Type 2 diabetes (T2D) is now one of the fastest growing pediatric chronic conditions worldwide. Indigenous (First Nation, Métis, and Inuit) youth living in Canada are experiencing an epidemic of T2D not seen in their non-Indigenous peers. Rates of pediatric (ages 13-19 years) prediabetes and T2D have been found to be as high as 10% among Indigenous youth, respectively, in Saskatchewan. Indigenous children tend to be diagnosed at a younger age and have poorer outcomes and quality of life from this chronic condition. A complex combination of social, political, physical, and cultural factors underlies these inequitable rates of T2D including colonization, systemic racism, lack of culturally-safe health care contexts, and intergenerational trauma. In Spring 2021, a team came together to discuss moving forward as one. Dr. Mark Inman, Department of Pediatrics – Division of Pediatric Endocrinology sent out a call to faculty across USask who might be interested in Diabetes, Indigenous Health, and Health Promotion. The meeting had faculty representation from the Colleges of Medicine (CoM), Nursing (CoN), Pharmacy and Nutrition, Kinesiology, School of Rehabilitation Science (SRS) and the School of Public Health. This enthusiastic group of researchers took this opportunity to share their research and community experiences and recognized the need to include Indigenous community leaders in creating a partnership that could work synergistically to address these health inequity challenges. Since this meeting, a team of Indigenous Knowledge Keepers, thought leaders, non-profit organizations, community members, people with T2D-lived experience, family partners and knowledge users, have enthusiastically partnered with, Indigenous and non-Indigenous diabetes educators, clinicians (dieticians, pediatricians, nurses, physio therapists, endocrinologists), researchers (CoN, SRS, College of Kinesiology, College of Pharmacy and Nutrition, Department of Pediatrics, School of Public Health, Department of Psychiatry, Department of Nephrology), the First Nation and Métis Health Research Network (FNMRHN) and scholars from across Saskatchewan to address the increasing prevalence of T2D among Indigenous youth living in Saskatchewan. Of the long list of collaborators and co-investigators (30 + and growing), four have taken on the role of Co-Principal Investigator (Co-PI) and have applied to two Letters of Intents (LOIs) and one project grant (CIHR and Diabetes Canada) in less than four months.

The four PIs include: 1) Dr. Sarah Oosman, BSc, BSPT, MSc, PhD who is a tenured Associate Professor with the SRS at USask. Dr. Oosman lives and works in Treaty 6 Territory and the Homeland of the Métis and is committed to actively engaging in Indigenous health research with a social justice and health equity focus. She has established deep-rooted relationships with both Métis and First Nations community members in Saskatchewan over the past 12+ years and has had the privilege of learning with and from various Métis and First Nations Knowledge Keepers and scholars.

Continued on pg. 2…
Dr. Oosman’s research has focused on building a Métis-driven health-promoting school intervention designed to prevent T2D among young Métis school-age children. She has also led research exploring unique intervention implementation processes necessary across diverse First Nations and Métis communities. She extends this health-promotion and intervention research across the life trajectory to include healthy aging among Métis youth through to older Métis adults. With her 12+ years of experience working with communities she ensures this group will apply a participatory action team-science approach that creates space for honouring the emergence of Indigenous knowledge, epistemology, and practice above that of Western ways of knowing.

2) **Dr. Jill Bally**, BSN, RN, BA(Psych), MN, PhD is a tenured Associate Professor in the CoN, USask. As Co-PI, Dr. Bally brings an expansive and diverse pediatric clinical background spanning more than twenty years. Her primary research objective is to develop clinically useful knowledge that will translate into improved accessible and equitable family-centred healthcare in pediatric settings. Currently, Dr. Bally is engaged in interdisciplinary, patient-oriented, interventional research focused on hope and rooted in participatory and anti-oppressive qualitative and mixed methods approaches. Her research commitment includes honouring the voices of Indigenous families and co-creating in-depth understandings of life-limiting and life-threatening illnesses, caregiving, and healthcare experiences.

