



**The work we do
each day has a
direct impact
on the health
of communities
across our province,
country, and
beyond.**

Message from the CEO & Board Chair

The year 2020 will forever mark an incredible moment in history. At the beginning of the year, there were many conversations about the months ahead and how the Institute could further ignite passion into our members as we all work towards a healthier future for children everywhere.

In March, our plans pivoted in response to the pandemic. We closed our doors temporarily and moved researchers, students, and support staff off-site to protect the community and do our part to stop the spread of COVID-19.

As we reflect on that time last year, the word 'unknown' comes to mind. We were unsure how operating off-site would work; uncertain how long we would be apart; and unclear on how we would be able to continue the excellent work you all do to support child health research.

We feel privileged to be working alongside this community, who showed resilience and a strengthened commitment to each other and the Institute by coming together while physically apart, to support the needs of our people, both on a professional and personal level, during one of the most challenging times of our history.

On behalf of the Board of Directors and the CHRIM administrative team, we'd like to thank you for what you all accomplished in the past 12 months. We know it was not always easy!

We would also like to welcome the new members who joined the Institute this past year. We are so impressed by the outstanding accomplishments you each bring to CHRIM and look forward to hearing about the new collaborations and research projects that will emerge in the years ahead!



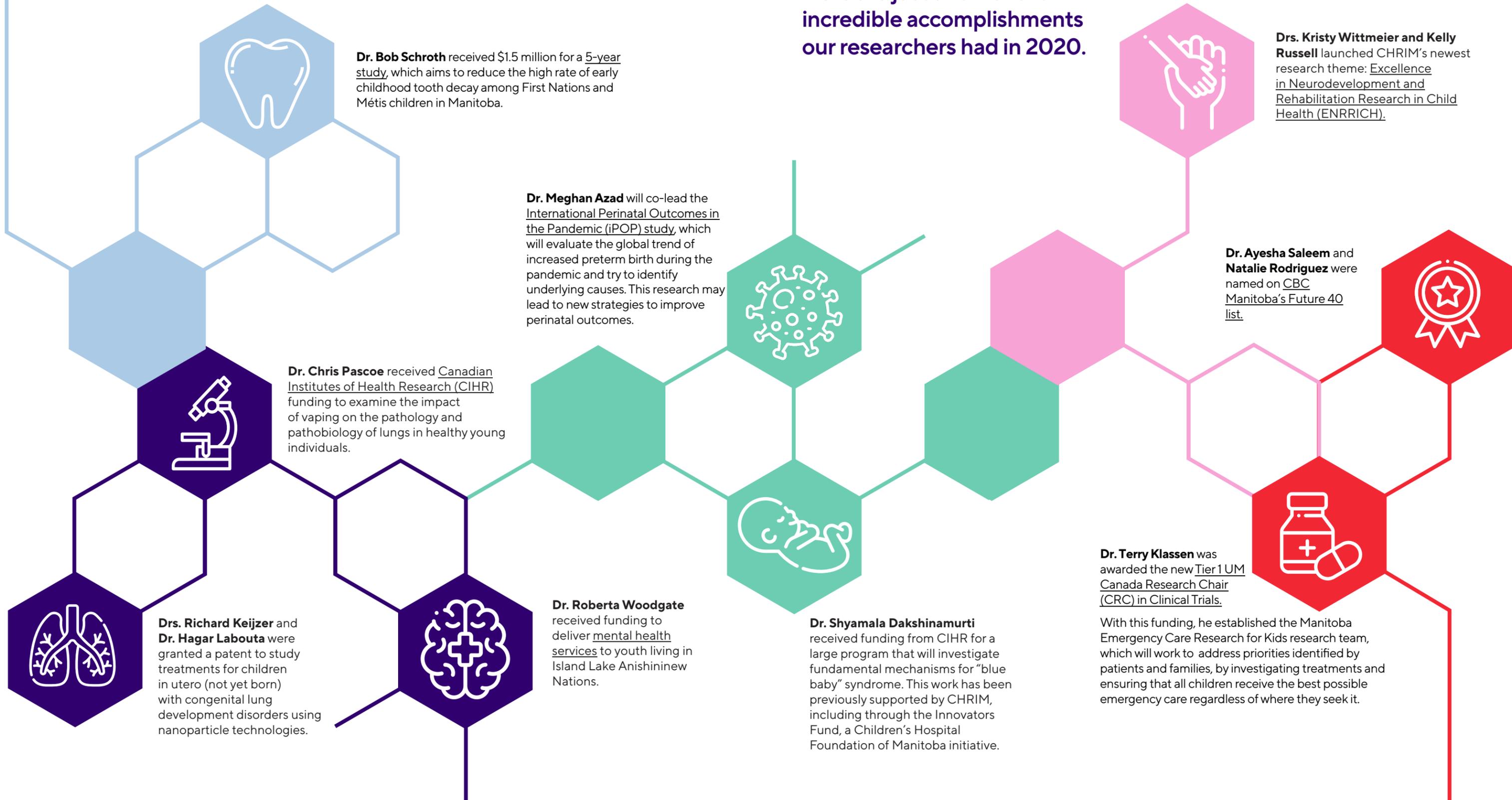
Dr. Terry Klassen
CEO + Scientific Director, CHRIM

