

Department of Pediatrics Research Report

Dec 2021



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Wearing facemasks to prevent Covid transmission during sports: How Dr. Chilibeck's research helps keep hockey fans, children, families, and communities breathing a sigh

Dr. Phil Chilibeck is a professor in the College of Kinesiology. Before arriving to the University of Saskatchewan he completed his Bachelor of Science (1990) at the University of Ottawa, Masters of Science (1992) at McMaster University, Ph.D (1996) at Western University and finally a Post-doctoral fellowship (1997) out west at the University of Alberta. His area of research is exercise physiology.

His most recent study wanted to determine whether wearing a face mask (for protection against COVID) affected performance in youth hockey players ages 9-14 years old. Hockey games are ideal environments to spread the COVID-19 virus because hockey players breathe hard during games, causing respiratory droplets to



spread further than usual, and the players maintain regular close contact with each other. There have been a high number of COVID outbreaks on hockey teams in Saskatchewan. Wearing a face mask can greatly prevent the spread of COVID-19, but it is unclear if children can tolerate wearing face masks during high-intensity activities such as hockey. Therefore, in his latest study, Dr. Chilibeck had 26 youth hockey players

(21 boys, 5 girls) perform a simulated hockey period on a stationary bike while they were assessed for blood and muscle oxygenation, heart rate, rating of perceived exertion, and power output. They were also assessed during a skating test on the ice wearing their full equipment. They performed tests with and without wearing a surgical face mask. His results indicated there was no decrement in exercise performance while wearing a mask. Wearing a mask had no impact on heart rate or blood oxygenation. Muscle oxygenation was slightly reduced while wearing a mask and the girls had a higher rating of perceived exertion during the cycling test while wearing a mask.

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...hockey, continued from pg. 1



His findings indicate there are only minimal negative effects to youth hockey players caused by wearing a face mask during exercise. This is important as COVID spread is very prevalent in hockey due to the factors of close contact on the ice, heavy breathing, and poor ventilation in arenas. Face masks can therefore be used as a mitigation strategy to protect against COVID by youth hockey players. Just as the [USask Research Plan \(2018-2025\)](#) states, ‘Put our Knowledge to Work’, that is exactly what Dr. Chilibeck’s research is doing. His work is benefiting society by answering questions that our communities want answers to. The research has potential to prevent COVID spread in the community by informing coaches, hockey association personnel and health officials that children can remain physically active while wearing a mask.

Phil would like to acknowledge the following who contributed to this research:

Keely Shaw (Ph.D. student, College of Kinesiology, U of S)

Scotty Butcher, Ph.D., Associate Professor, School of Rehabilitation Medicine, U of S)

John Ko, M.Sc., (Research assistant, College of Kinesiology, U of S)

Abdi Absher, B.Sc. (Summer research student, College of Kinesiology, U of S)

Julianne Gordon, M.Sc. (Research Assistant, College of Kinesiology, U of S)

Cody Tkachuk, B.Sc., PT, (Pediatric Physical Therapist, Jim Pattison Children’s Hospital)

Gordon Zello, Ph.D., Professor, College of Pharmacy and Nutrition, U of S



This study was funded by:

Jim Pattison Children’s Hospital Foundation

To read more on this topic and from Dr. Chilibeck please check out the following:

- Shaw, K.A.; Butcher, S.; Ko, J.B.; Absher, A.; Gordon, J.; Tkachuk, C.; Zello, G.A.; Chilibeck, P.D. [Wearing a Surgical Face Mask Has Minimal Effect on Performance and Physiological Measures during High-Intensity Exercise in Youth Ice-Hockey Players: A Randomized Cross-Over Trial.](#) Int. J. Environ. Res. Public Health 2021, 18, 10766.
- [CTV Saskatoon news interview](#): University of Sask. study finds no physiological impacts for minor hockey players wearing facemasks

