

# Canadian Pain Society's 40<sup>th</sup> Annual Scientific Meeting

## Tuesday, April 2, 2019

**16.00 - 18.30** Registration Opens

**17.00 - 18.00** SIG Meeting  
Details to be announced

**17.00 - 18.00** SIG Meeting  
Details to be announced

**18.30 - 21.00** Welcome Reception

Note: Session times and locations subject to change.

# Wednesday, April 3rd, 2019

**07.00 - 08.00**    **Registration and Breakfast**

**08.00 - 08.30**    **Opening Remarks**  
Plenary Room

**08.30 - 09.15**    **Mary Ellen Jeans Keynote: Clinical manifestations and sensitization across chronic musculoskeletal disorders and the impact on management**

**Keynote speaker: Lars Arendt-Nielsen**, Dr. Med., PhD, Founder & Director, Center for Sensory-Motor Interaction (SMI); Professor, Department of Health Science and Technology, School of Medicine, Aalborg University, Denmark

**09.15 - 09.30**    **Poster Pitches**

**09.30 - 10.30**    **Coffee Break | Posters | Tradeshow**

**10.30 - 12.00**    **Wednesday Morning Breakout Sessions**

*Session A*    **Is enhanced pain facilitation and/or impairment in the efficacy of the endogenous inhibitory pain system an important contributing factor in chronic pain?**

**Chair:**        **Catherine E. Ferland**, PhD, McGill University, Anesthesia

**Speakers:**   **Catherine E. Ferland**, PhD, McGill University, Anesthesia  
**Guillaume Leonard**, Pht, Ph.D, Research Center on Aging – Université de Sherbrooke, École de réadaptation, Sherbrooke  
**Karen D. Davis**, PhD, Krembil Research Institute Division of Brain, Imaging and Behaviour – System Neuroscience

## **Symposium Abstract**

Several factors may lead to poor pain management and consequently to the development of chronic pain, recognized as an expensive and debilitating public health issue. One abnormality associated with chronic pain is enhanced pain facilitation that can involve excitatory mechanisms such as central sensitization. A second abnormality associated with chronic pain is deficits in the endogenous mechanisms of pain control; possibly due to reduced efficacy of the endogenous inhibitory efferent pathways. Patients with sub-optimal function of this system are more likely to have poor pain control. This Symposium will examine brain-behaviour links related to pain facilitation (reflected by temporal summation of pain) and pain modulation (as reflected by conditioned pain modulation) in experimental and clinical studies.

## **Endogenous pain modulation in youth with musculoskeletal pain: psychophysical findings and clinical implications**

Catherine E. Ferland, PhD, McGill University, Anesthesia

## **Endogenous pain modulation in the elderly: psychophysical findings and clinical implications**

Guillaume Leonard, Pht, Ph.D, Research Center on Aging – Université de Sherbrooke, École de réadaptation, Sherbrooke

**Contribution of bottom-up, top-down, and intrinsic activity in the dynamic pain connectome reflect individual pain sensitivity and chronic pain treatment response**

Karen D. Davis, PhD, Krembil Research Institute Division of Brain, Imaging and Behaviour – System Neuroscience

**Learning Objectives**

- To recognize the differences in the endogenous pain modulation among paediatric cohorts with pain conditions and at risk of poor acute and chronic pain management.
- To explore the role played by endogenous pain modulation in the occurrence of pain conditions and severity of pain symptoms in elderly individuals.
- To understand how brain imaging and psychophysics can be used to link brain mechanisms to the spectrum of behavioural pain sensitivity and to predict chronic pain treatment efficacy.

**10.30 - 12.00 Wednesday Morning Breakout Sessions**

**Session B Cognitive modulation of pain: An innovative multidisciplinary, multi-species approach**

**Chair:** Loren Martin, PhD, Assistant Professor, Dept of Psychology, University of Toronto

**Speakers:** Mathieu Roy, PhD, Assistant Professor, Dept of Psychology, McGill University

Zoha Deldar, PhD candidate, Université de Montréal/ Université du Québec à Trois-Rivières, Anatomy

Loren Martin, PhD, Assistant Professor, University of Toronto

**Symposium Abstract**

Cognitive factors are known to facilitate or inhibit pain perception. Salient painful stimuli involuntarily direct our attention to the source of the pain, resulting in increased pain, while pain memories can transition pain from an acute to a chronic state. Contrary to this, engaging in a cognitively demanding task reduces pain. The mechanisms underlying this trade-off interaction and its effect on pain modulation are less clear. This symposium will be focused on a multimethod approach to understand the bidirectional relationship between pain and cognition following three research lines:

- 1) We will examine the interaction between pain, cognition and motivation regarding the role of reward in performing a cognitive task, cognitive effort and resource allocation on pain perception. The value of a reward modulates the amount of cognitive effort and resources allocated to specific tasks, which in turn modulates pain perception.
- 2) Discuss the effect of neuromodulation on cognition and pain inhibition in healthy adults by exploring ways through which cognition can be improved and how this improvement influences pain perception.
- 3) Introduce novel paradigms of context-dependent pain modulation that are being implemented to study pain memory at the neurobiological level. These models may provide a better understanding of pain hypersensitivity and pain relief. These

presentations will provide a better understanding of the neural and psychological mechanisms underlying the interaction between pain and cognition. A better understanding of this bidirectional interaction can help in the development of improved interventions for individuals with pain.

**The role of value and cognitive resource available in the trade-off between pain and cognitive effort**

Mathieu Roy, PhD, Assistant Professor, McGill University

**Improving working memory and pain inhibition in young and older persons using neuromodulation of left dorsolateral prefrontal cortex.**

Zoha Deldar, PhD candidate, Université de Montréal/ Université du Québec à Trois-Rivières, Anatomy, Trois-Rivières

**Learning models of pain and pain relief**

Loren Martin, PhD, Assistant Professor, University of Toronto

**Learning Objectives**

- To examine the impact of reward on pain perception and cognitive task performance
- To examine the effect of neuromodulation in enhancing cognitive performance and pain inhibition in healthy young and old persons
- To explore the neurobiological mechanisms of pain memory, learning and conditioning through the use of novel animal and human paradigms

**10.30 - 12.00 Wednesday Morning Breakout Sessions**

*Session C* **Opioid de-prescribing: practical advice from a patient, a pharmacist and a physician on how to safely and successfully taper opioids.**

**Chair:** **Andrea Furlan**, MD PhD, University of Toronto, Department of Medicine, Associate Professor

**Speakers:** **Kirk Foat**, BA Sociology, University of Western  
**Laura Murphy**, PharmD, Toronto Rehabilitation Institute, University Health Network, Pharmacy, Toronto  
**Andrew Smith**, MDCM, Centre for Addiction and Mental Health

**Symposium Abstract**

Canada is the second largest prescriber of opioids in the world. The number of opioid prescriptions in Canada increased 6.8% between 2012 and 2016, from 20.2 million in 2012 to 21.5 million in 2016. The most common opioids prescribed in Canada include strong opioids such as hydromorphone, fentanyl, and oxycodone. Long-term and high dose opioids are associated with significant risks, which include death, opioid poisoning, sleep apnea, hypogonadism, depression and opioid-induced hyperalgesia. The population with the highest of opioid use also has the highest risks from opioids; more than 20% of seniors received at least one prescription of opioid in 2015-16. (CIHI, 2018) The 2017 Canadian Opioid Guideline recommends that “for patients with chronic noncancer pain who are currently using 90 mg morphine equivalents of opioids per day or more, they taper opioids to the lowest effective dose, potentially including discontinuation, rather than making no change in opioid therapy”. De-prescribing opioids can be challenging to both clinicians and patients. The challenges

are related to selecting the proper patients, choosing the best tapering regimen and sticking to the plan. The most common barriers from a clinician's perspective include: lack of knowledge, skills, resources, motivation and empathy. Patients also lack knowledge about the reasons why tapering is necessary, and they fear worsening of pain and withdrawal symptoms. There is an urgent need to educate both clinicians and patients about appropriate tapering of opioids with the goals of improving quality of life of patients with chronic pain.

### **Getting to Zero**

Kirk Foat, BA Sociology, University of Western

### **Guidance on opioid tapering in the context of chronic pain: Evidence, practical advice and frequently asked questions**

Laura Murphy, PharmD, Toronto Rehabilitation Institute, University Health Network, Pharmacy, Toronto

### **Challenging cases of opioid tapering.**

Andrew Smith, MDCM, Centre for Addiction and Mental Health

### **Learning Objectives**

- At the end of this symposium participants will be able to identify appropriate patients for tapering opioids, use evidence-based protocols for opioid tapering, and to use empathy and compassion when helping patients to achieve the lowest possible dose of opioids to help them manage their chronic noncancer pain.

