

## **Purpose:**

The purpose of this report is to inform the Board of Directors of our research activity for this past year. The audience is diverse in their understanding of the scientific method, biology and medical terminology. It is critical to be concise, brief, and to use lay language. The Board uses this information to ensure that CHRIM's vision, mission and values are being fulfilled on an ongoing basis, and to report to the Foundation on productivity and responsibility to our donors.

## **Note:**

This year you will be required to report on 2 fiscal years:

- Previous fiscal year [April 1, 2022 - March 31, 2023]
- Current fiscal year [April 1, 2023 - March 31, 2024]

## **Which Theme are you reporting on?**

DREAM (Diabetes Research Envisioned and Accomplished in Manitoba)

### **Group Leader(s) and Members**

Allison Dart, MD, MSc, Department of Pediatrics and Child Health (co-lead)

Vernon Dolinsky, PhD, Department of Pharmacology and Therapeutics (co-lead)

Michel Aliani, PhD, Department of Food and Human Nutritional Sciences

Mandy Archibald, PhD, College of Nursing

Christine Doucette, PhD, Department of Physiology and Pathophysiology

Joseph Gordon, PhD, Department of Human Anatomy and Cell Science/Physiology and Pathophysiology

Meaghan Jones, PhD, Department of Biochemistry and Medical Genetics

Lucy Marzban, DMLS PhD, College of Pharmacy

Jonathan McGavock, PhD, Department of Pediatrics and Child Health

Taylor Morriveau, PhD, Research Department at the First Nations Health and Social Secretariat of Manitoba

Samantha Pauls, PhD, College of Pharmacy

Ayesha Saleem, PhD, Faculty of Kinesiology and Recreation Management

Elizabeth Sellers, MD, MSc, Department of Pediatrics and Child Health

Peter Thompson, PhD, Department of Physiology & Pathophysiology

Brandy Wicklow, MD, MSc, Department of Pediatrics and Child Health

Jennifer Yamamoto, MD, MSc, FRCPC, Department of Medicine

### **Theme Goals**

**Mission:** Grounded in person-centeredness and equity, we are a translational research team, dedicated to improving the wellness of children and families living with diabetes across generations by making discoveries that impact clinical care and health policy.

**Vision:** Improving the world of families and children living with diabetes.

**Who we are:** The DREAM theme consists of 16 investigators, 19 trainees, and 13 Indigenous partners committed to improving the lives of children and their families living with diabetes. Over the last 10 years, our team has prioritized advancing knowledge about childhood onset type 2 diabetes, a growing chronic disease that disproportionately affects First Nation children in our province. Our transdisciplinary investigator team has prioritized patient-oriented research and meaningful engagement with community

partners to ensure our efforts are focused on questions that are most important to individuals living with diabetes. Newer members of our team are also adding new areas of research, including understanding mechanisms of type 1 diabetes development, which may lead to new therapies, and how technologies can improve outcomes in pregnancies affected by diabetes. The newest member on our team brings a wealth of expertise in Indigenous data sovereignty. Our strength is the interdisciplinary nature of our team, which includes a broad range of expertise. Members include pediatric specialists in endocrinology and nephrology, and basic scientists with expertise in islet biology, metabolism, extracellular vesicles, epigenetics, muscle physiology as well as cardiovascular and kidney disease.

What we do: Our team continues to focus on three primary pillars of research. With the core support of DREAM, all pillars have now been funded by large operating funds, as well as 2 CIHR team grants and 2 CIHR SPOR Networks. 1. Novel interventions: Launch of a novel mental health skills intervention (iCARE 2.0: A Pilot Intervention of Dialectical Behavioural Therapy for Adolescents with Type 2 Diabetes) which will include traditional Indigenous wellness concepts, in collaboration with Indigenous scholar Dr. Linda Diffey and funding of a peer-mentoring based lifestyle intervention for youth living with diabetes (Heart and Stroke Foundation Operating Grant: 2022-2023). Dr. Mandy Archibald is currently also leading a team that includes several DREAM investigators (Drs. Jon McGavock, Liz Sellers, Brandy Wicklow, and Allison Dart) to design a living lab platform (A Living Lab for Mental Health in Youth Onset Type 2 Diabetes) funded by Sick Kids foundation and CIHR. Complications of diabetes: National iCARE Cohort to determine the biopsychosocial determinants of kidney disease in youth with type 2 diabetes– CIHR Project Grant (2021-2026) and CanSOLVE CKD SPOR Network: 2021-2026) 3. Developmental origins of type 2 diabetes and kidney disease in youth exposed to type 2 diabetes in utero (CIHR Team Grant: Diabetes Translational Solutions: 2022-2027).

