goes on in trying to find the right drug at the right dosage, when symptom changes being monitored take weeks to change.

“Each class of drugs like selective serotonin reuptake inhibitors (SSRIs; drugs that enhance serotonin levels), produce a characteristic fingerprint or electrical signature,” says Dr. Knott. “If a drug can penetrate into the brain and does what it is intended to do, we would know we are heading the right way. Using our non-invasive method of monitoring the brain’s electrical activity, we can detect this signal within the first two hours of administering the antidepressant medication, indicating whether the drug is getting to the brain and changing its function. That way we can quickly determine whether we are using the right drug for that patient.”

This method is based on their earlier study of 29 patients, where Dr. Knott discovered that those who did respond favorably in terms of altered brain signature electrical response, within two-hours of drug administration, showed a good clinical response four weeks later. “This type of investigation at the start of treatment provides a rapid, non-invasive and relatively inexpensive way to predict treatment outcomes — and helps avoid the long (weeks or months) trial-and-error process that physicians often go through when they are trying to find the right drug for their patient,” Dr. Knott said.

Other monitoring experiments include measuring a patient’s response to emotionally laden stimuli (sad and happy faces) or other positive stimuli (depressed people react quickly to sad faces — it’s how they process their environment). This technique shows the promise of providing a diagnostic tool for depression.

“If we can use brain activity monitoring as an early ‘signature’ of depression and as an early predictor of how we treat people with depression, then we can be more successful in treating an illness that affects so many people,” says Dr. Knott.

“ This is basic fundamental research method — mapping the electrical signatures of a depressed brain, finding out what drugs positively affect those signatures, and ultimately helping the depressed person respond to treatment. ”



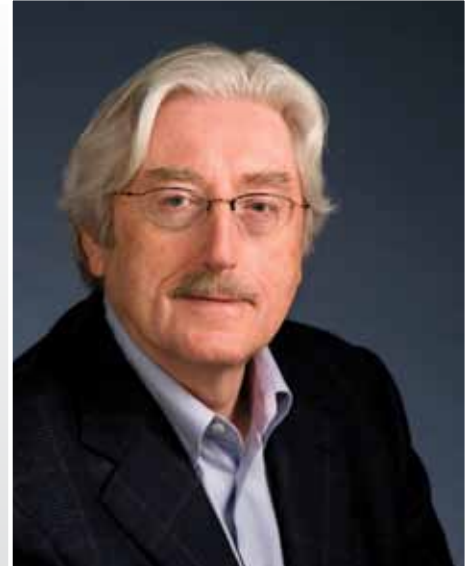
The Emotional Expression Study

Do depressed people react to their environment differently? If so, how?

To get a clearer picture of how people vulnerable to depression process external stimuli, especially emotionally laden stimuli, Dr. Knott monitored the brain activity of as yet non-depressed individuals with a family history of depression. Dr. Knott assessed their response to facial expressions in an attempt to see whether such a test could differentiate depression-prone individuals from those without such a predisposition.

Dysfunction of a brain chemical called serotonin (or 5-Hydroxytryptophan; 5-HT) is implicated in depression. Thus, Dr. Knott temporarily decreased brain serotonin levels by acutely depleting tryptophan (from which serotonin is made) from the diet. He then assessed the brain's response to flashes of pictures depicting facial expressions ranging from happy to sad to surprise, using electroencephalography (EEG). The results revealed that lowered serotonin levels resulted in more intense responses to sad expressions.

This suggests that measuring cognitive functions, such as emotive facial processing, and associated electrical brain activity before and during the antidepressant treatment may be useful in quickly assessing whether one responds to a particular antidepressant medication. This would be an advantage over the normal course of evaluation where one has to wait weeks to see a clinical response.



