



Welcome to the Dalhousie Pain Group's second annual Pain Research Day.

Projects and collaborations presented here are a clear illustration of the thriving pain research environment that exists among researchers, educators, clinicians and patients. You will see a broad spectrum of research from different Faculties at Dalhousie University, as well as the IWK and Capital Health District Authority ... there are projects from students as well as faculty. We are excited to welcome our plenary speaker, Dr. Celeste Johnston, who will no doubt provide a stimulating presentation that could lead to interesting discussions during the reception after her talk.

We are glad you are here, ask questions and meet people... who knows, a new collaboration may result!

John, Christine, Jason, Katherine, Ron, Marsha and Carla



**DALHOUSIE
UNIVERSITY**

Inspiring Minds
Faculty of Medicine

*Department of Anesthesia, Pain Management
and Perioperative Medicine*

Dalhousie Pain Research Day
Schedule of Events – May 9, 2014
Marion McCain Arts & Social Sciences Building
6135 University Ave
Dalhousie University

- 1:00 – 3:00 *Poster set-up*
- 3:00 – 5:00 *Poster viewing and judging (trainees are eligible for cash awards)*
- 5:00 – 5:15 *Welcome - Dr. Pat McGrath, Integrated VP Research, CDHA and IWK*
Introduction of Plenary Speaker - Dr. Marsha Campbell-Yeo, School of Nursing,
Faculty of Health Professions
- 5:15 – 6:15 *Dr. Celeste Johnston, “The Myth of Pain Measurement”*
Dalhousie Pain Network Plenary Speaker

Celeste Johnston, RN DEd, FCAHS

Celeste Johnston is Emeritus Professor in the Ingram School of Nursing at McGill University, Montreal and Scientist at the IWK Health Centre, Halifax. She has associate appointments at the Montreal Children’s Hospital, Ste. Justine’s Hospital, in Montreal. She is past-President of the Canadian Pain Society, past-Secretary of the Special Interest Group for Pain in Children of International Association for the Study of Pain and was elected Councillor to that association in 2008. During her term as President of the Canadian Pain Society from 2000-2003, she formed the Canadian Pain Coalition, a partnership of pain patient groups, health care professionals, and scientists. She is the recipient of several awards for her research on pain in children including, among others, the Distinguished Career Award of the Canadian Pain Society and Canadian Nurses Association Centennial Award. Her research, funded mostly by Canadian Institutes of Health Research, is focused on measurement and non-pharmacological management of pain in preterm neonates, animal models of neonatal pain, and changing health care professionals’ practices related to pain management.

- 6:15 – 7:30 *please join us for a Reception (presentation of awards will be made during this time)*

Dalhousie Pain Research Day



*Alphabetical Listing of
Abstracts*



Poster Presentations – (presenting author underlined)

- # 26 Samantha Albacete, Dr. Jason McDougall, Department of Pharmacology, Dalhousie University – “Effects of intraarticular lysophosphatidic acid on saphenous nerve demyelination and dorsal root ganglia cell damage in lewis rats” **(judging: 4:30 pm)**
- #25 Kristen Bailey, Kate M. Rancourt, Stephanie L. Allen, Christine LaMontagne & Jill Chorney; Psychology & Neuroscience (Dalhousie); Anesthesiology (Children’s Hospital of Eastern Ontario); Anesthesia, Pain Management & Perioperative Medicine (Dalhousie); Centre for Pediatric Pain Research (IWK Health Centre) – “Services for pediatric chronic pain in Canada: a national survey” **(judging: 4:15 pm)**
- # 5 Britney Benoit, MScN, RN¹, Marsha Campbell-Yeo PhD NNP-BC RN^{1,2,3,4}, Celeste Johnston DEd RN^{3,4}, Margot Latimer PhD RN^{1,2,3}, Kim Caddell BN RN⁴, Talia Orr BSc², ¹Centre for Pediatric Pain Research, IWK Health Centre; ²School of Nursing, Dalhousie University; ³Department of Pediatrics, IWK Health Centre; ⁴Maternal Newborn Program, IWK Health Centre – “Staff nurse adoption of kangaroo mother care as an intervention for management of procedural pain in preterm infants” **(judging: 4:00 pm)**
- #3 Katherine A. Birnie, Melanie Noel, Jennifer A. Parker, Christine T. Chambers, Lindsay S. Uman, Steve R. Kiskey, & Patrick J. McGrath, Department of Psychology, Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre; Seattle Children’s Research Institute; Department of Pediatrics, Dalhousie University; Community Mental Health, IWK Health Centre; School of Medicine, University of Queensland – “What makes a good distractor? Exploring the characteristics of effective distraction interventions for needle-related pain and distress in children” **(judging: 3:30 pm)**
- #7 Katelynn E. Boerner, Joanne M. Gillespie, Elizabeth N. McLaughlin, Christine T. Chambers, Department of Psychology & Neuroscience and Pediatrics, Dalhousie University; Centre for Pediatric Pain Research and Pediatric Health Psychology Service, IWK Health Centre – “Challenges and opportunities in implementing evidence-based strategies for the management of procedural pain and anxiety” **(judging: 4:30 pm)**
- # 1 Line Caes¹, Christine T. Chambers^{1,2,3}, & Anthony Otley^{2,4}, ¹ IWK Health Centre, Centre for Pediatric Pain Research, ² Dalhousie University, Department of Pediatrics, ³ Dalhousie University, Department of Psychology and Neuroscience, ⁴ IWK Health Centre, Gastroenterology, Nutrition & Pediatric Healthy Psychology Team – “Family functioning and health-related quality of life in children with inflammatory bowel disease” **(judging: 3:00 pm)**
- # 8 A J Clark, MA d’Entremont, ME Lynch, Faculty of Medicine, Universite de Sherbrooke and Department of Anesthesia, Pain Management and Perioperative Medicine, Dalhousie University – “Urinary drug screening in the management of pain: is it helpful in management”
- # 18 Kirstin Derald, Dr. Peter MacDougall, Paul Brousseau, Sylvia de la Ronde, M.Sc., A.Stat, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University – “Opioid prescribing patterns in lumbar spine surgery: a sub-set analysis of the population-based retrospective combined opioid-anesthesia (COAP) dataset” **(judging: 4:45 pm)**
- # 6 Justine Dol MSc³, Carl L von Baeyer PhD¹, Bonnie J Stevens RN, PhD², Christine T Chambers PhD³, Kenneth D Craig PhD⁴, G Allen Finley MD³, Ruth E Grunau PhD^{4,5}, C Celeste Johnston RN, DEd⁶, Rebecca Pillai Riddell PhD⁷, Jennifer N Stinson RN, PhD², Marsha Campbell-Yeo RN, PhD³, Patrick J

McGrath PhD³; ¹University of Saskatchewan and University of Manitoba; ²University of Toronto and Hospital for Sick Children; ³Dalhousie University and IWK Health Centre; ⁴University of British Columbia; ⁵ Child & Family Research Institute; ⁶McGill University; ⁷York University - “Training highly qualified health research personnel: The pain in child health consortium”(judging: 4:15 pm)