Newer members of our team are focused on understanding mechanisms of type 1 diabetes development, which is primarily diagnosed in childhood and represents a new area of research for the DREAM Theme. Specifically, some of the new research investigates why insulin-producing beta cells are targeted and destroyed by autoimmunity in type 1 diabetes, and aim to identify factors that destroy islet beta-cells following pancreatic islet transplantation. The research aims to develop therapies for preventing type 1 diabetes, improve the function of existing beta cells, and enhance long-term function and survival of islet grafts in patients with type 1 diabetes. Since our inception, we have secured over \$94M in external funding to tackle diabetes in children and created patient and community advisory committees to ensure that our work is relevant to families we serve, hosted symposia for members of the scientific and lay community and made numerous discoveries that have shaped the way doctors and families understand type 2 diabetes in youth. We are also deeply committed to fostering the next generation of scientists and clinicians in this area. Collectively, this work has made the DREAM theme a nationally recognized center of excellence in pediatric diabetes research.

Why do we do it? Type 2 diabetes continues to be the fastest growing pediatric chronic disease in Canada. Manitoba has a significant number of youth diagnosed with type 1 diabetes each, but our province is disproportionately affected by type 2 diabetes in youth. Children diagnosed with type 2 diabetes experience high rates of complications including kidney dialysis. First Nation children are 25 times more likely to be affected by type 2 diabetes. We are dedicated to advancing knowledge that will address the Truth and Reconciliation Commission of Canada Call to Action #19 – that is to close healthcare gaps for First Nation children by working towards better, more relevant, and culturally safe treatments for the next generation of children. More broadly, as our team has grown, we also explore mechanisms of type 1 diabetes development, to work towards new therapies in this distinct but related disease, as well as explore new therapeutic strategies for diabetes in pregnancy, to improve the health of the mother and the offspring. The cause of the immune system attacking the insulin-producing beta cells in the pancreas is still being researched; our researchers are aiming to find out why this happens and how novel therapies can prevent type 1 diabetes by using cell culture, mouse models and human donor tissues. Women with diabetes in pregnancy continue to have poor pregnancy outcomes compared to women without diabetes. Strict blood sugar control before and during pregnancy can reduce pregnancy complications. One area of focus is leveraging diabetes technology to improve health outcomes for pregnant individuals with type 1

diabetes, type 2 diabetes, and gestational diabetes as well as the health outcomes of their babies. Diabetes technology includes insulin pumping and continuous glucose monitoring. Moreover, since we previously correlated exposure to diabetes during pregnancy to the development of diabetes in the offspring, several team members are investigating the mechanisms of how diabetes during pregnancy increases the risk for youth onset diabetes and its complications.

### **Justice, Equity, Diversity and Inclusion (JEDI)**

The DREAM Theme commissioned an audit on racism which led to the development of a 3-year action plan which began in 2023. The Antiracism Pathway includes three steps: 1) Truth and Self-Reflection, 2) Critical Consciousness & Antiracism, and 3) Advocacy and Partnership/Changing Policies. The action plan includes action items such as cultural sensitivity training (Manitoba Indigenous Cultural Safety Training – San'yas training) and OCAP training; The First Nations principles of ownership, control, access, and possession (OCAP), conducting annual audits, and having diverse hiring committees. Starting in 2024, the DREAM Theme will ask invited guests and speakers to complete an Equity, Diversity and Inclusion (EDI) self-identification survey to ensure that diversity is reflected within our team.