“ Dr. Anthony Phillips

Scientific Director, Institute of Neurosciences, Mental Health and Addictions, Canadian Institutes of Health Research

The Canadian Institutes of Health Research's (CIHR) new “road map” focuses on a Strategy for Patient Oriented Research (SPOR). As the Scientific Director of the Institute of Neurosciences, Mental Health and Addiction (INMHA), I support and recognize clinician scientists such as those who carry out ground-breaking research at the IMHR's Depression Research Centre, devoting their time and effort to finding, for example, diagnostic tools that will help better assess neuroscience illnesses. Their leading-edge research, along with that of a broad, dedicated community of health research professionals nation wide, is producing innovative results that will benefit all Canadians.”



Inspiring THE FUTURE



IMHR's Young Researchers

As a mental health research centre, the IMHR values its young workforce in training. Our researchers and clinicians place a lot of value on training, education and supporting young researchers, as they represent our future; they bring “excitement, muscle and brain power” to the Institute.

The following stories highlight some of the work our trainees are doing. We will depict a story of one young investigator involved in basic (or “bench”) research, studying the neurobiology of depression using an animal model of depression and how this knowledge is applied clinically (from the “bench to the bedside”). The other story will depict a holistic approach to research in patient care.

Studying the neurobiology of depression: Dr. Ramez Ghanbari

In both rat and human brains, antidepressants work on the very same brain chemical (or neurotransmitter) systems. In the lab, Dr. Ramez Ghanbari's findings help to unravel the effects of various antidepressants on brain chemicals that combat depression. Over the course of the last five years, his pre-clinical work has shown that a combination of two different antidepressants has the potential of producing more powerful neurochemical changes than when those drugs are used singly. This information is then translated into clinical application by his supervisor, Dr. Pierre Blier, who has shown that a combination treatment is indeed clinically more effective.

Now that this research has provided a better understanding of how antidepressants act on various neurotransmitters in the brains of rats, the next step is to use this knowledge to tackle depression effectively in humans — and confront what is a major health problem around the world.

The prevailing approach to treating depression has been to administer a single antidepressant drug and when this doesn't work to substitute it with another single drug. Dr. Ghanbari's work is helping to change this approach.

Using a holistic approach to treat sexual offenders: Dr. Drew Kingston

In another lab at IMHR, Dr. Drew Kingston's world is that of the development of treatments for the sexual offender. For this group of people, the prevailing treatment has been to identify what situations an offender should avoid. Instead, Dr. Kingston's more holistic approach builds on a person's strengths and targets those factors that may cause that person to re-offend. This treatment approach is based on both the “self-regulation” and “good lives” models, which encourage and motivate a sexual offender to seek the right treatment, develop positive relationships and, ultimately, become a fully functioning member of society.

In line with such effective treatment, Dr. Kingston's research has also looked at the reliability and validity of current assessment methods. Only by assessing sexual offenders adequately and finding out what they are experiencing or suffering from — whether it's a deviant sexual preference or problems with keeping their emotions in check — is it possible to treat them effectively.



Dr. Ramez Ghanbari

Imagine that two antidepressants used together have the ability to markedly enhance the remission rate in humans. Dr. Ghanbari's research on rats points to this very encouraging possibility — and the ground-breaking approach established by his mentor Dr. Pierre Blier.



- Dr. Drew Kingston

Imagine the positive effect of applying the “self-regulation” and “good lives” models to all sexual offenders in Canada. About 13,000 people are incarcerated in federal prisons today, of which 18 per cent are serving sentences for sexual offences.



Young Researchers' Conference Builds Connections from 'Lab to Life'

The University of Ottawa Institute of Mental Health Research (IMHR) affords young researchers the opportunity to learn from each other by hosting an annual Young Researchers' Conference. This conference aims to cultivate a forum of knowledge exchange and a foundation for collaboration among young researchers.

The theme of the 3rd Annual conference, held in March, 2011, was *"Lab to Life: Translational Mental Health Research."* Subject matter focused on the future of research: the notion of building connections between the bench and bedside, bringing together groups of researchers from various universities and disciplines in an effort to show participants both the laboratory and clinical sides of mental health research. It was hoped that in addition to the fundamental knowledge gained, attendees would come away from the conference with a better understanding of mental illness from the perspective of those who suffer; fueling their desire to build connections that translate from the lab ... to life.