- # 4 Hannah G. Gennis^{1,3}, Jennifer A. Parker, Ph.D.³; Amanda Williams, M.Sc.¹; Christine T. Chambers, Ph.D.^{1,2,3}; & Chris Moore, Ph.D.¹; Psychology and Neuroscience¹ and Pediatrics², Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre³ – “Kids caring and sharing: How empathy for pain and sadness affects prosocial behavior”(judging: 3:45 pm)
- # 11 Selena Glover¹, Jill Hayden¹, Katherine Harman², Gordon Flowerdew¹. Department of Community Health and Epidemiology, Dalhousie University,¹ Department of Physiotherapy, Dalhousie University² - “Low back pain in the Canadian Armed Forces: The association of pain-related fear and healthcare seeking” (judging: 3:15 pm)
- # 16 Maria Glowacka, Natalie Rosen; Department of Psychology and Neuroscience, Dalhousie University – “The daily impact of sexual contingent self-worth and sexual self-efficacy on relationship and sexual satisfaction and pain in women with provided vestibulodynia and their partners”(judging: 4:15 pm)
- # 12 Ayala Y. Gorodzinsky¹, Jill Chorney^{1,2} and PORSCHE Study Group; Centre for Pediatric Pain Research, IWK Health Centre¹, Departments of Anaesthesia, Pain Management & Perioperative Medicine and Psychology & Neuroscience², Dalhousie University, Halifax, NS – “Parental pain catastrophizing does not seem to influence degree of analgesic use for pediatric post-operative pain”(judging: 3:30 pm)
- # 21 Kristen S. Higgins, BSc. (Hons)^{1,6}, Christine T. Chambers, Ph.D.^{1,2,6}; Anna C. Wilson, Ph.D.⁷; Line Caes, Ph.D.⁶; Alexander J. Clark, MD^{3,8}; Mary Lynch, MD^{3,4,5,8}; Departments of Psychology & Neuroscience¹, Pediatrics², Anesthesia, Pain Management and Perioperative Medicine³, Psychiatry⁴, and Pharmacology⁵, Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre⁶; Institute on Development & Disability, Division of Psychology, Oregon Health & Science University⁷; Pain Management Unit, QEII Health Sciences Centre⁸ – “A systematic review of pain, health, and psychological outcomes in children of parents with chronic pain” (judging: 3:30 pm)
- # 17 Olof Kristjansdottir, Patrick McGrath^{1 2 3}, Allen Finely^{1 2}, Gudrun Kristjansdottir⁵, Pulsuk Siripul⁴, Anita Unruh¹, Helene Deacon¹, Dalhousie University¹, IWK Health Centre², Capital District Health Authority³, Khon-Kaen University⁴, University of Iceland⁵ - “Cultural Framework for Pediatric Pain Research: Value Orientations and Parenting Styles”(judging: 4:30 pm)
- # 2 Eugene Krustev, Allison Reid, Jason J McDougall; Departments of Pharmacology and Anaesthesia, Pain Management & Perioperative Medicine – “The therapeutic effects of endocannabinoid modulation in experimental knee joint arthritis” (judging: 3:15 pm)
- # 15 Julie Longard, Jill Chorney, Paul Hong, Alison Twycross, Anna Williams; Centre for Pediatric Pain Research & Pediatric Otolaryngology – “Managing children’s pain at home after surgery”(judging – 4:00 pm)
- # 19 Milind M. Muley M.Pharm., Allison R. Reid B.Sc., Jason J. McDougall Ph.D.; Departments of Pharmacology and Anaesthesia, Pain Management & Perioperative Medicine, Dalhousie University – “Neutrophil elastase induces pain and inflammation in mouse knee joints mediated by proteinase

activated receptor-2” (judging: 3:00 pm)

- # 9 Orr, Talia¹, Hewitt, B MN RN CNCCP(C) IBCLC², Caddell, K RN BN², Benoit, B MScN RN³; Stinson, J PhD RN-EC CPNP⁴, McGrath, P OC, PhD, FRSC, FCAHS^{3,5}, Campbell-Yeo, M PhD NNP-BC RN¹,
¹School of Nursing, Dalhousie University; ² Women’s and Newborn Health Program, IWK Health Centre; ³Centre for Pediatric Pain Research, IWK Health Centre; ⁴Hospital for Sick Children, ⁵Department of Pediatrics, IWK Health Centre – “Smartphone and internet patterns of parents (SIPP): preferences and implications for knowledge uptake in the NICU” (judging: 4:45 pm)
- # 14 Jennifer Parker⁴, Christine T. Chambers^{1,2,4}; Marsha Campbell-Yeo^{3,4}; Anna Taddio⁵; Jennifer Stinson⁶; Scott Halperin^{1,4}; Kathryn A. Birnie^{2,4}; Line Caes⁴; Dionne Dougall-Bass⁷; Miles Sedgwick⁷; Departments of Pediatrics¹, Psychology², & Nursing³, Dalhousie University; IWK Health Centre⁴; Leslie Dan Faculty of Pharmacy, University of Toronto⁵; Hospital for Sick Children⁶; Burness Communications⁷ – “It doesn’t have to hurt: strategies for helping children with shots and needles (a YouTube video for parents)” (judging: 3:45 pm)
- #22 Kate M. Rancourt, Natalie O. Rosen, Amy Muise, Sophie Bergeron; Department(s): Psychology and Neuroscience (Dalhousie University); Obstetrics and Gynecology (IWK Health Centre); Psychology (University of Toronto); Psychology (University of Montreal) – “The role of dyadic sexual communication in the pain experience and sexual adjustment of women with PVD and their partners”(judging: 3:45 pm)
- # 24 Kate M. Rancourt, Natalie O. Rosen, Sophie Bergeron, Serena Corsini-Munt; Department(s): Psychology and Neuroscience (Dalhousie University); Obstetrics and Gynecology (IWK Health Centre); Psychology (University of Montreal) – “The role of communication and intimacy in cognitive-behavioural couple therapy for provoked vestibulodynia: a research proposal” (judging 4:00 pm)
- # 13 Jana Sawynok, Department of Pharmacology – “Ketamine as a topical and peripherally acting analgesic”
- # 23 Jana Sawynok, PhD, Mary Lynch, MD, FRCPC; Departments of Pharmacology and Anaesthesia, Pain Management and Perioperative Medicine, Dalhousie University – “Qualitative analysis of a controlled trial of qigong for fibromyalgia”
- # 20 Meghan Schinkel, BSc.(Hons)^{1,3}, Kristen S. Higgins, BSc.(Hons)^{1,3}; Hannah G. Gennis^{1,3}; Jennifer A. Parker, Ph.D.³; & Christine T. Chambers, Ph.D.^{1,2,3}
Departments of Psychology and Neuroscience¹ and Pediatrics², Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre³ – “Seasonal variations in pediatric cold pressor pain” (judging: 3:15 pm)
- # 10 Peter Stilwell¹ BKin, DC, RCCSS(C) Resident, MScRRPT Student; Katherine Harman¹, & Rob Gilbert² Dalhousie University, School of Physiotherapy¹ Dalhousie University, School of Health Sciences². “Barriers and facilitators to exercise in adults with chronic non-specific low back pain: a literature synthesis and meta-ethnography of qualitative studies” (judging: 3:00 pm)



Poster Presentations
Abstracts



#1 FAMILY FUNCTIONING AND HEALTH-RELATED QUALITY OF LIFE IN CHILDREN WITH INFLAMMATORY BOWEL DISEASE

Line Caes¹, Christine T. Chambers^{1,2,3}, & Anthony Otley^{2,4}

1. IWK Health Centre, Centre for Pediatric Pain Research, 2. Dalhousie University, Department of Pediatrics, 3. Dalhousie University, Department of Psychology and Neuroscience, 4. IWK Health Centre, Gastroenterology, Nutrition & Pediatric Healthy Psychology Team

The diagnosis of inflammatory bowel disease (IBD) in children, with abdominal pain as a prominent symptom, is emotionally challenging for children and their families, as evidenced by lower levels of health-related quality of life (HRQOL). Dysfunctional levels of overall functioning have been associated with lower HRQOL in children with IBD, yet the impact of specific aspects of family functioning, such as cohesion (i.e., emotional bond or connectiveness), flexibility (i.e., balance between stability and change). The purpose of the present study was to investigate the influence of balanced levels of cohesion and flexibility and positive communication on the child's pain experience and HRQOL. Forty children with IBD (17 girls, 23 boys; $N=28$ with Crohn's disease, $N=12$ with Ulcerative colitis; $M_{age}=13.73$, $SD=2.30$ years) and one parent (34 mothers, 6 fathers) completed questionnaires regarding child's level of pain and interference, HRQOL (i.e., IMPACT) and family functioning (i.e., Faces IV). Linear regression analyses, controlling for child age and sex, indicated that balanced level of cohesion and flexibility, as reported by child and parent, were positively associated with child HRQOL. No significant associations were found between child level of pain and family functioning, while the level of interference in daily functioning due to pain was negatively associated with parent report of balanced cohesion. The current findings indicate that family functioning is primarily associated with HRQOL and pain interference rather than the level of pain, adding to our understanding of how family functioning relates to children's coping with IBD and associated pain.



