

# The Douglas Hospital Research Centre: celebrating 25 years of innovation in mental health research

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## From humble beginnings

From Sept. 30 to Oct. 2, 2004, international and local experts and friends joined staff in a celebration of the 25th anniversary of the Douglas Hospital Research Centre (DHRC). Located in the Borough of Verdun in Montréal, Que., the DHRC is the child of the Douglas Hospital and is affiliated with McGill University. It has evolved from modest beginnings to become one of Canada's premier research institutes in the fields of neuroscience, psychiatry and mental health. It is also the head office of the Institute of Neurosciences, Mental Health and Addiction, one of the 13 institutes of the Canadian Institutes of Health Research, and of the Montréal Pan American Health Organization/World Health Organization Collaborating Centre for Reference and Research in Mental Health.

Having been at the DHRC for over 20 of those 25 years, I can attest to the dramatic changes that have occurred since the early days. There are now over 45 principal investigators and 180 trainees among a total of more than 300 staff members. From day 1, the focus has been on using a multidisciplinary, comprehensive biopsychosocial approach to tackle the most difficult research problems and issues in mental health. The papers in this special edition of *JPN*, representing just a small fraction of the talks given by invited speakers and presenters at a 2-day scientific event, commemorate the DHRC's 25th anniversary. They speak to the ambition of the DHRC's founders and the dedication and successful endeavours of its many researchers and their international colleagues.

Because *JPN* is the official publication of the Canadian College of Neuropsychopharmacology (CCNP), I wish to acknowledge the great impact of this organization in promoting research in neuropsychopharmacology in Canada. I also wish to congratulate past DHRC winners of CCNP awards, including Samarthji Lal, Howard Steiger, Micheal Meaney and myself for the prestigious Heinz Lehmann Award; Barbara Suranyi-Cadotte, Alain Gratton, Judes Poirier, Ridha

Joober, Satyabrata Kar, Claire-Dominique Walker and Gustavo Turecki for the Young Investigator Award, N.P. Vasavan Nair for the CCNP Medal; and Serge Gauthier, Judes Poirier, Samarthji Lal and myself for the Innovations in Neuropsychopharmacology Award.

## Establishing research at the DHRC

The DHRC is located on the grounds of the Douglas Hospital, an institution initially known as the Protestant Hospital for the Insane and then as the Verdun Protestant Hospital. The first patient was admitted in 1890, but it was not until the mid-1930s that mental health research began, with the arrival of the German psychiatrist Heinz Lehmann.

Lehmann was a visionary in his approach to the treatment of mental illness. He saw the potential of using biochemical means to treat these disorders, rather than applying only the psychoanalytical methods then in vogue. In 1952 he published the first rigorous study on the use of the sedative chlorpromazine for treatment of schizophrenia. Four years later, he published findings about the antidepressive effects of imipramine, one of the first drugs to be used as an alternative to electroconvulsive shock therapy. His work helped to set the stage for a thriving research community at the Douglas and for the practice of integrating patients back into the community, which continues to be one of the DHRC's objectives. Lehmann's most illustrious contributions to psychiatry were recognized by numerous awards including the Lasker Award and induction into the Canadian Medical Hall of Fame. One of the main buildings of the DHRC is also named after him.

Two psychiatrists trained in London, UK, N.P. Vasavan Nair and Samarthji Lal, were the founding fathers of the DHRC, with strong support from the then director of the hospital, Gaston Harnois. Following in the footsteps of Lehmann, Nair and Lal continued looking at biochemical ap-

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proaches to the treatment of mental illness. It was their belief that cutting-edge clinical research combined with basic neuroscience and psychosocial research was the best solution for the treatment of suffering patients. Their work revived, for example, the use of antipsychotic drugs such as levomepromazine to treat patients with schizophrenia.

These 2 pioneers, still very active today, created a framework for a competitive research program that was immediately recognized by the Fonds de la recherche en santé du Québec as one of its provincial research centres. The DHRC now consists of 3 administrative, methodologically focused, training-oriented divisions — the Neuroscience Division (Claire-Dominique Walker, head), the Clinical Division (Ashok Malla, head) and the Psychosocial Division (Suzanne King, head) — addressing 4 research themes — Aging and Alzheimer's Disease (Jens Pruessner, head); Mood, Anxiety, and Impulsivity-Related Disorders (Claire-Dominique Walker, head); Schizophrenia and Neurodevelopmental Disorders (Samarthji Lal and Ridha Joober, heads); and Services, Policy and Population Health (Eric Latimer, head). The goal of this matrix is to promote innovative, transdisciplinary research projects and training for the ultimate benefit of patients. Michael Meaney acts as associate director of the DHRC, with a focus on strategic planning and recruitment.