Past research has included investigating the prevalence of prediabetes and T2D amongst youth in SK, as well as exploring culturally safe health promotion approaches to T2D in Indigenous youth and their families; 3) **Dr. Amanda Froehlich-Chow**, MSc, PhD, is a Métis Scholar and Assistant Professor with the School of Public Health at USask. Her research focuses on preventative wellness focused interventions to promote the health of Indigenous, rural and remote communities, particularly among children, their families, and communities. As an early career researcher, Dr. Froehlich-Chow has devoted the past few years to collaborating with community (Indigenous and non-Indigenous allies) to develop, implement and evaluate community-based health promotion interventions rooted in Indigenous Ways and methodologies. 4) **Dr. Shelley Spurr**, RN, MBA, PhD is a tenured Associate Professor with the CoN at USask, Dr. Spurr has over 20 years of clinical nursing experience with Indigenous children, youth, and their families. This experience has led to a broad awareness and understanding of the inequalities that exist for all Indigenous peoples within the settler-based health care systems. She is committed to addressing the legacy of suffering due to many injustices to progress to better health outcomes for Indigenous peoples living in Canada. A career highlight was co-leading the development of the *Caring for Kids Where They Live* interprofessional pediatric clinical learning program in Saskatoon, Île-à-la-Crosse, and La Ronge that brings together Nursing, Dentistry, and Medicine students to build capacity and improve the standard of care for Indigenous children and youth. Dr. Spurr’s current research includes promoting the health and wellness of children, youth and their families and includes developing prevention strategies that employ culturally safe participant-centered approaches and actively engage Indigenous youth in maintaining and protecting their health and wellness in ways that link directly to their culture, language, and ancestral teachings through meaningful connection with their family, community, and Knowledge Keepers.

Given the prevalence of pediatric T2D and its impact on Indigenous youth and their families, effective Indigenous culture-driven interventions are urgently needed to promote improved health outcomes. This team aims to maintain and strengthen relationships with diverse Métis and First Nation Knowledge keepers, thought leaders, persons living with diabetes, community members, and stakeholders across diverse Indigenous communities in Saskatchewan. Through this work, the Co-leads and team will use an established community-engaged “THINK” (Thoughtful, Healing, Innovative, Nurturing, Knowledge) Tank previously and successfully applied by co-Investigator Dr. Caroline Tait in her organ transplant research program. The THINK Tank model employs inductive Indigenous research methods to gain enhanced understanding of First Nation and Métis perceptions, experiences, and aspirations for health and wellness that are critical in the context of T2D prevention and treatment.
Children with diabetes require bloodwork every three months to monitor their HbA1c and children being screened or investigated for diabetes require the same testing. For children who live in remote and rural areas of Saskatchewan, getting into a lab can be difficult. This testing has been further exacerbated during COVID when families have a lot of concern around going into a lab, and health care facilities are trying to limit exposures. Children also experience a lot of anxiety and distress around getting venous bloodwork done every month.

Meet Dr. Mallory McNiven and Dr. Netusha Thevaranjan. Dr. McNiven is currently in her third year as a pediatric resident. Prior to her residency she completed a BSc in Math and Physical Sciences from the University of Alberta, and an MD from the University of Calgary. Dr. Netusha Thevaranjan is currently in her second year as a pediatric resident. Prior to residency she completed her BSc in Life Sciences in 2014 from McMaster University. She went on to complete a MSc in Immunology from McMaster University and a MD from the University of Limerick in Ireland.

Drs. McNiven and Thevaranjan are currently working on a project in Pediatric Endocrinology and Diabetes in collaboration with The LiveWell Pediatric Diabetes and Endocrinology Program, as well as SHA and the Regina Laboratory. Their work is investigating innovative ways to screen children with diabetes. Their team is guided by Dr. Mark Inman who leads this research in addition to the Pediatric Endocrinologists in Saskatoon, Drs. Nour and Yau, and Dr. Flavelle in Regina.

This team hopes to use dried bloodspot cards to collect capillary blood samples from kids using their everyday finger pokes to test HbA1c. Their current study is confirming that these samples are accurate in comparison to the standard venous HbA1c. The next stage will test this dried blood spot testing as a screening tool for diabetes. For children and families in rural Saskatchewan, this screening method would take away the multiple barriers they currently face when accessing care. It is this research team’s hope that tests could be performed at home and mailed in or done immediately in clinic so families don’t need an additional lab visit. This method could potentially ease the burden of frequent lab visits and reduce the anxiety around bloodwork. Netusha and Mallory both plan to pursue research throughout their career and we look forward to sharing their future successes.

