

YOUR IMPACT

SUNNYBROOK'S DAN WOMEN & BABIES PROGRAM



 Sunnybrook
FOUNDATION

SPRING 2023

A message of gratitude from Sunnybrook



This year marks the end of my tenure as the Chief of the DAN Women & Babies Program at Sunnybrook. As I reflect on the past 10 years in my role, I am particularly proud of the progress we've made, with you as a crucial partner. Your support has advanced how we provide care and treatment during pre-conception, pregnancy, delivery and post-birth, as well as gynaecological care.

At Sunnybrook, our strength is our people. During my time here, we have recruited and built a truly phenomenal team of clinicians, teachers and researchers at the DAN Women & Babies Program. We can attract the best and the brightest because of our donor community. In bringing together this group of highly talented individuals, we continue to provide the highest quality care to our patients and their families when it matters most.

In this report, you will meet Dr. Sascha Drewlo, the newest recipient of the Waks Family Chair in Maternal Fetal Medicine Research, who is taking a novel basic science approach and transforming prenatal diagnosis. You'll also learn about what differentiates our DeFrancesco Neonatal Follow-up Clinic, through the work of its medical director Dr. Rudaina Banihani and her team.

The new research we have underway reflects our tremendous growth over the past decade. Your generosity has helped lead to meaningful innovations in care for patients provincially, nationally and internationally in the areas of pregnancy, infancy and gynaecologic and reproductive health.

Behind each advancement we've made, we know we can count on our donor community. While my time as Chief is coming to a close, I know the life-changing work we are doing at the DAN Women & Babies Program will continue thanks to your steadfast support.

Sincerely,

Dr. Arthur Zaltz

Chief, DAN Women & Babies Program
Sunnybrook Health Sciences Centre

What's Inside

- 04** *Improving the outcomes of twin pregnancies*
- 05** *Evaluating new therapies*
- 06** *Maternal fetal health*
- 07** *Introducing Dr. Drewlo*
- 08** *The DeFrancesco Neonatal Follow-up Clinic*
- 10** *Meet Gage, born at 23 weeks*
- 11** *Personalized care for pregnant people*



The DAN Women & Babies Program is committed to advancing research and treatment for gynaecological health, and to improving the outcomes for high-risk mothers and babies. Donor support empowers everything we do. Thank you for helping us be there when it matters most.

DAN Women & Babies Program, by the numbers:

3,500+

births at
Sunnybrook

647

babies cared for in
the Newton Glassman
Neonatal Intensive
Care Unit

79

micropreemies cared for
(babies born at fewer than
26 weeks of pregnancy)

142

peer-reviewed
publications

14

ongoing
randomized trials

3

published clinical
guidelines

IMPROVING TWIN PREGNANCY OUTCOMES

Dr. Nir Melamed holds the Waugh Family Chair in Twin Fetal Medicine Research



A key factor in preventing preterm birth is identifying early on who is at high risk. Dr. Nir Melamed is leveraging the resources of Sunnybrook's Waugh Family Chair in Twin Fetal Medicine Research to accomplish this goal.

The senior scientist and head of Sunnybrook's Twins Research Centre is partnering with scientific colleagues at the Hospital and beyond on several novel studies including:

- The development of an artificial intelligence-based tool that uses the cervical length measurements of women treated in Sunnybrook's Twins Clinic to predict preterm birth;
- Use of advanced ultrasound technologies to reveal new information about cervical tissue and its role in preterm birth; and
- The creation of decision-support tools to guide the administration of medication used to help the lungs of the fetus mature.

Dr. Melamed is also leading an important analysis of a blood test used to diagnose preeclampsia, a serious complication that could lead to high blood pressure, organ failure and death. Sunnybrook was the first centre in North America to use the test to diagnose the condition in singleton pregnancies.

Now, Dr. Melamed is analyzing its performance in twin pregnancies.

He is also exploring whether in fact people with twin pregnancies develop mild gestational diabetes (known as GDM) in order to allow for the greater availability of glucose for two babies.

Practice-changing research

One recent study revealed a rather alarming finding: Dr. Melamed found that strict control of GDM did not reduce the risk of related complications such as large babies or Caesarean section births. But it did increase substantially the risk of babies being born too small.

