**Saturday, April 29, 2017**

7:00 am - 7:00 pm  
**Registration Open**

6:30 am - 7:45 am  
**Breakfast Symposium - Insomnia : Natural history, Burden and Treatment**  
**Speaker:** Charles M. Morin PhD, Canada Research Chair in Behavioural Sleep Medicine, Université Laval

Chronic insomnia is a prevalent health complaint and the most prevalent of all sleep disorders. This lecture will summarize the evidence about the natural history of insomnia, its burden for the individual, employers, and society at large, and it outline the benefits and limitations of the main therapeutic options.

Vendor presentation (no CE). Breakfast included. Limited space. Registration required.

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7:30 am - 8:00 am  
**Poster Installation**

8:00 am - 8:30 am  
**Opening Ceremonies and Awards**

8:30 am - 9:30 am  
**Keynote 1 - Neural and Chemical Systems Mediating Sleep-Wake States and their Homeostatic Regulation**  
**Professor Barbara E. Jones PhD, FRSC, Professor Department of Neurology and Neurosurgery, McGill University, Montreal Neurological Institute**
Different neural cell groups containing different neurotransmitters and projecting to different targets discharge in association with the three sleep-wake states and their polygraphic parameters. Determining the discharge profiles of such cell groups across the sleep-waking cycle reveals the way in which they can generate or modulate particular states or their principal features. Accordingly, noradrenergic locus coeruleus neurons were first found to discharge during waking in association with behavioral arousal and to cease firing during sleep, thus playing a role in promoting waking and behavioral arousal with postural muscle tone. Other neurotransmitter containing cell groups, notably the cholinergic neurons, have only recently been recorded using the juxtacellular technique, which permitted their identification, and thereby shown to discharge in association with EEG gamma and theta activity during active waking but also during paradoxical sleep with muscle atonia. These neuromodulators influence GABAergic and glutamatergic neurons which form the effector neurons through the brain and play different roles depending upon their specific receptors. The neuropeptides, orexin and MCH, also influence the effector systems in a reciprocal manner to promote arousal and sleep, respectively. These neuromodulatory and effector neurons are regulated in a homeostatic manner, which in turn underlies the homeostatic regulation of sleep-wake states.

Learning Objectives:

1. Review the major chemical neurotransmitter and neuromodulatory systems in the brain that regulate sleep-wake states.
2. Review the discharge profiles and interactions of these systems which generate the sleep-waking cycle.
3. Review the way in which these neural systems are homeostatically regulated such that sleep and waking are so regulated in turn.

Keynote 2 - Childhood Obstructive Sleep Apnea Syndrome: What We Know and What We Don't Know in 2017

Carole L. Marcus M.B.B.Ch., Distinguished Endowed Chair in Pediatrics Professor of Pediatrics, University of Pennsylvania, Director, Sleep Center, Children's Hospital of Philadelphia

The childhood obstructive sleep apnea syndrome (OSAS) is common, but much remains unknown about its pathophysiology, management, natural history and sequelae. This presentation will discuss evidence-based, state of the art knowledge on childhood OSAS, with emphasis on areas needing further research.

Learning Objectives

1. To review the epidemiology and pathophysiology of childhood OSAS
2. To evaluate management and sequelae of childhood OSAS
3. To discuss areas requiring future research.
11:00 am - 1:00 pm

**Symposium 1 - Sleep and the Aging Brain: Harnessing Translational Physiology to Study the Impact of Risk and Protective Factors in Health and Disease**

Session Chairperson: Marc Poulin, University of Calgary

This symposium will address the important and emerging area of sleep and its relevance to the aging brain, changes in sleep and sleep architecture in Alzheimer disease and related dementias, the impact of genetic risk factors on sleep, and the role of interventions such as exercise on improving sleep quality and architecture.

**Learning Objectives**

1. Identify mechanisms by which sleep loss disrupts brain function, including cerebral and cognitive integrity in older humans.
2. Understand key interactions between aging and sleep, and the relationship between Alzheimer disease and related dementias, and sleep.
3. Identify key genetic risks for sleep related brain injury and neurodegeneration, and to explore the potential bidirectional pathways between risks and injury/disease onset and progression.

