Department of Pediatrics Research Report

MARCH 2018

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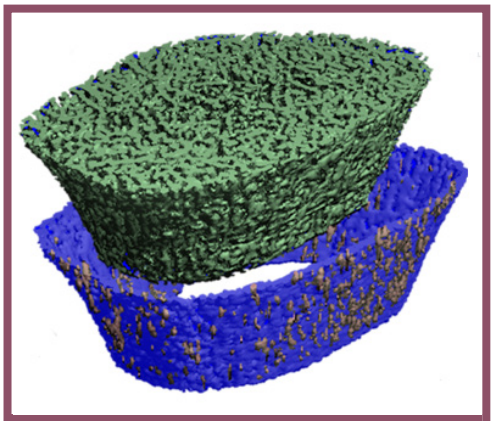

Image of Interest

This image shows a three dimensional reconstruction of distal radius high resolution scans from an 11 year old girl. The green region illustrates trabecular bone and the blue region thin cortical bone shell with cortical porosity shown in grey. The image is from the Bone Strength Development Study (BSDS) comparing bone development in children with and without type 1 diabetes. BSDS is CIHR funded, and led by Dr. Saija Kontulainen (Kinesiology) and Dr. Munier Nour (Pediatrics). Children and adults with type 1 diabetes have up to 40% more fractures than the general population. Diabetic bone fragility is believed to originate during childhood skeletal development. How bone structure, micro-architecture, and strength develop in children with type 1 diabetes in comparison healthy children is, however, poorly understood. This study will provide the first prospective evidence of bone structure and strength development in children with type 1 diabetes in comparison to typically developing children. The project will also test if development of weaker bones is due to low vitamin D level in blood and/or lack of specific impact forces from physical activities.

Federal Budget 2018: What does it mean for research?

by Erin Prosser-Loose

Canada's Federal Budget was released on February 27th, 2018, with much anticipation from the research community. Following years of flat-lined spending through the tri-council agencies and reduced support to investigator-led research, Canadian scientists crossed their collective fingers that this budget would give the research enterprise the boost it needed. There was reason to be hopeful as in June of 2016, Kirsty Duncan, the federal Minister of Science, launched an independent review of funding for fundamental science research in Canada, through a panel led by Dr. David Naylor. The resulting Fundamental Science Review, aka "The Naylor Report", released in April 2017, set out an agenda to strengthen the tri-councils, support infrastructure and operating costs, invest in early career researchers, and re-prioritize investigator-led research, among many other recommendations (find the report here, http://www.sciencereview.ca/eic/site/059.nsf/eng/home).

While the budget did not fully implement the recommendations of the Naylor Report, it did achieve the single largest investment in fundamental research in Canadian history. The budget proposes 1.7 billion in incremental support to granting councils and research institutes over 5 years. As well, 1.3 billion would be invested in labs, equipment, and infrastructure. Funding for research in the budget is framed around improving diversity through investing in granting councils, data collection, early-career researchers, and gender equality planning.

To the tri-councils, an investment of $925 million over 5yrs, and $235 million/yr ongoing is planned. Specifically, $354.7 million over 5yrs to NSERC and CIHR ($90.1 million/yr ongoing), and $215.5 million over 5yrs to SSHRC ($54.8 million/yr ongoing). There is also a proposal to create a tricouncil fund that is international, interdisciplinary, fast-breaking, and higher-risk, contributing $275 million over 5yrs, and $65 million/yr ongoing.

CFI (Canada Foundation for Innovation) will see an investment of $763 million over 5yrs in support of state-of-the-art equipment and facilities. $160 million of this will go towards CFI's Major Science Initiatives Fund, which includes the Canadian Light Source at the University of Saskatchewan.