Scott Lancaster
Board Chair, CHRIM

We bring together top researchers from a variety of health disciplines who share a common goal of improving the health of children and youth. This way, we have the rare ability to look at the overall picture of children's health – not just one area.

2020 Highlights

Here are just a few of the incredible accomplishments our researchers had in 2020.



Year in Review

New members:

| | |
|-------------------|--------------------|
| Kristene Cheung | Lucy Marzban |
| Hao Ding | Vanessa Poliquin |
| Susan Doyle | Jacque Ripat |
| Britt Drögemöller | Christiaan Righolt |
| Elizabeth Hammond | Peter Thompson |
| Gregory Hawryluk | Pamela Wener |
| Biniam Kidane | Jennifer Yamamoto |
| Susan Logue | |



With core funding support from the Children’s Hospital Foundation of Manitoba and salary/facility support from the University of Manitoba, CHRIM investigators have more opportunities and better success in applying for external funding.

Thanks to this collaborative effort, we saw approximately

\$19,740,258

active research dollars in 2020.

In the face of a constantly changing landscape, research in children’s emergency care pushed forward.

Led by Dr. Terry Klassen and co-directed by Dr. Alex Aregbesola and Lisa Knisley, the new Manitoba Emergency Care Research for Kids team had much success throughout the year, including changes to the facility with a brand-new space for researchers and administration to be completed in summer 2021.

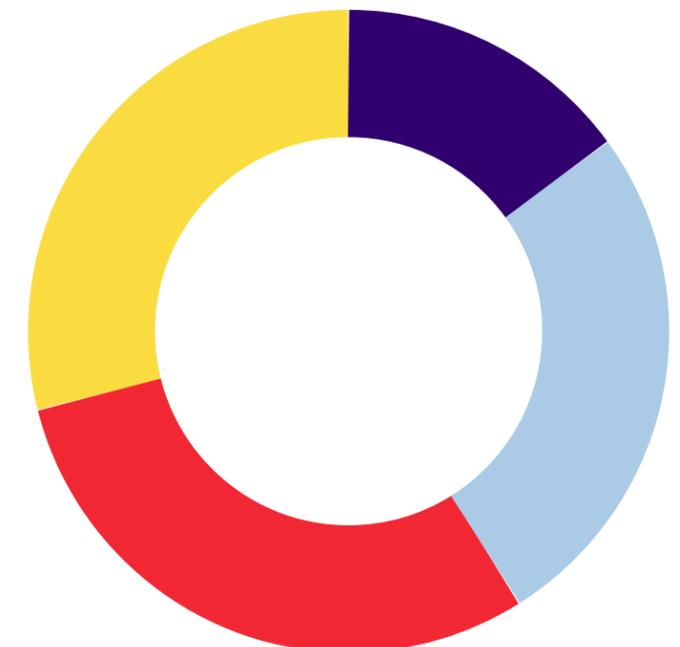
Striving to speed up the generation and translation of existing knowledge to improve outcomes for sick and injured children, Translating Emergency Care for Kids (TREKK) created multiple resources for healthcare professionals to ensure that children receive the best possible care, no matter where they are treated. Ten years since its formation, TREKK has more staff than ever before and is continually expanding into urban, rural, and remote hospitals and health centres across Canada.