Speaker 1: Sigrid Veasey, University of Pennsylvania

Title: Chronic sleep loss: fueling Alzheimer's disease in the locus coeruleus.

Speaker 2: Julie Carrier, Université de Montréal
Title: Brain mechanisms and functional impact of age-related changes in sleep

Speaker 3: Glenn Landry, University of British Columbia
Title: Relationship between sleep quality and cognitive function in older adults.

Speaker 4: Lauren Drogos, University of Calgary
Title: Effect of APOE e4 genotype on objective but not subjective sleep quality in a population of healthy older adults: results from the Brain in Motion study

Speaker 5: Marc Poulin, University of Calgary
Title: Sleep, Sleep Disorders and the Canadian Longitudinal Study on Aging

11:00 am - 1:00 pm
Symposium 2 - Emerging Innovations in Health Service Delivery for Sleep-Disordered Breathing
Session Chairperson: Sachin R. Pendharkar MD FRCPC, Associate Professor, University of Calgary

Sleep-disordered breathing (SDB) is common and has significant medical consequences. Treatment of SDB can improve health outcomes and is cost effective. Delays in access to diagnostic testing and treatment have been described in many jurisdictions and have stimulated interest in alternative care delivery models. The purpose of this session is to describe emerging research on a number of innovations intended to improve access to care for patients with SDB. These include the use of clinical pathways to enable primary care physicians to diagnose and treat SDB; management of SDB of varying severity and complexity by non-physician healthcare providers; and telemedicine as a means to provide care to patients in rural and remote areas. The symposium will also describe different service delivery models for SDB across Canada, highlighting interprovincial disparities and the importance of a standardized approach to improve the quality of SDB care for Canadians. This is a topical symposium that is aimed at sleep clinicians and health services researchers who are interested in exploring different models of care for SDB.

Learning Objectives
1. The attendee will recognize the challenges with timely access to diagnosis and management of sleep-disordered breathing.
2. The attendee will be able to describe recent innovations in care delivery for patients with sleep-disordered breathing, taking into account patient complexity.
3. The attendee will appreciate the variability of care delivery across Canada and potential impacts on patient care.

Speaker 1: Mark Fenton, University of Saskatchewan.
Title: Primary Care Pathways for Obstructive Sleep Apnea

Speaker 2: Sachin Pendharkar, University of Calgary
Title: The Use of Alternative Care Providers in the Management Of Sleep-Disordered Breathing Across the Severity Spectrum

Speaker 3: Sam Kuna, University of Pennsylvania
Title: The Reach of Telemedicine for Sleep Disordered Breathing

Speaker 4: Najib Ayas, University of British Columbia
Title: Service Delivery Models for Sleep-Disordered Breathing: A Cross-Canada Comparison

11:00 am - 1:00 pm
Symposium 3 - Are There Markers of Insomnia? From Hyperarousal to Genetics
Session Chairperson: Célyne Bastien Ph.D, Laval University

Insomnia (as defined by the DSM-5) is an important health issue and afflicts up to 10% of the general population. Insomnia not only leads to severe sleep difficulties but is tied with daytime sequelae like impaired attention, cognition, etc. In the long run, some research has even shown that it can be associated with increased risk for depression, cardiovascular disorders and obesity. Many theories have been set forward to explain
its development and maintenance. Different tools (physiological, biological, psychological, etc) have been used to empirically validate some theories. Still, some concepts such as hyperarousal, physiological reactions to stressful events, misperception and genetics remain difficult to circumscribe. The main goal of this symposium is to further explore these concepts and challenge them. This symposium should attract basic and clinical sleep researchers as well as students, clinicians and technologists.

**Learning Objectives**

1. To introduce markers of insomnia  
2. To discuss the hyperarousal concept of insomnia on an integrative level.  
3. To highlight the importance of novel research approaches and theories for further progress in the field

Speaker 1: Dieter Riemann, University Medical Center Freiburg  
Title: Chronic insomnia and hyperarousal - where do we stand today?