#2 THE THERAPEUTIC EFFECTS OF ENDOCANNABINOID MODULATION IN EXPERIMENTAL KNEE JOINT ARTHRITIS

Eugene Krustev, Allison Reid, Jason J McDougall

Departments of Pharmacology and Anaesthesia, Pain Management & Perioperative Medicine

Increasing endocannabinoid levels, by inhibiting their degradation, can promote the therapeutic effects of these molecules (Schuelert *et al.*, 2011, Pain 152(5):975-81). In this study, we blocked fatty acid amide hydrolase (FAAH), an enzyme responsible for endocannabinoid breakdown, and measured the effects on inflammation and pain in a mouse model of acute arthritis.

Acute arthritis was modeled in male C57bl/6 mice (21-32g) by injecting 2% kaolin & 2% carrageenan into the right knee joint. URB597 (FAAH inhibitor; 0.3-3 mg/kg) was applied directly to the inflamed knee joint and changes in inflammation (leukocyte kinetics and blood flow) and pain (hindlimb weight bearing and von Frey hair algometry) were determined. The involvement of both cannabinoid receptors (CB1 & CB2) was determined by pre-treating the knee with either AM251 (CB1 antagonist; 0.2mg/kg; s.c.) or AM630 (CB2 antagonist; 0.2mg/kg; s.c.).

Local URB597 treatment significantly decreased inflammation-induced leukocyte rolling ($p<0.001$) and adherence ($p<0.05$), as well as hyperemia ($p<0.01$). The effects on leukocyte rolling and blood flow were blocked by CB1 and CB2 antagonism, while the effect on leukocyte adherence was cannabinoid receptor independent. URB597 also improved hindlimb weight bearing ($p<0.05$) and von Frey hair withdrawal thresholds ($p<0.05$), and both effects were local and blocked by CB1 antagonism.

These results suggest that modulating endocannabinoid levels locally may prove beneficial in treating the symptoms and vascular components of acute arthritic flares.

#3 **WHAT MAKES A GOOD DISTRACTOR? EXPLORING THE CHARACTERISTICS OF EFFECTIVE DISTRACTION INTERVENTIONS FOR NEEDLE-RELATED PAIN AND DISTRESS IN CHILDREN**

Katherine A. Birnie, Melanie Noel, Jennifer A. Parker, Christine T. Chambers, Lindsay S. Uman, Steve R. Kisley, & Patrick J. McGrath

Department of Psychology, Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre; Seattle Children's Research Institute; Department of Pediatrics, Dalhousie University; Community Mental Health, IWK Health Centre; School of Medicine, University of Queensland

Aims: Distraction is the most studied and empirically supported psychological intervention for needle pain and distress in children. However, distraction interventions use very heterogeneous strategies and distracters, making it difficult to identify effective treatment components. This analysis explored characteristics of effective distraction interventions. **Methods:** Twenty-six randomized controlled trials of distraction were identified in a recent systematic review of needle-related pain and distress in children aged 2-19 years. Two authors independently coded all studies for four intervention characteristics identified in previous research as potentially relevant to treatment efficacy: adult versus no adult involvement, no/low versus high technology distracters, interactive versus passive distraction, and child choice versus no choice. Self-report, observer-report, and behavioural measures of pain and distress were examined. Chi-square tests of subgroup differences examined treatment efficacy based on distraction characteristics. **Results:** Distraction effectively reduced self-reported pain irrespective of intervention characteristics. Interventions with no adult involvement or using passive distraction were marginally more efficacious in reducing self-reported distress than those with adult involvement ($\chi^2=3.31$, $p=.07$) or interactive ($\chi^2=3.31$, $p=.07$). Interactive interventions were marginally more efficacious in reducing observer-reported distress ($\chi^2=3.55$, $p=.06$). No differences were observed based on the use of no/low versus high technology distracters or availability of child choice of distracters. **Conclusions:** Findings support the robustness of distraction for reducing self-reported pain, regardless of distraction intervention characteristics. The degree of adult involvement and interactive nature of distraction may contribute to treatment efficacy; however, future studies directly comparing different distraction techniques are needed.



#4 **KIDS CARING AND SHARNG: HOW EMPATHY FOR PAIN AND SADNESS AFFECTS PROSOCIAL BEHAVIOUR**

Hannah G. Gennis^{1,3}, Jennifer A. Parker, Ph.D.³; Amanda Williams, M.Sc.¹; Christine T. Chambers, Ph.D.^{1,2,3}; & Chris Moore, Ph.D.¹

Psychology and Neuroscience¹ and Pediatrics², Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre³

Background: Children often witness painful or sad experiences in others. There is evidence that children's empathy for pain may develop differently than their empathy for sadness (Bandstra et al., 2011). A study assessing the effects of emotional priming on prosocial behaviour found that children who watched an emotion induction video depicting sadness showed more prosocial behaviour than children who watched a neutral video (Williams et al., submitted). This study builds on this by comparing the impact of viewing an emotion induction video (pain vs. sadness vs. neutral) on prosocial behaviour in children. **Methods:** 56 preschool and school age children watched one of three videos: a girl in pain (pain induction), a girl who is sad (sadness induction), or a girl with a neutral emotion (neutral). Afterwards, participants rated pain and affect for self and the girl in the video. To measure prosocial behaviour, they participated in a validated sticker sharing task and chose how many stickers they would keep for themselves and give to the girl in the video using a forced choice procedure with one prosocial option, and one non-prosocial option. **Results:** A 2 (Age) X 3 (Video) ANOVA revealed no impact of age or video condition on participant's prosocial behaviour, however, perceptions of greater pain severity were associated with greater prosocial behaviour among participants exposed to the pain induction video, $r = .66$, $p = .01$. The lack of a relationship between pain ratings for self and Jenny suggested that sympathy, rather than empathy, was driving prosocial behaviour.



#5 **STAFF NURSE ADOPTION OF KANGAROO MOTHER CARE AS AN INTERVENTION FOR MANAGEMENT OF PROCEDURAL PAIN IN PRETERM INFANTS**

Britney Benoit, MScN, RN¹, Marsha Campbell-Yeo PhD NNP-BC RN^{1,2,3,4}, Celeste Johnston DEd RN^{3,4}, Margot Latimer PhD RN^{1,2,3}, Kim Caddell BN RN⁴, Talia Orr BSc²

¹Centre for Pediatric Pain Research, IWK Health Centre; ²School of Nursing, Dalhousie University;

³Department of Pediatrics, IWK Health Centre; ⁴Maternal Newborn Program, IWK Health Centre

Background: Skin-to-skin contact between mother and infant, commonly referred to as Kangaroo Mother Care (KMC), has demonstrated efficacy in reducing pain for a single procedure. Despite known benefits, and practice guidelines recommending KMC as a pain management strategy, this intervention remains underutilized. **Aim:** The purpose of this study was to examine nurse attitudes concerning the effectiveness, challenges, and adoption of KMC as an intervention for pain management in the Neonatal Intensive Care Unit (NICU). **Methods/Design:** Nurses working in the NICU site of a trial examining the sustained efficacy of KMC were asked to complete an investigator developed questionnaire at two time points: 1-month and 6-months following trial initiation. Identified benefits, expectations, frequency of use, and challenges of KMC-related practice change were analyzed using descriptive statistics. Survey data from the two time points were compared using chi-square analysis. **Results:** Forty nurses completed surveys. Independent of group, 95% of participants indicated they expected KMC to provide good or very good pain relief. Nurses reported less expected difficulty ($\chi^2 = 22.68$, $p < 0.001$) and fewer concerns ($\chi^2 = 21.10$, $p < 0.001$) regarding KMC for procedural pain between time points. However, the frequency of nurses who consistently used KMC as an intervention was 7.5%, with no significant differences between the time points. **Conclusion:** Despite positive expectations and reduced concerns related to KMC as a pain relieving intervention, frequency of KMC use remained unchanged. Research addressing ways to overcome contextual and systems related barriers to utilizing KMC as an intervention for procedural pain the NICU is warranted.