The conference featured oral presentations, a series of workshops and keynote addresses by Dr. Gustavo Turecki and Rachel Scott-Mignon. Dr. Turecki, Director of the McGill Group for Suicide Studies, addressed the

issues of early life adversity, hormonal dysregulation and suicidal behavior. Ms. Scott-Mignon shared her own personal story of the trials and tribulations of living with a mental illness. Her message was also one of hope, hope of breakthroughs through research that will help eliminate the pain and suffering engendered by mental illness, especially in the youth.

The poster presentation sessions provided an opportunity for all the researchers to share each other's research findings. This was followed by an award's ceremony for the best posters and oral presentations. Among the many excellent posters, the following were awarded the top honours: Amir Tahmasebi from Rotman Research Institute, University of Toronto, for the Best Oral Presentation; Crystal Villeneuve, Carleton University, for the Best Clinical Research Poster; Juan-Pablo Lopez, McGill University, and JoJo Jiang, University of Ottawa, for the Best Basic Research Posters (tied for first); Gary Fine, Carleton University, for the Best Undergraduate Research Poster; and Kate Raspopow, Carleton University, who won the Viewers Choice Award (chosen by conference attendees who voted for their favorite).



Inspiring PARTNERSHIPS

Our Partners

At the IMHR we value our strong partnerships. Engaging our partners in leading-edge multidisciplinary research programs helps us foster innovative ways of diagnosing and treating mental illness.

We believe that by working together, we will integrate our basic and clinical research knowledge with clinical services, education, teaching and advocacy and awareness; ultimately providing patients suffering from mental illness with the very highest quality care.

CORPORATE PARTNERS:

The Royal

The Royal is comprised of the Royal Ottawa Health Care Group, the University of Ottawa Institute of Mental Health Research and the Royal Ottawa Foundation for Mental Health.

The Royal Ottawa Health Care Group (ROHCG)

Provides specialized mental health services for residents across Eastern Ontario with complex and serious mental illnesses. The Royal’s clinicians work with community partners to ensure patients/clients have timely access to services including inpatient, outpatient, partial hospitalization, day hospital, assertive community treatment, outreach and consultation models of treatment.

The Royal Ottawa Foundation for Mental Health (ROFMH)

The Royal Ottawa Foundation for Mental Health raises funds to support the best possible patient care and leading edge research provided by the Royal Ottawa Health Care Group and the University of Ottawa Institute of Mental Health Research. The Foundation’s funds provide support for the purchase of Hospital equipment, capital projects and research that contributes to the improvement of patient care and research, now and for the future.

The University of Ottawa

The University of Ottawa is one of Canada’s top research-intensive universities that facilitates continual collaboration and fosters leading-edge research training. It is committed to building a health research enterprise that fosters excellence and encourages an interdisciplinary approach to knowledge creation, which attracts the best academic talent from across Canada and around the world.

Great-West Life

Great-West Life is a corporate leader in the area of mental health in the workplace. Its Centre for Mental Health in the Workplace was formed with two key objectives: to increase knowledge and awareness, and to turn knowledge into action by helping employers, managers and employees prevent and reduce the impacts of mental health issues in the workplace.

Great-West is a strong supporter of the IMHR, and its support has evolved from capital infrastructure to an overall mental healthcare strategy with regional and national impact, including its contribution to the establishment of research fellowships and a first-of-its-kind Pan Canadian Research Network Secretariat.

BMO Financial Group

On a national level, BMO Financial Group is strongly committed to giving back and investing in communities by supporting a broad range of initiatives including health care and, more specifically, mental wellness. In our own community, BMO serves as an icon of corporate leadership, at the forefront of supporting the work being undertaken by the IMHR in the area of depression research. BMO is a proud presenting sponsor of The Royal’s Inspiration Awards gala, fueling hope, celebrating mental health, research and philanthropy. Their on-going financial support has helped catapult mental illness to the top of the corporate funding agenda, inciting others to make mental health a priority.