Speaker 2: Célyne Bastien, PhD, Laval University  
Title: Neurophysiological Measures of Misperception

Speaker 3: Charles Morin, Laval University  
Title: Cortisol and heart rate variability in insomnia

Speaker 4: Simon Warby, University of Montreal  
Title: Genetics of insomnia
1:00 pm - 2:00 pm  
**Lunch & Exhibits Open**

1:00 pm - 2:00 pm  
**Royal College Diploma in Sleep Disorder Medicine**  
John Fleetham MD FRCP(C), Professor of Medicine, University of British Columbia  

Update on the current status of the Royal College Diploma in Sleep Disorder Medicine including application process, curriculum and evaluation.

**Learning Objective:**

- To understand the current status of the Royal College Diploma program in Sleep Disorder Medicine including application process, curriculum and evaluation

1:00 pm - 2:00 pm  
**Insomnia Interest Group**  
Insomnia Interest Group meeting: A good place to connect with other clinicians and researchers who have an interest in insomnia and its treatment.

2:00 pm - 4:00 pm  
**Symposium 4 - Classical and Novel Molecular Pathways of Sleep Regulation**  
Session Chairperson: Emma O’Callaghan, Université de Montréal

The symposium will present novel findings of Canadian and American research regarding the molecular basis of sleep regulation. Dr. O’Callaghan will initially give a 5-minute overview of the overall symposium, and describe the progress of the field in the last decades in delineating the molecular mechanisms of sleep regulation. This overview will begin with those mechanisms originally identified in sleep regulation, and track the progression of the field to the present research efforts to understand the regulation of sleep. Then, presentations will be given by the proposed speakers which will consist of 20-25 minute presentations of their recent discoveries. Each presentation will be followed by a 10-minute questions and answers session.

**Learning Objectives**

1. To highlight some advances made in the previous decades in delineating molecular mechanisms of sleep regulation, and the important
contribution of the North-American research community to it.
2. To emphasize the strength of basic research in Canada and America and the plethora of molecular techniques employed to understand sleep regulation and recovery.
3. To present new research findings on pathways classically implicated in sleep regulation and present novel pathways that contribute to the regulation of sleep.

Speaker 1: Emma O’Callaghan, Department of Neuroscience, Université de Montréal
Title: From Classic to Novel Molecular Mechanisms of Sleep Regulation

Speaker 2: Danilo De Gregorio, Affiliation Department of Psychiatry, McGill University
Title: Distinct and opposite roles of melatonin MT1 and MT2 receptors in sleep.

Speaker 3: James Krueger, Washington State University
Title: The initiation of sleep within small networks

Speaker 4: Kazue Semba, Department of Medical Neuroscience, Dalhousie University, Canada.
Title: The role of glial glutamate transporter-1 in synaptic dynamics regulating sleep/wake-promoting neurons

2:00 pm - 4:00 pm
Symposium 5 - Sleep and Renal Function: A Bidirectional Relationship
Session Chairperson: Patrick J. Hanly MD, FRCPC, D,ABSM, Professor, University of Calgary

It has been recognized for some time that individuals with end-stage renal disease (ESRD) have a high prevalence of sleep apnea and non-respiratory sleep disorders. More recently, there has been growing interest and evidence that intermittent hypoxia associated with sleep apnea can injure the kidney. Consequently, there is a bidirectional relationship between sleep and renal function that has many clinical implications for
patients with pre-dialysis dependent chronic kidney disease (CKD) and those who have reached ESRD and are dialysis-dependant. Experimental animal data will be presented that show how hypoxia can damage the kidney (Dr Ayas). The clinical implications of this phenomenon for patients with sleep apnea will be reviewed (Dr Hanly). The pathogenesis and management of sleep apnea in patients who have ESRD will be discussed (Dr Lyons). Finally, the role of non-respiratory sleep disorders and how sleep can be improved in patients with ESRD will be addressed (Dr Novak). This symposium combines both basic science and translational research and will be of interest to investigators who are interested in the pathogenesis of sleep disorders and to clinicians who care for the growing number of patients who have impaired sleep and kidney function.