Child Health Research Trainee Spotlight

Dr. Kaitlyn M. Lopushinsky is currently a PGY-3 Pediatrics resident in the Regina stream. Her research interest lies in critical care and she hopes to pursue a pediatric critical care fellowship after residency. She is interested in clinical research and to further her research goals she is considering pursuit of a Master's degree after her fellowship. Kaitlyn currently is involved in three research projects. The first poses the questions, "How is remote presence robotic technology utilized for pediatric intensivist consultation at a community hospital and how is this technology used in pediatric simulation?" This project is under the supervision of **Drs. Tanya Holt and Greg Hansen**. To answer this question Kaitlyn and team will review remote presence robotic technology use in pediatric intensivist consults at a community hospital as well as its use in a pediatric simulation program. This study has the potential to enhance the clinical understanding of remote presence robotic technology's role in remote/regional care. From an organizational and societal level this research can enhance the understanding of remote presence robotic technology's importance in providing pediatric critical care consultation in Saskatchewan. Her second project, which was recently published, asks the question, "What are the features of intrauterine herpes simplex virus infection and what are potential complications?"



Dr. Kaitlyn M. Lopushinsky

Check out Dr. Lopushinsky's recent publication: Lopushinsky, Kaitlyn M., Harabor, Andrei and Bodani, Jaya. "[No footprint too small: case of intrauterine herpes simplex virus infection](#)" Case Reports in Perinatal Medicine, vol. 10, no. 1, 2021, pp. 20210047.

Supervised by **Drs. Andrei Harabor and Jaya Bodani** this case study reported intrauterine herpes simplex virus infection with multi-systemic complications in a NICU patient. Although confirmed intrauterine herpes simplex virus (HSV) infections are very rare, the potentially devastating prognosis and complications as evidenced by this case show that awareness of this kind of infection is critical for pediatricians as well as physicians involved in antenatal care. Her third project investigates, "What is the incidence of pediatric traumatic injuries requiring hospitalization in Saskatchewan and what variables are seen in these patients?" This project is under the supervision of **Drs. Tanya Holt and Greg Hansen**. To answer this question, Kaitlyn and her supervisors will perform a retrospective chart review of pediatric trauma admissions in Saskatchewan. This study has the potential to enhance our understanding of shared features seen in pediatric trauma admissions, which could then be used to optimize care. From an organizational and societal level, this work could inform provincial resource allocation for the Saskatchewan pediatric trauma program.

Congratulations to the winners of the Undergraduate Research Showcase:

1st Place in the 'Pediatrics Group 1' category awarded to Marley Wacker for presenting "[A Retrospective Review of Coronary Complications in Children with Kawasaki Disease in Children](#)" Supervisor: Dr. Tim Bradley

A Retrospective Review of Coronary Complications in Children with Kawasaki Disease in Saskatchewan
 Student: Marley Wacker; Supervisor: Tim Bradley
 *College of Medicine, University of Saskatchewan; *Division of Pediatric Cardiology, Department of Pediatrics, University of Saskatchewan

BACKGROUND
 Kawasaki Disease (KD) is an acute medium-sized vasculitis and the most common cause of heart disease in infants and children in developed countries.
 Cardiac complications include coronary artery aneurysms (CAA), pericarditis, myocarditis, valvulitis, valvular regurgitation, and cardiogenic shock.
 Timely treatment with immunoglobulin (IVIg) has lowered the rates of CAA in KD from 25% to about 4%.
 Patients with KD who receive IVIg treatment in delayed fashion

DIAGNOSTIC CRITERIA
TYPICAL / COMPLETE
 Fever ≥5 days + 4/5 findings
ATYPICAL / INCOMPLETE
 Fever ≥5 days + 2-3/5 findings

RESULTS
 155 charts were reviewed
 31 children were excluded [other diagnosis or criteria not met]

DISCUSSION
 Conclusions: Comparing our results in Saskatchewan

1st Place in the 'Pediatrics Group 2' category awarded to Riley Plett for presenting "[Empowering Sickle Cell Patients and Families Through Innovative Education Methods](#)" Supervisor: Dr. Roona Sinha

Empowering sickle cell patients and families through innovative education methods
 Riley Plett, Sarah Tehseen, Kathleen Felton, Craig Eling, Vivian Sheppard, Megan Pegg, Roona Sinha
 University of Saskatchewan, Saskatoon, Canada

Background
 Sickle Cell Anemia (SCA) is a group of inherited blood disorders caused by a mutation in the beta chain of hemoglobin (Hb).
 There are approximately 5000 Canadians living with SCA including children (2).
 SCA is associated with acute and chronic pain crises that can lead to complications including the stroke, lung, infection, bone, eye and neurological disease (3).
 Life-threatening events are also common and include acute chest syndrome, splenic crisis and infection (2).

