



Child Health Research Trainee Day 2018

The Department of Pediatrics held the annual Child Health Research Trainee Day on April 26, 2018. A record number of abstracts were presented consisting of 10 oral presentations, and 37 poster presentations. Residents, graduate students, post-doctoral fellows, and undergraduate students from diverse fields such as Pediatrics, Kinesiology, Nutrition, Pharmacy, Nursing, Veterinary Medicine, and Community Health and Epidemiology, presented their research and answered questions from our judges, peers, and faculty.

We wish to extend a special thank-you to our judges: Drs. Jane Alcorn, Amanda Froehlich-Chow, George Katselis, Joshua Lawson, Munier Nour, Marek Radomski,

Alan Rosenberg, and Tracy Wilson-Gerwing.

Congratulations to our winners!

Oral Presentations:

1st place: Sarah Finch, Nutrition, “Environmental, biochemical, and genetic factors of the vitamin D pathway are associated with disease activity in Canadian children with juvenile idiopathic arthritis.”

2nd place: Larisa Lotoski, Community Health & Epidemiology, “Precipitation, demographics, and built environment features are associated with sedentary behavior in 9-14 year old children – the longitudinal study on seasonality and Saskatoon kids (SASK)”.

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Poster Presentations:

Resident Category:

1st Place: Georgina Martin, Pediatrics, “Agreement between hemoglobin values on a blood gas analysis and a complete blood count in the NICU”.

Masters Category:

1st Place: Cassy Appelt, Anatomy and Cell Biology, “Discovering the architecture of a new p63 gene network regulating tooth formation”.

PhD/Post-Doc Category:

1st Place: Natalie Houser, Kinesiology, “Saskatchewan parents perspectives on physical literacy”.

Undergraduate Category:

1st Place: Spencer Zwarych, Medicine, “Male with mosaicism for maternally inherited supernumerary ring X chromosome: new clinical case and literature review”.

A complete listing of abstracts can be found at <https://medicine.usask.ca/department/clinical/pediatrics.php#Research>.

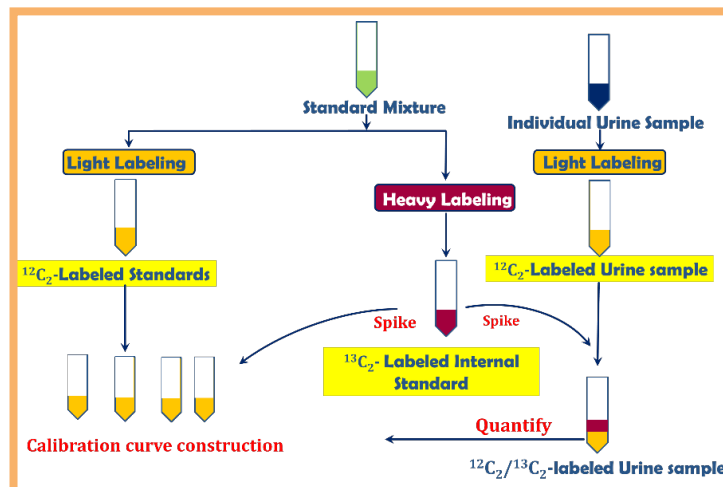


Image of Interest

Asthma is the most common chronic illness of children and a leading healthcare cost for people of all ages. Better diagnostic tests that can predict exacerbation and facilitate personalized therapy are needed. This image shows a novel analytical platform that was developed to quantify 36 potential diagnostic biomarker metabolites of asthma and COPD in urine. This is a part of the “urine metabolomics of respiratory illnesses” project led by Dr. Adamko (Pediatrics) and Dr. El-Aneed (Pharmacy and Nutrition). Ms. Mona Hamada (current PhD student) and Ms. Hanan Awad (former research associate) have been developing FDA-compliant methods of quantification and analyzing different cohorts of patient samples. The main objective is to identify diagnostic and prognostic metabolites that can differentiate between asthma and other diseases (e.g. bronchiolitis or COPD) using urine. The project also aims to investigate the metabolomic differences in the severity of asthma and response to treatment. This project is funded by the Jim Pattison Children’s Hospital Foundation of Saskatchewan, the AllerGen, NCE, and the CIHR.