#6 **TRAINING HIGHLY QUALIFIED HEALTH RESEARCH PERSONNEL: THE PAIN IN CHILD HEALTH CONSORTIUM**

Justine Dol, Carl L von Baeyer PhD¹, Bonnie J Stevens RN, PhD², Christine T Chambers PhD³, Kenneth D Craig PhD⁴, G Allen Finley MD³, Ruth E Grunau PhD^{4,5}, C Celeste Johnston RN, DEd⁶, Rebecca Pillai Riddell PhD⁷, Jennifer N Stinson RN, PhD², Justine Dol MSc³, Marsha Campbell-Yeo RN, PhD³, Patrick J McGrath PhD³ ¹University of Saskatchewan and University of Manitoba; ²University of Toronto and Hospital for Sick Children; ³Dalhousie University and IWK Health Centre; ⁴University of British Columbia; ⁵Child & Family Research Institute; ⁶McGill University; ⁷York University

Background and Objectives: Pain in Child Health (PICH) is a transdisciplinary, international research training consortium. PICH has been funded since 2002 as a Strategic Training Initiative in Health Research of the Canadian Institutes of Health Research, with contributions from other funding partners and the founding participation of five Canadian universities. The goal of PICH has been to create a community of scholars in pediatric pain to improve child health outcomes.

Methods: A mixed methods design was used to collect (a) quantitative data describing PICH faculty, trainees and the nature and frequency of training activities and scientific outputs, and (b) qualitative data on perceptions of PICH stakeholders of the program's strengths, limitations and opportunities for development and sustainability.

Results: PICH has supported 218 trainee members from 2002 through 2013, from 14 countries and more than 16 disciplines. The faculty in 2013 comprised 9 co-principal investigators, 14 Canadian co-investigators, and 28 Canadian and international collaborators. Trainee members published 626 peer-reviewed journal articles on pediatric pain from 2003 through 2012, among other research dissemination activities such as conference presentations, and webinars. Networks have been established between new and established researchers across Canada and in 13 other countries. Perceptions from stakeholders highly commend PICH for its positive impact on the development of pediatric pain researchers.

Conclusions: PICH has been successfully developing highly qualified health research personnel within a Canadian and international community of pediatric pain scholarship.



#7 **CHALLENGES AND OPPORTUNITIES IN IMPLEMENTING EVIDENCE-BASED STRATEGIES FOR THE MANAGEMENT OF PROCEDURAL PAIN AND ANXIETY**

Katelynn E. Boerner, Joanne M. Gillespie, Elizabeth N. McLaughlin, Christine T. Chambers
Department of Psychology & Neuroscience and Pediatrics, Dalhousie University; Centre for Pediatric Pain Research and Pediatric Health Psychology Service, IWK Health Centre

Objective: Needle procedures are a painful and distressing experience for many children, prompting much research on the efficacy of interventions for managing needle pain. In clinical practice there are multiple factors that may increase the complexity of implementing evidence-based strategies for needle pain, including diverse populations (e.g., developmental delays, needle anxiety), environmental barriers, and practical issues. **Methods:** The factors described above will be reviewed along with suggestions of how to adapt empirically based treatments to various clinical settings. The protocol and pilot outcomes of a recent cognitive-behavioural treatment group for children and parents that aimed to prepare children with needle anxiety for upcoming procedures will also be presented. Children and parents participated in a 5-session group treatment, and completed measures of fear and anticipated pain prior to beginning the group, as well as measures of experienced fear and pain following completion of the group and their needle procedure. **Results:** Following group treatment, 6 of the 7 children who participated in the intervention successfully completed their goal procedure. One participant was lost to follow up and did not provide post-treatment data. Information collected from families indicated that children’s needle fear decreased at the conclusion of treatment. Pain experienced during the actual needle procedure (following treatment) was lower than predicated pain prior to intervention. **Conclusions:** There are many challenges in implementing evidence-based strategies for needle pain in clinical settings, but also many opportunities for the involvement of psychologists in educating families and health professionals about the management of needle pain and distress.



#8 **URINARY DRUG SCREENING IN THE MANAGEMENT OF PAIN: IS IT HELPFUL IN MANAGEMENT**

A J Clark, MA d’Entremont, ME Lynch
Faculty of Medicine, Universite de Sherbrooke and Department of Anesthesia, Pain Management and Perioperative Medicine, Dalhousie university

Introduction: Opioids are important tools in the management of pain but also pose a significant addiction risk. The National Opioid Use Guideline Group (NOUGG) guidelines acknowledge that “there is no compelling evidence to guide physicians on identifying patients with chronic non cancer pain (CNCP) who should have UDS or how often”.

Objectives: To study the prevalence of unexpected immunoassay UDS results from patients presenting at a chronic pain center for an initial consultation and to interview the treating physicians regarding the clinical implications of an unexpected result.

Methods: From February 2012 to July 2013, a total of 594 new patients with CNCP were examined at a chronic pain centre. The charts of all new CNCP patients were reviewed and used to create a database containing the sex, age and UDS results. A short systematic interview was conducted with the treating physician when UDS results were incongruent with the self-report history.

Results: The percentage of patients with at least one unexpected result as determined by the treating physician was 5.49%. Out of these patients with unexpected results, the treating physicians found UDS testing helpful in 72.22% cases and that it influenced patient care in 50% cases.

Conclusions: The prevalence of illicit drug abuse continues to be a common finding in the CNCP population. This study demonstrates that there are a significant percentage of UDS results that do not match the treating physician’s clinical judgment but that in only a limited number of cases did these unexpected results influence patient care.



#9 SMARTPHONE AND INTERNET PATTERNS OF PARENTS (SIPP): PREFERENCES AND IMPLICATINS FOR KNOWLEDGE UPTAKE IN THE NICU

Orr, Talia¹, Hewitt, B MN RN CNCCP(C) IBCLC², Caddell, K RN BN², Benoit, B MScN RN³; Stinson, J PhD RN-EC CPNP⁴, McGrath, P OC, PhD, FRSC, FCAHS^{3,5}, Campbell-Yeo, M PhD NNP-BC RN¹.

¹School of Nursing, Dalhousie University; ² Women's and Newborn Health Program, IWK Health Centre;

³Centre for Pediatric Pain Research, IWK Health Centre; ⁴Hospital for Sick Children, ⁵Department of Pediatrics, IWK Health Centre

Aims: To understand the patterns of smartphone and Internet use by parents in the NICU, to learn more about parent information seeking behaviours, and to discover new strategies to increase parent involvement in infant pain management. **Design:** A descriptive study using a paper-based survey distributed to parents in a tertiary level NICU from September-November, 2013. **Results:** Response rate was 80% (72/90). Almost all parents reported that they would like to have more information about how they can provide general comfort (96%), as well as how to be more actively involved in comforting their baby during painful procedures (94%). The majority of participants (n=70, 97%) access the Internet on a daily basis, 87% of those access using their smartphone (100% of fathers, 82% of mothers). The Internet was ranked as an important source of NICU information by 81% of parents, followed by books (56%) and brochures (33%). NICU nurses (96%), NICU doctors (89%) and family doctors (82%) were also ranked as important information resources. Of those who researched helping their baby cope with pain, 56% used the Internet as their primary source. **Conclusions:** Parents report a desire to have more information and be more involved in infant pain management. Parents in the NICU place higher value on the Internet compared to books or brochures, which are the education tools most commonly used in the IWK. It is imperative that health facilities take advantage of the Internet as an accessible tool to enhance health professional teaching and increase parent involvement.