Methods
 An educational video was developed and reviewed by the hematology research team (Figure 1).
 SCA is associated with acute and chronic pain crises that can lead to complications including the stroke, lung, infection, bone, eye and neurological disease (3).
 Life-threatening events are also common and include acute chest syndrome, splenic crisis and infection (2).

Results: Knowledge
 The educational intervention improved knowledge scores in patients and parents/guardians (Figure 2).
 Change in knowledge score
 Figure 2: Knowledge score before and after educational intervention. Knowledge was assessed by a 17-item quiz with questions about SCA covered in the video (1-5, 10-14, 20). *p < 0.001 (chi-squared). Post-test marks were given for questions with multiple answers.

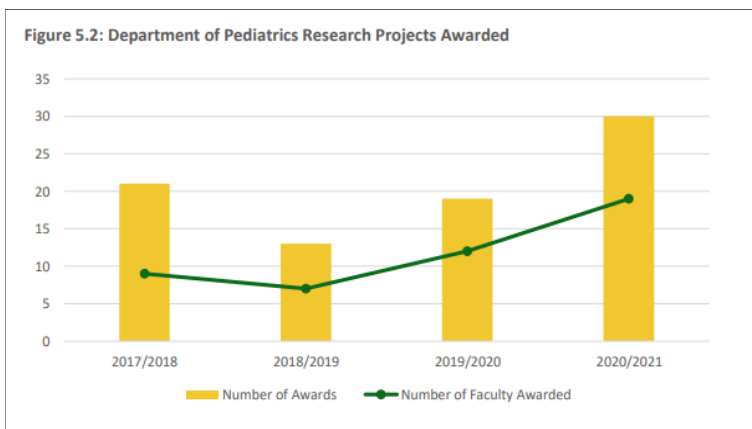
Measuring Research Success, a Snapshot of 2021

It has been an exciting year of growth for research in the Department of Pediatrics. The Office of the Vice Dean of Research recently put together a [research productivity report](#) of all the departments in the College of Medicine from 2016 to 2021. The report measured internal and external funding, number of awards, and publications. Using data from the OVDR research productivity report and SciVal (output and usage data from Scopus, the world’s largest abstract and citation database for peer-reviewed publications.), the department was able to provide an overview of Research Funding, Publications and Citations, Collaborations, and Interdisciplinary research.

Funding Source Category	Fiscal Year		
	2018/2019	2019/2020	2020/2021
Non Tri-Agency	\$1,302,865	\$231,602	\$508,966
Tri-Agency	\$21,500	\$81,460	\$214,596
Total	\$1,324,365	\$313,062	\$723,562.00

Research Funding & Awards

In the 2020/2021 fiscal year, Department of Pediatrics researchers were awarded a total of \$723,562.00. Tri-Agency funding has increased from \$21,500 to \$214,596 from 2018/2019 fiscal year to 2020/2021 fiscal year. Department of Pediatrics researchers have seen steady increases in the total number of awards received, from 21 in 2017/2018 to 30 in 2020/2021 (Figure 5.2 from the [OVDR Research Productivity Report](#)) The number of unique faculty award recipients has increased as well, with 19 individual awardees in 2020/2021.



Publications and Citations

The OVDR productivity report also measured the number of publications per department, per year. The Department of Pediatrics has seen general increases in annual publication counts since 2017 with a peak in 2018 (Figure 5.3 from the [OVDR Research Productivity Report](#)). Citations continue to grow year after year with 1802 citations in 2020 (Figure 5.4 from the [OVDR Research Productivity Report](#)).