…Diabetes, continued from pg. 2

Through the relational and participatory approach to these proposed research projects, Indigenous youth will draw on the strengths of their language, culture, land, family, and community (including Knowledge Keepers) as they learn how to independently optimize their health while living with T2D. Shelley, Jill, Amanda, and Sarah, in partnership with Indigenous Knowledge Keepers and other First Nation, Métis, and non-Indigenous co-investigators and collaborators, are committed to ensuring these health promotion/T2D prevention research initiatives are driven by Indigenous communities, culture, protocols, and practices. These partnerships are a reflection and example of how to ‘uplift Indigenization’ in research as described in USask’s Research Plan (2018-2025). Together with their team of both academic and community partners they will ground this innovative research in a safe ‘ethical space’ that is continuously guided by Métis and First Nations’ perspectives. Creating this team was an achievement in itself that portends great progress to come.

Thank you to Drs. Bally, Froehlich-Chow, Oosman, and Spurr for providing content for this article. They would like to thank FMRHN, Fleur MacQueen Smith, and Greg Riel for their support with the applications. They would also like to acknowledge the following collaborators and co-applicants for the submitted funding opportunities:

CIHR Team Grant: Diabetes Prevention and Treatment in Indigenous Communities: Resilience and Wellness – LOI:
Allison Cammer, Heather Foulds, Stacey Lovo, Daphne Yau, Tim Eashappie Sr., Norman Fleury, Gilbert Kewistep, Judy Pelly, TJ Roy, Kathy Wahpepah, Margaret Laroque, Helen Tootoosis, Amanda Laliberte, Joyce & Chloe Maurice, Liz Durocher, Barbara MacDonald, Veronica McKinney, Rebecca Sovdi, Allan Adam, Megan Clark, Ibraham Khan, Nola Kornder, Nnamdi Ndubuka

Diabetes Canada LOI & Operating Grant: Rebecca Sovdi, Barbara MacDonald, Mark Inman, Munier Nour, Daphne Yau, Heather Foulds, Caroline Tait, Joanne Kappel, Audrey Zucker-Levin, Hassan Vatanparast, Allison Cammer, Heather Hodgson-Viden, Liris Smith, Megan Clarke, Helen Tootoosis, Liz Durocher, Margaret Laroque, Amanda Laliberte, Joyce & Chloe Maurice, Nola Kornder, Judy Pelly, Gilbert Kewistep, Mike Marion, Duane Favel

For further reading check out the following publications from these four researchers: Dr. Jill Bally Dr. Amanda Froehlich-Chow Dr. Sarah Oosman Dr. Shelly Spurr
A Study to Evaluate a Protein in Children with Widespread Inflammation Associated with Exposure to the Virus that Causes COVID-19

Co-Principal Applicants: Alan Rosenberg, Mehul Jariwala
Co-Investigators: Tanya Holt, George Katselis, Trent Kehrig, Kate Neufeld, Rupesh Chawla

This proposed research is being done to help understand and care for children who have severe inflammation throughout their bodies after exposure to the virus that causes COVID-19. In this study, we will measure a protein named HMGB 1 in the blood of affected children and test to see if the child has a change in the gene that regulates the production of HMGB1. HMGB1 is a protein that can be present in high levels in some people when there is inflammation present, as can occur when people are exposed to the virus that causes COVID-19.

What will be done during the study? We will take one blood sample from the child at the same time blood is being collected for the child’s regular care. We will also collect information from the child’s medical record. No further testing, visits, or treatments will be done related to the study.

Why is this study important? We believe that knowing the levels of HMGB1 in children with inflammation associated with COVID-19 in will help diagnose and treat children with this condition.

Okawimaw Kanosimowin: Mother’s Bundle; A peer-driven approach to improving Indigenous maternal and birth outcomes in Saskatchewan.

Co-Principal Applicant: Mamata Pandey
Team Members: Susanne Nicolay, Brian Geller, Vicky Schultz, Sarah Kozusko, Brianna LaPlante, Jolee Sasakamoose, Twyla Salm, Heather Sinclair Birns

This project will enhance access for maternal and child health services to geographically isolated Indigenous communities and marginalized people disadvantage during the pandemic. By engaging relevant stakeholders, such as patients, healthcare professionals, community members and health researchers, the project will identify: 1) the maternal needs of Indigenous people in urban and rural areas; 2) the provision of health care services; and 3) processes to increase timely access for Indigenous women and newborns. A multi-disciplinary research team will harmonize Western and traditional Indigenous birthing practices and train Indigenous people with lived experiences (peers). Peers are encouraged to incorporate these traditional approaches and best practices in their lifestyle thereby serving as models. Finally, a gift box consisting of specific health information, service contacts and support individual contact information, traditional medicinal supports, cultural gifts, a food mill, and important postpartum support products for will be created to support mothers and newborns postpartum.