Pediatrics welcomes Chronic Pain Network Research Coordinator

Casey McMahon has been working as the local Chronic Pain Network Research Coordinator since March 27, 2017. Casey joined the Chronic Pain Network (CPN) to work with Dr. Krista Baerg who is the local Principal Investigator for the CPN Saskatchewan Clinical Research Site. Since her time here, Casey has launched several research and quality improvement projects that support both network and local goals. In September 2017, the local team along with Drs Tupper (SKHA) and Finley (IWK) launched one of the networks funded projects titled the “Canadian Surveillance Study of Complex Regional Pain Syndrome in Children and Youth”. Surveillance is in collaboration with the Canadian Paediatric Surveillance Program and



is ongoing until September 2019. National paediatric pain clinics and 2,700 paediatricians are surveyed each month to determine the incidence of complex regional pain syndrome in children and youth.

Each clinical research network site is responsible for establishing and maintaining a registry of their patient population. In January 2018, Casey and Dr. Baerg launched the ‘Saskatchewan Pediatric Chronic Pain Registry’. The purpose of this project is to create and maintain a registry of young people with chronic pain to learn more about how chronic pain is managed in young people and how it affects their families in Saskatchewan.

Casey’s role as the Saskatchewan CPN Research Coordinator is to support the CIHR-funded Strategy for Patient-Oriented Research CPN at the provincial level. Casey is responsible for the coordination of the overall projects, data management and ensuring that research

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Featured Child Health Researcher

Dr. Julia Radic

Dr. Julia Radic is a pediatric neurosurgeon practicing in Saskatchewan, with special clinical interests in hydrocephalus, craniosynostosis, and spinal dysraphism.

She completed her medical school education at Queen’s University in Kingston, Ontario, and then completed her neurosurgery residency training at Dalhousie University in Halifax, Nova Scotia. During her residency training, Dr. Radic also completed a Master of Public Health with a concentration in Quantitative Methods at Harvard School of Public Health in Boston, Massachusetts.

Following residency, Dr. Radic completed her fellowship training in pediatric neurosurgery at BC Children’s Hospital in Vancouver, BC. She practiced for a period of time at BC Children’s Hospital, before moving to begin a mixed pediatric and adult neurosurgery practice in Saskatoon, Saskatchewan. She is also working on building an outreach pediatric neurosurgery clinic in Regina, Saskatchewan, to help improve access to pediatric neurosurgery care throughout the province.

As a pediatric neurosurgeon with a Master of Public Health, Dr. Julia Radic’s research interests are broad and include quality improvement, traumatic brain injury, spinal dysraphism, and post hemorrhagic hydrocephalus of prematurity.

Dr. Radic led the Canada-wide effort to develop Choosing Wisely Canada recommendations for pediatric neurosurgery, working closely with pediatric neurosurgeons from across Canada.



These recommendations aim to reduce unnecessary and/or harmful investigations and procedures in children with pediatric neurosurgical issues, therefore making pediatric neurosurgery medical care safer and more effective.

Dr. Radic also studied and presented the ethics of fetal surgery for repair of myelomeningocele to pediatric neurosurgeons across Canada, leading to national consensus that there should be one Canadian centre offering this highly subspecialised surgery. The first fetal myelomeningocele repair procedure in Canada was carried out the following year in Toronto.

Additionally, Dr. Radic has studied intraventricular hemorrhage of prematurity and post hemorrhagic hydrocephalus, focusing on the epidemiology and outcomes of this frequently devastating problem. She aims to continue to work with neonatologists and neurosurgeons to study the impact that the timing of neurosurgical intervention has on developmental outcomes in children injured by this clinical condition.