# **PREVIOUS Fiscal Year Review**

**[April 1, 2022 - March 31, 2023]**

## **Milestones**

1. \$2M CIHR Team Grant: Diabetes Mechanisms and Translational Solutions – 100 Years of Insulin: Featured Research awarded to Drs Brandy Wicklow, Allison Dart, Christine Doucette, and Meaghan Jones, focused on The Developmental Origins of Pediatric Type 2 Diabetes and Early Renal Dysfunction. Grant includes several DREAM scientists as well as Indigenous scholars, patient partners and will provide 5 years of funding for translational research to better understand why children develop type 2 diabetes and kidney disease.
2. Dr. Elizabeth Sellers, BSc, MD, MSc is recognized as the Diabetes Canada 2022 Honoree of the 14th Annual Best Banting Gala. Dr. Sellers has been an integral part of the D-Camps program since 1993 at Camp Banting in Ontario and continues as Camp Medical Director for Manitoba's Camp Briardale. Dr. Sellers is also an active member of their National Medical Task Force for D-Camps.
3. Dr. Peter Thompson was awarded \$589,000 from the CIHR spring competition to focus on mechanisms and consequences of senescent beta cell accumulation.
4. Three DREAM trainees completed their PhDs in 2022: Taylor Morriseau from Dr. Vernon Dolinsky and Dr. Christine Doucette's labs, Stephanie Kereliuk from Dr. Vernon Dolinsky's lab, and Hanna Zegallai from Dr. Grant Hatch's lab.
5. A publication, led by Dr. Vernon Dolinsky, and co-authored by 11 DREAM members (including 3 trainees) was published in a leading scientific journal, identifying novel associations between DNA methylation and the serum metabolome of adolescents with type 2 diabetes. This study was an important output from the 1st CIHR team grant and reflects team collaboration within the theme.

## **CHRIM Involvement**

CHRIM has helped the DREAM Theme achieve our top 5 accomplishments in several ways. CHRIM has provided the core funding that has opened the doors for the DREAM Theme to fund the annual DREAM Symposium, giving us opportunities to develop collaborations with researchers from other areas, and enhanced communication among DREAM researchers that has built the necessary collaborations for team grants. Previously DREAM funded the development of a unique mouse model to study mechanisms of early onset diabetes development in a genetic polymorphism that is common in the Anisininew people of northern Manitoba. This year, Dr. Taylor Morriseau completed her PhD work using this mouse which showed how a traditional First Nations diet may protect against type 2 diabetes development in mice carrying this genetic polymorphism. DREAM also supported bringing in a world expert in beta cell biology (Dr. Guy Rutter) for Dr. Morriseau's thesis defense and to establish new collaborations with researchers in Manitoba.

## **Impact**

Our work as a team has led to a better understanding of the most important risk factors for complications in children living with diabetes. Mental health has emerged as an important challenge from patients which impacts their disease management. It is now the focus of the iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes. This intervention is a novel therapy for diabetes that focuses on mindfulness, and personal strengths. We are also working with Indigenous Knowledge Keepers to incorporate traditional medicine into the next phase of the study. If successful, this intervention will improve the quality of life of youth living with type 2 diabetes. A second example of DREAM positively impacting the lives of pregnant people, children, youth and families in Manitoba is the Next Generation study, led by Drs. Brandy Wicklow, Liz Sellers and Allison Dart. This study aims to answer important questions about why type 2 diabetes runs in some families and what risks exist. Children who are born to Indigenous mothers and fathers who have type 2 diabetes, gestational diabetes or no diabetes are followed and screened for prediabetes or type 2 diabetes. The goal of this study is to prevent the

progression, treat early, or support families to live well with diabetes.

**Research Funding Amount (Total Amount)**

\$32,758,039.00

**ACTIVE Research Funding Amount (Subtotal Amount)**

\$8,452,652.00

**Catalyst Grants**

DREAM Catalyst Grants 2022

1. "Molecular regulation of muscle remodeling during obesity and type 2 diabetes: The role of altered mitochondrial quality control" by Dr. Joseph Gordon for \$20,000.

**Trainees**

During the fiscal year of April 1, 2022 – March 31, 2023, DREAM had 26 trainees: 6 undergraduate students, 6 masters students, 9 PhD students, 1 postdoctoral fellow, and 3 pediatric residents.

**NEW Trainees**

During the fiscal year of April 1, 2022 – March 31, 2023, there were 10 new trainees: 5 undergraduate students, 4 masters students and 1 PhD student.