NATIONAL PARTNERS:

The Mental Health Commission of Canada (MHCC)

The MHCC is a non-profit organization created to focus national attention on mental health issues. It is funded by the federal government but operates at arm’s length from all levels of government. The Commission’s objective is to enhance the health and social outcomes for Canadians living with mental health problems and illnesses. In addition to producing a mental health strategy, the Commission is currently pursuing four other strategic initiatives: a ten-year effort to combat stigma and discrimination; building a pan-Canadian mental health knowledge exchange infrastructure; creating a broadly-based organization of mental health volunteers; and conducting research demonstration projects on homelessness and mental illness in five cities.

Inspiring PARTNERSHIPS

NATIONAL UNIVERSITIES AND RESEARCH INSTITUTES:

Carleton University
Centre for Addiction and Mental Health
Children's Hospital of Eastern Ontario Research Institute
Dalhousie University
McGill University
McMaster University
Montreal Neurological Institute
The Ottawa Hospital Research Institute
The University of Ottawa Heart Institute
University of Alberta
University of British Columbia
University of Calgary
University of Manitoba
University of Montreal
University of Ottawa
University of Saskatchewan
University of Toronto

INTERNATIONAL PARTNERS:

International Academic Centres

A partial list of international organizations with whom the IMHR has significant partnerships.

Austria: University of Vienna

Brazil: Pontifical Catholic University, Ponto Alegre

China: Chinese Academy of Science, Huazhong University of Science and Technology, Peking University, Shaanxi Normal University, University of Hangzhou, University of Hong Kong

Costa Rica: Universidad Nacional, Heredia

France: INSERM University Bordeaux, University Paris VI, University of Paris VII, University of Paris Ouest

Germany: University of Berlin/Charite, University of Dusseldorf, University of Gottingen, University of Munich,

Hungary: Hungarian Academy of Sciences, Semmelweis University

Italy: University of Bologna, University of Rome

Iran: University of Tehran

Spain: University of the Basque Country

Switzerland: University of Zurich

United States: University of Michigan



Mr. Bill Wilkerson

Founder, Chair and CEO of Global Business & Economic Roundtable on Mental Health

Employment absenteeism directly related to mental health costs the Canadian economy \$51 billion a year in lost productivity. In my view, depression among Canada's public servants is reaching a crisis level. If those two facts aren't enough to demand we make headway as a nation in the area of treating mental illness, I will add one more: between 30 and 40 percent of all disability claims in Canada are for depression. The Depression Research Centre has the potential to take Ottawa – with its highly distressed workforce – from being the “depression capital of Canada” to being the “depression research capital of Canada”. The work that is being undertaken by the Centre's world-class researchers is transforming the way depression is diagnosed, prevented and treated – and in light of the fact that depression is the fastest-growing source of workplace disability, it couldn't come a minute too soon.

Inspiring PARTNERSHIPS

Board of Directors



James Morrissey (Chair)

Is a Senior Partner with Ernst & Young Canada (Tax Knowledge expert). He is an elected Fellow of the Institute of Chartered Accountants (FCA), and the winner of “The Partners in Research Biomedical Science Ambassador Award” in the Lay Community. He has served as the past chair of several Boards, including the Sage Foundation, Children’s Hospital of Eastern Ontario Research Institute and the Ottawa Hospital Research Institute.



Roxanne L. Anderson (Vice-Chair)

Is a Partner with Pricewaterhouse Coopers (PwC) LLP, Ottawa. Roxanne’s expertise is in the area of financial management both in the private and public sector. She assists the Canadian Federal Government in the area of financial management which have in turn involved transformation, policy and strategic advice.



Shirley Westeinde (Past-Chair)

A recent recipient of the Order of Canada, Shirley has been a fundraiser for a range of charities, a proponent of research in health and biomedicine, a promoter of women in business, and active in a number of local business and economic organizations. She is currently the Chair of the Westeinde Group of Companies.