**Learning Objectives**

1. To understand how hypoxia can injure the kidney
2. To explore the potential relevance of OSA to patients with chronic kidney disease
3. To understand the pathogenesis and management of sleep apnea in patients with end-stage renal disease
4. To learn how sleep can be improved in patients with end-stage renal disease

Speaker 1: Najib Ayas, MD, University of British Columbia

Title: Effect of intermittent hypoxia on the kidney: Evidence from animal models

Speaker 2: Patrick Hanly, MD, University of Calgary

Title: Effect of sleep apnea on the kidney: Evidence from human studies

Speaker 3: Owen Lyons, MD, University of Toronto

Title: Sleep-disordered breathing in End-Stage Renal Disease (ESRD)

Speaker 4: Colin Shapiro, MD, University of Toronto

Title: Non-respiratory sleep disorders in End-Stage Renal Disease (ESRD)
Symposium 6 - Sleep in Children with Neurodevelopmental Disabilities: What is Similar and What is Different, and is a Transdiagnostic Approach to Treatment of Insomnia Possible?
Session Chairperson: Penny Corkum, Dalhousie University

The prevalence of sleep disorders in typically developing children is high (~30%), but in children with neurodevelopmental disabilities (NDDs) sleep disorders (with insomnia being the most common) are reported with prevalence rates up to 90%. There is growing evidence that sleep disorders have a significant impact on a child’s psychosocial and physical well-being, as well as being associated with increased symptomology, lower responses to treatment, and with increased family stress. Unfortunately, sleep is not routinely assessed in these children and when disorders are identified, treatment options are limited. To date, most research has examined the sleep disorders associated with specific conditions and the treatment needs for these populations. Case studies will be used to illustrate the characteristics, evaluation, and treatment for sleep problems in a range of conditions (i.e., Epilepsy, Down Syndrome, Cerebral Palsy, Autism Spectrum Disability, Fetal Alcohol Spectrum Disability, and ADHD). The literature will be summarized in terms of prevalence and characteristics, as well as best practice evaluation and treatment for sleep disorders (with a specific focus on insomnia). We will then highlight a transdiagnostic approach to treatment of insomnia for children with NDDs and lead a discussion about the potential benefits and downfalls of this approach.

Learning Objectives

1. Understand the sleep characteristics of youth with neurodevelopmental disorders (NDDs)
2. Learn about the best practices for treatment of sleep problems in children with NDDs
3. Explore the similarities and differences in sleep characteristics and best practice treatment across NDDs and the value of taking a transdiagnostic approach

Speaker 1: Shelly Weiss, MD, FRCPC, Pediatric Neurologist, Hospital for Sick Children, Professor, Faculty of Medicine, University of Toronto
Title: Pediatric Sleep and Epilepsy: Common bedfellows

Speaker 2: Osman Ipsiroglu, MD, PhD, Sleep/Wake Behaviour Clinic and Research Lab, Department of Paediatrics, BC Children’s Hospital, University of British Columbia Title: Sleep Disorders in Children and Adolescents with Down Syndrome

Speaker 3: Cary Brown, PhD, Professor, Faculty of Rehabilitation Medicine, University of Alberta
One of the major goals of many areas of medicine is to develop a more personalized approach to diagnosis and treatment of disease. The fundamental concept is that individuals differ in terms of genetic/epigenetic influences that drive different presentations of disease, and different consequences. In the United States, major precision medicine initiatives have been started to address this concept. It seems that sleep/circadian disorders are ideally suited to this new approach. This will be illustrated by new approaches to one key sleep disorder—obstructive sleep apnea.

**Objectives**

1. To explain the concepts of personalized/precision medicine and P4 medicine.
2. To illustrate the approaches being used to advance this in the United States.
3. To illustrate how to apply these concepts using obstructive sleep apnea as an example.
5:30 pm - 7:00 pm

*Poster Reception*
Poster Presentations, Wine & Cheese and Exhibits Open

Sponsored by

7:30 pm - 10:30 pm

*Round ‘em Up Gala Reception at the Calgary Petroleum Club - Optional social Event*
Join us for a special social event

**Round ‘em Up Gala**

at the [Calgary Petroleum Club](#)

The Petroleum Club is Calgary's premier business club located in the heart of downtown Calgary and just a short walk from the Hyatt Regency Hotel. Rooted in history since 1948, this private club will open its door for conference attendees on Saturday night.

Amazing food and entertainment is being planned for your enjoyment. Check this space in the new year for further details!

**Tickets** cost $60 for conference attendees and their guests. $30 for students.

**Tickets will be on sale at the time of registration.**