**Trainee Initiatives**

Due to pandemic related challenges in recruitment of new students and the number of trainees in DREAM declined, so unfortunately there were no new trainee led initiatives in 2022. We will reinstate the DREAM trainee group and trainee lectureship and other activities in 2023. DREAM previously contributed funding for the development of the Canadian Islet Research Network, which led to new CIHR funding in 2022 of a new national training platform (MyROAD) which is focused on Research on Obesity and Diabetes. In 2022 MyROAD hosted the kickoff of a training and networking day at the Diabetes Canada meeting in Calgary, AB. This event was attended by four research trainees from DREAM at no cost for registration for the conference.

**Collaborations**

iCARE and Next Generation Team

- A main priority of our team is to work collaboratively with Indigenous experts and community. We are committed to The First Nations principles of ownership, control, access, and possession (OCAP) principles. To address these principles more thoughtfully, we have worked over the last year to established new partnerships with the Four Arrows Regional Health Authority and the First Nation Health and Social Secretariat of Manitoba. This partnership led to co-funding a First Nation Research Liaison to help us develop data sharing agreements, address data sovereignty and to facilitate knowledge exchange with community.
- Within the iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes, Linda Diffey, an Indigenous scholar is building an advisory circle to build the traditional Indigenous components of the intervention. This work has involved new relationships with Knowledge Keepers, and experts in Traditional Medicine.

Lucy Marzban:

In order to advance new research directions into the understanding of mechanisms that cause insulin producing cells to die in diabetes, collaborations were formed with an international leader in extracellular vesicle research, Dr. Elham Hosseini Beheshti, University of Sydney and an expert in beta cell apoptosis in diabetes, Dr. Dan Luciani, University of British Columbia and BC Children's Hospital Research Institute.

Peter Thompson:

A new collaboration with a leading expert in natural killer cell biology, Dr. Sam Kung, University of

Manitoba Immunology to investigate the involvement of natural killer cells in the progression and development of type 1 diabetes, as well as how natural killer cells interact with stressed (senescent) beta cells. Further collaborations will also study whether these immune cells can be used for new therapies in type 1. This collaboration enabled funding of a Thorlakson Foundation grant (2022-2023).

Formed new collaborations with Drs. Audrey Parent (UC San Francisco Diabetes Center) and Dr. Janilyn Arsenio (University of Manitoba Immunology), who are leading experts in human islet biology, immunology and single-cell RNA-sequencing, to explore how immune cells interact with stressed human beta cells and define the gene expression patterns associated with small molecule-based targeting of stressed beta cells in type 1 diabetes with funding from CIHR Project Grant (2022-2027).

Established a collaboration with Dr. Alberto Pugliese (Director the Network for Pancreas Organ Donors with Diabetes (nPOD)) to examine the expression patterns of drug targets that were identified in the Thompson laboratory and translate these findings by examining tissue samples from pediatric donor type 1 diabetes samples. Through the George Eisenbarth nPOD award for team science, Helmsley Charitable Trust (2022-2023) candidate drug targets for mitigating beta cell stress (senescence) programs and slowing the progression of type 1 diabetes will be investigated.

Ayesha Saleem:

Formed an international team of collaborators through the Japanese Agency for Medical Research and Development (AMED) - Interstellar Alumni Funding Program, with the aim to rescue cellular alterations in aged pancreatic beta cells to restore insulin-secretion function. This team included Dr. Adrian Teo Kee Keong (A\*STAR, Singapore), Dr. Shintaro Yamada (Kyoto University, Japan), Dr. Paola Vera-Licona (University of Connecticut, USA).

### **Community Partnerships**

The iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes hosted a community gathering in spring 2022. The meeting was attended by Jackie McKee (iCARE PAG member), Lorraine McLeod (FNHSSM), Caroline Chartrand (KIM/MKO), Helen Settee (Can-Solve CKD), Vanessa Lillie (Knowledge Keeper), Ashley Hayward (NEIHR), Larissa Wodtke (NEIHR), Belinda Vandembroek (Knowledge Keeper), Byron Beardy (FARHA), Arlene Desjarlais (Can-Solve CKD), and iCARE PAG members Michelle, Gio, and Onalee. Results for a scoping review of prevention and management practices incorporating traditional Indigenous approaches with type 2 diabetes was presented. This review was led by 3 Indigenous students, and included the partnerships of several DREAM investigators, and Indigenous Knowledge Keepers.

Community project support: We worked closely with our stakeholders this year 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, the DREAM research theme funded 3 projects: The grants have been rolled out to the participants and they have resumed their projects and hope to provide us with an update in 2023.