## **10.30 - 12.00** Wednesday Morning Breakout Sessions

### *Session D*

### **Should it be the sociopsychobio model of pain? Novel theoretical, experimental, and clinical insights into social contexts of pain**

**Chair:** **Whitney Scott**, PhD, King's College London, Institute of Psychiatry, Psychology, and Neuroscience, London, UK

**Speakers:** **Kenneth Craig**, PhD, University of British Columbia, Psychology  
**Kai Karos**, MSc, KU Leuven, Research Group on Health Psychology, Leuven, Belgium

**Whitney Scott**, PhD, King's College London, Institute of Psychiatry, Psychology, and Neuroscience, London, UK

### **Symposium Abstract**

A proposal to update the definition of pain by Williams & Craig (2016) emphasizes the crucial role of social processes in the pain experience. However, within the biopsychosocial model of pain relatively less research has focused on social factors, as compared to biomedical or psychological factors. This session will argue for the need to place greater emphasis on the social context of pain from theoretical, experimental, and clinical perspectives. Theoretical models of the role of social contexts and interpersonal processes in the experience of pain and related disability will be outlined. Experimental data showing the impact of social threat on pain will be presented. Clinical data will be discussed to demonstrate the impact of social stigma on chronic pain outcomes and current challenges and opportunities for

managing stigma will be identified. The session has the potential to advance theory and treatment development from both individual- and systems-level perspectives.

#### **Is pain a social experience?**

Kenneth Craig, PhD, University of British Columbia

#### **Pain as a threat to the social self: A motivational account**

Kai Karos, MSc, Research Group on Health Psychology

#### **The impact and management of stigma in people with chronic pain**

Whitney Scott, PhD, King's College London

#### **Learning Objectives**

- Upon attending this symposium, attendees will recognize the importance of social features of pain experience for understanding pain, pain education and innovative interventions.
- Upon attending this symposium, attendees will have an understanding of pain as a fundamentally social and threatening experience which impacts on basic human needs.
- Upon attending this symposium, attendees will have an understanding of how stigma relates to chronic pain outcomes and approaches to managing stigma.

#### **12.00 - 13.30 Lunch - Special Luncheon (Sponsored)**

#### **New Directions in Chronic Pain: What Might the Future Hold?**

**Chair:** **Jordi Perez**, MD, PhD, FIPP, Associate Professor, Anesthesia and Director, Cancer Pain Fellowship, McGill University; Associate Medical Director, Alan Edwards Pain Management Unit; Director, MUHC Cancer Pain Program

**Speakers:** **Jordi Perez**, MD, PhD, FIPP, McGill University  
**Martin Koltzenburg**, MD, Dr. med, Professor and Chair, Clinical Neurophysiology, University College London, UK; Neurologist and Head of the Department of Clinical Neurophysiology, The National Hospital for Neurology and Neurosurgery at Queen Square  
**Patrick Mantyh**, PhD, JD, Professor of Pharmacology, Department of Pharmacology, University of Arizona

#### **Symposium Abstract**

Among adults in Canada, approximately 15-19% experience chronic noncancer pain – defined as a painful condition that persists for three months or longer. For most people with this type of chronic pain, it lasts much longer than three months: more than half of adults in Canada with chronic pain report suffering with it for more than 10 years. Two of the most prevalent types of chronic pain – and most common causes of disability in Canada – are low back pain and osteoarthritis, affecting up to 22% and 14% of Canadian adults, respectively. The burden of chronic pain weighs heavily on patients and society, with direct and indirect costs greater than that of cancer, heart disease, and HIV combined. Against this backdrop, in this symposium we will explore the challenges clinicians face in the pharmacological management of chronic pain and review our evolving understanding of the pathophysiology of chronic pain. Building on this science, we will discuss the mechanism of action,

analgesic properties, efficacy, and safety of potential new treatments that modulate nerve growth factor (NGF) in chronic pain pathways, as well as the possible clinical applications of anti-NGFs to improve patient outcomes.

#### **Unmet Needs and Challenges in Chronic Pain**

Jordi Perez, MD, PhD, FIPP, McGill University

#### **The Mechanisms of Chronic Pain: What We Know in 2019**

Martin Koltzenburg, MD, Dr. med, University College London The National Hospital for Neurology and Neurosurgery at Queen Square

#### **Advancing Knowledge in Chronic Pain Management: The Role of Nerve Growth Factor**

Patrick Mantyh, PhD, JD, University of Arizona

#### **Learning Objectives**

- Identify unmet needs and challenges in the optimal treatment of chronic pain, including low back pain and osteoarthritis
- Explain the current understanding of pain pathways and mechanisms and how they are modulated by current pharmacological treatment options
- Describe the mechanism of action of anti-nerve growth factor drugs in the management of chronic pain and their potential application in the clinical setting

**12.00 - 13.30**

#### **Trainee Workshop**

Details to be announced

**13.30 - 14.15**

#### **Plenary Session**

**Keynote speaker** Beverly Thorn, Ph.D., ABPP, Professor and Chair, Clinical Health Psychology, Psychology Department, University of Alabama, Tuscaloosa, AL

**14.30 -16.00**

#### **Wednesday Afternoon Breakout Sessions**

*Session A*

#### **Stress and cognitive processes regulating the experience of pain and touch**

**Chair:** **Robert Bonin**, Ph.D, University of Toronto, Leslie Dan Faculty of Pharmacy

**Speakers:** **Robert Bonin**, Ph.D, University of Toronto  
**Frank Porreca**, PhD, University of Arizona, Dept of Pharmacology  
**Massieh Moayedi**, PhD, University of Toronto, Faculty of Dentistry

#### **Symposium Abstract**

Pain is considered to be an “unpleasant sensory and emotional experience”. However, the relative pleasantness or unpleasantness of a sensory experience can be highly variable. The environmental, physiological, and cognitive context can profoundly affect how pain is experienced. For example, stress can both precipitate pain and amplify the unpleasantness of stimuli. The relationship between context and pain has been used in cognitive therapies designed to alleviate or diminish chronic pain.

In this symposium, we will examine the interplay between environmental and cognitive context on the perception and response to noxious and innocuous stimuli. First, Dr. Robert Bonin will discuss new work using optogenetic approaches to study how environmental conditions modulates response to gentle tactile stimuli. He will describe how mouse preference for the activation of sensory afferents responsive to gentle touch is abolished by stress in a manner dependent of the production of corticosterone. Next, Dr. Frank Porreca will describe a potential new mechanism underlying the relationship between stress and pain in functional pain states. His work reveals a kappa-opioid receptor mediated hyperalgesic circuit within the central amygdala that increases descending facilitation. Finally, Dr. Massieh Moayedhi will describe data examining the contextual modulation of pain. He will demonstrate how interventions to cognitively re-evaluate the experience or response to a pain stimulus can modulate the perceived unpleasantness and neurophysiological response to pain. Together, these studies provide new mechanistic insight into the relationship between context and the cognitive and physiological response to noxious and innocuous stimuli.

#### **Modulation of responses to gentle touch stimuli by physiological and environmental factors**

Robert Bonin, Ph.D, University of Toronto, Leslie Dan Faculty of Pharmacy

#### **Stress-induced descending facilitation from amygdala kappa opioid receptors in functional pain**

Frank Porreca, PhD, University of Arizona, Dept of Pharmacology

#### **The meaning of a painful stimulus modulates neurophysiological responses**

Massieh Moayedhi, PhD, University of Toronto, Faculty of Dentistry

#### **Learning Objectives**

- To understand how optogenetics can be used to investigate acute changes in tactile sensory processing in freely behaving animals.
- To learn how stress and stress hormones can modulate the central processing of sensory stimuli and the modulation of pain by descending noxious inhibitory control.
- To gain insights into how cognitive expectations of pain can modulate the experience of pain.

### **14.30 -16.00 Wednesday Afternoon Breakout Sessions**

#### **Session B Prioritizing pain provincially: The need for a comprehensive approach**

**Chair:** Maria Hudspith, MA, Director, Strategic Initiatives, Pain BC

**Speakers:** Fiona Campbell, BSc, MD, FRCA, President Canadian Pain Society, Co-director Ontario Chronic Pain Network (Pediatric), Hospital for Sick Children

Susan Tupper, PT, PhD, Saskatchewan Health Authority, Pain Strategy

John X. Pereira, MD CM CCFP CIME CEDIR VI, President, Pain Society of Alberta, Co-Chair, Alberta Pain Strategy, Calgary, Alberta, Canada

#### **Symposium Abstract**

Note: Session times and locations subject to change.



Recognizing the efforts and accomplishments in prioritizing pain in provinces and territories across the country, this symposium will explore the development process of three emerging provincial pain strategies.

While the presentations will focus on the Ontario, Saskatchewan, Alberta, and British Columbia pain strategies, we will be speaking to the complexities involved in system transformation efforts. This includes engaging a broad range of stakeholders with different interests and priorities, as well as the interconnected and sometimes competing components within pain strategies. By exploring in detail the efforts underway in these three provinces as a starting point, the symposium will promote discussions on navigating change in other provinces as well as broader system change efforts at a national level.