Figure 5.3: Department of Pediatrics Annual Publication Count

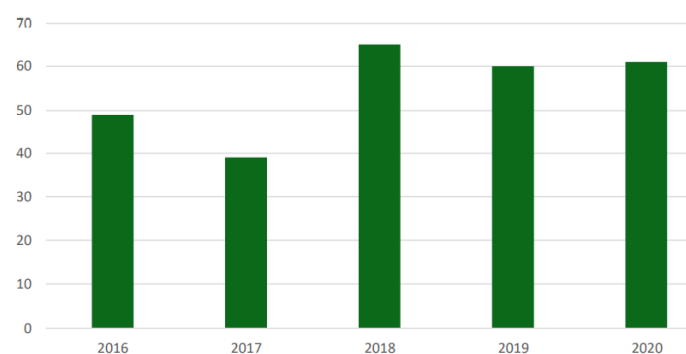
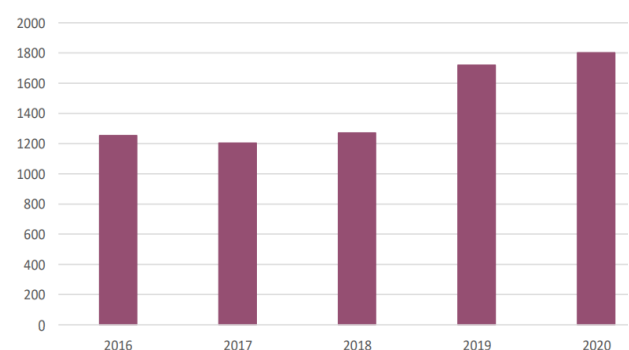


Figure 5.4: Department of Pediatrics Annual Citation Count



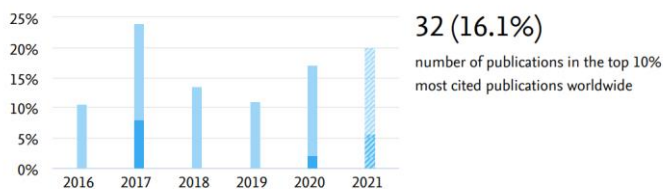
... Metrics Continued from pg. 4

To further explore this metric, the Department of Pediatrics faculty list was uploaded into SciVal. As the number of publications increased in the department it was exciting to note that the field weighted citation impact is increased yearly and that 32 of these publications authored by faculty of the Department of Pediatrics are among the [Top 10% most cited publications](#) worldwide. This refers to the number of publications by a selected journal that are highly cited. This has increased over the last three years. [Share of publications per Journal quartile by citescore percentile](#) is also on an upward trend from 2016 to 2020. Publications in Journal Quartiles in SciVal indicates the extent to which an entity's publications have been published in the selected journal quartiles. The journal quartiles are defined by the journal metrics CiteScore, SNIP (Source-Normalized Impact per Paper) or SJR (SCImago Journal Rank).

Outputs in Top 10% Citation Percentiles

Entity: Department of Pediatrics · Year range: 2016 to 2021 · Data source: Scopus, up to 13 Oct 2021 · Filters: Only Scholarly Output published at University of Saskatchewan included ·

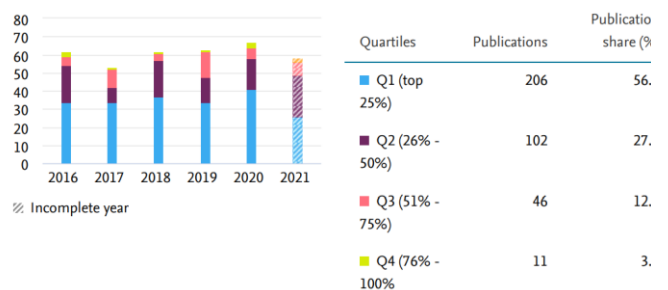
Share of publications in Department of Pediatrics that are among the most cited publications worldwide



Publications by Journal quartile

Entity: Department of Pediatrics · Year range: 2016 to 2021 · Data source: Scopus, up to 13 Oct 2021 · Filters: Only Scholarly Output published at University of Saskatchewan included ·

Share of publications per Journal quartile by CiteScore Percentile



Collaborations and Interdisciplinary Research

SciVal metrics also showed publications by subject area. The Department of Pediatrics publishes largely in the subject area of medicine. Other areas that reflect where the department has strong interdisciplinary collaborations are nursing, neuroscience, chemistry, biochemistry, and immunology. It also showed, based on scholarly output, that 11.1% represented University of Saskatchewan collaboration, 49.2% represented national collaboration, and 37.7% represented International collaboration. The top ten collaborating institutes include partnerships across Canada.

What's next? The department continues to strive for excellence both in academic and societal impact. Many faculty in the department have advocated for the children of Saskatchewan by using their voice to speak out on improved public health measures that directly impact the wellbeing of children and their families.