### **Patient Partners (if applicable)**

The DREAM theme has patient engagement as a core value. We have continued to expand this in the past year. The iCARE and Next Generation studies continue to have Patient Advisory Group (PAG)'s. They continue to guide the overarching goals of the study, interpretation of results and development of knowledge translation materials. They have been instrumental in the planning of the iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes and presented their stories at the Child Health Research Days in October. With the help of CHRIM, we were also able to fly in patient partners living with Type 1 diabetes to present at the annual DREAM Symposium.

Team members are actively involved in the CanSOLVE CKD SPOR network, as well as the Diabetes Action Canada Network – both focused on Patient Oriented Research. Members of the iCARE PAG also worked with DREAM with knowledge mobilization by creating an infographic and creating education bite-

sized videos. The PAG members translated the SEM model into an accessible graphic, and helped create the videos by starring in and writing the scripts.

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**Supporting Documents for April 1, 2022 - March 31, 2023**

antiracism pathway December 2022.pdf

DREAM Anti-racism plan V1.pptx

# **CURRENT Fiscal Year Review**

**[April 1, 2023 - March 31, 2024]**

*Note: this will require some forward looking for January - March 2024.*

## **Milestones:**

1. \$500K TD Bank Group Funding: DREAM received this funding in 2023 to help researchers connect with First Nation communities. DREAM will use this donation to continue building a partnership with Four Arrows Research Health Authority to promote trust and improve the relationship with Indigenous communities.
2. Four members on the team received considerable funding for their projects: 1. Dr. Jon McGavock was awarded \$1M from CIHR-JDRF for "Type 1 Diabetes, Exercise and Mentoring (TEAM) Trial: Peer mentorship to increase physical activity and quality of life in adolescents with type 1 diabetes. 2. Dr. Peter Thompson and Dr. Lucy Marzban were awarded \$849,796 from Canada Foundation for Innovation (CFI) and John R. Evan Leaders Fund (JELF) for their project "An integrated high-throughput tissue imaging and cell sorting platform". 3. Dr. Joseph Gordon was awarded \$257,000 from Heart and Stroke Foundation for "Molecular regulation of cardiac remodeling by Nix during obesity- and diabetes-related heart disease". This project was previously funded from DREAM's catalyst grant in 2022 for \$20,000.
3. In November 2023, DREAM revitalized the DREAM Steering Circle. This was formerly known as the Project Steering Committee/Stakeholder Group. Members of the circle were updated to include representatives from several new areas of Manitoba and Saskatchewan.
4. Three members on the team won prestigious awards: 1. Dr. Vern Dolinsky was awarded the University of Manitoba Faculty Association Merit Award 2023. Dr. Dolinsky has been an associate department head and associate professor in the Department of Pharmacology and Therapeutics at the University of Manitoba since November 2021. He was competitively awarded for outstanding research, scholarly work and creative activities at the University of Manitoba. 2. Dr. Peter Thompson was the recipient of the Kenneth R. Hughes Young Investigator in Medical Research Award at the University of Manitoba for most outstanding track record for an early career investigator engaging in health-related research. 3. Dr. Brandy Wicklow was awarded the Pediatric Chairs of Canada Academic Leadership Clinician Practitioner Award. Dr. Wicklow has been the head of the pediatric endocrinology and metabolism in the Department of Pediatrics and Child Health at the University of Manitoba since 2021.
5. The DREAM Theme worked with web developers to create a brand-new website. The new website is more user-friendly for patients, students, researchers, and potential collaborators. The site presents to full spectrum of DREAM research from type 1 diabetes, type 2 diabetes and diabetes during pregnancy. The website includes features such as training links and opportunities for trainees, donation button to Children's Hospital Foundation, and a calendar that is catered to all populations; for example, the dates of the iCARE and NextGeneration outreach to the Anisiniw Nations will be on the calendar so community members are aware of the dates.

## **CHRIM Involvement:**

CHRIM has helped the DREAM Theme achieve our top 5 accomplishments in several ways. CHRIM has provided the core funding that has opened the doors for the DREAM Theme to fund the annual DREAM Symposium, which has the forum to learn from experts in the field and form the collaborative research teams that resulted in successful team grant applications. This year, the symposium included presentations from collaborators on the Next Generation Team Grant. Previously, DREAM funded Dr. Joseph Gordon's project "Molecular regulation of muscle remodeling during obesity and type 2 diabetes: The role of altered mitochondrial quality control" in 2022 for \$20,000; this research led to Dr. Gordon receiving funding from the Heart and Stroke Foundation with \$257,000 in 2023.