To help counter this risk and prevent overdiagnosis and over-treatment of GDM, he published a paper recommending a higher optimal screening rate for GDM in people with twin pregnancies.

Much of the practice-changing research supported by the Waugh Family Chair helped to inform Canada's new twin pregnancy guidelines, co-authored by Dr. Melamed for the Society of Obstetricians and Gynaecologists of Canada (SOGC). He is also the lead author of: the International Federation of Gynecology and Obstetrics guidelines on fetal growth restriction, the SOGC guidelines on fetal growth restriction, and a special twin pregnancy edition of the *American Journal of Obstetrics & Gynecology Maternal Fetal Medicine*.

Dr. Melamed also used funding from the Chair to update and expand Sunnybrook's Twin Research Centre website.

Support from our donor community has been integral to the progress and ongoing success of Dr. Melamed's work. Together, we are advancing research in twin fetal medicine and improving outcomes for mothers and babies.

DONOR SUPPORT FOR UNIQUE TRIALS

Dr. Patricia Lee is applying scientific rigour to evaluate new therapies



Sunnybrook urogynaecologist Dr. Patricia Lee is asking whether there is evidence to support some of the commonly used treatments being offered at clinics for conditions such as stress incontinence and vaginal dryness.

“Some of these treatments are novel, but not well studied,” says Dr. Lee. “If we are able to show that these novel therapies work, then widespread use could help thousands of women. If the treatments don’t work, then we should not be offering them.”

To answer these questions, Dr. Lee is conducting Canada’s first randomized controlled trials: the first will assess the impact of laser treatment on stress incontinence, the most common type of urinary incontinence affecting more than a third of women over age 40; the second trial will explore the efficacy of laser treatment for vaginal dryness, a significant condition that affects half of women over the age of 50. Approximately 240 women are participants in these trials.

In addition to evaluating how well the treatments work, Dr. Lee hopes to pinpoint who is most likely to benefit and to what extent. If laser treatment is scientifically proven to help improve the symptoms of either condition, she hopes to make a case for provincial funding to increase access to proven treatments for more women with these conditions. Patients currently pay out-of-pocket for these novel treatments at clinics.

Dr. Lee will be embarking on another trial involving a treatment to strengthen pelvic floor muscles and improve incontinence.

An art and science

All three studies illustrate the importance of care grounded in evidence.

“Medicine is an art and a science. When we care for patients, whenever possible, it should be evidence-based, and that evidence comes from research,” Dr. Lee explains.

Available funding for urogynaecology research is surprisingly limited. Without a steady stream of external grant funding, many of the 140 urogynaecologists in Canada, Dr. Lee included, often struggle to build a sustainable research enterprise.

That’s where donor support is making a difference at Sunnybrook. Donor funding helps jumpstart Dr. Lee’s research, hires staff to lead the studies, and attracts and supports graduate students and research fellows.

“I’m grateful to the donors who see the impact my work is having and share my commitment to inventing the future of urogynaecological care,” Dr. Lee says.



LEADERSHIP IN MATERNAL FETAL MEDICINE

Improving outcomes for patients throughout the entire pregnancy cycle



A year into the role of Division Head of Maternal Fetal Medicine, Dr. Nanette Okun (*pictured left*) reflects on key highlights since joining *Team Sunnybrook*.

Specifically, Dr. Okun lauded the strength of Sunnybrook's collaborative approach, and how a strong

emphasis on cross-disciplinary and organizational partnerships will positively impact outcomes for patients.

One notable example is the addition to the team of Dr. Jonathan Zipursky (*pictured above in an interview for CTV*), a clinician-scientist who will be exploring drug safety and pregnancy through a program called First Exposures.

In partnership with the University of Toronto's Dalla Lana School of Public Health, the First Exposures initiative will serve as an information hub and research network to fill crucial gaps in health care for mothers and infants. In particular, First Exposures will focus on fetal, neonatal and infantile

exposures to various medications, non-medicinal substances, maternal diseases, the changing ecosystem in our environment, and the social determinants of health.