## Milestones of the past 25 years

Over the past 25 years, the DHRC has gained international recognition as a premier mental health research centre. Many members of the DHRC have contributed to breakthroughs, pioneered innovative therapeutic approaches and published invaluable data in the area of mental disorders, all of which have improved current understanding of brain functions and mental illnesses as well as the quality of life of patients, their loved ones and society as a whole. Here is just a small sample of the accomplishments of some of our researchers and clinicians (focusing, because of space limitations, on long-established DHRC researchers). More detailed information about all of our staff, their recent publications and current research projects can be found on our Web site ([www.douglasresearch.qc.ca](http://www.douglasresearch.qc.ca)).

### *Aging and Alzheimer's disease*

Huge strides have been made recently in our understanding of the processes of aging and Alzheimer's disease. A research team led by Judes Poirier (director, McGill Centre for Studies on Aging, located on the Douglas Hospital campus), in collaboration with Serge Gauthier and me, showed that an allele of apolipoprotein E (*apoE4*) is a risk factor for Alzheimer's disease and that this allele can interfere with drug responsiveness in patients with this disease. These findings were recognized by the Prix Galien Canada, which rewards researchers who make a substantial contribution to the diagnosis, prevention or treatment of disease.

N.P. Vasavan Nair, Michael Meaney and Sonia Lupien have been following a cohort of normal volunteers from the hospital catchment area for over 15 years now. This longitudi-

nal study is aimed at discovering key factors that may predispose to the development of dementia. Results thus far have revealed a strong relation between plasma cortisol levels, hippocampal volume and deficits in hippocampus-dependent memory tasks. Stress or, more importantly, the perception of stress may hence be a key factor in successful aging.

### *Mood, anxiety and impulsivity-related disorders*

Many DHRC members are experts in the study of mood, anxiety and impulsivity-related disorders. For example, Michael Meaney was one of the first to show that individual differences in maternal care can alter the expression of genes that regulate stress response and hippocampal development. Recently, his team has focused on the impact of gene-environment interactions and epigenetic factors in brain development and maturation, and their impact on aberrant behaviours. Claire-Dominique Walker is investigating neuroendocrine aspects of the stress response and the impact of this response on the incidence of brain disorders, while Alain Gratton's research aims to understand brain pathways involved in reward and addiction behaviours.

Howard Steiger has shown that eating disorders have a variety of biologic and psychosocial causes. For example, his studies have demonstrated that genetic susceptibilities (associated with the serotonin system) are affected by developmental stressors and intensive dieting. Finally, Christina Giannoulakis, in collaboration with Maurice Dongier, has made critical contributions to our understanding of the role of the endogenous opioid system in mediating the reinforcing effects of alcohol. This team was the first to propose the use of naltrexone, an opioid antagonist, to prevent alcohol relapse. Thanks in large part to their efforts, naltrexone is now used worldwide for this purpose.

### *Schizophrenia and neurodevelopmental disorders*

Many of the DHRC investigators have pioneered innovative studies in the fields of schizophrenia including exceptional contributions by Heinz Lehmann, N.P. Vasavan Nair and Samarthji Lal, as discussed earlier. Others, such as Lalit Srivastava and Patricia Boksa, are investigating the role of neurodevelopmental features and insults in mental illnesses, including schizophrenia, attention deficit disorders and autism.

Ellen Corin is a well-known expert on the social and cultural aspects of mental illnesses, including schizophrenia. She has developed an instrument for studying the evolving signs and symptoms of early psychosis, taking into account cultural context, while Suzanne King is an expert on the role of expressed emotions in schizophrenia.

### *Services, policy and population health*

DHRC members are at the forefront of service, policy and population health research and initiatives. For example, Duncan Pedersen has recently completed a project with Peruvian researchers to develop and expand mental health services in urban-poor populations. Moreover, a team led by Eric La-

timer, Michel Perreault and David Bloom has been instrumental in developing a program for assertive community treatment (ACT), which provides intensive follow-up for patients with severe and persistent mental disorders who live in the community. The ACT team is a dynamic ensemble of health care professionals who help patients to remain in or return to their communities under optimal conditions. This is a prototypic example of best practices and knowledge translation.

### The next 25 years: from the community to the bench

Over the past few decades, there has been a lot of emphasis on moving medical care "from the bench to the bedside." We at the DHRC now believe that for mental health research the motto should be "from the community back to the bench." Hence, one of our current objectives is to perform research that has its basis in the experience of patients living in their communities, in partnership with multidisciplinary treatment teams. This approach should lead to the development of key research questions, to be fed back to clinicians and basic scientists, who can then try to provide answers that are

more easily translated into best practices and improved care. Our ultimate goal is, of course, to understand the fundamental causes of various mental illnesses so that we can provide truly effective treatments and, eventually, cures. Accordingly, studies looking at how society, culture, and genetic and epigenetic factors affect disease processes constitute a key research avenue for many of our scientists.

The pace of neuroscience and mental health research has accelerated dramatically in the past few years, and significant new discoveries are being made almost daily. We are confident that the unique combination of basic and applied research at the DHRC will allow us to develop innovative, possibly individualized treatment approaches and to promote changes in mental health care that will improve the quality of life of people suffering from mental illness. The first 25 years of the DHRC have been an exciting period of discovery; the next 25 promise to be even better.

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