Dr. Klassen’s research will continue to improve clinical outcomes in knowledge translation and advance innovative approaches to randomized controlled trials in order to generate the highest-quality research evidence and influence clinical decisions.



Funding Breakdown

| | | |
|--|---|-----|
| | Children’s Hospital Foundation of Manitoba | 15% |
| | University of Manitoba | 26% |
| | Tri-Council (NSERC, CIHR, SSHRC) | 30% |
| | Research Manitoba/other (research contracts, etc) | 29% |





YEAR IN REVIEW

Research Support Unit

Top highlights:

- Launched a [new website](#) with access to all services and a list of current, past, and upcoming studies.
- Partnered with [Women's Health](#) to create a shared research coordinator position.
- Established the [Bioinformatics Core Laboratory](#) to provide state-of-the-art, secure, regulatory-compliant, and customized solutions addressing research needs at CHRIM.
- Developed a [patient engagement service](#) to support CHRIM members in patient-centered research. This includes creating two Patient Research Advisory Committees (one adult and one youth) and hiring a dedicated Patient Engagement Coordinator.

The Research Support Unit (RSU) is located within the Children's Hospital Research Institute of Manitoba (CHRIM) and helps provide researchers with access to world class facilities, equipment, and services for conducting their research, as well as administrative support.

Within the Institute's 64,000 sq. ft space, roughly 8,000 sq. ft are dedicated to the RSU, where highly skilled and trained staff offer a broad range of services to help CHRIM researchers accomplish their project goals.

With 2020 came a year of tremendous growth within the RSU, as researchers took on [new studies](#) involving COVID-19 requiring an all-hands-on-deck approach to support the various projects and their individual needs.

Research Support Unit

by the numbers:



“CHRIM has provided office space and common clinical research space to carry out our follow-up assessments with participants. Without this dedicated space, any type of pediatric clinical research that is prospective in nature would not be possible.”

Dr. Brandy Wicklow

Medical Director, Research Support Unit



YEAR IN REVIEW

Biology of Breathing

Vaping is an epidemic in youth. To date, there is little human data available that studies the effects of vaping in young, healthy individuals.

Dr. Chris Pascoe, Principal Investigator within The Biology of Breathing theme (BoB) at CHRIM and Assistant Professor at the University of Manitoba, received a \$100,000 one-year catalyst grant from the [Canadian Institutes of Health Research \(CIHR\)](#) to examine the impact of vaping on the pathology and pathobiology of lungs in healthy young individuals.

This is a collaborative project involving lung specialist and CHRIM researcher, Dr. Biniam Kidane, and BoB Theme lead, Dr. Andrew Halayko. This is Dr. Pascoe's first national funding, and builds a tangible footprint for BoB in the recreational combustibles space. Additionally, this work aligns with a large Canadian Foundation for Innovation (CFI) infrastructure proposal BoB is leading, called AirSAFE, that would create nationally unique research capacity at CHRIM. Read more about Dr. Pascoe's study in this [interview with the Health Guild](#).

[Biology of Breathing \(BoB\)](#) is one of the key research themes at the Institute and is made up of 15 fundamental and clinical scientists working together to carry out world-class research in pediatric pulmonary disorders, such as asthma, oxidative stress, newborn apnea, and more.

BoB's overall goal is to strengthen and unite local researchers focused on children's lung health and disease. CHRIM's foundational funding ensures BoB can provide the framework, infrastructure, and support to empower outstanding child health research in Manitoba. As a theme, they work together to blend new research approaches, promote collaborative studies, increase external grant success, enhance trainee education, and underpin leadership in local, national, and international research initiatives.

The specific goals of the theme support two primary streams:

1. Asthma – Environmental Exposures, Origins & Mechanisms of Disease; and
2. Diseases of the Developing Lung/Development of underdeveloped lungs.

These goals reflect BoB's long-standing operational structure that dedicates the annual budget to core research facilities and senior technical staff as managers, support for trainee career development, and a Catalyst Grant program for new research direction by theme members.

The past year was full of accomplishments for the BoB members, who had 114 new publications.