#### **Ontario Chronic Pain Network Pain Strategy; structure, function, achievements**

Fiona Campbell, BSc, MD, FRCA, President Canadian Pain Society, Co-director Ontario Chronic Pain Network (Pediatric), Hospital for Sick Children

#### **SaskPain: Saskatchewan's journey to develop a provincial pain strategy**

Susan Tupper, PT, PhD, Saskatchewan Health Authority, Pain Strategy

#### **Alberta Pain Strategy: A Truly Provincial Collaboration**

John X. Pereira, MD CM CCFP CIME CEDIR VI, President, Pain Society of Alberta, Co-Chair, Alberta Pain Strategy, Calgary, Alberta, Canada

#### **Learning Objectives**

- To learn about different system transformation approaches in the development of emerging provincial pain strategies
- To understand the objectives and the different components within provincial pain strategies and the relationship among them
- To situate research and practice in the broader policy context to help improve the lives of people living with pain

### **14.30 -16.00 Wednesday Afternoon Breakout Sessions**

#### *Session C* **Cannabis in clinical practice: current and future state**

**Chair:** **Lori Montgomery**, MD CCFP FCFP, Clinical Associate Professor, Cumming School of Medicine, Departments of Family Medicine and Anesthesiology, Perioperative and Pain Medicine

**Speakers:** **G. Michael Allan**, BSc, MD, CCFP, College of Family Physicians of Canada  
**Barry D Kurtzer**, BSc, MD MRO (AAMRO), Senior Staff Advisor, MRO and Medical Programs (retired), Driver Check Inc.

**Hance Clarke**, MD PhD FRCPC, Staff Anesthesiologist, Director of The Transitional Pain Program Medical Director Pain Research Unit  
Department of Anesthesia and Pain Management, Toronto General Hospital Assistant Professor, University of Toronto

#### **Symposium Abstract**

As we begin to determine how medical use of cannabis fits into the context of legalization, we have an opportunity to re-examine the existing evidence and refine our conversations with patients. This workshop will address three key issues: what

does the evidence currently tell us about the role of cannabis in chronic pain, and how do we best share this with patients? What advice can we give our patients who are currently using cannabis (whether authorized or not) regarding impairment? What does the basic science tell us about the potential of cannabinoid medications, and where might research lead in the future? The presentations will be followed by a panel Q&A with all speakers.

### **Is it high time for medical cannabis: critical thinking about the evidence in chronic pain**

G. Michael Allan, BSc, MD, CCFP, College of Family Physicians of Canada

### **Cannabis and impairment**

Barry D Kurtzer, BSc, MD MRO (AAMRO), Driver Check Inc.

### **The promise of cannabinoids and future directions**

Hance Clarke, MD PhD FRCPC, University of Toronto

### **Learning Objectives**

- Develop a patient-centred approach to discussing the evidence for cannabis in chronic pain
- Frame a conversation with a patient about possible impairment as a result of cannabis use
- With reference to the basic science of cannabinoids, explain the potential for cannabis in pain management, and consider possible avenues for future research

## **14.30 -16.00 Wednesday Afternoon Breakout Sessions**

### *Session D*

### **Interventional Procedures for the Management of Chronic Non-Cancer Pain**

**Chair:** Harsha Shanthanna, MD, MSc, FRCPC, Associate Professor, McMaster University, Dept of Anesthesia

**Speakers:** Ian Beuprie, MD, FRCPC Associate Professor, Dalhousie University, Department of Anesthesia, Pain Management and Perioperative Medicine  
Philip Peng, MBBS FRCPC, Founder (Pain Med), Professor, University of Toronto, Dept of Anesthesiology and Pain Management  
Harsha Shanthanna, MD, MSc, FRCPC, McMaster University,

### **Radiofrequency procedures for chronic pain: Mechanism, Evidence and Public health implications.**

Ian Beuprie, MD, FRCPC, Dalhousie University

### **Interventions for the management of Hip and Knee Joint Pain**

Philip Peng, MBBS FRCPC, University of Toronto

### **Evidence Based Interventions for Chronic Pain: Present State and Future Directions**

Harsha Shanthanna, MD, MSc, FRCPC, McMaster University

### **Learning Objectives**

- To understand the mechanisms of RF treatment; strategies to select patients; new indications and modalities; and the implications for health budgets as RF treatment becomes more widespread.
- To understand the limitations of existing treatments for hip and knee joint pain; appreciate the innervation of knee and hip joints and potential sensory targets for pain interventions; and to discuss the potential role of image guided nerve block and radio-frequency treatments for knee and hip joint pain.
- To understand the evidence behind commonly performed interventional pain treatments and their limitations; appreciate the need for clinical studies and guidelines to better inform clinicians to perform evidence-based interventions; and to be aware of the ongoing efforts to promote evidence based pain interventions in Canada.

**16.00 - 17.00**    **Coffee | Posters | Tradeshow**

**17:00 - 18.30**    **Wednesday Late-afternoon Breakouts**

*Session A*    **Exploring Pain as a Multidimensional Experience: The Essential Role of Qualitative Research**

**Chair:**        **Judy Watt-Watson**, RN, MSc, PhD, University of Toronto, Lawrence S. Bloomberg Faculty of Nursing

**Speakers:**    **Fiona Webster**, PhD, University of Toronto, Institute of Health Policy Management and Evaluation (IHPME)

**Craig Dale**, RN PhD, University of Toronto, Lawrence S. Bloomberg Faculty of Nursing

**Nida Mustafa**, BSc., MHSc., PhD Candidate, University of Toronto, Dalla Lana School of Public Health

#### **Symposium Abstract**

Pain is defined as a multidimensional experience – a highly subjective phenomenon resulting from the interaction of physical, biochemical, physiological, cognitive, emotional, behavioral, and sociocultural factors. Pain is complex, context-sensitive, and often resistant to objective measurement. Research that focuses upon the subjective nature of pain can contribute to understanding of the manifold ways in which pain is experienced in clinical and nonclinical contexts. This is important as patients and clinicians continue to identify deficiencies in all aspects of acute and chronic pain management despite growing biomedical understandings of its causes and consequences. Qualitative methods of engaging patients and clinicians in pain science are strongly recommended by the Canadian Institutes of Health Research (CIHR) and the International Association of the Study of Pain (IASP). Patient and caregiver experiences are now identified as key pieces of evidence to inform clinical pain services, health professional training, experimental interventions, and topics for research investment. In this presentation, we offer examples of qualitative explorations that have changed our understanding of pain, offer insight into the potential facilitators and barriers to good pain management, and generate critical directions for future research.

#### **Narratives from learners about treating patients with chronic pain**

Fiona Webster, PhD, University of Toronto

Note: Session times and locations subject to change.

**Making pain visible through video and photo-elicitation**

Craig Dale, RN PhD, University of Toronto

**The Influence of Context: Exploring immigrant Indian women's lived-experiences of chronic pain in Canada**

Nida Mustafa, BSc., MHSc., PhD Candidate, University of Toronto, Dalla Lana School of Public Health

**Learning Objectives**

- To identify qualitative approaches to the exploration of pain across clinical and community settings.
- To describe social theory as a powerful means of seeing and articulating pain as a multidimensional phenomenon.
- To consider how qualitative evidence can inform clinical pain services, health professional training, experimental interventions, and topics for research investment.

**17:00 - 18.30 Wednesday Late-afternoon Breakouts***Session B***Getting Your Message Across: Learning to Communicate about Pain with Different Stakeholders and Knowledge Users**

**Chair:** **Christine Chambers**, Departments of Pediatrics and Psychology & Neuroscience, Dalhousie University

**Speakers:** **Neil Andrews**, MS, MA, Pain Research Forum, International Association for the Study of Pain

**Maria Hudspith**, MA, Executive Director, Pain BC

**Erica Ehm**, YMC.ca and Ehm & Co

**Symposium Abstract**

Being able to effectively communicate about pain with different types of stakeholders and knowledge users (e.g., patients, caregivers, policy makers, the public at large) is critical in order to improve health outcomes and quality of care for patients with pain. Yet most of the formal training pain researchers and clinicians receive prepares them only for communicating with other researchers and clinicians. This workshop will provide an overview of effective communication strategies for different types of stakeholders and knowledge users, and will capitalize on the expertise and experiences of three professional communicators. Neil Andrews, Executive Editor of Pain Research Forum/RELIEF, will present on strategies for making science more accessible to the public. Maria Hudspith, Executive Director of Pain BC, will present on strategies to communicate effectively with policy makers to promote change. Erica Ehm, founder of YMC.ca (an award winning on-line publication for Canadian mothers) and owner of Ehm & Co (a digital agency specializing in the mother market) will talk about strategies to effectively communicate and engage with Canadian parents. In addition to sharing effective strategies, common mistakes and pitfalls will also be discussed. We will use Twitter during the symposium to take polls, share information, and promote engagement. The symposium will conclude with an interactive question and answer period. The role of effective communication in promoting dissemination and implementation of evidence to change practice and improve pain for patients in pain will be emphasized.