Congratulations to 2021 CoMRAD Awardees from Department of Pediatrics. (check out full list [here](#))

“Metabolomic Profiling to Predict Methotrexate Treatment Response in Juvenile Arthritis”

Principal Investigator: **Dr. Mehul Jariwala** Co-Investigator: **Dr. Alan Rosenberg**

“Targeting Arterial Stiffness in Kidney Disease in Children (TASK) study”

Principal Investigator: **Dr. Tim Bradley**

“Elucidating the Genetics of Inherited Cardiac Arrhythmia”

Principal Investigator: **Dr. Michelle Collins** Co-PI: **Dr. Charissa Pockett**

Coming Events

Dec 16	<u>Pediatric Grand Rounds</u> : Drs. Turner and Steitziger
Jan 13	<u>Pediatric Grand Rounds</u> : Dr. Frank Rauch
Jan 20	<u>Pediatric Grand Rounds</u> : Dr. Marilyn Beatz
Jan 20	<u>Mingling Minds</u> : Dr. John Gordon
Jan 27	<u>Pediatric Grand Rounds</u> : Dr. Catherine Gordon
Feb 3	<u>Pediatric Grand Rounds</u> : Christ Scott
Feb 10	<u>Pediatric Grand Rounds</u> : Carolyn Olver/ Casey Napper
March 31	<u>Pediatric Grand Rounds</u> : Visiting Lecture series welcomes: Erin Beckwell
April 21	Save the Date – Child Health Research Trainee Day

Congratulations to **Dr. Richard Huntsman** on his recent publication in
Canadian Medical Association Journal

“[Improving the regulation of medical cannabis in Canada to better serve pediatric patients](#)”

Authors: Richard J. Huntsman, Lauren E. Kelly, Jane Alcorn, Juan Pablo Appendino, Richard E. Bélanger, Bruce Crooks, Yaron Finkelstein, Andrea Gilpin, Evan Lewis, Catherine Litalien, Julia Jacobs, Charlotte Moore Hepburn, Timothy Oberlander, S. Rod Rassekh, Alexander E. Repetski, Michael J. Rieder, Alan Shackelford, Hal Siden, Michael Szafron, Geert W. ‘t Jong, Régis Vaillancourt



Save the Date: Child Health Research Trainee Day

Department of Pediatrics

Virtual Child Health Research Trainee Day

Please join us on Thursday April 22nd, 2021 for this research symposium featuring presentations from residents, graduate students, post-doctoral fellows, and undergraduate students engaged in child health research at USask.