[Dr. Meghan Azad](#) is co-leading the International Perinatal Outcomes in the Pandemic (iPOP) study, along with CHRIM Postdoctoral Fellow, [Dr. Merilee Brockway](#), and colleagues in the UK and Australia. The iPOP study is evaluating the global trend of increased preterm birth during the pandemic and trying to identify underlying causes, which may lead to new strategies to improve perinatal outcomes.

Several BoB investigators were recognized for their work through various awards. Congratulations to [Dr. Richard Keijzer](#), who was selected for the [2021 Travelling Fellow](#) for the James IV Association of Surgeons (Canada), as well as [Dr. Andrew Halayko](#), who was awarded the [2020 Michelle Harkness Mentorship Excellence Award](#) from the AllerGen National Centre of Excellence. Dr. Halayko became Chair of the International Conference Committee for the American Thoracic Society International Conference, and was involved with multiple media reports and interviews related to the COVID-19 pandemic.

Congratulations to [Dr. Neeloffer Mookherjee](#), who was awarded the [CIHR Sex and Gender Science Chair](#) in Circulatory and Respiratory Health. She remained the Chair of for the Women in Science: Development, Outreach & Mentoring (WISDOM) program at the University of Manitoba, and was elected to be Chair of the prestigious 2021 Gordon Research Conference on Antimicrobial Host Defence Peptides, Ventura, California, USA.

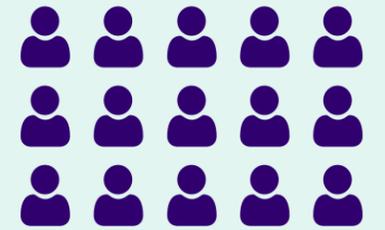
Additionally, [Dr. Adrian West](#) was featured in an article, "[3D printing a breath of fresh air for medical research](#)", in The Manitoban: The official University of Manitoba Student's Newspaper.

Biology of Breathing

by the numbers:

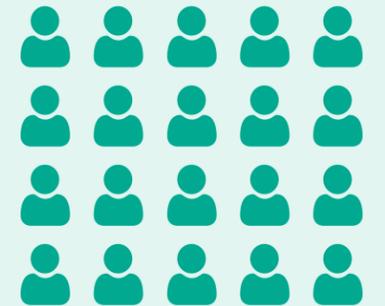
15

Investigators



20

Trainees



144

New publications from Biology of Breathing members



BIOLOGY OF BREATHING
Research Theme

YEAR IN REVIEW

DREAM

Diabetes Research Envisioned and Accomplished in Manitoba (DREAM) is a key research theme at CHRIM. Type 2 diabetes is the fastest growing chronic illness in Canada, and Manitoba has one of the highest rates of type 2 diabetes in children in the world. Manitoba and CHRIM have become one of the world's top research centres for type 2 diabetes.

The DREAM theme works towards excellence in epidemiological, clinical, and basic science research in the areas of type 2 diabetes and diabetes complications in youth, and makes important discoveries that will lead to better prevention and treatments.

Led by Drs. Jon McGavock and Vern Dolinsky, DREAM is made up of 13 investigators, 20 trainees, and several Indigenous community partners working to improve the lives of children and their families living with, or at risk for type 2 diabetes.

Together, they are committed to solving the complex issues faced by young people living with diabetes, ranging from the fundamental question "why did I get diabetes at such a young age" to "what is the best way to help children living with diabetes experience meaningful complication-free lives?".

DREAM addresses these tough questions by focusing on translational "team science" approaches and grounding their research in culturally-safe practices.

Diabetes Research Envisioned and Accomplished in Manitoba (DREAM) worked closely with Keewatinohk Inniniw Minoayawin (KIM) Inc. to support community-based wellness programming for Indigenous youth in Manitoba. DREAM contributed **\$10,000 in 2020**, which will be matched by KIM. These funds will be used to support wellness projects within the communities, ranging from **\$1,000-\$4,000** each.

DREAM believes that this partnership and these projects are vital to hear the voices of the youth so we can prioritize research that is relevant to their needs. DREAM looks forward to rolling out the projects in 2021 and hearing the voices of the youth in Indigenous communities.



