

# Canadian Pain Society's 2021 Annual Scientific Meeting

## Wednesday, April 28<sup>th</sup>: Day 1

*All times are Eastern Daylight Time. Recordings will be available for registrants, post-event.*

**10.00 - 11.00** Posters and Exhibition Open

**10.45 - 11.15** Opening Remarks

**Speakers:** Karen Davis, CPS President; Loren Martin, SPC Chair, Fiona Campbell & Maria Hudspith, Canadian Pain Task Force Co-Chairs; Address by the Hon. Patty Hajdu, Minister of Health

**11.15 – 12.00** **Mary Ellen Jeans Keynote, 'Applying a multi-modal approach to understanding neuropathic pain: studying small neurons in the era of big data.'**

**Keynote speaker: David Bennett, MB., Ph.D, University of Oxford**

### Symposium Abstract

We have an increasingly robust armoury as to how to stratify neuropathic pain patients according to symptoms, sensory testing and more advanced techniques such as neurophysiology, genetics and functional imaging. These are now being applied at scale both in large collaborative research consortia and in some cases within national health services. In parallel to these technological advances harmonised data collection and storage is enabling advanced multi-modal data analysis and correlation with long term health outcomes. The application of these techniques is helping us to: identify conditions which were not previously understood to have a neuropathic component, identify those individuals at highest risk of neuropathic pain and stratify patients living with neuropathic pain in a clinically meaningful way. I will discuss how these approaches are enhancing our understanding of neuropathic pain with the ultimate goal of not only developing novel treatment strategies but also better targeting of existing treatments to those most likely to respond.

### Learning Objectives

- The diagnostic approach to neuropathic pain ranging from screening tools to advanced technologies.
- How some of the newer techniques such as sensory profiling and genomics may help us stratify neuropathic pain patients.
- New approaches to treatment of neuropathic pain both in terms of efforts to develop novel treatments but also better targeting of the existing treatments through patient stratification.

**12.00 – 13.30** Breakout Sessions

**Session 1** **'The role of altered cognitive processing of bodily sensations in pain: A need for innovative and integrative research'**

**Chair:** Dimitri M.L. Van Ryckeghem, Maastricht University

**Speakers:** Aline Wauters, MsC, Ghent University; Tanja Hechler, PhD, University of Trier

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### **Symposium Abstract**

For decades, researchers have been investigating how altered cognitive processing of internal and external bodily sensations impact upon pain experience as well as related levels of distress and disability. In particular, biases in attention, interpretation and memory of both internal and external bodily sensations have been thought to influence the outcome and maintenance of pain.

Yet, despite a long track record and the many advances made in this domain in understanding the impact of cognitive processing of bodily sensations upon pain outcomes, several questions remain unanswered. Within current symposium, we aim to highlight existing gaps in available knowledge in this field and call for innovative research systematically investigating the link between altered processing of attention, interpretation and memory for both internal and external bodily sensations rather than research investigating isolated phenomena.

In particular, we will discuss the role of altered interoception and cognitive processing of pain in experiencing and maintaining pain in adults and children. Speakers will argue for the need of integration when discussing the impact of attention, interpretation and memory biases upon pain outcomes as well as the need of integration of cognitive processing of internal and external bodily sensations in the context of pain using ecological valid and innovative research designs.

- **Cognitive biases for pain: A functional-contextual perspective:** Dimitri M.L. Van Ryckeghem
- **Linking child attentional bias and memory bias in the context of pediatric pain: how parental talk might be of influence:** Aline Wauters, MSc
- **Altered interoception in children and adolescents with chronic primary pain: An overview and call for action:** Tanja Hechler, PhD

### **Learning Objectives**

- Delegates will gain understanding in the dynamic and functional nature of cognitive biases, driven by goals and contextual information.
- Delegates will gain insight in the interplay between attention, interpretation and memory biases and their combined impact upon pain outcomes in children and adults.
- Delegates will gain insight concerning the impact of altered interoception upon pain experience, disability and distress in children and adults with (chronic) pain.

## **Session 2**

### **'Innovations in post-surgical pain management across lifespan: Patient partner, clinical, and research perspectives'**

**Chair:** Joel Katz, PhD, York University

**Speakers:** Janice Sumpton, Patient Partner; Maria Pavlova, MSc, University of Calgary; Hance Clarke, MD, PhD, FRCPC, University Health Network

- **The long-term impact of childhood post-surgical pain:** Lived experience.: Janice Sumpton
- **Reframe the Pain: A Parent-Led Intervention to Alter Children's Memories for Pain:** Maria Pavlova, MSc
- **Novel Interventions in Transitional Pain Care:** Hance Clarke, MD, PhD, FRCPC

### **Symposium Abstract**

Millions of children and adults undergo surgeries annually. Post-surgical pain is often inadequately managed, distressing, and may result in traumatic memories of the surgical experience.

Importantly, up to 25% of patients are at risk for developing chronic post-surgical pain (CPSP), contributing to the rising epidemic of chronic pain. The research community, clinicians, parents of children undergoing surgeries, and adult patients have indicated an urgent need for non-pharmacological pain management to alleviate post-surgical pain and the associated suffering, as

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well as to prevent the pain from becoming chronic. In the proposed symposium, our patient partner will share her lived experience of a childhood surgery that she vividly remembers and that is tied to her chronic pain condition that persists to this day. She will discuss her experiences of this surgery and post-surgical pain management and will offer a unique perspective on how it shaped her future pain experiences. Ms. Pavlova will present new findings from a randomized controlled trial of a novel parent-led memory-reframing intervention aimed at positively altering young children's memories of post-surgical pain. Dr. Clarke will present new data from the Transitional Pain Service (TPS), a specialized peri- and post-operative pain management program. Specifically, Dr. Clarke will discuss how the integration of the Manage My Pain app into the TPS influenced patient engagement and patient outcomes. The panel includes an interdisciplinary group of clinical researchers and a patient partner applying a patient-centred and developmentally-informed lens to the impact of post-surgical pain and new and innovative avenues in its management.

- **The long-term impact of childhood post-surgical pain: Lived experience:** Janice Sumpton
- **Reframe the Pain: A Parent-Led Intervention to Alter Children's Memories for Pain:** Maria Pavlova, MSc
- **Novel Interventions in Transitional Pain Care:** Hance Clarke, MD, PhD, FRCPC

#### **Learning Objectives**

- Provide a patient partner perspective of pain, trauma, and pain memories and their profound impact across lifespan.
- Examine the efficacy of parent-led memory-reframing intervention aimed at positively altering children's memory for post-surgical pain.
- Describe the barriers and facilitators to implementing mobile technology into the Transitional Pain Service and present patient related outcomes.