Other notable investments include $210 million over 5yrs ($50 million/yr ongoing), to the Canada Research Chair program to better support early-career researchers, and increase diversity among nominated researchers. A Research Support Fund will receive $231.3 million over 5yrs ($58.8 million ongoing) for resources given to universities to cover indirect costs of research. Over the next year the government plans to determine how to better support

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This issue of The Pediatric Research Report is sponsored by The Saskatoon Hub City Optimist Club

Permission to Contact Youth for Research Program

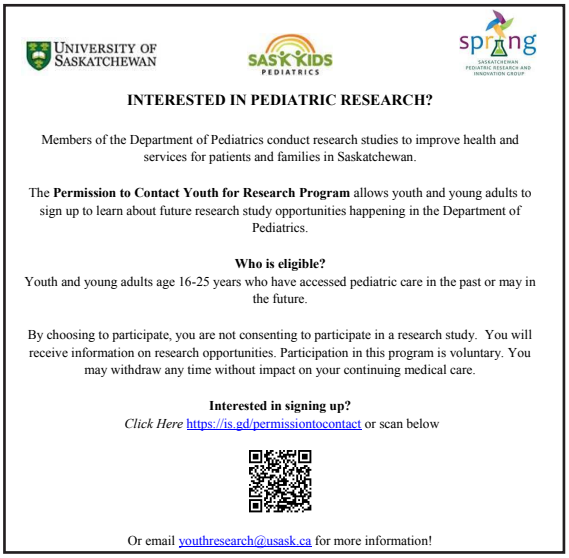
by Casey McMahon

Do you find the hardest part of research is recruitment? Do you wish there was a one stop shop for recruiting participants? Well, so do we and this is why we created the Permission to Contact Youth for Research Program!

The purpose of the program is to increase patient engagement, enhance research recruitment, and increase research-readiness to improve healthcare. We launched in January 2018, with plans to build a pediatric department database for future research recruitment. The program enables youth and young adults, age 16-25, whether patients or not, to identify that they are interested in participating in research or learning about research opportunities. Individuals are only consenting to receive information on research opportunities. The program collects a limited dataset to facilitate pre-screening and contact, and authorizes approved research personnel to access health records for these purposes. We invite members of the Department of Pediatrics to include a notice to this program in their appointment letters. With your help and involvement in promoting the Permission to Contact Youth for Research Program, the dataset will have the chance to grow and enhance the research recruitment process for the Department of Pediatrics.

Signing up is as simple as going to: https://is.gd/permissiontocontact.com. Once the database has been built with interested youth and young adults, department members and their collaborators will be able to apply for access to the database by going to http://j.mp/2EwTg6u and filling out a 'request to access form'.

If you have any questions please contact the Chronic Pain Network Research Coordinator, Casey McMahon at youthresearch@usask.ca. For additional information on this project, please contact Casey or Dr. Krista Baerg, the principal investigator.



UNIVERSITY OF SASKATCHEWAN

SASK KIDS PEDIATRICS

spring SASKATCHEWAN PEDIATRIC RESEARCH AND INNOVATION GROUP

INTERESTED IN PEDIATRIC RESEARCH?

Members of the Department of Pediatrics conduct research studies to improve health and services for patients and families in Saskatchewan.

The **Permission to Contact Youth for Research Program** allows youth and young adults to sign up to learn about future research study opportunities happening in the Department of Pediatrics.

Who is eligible?

Youth and young adults age 16-25 years who have accessed pediatric care in the past or may in the future.

By choosing to participate, you are not consenting to participate in a research study. You will receive information on research opportunities. Participation in this program is voluntary. You may withdraw any time without impact on your continuing medical care.

Interested in signing up?

Click Here https://is.gd/permissiontocontact or scan below

Or email youthresearch@usask.ca for more information!

This notice can be included with appointment letters.

Featured Child Health Researcher

Dr. Athena McConnell

The Division of Infectious Diseases, in the Department of Pediatrics, has two members, Dr. Ben Tan, and Dr. Athena McConnell, whom collaborate extensively in clinical research. This month we feature Dr. Athena McConnell.

Dr. McConnell graduated from Queen's University medical school. She finished pediatric residency at Royal University Hospital in Saskatoon, and then an infectious diseases fellowship at the Alberta Children's Hospital in Calgary. She obtained a Masters degree in Medical Education at the University of Calgary. She rejoined the Department of Pediatrics in Saskatoon as a pediatric infectious diseases consultant. She has recently led the University of Saskatchewan's medical undergraduate team through the accreditation process.