From a public health perspective, Dr. Radic has recently joined a new Saskatchewan pediatric trauma committee, committed to studying and improving trauma systems in Saskatchewan, with the goal of optimizing trauma outcomes in children, through injury prevention, to providing fast and effective trauma care, to accessing quality rehabilitation.

Dr. Radic is looking forward to continuing to focus both clinically and academically on pediatric neurosurgical problems that are important to the children and families of Saskatchewan.

Dr. Julia Radic is an Assistant Professor in the Division of Neurosurgery, Royal University Hospital, University of Saskatchewan.

Our Partners

The Jim Pattison Children’s Hospital has historically provided strong support for child health research in Saskatchewan. The recent \$50 million donation from Jim Pattison allows for a steady stream of revenue to help meet research and programming needs for generations to come. Groundbreaking opportunities for pediatric researchers in Saskatchewan are on the horizon!



Clinical Investigator Program (CIP) for Residents

The CIP at the University of Saskatchewan is available to residents enrolled in a Royal College accredited residency program who have interest and potential for a career as a clinician investigator or clinician scientist. CIP offers two streams: A Graduate stream for participants enrolled in a graduate (M.Sc. or Ph.D.) program, and a Postdoctoral Stream for residents who already hold a Ph.D. and are interested in undertaking a structured research program.

activities occur as planned and on schedule. The local Clinical Research Site is supported by the CPN, a CIHR-SPOR funded Chronic Disease Network as well as SHRE, Jim Pattison Children’s Hospital Foundation and the College of Medicine.

Casey McMahon has a Master’s of Science from the College of Kinesiology, University of Saskatchewan and a Bachelor of Arts in Kinesiology from Brock University (St. Catharines, ON). Casey’s Master’s work was focused in the area of behavioural psychology and health promotion. Her thesis looked at cardiac participants’ view of cardiac rehabilitation (CR) staff in managing their exercise programs and participants’ post-CR exercise adherence. Casey followed participants over 12-weeks of CR and one-month afterward, examining declines in the strength of adherence-related social cognitions and exercise. Participants who perceived CR staff as highly responsible for their exercise reported significant declines in their anticipated exercise and volume of exercise. Her thesis concluded viewing helpful well-trained CR staff as mainly responsible for participant behaviour may be problematic for post-CR exercise maintenance among those more staff dependent.

Casey’s passion for an active lifestyle and her love of sailing were driving forces for her to pursue an education and career in health research. She is excited to see what the next few years will hold for the Chronic Pain Network and more specifically the patients with chronic pain locally and nationally.

For more information about the Chronic Pain Network go to <http://cpn-rdc.ca/> or email Casey McMahon at cj.mcmahon@usask.ca.

Congratulations to **Dr. Oluwafemi Oluwole**, on winning Best Paper in Social and Population Health at the 2018 Life and Health Sciences Research Expo. His paper, “Asthma diagnosis among children along an urban-rural gradient” was published in the Journal of Asthma in February 2018, and was co-authored with Drs. Joshua Lawson, Donna Rennie, A. Sethiselvan, Roland Dyck, Darryl Adamko and Mrs. A.



Afanaseiva. Dr. Oluwole is a Postdoctoral Fellow in the Canadian Centre for Health and Safety in Agriculture, and the Resident Research Coordinator for the Department of Pediatrics.

Congratulations as well to **Dr. Kayla Flood**, who presented her research, “Implementation and evaluation of a DKA order set in a pediatric tertiary care hospital: a quality improvement initiative”, as both a poster and an oral platform presentation at the 2018 Canadian Pediatric Society Annual Conference in Quebec City. Dr. Flood was awarded the Hospital Pediatrics Resident Grant, which is presented to a qualified individual to offset the cost of presenting academic work (i.e. quality improvement, education, advocacy, research) in hospital paediatrics).

Dr. Flood was also the recipient of the Vice Dean Research Prize for Resident Research in Pediatrics from the College of Medicine, University of Saskatchewan. See more on her research on P4.