### **Session 3**

#### **'Engaging people with lived experience through integrated knowledge translation: From basic pain research design to knowledge synthesis to clinical policy impact'**

**Chair:** Kathryn Birnie, PhD, RPsych, University of Calgary

**Speakers:** Nader Ghasemlou, PhD, Queen's University; Linda Wilhelm, Canadian Arthritis Patient Alliance; Kathryn Birnie, PhD, RPsych, University of Calgary

#### **Symposium Abstract**

The amount of scientific output globally is increasing at an exponential rate. A resulting problem from this science overload is that knowledge production has become increasingly granular, repetitive, and insular. This insularity in scientific inquiry isolates pain research from the realities of clinical practice, lived experience, and the broader social context; thus, creating a substantive disconnect between knowledge generation and its implementation. Addressing this concern is no more critical than in the time of the COVID-19 pandemic with an abundance of rapidly produced science and misinformation. The poor uptake of scientific knowledge of pain into clinical practice and policy should be considered a full systems failure. Scientists are not supported, equipped, or rewarded for translating their findings, leading to substantive waste in the production and reporting of research. A critical gap in pain research has been the omission of people with lived experience with pain, such as pediatric and adult patients, and family members. Patient engagement, also referred to as public involvement in health research has value for improving research relevance, design, efficiency, and implementation while also resulting in reduced research waste. Integrated knowledge translation engages stakeholders and potential research knowledge users throughout the entire research process. This symposium will show how people with lived experience are being engaged as stakeholders in integrated knowledge translation from bench

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science to clinical practice and policymaking across the knowledge-to-action cycle (new knowledge creation, synthesis, and implementation).

- **Of mice and men: Strategies to bridge the gap between the laboratory bench and patient populations:** Nader Ghasemlou, PhD
- **Mapping scientific evidence to patient-identified priorities in pediatric chronic pain to inform policy and practice:** Kathryn Birnie, PhD, RPsych
- **Changing Directions, Patients Influencing Policy:** Linda Wilhelm

#### **Learning Objectives**

- To demystify how basic scientists can effectively engage with patients and patient organizations to improve pain research design, knowledge translation, and training.
- To learn evidence and gap maps as a useful and rigorous methodology to facilitate integration of patient-identified research priorities with existing scientific evidence to guide researchers, policymakers, decision-makers, and health research funders.
- To understand how patients are playing a central and effective role in putting chronic pain on the national health agenda, in part, to address the unintended consequences of opioid crisis policy.

#### **Session 4**

##### **'COVID-19 human nociceptors, and pain'**

**Chair:** Rajesh Khanna, PhD, University of Arizona

**Speakers:** Theodore Price, PhD, University of Arizona; Rajesh Khanna, PhD, University of Arizona; Chronic pain patients with COVID-19 Rave Pretorius, Kim Corbett, Nicole Rosa

##### **Symposia Abstract**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative agent of COVID-19, a coronavirus disease that, as of November 10, has infected more than 50 million people and caused over 1,200,000 deaths worldwide and paralyzed global economies. The pandemic continues unabated and certain aspects of the disease continue to baffle clinicians and researchers. It has been suggested that transmission of the SARS-CoV-2 by asymptomatic or mildly symptomatic individuals could be responsible for up to half of the spread, which is why the virus has been so difficult to contain. In this symposia, we discuss: (1) the molecular gateways used by the virus to enter the nervous system, particularly the nociceptors; (2) the cytokine storm as a potential cause of the profound and long-lasting effect on COVID-19; (3) the potentially analgesic effect of the SARS-CoV-2's spike protein results in a reduced pain response during infections, thus making this virus even more insidious; (4) testimonials from chronic pain patients who report transient pain loss during COVID-19. Prior to the 'surprise' emergence of the COVID-19 pandemic in December of 2019, the United States and parts of the World were mired by the opioid epidemic. Thus, the findings presented in this symposium are relevant to two current global health crises as emerging data suggest that the COVID-19 pandemic is likely to compound the opioid epidemic. Overall, the symposia will inform how COVID-19 may influence long-term pain outcomes.

- **The effect of COVID-19 on human nociceptors:** Theodore Price, PhD
- **SARS-CoV-2 Spike protein co-opts VEGF-A/Neuropilin-1 receptor signaling to induce analgesia:** Rajesh Khanna, PhD
- **Transient or permanent loss of pain in chronic patients with COVID-19:** Chronic pain patients with COVID-19 Rave Pretorius, Kim Corbett, Nicole Rosa

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### Learning Objectives

- What We Know So Far about How COVID Affects the Nervous System?
- Is there more than one molecular 'gateway' for SARS-CoV-2 viral entry?
- Do patients experience changes in their pain sensitivity during and after COVID-19?

13.30 - 14.30 Break | Poster Sessions | Exhibitors

14.30 – 16.00 Breakout Sessions

### SESSION 5 'Understanding pain as bodily threat: new perspectives to unite psychological assessment, human neuroscience, and behavioral treatment'

**Chairs:** Lauren Heathcote PhD, Stanford University School of Medicine; Lydia Tam, BS, Stanford University School of Medicine

**Speakers:** Lauren Heathcote PhD, Stanford University School of Medicine; Javeria Ali Hashmi, PhD, Dalhousie University; Johan Vlaeyen, PhD, KU Leuven

### Symposium Abstract

From an evolutionary perspective, pain functions to signal actual or potential bodily threat and thus to promote protective behaviors. The perception of pain as a signal of bodily threat has been relatively well-considered in some research areas (e.g., learning psychology), leading to novel treatment innovations (e.g., exposure). However, there remains a need to unite diverse clinical disciplines in order to create a shared understanding of this perspective that crosses mind, brain, and behavior. In this symposium, we will share new scientific innovations that seek to understand pain-threat interactions from the perspective of psychological assessment, fMRI human neuroimaging, and behavioral treatment, all within the context of the lived experience of a patient partner. Lydia Tam, a patient partner, will first describe her lived experience of pain and symptom perception within the threatening context of childhood cancer survivorship. Second, Dr. Lauren Heathcote will present the development and initial validation of a new psychological assessment tool, the Bodily Threat Inventory (BTI). Third, Dr. Javeria Ali Hashmi will present the neural and psychological underpinnings of why the threat of experiencing pain has a biasing effect on pain perception. Finally, Dr. Johan Vlaeyen will share recent findings regarding the behavioral approach to chronic pain, and how creating prediction errors can reduce dysfunctional avoidance behavior. The chairs and speaker team will then facilitate an active discussion on how to unite research on pain-threat interactions across clinical disciplines, particularly integrating the patient perspective, psychological assessment, and human neuroscience into the development of targeted and mechanistically precise treatments.