Dr. Zul Merali (Secretary)

Is the President and CEO of the University of Ottawa Institute of Mental Health Research. He is a full professor in the faculties of Medicine (Departments of Cellular & Molecular Medicine and Psychiatry) and Social Sciences (Psychology) at the University of Ottawa, as well as research professor at the Institute of Neuroscience at Carleton University.



Dr. Raj Bhatla

Is the Psychiatrist-in-Chief, and Chief of Staff of the Royal Ottawa Health Care Group. He is an Assistant Professor of Psychiatry at the University of Ottawa and Medical Director of the Ottawa-Carleton Assertive Community Treatment Team. He is the Vice-Chair of the Consent and Capacity Board, and has expertise in concurrent disorders and in psychiatric ethics.



Myrna Barwin

Is a consultant specializing in the management and operations of organizations. She has held senior management positions in government and the private sector. She was a Co-Founder and President of Zequra Technologies, an Adobe (formerly JetForm) spin-off company. She is the Past Chair of the Canada Dance Festival, a Board member of Peace Camp Ottawa and the Ottawa School of Speech and Drama.



Elizabeth (Lisa) Cogan

Has been actively involved for 30 years in both Ottawa regional community as well as national issues, pertaining to her board engagements. She has served on the executive of United Jewish Appeal Board of Canada and serves on the executive of the Canadian Jewish National Fund Board of Directors.



Wendy Cohen

Is Director of Chartwell Communications Consultants Inc. She had a 25-year career with the federal government in international relations, communications, trade and economic policy and law, working for both the (former) Department of Communications and the Department of Foreign Affairs and International Trade.



Janet Cosier

Is the Chair of the Board of Trustees of the Royal Ottawa Health Care Group. She is an Advisor of Strategic Planning and Risk Management at the Bank of Canada, and Chair of the Board of Directors of the Canadian Payments Association.



Pamela Fralick

Is the President and CEO of the Canadian Healthcare Association. She chairs the Quality Worklife-Quality Healthcare Collaborative and co-chairs the Health Action Lobby, and the Canadian Coalition for Public Health. She is the former Board Chair of the Center for Addiction and Mental Health (CAMH).



Watson Gale

As Vice-President, General Counsel and Corporate Secretary of Canadian Blood Services, Mr. Gale oversees legal, governance and risk management activities. Watson has 20 years of legal experience focused on corporate matters, health care technology and systems, governance and not-for-profit organizations.

Inspiring PARTNERSHIPS



Dr. Katharine Gillis

Is the Chair of the Department of Psychiatry, University of Ottawa. Dr. Gillis is a national leader in Psychiatry Postgraduate Education. She is also the Clinical Director of the Shared Care Mental Health Program at the Ottawa Hospital.



Dr. Bernard Jasmin

Is a Professor and Vice-Dean of Research at the Faculty of Medicine, University of Ottawa. Dr. Jasmin is an expert in the field of cellular and molecular mechanisms involved in the assembly, maintenance and plasticity of synapses (points of communication between nerve cells).



Anne Joynt

Is the former President and CEO of Canada Post Corporation and member of the Office of the Superintendent of Financial Institutions; Member of the Advisory Council on National Security, Leadership Committee of the United Way; and Carleton University, Advisory Board, Women in Development.



Tim Kluke

Is President and CEO of the Royal Ottawa Foundation for Mental Health. Mr. Kluke is recognized as a Certified Fund Raising Executive (CFRE) and was nominated for an Ontario Premier's Award as St. Lawrence's outstanding business alumnus. He is Past-President of the Association of Fund Raising Professionals (AFP), Ottawa Chapter and is currently a member of the Ottawa Riverkeeper Board of Directors.



Dr. Verner Knott

Is the Director of Clinical Neuroelectrophysiology Research Laboratory at the IMHR. He is an Associate Professor of Psychiatry and Neuroscience Programs at the University of Ottawa. Dr. Knott's interests focus on the combined use of electroencephalography (EEG) and computerized behavioral tasks in the detection and characterization of psychiatric disorders and in treatment outcome assessment.