Dr. Okun is also exploring potential opportunities to research how we can optimize health and improve quality of life for patients following childbirth. The maternal fetal medicine team, in collaboration with cardiology, is interested in investigating the long-term risks associated with postpartum preeclampsia, a condition characterized by the new onset of high blood pressure.

“What I envision at Sunnybrook is the ability to conduct end-to-end screening – from the very beginning of pregnancy through the postpartum period – to ensure optimization of health for our patients.” Dr. Okun says. “There are common pregnancy diagnoses like hypertension that can be life-changing for people. At Sunnybrook, there are so many opportunities to collaborate and make a tangible impact on patients' lives.”

Donor support will be key to moving many of Sunnybrook's cross-disciplinary and other important initiatives forward. Thank you.

TRANSFORMING PRENATAL DIAGNOSIS WITH DETECTION EARLIER THAN EVER BEFORE

Dr. Sascha Drewlo, PhD, succeeds high-risk pregnancy expert Dr. Jon Barrett



The newest recipient of the Waks Family Chair in Maternal Fetal Medicine Research is bringing a novel perspective to Sunnybrook's vision of creating more healthy pregnancies.

Dr. Sascha Drewlo, PhD, is a basic scientist whose research into the role of placental cells as predictors of pregnancy health is transforming prenatal diagnosis. Over his 16-year career, he has pioneered and patented several techniques for collecting and analyzing early placental cells using a simple pap smear. This work has the potential to make a wide range of fetal genetic diagnoses safely and earlier than ever before – as early as five weeks of gestation compared to the current standard of 12 weeks.

Dr. Drewlo joined Sunnybrook in July 2022 following doctoral training at the Deutsche Sporthochschule Cologne & University Hospital Medical School in Germany, a postdoctoral fellowship at Toronto's Lunenfeld-Tanenbaum

Research Institute and nine years at Michigan State University and Wayne State University.

Dr. Drewlo succeeds the inaugural Waks Family chairholder Dr. Jon Barrett, an internationally recognized medical expert in high-risk twin and multiple pregnancies.

“We are so fortunate to be embedded in one of the best clinical and basic science environments in the world,” Dr. Drewlo says of his decision to return to Canada and to join Sunnybrook.

Dr. Drewlo recently completed a five-year plan to build a globally recognized, comprehensive program for the early detection and management of high-risk pregnancies. Using perinatal genetics that provide patients and their doctors with information about the health of the fetus before birth, Dr. Drewlo and his team of students, clinical medicine trainees and post-doctoral fellows will aid in the identification of people at risk of pregnancy disorders and the testing of novel treatments using the human placenta and preclinical models.

“We have very high hopes about the leadership Dr. Drewlo will bring to Sunnybrook, the academic community and the field of medicine,” says Dr. Arthur Zaltz, Chief of the DAN Women & Babies Program.

“Thanks to our community, we have opened the door to basic science research that, when paired with Sunnybrook's critical mass of patients, will help to invent the future of maternal fetal care in Toronto, Ontario, Canada and beyond.”

“Being a part of this cause is a gift I cherish. I couldn't be more grateful to the donors to the Waks Family Chair for the opportunity and their trust in me.”

- Dr. Sascha Drewlo, Waks Family Chair in Maternal Fetal Medicine Research

SUNNYBROOK'S NEONATAL FOLLOW-UP CLINIC

Unique approach attracts Canada's best and brightest leaders



As a neonatologist, Dr. Rudaina Banihani knows that a premature baby's care in the first days and weeks after birth can make the difference between life and death.

As a developmental behavioural

paediatrician, she also knows that the first eight years of follow-up care for premature babies can make the difference between surviving and thriving.

It's why the dual-trained expert – one of just four neonatologist and development behavioural paediatricians in Canada – chose to join Sunnybrook's Newton Glassman Neonatal Intensive Care Unit (NICU) in 2014 and why she is proud to be the medical director of the DeFrancesco Neonatal Follow-up Clinic.

Supporting NICU graduates at every stage

Dr. Banihani and the Sunnybrook NICU team care for up to 350 premature babies each year, including 70 "micro-preemies" weighing less than three pounds. And their commitment to personalized neonatal care extends long after a baby "graduates" from the NICU.