In 2020, DREAM members published 56 papers. Ten of these papers involved two or more members, highlighting the caliber of talent and collaborative nature of the DREAM theme.

Additionally, DREAM trainees successfully published nine academic manuscripts in 2020, with six of those having a DREAM trainee as first author.

Many DREAM investigators had funding wrapping up in 2020, so the theme focused on submitting grants for new funding. With this goal, researchers secured 13 new grants for a total of \$900,000 in new funding!

Some of their newer members accomplished incredible achievements in 2020 as well. **Drs. Ayesha Saleem** and **Meaghan Jones** were both able to obtain Canada Foundation for Innovation (CFI) funding. Additionally, Dr. Saleem received a grant from the US National Academy of Medicine and was chosen for the class of 2020 CBC Manitoba Future 40.

DREAM members worked closely with stakeholders to partner with Keewatinohk Inniniw Minoayawin (KIM) Inc. to support community-based wellness programming for Indigenous youth in Manitoba. In partnership with Dr. Barry Lavallee, CEO of KIM, DREAM will work collaboratively to develop wellness projects within Manitoban communities. In 2020, DREAM contributed \$10,000, which KIM will match. This partnership and the projects that will be supported are vital for us to hear the voices of Indigenous youth so DREAM can align their research efforts with the needs of the community.



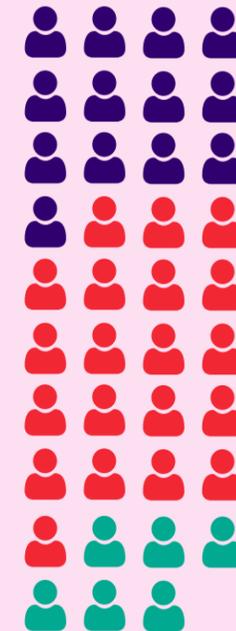
DREAM

by the numbers:

13
Investigators

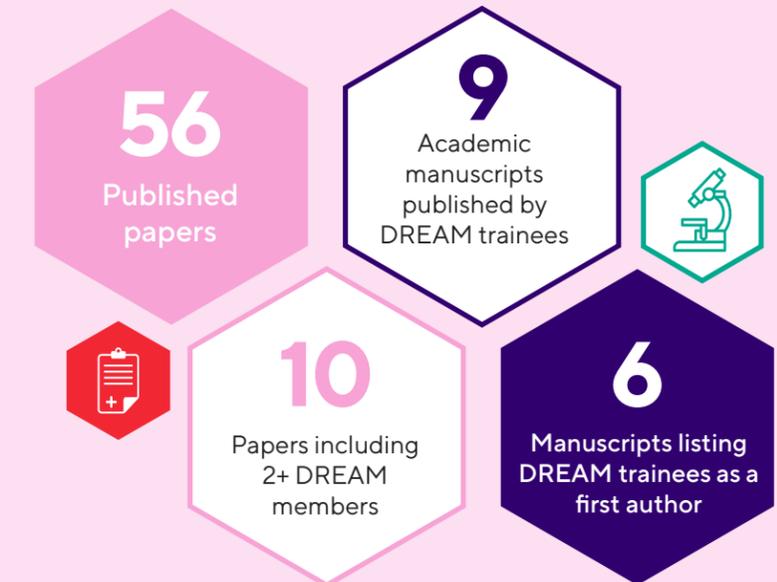
20
Trainees

6
Indigenous
community
partners



13 new grants, totalling

\$900K
in new funding



YEAR IN REVIEW

ENRRICH

Compared to the rest of Canada, Manitoba has a high proportion of children who have developmental challenges or rehabilitation needs. Because of programs like the Children's Therapy Initiative, Pan Am Concussion Program, Specialized Services for Children and Youth (SSCY) Centre, and the Children's Hospital, many children and families in Manitoba have access to highly coordinated, integrated, and family-centred care.

Our Institute has a strong history of supporting emerging child health research groups, or themes, toward national and international excellence. We recognized there was a critical mass of researchers specializing in pediatric neurodevelopment and rehabilitation, and that a community could be created to support children's life, leisure, and play. In early 2020, CHRIM launched its third theme - Excellence in Neurodevelopment and Rehabilitation Research in Child Health (ENRRICH) - led by CHRIM investigators, Drs. Kelly Russell and Kristy Wittmeier.