Coming Events

JUL TUE 3	Notice of Intent Deadline CIHR Project Grant, Fall 2018 applicants NEW SUBMISSIONS only grant.review@usask.ca	JUL THU 12	Workshop CIHR Project Grant, Fall 2018 Program overview, sex and gender requirements, and panel Q & A grants.workshop@usask.ca	JUL THU 19	Notice of Intent Deadline CIHR Project Grant, Fall 2018 RESUBMISSIONS only grant.review@usask.ca	AUG THU 2	Draft applicants for internal review due CIHR Project Grant grant.review@usask.ca
AUG MON 13	Research Connections Grant deadline Saskatchewan Health Research Foundation (SHRF) shrf.ca	SEPT THU 20	Collaborative Innovation Development Grant, Eligibility Check Deadline Saskatchewan Health Research Foundation (SHRF) Application Deadline Nov 15, 2018 shrf.ca	OCT MON 1	Sprout Grant, Eligibility Check Deadline Saskatchewan Health Research Foundation (SHRF) Application Deadline: Nov 1, 2018 shrf.ca		

Recent Publications & Presentations from U of S Child Health Researchers

- Adamko D, Khamis MM, Steacy LM, Regush S, Bryce R, Ellis AK. Severity of allergic rhinitis assessed by using urine metabolomic profiling: proof of concept. *J Allergy Clin Immunol.* 2018;doi:10.1016/j.jaci.2018.02.051.
- Arthur VL, Shuldiner E, Remmers EF, Hinks A, Grom AA, Foell D, Martini A, Gattorno M, Özen S, Prahalad S, Zeft AS, Bohnsack JF, Ilowite NT, Mellins ED, Russo R, Len C, Oliveira S, Yeung RSM, Rosenberg AM, et al. IL1RN variation influences both disease susceptibility and response to human recombinant IL-1RA therapy in systemic juvenile idiopathic arthritis. *Arthritis Rheumatol.* 2018; doi: 10.1002/art.40498.
- Bally JMG, Smith NR, Holtzlander L, Duncan V, Hodgson-Viden H, Mpofy C, Zimmer M. A metasynthesis: uncovering what is known about the experiences of families with children who have life-limiting and life-threatening illnesses. *Journal of Pediatric Nursing.* 2018;38:88-98
- Bradshaw M, Déragon A, Puligandla P, Emeriaud G, Canakis AM, Fontela PS. Treatment of severe bronchiolitis: a survey of Canadian pediatric intensivists. *Pediatric Pulmonology.* 2018;1-6.
- Holt T, Prodanuk M, Hansen G. The Canadian paediatric triage and acuity scale algorithm for interfacility transport. *American Journal of Disaster Medicine.* 2018;13:57-63
- Huntsman RJ, Tang-Wai R, Acton B, Alcorn J, Lyon AW, Mousseau D, Seifert B, Prosser-Loose E, Hanus LO. Cannabis for pediatric epilepsy? An update for Canadian pediatricians. *Paediatrics & Child Health.* 2018; doi: 10.1093/pch/pxy036
- Oluwole O, Rennie DC, Sethiselvan A, Dyck R, Afanasieva A, Kirychuk S, Katselis G, Lawson JA. The association between endotoxin in house dust with atopy and exercise-induced bronchospasm in children with asthma. *Journal of Pediatric Nursing.* 2018;38:88-98.

Resident Research Interview Series: Dr. Kayla Flood, Pediatrics

We are featuring an interview series to highlight resident research. Pediatrics Resident Research Coordinator, Oluwafemi Oluwole, asks residents questions pertinent to their research projects and experiences. This month, we feature **Dr. Kayla Flood**, Pediatrics Resident, R3.



Project Title: Implementation and Evaluation of a DKA Order Set in a Pediatric Tertiary Care Hospital: A Quality Improvement Initiative

1. What is the big question you're addressing?

Our project was a quality improvement initiative in the design, implementation and evaluation of a pediatric diabetic ketoacidosis (DKA) order set. Our goal was to improve DKA management at our center through uptake of the DKA order set.