Patrick Lafferty

Is a retired partner of PricewaterhouseCoopers LLP, and serves on the executive of the Friends of Canadian Institutes of Health Research (CIHR). He has provided audit, accounting, business valuation and strategic advisory services to the private sector, industries and three levels of government. He facilitated strategic planning processes for the Medical Research Council, the Canadian Medical Discoveries Fund and the CIHR.



Marcel Mérette

The Dean of the Faculty of Social Sciences. He holds a doctorate degree in Economics from the Université de Montréal and post-doctorate training from Yale University. He has worked with the the Department of Finance, and his research focuses on the development of simulation models applied to issues of International Trade and Population Ageing.



Dr. Georg Northoff

A holder of the Canada Research Chair (University of Ottawa) and the Michael Smith-EJLB-CIHR Chair, is a psychiatrist, neuroscientist and a philosopher. Currently he is the Research Unit Director of the Mind, Brain Imaging and Neuroethics Research Unit at the IMHR.



Richard Patten

Former member of the Legislative Assembly of Ontario (Cabinet minister of Government as well as Correctional services) and Parliamentary Assistant to the Premier. Past president of the CHEO Foundation. He currently works as a Special Advisor in government relations and public affairs.



Dr. John Rutherford

Dr. Rutherford is a retired executive with more than 30 years experience in the private, public and academic sectors. He served in the Canadian Army, taught mathematics at Royal Military College, conducted industrial research at the DuPont Laboratories, and worked with Health and Welfare, the Auditor General, and the Treasury Board.



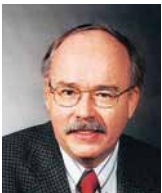
George Weber

President and CEO of the Royal Ottawa Health Care Group. Mr. Weber is the former National Executive Director and CEO for the Canadian Dental Association, and Secretary General and CEO of the International Federation of Red Cross and Red Crescent Societies and the Canadian Red Cross Society.

Inspiring PARTNERSHIPS

Scientific Advisory Board

The Scientific Advisory Board provides expert advice and guidance on the research orientation, performance, and strategic directions of the Institute. Its members are leading figures in the national and international scientific communities, with outstanding clinical or basic science expertise in relevant areas to the IMHR.



Dr. Glen Baker

Glen Baker is Director of the Neurochemical Research Unit at the University of Alberta. He is a former Chair of the Department of Psychiatry at that university, a past president of the Canadian College of Neuropsychopharmacology and a former Tier I Canada Research Chair. Dr. Baker is currently a Fellow of the Canadian Academy of Health Sciences and a University of Alberta Distinguished University Professor. He has published over 300 peer-reviewed papers, and his main research interests are mechanisms of action and metabolism of psychiatric drugs, etiology of psychiatric and neurologic disorders and drug development, with a focus on neuroprotection.



Dr. Mark Bisby

Dr. Bisby holds a doctorate degree from Oxford University and is a past-President of the Canadian Federation of Biological Societies and the Canadian Physiological Society, and past-Vice President (Research) of the Canadian Institutes of Health Research (CIHR). Before joining the Medical Research Council and subsequently the CIHR, Dr. Bisby was a professor, and Assistant Dean of Medical Sciences at the University of Calgary and Head of the Department of Physiology at Queen's University. Dr. Bisby currently works as a consultant in research program design and evaluation and serves as a Scientific Officer for the Canadian Health Services Research Foundation.



Dr. John F. Greden

Dr. Greden is Executive Director of the University of Michigan Depression Center, and the Founder and Chair of the US National Network of Depression Centers. He is the Rachel Upjohn Professor of Psychiatry and Clinical Neurosciences in the Department of Psychiatry, and Research Professor in the Molecular and Behavioral Neuroscience Institute. His research emphasizes the study of the longitudinal course of depression, linkages between stress hormones and depressive recurrences.



Dr. Kimberly Matheson

Dr. Matheson is Vice-President (Research and International) at Carleton University. She received her doctorate degree from the University of Waterloo. She is an accomplished trans-disciplinary researcher and has held funding from all three major Canadian funding agencies including Social Sciences and Humanities Research Council, Natural Sciences and Engineering Research Council and the Canadian Institutes of Health Research. Her research spans a wide range of issues in the social and health sciences as well as public policy formulation.