#10 BARRIERS AND FACILITATORS TO EXERCISE IN ADULTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN: A LITERATURE SYNTHESIS AND META-ETHNOGRAPHY OF QUALITATIVE STUDIES

Peter Stilwell¹ BKin, DC, RCCSS(C) Resident, MSrRPT Student; Katherine Harman¹, & Rob Gilbert²
Dalhousie University, School of Physiotherapy¹ Dalhousie University, School of Health Sciences².

Background: Low back pain (LBP) has been identified as a leading cause of disability worldwide.¹ Exercise is one of the few interventions demonstrated to reduce pain and improve function in individuals with LBP.² Yet, only a small percentage of individuals with LBP adhere to prescribed exercise programs.³ Studies have identified some potential barriers to exercise in individuals with mechanical musculoskeletal dysfunction; this includes: low self-efficacy, anxiety, poor support, and increased pain during exercise.⁴ Despite the known benefits of exercise for chronic LBP, little is known from the patient's perspective as to why adherence to exercise is low.

Purpose: To systematically synthesize the qualitative literature exploring the barriers and facilitators to exercise from the perspective of adults with chronic non-specific LBP.

Methods: Embase, MEDLINE, CINAHL, SPORTSDiscus and PsychINFO databases were searched. The Consolidated Criteria for Reporting Qualitative Research⁵ was used to appraise the included studies. A meta-ethnographic approach adapted from Noblit and Hare⁶ was used to synthesize the themes of the included studies.

Results: 689 papers were initially screened and six papers were included in the final analysis. Emergent themes across the included studies revolved around exercise fear and varied patient knowledge regarding exercise, the patient's desire for continued guidance and support, and how the diagnostic dilemma of LBP affects exercise.

Conclusion: Most exercise adherence barriers appeared to be modifiable which suggests that healthcare practitioners can play an important role in removing these barriers. One role could be through patient education regarding: the difference between exercise related hurt and harm, benefits of long-term exercise, and diagnosis.



11 **LOW BACK PAIN IN THE CANADIAN ARMED FORCES: THE ASSOCIATION OF PAIN-RELATED FEAR AND HEALTHCARE SEEKING**

Selena Glover¹, Jill Hayden¹, Katherine Harman², Gordon Flowerdew¹. Department of Community Health and Epidemiology, Dalhousie University,¹ Department of Physiotherapy, Dalhousie University²

Summary: In the Canadian Armed Forces, low back pain (LBP) can have a significant impact on operational readiness and healthcare seeking. Psychosocial factors such as pain-related fear are not commonly recognized with the “sports medicine” approach to musculoskeletal care in this population.

Objectives: To test the independent association between pain-related fear and musculoskeletal healthcare seeking in this population.

Methods: This study is a historical clinical cohort of Canadian Armed Forces personnel seeking care for recurrent and chronic LBP. We used the validated questionnaire, the Tampa Scale for Kinesiophobia (TSK) to measure pain-related fear. We measured healthcare seeking by using hazard ratios (HR) to compare time to first re-referral to musculoskeletal care for those with high versus low pain-related fear, and by using incidence rate ratios (IRR) to compare the corresponding rates of re-referral.

Results: 183 (51.4%) participants had at least one re-referral during the follow up period following discharge. Within six months of discharge, 12.0% of the low TSK group and 27.5% of the high TSK group were re-referred to musculoskeletal services with LBP (Log rank test $p < 0.0001$). When controlling for confounders, those with a high TSK score were 62% (HR 1.62; 95% CI 1.14-2.31) more likely to be re-referred for LBP at any point in time during follow up and have a 40% higher rate of repeated referrals (IRR 1.40; 95% CI 1.07-1.84).

Conclusion: Pain-related fear is independently associated with musculoskeletal healthcare seeking for recurrent and chronic LBP in a military population.



#12 **PARENTAL PAIN CATASTROPHIZING DOES NOT SEEM TO INFLUENCE DEGREE OF ANALGESIC USE FOR PEDIATRIC POST-OPERATIVE PAIN**

Ayala Y. Gorodzinsky¹, Jill Chorney^{1,2} and PORSCHE Study Group

Centre for Pediatric Pain Research, IWK Health Centre¹, Departments of Anaesthesia, Pain Management & Perioperative Medicine and Psychology & Neuroscience², Dalhousie University, Halifax, NS

Aims: Pediatric post-operative pain is not well managed, especially at home where less than optimal pharmacological interventions are used (Fortier et al., 2009). Individuals with higher pain catastrophizing often report high levels of fear of pain (Vervoort et al., 2006), so it is hypothesized that children who have higher pain catastrophizing will utilize more pain medications, as has been seen in other populations (Bedard et al., 1997; Jacobsen & Butler, 1996).

Methods: 63, 11 to 18 year old children (89% female) who underwent spinal fusion for adolescent idiopathic scoliosis completed the Pain Catastrophizing Scale (PCS) before surgery. Children rated their pain using a numerical rating scale and reported on number of doses of analgesics used in first week after discharge.

Results: Children used an average of 20.45 doses of analgesics and reported average pain ratings of 3.82. A hierarchical regression indicated that pain ratings significantly predicted number of analgesic doses in Step 1, $R^2 = 0.11$, $p < 0.01$, but the addition of PCS scores in Step 2 did not significantly contribute to the model above and beyond pain scores ($R^2 = 0.03$, $p = 0.15$).

Conclusions: Children’s pain scores predicted number of doses of analgesics provided; however, pain catastrophizing did not contribute to this prediction. It may be that compared to other pain populations^{3,4}, there are factors associated with undergoing a planned surgery, including expected pain as a result of a scheduled surgery, that reduce the influence of pain catastrophizing on pain behaviours.



#13 KETAMINE AS A TOPICAL AND PERIPHERALLY ACTING ANALGESIC

Jana Sawynok

Department of Pharmacology

Ketamine, in sub-anesthetic doses, produces systemic analgesia in chronic pain settings, an action largely attributed to block of N-methyl-D-aspartate (NMDA) receptors in the spinal cord and inhibition of central sensitization. NMDA receptors also are located peripherally on sensory afferent nerve endings, and this provided the initial impetus for exploring peripheral applications of ketamine. Ketamine also produces several other pharmacological actions, and while these may require higher concentrations, following topical (gels, creams) and peripheral application (localized injections), local concentrations are higher than following systemic administration and can engage lower affinity mechanisms. Peripheral administration of ketamine by localized injection produces some alterations in sensory thresholds in experimental trials (volunteers, chronic pain conditions), but many parameters are unaltered. There are several case reports of analgesia following topical application of ketamine given alone in neuropathic pain, but controlled trials have not confirmed such effects. Combination of topical ketamine with several other agents produces pain relief in case reports, with response rates of 40-75%. In controlled trials of neuropathic pain with topical ketamine combinations, there are improvements in some outcomes, but optimal dosing and drug combinations are not clear. Given orally (as a gargle, throat swab, localized peritonsillar injections), ketamine produces significant oral/throat analgesia in controlled trials in post-operative settings. Topical analgesics are likely more effective in particular conditions (patient factors, disease factors), and future trials of topical ketamine should include a consideration of factors that could predispose to favourable outcomes.