Dr. McConnell's prior research activities have included: examining the epidemiology of perinatal HIV infection, as well as the epidemiology of RSV disease at Royal University Hospital and Reginal General Hospital. Current, ongoing research includes participation in CPARG (Canadian Pediatric AIDS Research Group), for surveillance for perinatal transmission of HIV. The network of over 30 hospitals in Canada documents proportion of infants who get infected, and the effectiveness of preventive measures. Data are reported/published yearly to the Public Health Agency of Canada (PHAC) and at HIV/AIDS research meetings.

Dr. McConnell is also involved in the Immunization Monitoring Program, ACTive (IMPACT), a surveillance system funded by PHAC and administered by the Canadian Paediatric Society (CPS). The program actively documents any unusual adverse events following immunization (AEFI) and also conducts surveillance for vaccine-preventable diseases (VPD), especially before and after introduction of vaccines, to determine the changing epidemiology of those diseases. The work on AEFIs has led to the establishment of the Special Immunization Clinic (SIC). Patients are enrolled who consent to be reimmunized with a (or several) vaccine(s) which incurred previous adverse events (AEFIs). This is done where there is no contraindication for further vaccination, but parents have concerns and wish to be followed/surveyed closely around the vaccination.

Data from IMPACT has led to a new study on invasive Haemophilus influenzae serotype "a" (Hia) disease. This will enroll children undergoing dental procedure under general anesthetic, whose parents/guardians consent for collecting the tips of endotracheal tubes at extubation, and testing for colonization in their respiratory tree by this species. It is currently unknown what proportion of children are colonized by the various serotypes of H. influenzae. This is baseline information, for determining whether a vaccine can reduce carriage, as well as invasive disease. Both Dr. Tan and Dr. McConnell supervise these activities.

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!

JIM PATTISON CHILDREN'S HOSPITAL FOUNDATION

Budget

...continued from pg 1

students and upcoming generations of researchers through scholarship and fellowship programs.

Achieving greater diversity is a focus of this federal budget and is reflected in plans to improve diversity among funding recipients, including improved support for women, underrepresented groups, and early-career researchers. To achieve this, the budget allocates $6 million over 5yrs ($0.5 million/yr ongoing) for surveys to collect improved data on researchers, and $15 million over 5yrs to implement programs that support improved equality and diversity in academia. Specific points include: adoption of the Athena SWAN (Scientific Women's Academic Network) program, with the goal of supporting structural and cultural changes, such as increased support for women's careers and efforts to challenge discrimination and bias; grants to tackle challenges in addressing underrepresentation and career advancement faced by women, Indigenous Peoples, members of visible minorities, people with disabilities and LGBTQ2 individuals; and engagement with Indigenous communities to identify strategies to grow their capacity to conduct research, partner with the broader research community, and assist in establishing a national research program.

Local reaction to the federal budget appears to be positive. Dr. Regan Mandryk, an NSERC-funded researcher at the U of S noted, "I'm thrilled about the investment in research – and in particular, in programs of foundational discovery. Many people don't realize that the NSERC Discovery Grant 'bins' that are assessed by the evaluation groups are comparable year to year, due to the new indicators matrix; however, the dollar amounts that are associated with those bins are not comparable year to year as they depend on a variety of factors, including the number of applicants and the federal budget. This investment in basic research is a welcome and timely initiative and should help to boost programs of foundational discovery in Canada in the next few years".

Dr. Alexandra King, a CIHR-funded researcher and Cameco Chair in Indigenous Health at the U of S, stated, "The increased monies for research, and especially health research, are appreciated by all of us and are ever so needed after the environment of recent years. That I know, there was nothing specifically targeting Indigenous people in that envelope, although with CIHR's equity approach of 4.6% of health research dollars (representing the estimated Indigenous population in 2016) dedicated to Indigenous people and their health should benefit from this increased envelope".