The ENRRICH theme combines interdisciplinary research and cutting-edge knowledge translation with the goal of improving the quality of life for the

thousands of children and families who require pediatric neurodevelopment and rehabilitation services in Manitoba, central Nunavut, and northern Ontario.

ENRRICH is a collaborative effort between three major provincial hubs for pediatric neurodevelopment and rehabilitation located in Winnipeg, Manitoba: HSC Winnipeg Children's Hospital, SSCY Centre, and the Pan Am Concussion Program.

In its first year, ENRRICH investigators had 66 new publications and secured 23 grants that totalled over \$1.65M in new funding. Three major awards were granted through the Canadian Institutes of Health Research (CIHR) to ENRRICH members:

- **Dr. Lauren Kelly** - Cannabis for symptom management in children with cancer
- **Dr. Tamra Werbowetski-Ogilvie** - Novel therapeutic targets for Group 3 medulloblastoma stem cells
- **Dr. Roberta Woodgate** - Delivering mental health services to youth living in Island Lake Anishininew Nations



Five collaborating ENRRICH members secured a grant from the Rady Innovation Fund to develop the first clinically-embedded Living Lab. Led by Principal Investigator, **Dr. Mandy Archibald**, and in partnership with Specialized Services for Children and Youth (SSCY) Centre, the lab is able to provide access points for integrated knowledge translation and data on stakeholder knowledge exchange priorities.

The lab development involves two components. First is the physical infrastructure, so youth, siblings, parents, and clinicians can engage with the creative knowledge exchange features, like storytelling, while on site. The second component involves the virtual architecture and software. Living labs are largely underdeveloped in health care and can be critical towards overcoming deficiencies in knowledge translation. Dr. Archibald's living lab is the first step in a larger, long-term vision that seeks to embed research and knowledge exchange using creative, family-centered methods.

ENRRICH

by the numbers:



26 Investigators

6 Trainees



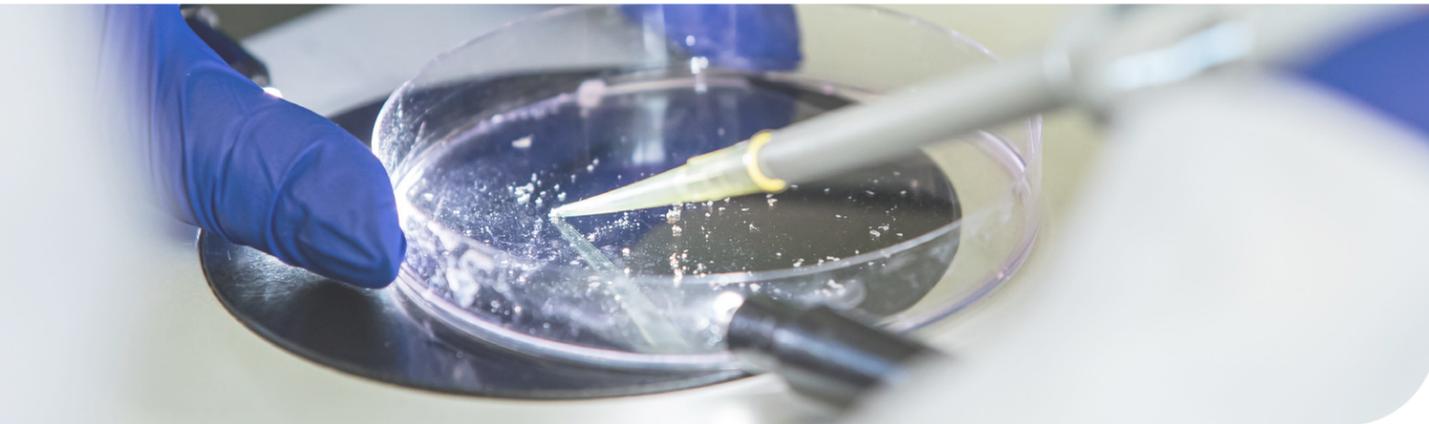
5 Professionals

2 Parent advisory members



COVID-19 Impact

The pandemic has had a profound impact on all of us, and the research institute has been no exception. If we've learned anything about COVID-19, it is that research is the best fight we have against disease, both new and existing, in order to provide the best treatments to improve health outcomes.