## **Impact:**

Our work as a team has led to a better understanding of the most important risk factors for complications in children living with diabetes. Mental health has emerged as an important challenge from patients which impacts their disease management. It is now the focus of the iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes. This intervention is a novel therapy for diabetes that focuses on mindfulness, and personal strengths. We are also working with Indigenous Knowledge Keepers to incorporate traditional medicine into the next phase of the study. If successful, this intervention will improve the quality of life of youth living with type 2 diabetes. A second mental health intervention that has received funding in 2023 is the Type 1 Diabetes, Exercise and Mentoring (TEAM) Trial: Peer mentorship to increase physical activity and quality of life in adolescents with type 1 diabetes. This study aims to give adolescents living with type 1 diabetes mastery, relatedness and connection with peers, and a sense of autonomy to improve their quality of life through healthy, active lifestyles. This will positively impact the participant's mental health and diabetes outcome. DREAM positively impacts the lives of pregnant people, children, youth and families in Manitoba through the Next Generation study, led by Drs. Brandy Wicklow, Liz Sellers and Allison Dart. This study aims to answer important questions about why type 2 diabetes runs in some families and what risks exist. Children who are born to Indigenous mothers and fathers who have type 2 diabetes, gestational diabetes or no diabetes are followed and screened for prediabetes or type 2 diabetes. The goal of this study is to prevent the progression, treat early, or support families to live well with diabetes.

**Research Funding Amount (Total Amount)**

\$45,488,526.00

**ACTIVE Research Funding Amount (Subtotal Amount)**

\$11,577,161.00

**Catalyst Grants**

DREAM Catalyst Grants 2023

1. "The role of macrophages and IL-1 receptor in amyloid formation and amyloid-associated islet inflammation during diabetes" by Dr. Lucy Marzban for \$14,053.
2. "In utero exposure to Type 2 Diabetes and long-term risk fracture risk in offspring: Analysis of prospective cohort data from the Manitoba Center for Health Policy Data Repository" by Dr. Brandy Wicklow for \$10,000.
3. "Mentor Training and Patient Engagement for TEAM Trial – Peer mentoring for adolescents with type 1 diabetes" by Dr. Jon McGavock for \$14,998.

**Trainees**

During the current Fiscal Year of April 1, 2023 – March 31, 2024, DREAM has 21 trainees: 8 master students, 8 PhD students, 2 postdoctoral fellows, and 3 pediatric residents.

**New Trainees**

During the current Fiscal Year of April 1, 2023 – March 31, 2024, DREAM has had 4 new trainees: 3 masters students and 1 postdoctoral fellow.

**Trainee Initiatives**

The 12th Annual DREAM Symposium included a full day of trainee professional development presentations. This included a cultural safety presentation by Indigenous scholar Dr. Linda Diffey, grant-writing seminar led by DREAM investigator Dr. Jon McGavock, and professional development panel talk that was split into academic and non-academic panelists. MyRoad, a training platform funded by CIHR, helped bring three external trainees to participate in the two-day event by covering their flight and hotel accommodations. MyRoad also supported the event by attending the event in-person and funding costs of the day.

## **Collaborations**

Dr. Meaghan Jones

Collaborated with Dr. Colin Garroway (University of Manitoba) to research epigenetic age and climate change in polar bears. Also collaborated with Dr. Kevin Kay (University of Calgary) on epigenetic aging predicting CART therapy success.

Dr. Peter Thompson

Established a collaboration with Dr. Guy Rutter (University of Montreal, CHUM), Dr. Herbert Gaisano (University of Toronto), and Dr. Pere Santamaria (University of Calgary) and were awarded a CIHR-JDRF Team grant precision medicine in type 1 Diabetes to study spatio-temporal dynamics of immune and non-immune islet injury in type 1 diabetes.

Formed a collaboration with Dr. Liz Rideout, Dr. Jim Johnson, Dr. Bruce Verchere, and Dr. Dan Luciani (all from University of British Columbia) to examine leveraging biological sex and genetics for beta cell-directed precision medicine in type 1 diabetes and were awarded a CIHR-JDRF Team grant.