A particular focus is placed on follow-up care for babies born at less than 30 weeks. These NICU graduates receive follow-up care within a week of discharge, all the way up to age eight.

Supported by donor generosity, the DeFrancesco Neonatal Follow-up Clinic assesses infants and children at different developmental milestones to determine how they are developing and enhance their long-term outcomes and daily function.

"Our focus is function," Dr. Banihani says. "We want to identify early markers that might increase the probability of challenges in developmental progress and may affect overall function in the future."

The clinic is one of just a handful in North America with the capacity to identify as early as four months of age the premature infants who have a higher probability of developing motor challenges associated with cerebral palsy. They also do early screening for autism, social skills and function in school, both socially and academically.

If signs and opportunities for growth are identified, different pathways of care for the child and family are activated. For example, targeted motor intervention may be recommended in the case of cerebral palsy, or targeted autism services may supplement the other available services such as physiotherapy, occupational therapy and family training.

DeFrancesco Neonatal Follow-up Clinic Guiding Principles

We believe in the following outcomes:

- **Hope:** for a bright future for you, your child and your entire family.
- **Empowered parents:** who are comfortable, confident and resilient caregivers.
- **Extraordinary kids:** who are happy and thriving, and enjoying each day.



Team members of the DeFrancesco Neonatal Follow-up Clinic.

Working with “remarkable synergy”

Dr. Banihani points to three things that have made the DeFrancesco Neonatal Follow-up Clinic a leader in Canada.

The clinic’s multidisciplinary group of experts, including developmental neonatologists, occupational therapists, nurses, speech-language pathologists and physiotherapists, work together with remarkable synergy. Patients and their family meet with both physicians and therapists in the same visit.

“This unique approach allows us to look at all challenges that the child and family unit could come across. These could range from maternal mental health and family well-being, to developmental challenges with the child related to prematurity. By working together, we can start to identify markers and diagnose conditions earlier,” she says.

The clinic also boasts the highest follow-up rate in the country. More than 90 per cent of

NICU graduates receive follow-up care for the recommended eight years, compared to 70 per cent in most other programs.

Sunnybrook also offers virtual appointments and satellite clinics in Whitby and Brampton to increase access to the clinic team. This allows Sunnybrook to be closer to where families live and where they receive community services, and ensures that neonatal follow-up staff can work with families in their neighbourhoods and in collaboration with their medical and therapy teams in the community.

The final reason Sunnybrook stands apart? “We’re a family that cares for families,” says Dr. Banihani.

“We really believe in what we do. We want to continue to ensure that families are well taken care of and that their little ones can grow into the incredible people they are meant to be. Donor support enables us to offer exceptional neonatal follow-up care to more families.”

MEET GAGE, BORN AT 23 WEEKS

Sunnybrook set up Gage and his family for success after the NICU

Like a lot of Canadian kids, seven-year-old Gage will be playing hockey and skiing this winter. What sets him apart is his start to life. Gage was born at 22 weeks and five days and spent four months in Sunnybrook's Newton Glassman Neonatal Intensive Care Unit (NICU).



Heather and Gage at Sunnybrook's NICU.

"It hasn't been an easy path, but it has been so rewarding," says Heather, Gage's mom, who explains Gage has low vision, autism and receives therapy for mobility issues. "He has disabilities but we make the best of it and celebrate every milestone."

"Caring for a micro-preemie like Gage requires support from an inter-professional team so we can ensure the best possible outcomes for these infants," says Dr. Eugene Ng, medical director of the NICU at Sunnybrook. "One of the most important steps centres on discussions with families about what having a premature baby means for them."

Sunnybrook not only provides expert treatment for these infants, but also educates and offers strategies to families in caring for their babies as early as possible. A team called BOOST (Building Opportunities for Optimal and Smooth Transitions) focuses on the transition from the NICU to home by engaging in family integrated care and empowering families in providing care to and advocating for their infants.

"In this stage, we shift much of the decision-making for the child to the parents while in the NICU," explains Dr. Ng. "In doing so, we are starting to build their 'parental capacity' muscles before babies are discharged from the Hospital."