- **The Bodily Threat Inventory (BTI): a new self-report tool to assess the perception of pain and other somatic symptoms as signals of bodily threat:** Lauren Heathcote, PhD
- **Threat prediction and its role in pain modulation:** Javeria Ali Hashmi, PhD
- **Creating prediction errors in order to reduce pain avoidance:** Johan Vlaeyen, PhD

### Learning Objectives

- Recognize how pain functions to signal bodily threat and to promote protective behaviors, thus understanding pain from an evolutionary perspective.
- Identify self-report tools and brain imaging approaches that help us to understand how pain is perceived as a signal of bodily threat and how this perception influences pain perception in a top-down manner.
- Describe a novel treatment approach that showcases how studying pain-threat interactions across clinical disciplines can lead to pain treatment innovation.

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## SESSION 6

### **‘Diverse phenotypes and functions of microglia in pain’**

**Chair:** Arkady Khoutorsky, PhD, McGill University

**Speakers:** Shannon Tansley, McGill University; Simon Beggs, UCL Great Ormond Street Hospital Institute of Child Health; Michael Salter, Hospital for Sick Children and University of Toronto

#### **Symposia Abstract**

The field of pain research has placed great emphasis on the mechanisms by which glial cells regulate pain. In this symposium, we will highlight new insights into the role of microglia in the development and maintenance of pain. The panelists will describe the diverse roles of microglia in the spinal cord by presenting microglia single-cell RNA sequencing data following nerve injury, and discussing microglia functions in shaping somatosensory/ nociceptive circuits during development and in adulthood and the role of sex hormones and DNA methylation in these processes.

- **Characterization of microglia transcriptional states after nerve injury using single-cell RNA sequencing:** Shannon Tansley
- **Microglia control restructuring of spinal somatosensory circuits during normal development and after injury:** Simon Beggs, PhD
- **What’s new in sex, pain and microglia:** Michael Slater, MD, PhD

#### **Learning Objectives**

- Upon completion of this session, attendees will be aware of various transcriptional states of microglia in the spinal cord following nerve injury in male and female.
- Upon completion of this session, attendees will have an understanding of the normal developmental role of microglia in experience-dependent refinement of spinal neuronal connectivity.
- Upon completion of this session, attendees will be aware how sex hormones and DNA methylation may control spinal mechanisms of pain hypersensitivity after peripheral injury.

## SESSION 7

### **‘Innovations in chronic pain management: individualized and targeted interventions’**

**Chair:** Nivez Rasic, MD FRCPC, University of Calgary

**Speakers:** Lauren Harrison PhD, Stanford University School of Medicine Vishal Varshney, MD FRCPC ,Providence Healthcare; Jillian Vinall Miller, PhD University of Calgary

#### **Symposia Abstract**

Chronic pain affects adults more than heart disease, diabetes and cancer combined. It is also extremely debilitating, often impacting work, social, emotional and daily functioning. For many adults with chronic pain, their problems with pain began much earlier, in childhood. Two thirds of youth with chronic pain become adults with chronic pain. Moreover, youth with severe chronic pain are at an even greater risk for pain persisting into adulthood. It is imperative that we find ways to interrupt this pain trajectory and relieve suffering for these individuals. Three novel therapies, which demonstrate potential for modifying pain outcomes include: 1) graded in-vivo exposure treatment; 2) spinal neuromodulation; and 3) repetitive transcranial magnetic stimulation (rTMS). Dr. Lauren Harrison (Stanford University, Stanford, CA) will present findings from her graded exposure treatment (GET Living) in pediatric chronic pain. This is an individualized outpatient treatment program for youth with chronic pain that requires families to work jointly with therapists to progressively re-engage the patient in daily living activities. Dr.

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Vishal Varshney (Providence Healthcare, Vancouver, BC) will present his work on spinal stimulation in patients with chronic non-cancer pain. Finally, Dr. Jillian Miller (University of Calgary, Calgary, AB) will present her early findings exploring the benefit of adding rTMS to an intensive pain rehabilitation program (IPRP: three-week, interdisciplinary day treatment program) for youth with severe chronic pain. Each of these strategies aim to improve upon our current pain interventions, with the goal of providing patients with evidence-based, individualized care, the current gold standard for clinical intervention.

- **GET Living! A functional approach to pediatric pain rehabilitation:** Lauren E. Harrison, PhD
- **Dorsal root ganglion stimulation for chronic pain – a new target for neuromodulation:** Vishal Varshney, MD, FRCPC
- **Can brain stimulation enhance outcomes associated with intensive rehabilitation for youth with chronic pain?:** Jillian Vinall Miller, PhD

#### **Learning Objectives**

- The use of interdisciplinary, graded exposure intervention for pain-related fear avoidance in children with chronic pain.
- Neuromodulation via dorsal root ganglion stimulation for patients with neuropathic pain.
- Benefit of adding repetitive transcranial magnetic stimulation to intensive pain rehabilitation for youth with severe chronic pain.

## **SESSION 8**

### **‘When Public Health Crises Collide: Managing Cancer Pain Amidst the North American Opioid Crisis and COVID-19 Pandemic’**

**Chair:** Sitara de Gagne, Patient Partner

**Speakers:** Judith Paice, PhD, RN, Northwestern University, Perri Tutelman, BHSc (hons) Dalhousie University; Lynn Gauthier, PhD, Université Laval

#### **Symposia Abstract**

North America is in the midst of a public health emergency related to opioid use, referred to as the “opioid crisis”. Opioids play an important role in the management of cancer pain. However, the crisis and subsequent mitigation efforts (e.g., dose restrictions, forced tapers) have had unintended consequences, such as reluctance of patients to take and clinicians to prescribe opioids, and stigma felt by patients and expressed by providers. With the current global pandemic, cancer patients are faced with a crisis within a crisis, with increased opioid-related harms, re-routed cancer services resulting in fragmented or diminished access to care, and reduced opioid prescribing. This workshop will describe the nature and extent of the problem of inadequate cancer pain management amidst the dual public health emergencies of the North American opioid crisis and COVID-19 pandemic across contexts (e.g., United States, Canada), age groups (e.g., children to older adults) and perspectives (e.g., providers, researchers, patients and caregivers). First, B. Bogden (chair) will provide an introduction from the patient perspective. Next, J. Paice will discuss the challenge of cancer pain management within the United States opioid epidemic and COVID-19 and evidence-based strategies to mitigate opioid-related risks. Then, P. Tutelman will present quantitative and qualitative data outlining barriers to pediatric cancer pain management amidst the crisis. Finally, L. Gauthier will describe the Canadian response, including the outcomes of 2 national stakeholder meetings and findings from a Delphi study to identify key research questions to drive this field forward.