#14 IT DOESN'T HAVE TO HURT: STRATEGIES FOR HELPING CHILDREN WITH SHOTS AND NEEDLES (A YOU TUBE VIDEO FOR PARENTS)

Jennifer Parker, Christine T. Chambers^{1,2,4}; Marsha Campbell-Yeo^{3,4}; Anna Taddio⁵; Jennifer Stinson⁶; Scott Halperin^{1,4}; Jennifer A. Parker⁴; Kathryn A. Birnie^{2,4}; Line Caes⁴; Dionne Dougall-Bass⁷; Miles Sedgwick⁷
Departments of Pediatrics¹, Psychology², & Nursing³, Dalhousie University; IWK Health Centre⁴; Leslie Dan Faculty of Pharmacy, University of Toronto⁵; Hospital for Sick Children⁶;Burness Communications⁷

Needle procedures and the pain associated with them are frequently cited among children's most feared experiences. These fears persist over time and cause considerable distress, not only for the child, but also parents, siblings, and health professionals. Fortunately, considerable research supports a variety of pharmacological, psychological, physical, and combined pain management strategies to significantly reduce procedure-related pain in children (e.g., use of topical anaesthetic creams, distraction, and deep breathing). Despite all of the guidelines, the majority of children undergoing painful medical procedures receive no pain relieving interventions. *This is unnecessary and unacceptable.* One reason, however, is that most parents are unaware of what strategies are available or how to use them effectively to reduce their children's pain. In fact, many health professionals are also unaware, so it is important for parents to have direct access to this information so they can best advocate for good pain management for their children. To translate current evidence-based research into knowledge for parents, we developed a brief and engaging video, which is freely available for sharing on the internet (e.g., YouTube). This professional, informative video provides an engaging overview of pain management strategies that parents (and health professionals) can easily and inexpensively do to help children experience less pain and distress during painful needle procedures. We will display portions of the video and share our experiences developing the video. Preliminary data showing levels of public engagement and online transmission success will also be presented along with a summary of feedback from the real-world audience.



#15 MANAGING CHILDREN’S PAIN AT HOME AFTER SURGERY

Julie Longard, Jill Chorney, Paul Hong, Alison Twycross, Anna Williams
Centre for Pediatric Pain Research & Pediatric Otolaryngology

Recent changes in the delivery of children’s healthcare services, such as day surgeries and shorter hospital stays, have meant that parents are increasingly responsible for managing children’s postoperative pain at home. Although pain management is important for good outcomes after surgery, it can be a challenging task for families, and as a result children’s pain is often under-managed. The purpose of the current study is to examine parents’ experiences of managing their child’s pain at home after surgery, including barriers and facilitators to optimal pain management. This exploratory qualitative study uses semi-structured interviews in order to understand parents’ experiences of managing their child’s pain at home after surgery. Participants include parents of approximately 10 typically developing children between 5 and 6 years of age, who had tonsillectomy with or without adenoidectomy removal of tonsils alone or with adenoids), and had to complications leading to hospitalization during or after surgery. Participants are currently being recruited from the IWK Health Centre through the Pediatric Otolaryngology Clinic. One-on-one interviews are being conducted with parents through the Centre for Pediatric Pain Research at the IWK Health Centre, within 6 months of their children’s surgeries. Once interviews are collected and transcribed, content analysis will be used to identify themes in parents’ experiences. The final results of this study will be used to design theory- and evidence-informed interventions that will improve children’s pain management at home after surgery.



#16 THE DAILY IMPACT OF SEXUAL CONTINGENT SELF-WORTH AND SEXUAL SELF-EFFICACY ON RELATIONSHIP AND SEXUAL SATISFACTION AND PAIN IN WOMEN WITH PROVIDED VESTIBULODYNIA AND THEIR PARTNERS

Maria Glowacka, Natalie Rosen Department of Psychology and Neuroscience, Dalhousie University

Provoked vestibulodynia (PVD), characterized by pain when pressure is applied to the vulvar vestibule, often results in disruptions to sexual functioning. A potentially salient factor for PVD women is sexual contingent self-worth (CSW; self-worth dependent on maintaining the sexual relationship). Although sexual CSW has not been previously examined, higher sexual self-esteem has been associated with greater sexual and relationship satisfaction, and genital pain. Further, sexual self-efficacy, (confidence in one’s ability to engage in satisfying sex), may moderate the associations.

Hypotheses: The aim is to examine the influence of couples’ sexual CSW and sexual self-efficacy on their satisfaction and women’s pain. I expect that on days when individuals report greater sexual CSW, they and their partners will report greater relationship/sexual satisfaction, and women will report lower pain. On days when individuals report greater sexual self-efficacy, an individual’s own greater sexual CSW will be linked to their own and their partners’ greater relationship/sexual satisfaction, and women’s pain. However, on days when individuals report lower sexual self-efficacy, an individual’s own greater sexual CSW will be related to their own and their partner’s lower relationship/sexual satisfaction, and women’s pain.

Methodology: Eighty-four couples will complete daily online measures of sexual CSW, sexual self-efficacy, relationship and sexual satisfaction, and women will complete measures of genital pain intensity for 8 weeks.

Results: Data will be analyzed using multilevel modeling based on the Actor–Partner Interdependence Model. Results may impact the health of affected couples by identifying novel targets for treatments aimed at improving the well-being of couples.



#17 **CULTURAL FRAMEWORK FOR PEDIATRIC PAIN RESEARCH: VALUE ORIENTATIONS AND PARENTING STYLES**

Olof Kristjansdottir, Patrick McGrath^{1 2 3}, Allen Finely^{1 2}, Gudrun Kristjansdottir⁵, Pulsuk Siripul⁴, Anita Unruh¹, Helene Deacon¹
Dalhousie University¹, IWK Health Centre², Capital District Health Authority³, Khon-Kaen University⁴,
University of Iceland⁵

Introduction: Theoretical and empirical research suggests a relationship between culture and children's pain. Culture has been described using ethnicity and nationality and rarely by the application of theory. Parenting styles are a cultural element reflecting the broad ideology promoted in societies.

Aim: Examine value orientations and parenting styles as a cultural framework for pediatric pain research.

Methods: 547 caregivers of 6-12 year old children living in Canada (n=183), Iceland (n=184) or Thailand (n=180) were surveyed. The Individualism-Collectivism Scale was used to measure value orientations: Vertical Individualism (VI), Vertical Collectivism (VC), Horizontal Individualism (HI), and Horizontal Collectivism (HC). The Parenting Styles and Dimensions Questionnaire measured parenting styles: Authoritative, Authoritarian and Permissive.

Results: (A) Canadian's scored lower on VI and higher on HI compared to both Icelander's and Thai's. Thai's scored higher on VC compared to both Canadian's and Icelander's. (B) Thai's scored lower on authoritative parenting style, and higher on both authoritarian - and permissive parenting style, compared to both Canadian's and Icelander's. No differences were found on parenting styles between Canadian's and Icelander's. (C) Authoritative parenting style was positively associated with VC (r =.21, p <.001), HI (r =.30, p <.001) and HC (r =.40, p <.001). (D) Authoritarian parenting style was positively associated with VI (r =.25, p <.001), VC (r =.32, p <.001) and HI (r =.07, p <.05). (E) Permissive parenting style was positively associated with VI (r =.20, p <.001), and VC (r =.20, p <.001).

Conclusions: The proposed cultural framework may be a viable option to explore cultural differences in pediatric pain.



#18 **OPIOID PRESCRIBING PATTERNS IN LUMBAR SPINE SURGERY: A SUB-SET ANALYSIS OF THE POPULATION-BASED RETROSPECTIVE COMBINED OPIOID-ANESTHESIA (COAP) DATA SET**

Kirstin Derdall, Dr. Peter MacDougall, Paul Brousseau, Sylvia de la Ronde, M.Sc., A.Stat
Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Background: This study examines the prevalence of persistent post-operative opioid use as well as the effect of the amount and pattern of preoperative opioid use. The COAP dataset combines opioid prescribing information from the Prescription Monitoring Program with perioperative data from the Anesthesia Information Management System.

Design: The COAP data set was searched for all lumbar spine surgeries with the following key words: laminotomy, laminectomy, laminoplasty, discectomy, microdiscectomy, vertebrectomy, corpectomy, spinal fusion and spinal decompression. In total, there were 1088 entries matching these search criteria.

Main Outcome Measure: The primary study outcome measure will be to determine the incidence of persistent post-operative opioid use following lumbar spine surgery. Secondary outcomes will be to examine the effect of the pattern and amount of preoperative opioid use on persistent postoperative opioid use.

Results: Overall rate of persistent post-operative opioid use in lumbar spine surgery was 23.53%. A Kaplan-Meier Curve demonstrated the likelihood of persistent opioid use at 6 months to be approximately 23%. Logistic regression analysis determining the probability of being off opioids at 6 months found chronic pre-operative opioid use (OR 17.72, 95% CI 11.15-28.17, p < 0.005) and opioid dose at first post-operative month to be predictive of persistent post-operative opioid use.