Overall, the federal budget is good news for Canadian researchers, providing a much needed boost, and less restraint in supporting investigator-led ideas. The focus on improving inclusion in research is timely, with the hope of ultimately leading to better science, from which the whole of society can benefit from.

Coming Events

APR THU 5	TBD Dr. Pat Blakley Pediatric Grand Rounds 11am-12pm East Lecture Thtr
APR THU 12	Issues in Endocrine Testing Dr. Elizabeth Cummings Pediatric Grand Rounds 11am-12pm East Lecture Thtr
APR THU 19	Breaking Down Gender from Cis to Trans Dr. Dina Greene Pediatric Grand Rounds 11am-12pm East Lecture Thtr
APR THU 26	Pediatric Contraception Dr. Melissa Mirosh Pediatric Grand Rounds 11am-12pm East Lecture Thtr
APR THU 26	Child Health Research Trainee Day 12-6:30pm Louis Loft RSVP to erin.loose@usask.ca
MAY THU 3	Morbidity & Mortality Rounds Dr. Megan Garner Pediatric Grand Rounds 11am-12pm East Lecture Thtr
MAY THU 10	Child Sex Trafficking in Saskatchewan Dr. Juliet Soper Pediatric Grand Rounds 11am-12pm East Lecture Thtr
MAY THU 17	Pediatric Chiropractics Stacey Hornick Pediatric Grand Rounds 11am-12pm East Lecture Thtr
MAY THU 24	TBD Dr. Sankaran Lecture NICU Pediatric Grand Rounds 11am-12pm East Lecture Thtr
MAY THU 31	SK Health Authority and Pediatrics Dr. Laurentiu Givelichian Pediatric Grand Rounds 11am-12pm East Lecture Thtr

Child Health Research Trainee Day!

Thursday, April 26th, 2018
Louis Loft
12:00pm-6:30pm

Oral and poster presentations from residents, graduate students, post-docs, and undergraduate students.

Lunch and appetizers will be provided!

RSVP for lunch & appetizers to erin.loose@usask.ca

Recent Publications & Presentations from U of S Researchers

. Ahmed A, Bowen A, Feng CX. *Maternal depression in Syrian refugee women recently moved to Canada: a preliminary study.* BMC Pregnancy Childbirth. 2017;17:240.

. Boughner JC, van Eede MC, Spring S, Yu LX, Rostampour N, Henkelman RM. *P63 expression plays a role in developmental rate, embryo size, and local morphogenesis.* Dev Dyn. 2018; Epub ahead of print.

. Bradshaw ML, Deragon A, Puligandla P, Emeriaud G, Canakis AM, Fontela PS. *Treatment of severe bronchiolitis: a survey of Canadian pediatric intensivists.* Pediatric Pulmonology. 2018:1-6.

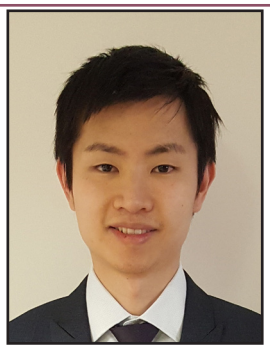
. Holt T, Sari N, Hansen G, Bradshaw M, Prodanuk M, McKinney V, Johnson R, Mendez I. *Remote presence robotic technology reduces need for pediatric interfacility transportation from an isolated Northern community.* Telemedicine and H-Health. 2017; 24:1-7.

. Janzen B, Karunanayake C, Rennie D, Katapally T, Dyck R, McMullin K, Fenton M, Jimmy L, MacDonald J, Ramsden VR, Dosman J, Abonyi S, Pahwa P. *Racial discrimination and depression among on-reserve First Nations people in rural Saskatchewan.* J Public Health. 2018;108:e482-e487.

. Oluwole O, Rennie DC, Senthilselvan 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.* Environ Res. 2018;164:302-309.

. Movassagh EZ, Baxter-Jones ADG, Kontulainen S, Whiting S, Szafron M, Vatanparast H. *Vegetarian-style dietary pattern during adolescence has long-term positive impact on bone from adolescence to young adulthood: a longitudinal study.* Nutr J. 2018;17:36.