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- **Balancing Cancer Pain Management During the Time of an Opioid Epidemic:** Judith Paice, PhD, RN
- **Children’s Cancer Pain Management in the Era of the Opioid Crisis: Attitudes, Beliefs, and Barriers to Effective Treatment:** Perri Tutelman, BHSc (hons)
- **Managing cancer pain amidst the opioid crisis and the COVID-19 pandemic: The Canadian response to advancing the state of the evidence and safeguarding access to care:** Lynn Gauthier, PhD

#### Learning Objectives

- To describe the problem of inadequate cancer pain management amidst the North American opioid crisis.
- To understand the impact of the North American opioid crisis and COVID-19 pandemic on cancer pain management across the lifespan from various perspectives (e.g., providers, researchers, patients and caregivers).
- To identify evidence-based strategies and national initiatives aimed at improving cancer pain management during the current North American opioid crisis.

16.00 – 18.00 Posters Sessions | Exhibitors

18.00 – 19.00 **Trainee Mentoring Sessions:**

- How to give an engaging talk – Jeff Mogul & Melanie Noel
- Developing your research program – Reza Sharif-Naeini & Katie Birnie
- Patient engagement in research – Dawn Richards, Therese Lane & Nader Ghasemlou
- Finding a postdoctoral fellowship – Lauren Heathcote & Sarasa Toyhama
- Grant writing: tips and tricks – Mike Salter & Joy MacDermid
- Careers beyond the academy – Mireille Fernet & Andrew Taylor

## Thursday, April 29th: Day 2

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10.00 - 11.00 Posters and Exhibition Open

10.00 – 11.00 Special Session: Jump in with SKIP

SKIP is a knowledge mobilization network supporting mobilization of evidence-based solutions to improve pediatric pain care in Canada. This working session will support pain researchers of any kind (pediatric or adult, basic or clinical science) to develop their own knowledge mobilization (KM) plan for developing, ongoing, or completed research. Attendees will be introduced to a KM planning tool, and will leave with clearer KM main messages, goals, patient engagement, and activities specific to their own work. SKIP will highlight diverse partnerships that can be leveraged to attain effective KM.

11.00 - 11.15 Opening Remarks

11.15 - 12.00 Plenary Session

**‘The spinal circuits of itch and pain’** Sarah E. Ross, PhD, University of Pittsburgh

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### **Symposia Abstract**

The dorsal horn of the spinal cord is the first node at which sensory input is integrated within neural networks. However, our understanding of how these neural networks transform information remains limited. Here, we use a combination of genetic manipulation and 2P Ca<sup>2+</sup> imaging to gain insight into this circuitry. In the first study, we examine the neural basis of morphine-induced itch. We find that spinal dynorphin (Pdyn) neurons are both necessary and sufficient for morphine-induced itch in mice. Moreover, agonism of the kappa-opioid receptor alleviated morphine-induced itch in mice and nonhuman primates. Thus, our findings reveal that spinal morphine causes itch through a mechanism of disinhibition. In the second study, we examine the neural basis of capsaicin-induced allodynia at a population level. We find that intradermal capsaicin triggers activity in a subset of excitatory neurons in the dorsal horn that persists for approximately five minutes. Thereafter, a larger population of neurons show emergent activity in response to low threshold input, consistent with the perceptual experience of allodynia. Finally, we use an approach called Cell-type Identification by Ca<sup>2+</sup>-coupled Activity through Drug Activation (CICADA) to classify excitatory cell types in order to analyze which populations of excitatory neurons are involved in which aspects of spinal processing. Finally, we speculate about the channels through which noxious and pruritic information are conveyed to the brain.

### **Learning Objectives**

- Understand how spinal morphine causes itch and why kappa opioid receptor agonists reverse this side-effect.
- Visualize the neural manifestation of allodynia and understand which spinal populations are involved.
- Consider (reconsider?) how noxious information is conveyed to the brain

12.00 - 12.45

Plenary Session

**'Learning Health Systems for Optimized Care and Real-World Innovative Research'** Sean Mackey, MD, PhD, Stanford University

### **Symposia Abstract**

The United States National Academy of Medicine (NAM) called for the development of national patient registries and Learning Healthcare Systems (LHS). This call has been echoed by other countries. I will describe the rationale and the power of patient registries and LHSs. As envisioned, LHS leverages an integrated digital infrastructure to provide data-based and coordinated care that is available just-in-time to the clinician and that is centered on the patient. Additionally, there is increasing interest in the use of real world data/real world evidence (RWD/RWE) to represent a much broader and more diverse patient experience compared to the traditional RCTs. Further, expansion of RWD/RWE allows for very large sample sizes that promote the detection of infrequent events, treatment-treatment interactions, and better account for heterogeneity of treatment effects. LHSs are critical to advancing RWD/RWE to inform patient care and to advanced more generalizable knowledge.

In this session, I will survey the field of LHS platforms, and illustrate its power using the Collaborative Health Outcome Information Registry (CHOIR) as a use case. CHOIR is an open source and free platform created at Stanford, available to academic institutions. Key topics include 1) clinical decision support features of CHOIR, 2) obtaining research-grade clinical data as a part of routine clinical care, 3) using LHS for clinical trials and rapid piloting of clinical interventions, 4) real-time aggregation and summarization of LHS data to provide on-going decision support in the

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perioperative and outpatient environments, and 5) research efforts and publications made possible by large-scale LHS platforms like CHOIR

### Learning Objectives

- Identify defining features of patient registries and learning healthcare systems (LHS), and recognize the roles LHS platforms play in acute and chronic pain management.
- Evaluate the impact of LHS platforms on patient care and research activities.
- Delineate the aspects of registries and LHS and appreciate the data and process utility of them, both as a tangible IT infrastructure and as a profound cultural change in care delivery.
- Describe features of model open source LHS platforms and how to implement them in their home institution.
- Describe results from both a chronic and perioperative registry identifying factors of high risk and good pain care

12.45 - 13.30 Break | Poster Sessions | Exhibitors

13.30 – 14.45 Breakout Sessions

### SESSION 1

#### 'The social neuroscience of empathy for pain and touch'

**Chair:** Inge Timmers, PhD, Stanford University

**Speakers:** Inge Timmers, PhD, Stanford University; Marina López-Solà, PhD, University of Barcelona; Loren Martin, University of Toronto

### Symposia Abstract

Pain is considered a personal experience, but it is, in fact, rarely private. Individuals' behavioural responses to pain function to communicate distress to others in the environment, eliciting emotional reactions and caregiving actions that will, in turn, impact the sufferer's pain experience. This symposium will highlight the importance of understanding the social environment in modulating pain responses so that novel pain management strategies may be developed. Together, we will present state-of-the-art tools and techniques that will help to bridge the gap between human and animal knowledge to tackle the questions of causality between different neuronal populations, perception, and behavior in rats, mice, and humans. Evidence from both the basic science and clinical perspectives will be presented, illustrating how painful experiences can impact social interactions and how reactions from others in the social environment and the environment itself impact the sufferer's pain experience. Given the complex nature of social context and social interactions on pain sensitivity in animals and people, dissecting their integral role in mediating pain outcomes is critical.