The effect of wearing a face mask for prevention of COVID transmission during hockey on exercise performance in children

Principal Applicant: Philip Chilibeck
Co-Investigators: Keely Shaw, Scotty Butcher, Gordon Zello, Cody Tkachuk, Tara deRyk

Hockey games are susceptible to the spread of the COVID-19 virus because hockey players are in close contact with each other and they breathe hard during games, causing respiratory droplets to spread further than usual. There have been a high number of COVID outbreaks on hockey teams in Saskatchewan. Wearing a face mask can have a large benefit for preventing spread of COVID-19, but it is unclear if children can tolerate wearing face masks during high-intensity activities such as hockey. Our previous research surprisingly showed that there was no effect of wearing a face mask during short-duration high-intensity exercise in adults. We therefore predict that children can also tolerate wearing a face mask during activities like hockey. Our study will enroll 12 boys and 12 girls aged 9-14y and evaluate their ability to perform a simulated period of hockey on two occasions: 1) while wearing a face mask; 2) while not wearing a face mask. We will assess exercise performance (i.e. repeated power output on an exercise bike) and measure blood and muscle oxygen levels, and their heart rate during the simulated hockey period. On-ice performance will also be evaluated while wearing and not wearing a face mask. The study will inform coaches, hockey association personnel, and health officials whether wearing a face mask is tolerable during hockey games so that children can continue to play hockey during the pandemic with minimal risk of spreading the virus.
**Dried blood spot testing for diabetes in youth who are at-risk for developing type 2 diabetes**

Co-Principal Applicants: Mark Inman, Daphne Yau  
Co-Investigators: Munier Nour, James Robertson, Helen Hunter-Tootoosis, Shauna Flavelle, Mallory McNiven, Joshua Buse, Netusha Thevaranjan

Pediatric type 2 diabetes is a condition with short-term and long-term health consequences that is increasing in prevalence in youth and adolescents in Saskatchewan, especially those of First Nations descent. As a result, this study will attempt to provide an opportunity to provide culturally-specific health education and promotion to help raise awareness of this health issue and provide preventative strategies to help reduce the risk of diabetes developing. Further, this study will offer youth and adolescents, ages 12-17, the opportunity to undergo a novel screening test for type 2 diabetes (the dried blood spot card for hemoglobin A1c testing) that can be done in one's home community. This will allow for early detection of diabetes in high risk individuals and ensure early and prompt diabetes management. By engaging in this study, this may help to ensure the option of the dried blood spot card for hemoglobin A1c testing is available to all pediatric patients in rural and remote communities in Saskatchewan to ensure that pediatric type 2 diabetes is diagnosed early and managed well early. This study may also help to build community capacity in ensuring prevention strategies to help reduce the risk of developing diabetes in youth and adolescents as well as their parents.

**CIHR Spring Project Grant Awardees**

Congratulations to the following team on their successful CIHR Spring Project Grant award titled, ‘Developing Culturally Appropriate and Community Informed Virtual Healthcare for Pediatric Specialized Acute Care Services in Saskatchewan’s Rural and Remote Indigenous Communities’ in the amount of $1,273,726.

**The Team**

- Gregory Hansen  
  NPI  
  Co-PI  
- Ivar M Mendez  
  Co-PI  
- Tanya Holt  
  Co-PI  
- Veronica McKinney  
  Co-PI  
- Cassandra J Opikokew Wajuntah  
  Co-PI  
- Laurentiu M Givelichian  
  Co-PI  
- David M Gregory  
  Co-PI

Co-investigator includes Gail Boehme, Lorna Breitkreuz, Moses E Gordon, and Emily Grafton. Funds managed through the U of Regina