**Making Science Accessible to the Public: What a RELIEF!**

Neil Andrews, MS, MA, Pain Research Forum, International Association for the Study of Pain

**Getting Pain on the Agenda: Communicating with Policy Makers to Catalyze Change**

Maria Hudspith, MA, Pain BC

**The Art Behind the Science: Communicating and Engaging with Parents**

Erica Ehm, YMC.ca and Ehm & Co

**Learning Objectives**

- To learn of the challenges facing efforts to translate complicated science into understandable language and how to overcome them.
- To understand the collective impact model as it applies to advancing policy change and to learn strategies for communicating with provincial and national policy makers
- To gain understanding of cutting-edge strategies from marketing that could be used to communicate and engage with parents about pain research and management.

**17:00 - 18.30 Wednesday Late-afternoon Breakouts***Session C***Social mechanisms underlying the pain experience: Novel frameworks for examining the influence of social context.**

**Chair:** Loren Martin, PhD, Assistant Professor, Dept of Psychology, University of Toronto

**Speakers:** Loren Martin, PhD, University of Toronto

Andrey Ryabinin, Ph.D., Professor, Department of Behavioral Neuroscience, Oregon Health & Science University

Kristen Jastrowski Mano, Ph.D., Assistant Professor, Department of Psychology, University of Cincinnati, Cincinnati

**Symposium Abstract**

Pain is considered a personal experience, but it is, in fact, rarely private. Individuals' behavioral responses to pain function to communicate distress to others in the environment, eliciting emotional reactions and caregiving actions that will in turn i

**Examining the neural circuits and molecular targets for the social modulation of pain**

Loren Martin, PhD, Assistant Professor, Dept of Psychology, University of Toronto

**Social transfer of hyperalgesia in rodents**

Andrey Ryabinin, Ph.D., Oregon Health & Science University

**Attentional bias to social threat in pediatric chronic pain.**

Kristen Jastrowski Mano, Ph.D., University of Cincinnati

**Learning Objectives**

- To understand the neural circuits and molecular targets for the social modulation of pain.
- To understand the contribution of social environment to induction of pain and the role underlying neural circuits.
- Illustrate how attentional biases to social threat represent an important mechanism underlying the co-occurrence of chronic pain and anxiety.

## 17:00 - 18.30 Wednesday Late-afternoon Breakouts

### Session D Mental expectations and neurobiological determinants of treatment outcomes

**Chair:** **Mary E Lynch**, MD FRCPC, Dalhousie University, Department of Anesthesia, Pain Management & Perioperative Medicine

**Speakers:** **Ian Beauprie**, MD, FRCPC., Dalhousie University, Department of Anesthesia, Pain Management & Perioperative Medicine

**Javeria Ali Hashmi**, Bpharmacy, MSc, PhD, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

**A. Vania Apkarian**, PhD, Professor of Physiology, Anesthesia, PM&R Northwestern University, Feinberg School of Medicine

#### Symposium Abstract

It is recognized that endogenous pain relief systems, such as opioid circuitry in the brain, contribute to treatment outcomes of pain. Several neuroimaging studies have consistently highlighted that brain circuits are equipped to adjust pain intensity through learning, motivation and attention systems. Another phenomenon validated in several recent studies is that prior mental states and associated brain activity are significant indicators of intrinsically mediated changes in symptoms that occur on starting a new treatment. Thus, whether an individual has the endogenous capacity to mentally engage and respond to treatment is determined by patterns of brain connectivity. That optimally pre-configured brain circuits are a pre-requisite for better treatment outcomes is a potentially useful observation and needs wider acknowledgement to be clinically useful. New conceptual models and analysis techniques that look at macro-level brain structure and function in large-scale data are quickly revolutionizing this ability. Blue-sky research goals to predict, deploy and enhance these intrinsic responses are seeing a quick surge and may soon change how we diagnose and treat chronic pain. An important implication of these new approaches is that endogenous analgesia and placebo responses will be no longer seen as a non-specific or cryptic response, relevant only to clinical trials and devoid of value in the clinic. This symposium will highlight the role of the brain, the associated mechanisms and the psychological and clinical factors that shape the endogenous aspects of treatment response.

#### **I am here for my oxy and my medical marijuana—I know it will work!': clinician perspective on patient expectations in chronic pain clinics**

Ian Beauprie, MD, FRCPC., Dalhousie University

#### **Theory, mechanisms and teleological roots of expectation effects on pain therapy**

Javeria Ali Hashmi, Bpharmacy, MSc, PhD, Dalhousie University

#### **Chronic pain as addiction and as an exaggerated memory.**

A. Vania Apkarian, PhD, Northwestern University

**Learning Objectives**

- Given the recognized magnitude of the placebo response (expectation effect), should a responsible clinician seek to eliminate it or amplify it?
- To overview theories and neurobiological mechanisms that mediate expectation effects on pain in experimental and clinical models.
- To understand that neurobiological and personality factors can predict the development of chronic pain and treatment outcomes.

**20.00 - 22.00**    **Trainee Social**  
Details to be announced

# Thursday, April 4, 2019

**07.00 - 8.00**    **Breakfast and Poster Setup**

**08.00 - 08.30**    **CPS's Annual General Meeting: A chance to have your say!**  
Plenary Room

**08.30 - 08.45**    **Opening Remarks**

**08.45 - 09.30**    **Plenary Session: Opioid Receptors and the Brain**

**Keynote speaker:** Brigitte Kieffer, PhD, Scientific Director at the Douglas Mental Health University Institute; Professor, Department of Psychiatry, McGill University; Chair, Monique H. Bourgeois in Pervasive Developmental Disorders, Faculty of Medicine of McGill University; Canada Research Chair

**09.30 - 10.30**    **Coffee | Posters | Tradeshow | Poster Judging**

**10.30 - 12.00**    **Thursday Morning Breakout Sessions**

*Session A*    **Ethical, Legal, and Social Dimensions of Chronic Pain: Considerations for Medical Assistance in Dying, the Overdose Crisis, and a National Pain Strategy**

**Chair:**        **Daniel Z. Buchman**, PhD, MSW, RSW, Bioethicist and Clinician  
Investigator, University Health Network

**Speakers:** **Jennifer A Chandler**, BSc, JD, LLM, Professor, Bertram Loeb Research Chair, Centre for Health Law, Ethics and Policy, Faculty of Law, University of Ottawa

**Daniel Z. Buchman**, PhD, MSW, RSW, Bioethicist and Clinician  
Investigator, University Health Network

**Karen D. Davis**, PhD, FCAHS, Krembil Research Institute, Division of Brain, Imaging and Behaviour – System Neuroscience

## Symposium Abstract

Note: Session times and locations subject to change.

Chronic pain remains a major public health problem in Canada and globally. There are promising advances in science and technology that could improve the management of pain. North American society is also in the midst of an alarming rise in individual and population-level harms due to opioid-related overdoses. Efforts towards improving pain management as well as opioid-related morbidity and mortality have raised ethical, legal, and social questions for pain sufferers and their families, clinicians, scientists, and policymakers. Recent societal changes relevant to pain include a landmark Supreme Court of Canada decision, where the experience of pain and intolerable suffering featured prominently in the Court's decision to permit eligible persons to request euthanasia. These social transformations exist alongside efforts to develop a National Pain Strategy for Canada. This Strategy will be instrumental in defining a Canadian approach for pain management, research, and education. In this symposium, we address the ethical, legal, and social dimensions of three timely issues that affect pain management, research, education, and policy in Canada. First, we discuss pain, suffering, and eligibility for euthanasia. Second, we examine the ethics of stigma, chronic pain, and substance use disorders in context of the overdose crisis. Finally, we explore how neuroethics should be considered and included in the creation of Canada's first National Pain Strategy.

#### **Pain Syndromes, Suffering, and Canada's New Medical Assistance in Dying Law**

Jennifer A Chandler, BSc, JD, LLM, Professor, Bertram Loeb Research Chair, Centre for Health Law, Ethics and Policy, Faculty of Law, University of Ottawa

#### **Chronic Pain, Substance Use, and Stigma in Context of the Overdose Crisis**

Daniel Z. Buchman, PhD, MSW, RSW, Bioethicist and Clinician Investigator, University Health Network

#### **Neuroethics Considerations for a National Pain Strategy**

Karen D. Davis, PhD, FCAHS, Krembil Research Institute, Division of Brain, Imaging and Behaviour – System Neuroscience

#### **Learning Objectives**

- Understand the ethical and legal issues associated with pain syndromes and eligibility for medical assistance in dying;
- Recognize how chronic pain and substance use stigma may become intensified in context of the current overdose crisis;
- Explore how neuroethics issues should be considered in the development of a National Pain Strategy for Canada and the future of pain policy.