We propose a symposium to discuss the important influence of social interactions and context on pain responses and empathic behaviour in mice and people. In addition, we will discuss issues related to the feasibility and conduct of human as well as animal studies examining questions pertinent to the social modulation of pain. Our goal is to engage clinicians with pain neuroscientists to address how the community can best address these complex questions.

- **Parental responses to their child's pain: the role of empathy:** Inge Timmers, PhD, Stanford University
- **Brain mechanisms of social touch-induced analgesia and prosocial transformation of the meaning of pain:** Marina López-Solà, PhD
- **Mechanistic insight into the social modulation of pain behavior:** Loren Martin, PhD

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### Learning Objectives

- Upon completion of this session, attendees will be able to discuss the different components of empathy in the context of pain across different species.
- Upon completion of this session, attendees will be able to discuss the physiological underpinnings of physical social contact and its contribution to the modulation of pain.
- Upon completion of this session, attendees will be able to reflect on the role of empathy in parent-child interactions in the context of pain.

## SESSION 2

### 'Management of chronic pain in the era of COVID-19: Implications for pain clinics, patients' reality, and potential solutions'

**Chair:** Manon Choinière, PhD, Université de Montréal

**Speakers:** Mary Lynch, Md FRCPC, Dalhousie University; Anaïs Lacasse, PhD, Université du Québec en Abitibi-Témiscamingue; Patricia Poulin, Ph.D. C.Psych, Ottawa Hospital Research Institute

### Symposia Abstract

The COVID-19 pandemic affects disproportionately high-risk and vulnerable individuals such as those living with chronic diseases, older adults, in addition to socially and economically deprived populations. Public health restrictions and pandemic-related stress thus added to the pre-existing physical, psychosocial and financial burden that is known to be associated with chronic pain (CP). In fact, since the beginning of the pandemic, confinement measures have limited access to multidisciplinary pain clinics and many other types of management options (e.g., physical therapy, massage, psychological counselling, self-help groups). Challenges surrounding access to various drugs we experienced (e.g., opioids, antimalarial drugs used in arthritis or corticosteroids), and persons living with CP who are prescribed opioids were even identified as a vulnerable group in the COVID-19 pandemic because the context makes it difficult to adhere to all prescribing and follow-up opioid guidelines. Finally, fear of going to healthcare appointments and self-medication were observed. This symposium will serve as a discussion platform about the impacts of the COVID-19 pandemic on CP management in Canada. Based on the results of empirical studies conducted during both wave of the COVID-19 pandemic, concrete solutions to improve access and continuity of care for Canadians living with CP during the pandemic and beyond will be put forward.

- **Implications for pain clinics: Results of a National Survey:** Mary Lynch, Md FRCPC
- **Impact of the COVID-19 pandemic on the pharmacological, physical and psychological treatments of pain:** Anaïs Lacasse, PhD
- **Improving access to chronic pain through an online pain portal supporting a flexible progressive stepped care approach anchored in recovery principles:** Patricia Poulin, Ph.D. C.Psych

### Learning Objectives

- Learn how Canadian multidisciplinary pain clinics responded and adapted to the COVID-19 pandemic.
- Understand how the COVID-19 pandemic affected the pharmacological, physical and psychological treatment of CP.
- Discuss concrete solutions to improve access to pain relief and maintain continuity of care during the pandemic and beyond.

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### SESSION 3

#### **‘Knowledge translation interventions across the lifespan: Strategies for promoting uptake of evidence-based pain interventions from infancy to older adulthood’**

**Chair:** Thomas Hadjistavropolous, PhD, FCAHS, University of Regina

**Speakers:** Marsha Campbell-Yeo, PhD NNP-BC RN, Dalhousie University; Nicole MacKenzie, Med, Dalhousie University; Thomas Hadjistavropolous, PhD, FCAHS, University of Regina

#### **Symposia Abstract**

Scientific knowledge in the field of pain is well-established and continues to grow exponentially. In spite of this, there is a significant knowledge-to-action gap that prevents the implementation of this knowledge into practice. Therefore, knowledge translation (KT) interventions are critical in promoting the uptake of best practices for pain management across the lifespan. The objectives of this symposium are to understand the role of KT interventions to improve the uptake of evidence-based pain management strategies across the lifespan. This symposium will provide an overview of KT interventions for pain in three different populations. The first presentation will illustrate the utility of a KT video intervention for promoting the use of evidence-based pain management strategies for infants to manage pain from medical procedures. The second will highlight childhood and adolescence and will present factors that influence use of a parent-directed KT intervention (published in Canadian parenting magazine) on strategies for children’s vaccination pain management. The third will present and summarize the implementation of a KT social media intervention to raise awareness about pain in patients with dementia who are not able to advocate for themselves. The importance of tailoring KT interventions to the needs of different knowledge users across the lifespan and challenges associated with evaluating impact of these interventions will be highlighted. The various KT interventions discussed during these sessions will be disseminated during the symposium to demonstrate possibilities for the development of these interventions for various knowledge users.

- **Targeting infant pain: Using e-health knowledge translation strategies to promote engagement in pain management behaviours for infants:** Marsha Campbell-Yeo, PhD NNP-BC RN
- **Bridging the gap: Understanding parents’ use of a knowledge translation intervention for children’s vaccination pain management:** Nicole MacKenzie, Med
- **Inadequacies in Knowledge Translation and Ways of Moving Forward: A Focus on Pain in Dementia:** Thomas Hadjistavropolous, PhD, FCAHS

#### **Learning Objectives**

- To understand the goals of knowledge translation and its significance in improving service provision and managing pain.
- To explore the importance of knowledge translation interventions to the needs of different knowledge users across the lifespan.
- To understand the challenges in evaluating KT interventions and provide strategies for addressing limitations around relevance, utility, and dissemination.

### SESSION 4

#### **‘Cannabis and pain: putting the horse back before the cart’**

**Chair:** Tania Di Renna, MD, FRCPC, University of Toronto

**Speakers:** Martha Glenny, Patient Experience, Advisor; Karen Ng, BScPhm, PharmD, ACPR, Women’s College Hospital; Hance Clarke, MD, PhD, FRCPC, University Health Network

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### Symposia Abstract

Despite limited clinical evidence, the use of cannabis for management of pain has increased significantly. A recent Canadian national survey indicated that 13% respondents aged 16 and older indicated that they had used cannabis for medical purposes (1). In a cross-sectional survey of Canadian medical cannabis users, (44.8%) endorsed using it for 'pain relief' and (15.1%) for 'mental health' (2). This is one of the first times in Canadian history where a medication has been widely used for a variety of conditions without actual guiding evidence. With the legalization of recreational cannabis in 2018, Canadians are now able to easily access cannabis via multiple channels, bypassing clinician guidance. The world is looking to Canada to lead cannabis related research and to develop clinical programs that will better inform the care we provide for our patients with pain.