Conclusion: This study found a high rate of persistent post-operative opioid use in lumbar spine surgery when compared to the overall rate of 3.1% within the COAP data set. Chronic pre-operative opioid use and initial post-operative opioid dose were strong predictors of persistent post-operative opioid use. The pattern of post-operative opioid use was different for those that remained on opioids at 6 months suggesting the need for different management strategy in this group.



#19 NEUTROPHIL ELASTASE INDUCES PAIN AND INFLAMMATION IN MOUSE KNEE JOINTS MEDIATED BY PROTEINASE ACTIVATED RECEPTOR-2

Milind M. Muley *M.Pharm.*, Allison R. Reid *B.Sc.*, Jason J. McDougall *Ph.D.*

Departments of Pharmacology and Anaesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Neutrophil elastase is a serine proteinase, secreted by neutrophils and macrophages during inflammation, known to activate proteinase activated receptor-2 (PAR2).

The effect of intraarticular administration of neutrophil elastase (5ug) on behavioral pain (von Frey hair sensitivity) and knee joint blood perfusion (laser speckle imaging) was studied in C57BL/6 mice at 1, 2, 3, 4, 5, 6 and 24 hours. Neutrophil elastase was also tested in the presence of the PAR2 antagonist GB83 (5ug i.p. X3), and in PAR2 knock-out mice. Also, changes in leukocyte kinetics in the synovial vasculature were evaluated by intravital microscopy.

Administration of neutrophil elastase significantly decreased pain thresholds at 2 ($p < 0.05$), 4 ($P < 0.001$), 5 ($P < 0.05$) and 6 ($P < 0.01$) hours and caused a significant increase in knee joint perfusion at 3, 4 and 6 hours ($P < 0.01$). The PAR2 antagonist GB83 reversed these changes significantly ($P < 0.05$) at several time points. In PAR2 knock-out animals, neutrophil elastase had no observable effect on tactile sensitivity or blood perfusion. Finally, an increase in the number of rolling ($P < 0.001$) and adherent leukocytes ($P < 0.05$) was observed at 6 hours post neutrophil elastase.

The administration of neutrophil elastase into the knee joints of mice causes a decrease in pain thresholds, an increase in knee joint perfusion, and an increase in rolling and adherent leukocytes. The changes in pain behavior and inflammation were blocked by a PAR2 antagonist and did not develop in the absence of PAR2. These results suggest that the joint inflammation and pain triggered by neutrophil elastase is mediated by PAR2.



#20 SEASONAL VARIATIONS IN PEDIATRIC COLD PRESSOR PAIN

Meghan Schinkel, BSc.(Hons)^{1,3}, Kristen S. Higgins, BSc.(Hons)^{1,3}; Hannah G. Gennis^{1,3}; Jennifer A. Parker, Ph.D.³; & Christine T. Chambers, Ph.D.^{1,2,3}

Departments of Psychology and Neuroscience¹ and Pediatrics², Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre³

Aims: There is evidence to suggest that factors such as weather and seasonal variations may influence pain (e.g., Jones et al., 2005; Macfarlane et al., 2010). The cold pressor task (CPT) is a safe and ethically appropriate task that induces mild to moderate pain (von Baeyer et al., 2005), and is widely used to experimentally investigate pain in children. The current study aimed to examine whether seasonal variations exist in child responses to cold pressor pain. **Methods:** Data was pooled from 155 children (boys, $n = 81$; girls, $n = 74$) between the ages of 8-14 years ($M = 9.64$ years) who had participated in the cold pressor task as part of one of four previous studies. Child pain tolerance (time in seconds the child left their hand immersed in the cold water) and child reported pain intensity (Faces Pain Scale-Revised rating) were recorded for each participant following the CPT. Participation occurred across all four seasons: Winter ($n = 21$), Spring ($n = 38$), Summer ($n = 66$), and Fall ($n = 30$). **Results:** Two separate one-way ANOVA's were conducted to examine the influence of season on pain intensity and pain tolerance. The analyses revealed no significant differences for season for both child pain intensity and child pain tolerance. **Conclusions:** There appears to be no influence of season on both child pain intensity and pain tolerance for cold pressor pain.



#21 **A SYSTEMATIC REVIEW OF PAIN, HEALTH, AND PSYCHOLOGICAL OUTCOMES IN CHILDREN OF PARENTS WITH CHRONIC PAIN**

Kristen S. Higgins, BSc. (Hons)^{1,6}, Christine T. Chambers, Ph.D.^{1,2,6}; Anna C. Wilson, Ph.D.⁷; Line Caes, Ph.D.⁶; Alexander J. Clark, MD^{3,8}; Mary Lynch, MD^{3,4,5,8}

Departments of Psychology & Neuroscience¹, Pediatrics², Anesthesia, Pain Management and Perioperative Medicine³, Psychiatry⁴, and Pharmacology⁵, Dalhousie University; Centre for Pediatric Pain Research, IWK Health Centre⁶; Institute on Development & Disability, Division of Psychology, Oregon Health & Science University⁷; Pain Management Unit, QEII Health Sciences Centre⁸

Background: Recent studies have shown that children whose parents have chronic pain are at greater risk for developing pain disorders (Arruda et al., 2010) and worse psychological health outcomes (e.g., Kaasbol et al., 2012) compared to children of healthy parents. A recent systematic review on pain and psychological outcomes in children of parents with chronic pain indicated that these children are at risk for more pain complaints and internalizing and externalizing symptoms than are other children (Umberger, 2014). However, this review used narrow search terms and did not include a meta-analysis. The purpose of this research is to conduct a systematic review and meta-analysis of studies examining pain, health, and psychological outcomes among children whose parents have chronic pain. **Methods:** To date, we have performed a preliminary systematic search of PsycInfo, PubMed, the Cumulative Index to Nursing and Allied Health Literature, and the Cochrane Library. Included studies will be meta-analyzed to determine the overall effect size of the difference in pain and psychological outcomes between children of parents with chronic pain and children of healthy parents. **Results:** A preliminary search yielded 1042 articles for potential inclusion (compared to 181 articles identified in the previous review). Results based on the review and meta-analysis will be presented. **Conclusions:** Results of this systematic review and meta-analysis will provide valuable information about children of parents with chronic pain, a generally understudied population that may be at risk for problems in pain, health, and psychological well-being compared to other children.



#22 **THE ROLE OF DYADIC SEXUAL COMMUNICATION IN THE PAIN EXPERIENCE AND SEXUAL ADJUSTMENT OF WOMEN WITH PVD AND THEIR PARTNERS**

Kate M. Rancourt, Natalie O. Rosen, Amy Muise, Sophie Bergeron

Department(s): Psychology and Neuroscience (Dalhousie University); Obstetrics and Gynecology (IWK Health Centre); Psychology (University of Toronto); Psychology (University of Montreal)

Introduction: Provoked vestibulodynia (PVD), a prevalent subtype of chronic vulvo-vaginal pain, is most frequently triggered through partnered sexual contact; as such, researchers have highlighted the importance of studying interpersonal factors in PVD. Recent research has demonstrated that open sexual communication is associated with greater sexual satisfaction in non-clinical couples. No studies have examined the role of sexual communication in the sexual adjustment and pain experience of women with PVD and their partners. **Method:** Eighty women with PVD (M age = 28.42, SD = 6.92) and their partners (M age = 30.49, SD = 8.25) completed measures of dyadic sexual communication (DSC), sexual satisfaction, sexual function, pain self-efficacy, and pain intensity during intercourse (women only). **Results:** Analyses were conducted using multilevel modeling (MLM) techniques guided by the Actor Partner Interdependence Model. Women with PVD who reported greater DSC had higher pain self-efficacy, higher sexual functioning, were more sexually satisfied, and had male partners who were more sexually satisfied. Additionally, male partners who reported greater DSC perceived their female partners to have higher pain self-efficacy, had higher sexual functioning, were more sexually satisfied, and had female partners who were more sexually satisfied. Finally, when a woman's partner reported greater DSC, she reported lower pain intensity. **Discussion:** Results suggest that greater DSC may improve the sexual adjustment (i.e., satisfaction and function) of both women with PVD and their partners, and may contribute to both partners' perceptions of greater women's pain self-efficacy. Results also indicate that partners greater DSC may reduce women's pain during intercourse, perhaps through reducing women's sexual anxiety or facilitating a positive interpersonal context for sexual activity.