Dr. Timothy Moran

Dr. Moran is the Paul R. McHugh Professor of Motivated Behavior and Vice Chair in the Department of Psychiatry and Behavioral Sciences at the Johns Hopkins University School of Medicine. He is a leader in the field of gut-brain peptides and has identified and characterized multiple peptide signaling systems that play crucial roles in eating control. He has also been extensively involved in research on models of developmental and neuropsychiatric disorders.



Dr. Stanley Kutcher

Dr. Kutcher is an internationally renowned expert in the area of adolescent mental health research, advocacy, training, policy and health services innovation. He is the holder of the Sun Life Financial Chair in Adolescent Mental Health, and a member of the Canadian Association for Mood and Anxiety Treatment, the Advisory Board for the CIHR Institute of Neuroscience, Mental Health and Addictions, the Science Advisory Committee of NeuroScience Canada, and the Canadian Coalition for Global Health Research.

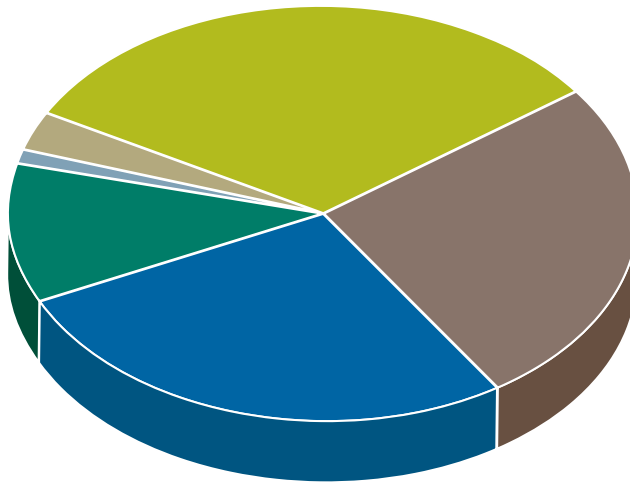


Dr. Franco Vaccarino

Dr. Vaccarino is the Principal of University of Toronto Scarborough & Vice-President of University of Toronto. He is a distinguished scholar, educator and an accomplished academic administrator. Before assuming his leadership role at U of T Scarborough, Dr. Vaccarino was chair of the Department of Psychology, University of Toronto. He is the past Head of the Neuroscience Program in the Department of Psychiatry at U of T, and past Executive Vice-President, Programs, and Vice President, Research at the Centre for Addiction and Mental Health.

Inspiring NUMBERS

Revenue Distribution (\$7.4 million)



- 32% Royal Ottawa Health Care Group
- 26% Grants/contracts/salary awards (direct)
- 27% Grants/contracts/salary awards (partnered)
- 11% University of Ottawa (partnered)
- 3% Royal Ottawa Foundation for Mental Health
- 1% Investment Income

Sources of Revenue for 2010-2011

Angelini
 Astra Zeneca
 Bioniche
 Bristol-Myers Squibb
 Canada Research Chairs
 Canadian Foundation for Innovation
 Canadian Institutes of Health Research
 CHEO-Provincial Centre of Excellence
 for Child and Youth Mental Health
 EJLB Foundation
 Eli Lilly Canada Inc.
 Hope for Depression Research Foundation
 Janssen-Ortho Inc

Labopharm
 Lundbeck
 Mental Health Commission of Canada
 National Institute of Mental Health
 Natural Sciences and Engineering Research
 Council
 Ontario Mental Health Foundation
 Royal Ottawa Foundation for Mental Health
 Royal Ottawa Health Care Group
 Servier
 Swimming Canada
 University Medical Research Fund
 University of Ottawa

Inspiring LINKAGES

The Royal Ottawa Foundation for Mental Health: Making Links with the Broader Community

DID YOU KNOW?

Depression is the greatest health burden on society today, yet it receives less than 5% of federal research funding.