- **Navigating Medical Cannabis: The Patient Perspective:** Martha Glenny
- **Enhancing Knowledge, Mitigating Patients Harms: Standardizing Safer Cannabis Practices and Patient Education:** Karen Ng, BScPhm, PharmD, ACPR
- **The Future of Medical Cannabis and research initiatives to unlock the Pain Puzzle:** Hance Clarke, MD, PhD, FRCPC

### Learning Objectives

- Describe the patient journey.
- Describe the programmatic initiatives developed to address patient knowledge gaps around cannabis use for chronic pain.
- Contextualize medical cannabis use in the Canadian population and provide some guidance for health care workers interested in the introduction of cannabis into patient care and provide a framework to guide future work.

14.45 - 15.30 Break | Poster Sessions | Exhibitors

15.30 - 17.00 Breakout Sessions

### SESSION 5 'From CNS mechanisms of pain to pain biomarkers'

**Chair:** Mathieu Roy, PhD, McGill University

**Speakers:** Christian Büchel, PhD Universitätsklinikum Hamburg-Eppendorf; Tor Wager, Dartmouth College; Choong-Wan Woo, Sungkyunkwan University

### Symposia Abstract

Pain normally originates from nociceptive signals coming from the periphery and gradually making its way through the spinal cord, the brainstem, thalamus, cerebral cortex and subcortical structures. At all of these levels, this nociceptive signal is subjected to various sources of modulation and recent advances in neuroimaging now allows to examine pain processing at these various levels of the central nervous system. In the first part of this symposium, Dr. Büchel will discuss how the endogenous opioid system can modulate this system through expectations and past experience. Moreover, the teaching function of this nociceptive signal will be discussed in light of a recent study using a combination of high temporal (EEG) and high spatial resolution (fMRI) neuroimaging. Then, in the second part of this symposium, Dr. Wager will discuss what happens when nociceptive signals reach the brain and become interpreted as pain. Different types of pain lead to different characteristic pain-predictive patterns of brain activity, which share some

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similarities, but also important differences, with other types of non-painful affective experiences. Results from this line of research suggest that new brain-based ontologies are needed to measure and understand human pain and affect. Finally, in the last part of this symposium, Dr. Woo will discuss how this general approach can be applied to tonic and chronic pain. More specifically, results suggest that connectivity in the fronto-parietal attentional network is substantially affected by tonic pain. Altogether, this symposium will provide an overview of the CNS mechanisms that encode painful stimuli and predict subjectively reported pain in humans.

- **What spinal and cortical signals can tell us about pain as an unpleasant sensation and teaching signal?:** Christian Büchel, PhD
- **What has neuroimaging taught us about the neural architecture for evoked pain and emotion?:** Tor D. Wager
- **Dynamic Reconfiguration of Functional Brain Networks During Sustained Pain:** Choong-Wan Woo, PhD

#### **Learning Objectives**

- To understand how the endogenous opioid system can modulate the transmission of nociceptive signals through expectation and experience.
- To examine how the patterns of brain activity that predict pain and other emotions can provide information on the degree of similarity between these different affective experiences.
- To understand how functional connectivity can predict tonic and chronic pain.

## **SESSION 6**

### **‘Quantitative Sensory Testing in Pain Research: Methods, Applications, and Future Directions Across the Lifespan’**

**Chair:** Perri Tutelman, BHSc (Hons.), Dalhousie University

**Speakers:** Javeria Ali Hashmi, PhD, Dalhousie University; Roger Fillingim, PhD, University of Florida

#### **Symposia Abstract**

Quantitative Sensory Testing (QST) is a non-invasive technique that has been used extensively in pain research over the past 3 decades. The term QST refers to a set of procedures that assess perceptual responses to the application of standardized sensory stimuli with the goal of assessing somatosensory function. QST has significantly advanced our understanding of the neurobiological mechanisms and psychosocial influences that underpin typical and atypical sensory processing, which in turn, has aided in our understanding of pain conditions and the identification and refinement of tailored pain therapies. However, the application of QST in pain research has seen challenges such as variability in the methods used and failure to harness the full potential of what QST can offer across paradigms and populations. This workshop will provide a comprehensive overview of QST methods and applications and will discuss priority areas for future research. In this workshop, an international panel of speakers will present on the utility and practical use of traditional (e.g., sensory profiling) and advanced (e.g., pain modulation, functional neuroimaging) QST paradigms for inductive and deductive pain inquiry. Data demonstrating the application of various QST techniques to populations across the lifespan (e.g., pediatrics, adults, and older adults), including key knowledge gaps in these respective areas, will be discussed. Procedural modifications to allow for safe QST testing amidst the global COVID-19 pandemic, including with high risk populations (e.g., older adults), will be discussed. Finally, this workshop will offer perspectives on opportunities for meaningful patient and family engagement in QST studies.

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- **Individual Differences in Pain Sensitivity; Interplay Between Nociception and Top-down Mental Factors:** Javeria Ali Hashmi, PhD
- **Using QST to Investigate Pain Modulation in Older Adults:** Roger Fillingim, PhD
- **Experimental Applications of QST in Pediatric Pain Research:** Perri Tutelman, BHSc (Hons.)

#### Learning Objectives

- To describe the utility and practical use of traditional and advanced QST paradigms in pain research.
- To understand how QST can be applied to pain research with populations across the lifespan.
- To consider current controversies and future directions regarding the use of QST in pain research.

## SESSION 7

### 'Disparities in child pain care: Antecedents, consequences and underlying mechanisms'

**Chair:** Tine Vervoort, PhD Ghent University

**Speakers:** Megan Miller, PhD, Indiana University, Purdue University Indianapolis; Lindsey Cohen, PhD, Georgia State University; Fleur Baert, Ghent University

#### Symposia Abstract

A growing body of research in pediatric pain suggests that under certain circumstances observers (e.g., parents, clinicians,...) may engage in discriminatory behaviors when facing or caring for a child with pain. This may lead to disparities in pediatric pain care which can, in turn, substantially impact children's pain experience, recovery and general functioning. Several research groups have focused on understanding the antecedents, consequences and underlying mechanisms of such disparities in child pain treatment, which will be the topic of this symposium. First, Dr. Megan Miller will discuss the influence of patient race on provider pain-related attention, which may help explain racial disparities in pediatric pain management. She will present a recently completed study using eye-tracking technology to investigate how providers' visual attention varies across pediatric patient race during a pain assessment task. Dr. Lindsey Cohen will then discuss how a child's perceived gender may bias adult ratings of the child's pain severity, potentially leading to biased clinical decision making and thus contributing to gender disparities in child pain care. Lastly, Fleur Baert will consider how such disparities may affect both the child and their significant others (e.g., parents). Disparities in pain care are likely to elicit parental appraisals of injustice in response to the child's pain and associated medical or interpersonal treatment. Fleur Baert will discuss how these appraisal processes may impact on the child's pain experience through parental attentional and emotional processing and parental caregiving behavior.