### **10.30 - 12.00 Thursday Morning Breakout Sessions**

#### ***Session B* Pain after traumatic brain injury: A clinical and molecular perspective towards better management and prevention**

**Chair:** Gilles Lavigne, DMD, PhD, Université de Montréal, Hôpital du Sacré-Coeur de Montréal

**Speakers:** Céline Gélinas, RN, PhD, McGill University, Centre for Nursing Research and Lady Davis Institute of the Jewish General Hospital

Caroline Arbour, RN, PhD, Université de Montréal, Hôpital du Sacré-Coeur de Montréal



Samar Khoury, PhD, McGill University

### Symposium Abstract

Pain relief is a challenge in the context of traumatic brain injury (TBI) as many patients are temporarily unable to self-report. This is concerning because chronic pain is one of the most enduring sequelae of TBI and poorly managed pain in the acute phase of recovery could play a role in its development. Prevention of pain chronicity in this patient group starts with the use of validated tools to detect signs of unalleviated pain. A better understanding of the determinants associated to the emergence and maintenance of pain after TBI could also help clinicians identify at risk patients during the early stages of recovery. Ultimately, digging into the genetic profile of TBI individuals with chronic pain offers a new opportunity to match affected patients to suitable treatments. This symposium brings together clinicians and basic scientists to give an overview of the recent breakthroughs in our understanding of risk factors and preventive strategies for the alleviation of pain after TBI. After providing a brief introduction on the challenges surrounding pain assessment after TBI, Céline Gélinas will discuss her latest work regarding the adaptation of a behavioral pain scale for critically ill brain trauma patients. Caroline Arbour will describe the early clinical profile of TBI patients with persistent pain and investigate the possible underlying mechanisms. The session will conclude with a presentation from Samar Khoury, who will wrap-up the session and present emerging evidence supporting the plus value of genetic profiling to understand and treat chronic pain after TBI.

#### **Pain assessment in critically ill brain-injured patients: Filling a gap into practice**

Céline Gélinas, RN, PhD, McGill University, Centre for Nursing Research and Lady Davis Institute of the Jewish General Hospital

#### **Early identification of patients at risk of chronic pain after TBI: How thinking outside the box could get us a long way**

Caroline Arbour, RN, PhD, Université de Montréal, Hôpital du Sacré-Coeur de Montréal

#### **Using genetics to predict chronic pain in mild traumatic brain injury**

Samar Khoury, PhD, McGill University

#### **Learning Objectives**

- To share recent advances in pain assessment in the critical phase of TBI recovery
- Gain new insight into the clinical profile of TBI individuals who are at risk of transitioning from acute to chronic pain
- Project how genetics can be used to understand and treat chronic pain after TBI

### **10.30 - 12.00 Thursday Morning Breakout Sessions**

#### ***Session C* Neuromodulation for pain – choosing the right modality for the right patient at the right time”**

**Chair:** **Anuj Bhatia**, MD FRCPC, University Health Network, Department of Anesthesia and Pain Medicine, University of Toronto

**Speakers:** **Angela Mailis**, MD MSc FRCPC, University Health Network, Pain and Wellness Centre, Department of Medicine, University of Toronto

Note: Session times and locations subject to change.

**Anuj Bhatia**, MD FRCPC, University Health Network, Department of Anesthesia and Pain Medicine, University of Toronto  
**Amitabh Gulati**, MD, Memorial Sloan Kettering Cancer Centre, Department of Anesthesia and Pain Medicine

### Symposium Abstract

Neuromodulation including spinal cord (SCS) and peripheral nerve stimulation (PNS) is now increasingly available and it has a favorable benefit-to-risk profile with significant economic benefits for patients and the society. Traditionally, neuromodulation techniques are used to treat chronic neuropathic pain syndromes, but more recently, nociceptive pathologies have also been successfully treated. Offering neuromodulation early and to patients with appropriate indications are the keys to optimizing long-term outcomes. There is strong evidence to support benefits of SCS in peripheral neuropathic pain and its superiority over repeat surgery for patients with history of previous spine surgery. Paresthesia-based, tonic SCS (PB-SCS) has been extensively used to treat neuropathic pain in the limbs with or without axial pain with mean reduction in pain intensity of over 60%. However, PB-SCS suffers from limitations including attenuation of benefit with time and or problems with painful or unwanted paresthesias. Newer modes of SCS and recent advances in hardware for PNS have expanded the indications for neuromodulation and can improve the efficacy of neuromodulation in the pain population. This symposium will cover three key areas of current clinical and research interest – patient selection, mechanisms and outcomes of paresthesia-free SCS, and role of PNS in current pain management.

### Patient selection for neuromodulation – who is likely to benefit and who will not”

Angela Mailis, MD MSc FRCPC, University Health Network, Pain and Wellness Centre

### New modes of spinal cord stimulation (SCS) - High Frequency, Burst, High Density, and DRG stimulation – mechanisms of action and outcomes”

Anuj Bhatia, MD FRCPC, University Health Network

### It is not all about the spinal cord – peripheral nerve stimulation for pain”

Amitabh Gulati, MD, Memorial Sloan Kettering Cancer Centre

### Learning Objectives

- Attendees will be able to identify patients who can benefit from neuromodulation.
- Attendees will be able to understand mechanisms of new modes of spinal cord stimulation and the principles of evaluating outcomes of these modes in patients who trial these modes.
- Attendees will be able to recognize indications for the role of peripheral neuromodulation in patients with neuropathic pain.

## 10.30 - 12.00 Thursday Morning Breakout Sessions

*Session D* **Genes, Environments and Development in Pain: Crossing the Translational Divide**

- Chair:** **Marco Battaglia**, MD, Centre for Addiction & Mental Health Division of Child Youth and Emerging Adult Programme & Dept of Psychiatry University of Toronto
- Speakers:** **Marco Battaglia**, MD, Centre for Addiction & Mental Health Division of Child Youth and Emerging Adult Programme & Dept of Psychiatry University of Toronto  
**Yves De Koninck**, PhD, CERVO Brain Research Centre & Laval University  
**Steven Miller**, MD, Hospital for Sick Children; University of Toronto  
**Simon Beggs**, PhD, UCL Great Ormond Street Institute of Child Health, London, UK

### Symposium Abstract

This symposium will address the roles of genetic and environmental factors that influence risk for pain, and the possible gene-environment interplay. Special emphasis will be put on the developmental years: how early-life adversities and exposure to moderately harmful stimuli can modify the perception of pain in a stable manner, and influence the risk for prospective pain syndromes. This symposium brings together researchers and clinicians from both the human and the experimental fields, and will showcase investigations 'from preclinical to human, and back'. At the end of the symposium the listener will be able to appreciate how genetic and environmental factors influence pain early in life, how these processes likely unfold in a dynamic interplay, and how some preclinical data can be transferred to early risk identification and treatment applications in man.

### Genes and Environment in Adolescent Pain: Concepts and Research Strategies

Marco Battaglia, MD, Centre for Addiction & Mental Health Division of Child Youth and Emerging Adult Programme & Department of Psychiatry University of Toronto ON

### Early interference with parental cares and altered nociception: learning from preclinical modelling

Yves De Koninck, PhD, CERVO Brain Research Centre & Laval University

### The Early Environment of Preterm Newborns: Implications of Pain for Brain Development

Steven Miller, MD, The Hospital for Sick Children and The University of Toronto

### Early-life pain experiences and their implications for persistent pain in adult life

Simon Beggs, PhD, UCL Great Ormond Street Institute of Child Health

### Learning Objectives

- Learn about how to study genetic and environmental influences on pain early in life in human populations and pre-clinically;
- How these processes likely unfold in a dynamic interplay, and how some preclinical data can be transferred to early risk identification and treatment applications in man
- How early environment may affect brain development, pain proclivity, and pain persistence in adult life.

**12.00 - 13.30**

**Lunch | Posters | Tradeshow**

Women in Leadership Lunch: details to follow

Note: Session times and locations subject to change.

**13.30 - 15.00 Thursday Afternoon Breakout Sessions***Session A***Trauma-Related Symptoms Associated with Chronic Pain, Traumatic Injury, and Major Surgery in Youth and Adults: Neurobiological, Psychological and Public Health Perspectives**

**Chair:** **Hance Clarke**, MD, FRCPC, PhD, Toronto General Hospital, Department of Anesthesia and Pain Management

**Speakers:** **Jillian Vinall**, PhD, University of Calgary, Anesthesia  
**Joel Katz**, PhD, York University, Psychology Department and Toronto General Hospital, Department of Anesthesia and Pain Management  
**Melita Giummarra**, BA (honours), PhD, School of Public Health and Preventive Medicine, Monash University, Melbourne, Victoria, Australia

**Symposium Abstract**

Globally, pain, mental health conditions and trauma lead to some of the greatest burden of disability across the lifespan. Understanding the mechanisms and manifestations of these problems is therefore a major public health priority to enable us to develop and deliver more effective and timely interventions to the right person at the right time. In this symposium, Dr Jillian Vinall will first discuss the co-occurrence of post-traumatic stress disorder symptoms in youths with chronic pain, and will present novel insights into neurobiological mechanisms associated with varying levels of PTSD symptoms in youths with chronic pain. Second, Dr. Joel Katz will discuss the role of sensitivity to pain traumatization and anxiety-related disorders in the manifestation of persistent pain both before and after major surgery. Sensitivity to pain traumatization describes the propensity to develop anxiety-related responses to pain that are similar to traumatic stress reactions, but are specific to pain as the traumatic experience. Finally, Dr Melita Giummarra will provide an overview of the prevalence and trajectories of pain and mental health problems after traumatic injury in adolescents through to older adults using population-level trauma registry data from Victoria, Australia. These neurobiological, psychological and population level modelling insights have significant implications for the delivery of early, timely, appropriate and effective interventions across the lifespan. We will therefore highlight important policy implications for improved delivery of services and treatments for pain and mental health that might ultimately lead to reductions in the global burden of pain and mental health conditions.