Abstracts Due Friday March 26, 2021

For questions and/or submissions please email them to Monika.Polewicz@usask.ca



2021 Oct – Dec Publications

- **Huntsman RJ**, Kelly LE, Alcorn J, Appendino JP, Bélanger RE, Crooks B, Finkelstein Y, Gilpin A, Lewis E, Litalien C, Jacobs J, Moore-Hepburn C, Oberlander T, Rassekh SR, Repetski A.E., Rieder MJ, Shackelford A, Siden H, Szafron M, Jong GW, Vaillancourt R. [Improving the regulation of medical cannabis in Canada to better serve pediatric patients](#). CMAJ Oct 2021, 193 (41) E1596-E1599
- **Baerg K**, Tupper SM, Chu LM, Cooke N, Dick BD, Doré-Bergeron MJ, Findlay S, Ingelmo PM, Lamontagne C, Mesaroli G, Oberlander TF, Poolacherla R, Spencer AO, Stinson J, Finley GA. (2021) [Canadian surveillance study of complex regional pain syndrome in children](#). Pain. Sep 13.
- Farthing P., Bally J., Rennie D., **Nour M** (2021). [Managing the Unmanageable Through Interdependence in Adolescents With Type 1 Diabetes and Their Parents: A Constructivist Grounded Theory](#) Canadian Journal of Diabetes VOLUME 45, ISSUE 7, SUPPLEMENT , S25-S26, NOVEMBER 01
- Tessaro, M. O., Friedman, N., **Al-Sani, F.**, Gauthey, M., Maguire, B., & Davis, A. (2021). [Pediatric point-of-care ultrasound of optic disc elevation for increased intracranial pressure: A pilot study](#). *American Journal of Emergency Medicine*, 49, 18–23. <https://doi.org/10.1016/j.ajem.2021.05.051>
- Makhinson, M., Seshia, S. S., Young, G. B., Smith, P. A., **Stobart, K.**, & Guha, I. N. (2021). [The iatrogenic opioid crisis: An example of ‘institutional corruption of pharmaceuticals’?](#) *Journal of Evaluation in Clinical Practice*, 27(5), 1033–1043
- Durr, M. **Petryk, S.**, **Mela, M.**, **DesRoches, A.**, **Wekerle, M.**, **Newaz, S.** (2021) [Utilization of psychotropic medications in children with FASD: a retrospective review](#) *BMC Pediatr.*2021 Nov 16;21(1):512.
- **Holt T.**, Griffin O., Cyr A., Brockman R., Wihak L., **Hansen G.** [Lessons Learned from a Small Pediatric Continuous Renal Replacement Therapy Program](#) *Clinical Care Research and Practice* Volume 2021 |Article ID 6481559
- Goldman, R. D., Bone, J. N., Gelernter, R., Krupik, D., Klein, E. J., Griffiths, M. A., & **Mater, A.** (2021). [Willingness to Accept Expedited COVID-19 Vaccine Research for Children Under 12 Years after Adult Vaccine Approval](#). *Clinical Therapeutics*.
- Goldman, R. D., Krupik, D., Ali, S., **Mater, A.**, Hall, J. E., Bone, J. N., Thompson, G. C., Yen, K., Griffiths, M. A., Klein, A., Klein, E. J., Brown, J. C., Mistry, R. D., & Gelernter, R. (2021). [Caregiver willingness to vaccinate their children against COVID-19 after adult vaccine approval](#). *International Journal of Environmental Research and Public Health*, 18(19).
- Galante, G. J., Schantz, D. I., Myers, **K. A.**, **Pockett, C. R.**, Rebeyka, I. M., & Mackie, A. S. (2021). [Echocardiographic Screening for Postoperative Pericardial Effusion in Children](#). *Pediatric Cardiology*, 42(7), 1531–1538.
- Goudie, C., Witkowski, L., Cullinan, N., Reichman, L., Schiller, I., Tachdjian, M., Armstrong, L., Blood, K. A., Brossard, J., Brunga, L., Villani, A., & Foulkes, **Felton K.** (2021). [Performance of the McGill Interactive Pediatric OncoGenetic Guidelines for Identifying Cancer Predisposition Syndromes](#). *JAMA Oncology*.
- das Neves Martins Pires, P. H., Macaringue, C., Abdirazak, A., Mucufu, J. R., Mupueleque, M. A., Zakus, D., **Siemens, R.**, & Belo, C. F. (2021). [Covid-19 pandemic impact on maternal and child health services access in Nampula, Mozambique: a mixed methods research](#). *BMC Health Services Research*, 21(1)

Introducing New Pediatric Research Facilitator



Contact:

Monika.Polewicz@usask.ca;

Office 2732 RUH

Dr. Monika Polewicz has recently joined the Department of Pediatrics as the new Research Facilitator. She will be in this role full time from now until August 31, 2022 while Tova is on maternity leave. Monika received her B.Sc degree from USask (Microbiology/Immunology). She obtained her Ph.D from VIDO-InterVac in 2011. Monika's graduate work focused on development of novel vaccine formulations against pertussis for early life vaccination in the presence of maternal antibodies. Monika complemented her science education with an MBA degree in 2012. Monika has previously worked as a Commercialization Project Manager at Ag-West Bio Inc. In that role, she was responsible for development, implementation and management of the company's Strategic and Competitive Intelligence Program aimed to accelerate growth of Saskatchewan's bioscience small and medium-sized enterprises. Monika produced literature reviews, research and development landscapes, market analysis, environmental scans and other relevant insights. She provided training on how to devise feasible commercialization plans. Most recently, Monika has worked as an Independent Consultant for the Global Institute for Food Security. She managed funding applications to Canada Foundation for Innovation, Western Economic Diversification, Ministry of Agriculture and Innovation Saskatchewan. The obtained funding will allow USask to open a first-in-Canada engineering biology centre for ag innovation.

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 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

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