Here is a look at the COVID-19 pandemic and its impact on CHRIM in 2020:

- 12-week shutdown of research facilities between March 13th – June 8th, 2020.
- We operated at 40% capacity throughout the rest of 2020. Many programs shifted to a completely remote working environment to allow larger capacity for fundamental/lab research teams.
- All regular scheduled events, such as Research Rounds, were moved to virtual platforms, resulting in the highest attendance we've ever had!

Despite the challenges faced as a result of COVID-19, research continued and thrived!

- We launched a new research theme - ENRRICH - in partnership with Specialized Services for Children and Youth (SSCY).
- The Research Support Unit supported seven new studies related to various aspects of COVID-19, including swab efficacy, treatments, and more.
- The 16th Annual Child Health Research Days (CHRD) conference moved to a virtual format, removing some barriers to attending previous in-person events. As a result, we had a record breaking 93 abstracts submitted, the most trainee posters at a session in Manitoba! In addition, guest speakers were able to participate without travelling, allowing more opportunities to join CHRIM Research Rounds.

"CHRIM has worked very hard to lessen the isolation we feel – responding to all queries and researcher meetings. This is greatly appreciated and adds confidence in dealing with patients and their families. The psychological support we have felt cannot be underestimated."

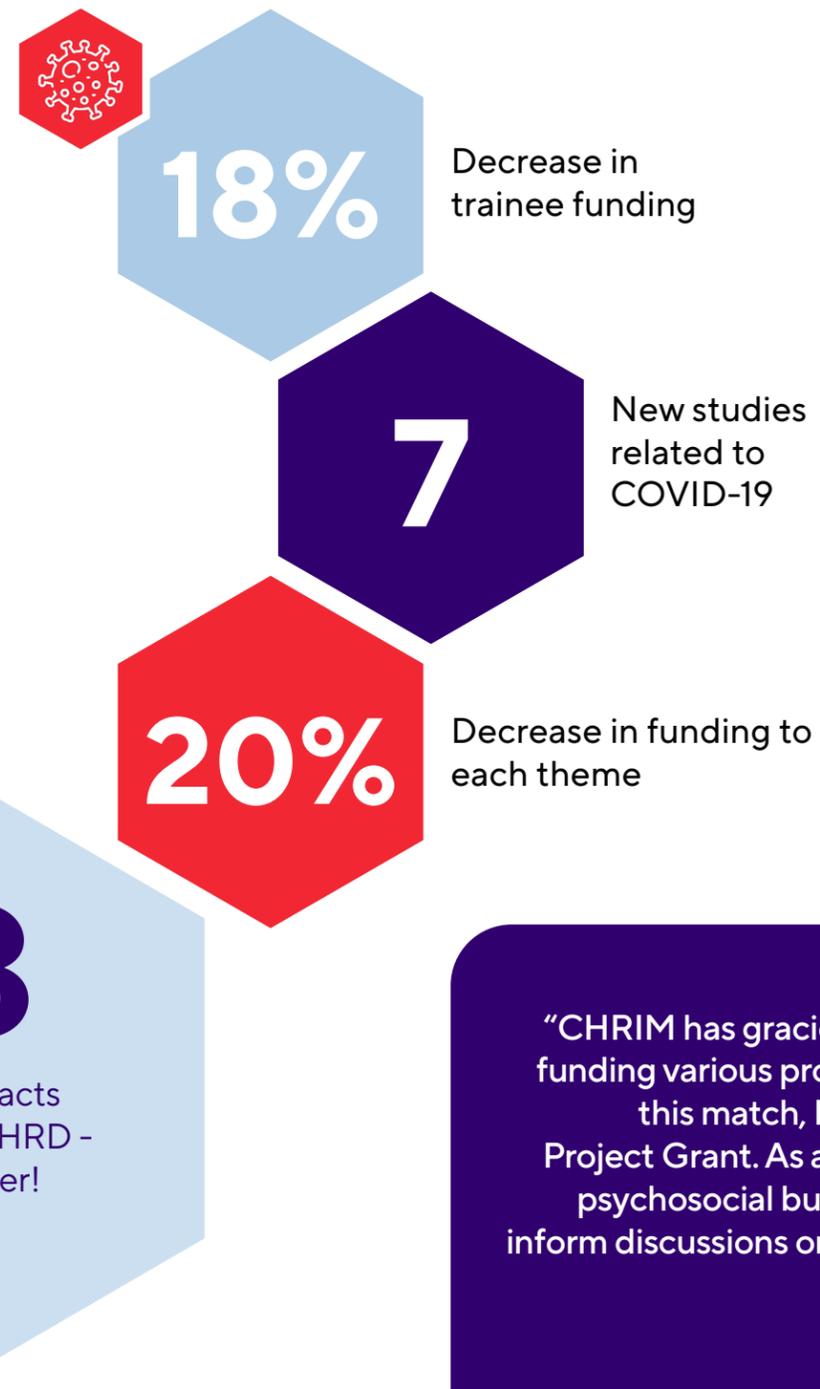
Dr. Cheryl Rockman-Greenberg
Genetics researcher, CHRIM