**PTSD symptoms and chronic pain in youth: shared neurobiology as a mutually maintaining mechanism**

Dr. Jillian Vinall, PhD, University of Calgary

**Sensitivity to Pain Traumatization: Links between Trauma and Pain in Surgical Patients and Patients with Anxiety Disorders**

Joel Katz, PhD, York University

**Pain and mental health after injury: Who experiences persistent problems, and what role might early interventions have?**

Dr Melita Giummarra, PhD, School of Public Health and Preventive Medicine, Monash University

**Learning Objectives**

- To better understand the neurobiological mechanisms underlying the development and maintenance of chronic pain and comorbid posttraumatic stress symptoms in youth.
- To better understand the psychosocial constructs underlying the risk of developing comorbid chronic pain and anxiety disorders.
- To provide an understanding of the predominant trajectories of pain and mental health over the first two years following injury, which can be used to proactively deliver timely and effective treatments to reduce the burden of injury.

**13.30 - 15.00****Thursday Afternoon Breakout Sessions***Session B***Advances in Magnetic Resonance Imaging of Human Spinal Cord: Challenges and Opportunities for Pain Researchers and Clinicians**

**Chair:** **Ali Khatibi**, Ph.D, Dept of Neurology and Neurosurgery, McGill University  
**Speakers:** **Christian Buchel**, M.D., Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany  
**Ali Khatibi**, Ph.D, Dept of Neurology and Neurosurgery, McGill University  
**Robert L. Barry**, Ph.D., Athinoula A. Martinos Center for Biomedical Imaging, Dept of Radiology, Massachusetts General Hospital, Harvard Medical School

**Symposium Abstract**

The spinal cord has long been known to be an important part of the central nervous system especially when it comes to the study of pain processing and its modulation. The spinal cord has received considerable attention in animal model studies, but some limitations (e.g., small diameter, physiological noise, high diversity in the shape) have hindered studying the spinal cord in living humans. Recent advances in magnetic resonance imaging (e.g., development of new tools, improvement of sequences and machines) have allowed researchers to study the structure and the function of the spinal cord in vivo. This symposium will present the state-of-the-art in structural and functional imaging of the human spinal cord, and describe the existing opportunities and challenges in this field. We will present specific examples of neuroimaging studies that focus on the role of the spinal cord in the processing and modulation of pain in humans. We will deliver guidelines and suggestions for future experimental and clinical studies interested in imaging the human spinal cord.

**Combined fMRI of the brain and the spinal cord in pain research**

Christian Buchel, M.D., Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

**Understanding and modelling physiological noise in functional imaging of the human spinal cord**

Ali Khatibi, Ph.D, Dept of Neurology and Neurosurgery, McGill University

**Magnetic resonance imaging (MRI) of the human spinal cord at 7 Tesla**

Robert L. Barry, Ph.D., Athinoula A. Martinos Center for Biomedical Imaging, Dept of Radiology, Massachusetts General Hospital, Harvard Medical School

**Learning Objectives**

Note: Session times and locations subject to change.

- Understanding the interplay of the ascending and descending nociceptive system from the dorsal horn to the cortex
  - Understanding the importance of modelling physiological noise in functional imaging of the human spinal cord
  - Exploring the challenges and opportunities of spinal cord imaging at ultra-high magnetic fields

### 13.30 - 15.00 Thursday Afternoon Breakout Sessions

#### Session C Pain in autoimmune disease

**Chair:** **Bradley Kerr**, PhD, University of Alberta, Dept of Anesthesiology and Pain Medicine

**Speakers:** **Bradely Kerr**, PhD, University of Alberta, Dept of Anesthesiology and Pain Medicine

**Nader Ghasemlou**, PhD, Queen's University, Dept of Anesthesiology and Pain Medicine

**Ji Zhang**, MD, PhD, McGill University, The Alan Edwards Centre for Research on Pain

#### Symposium Abstract

Multiple sclerosis (MS) and Guillain Barre Syndrome (GBS) are the two most frequently observed forms of autoimmune neuropathy in clinics. Often masked by muscle weakness and progressive paralysis, pain, although invisible, occurs often in these patients and is one of the most long-lasting sequelae of autoimmune neuropathy. However, the pathophysiology of pain in autoimmune disease is poorly understood. In this workshop, we will 1) discuss the animal model commonly used to study MS and examine new methodologies that allow us to analyze changes in sensory function while removing many of the confounds of motor impairment; 2) discuss the most recent findings on neuronal mechanisms of pain in MS highlighting the role of peripheral sensory ganglia in this process; 3) demonstrate the evidence of viral infection and injury triggered GBS like symptoms in mice and discuss the key role of CD8 T cell-macrophage interaction in autoimmune peripheral neuropathy-associated chronic pain.

#### The role of the peripheral nervous system in central neuropathic pain: changes in primary sensory neurons in an animal model of CNS autoimmune demyelination

Bradely Kerr, PhD, University of Alberta, Dept of Anesthesiology and Pain Medicine

#### New approaches to modeling pain in MS

Nader Ghasemlou, PhD, Queen's University, Dept of Anesthesiology and Pain Medicine

#### The essentials of CD8 T cell-macrophage interaction in autoimmune peripheral neuropathy and associated chronic pain

Ji Zhang, MD, PhD, McGill University, The Alan Edwards Centre for Research on Pain

#### Learning Objectives

- After this symposium, the learner will become familiar with novel animal models that model the pathophysiology of different autoimmune diseases.

Note: Session times and locations subject to change.

- After this symposium, the learner will understand how the peripheral nervous system reacts and impacts on sensory function in disease states primarily affecting the CNS.
  - After this symposium, the learner will gain insight into novel, immunological mechanisms that lead to pain in autoimmune peripheral neuropathy.

### 13.30 - 15.00 Thursday Afternoon Breakout Sessions

#### Session D

#### **Keeping the “I” in Pain: Theoretical, Methodological and Clinical Strategies for Integrating the Subjective Experience of Pain Within Research and Practice.**

**Chair:** **Timothy H. Wideman**, PT, PhD, McGill University, School of Physical and Occupational Therapy

**Speakers:** **Timothy H. Wideman**, PT, PhD, McGill University, School of Physical and Occupational Therapy

**Eloise Carr**, BSc(RN), MSc, PhD, University of Calgary, Faculty of Nursing

**Stephen G. Henry**, MD, MSc; University of California – Davis; Dept of Internal Medicine, Sacramento, California

#### **Symposium Abstract**

The “Holy Grail” for pain assessment research is often framed as an objective biomarker that can validate, or invalidate, the reported pain experience and guide clinical decision-making. The broader context for this quest, is a literature base that has historically emphasized the use of quantitative methodologies to study pain. Within this context, pain assessment strategies are typically focused on aspects of pain most readily communicated through numbers, such as pain intensity ratings or pain threshold levels. While quantitative pain measures are vital to understanding and targeting mechanisms and benchmarking management, they often overlook important attributes of the subjective experience, such as the personal context and meaning that shape our experiences of pain and suffering. This workshop aims to provide a novel perspective on the flipside of this historic trend by highlighting the inherent value of and need for qualitative methodologies that specifically address subjectivity related to pain. Presentations will provide theoretical, methodological and clinical perspectives on how to integrate personal language with standardized measures in order to better address the subjective experience of pain. Workshop presenters will speak from their diverse clinical backgrounds in physical therapy, nursing and medicine and research experience that draws on both qualitative and quantitative methodologies. Researchers and clinicians in the audience are expected to develop a new way of considering pain assessment that emphasizes the relative ability and value of different methodologies in addressing the subjective experience of pain.

#### **The Multi-modal Assessment Model of Pain: A novel conceptual framework for further integrating the subjective pain experience within research and practice**

Timothy H. Wideman, PT, PhD, McGill University, School of Physical and Occupational Therapy

#### **The added value of mixed methods research: Connecting and integrating the patient’s voice in pain research**

Eloise Carr, BSc(RN), MSc, PhD, University of Calgary, Faculty of Nursing

#### **Clinical strategies for evaluating the subjective nature of pain in primary care**

Stephen G. Henry, MD, MSc; University of California – Davis; Dept of Internal Medicine, Sacramento, California

### Learning Objectives

- Develop a new conceptual framework for understanding how the inherent subjectivity of pain influences its assessment and management.
- Understand how to effectively integrate qualitative and quantitative research methodologies to better access novel aspects of the subjective experience of pain.
- Develop practical clinical skills for evaluating and addressing patients' subjective experiences of pain within challenging primary care settings.