- **The influence of patient race on provider pain-related attention.:** Megan Miller, PhD
- **Adult rating of acute pediatric pain: The influence of child gender.:** Lindsey Cohen, PhD
- **"It's not fair!" The impact of parental injustice appraisals in response to child pain upon parental attention to anger and parental behavior.:** Fleur Baert, MSc

#### Learning Objectives

- Attendees will come to understand how racial, sex- and gender-related factors contribute to profound disparities in pain care amongst pediatric populations.
- Attendees will come to understand how observer attentional processing and stereotype-based biases may influence their assessment of a child's pain experience, which may provide key mechanisms underlying these disparities.

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- Attendees will come to understand how such disparities in pediatric pain management may elicit appraisals of injustice both in the child as in their significant other(s) or caregivers (e.g., parents), which may further impact the child's pain-related outcomes.

## SESSION 8

### 'From Post-Operative Pain to Chronic Pain and Even In-Between: Understanding Psychological and Pharmacological Mechanisms of Pediatric Prolonged Pain States'

**Chair:** Rebecca Pillai Riddell, York University

**Speakers:** Cheryl Chow, MSc. PhD, York University; Deepa Kattail, MHS., MD, McMaster University; Melanie Noel, PhD, Rpsych, University of Calgary

#### Symposia Abstract

Up to 38% of youth suffer from chronic pain worldwide (Miro 2017). The frequent use of medical and related mental health services in managing pediatric pain often takes a toll on families, both physically and emotionally, and is also linked to high societal costs (Martin, 2018). This three-part series symposium describes multidisciplinary perspectives in pediatric pain contexts (i.e., acute, transitional and chronic). The focus of this talk will be on the mechanisms and models that likely contribute to pediatric pain, and identification of potentially modifiable risk factors that will lead to the development of successful prevention and intervention strategies. In the first talk, neuroscientist Chow discusses the current state of knowledge on the role of anxiety and its related states in pediatric postsurgical pain, and the potential interventions. The second speaker, physician Kattail, will opine on the importance of understanding the role of opioid pain management in transitional pain services for youths with chronic pain, using empirical data and case studies. Finally, clinical psychologist Noel, will review the intergenerational transmission of risk for pediatric chronic pain across generations, using new longitudinally epigenetic and behavioural data. Together, the current literature provides a current state of the art grounding in new directions of understanding pharmacological and psychological factors in pediatric pain beyond acute.

- The Role of Anxiety and its Related States in Predicting Pediatric Postsurgical Pain:** Cheryl Chow, MSc. PhD
- Interrupting the Trajectory of Pain: Transitional Pain Services To Prevent Acute Pain From Becoming Chronic:** Deepa Kattail, MHS., MD
- Trauma and Pediatric Pain: An Intergenerational Problem:** Melanie Noel, PhD, Rpsych

#### Learning Objectives

- To summarize the literature on pediatric anxiety and parental anxiety, in relation to pediatric acute and chronic postsurgical pain.
- To examine the role of transitional pain services as a new model of care that bridges services in pediatric acute and chronic pain services.
- To longitudinally examine the link between trauma and pediatric chronic pain across generations.

17.00 – 18.00 Posters Sessions | Exhibitors

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# Friday, April 30th: Day 3

All times are Eastern Daylight Time. Recordings will be available for registrants, post-event.

10.00 - 11.00 Posters and Exhibition Open

11.00 - 11.15 Opening Remarks

11.15 – 11.45 2021 Distinguished Career Award Keynote  
**'Molecular physiology of pain – from calcium channels to brain circuits'**, Gerald W. Zamponi, PhD, FRSC, FCAHS

## Symposia Abstract

I will first discuss how dysregulation of Cav3.2 T-type calcium channels in the afferent pain pathway by increased deubiquitination contributes to pain hypersensitivity, and describe strategies for harnessing this information to devise new pain therapeutics. I will then talk about how we use optogenetic approaches to decipher how pain related information is processed in higher brain centers.

11.45 - 12.15 2021 Early Career Award Keynote  
**'Sensing mechanical pain, from molecules to behavior'**, Reza Sharif-Naeini, PhD

## Symposia Abstract

The sensations of touch and pain are essential for our interactions with the environment. They rely on a cellular phenomenon called mechanotransduction, during which mechanical forces are converted into electrical signals. This process requires mechanosensitive ion channels that respond to mechanical stimuli in the micro- to millisecond scale. The requirement for these channels in our senses of touch and proprioception was confirmed by the recent discovery of the Piezo2 gene. However, the genes responsible for the most unpleasant type of mechanotransduction, the sense of pain, had remained elusive. We have recently identified a novel ion channel, termed TACAN, expressed in nociceptors and essential for sensing mechanical pain. Reducing the expression of TACAN in nociceptors reduced their mechanosensitivity in vitro, and the impaired the ability of mice to detect painful mechanical stimuli while keeping the sensitivity to touch and heat stimuli unaffected. While these important observations pointed to the identification of a novel therapeutic target in the treatment of pain, the translational potential of this discovery remained to be tested. To bridge this gap, we have recently built a platform for translational pain research, aiming to increase the translational potential of preclinical discoveries. Through this platform, we are examining the expression and function of TACAN in live cultured nociceptors obtained from human donors. This talk will provide an overview of the discovery of this novel therapeutic target, and present how the translational gap can be crossed through this newly established platform.