Resident Research Interview Series - Dr. Chun Che, Pediatrics



We are featuring an interview series to highight resident research. Pediatrics Resident Research Coordinator, Oluwafemi Oluwole, asks residents questions pertinent to their research projects and experiences. This month we feature Chun Che, Pediatrics Resident, R3. **Project Title: Non-exertional heat stroke in an infant secondary to electrical space heater use.**

1. What is the question you're addressing?

Heat stroke is defined as a core temperature greater than or equal to 40°C with central nervous system dysfunction in individuals exposed to environmental heat. Heat stroke is a preventable and potentially fatal condition, particularly in infants. Space heaters are self-contained appliances for heating an enclosed space within a building. Here, we present the first Canadian report of non-exertional heat stroke secondary to electric space heater use.

2. Briefly explain the methods you have used to carry out your research?

As this was a case report, we did a literature review. We have been unable to identify any previous formal reports in the medical literature of heat stroke secondary to misuse of space heaters. However, there have been public media reports of adverse consequences of space heater exposure. An 11 month old boy survived space heater induced heat stroke after receiving prompt emergency care. A 2 year old boy died secondary to non-exertional heat stroke due to a space heater being left on in the room for more than a day.

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

Electrical space heaters are commonly used in households to heat single rooms during the winter. From 1988-1994, the Centers for Disease Control and Prevention found that 12% of adults used electric space heaters in the United States. Space heaters are a known cause of home fires. From 2009-2013, space heaters caused 40% of home heating fires and 84% of home heating fire deaths in the United States with 49% of all home heating fires occurring between December and February.

4. When will you have results, i.e. published or presented? In which journal/publication/conference?

This was presented as a poster at the Prevention Matters conference in Oct 2017.

5. Why do we care? That is, what impact will this research potentially have on child health? If applicable, describe how the research could have public policy applications.

As electrical space heaters are commonly found in households, they are a potential cause of home heating fires and of non-exertional heat stroke. It is important for manufactures to alert consumers of these hazards and for parents to be aware of the risks. It is also important for health care providers to screen families for space heater use and to provide proper safety information.

Space heater use safety tips:

When purchasing a space heater, look for one with:

· A thermostat and overheat protection that automatically shuts off when it overheats.
· An automatic shut off function when it tips over.
· Heat resistant surfaces which decrease the risk of burn injuries due to contact with the unit.
· An Underwriters Laboratories of Canada (ULC), ETL (Intertek), or Canadian Standards Association (CSA) label as it represents compliance with recognized standards.

When using the space heater:

· Always read the manufacturer's instructions and warning labels before use.
· Do not leave the heater on overnight, with children in the room unattended or during sleep.
· Remember to turn the heater off and unplug it when leaving the room.
· Keep the heater at least 3 feet (1 meter) away from other objects.
· Only plug the heater directly into the wall outlet without any other devices plugged into the same outlet and never plug in it in with an extension cord.
· Make sure nothing is placed on top of the electrical cord and inspect the cord regularly for damage.
· Regularly clean the heater by dusting or vacuuming it regularly when it is off and cool.
· Only place the heater on a solid and flat surface.

6. What is new or unique about this research?

There have not been previous reports of similar cases in medical literature. This is the first Canadian report of non-exertional heat stroke secondary to electric space heater use.

7. How have you benefited from this research (in your learning and personally)?

I have gained experience in writing case reports and doing literature searches. I have also gained experience with creating posters and presenting them to an audience.

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

Researching about the various kinds of space heaters was really interesting. In the poster, we had come up with a list of space heater safety tips with the goal of preventing space heater injuries. I did not know many of the risks of space heaters and further did not know some of the prevention strategies.

Dr. Chun Che was supervised by Dr. Morgan Hewitt, 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 April 13th, 2018!

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

SPRINGSask

spring
SASKATCHEWAN PEDIATRIC RESEARCH AND INNOVATION GROUP

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**

Children's Health Research TRUST FUND