Indigenous children in remote Canadian communities are at risk, as access to specialized medical resources is challenging. In the absence of direct paediatric specialist care, children are often transported unnecessarily to distant care centres, separating them from their families and communities. As sick Indigenous children from these remote communities are presenting to their health centre, a solution that is culturally appropriate, community informed, and enables an early diagnosis, intervention and refined transport triaging must be sought. Virtual care has the potential to address these challenges. Building on lessons learned from our virtual care pilot platform in a remote Northern Indigenous community, the goal of our study is to introduce virtual technology to at least 13 other rural and remote Indigenous communities. Consistent with The Truth and Reconciliation Commission's Calls to Action, Indigenous children will receive timely and culturally safe paediatric healthcare. With 24/7 access to a paediatric intensivist, all sick children < 17 years will be virtually assessed, managed, triaged, and if necessary, receive virtual follow-up. Data from our pilot suggests that this should result in a decreased need for children to be transported out of their communities, and when necessary, expedited to tertiary care. Unfortunately, the cultural appropriateness of virtual care in Indigenous communities is unknown, as they have been largely implemented without considering Indigenous notions of wellbeing. A community based participatory research approach will guide the creation of the platform, with subsequent modifications facilitated through perspectives from local care providers and family members post virtual encounter. Ultimately, recommendations will be suggested to guide future virtual healthcare initiatives in Indigenous communities.
## Coming Events

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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Oct 21</td>
<td><strong>Pediatric Grand Rounds</strong>: Drs. Erica Phipps &amp; Eric Crighton present: Building Capacity for Education and Advocacy on Environmental Toxic Exposures</td>
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<td>Oct 21</td>
<td><strong>Mingling Minds seminar series</strong>: Dr. Darryl Falzarano will be presenting his research, &quot;Development of SARS-CoV-2 animal models for vaccine and therapeutic evaluation&quot;</td>
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<td>Oct 26</td>
<td><strong>COVID-19 in SK: 19-months on. A conversation with an epidemiologist</strong>: Café-Sci-YXE hosts Dr. Nazeem Muhajarine, USask Community Health &amp; Epidemiology, as he shares insights about our current pandemic situation.</td>
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<tr>
<td>Oct 28</td>
<td><strong>Pediatric Grand Rounds</strong>: Visiting Lecture series welcomes: Dr. Nicola Wright</td>
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| Nov 13 | **2021 n’s Summer Research Projects** Due Nov 13!  
**2021 Dean’s Project Proposal (usask.ca)**  
**NEW 2021 Dean’s Projects Guidelines**  
**deans-application-overview (usask.ca)** |
| Nov 18 | **Pediatric Grand Rounds**: Visiting Lecture series welcomes: Dr. Hilary Vernon |
| Nov 16-18 | **Saskatchewan Health Research Showcase**  
Presented by Saskatchewan Centre for Patient-Oriented Research (SCPOR) and Saskatchewan Health Authority (SHA) |
| Nov 22-26 | **Children’s Healthcare Canada Call for Abstracts for the 2021 Annual Conference**  
The theme of this year’s event is, “From Crisis to Catalyst: The Next Chapter for Children’s Healthcare”. |
| Nov 25 | **Pediatric Grand Rounds**: Visiting Lecture series welcomes: Dr. Graham Thompson |
| Nov 26-27 | **2021 Pain and Therapeutics Virtual Conference** |
| Dec 2 | **Pediatric Grand Rounds**: Visiting Lecture series welcomes: Dr. Wayne Cutfield |
| Dec 9 | **Pediatric Grand Rounds**: Dr. Caroline Tait |
| Dec 16 | **Pediatric Grand Rounds**: Dr. Ayisha Kurji |

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**Pediatric Neurology Editor’s Pick 2021**

Congratulations to Dr. Richard Huntsman on his publication titled, ‘Dosage Related Efficacy and Tolerability of Cannabidiol in Children With Treatment-Resistant Epileptic Encephalopathy: Preliminary Results of the CARE-E Study’, which is featured as part of Frontiers in Neurology – Pediatric Neurology Editor’s Pick 2021. This article was selected by Chief Editor, Prof Wilmshurst to showcase the best-received spontaneous articles from the past couple of years.
2021 July - Sept Publications


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 and become an important part in helping advance research in the Department of Pediatrics. For further information about the CHRTF and to donate: https://donate.usask.ca/online/chrtf.php

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!

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: Tova Dybvig Department of Pediatrics Email:Tova.dybvig@usask.ca

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Publications continued from pg. 7…