2. Briefly explain the methods you have used.

A modified Plan-Do-Study-Act (PDSA) model was employed to systematically develop, test, and assess the order set. In addition, we completed a retrospective chart review of 50 DKA cases presenting to RUH prior to the implementation of the order set (April 2014-September 2016). These results were compared with 30 DKA cases presenting to RUH post-DKA implementation (September 2016-September 2017).

3. What have you found out so far that might be of interest to the general public?

Standardized clinical pathways, including order sets, have been shown to improve patient outcomes, decrease hospital costs, and decrease length of stay. The International Society for Pediatric and Adolescent Diabetes (ISPAD) endorses the use of written guidelines for the management of DKA. Given that RUH was the only pediatric tertiary care center in Canada without a DKA care pathway, we felt the development of an order set was necessary for improving patient safety.

4. What specifically are the results and/or findings of your research?

In the first year of implementation, we achieved 73% clinical uptake of the order set in all patients, of which 30% of order set activations occurred prior to any DKA-related therapy.

We found positive changes in DKA management following the

implementation of the order set. We demonstrated statistically significant improvements in IV fluid replacement rates, potassium administration, and dextrose administration.

5. When will you have results, i.e. published or presented?

This project was presented as a poster at the Canadian Pediatric Endocrine Group (CEEG) annual meeting in February 2018. Additionally, it has been accepted for an oral and poster presentation at the annual Canadian Pediatric Society conference in Quebec City (May 30-June 3, 2018). We have completed a manuscript and are currently in the process of pursuing publication.

6. Why do we care? That is, what impact will this research potentially have on child health?

Our research demonstrates the DKA order set use has resulted in improvements in DKA management at RUH. As a result, we plan to continue use of the DKA order set locally as well as expand the order set for provincial use. By doing so, this will provide practitioners in peripheral settings, who may be less familiar with pediatric DKA management, a guideline for initial DKA care prior to patient transfer. Our hope is that this will improve DKA care and patient safety throughout the province.

7. What is new or unique about this research?

To our knowledge, this is the first Canadian pediatric quality improvement initiative examining the development and systematic implementation of a DKA order set. Our study illustrates the processes and evaluative procedures for a pediatric DKA order set implementation and provides evidence at RUH of 'early gains' in the improvement of pediatric DKA management.

8. How have you benefited in your learning and personally?

I learned a lot about quality improvement methodology, specifically PDSA cycles, within health care. In addition, I have gained experience in retrospective study design, data collection, and analysis. Finally, I benefitted from excellent mentorship from Dr. Inman throughout the entire research project including poster design, oral presentations, and completion of a manuscript.

9. What drew you to this area of research? What got you interested, and what keeps driving you forward?

I like quality improvement (QI) research as it focuses on how we can change health care systems in order to directly impact patient care. In essence, it allows us to evaluate our current models of care in a systematic way to create change that benefits a large population of patients. Furthermore, QI research can create positive changes within health care systems by decreasing costs, practitioner inefficiencies and hospital admissions.

Dr. Kayla Flood was supervised by Dr. Mark Inman, Dept of Pediatrics.

contact us

For more information about The Department of Pediatrics Research, SPRING, or to contribute content to The Department of Pediatrics Research Report, please contact:

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Next submission deadline is Sept 7th, 2018

Online version of the newsletter:
www.medicine.usask.ca/pediatrics/research/newsletter



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The Children's Health Research Trust Fund (CHRTF) was established in 1983 to help raise funds to support child health research at the University of Saskatchewan. As all donated funds are endowed, the CHRTF has continued to grow to become an important partner in helping advance research in the Department of Pediatrics. For further information about the CHRTF: <http://www.medicine.usask.ca/pediatrics/research/CHRTF>. To **Donate** to the CHRTF: <http://give.usask.ca/online/chrtf.php>