Every day 500,000 Canadians are absent from work due to mental illness, which is the number one cause of disability in Canada.

Mental illness is linked to more lost work days than any other chronic condition, costing the Canadian economy \$51 billion a year in lost productivity.

One in five Canadians will experience a mental illness at some point in their lifetime. The remaining four will have a friend, family member or colleague who will.

IMAGINE ... if people could walk into a unique Depression Research Centre where a team of specialists could run blood tests and brain scans and identify a mental health problem that is unique to their biology. Their treatment would be specific to them. Depression would be detected earlier. Treatments would be more effective. More people would get better faster — and the epidemic that is facing all of us — at home, in the workplace and in our communities — would be halted.

Imagine no longer ...

Through the Royal Ottawa Foundation for Mental Health, contributions from donors, supporters and corporate sponsors are helping the University of Ottawa Institute of Mental Health Research (IMHR) at The Royal make incredible strides in transforming our understanding of mental illness — its causes, better ways to detect it and more timely ways to treat it.

The Do It For Daron initiative for youth mental health. Daniel Alfredsson's support through the "You Know Who I Am" campaign. Corporate leaders such as Great-West Life, the BMO Financial Group and Doyle Homes. From the grassroots to the corporate boardroom, the Foundation is reaching out to the community — to engage people and partners in the importance of supporting leading-edge multidisciplinary research programs that will help to foster innovative ways of diagnosing and treating mental illness.

With this groundswell of community support, the IMHR is poised to become a global centre of excellence for mental health research and patient care.

That's what makes this an exciting time for the Institute — and the community.

The Royal Ottawa Foundation for Mental Health raises funds to support the best possible patient care and leading-edge research provided by the Royal Ottawa Mental Health Centre, the Brockville Mental Health Centre and the University of Ottawa Institute of Mental Health Research. These funds are used to purchase equipment for capital projects, support research and contribute to the improvement of patient care.

**The Foundation
+
the community
+
hand-picked IMHR researchers
from around the world
=
a revolution in mental illness
detection, prevention and treatment.**

Right now, with the support of the Foundation, the IMHR's clinicians and researchers are undertaking ground-breaking work that will make a difference in the lives of thousands of people.

We're talking about non-invasive brain imaging that allows clinicians to look inside and learn more about how and where depression affects the brain. Our clinical studies on the linkages between depression and other mental illnesses, which have informed new clinical practices and new treatments that are gaining traction, are being adopted internationally.

As the IMHR's clinicians and researchers move the yardstick that much closer to getting those suffering from mental illness into remission faster and to transform the way major depression is treated, the next step is to accelerate research — and ultimately — revolutionize the way that mental illness is detected, treated and prevented.

This means developing more impactful treatments, which, among other things, will depend on:

- new tools for the early and accurate detection of depression instead of purely subjective interview-based methods (“how are you feeling?”), including a combined PET-MRI system;
- fast and reliable treatments based on biology and genes;
- a better understanding of how social or environmental factors interact with biological factors to affect a person's vulnerability; and
- specialized care and research programs targeted to women who experience mental illness differently than men because of their physiological differences and social responsibilities.

But these things cost money.

To support the IMHR in its effort to save lives and tackle a health problem of epidemic proportion, the Foundation will be reaching out to the community through a new campaign this fall. Private and corporate philanthropy will enable the IMHR to leverage additional support from the public sector to advance innovations.

Through the Foundation, donations will be directed to four areas:

Research — community philanthropy will support state-of-the-art brain imaging equipment and provide dedicated funding to support transformational research studies

Education — community philanthropy will support a professional education bursary and fellowship funding, as well as public education programs and family support services

Care — community philanthropy will support a women's mental health program, equipment and human capital to expand care to rural and remote communities, and clinically sound interactive online self-help programs

Advocacy — community philanthropy will support awareness events and a multimedia advocacy and awareness campaign.

Philanthropy will make it possible for the IMHR to transform the lives of many people suffering from mental illness.



University of Ottawa
**Institute of Mental
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