Funding impact:

A decrease in funding is a short-term necessity but harmful long term as it creates a ripple effect for researchers and their projects in the year of the impact and the future.

Less funding to support researchers means less funding available for grants. This equates to fewer opportunities for researchers to

attract outside funding, creating delays in advancing new knowledge, and impacts on national programs and policy change. Less funding also leads to less administrative assistance to support the ongoing needs of researchers, trainees, and their staff.



Despite funding challenges due to COVID-19, many researchers were successful in applying for external funding to help stabilize their research programs.

Additionally, we shifted funding from our annual Operating Grant program to maintain research capacity.

"CHRIM has graciously provided start-up funds, as well as matched funding various projects, including my CIHR Project Grant. Without this match, I would not have been eligible to apply for a CIHR Project Grant. As a recipient of this grant, we are learning about the psychosocial burden of food allergies, which is now being used to inform discussions on the development of a national program on food allergy education for healthcare professionals."

Dr. Jennifer Protudjer
Allergy researcher, CHRIM

Message from the Children's Hospital Foundation of Manitoba

Children's Hospital Foundation of Manitoba is proud to support the teams at Children's Hospital Research Institute of Manitoba and the life-changing impact on the health of kids across Manitoba and around the world. We are particularly proud that CHRIM has carried on the research legacy that began in the earliest days of pediatric care and medical training in Manitoba, and throughout the Foundation's 50-year history, which we will celebrate together in 2021. The ongoing focus and attention to the health of the most vulnerable in our communities, including structurally disadvantaged individuals, continues to make CHRIM's work relevant and inspiring. And it makes a difference for kids everywhere.

The worldwide pandemic presented challenges in 2020, not only of a novel coronavirus but a whole new way of living and working remotely. Donors and supporters in our community recognized how vital research would be in helping to move forward. CHRIM's ability to quickly respond and lead national and international investigations - on top of vitally important "regular" work - demonstrates the caliber, strength and respect of the Institute. The health of kids and their families will be better for it.

On behalf of the Foundation and its board of directors, thank you for the tremendous impact you make every day on understanding disease and treatment. Congratulations on a successful 2020.



Stefano Grande
CEO + President



Dean Schinkel
Board Chair



The Children's Hospital Foundation of Manitoba directly supports research through funding for grants, operations, and facilities. Despite the challenges of 2020, they raised nearly

\$3 million

to sustain child health research in Manitoba.





Support

The [Children's Hospital Foundation of Manitoba](#) provides nearly \$3 million in funding for research grants, operations, and facilities support in partnership with the [University of Manitoba](#), which provides over \$4 million in salary support in addition to approximately \$675,000 in facilities support for the research institute.

The Children's Hospital Research Institute of Manitoba

Thank you

We are fortunate to work with dedicated research groups and individuals who make our community a vibrant and collaborative space where child health research thrives.

Thank you to our [board members](#), committee members, funders, [partners](#), [researchers](#), [trainees](#), and staff who have all contributed to past successes and a healthier future for all children - locally, nationally, and globally.