#23 QUALITATIVE ANALYSIS OF A CONTROLLED TRIAL OF QIGONG FOR FIBROMYALGIA

Jana Sawynok, PhD, Mary Lynch, MD, FRCPC

Departments of Pharmacology and Anaesthesia, Pain Management and Perioperative Medicine, Dalhousie University

Objectives: We recently completed randomized controlled trial (RCT, N=100) and an extension trial of qigong (N=20) in subjects with fibromyalgia. In this study, we undertook a retrospective qualitative analysis of comments from the RCT in relation to motivation and amount of practice, in order to determine if initial experiences over 8 weeks provided predictive information in relation longer-term outcomes.

Intervention: Participants received qigong instruction (level 1 CFQ), practiced 45 min/day for 8 weeks, and continued practice to 6 months. Extension trial participants received further qigong instruction (level 2 CFQ), and practiced regularly for 8 weeks to 6 months. Comments were: (a) considered as narratives for extension trial participants (N=20), and thematically stratified in relation to amount of practice for trial completers (N=73).

Results: Narrative comments of those who completed the extension trial (N=13/20) and those who withdrew from that trial (N=7/20) are considered separately. Those reporting benefits within the first 8 weeks were more likely to maintain practice and report continued benefits at 4-6 months than those who withdrew from the trial. Thematic comments for those completing the RCT (N=73) were considered in relation to amount of practice; this analysis indicates that those who practiced per protocol during the initial 8 weeks (≥ 5 hrs/week) were more likely to maintain practice over 4-6 months and to report beneficial health effects from qigong.

Conclusions: This retrospective qualitative analysis indicates that favorable initial experiences with the practice over 8 weeks predispose to continued practice and more health effects from qigong practice.



#24 THE ROLE OF COMMUNICATION AND INTIMACY IN COGNITIVE-BEHAVIOURAL COUPLE THERAPY FOR PROVOKED VESTIBULODYNIA: A RESEARCH PROPOSAL

Kate M. Rancourt, Natalie O. Rosen, Sophie Bergeron, Serena Corsini-Munt

Department(s): Psychology and Neuroscience (Dalhousie University); Obstetrics and Gynecology (IWK Health Centre); Psychology (University of Montreal)

Introduction: Provoked vestibulodynia (PVD), a vulvo-vaginal pain condition occurring primarily during sexual intercourse, has been found to adversely impact the psychological, sexual, and relational adjustment of both women with PVD and their partners. Pilot data from a novel Cognitive-Behavioural Couple Therapy (CBCT) for PVD found post-treatment improvements in women's pain-related outcomes and couples' psychosexual adjustment. However, little research has examined the unique components of couple therapy that contribute to treatment change and post-treatment outcomes. Due to growing emerging evidence emphasizing the importance of interpersonal factors in PVD, changes in couples communication patterns and their perceived intimacy are two variables that may play an important role in the treatment gains of couples experiencing PVD. **Objectives:** To examine whether improvements in intimacy and sexual communication patterns over the course of CBCT predict post-treatment improvements in (1) pain during intercourse, (2) sexual adjustment (sexual satisfaction, function, distress), and (3) relationship satisfaction. **Hypotheses:** Improvements in intimacy and sexual communication patterns over the course of therapy will predict post-treatment improvements in all outcome variables. To examine the nature of changes in communication and intimacy variables over the course of CBCT, we will test Growth Curve Models using Multilevel Modeling. We will use the change parameters of these models (i.e., slopes and intercepts) to test whether they predict post-treatment outcomes in pain, sexual adjustment, and relationship satisfaction. **Implications:** This research may further guide our understanding of treatment mechanisms and the factors that contribute to optimal treatment outcomes for couples undergoing CBCT. Moreover, this research may enhance our understanding of the ways that women and partners influence one another over the course of couple treatment.



#25 SERVICES FOR PEDIATRIC CHRONIC PAIN IN CANADA: A NATIONAL SURVEY
Kristen Bailey, Kate M. Rancourt, Stephanie L. Allen, Christine LaMontagne & Jill Chorney
Psychology & Neuroscience (Dalhousie); Anesthesiology (Children's Hospital of Eastern Ontario);
Anesthesia, Pain Management & Perioperative Medicine (Dalhousie); Centre for Pediatric Pain Research
(IWK Health Centre)

Aim of Investigation: Multidisciplinary care is considered the gold standard of care for pediatric chronic pain. However, the ways in which multidisciplinary care is delivered in Canada is not well understood. Thus, the purpose of this study is to conduct a national audit of the pediatric chronic pain clinics in Canada in order to determine the commonalities and the differences in the structure and the services that are being provided by these publicly funded, pediatric chronic pain clinics serving in tertiary centers. It is also a goal of the study to determine strengths and challenges faced by these clinics. **Methods:** A telephone survey assessing the structure and treatment services of pediatric chronic pain clinics was developed in collaboration with members of two Canadian pediatric chronic pain clinics. Specifically, it assesses the staffing resources, structure and process of assessment and follow-up visits, interventions used, and the clinic's approach to various patient types. The survey will be administered by telephone to a representative member of each of the nine publicly funded pediatric chronic pain clinics in Canada. **Results:** It is expected that there will be variability in the resources available to, and the care provided by, the pediatric chronic pain clinics in Canada. **Conclusions:** It is hoped that the results of the survey will be used to create a benchmark for services that can be used to improve services in the pediatric chronic pain clinics in Canada and to make services more consistent across the country.



**#26 EFFECTS OF INTRAARTICULAR LYSOPHOSPHATIDIC ACID ON SAPHENOUS NERVE
DEMYELINATION AND DORSAL ROOT GANGLIA CELL DAMAGE IN LEWIS RATS**
Samantha Albacete, Dr. Jason McDougall
Department of Pharmacology, Dalhousie University

The pain associated with osteoarthritis (OA) has a neuropathic component; however, the mediators responsible for this phenomenon are unknown. Lysophosphatidic acid (LPA) has been shown to cause demyelination of peripheral nerves and to initiate neuropathic pain. Interestingly, LPA levels have been found to be elevated in OA joints. This study examined the effect of LPA, injected into the knee joint, on demyelination of the saphenous nerve and primary afferent nerve damage detected in the dorsal root ganglia (DRGs) of Lewis rats.

50 µg of LPA was injected into the right knee joint of four male Lewis rats, ranging in weight from 300g to 350g. Three weeks after injection of LPA, the saphenous nerves from both the ipsilateral (LPA-injected) and contralateral (untreated) sides were removed and divided into three segments: proximal, medial, and distal to the spinal cord. The nerve was sectioned and processed for transmission electron microscopy. The resulting images were analyzed to determine the G-ratio, which is a measure of the thickness of myelin calculated by dividing the total axonal area by the internal axonal area. The ipsilateral saphenous nerves had 5% less myelin than the contralateral untreated saphenous nerves (unpaired t-test, $p < 0.0001$). Lumbar DRGs 3, 4, and 5 from both the ipsilateral and contralateral sides were dissected and then cut using a cryostat (10µm thick). The DRG samples were immunostained for activating transcription factor 3 (ATF-3), which is a commonly used marker of cell injury. Approximately 53% of ipsilateral DRG nuclei were positive for ATF-3, compared to 35% positive nuclei in the contralateral DRGs ($p=0.0009$).

These results show that a single intraarticular injection of LPA can cause damage and demyelination of joint nerves. Thus, LPA may be responsible for the development of neuropathic pain in osteoarthritis.