**15.00 - 16.00** Coffee | Posters | Tradeshow

**15.30 - 16.00** Special Session: Details to follow

**16.00 - 17.30** Thursday Late Afternoon Sessions

*Session A* **Temporomandibular disorders: insights from musculature, brain, and genes**

**Chair:** Barry Sessle, MDS, PhD, DSc(h.c.), University of Toronto, Faculty of Dentistry

**Speakers:** Iacopo Cioffi, DDS, PhD, Faculty of Dentistry, University of Toronto, University of Toronto Centre for The Study of Pain

Massieh Moayedi, PhD, University of Toronto

Shad Smith, PhD, Center for Translational Pain Medicine, Duke University

### Symposium Abstract

Temporomandibular disorders (TMD) commonly manifest jaw muscle pain and represent the most common chronic orofacial pain disorder. TMD affect about 12% of Canadians and pose a significant socioeconomic burden on society. Although several risk factors are associated with myofascial TMD (mTMD), clear organic causes for TMD pain have not been proven. This ambiguity contributes to the frequent misdiagnosis and hence mistreatment of mTMD and poses a significant and unnecessary burden on patients and the healthcare system. About 30% of individuals with TMD report pain up to at least 5 years after treatment regardless of the type of management they have received. This relatively high rate of treatment resistance is partly related to uncertainties about the mechanisms underlying mTMD. There is a clear unmet need for clarifying the peripheral and central mechanisms of TMD in order to develop novel treatment strategies. This symposium will present new research findings and discuss novel research modalities that have advanced our understanding of TMD and promise to lead to the development of such treatments. A particular strength of this symposium is the convergence of evidence across different disciplines (genetics, muscle physiopathology, and brain imaging) with regard to orofacial pain mechanisms.

### Functional and structural muscular signatures of chronic temporomandibular disorders

Iacopo Cioffi, DDS, PhD, Faculty of Dentistry, University of Toronto, University of Toronto Centre for The Study of Pain

Note: Session times and locations subject to change.



### **Structural and functional brain and trigeminal nerve abnormalities in temporomandibular disorders (TMD)**

Massieh Moayed, PhD, University of Toronto

### **Discovery of novel mechanisms for orofacial pain disorders through genome wide approaches.**

Shad Smith, PhD, Center for Translational Pain Medicine, Duke University

#### **Learning Objectives**

- Attendees will improve their understanding of jaw muscle physiopathology
- Attendees will learn about novel diagnostic approaches for orofacial pain
- Attendees will be able to identify novel methods for phenotyping orofacial pain

## **16.00 - 17.30 Thursday Late Afternoon Sessions**

### **Session B Let's Talk about (Painful) Sex!**

**Chair:** Paul Yong, MD, PhD, B.C. Women's Hospital and Health Centre & Vancouver General Hospital, Obstetrics and Gynecology

**Speakers:** Lana Barry, MEd, University of Victoria, Centre on Aging  
 Paul Yong, MD, PhD, B.C. Women's Hospital and Health Centre & Vancouver General Hospital  
 Kate Wahl, BSc, University of British Columbia, School of Population and Public Health  
 Natasha Orr, MSc, University of British Columbia, Department of Obstetrics and Gynecology

#### **Symposium Abstract**

As many as 60% of women report experiencing sexual pain in their lifetime. This symptom negatively impacts psychosocial wellbeing, intimate relationships, and quality of life. Despite these sequelae, female sexual pain is under-researched and is often dismissed or mismanaged. The objective of this symposium is to summarize the pathophysiology and treatment of sexual pain in the context of clinical practice, research, and the patient experience. First, patient advocate Lana Barry will share her experience with sexual pain and highlight the importance of patient partners in research. Next, Dr. Paul Yong will discuss the etiology, diagnosis, and management of sexual pain. Finally, Natasha Orr and Kate Wahl will present quantitative and qualitative approaches to the investigation of female sexual pain.

#### **The Journey from Pain to Advocacy: A Patient Partner Experience**

Lana Barry, MEd, University of Victoria, Centre on Aging

#### **One Size Does NOT Fit All: A Multi-disciplinary Perspective on the Pathophysiology and Treatment of Female Sexual Pain**

Paul Yong, MD, PhD, B.C. Women's Hospital and Health Centre & Vancouver General Hospital, Obstetrics and Gynecology

#### **Two Half of a Whole: Quantitative and Qualitative Methods in Female Sexual Pain Research**

Kate Wahl, BSc, University of British Columbia, School of Population and Public Health

Natasha Orr, MSc, University of British Columbia, Department of Obstetrics and Gynecology

### Learning Objectives

- Realize the significant impact of female sexual pain from a patient perspective
- Understand the relationship between the etiology and multidisciplinary treatment of female sexual pain
- Learn about the examples of qualitative and quantitative methods in sexual pain research

## 16.00 - 17.30 Thursday Late Afternoon Sessions

### Session C

#### Time for a PEP talk: Building the evidence for Patient Engagement in Pain

**Chair:** Carley Ouellette, BScN RN, McMaster University, Nursing

**Speakers:** Dawn Richards, PhD, Chronic Pain Network, McMaster University

Christine Chambers, PhD, Depts of Pediatrics and Psychology & Neuroscience, Dalhousie University

Kathryn Birnie, PhD, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto & Child Health Evaluative Sciences, The Hospital for Sick Children

#### Symposium Abstract

Public or patient engagement in research is "...research being carried out 'with' or 'by' members of the public rather than 'to', 'about', or 'for' them" (INVOLVE, 2018). Patient engagement represents a shift from the traditional view of patients as research participants to one that empowers patients, otherwise identified as 'people with lived experience', as partners and co-builders on research teams. Evidence suggests that engaging patients as collaborators enhances the quality, appropriateness, and relevance across stages of the research process. This includes increased study enrolment and decreased attrition, improved data collection tools, more effective dissemination and implementation of study findings, better researcher-community rapport, and closer alignment of research objectives to patient-identified priorities. However, challenges to greater uptake of patient engagement identified by researchers include difficulties identifying representative and appropriate patients, uncertainty about the scope of patients' roles, perceived lack of evidence regarding the impact of patient engagement, and the need for researcher education and culture change as a prerequisite. Thus, there is a need for continual knowledge generation and reflective practice regarding patient engagement in health research. The objective of this symposium is to illustrate diverse, meaningful, and active partnership of people with lived experience with pain and their families, in pain research governance, priority setting, research conduct, and knowledge translation. This symposium draws from multiple expert perspectives, including two individuals with lived experience with pain and extensive involvement with patient engagement (symposium chair and first speaker), as well as two researchers leading national patient engagement practice in pain research (speakers).

**Integration of Lived Experience throughout the SPOR Chronic Pain Network**

Dawn Richards, PhD, Chronic Pain Network, McMaster University

**Patient engagement lessons learned from #ItDoesntHaveToHurt and #KidsCancerPain social media initiatives**

Christine Chambers, PhD, Depts of Pediatrics and Psychology & Neuroscience, Dalhousie University

**#PartneringForPain: Empowering the patient and parent voice to co-build the future of pediatric chronic pain research**

Kathryn Birnie, PhD, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto & Child Health Evaluative Sciences, The Hospital for Sick Children

**Learning Objectives**

- To understand and critically view how patient partners' roles were established and are evolving in a national research network.
- To understand the experience of parent partners involved in social media initiatives and ways to improve it in the future.
- To see meaningful integration of patient and parent partners as members of a research team, and empowerment of patient and parent voices to identify pain research priorities.

**18.30 - 23.00** Reception | Awards Gala and Dancing!

## Friday, April 5, 2019

**08.00 - 09.15** Breakfast

**09.15 - 09.30** Opening Remarks

**09.30 - 10.00** Distinguished Career Award Keynote

**Keynote speaker: Karen D. Davis**, PhD, FCAHS, Krembil Research Institute, Division of Brain, Imaging and Behaviour – System Neuroscience

**10.00 - 10.30** Early Career Award keynote

**Chair: Loren Martin**, PhD, Assistant Professor, Dept of Psychology, University of Toronto

**10.30 - 11.00** Morning Coffee Break

**11.00 - 12.30** Friday Breakout Sessions

*Session A* Pain and the Extracellular Matrix

**Chair:** **Laura S Stone**, PhD, McGill University, Alan Edwards Centre for Research on Pain

**Speakers:** **Lisbet Haglund**, Orthopedic Research Lab, McGill Scoliosis and Spine Group, Dept of Surgery, McGill University; Shriners' Hospital, Montreal

Note: Session times and locations subject to change.