Dr. Samantha Pauls

A new collaboration with Dr. Versha Banerji and team from CancerCare Manitoba Research Institute and the Dept of Internal Medicine at the University of Manitoba to explore links between the disease course of chronic lymphocytic leukemia (CLL) and metabolic alterations at the cellular and whole body levels.

## **Community Partnerships**

DREAM Steering Circle

In 2023, DREAM restarted the DREAM Steering Circle (formerly known as the Project Steering Committee) and added new representatives from different communities. The first meeting was held in-person in fall 2023 and was attended by Frances Desjarlais (Knowledge Keeper), Lorraine McCleod (FNHSSM), Dr. Linda Diffey (Indigenous Scholar), Luise Bugera (Opaskwayak Health Authority), Antonina Kandiurin (PAG member), and Marisa Cardinal (NIDA). The second meeting was held virtually a month following the first meeting and was attended by Caroline Chartrand (KIM/MKO), Tanyla McDougall (Island Lake Anisininew Nations), Angie Meisner (Dauphin River First Nation), Frances Desjarlais, Craig Settee (Can-Solve CKD), Antonina Kandiurin, Lorraine McCleod, and Marisa Cardinal. Dr. George Katselis presented his project and requested the use of urine samples from the iCARE cohort, and Liat Stitz, a master's student currently supervised by DREAM co-lead Dr. Allison Dart, presented her study and requested for volunteers to be co-investigators for her thesis project.

Four Arrows Regional Health Authority (FARHA)

With the TD Bank Group Fund, DREAM hired a First Nation Research Liaison from FARHA, who has been working with DREAM to rebuild the relationship between researchers and the Anisininew Nations region. Community partners from FARHA accepted the invitation to perform an opening prayer and present at the 12th Annual DREAM Symposium on November 16, 2023. Team members from the iCARE and NextGeneration studies went to the FARHA office for a collaborative meeting on December 11, 2023.

We are committed to meaningful reconciliation with Indigenous People. We also wrote a Land Acknowledgement as a team, which is published on our website, engaged with a Knowledge Keeper to educate our team about the importance of ceremony for Indigenous Peoples, and 5 members of our team participated in a Sweat Lodge ceremony at the Fort Garry Campus (<https://umanitoba.ca/indigenous/sweat-lodge-ceremony>) this fall.

**Patient Partners (if applicable)**

The DREAM theme has patient engagement as a core value. We have continued to expand this in the past year. The iCARE and Next Generation studies continue to have Patient Advisory Group (PAG)'s. They continue to guide the overarching goals of the study, interpretation of results and development of knowledge translation materials. They have been instrumental in the planning of the iCARE 2.0 pilot intervention: dialectical behavioral therapy for adolescents with type 2 diabetes. This past year, iCARE patient partners met on April 24, 2023, and November 10, 2023. These meetings allowed researchers the opportunity to hear from patient partners who collaborated on several manuscripts (engaging in academic authorship). Patient partners also edited and shaped study materials and advised the rest of the research team on how to improve clinical appointment adherence across age groups. On November 29, 2023, a patient partner involved with the iCARE advisory group presented on a panel at CHRIM. The panel focused on the inclusion of diverse voices in health research and Justice, Equity, and Inclusion principles in research more broadly. For NextGeneration, the Patient Advisory Group met at CHRIM on November 2, 2023. The group provided important feedback on data collection materials used in the study and worked together to review study priorities. Patient and family partners continue to improve the research experience for children and families and support knowledge mobilization.

Team members are actively involved in the CanSOLVE CKD SPOR network, as well as the Diabetes Action Canada Network – both focused on Patient Oriented Research.

Dr. Jon McGavock's TEAM Trial used funds from the awarded catalyst grant to host an investigator meeting and training workshop for new study staff in Winnipeg October 19&20, 2023. Patient partners helped plan the event, and some of them were flown in to attend. At the meeting, they assisted in further developing the study intervention and met the investigators, new staff, and each other in person for the first time since starting to work together in 2020.

**Supporting Documents for April 1, 2023 - March 31, 2024**

DREAM Poster.pdf

Website QR Code.png

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**Email for Copy of Submission**

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