"I have a photo of the first time I held Gage. He's on my chest in the NICU. He was so tiny." Heather recalls. "A few months later, he left the hospital breathing on his own and breastfeeding. Now he's skiing and loves anything to do with animals. He works hard to do the same things kids his age do, but he does them. It has taken work to get there, but he's come out on the other side."

Champions of Change: Defining how young people support Sunnybrook

A group of passionate, young philanthropists is committed to advancing health care. Led by co-chairs Melanie Dowhaniuk and Chris Partridge, Champions of Change represents the next chapter of support for Sunnybrook.

One of the group's first philanthropic initiatives was for each founding member to make a pledge in support of the DAN Women & Babies Program. Their collective gift was generously matched by the Nanji Family and resulted in the addition of incubators for Sunnybrook's Newton Glassman Neonatal Intensive Care Unit (NICU).

In October 2022, Champions of Change held their first event since 2020 at the home of co-chair Chris Partridge. The group was pleased to hear from Dr. Rudaina Banihani, medical director of the DeFrancesco Neonatal Follow-up Clinic and a neonatologist and developmental behavioural paediatrician.

Through events and other initiatives, Champions of Change hopes to further engage new donors and build upon their support of exceptional care at Sunnybrook.

PERSONALIZED CARE FOR PREGNANT PEOPLE



Improving obstetrical care for people living with physical disabilities

Led by Dr. Anne Berndl, Sunnybrook's Accessible Care Pregnancy Clinic is a specialized treatment centre that provides care for women, transgender and non-binary people with physical disabilities who are pregnant or are contemplating a pregnancy.

Serving the community since March 2017, the Accessible Care Pregnancy Clinic is the first of its kind in North America.

While patients may or may not use mobility devices or aids, the clinic is committed to being fully accessible for those that do. Some examples of patients cared for include little people, people with spinal cord injuries, severe arthritis, spina bifida, a history of traumatic physical injuries, cerebral palsy, multiple sclerosis, a history of amputations, and myasthenia gravis.

Care options at the clinic are individualized to each patient and their family, with the goal of providing seamless and holistic care throughout planning, pregnancy, labour and the postpartum period.

Sunnybrook's team of health-care staff understands that every pregnant person is unique – a key factor of their success is their ability to work together to create a pregnancy care and birth plan that is tailored to each patient's specific needs.

In addition to providing accessible care, the health-care team at the clinic is currently in the process of developing new clinical guidelines through the Society of Obstetricians and Gynaecologists of Canada (SOGC). The establishment of such guidelines will ensure that care is standardized and will positively impact all pregnant people – regardless of physical disability.



Infant loss and equitable support: Sunnybrook's Indigenous outreach

Sunnybrook's Pregnancy and Infant Loss Network (PAIL) is dedicated to improving bereavement care and providing support to families who have suffered the loss of a pregnancy, death of an infant or elective abortion no matter the circumstances that surround that event. PAIL support services have been tailored to meet the specific needs of grieving families, and are available at no cost to all families in the province of Ontario.

Health professionals working with Indigenous families and in First Nations, Inuit, and Métis (FNIM) communities across Ontario need the tools to provide compassionate care and guidance to families. Indigenous families who lose a child can experience additional trauma when available supports are not inclusive and reflective of their experiences and needs.

PAIL undertook a focused consultation with Indigenous health professionals, FNIM community members and Friendship Centres to better understand their experiences and what can be done to improve support. As a result, PAIL has begun undertaking the following actions to better serve Indigenous communities:

- Tailored education for health-care professionals working with/in Indigenous communities;
- Culturally appropriate and informed support for Indigenous families and individuals;
- Building lasting and trusting relationships with Indigenous communities;
- Providing online access to PAIL network support.

These are the first of many steps that Sunnybrook is proud to take to ensure that equitable care is available for all families.

OUR THANKS TO YOU

Sunnybrook's DAN Women & Babies Program continues to lead the way in advancing research, treatment and care for pregnant people and their families.

We are grateful for your continued partnership and trust in everything we do. Thank you.

Together, we are inventing the future of health care.