**Arkady Khoutorsky**, PhD, DVM, McGill University, Dept of Anesthesia,  
Faculty of Medicine and Dentistry

**Maral Tajarian**, PhD, Queens College, City University of New York,  
Biology Department

### **Symposium Abstract**

Intervertebral disc degeneration is the most common etiology of chronic low back pain. Degeneration is characterized by several changes including a breakdown of the extracellular matrix (ECM) of the Intervertebral Disc (IVD), which is composed of mainly collagen type II and proteoglycans like aggrecan. Furthermore, catabolic proteases, such as matrix metalloproteinases (MMP), and proinflammatory cytokines, increase during degeneration and contribute to ECM breakdown and development of pain. Neurotrophins, such as nerve growth factor (NGF), which is strongly linked to back pain, also increase. The early stages of disc degeneration that lead to these catabolic changes are poorly understood. However, toll-like receptors have recently been suggested to play a role in disc degeneration and pain generation. TLR's were originally characterized in innate immunity, but is also activated by endogenous ligands found in discs that are termed 'alarmins', such as fragmented hyaluronic acid, aggrecan, and fibronectin. TLR's are expressed by IVD cells of non-degenerating discs and activation of TLR's on disc cells increases cytokines, proteases and neurotrophins. Therefore, TLR's may contribute to the early progression of painful disc degeneration and throughout the course the pathology. In fact, there is strong evidence that chronic TLR inhibition decreases behavioral signs of low back pain, pain-related neuroplasticity and disc inflammation in SPARC-null mice. Therefore, TLRs are potential therapeutic targets to slow disc degeneration and reduce pain.

### **Extracellular Matrix Fragments and Toll-like Receptors as drivers of Low Back Pain and Disc Degeneration.**

Lisbet Haglund, PhD, McGill University; Shriners' Hospital

### **Remodeling of Spinal Extracellular Matrix Modulates the Development of Pain Hypersensitivity**

Arkady Khoutorsky, PhD, DVM, McGill University

### **The hippocampal extracellular matrix regulates pain and memory dysfunction after peripheral injury**

Maral Tajarian, PhD, Queens College, City University of New York

### **Learning Objectives**

- Upon completion of this session, attendees will be able to describe the extracellular matrix plasticity that parallels chronic pain in the intervertebral disc, spinal cord, and brain.
- Upon completion of this session, attendees will be aware of various biophysical and biochemical tools that could be used to study the extracellular matrix in peripheral and central tissues.
- Upon completion of this session, attendees will demonstrate knowledge in various mechanisms by which the extracellular matrix can be targeted for the treatment of chronic pain.

**11.00 - 12.30 Friday Breakout Sessions***Session B***Beyond pediatric pain: The mutual influence of child pain and cognitive, emotional and social development.**

**Chair:** **Rebecca Pillai Riddell**, PhD, York University, Dept of Psychology, Hospital for Sick Children, University of Toronto

**Speakers:** **Maria Pavlova**, MSc, University of Calgary, Department of Psychology  
**Ruth E. Grunau**, PhD, University of British Columbia, Dept of Pediatrics  
**Rebecca Pillai Riddell**, PhD, York University, Dept of Psychology, Hospital for Sick Children, University of Toronto

**Symposium Abstract**

Pain in childhood is prevalent. Painful medical procedures (e.g., surgeries, immunizations), everyday cuts and bruises, and acute or chronic illness-related pain are a normative part of children's lives from the first days. Nociception shapes children's and caregivers' behavioural and psychosocial reactions to pain. Painful experiences of infancy and early childhood produce a cascade of effects on children's brain development and long-term developmental outcomes. At the same time, nociception and pain experiences are powerfully influenced by cognitive and psychological factors that undergo extensive changes in early childhood. For instance, children's rapidly developing language, communication skills, and autobiographical memory significantly alter parent-child verbal exchanges about the immediate and past pain. Social context, a key component in the experience of pain, is particularly robust in early childhood with parents exerting considerable influence on immediate pain experiences and their aftermath. For example, certain parent behaviours may increase or, on the contrary, alleviate infant distress during painful medical procedures. Further, parents may reduce detrimental long-term effects of pain-related distress following hospitalization at the neonatal intensive care unit. The proposed symposium will examine how children's cognitive, psychological, and social development and pain experiences mutually shape and influence each other within the context of changing parent-child verbal and non-verbal interactions. The panel includes an interdisciplinary group of researchers, applying a developmentally informed multi-dimensional biopsychosocial lens to pediatric pain research in the clinical and real-world settings.

**The influence of parent-child reminiscing about past pain on children's prosocial development.**

Maria Pavlova, MSc, University of Calgary, Department of Psychology

**The adverse long-term effects of pain-related stress in the NICU and the role of parents in improving developmental outcomes.**

Ruth E. Grunau, PhD, University of British Columbia, Dept of Pediatrics

**Managing infant vaccination-related pain: Is preventing insensitivity better than promoting sensitivity?**

Rebecca Pillai Riddell, PhD, York University, Dept of Psychology, Hospital for Sick Children, University of Toronto

**Learning Objectives**

- to understand and discuss the differences in parent-child reminiscing about past distressing events and their association with children's prosocial behaviours.
- to discuss the impact pain-related stress on brain development and the role of parents in reducing detrimental effects of pain on children's developmental outcomes.
  - to discuss new ways of using the power of parents to manage pediatric pain across medical contexts.

## 11.00 - 12.30 Friday Breakout Sessions

### *Session C* Formal Continuing Pain Education: How Can It Improve Patient Outcomes?

**Chair:** Thomas Hadjistavropoulos, Ph.D., ABPP, FCAHS, Centre on Aging and Health, University of Regina

**Speakers:** Judy Watt-Watson, RN, MSc, PhD, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto  
Michelle Gagnon, Ph.D, Department of Psychology, University of Saskatchewan  
Thomas Hadjistavropoulos, Ph.D., Centre on Aging and Health, University of Regina

#### Symposium Abstract

We will focus on continuing pain education training initiatives targeting health professionals working with children, vulnerable seniors with dementia as well as other adults. The need for formal continuing pain education cannot be understated. It is also clear that continuing pain education tends to increase participants' knowledge about pain care. The extent to which such education leads to improved clinical practices and outcomes is less clear. We will review the literature in this area and introduce some new data with the aim of identifying elements that tend to increase the probability that continuing pain education will improve patient outcomes.

#### Improving Pain Practices through Continuing Professional Development: Is Education Enough?

Judy Watt-Watson, RN, MSc, PhD, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto

#### Increasing Knowledge of Evidence-Based Practice Among Health Professionals Working with Children and Parents

Michelle Gagnon, Ph.D, Department of Psychology, University of Saskatchewan

#### Continuing pain education in long-term care: Does it improve patient outcomes?

Thomas Hadjistavropoulos, Ph.D., Centre on Aging and Health, University of Regina

#### Learning Objectives

- To familiarize participants with types and outcomes of formal continuing pain education initiatives involving health professionals who work with people of all ages.
- To examine the relevance of the Pain Interprofessional Curriculum Design Model to continuing professional pain education contexts.

- To familiarize participants with factors that tend to increase the probability that continuing professional education will lead to improvements in patient outcomes.

## 11.00 - 12.30 Friday Breakout Sessions

### Session D

#### **Pain in cancer survivorship: Applying a lifespan approach to better understand an understudied problem**

**Chair:** **Nicole M. Alberts**, PhD, St. Jude Children's Research Hospital, Dept of Psychology, Memphis, Tennessee

**Speakers:** **Fiona Schulte**, PhD, Department of Oncology, Division of Psychosocial Oncology Cumming School of Medicine, University of Calgary  
**Nicole M. Alberts**, PhD, St. Jude Children's Research Hospital, Dept of Psychology, Memphis, Tennessee  
**Lynn R. Gauthier**, PhD, Université Laval, Dept of Family and Emergency Medicine  
**Myriam Asri**, BScN, RN, Health Admin. MSc, Université Laval, Department of Community Health

#### **Symposium Abstract**

Advances in early detection and treatment have dramatically increased both pediatric and adult-onset cancer survival rates. Nonetheless, long-term treatment-related morbidity, also referred to as late effects, are common among survivors. Moreover, these e

#### **The pain of survival: An examination of pain narratives in long-term survivors of childhood cancer and their caregivers**

Fiona Schulte, PhD, Department of Oncology, Division of Psychosocial Oncology Cumming School of Medicine, University of Calgary

#### **Prevalence and functional consequences of pain in adolescent and young adult survivors of childhood cancer**

Nicole M. Alberts, PhD, St. Jude Children's Research Hospital, Dept of Psychology, Memphis, Tennessee

#### **Age-related patterns in taxane-induced acute and chronic pain and other sensory symptoms among adult breast cancer survivors**

Lynn R. Gauthier, PhD, Université Laval, Dept of Family and Emergency Medicine  
 Myriam Asri, BScN, RN, Health Admin. MSc, Université Laval, Department of Community Health

#### **Learning Objectives**

- To bring awareness to the problem of pain in cancer survivorship.
- To consider the influence of treatment/procedure, health, psychological, and developmental factors on pain among survivors.
- To describe the use of quantitative and qualitative research methods currently being applied to the study of pain in cancer survivorship.