12.15 - 13.00 Break | Poster Sessions | Exhibitors

13.00 – 14.30 Friday Breakout Session

**SESSION 1** **'Mechanisms of pain learning and motivation: neurobiological mechanisms and computational models'**

**Chair:** Mathieu Roy, PhD, McGill University

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**Speakers:** Ben Seymour, PhD, John Radcliffe Hospital; Susanne Becker, PhD, University of Zurich; Clay Holroyd, PhD, Ghent University

### **Symposia Abstract**

Pain fulfils a vital function, motivating behavior to avoid harm and ensure well-being. Pain therefore acts as a learning signal allowing organisms to predict future occurrences of pain and thus guiding escape and avoidance behavior. In line with research on reward processing and learning, recent research has highlighted central functions of the brain regions such as the anterior cingulate cortex (ACC), fronto-striatal brain circuits, and the neurotransmitter dopamine in mediating such motivational components of pain. Interestingly, in chronic pain – when pain loses its vital function as a warning signal – a shift away from nociceptive brain circuits and towards enhanced emotional-motivational processing has been described. This symposium aims to review current research on the brain mechanisms of the motivational component of pain and related learning. We consider computational models of the pain system and how decision-making aspects of pain might be involved in tuning the magnitude of the pain signal itself (i.e. endogenous pain control). Decision-making is based on motivation, which can be conflicting in case of co-occurring pain and reward leading to fine-tuned pain modulation. In this context, dopamine and fronto-striatal brain circuits play essential roles. These processes can also be seen in a broader context of error modelling. Correspondingly, we will present a computational model of the roles of ACC and dopamine in regulating effortful behavior in rodents, and an extension of this model to the domain of pain processing in humans.

- **Motivation, decision-making and endogenous control:** Ben Seymour, PhD
- **Differential effects of reward on pain: perception, behavior and neural correlates:** Susanne Becker, PhD
- **No Pain, No Gain: Neurocognitive Mechanisms Supporting Effortful and Painful Behaviors:** Clay Holroyd, PhD

### **Learning Objectives**

- Re-conceptualize pain as a motivational signal rather than a sensation.
- Understand the interactions between pain and reward together with their underlying mechanisms.
- Examine the role of cognitive control when accepting pain in order to obtain rewards.

## **SESSION 2**

### **‘Using digital technologies for pain management and education across the age spectrum: Experiences from three provinces’**

**Chair:** Susan Tupper, PT, PhD, Saskatchewan Health Authority

**Speakers:** Susan Tupper, PT, PhD, Saskatchewan Health Authority; Jennifer Stinson, RN-EC, PhD, CPNP, FAAN, The Hospital for Sick Children; Samina Ali, MDCM, FRCPC, University of Alberta

### **Symposia Abstract**

Digital health technologies are innovative approaches that can promote better health and learning outcomes in patients, family caregivers, and healthcare providers. This symposium will explore the development of digital health technologies to improve pain management and education in hospitalized children, children in the emergency department, youth with chronic pain, and adults with dementia. Presenters will speak to the importance of working collaboratively with developers of digital health technologies (programmers) and using a user-centred design approach that includes needs assessments, co-designing with patient partners, usability and feasibility testing,

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and implementation phases. This workshop will include virtual reality, humanoid robotics, tablet technology, and smartphone applications. The opportunities and challenges of using digital health technologies in every day clinical practice will be discussed.

- **Harnessing digital technology to reduce children’s distress and pain in the emergency department and beyond:** Samina Ali, MDCM, FRCPC
- **Into the future: How digital health technologies can reduce pain and distress in hospitalized children:** Jennifer Stinson, RN-EC, PhD, CPNP, FAAN,
- **Virtual reality for pain management education of family caregivers and people living with dementia:** Susan Tupper, PT, PhD

#### **Learning Objectives**

- Describe development and user perspectives of a novel virtual reality 360o video application for pain education of family caregivers and adults with dementia.
- Describe a user-centred design approach to develop and evaluate virtual reality, humanoid robots and smartphone apps for pain management in pediatrics.
- Name 3 effective digital techniques to reduce children’s pain and distress of minor medical procedures.

### **SESSION 3**

#### **‘People who Live with Chronic Pain - Efforts in Research and Beyond’**

**Chair:** Richard Hovey, MA, PhD , McGill University

**Speakers:** Jennifer Daly-Cyr, BComm, MA , Patient Perspective Partner, Chronic Pain Network (CPN); Therese Lane, Patient Perspective Partner, Chronic Pain Network (CPN); Jacques Laliberté, BCom, McMaster University

#### **Symposia Abstract**

People who live with chronic pain are becoming more involved in the entire research process, from idea generation and priority-setting, right through to dissemination of research results. While this has been happening organically in Canada, the Strategy for Patient-Oriented Research (SPOR) Chronic Pain Network has provided an organized catalyst for this approach since it was funded by CIHR in 2016. This symposium represents the CPN’s continuum of research engagement through the perspectives and personal experiences of four individuals who live with chronic pain and who are engaged with the Network. Moderated by an individual who lives with chronic pain and who is both a patient perspective consultant and researcher, other individuals who live with chronic pain will also share how they are: pushing the research agenda in the area of undiagnosed chronic pain; working with researchers, trainees and clinicians to develop training and best practice materials to guide patient engagement in chronic pain research and knowledge dissemination; and, moving these efforts in to the policy realm through engagement with Health Canada and involvement in the Canadian Pain Task Force. From the perspectives of those who live with chronic pain, the symposium intention is to share these CPN experiences as well as help audience members understand what resources are available to engage patients as perspective partners in their own work – in research and beyond. Learning from patient experience by researchers and clinicians will be discussed with recommendations for future engagement as a community of researchers.

- **Undiagnosed: Is it Rare or is it an Epidemic? One Patient's Quest for Answers and Research:** Jennifer Daly-Cyr, BComm, MA
- **Engaging People with Lived Experience – You Can Do It Too:** Therese Lane
- **People Living with Chronic Pain – Beyond Research to Policy:** Jacques Laliberté, BCom

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### Learning Objectives

- Understand how people who live with chronic pain are engaged in research and beyond in Canada through the SPOR Chronic Pain Network.
- Understand the types of activities and tools the Chronic Pain Network has created that are available for the research community to learn from and use in their own efforts to engage people who live with chronic pain in the research process.
- Understand how the experiences of people who live with chronic pain have motivated them to become involved in the Chronic Pain Network as well as activities that have resulted from that engagement more broadly.

### SESSION 4

#### Hot Topics

- **Abnormal subgenual anterior cingulate cortex functional connectivity in carpal tunnel syndrome is influenced by sex:** Natalie Osborne, UHN
- **Chronic pain needs assessment in Saskatchewan: hearing experiences of people with lived experience, healthcare providers, and decision-makers in three communities:** Jessica Jack, University of Saskatchewan
- **Neural Mechanisms Underlying Sex Differences in Orofacial Pain:** Sukhbir Kaur, Texas Women's University
- **Preoperative Memory Specificity Predicts Pain Status One Month after Major Surgery:** Anna Waisman
- **Pain Rehabilitation Virtual Reality (PRVR): Adoption, feasibility and acceptability of an innovative treatment for Canadian youth with persistent pain:** Giulia Mesaroli, The Hospital for Sick Children
- **Efficacy of Memantine for Phantom Limb Pain:** Christian Roehmer, Vanderbilt University Medical Center

### 14.30

End of the 2021 ASM. See you IN PERSON at our 2022 ASM, May 10- 13, in Montreal!

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