



# Department of Paediatrics

## Self-Study Report (2020-2024)

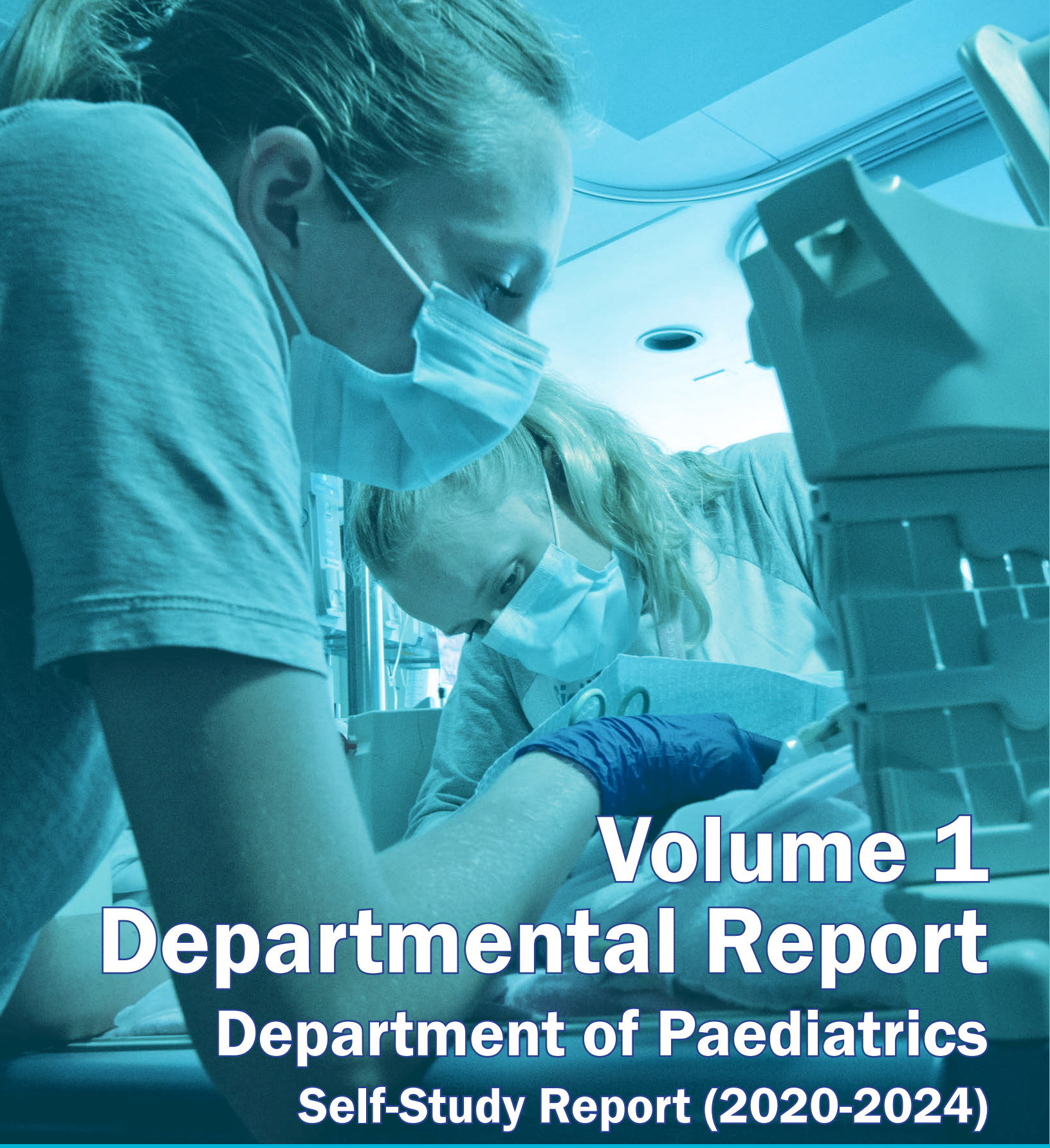
The Hospital for Sick Children & University of Toronto

External Review: January 22-23, 2025

**SickKids**<sup>®</sup>



TEMERTY FACULTY OF MEDICINE  
UNIVERSITY OF TORONTO



**Volume 1**  
**Departmental Report**  
**Department of Paediatrics**  
**Self-Study Report (2020-2024)**

**SickKids<sup>®</sup>**



TEMERTY FACULTY OF MEDICINE  
UNIVERSITY OF TORONTO

# Contents

## 9 1.0 Introduction

### 9 Message from the Chair

### 11 Executive Summary of Report

### 12 Overview of the Department of Paediatrics

12 Strategy

12 Governance and Organizational Structure

### 13 Executive Leadership

13 Paediatric Executive Committee

14 Supplemental Departmental Governance

15 Divisions and Divisional Leadership

### 16 Department Overview: Division Heads

17 Renewed Division Heads

17 Active Division Head Searches

17 Planned Searches for 2025

17 TAHSN Chiefs of Paediatrics

17 Faculty and Trainees

18 Summary of Achievements and Milestones

24 Strengths and Potential Risks

27 Response to the Previous Review

31 Future Planning

### 36 2.1 People

36 Overview

36 Faculty Complement by the Numbers

36 All Faculty by Identified Gender

36 All Faculty by Primary Appointment Type:

36 Clinical Full-Time by Job Profile

38 Faculty Appointments and Evaluation of Performance

40 Academic Promotions

### 44 2.2 EDIA in the Department of Paediatrics

44 Background and Introduction

45 Departmental EDIA Framework

45 Key EDIA Pillars



46	Pillar One: People
49	Pillar Two: Processes
49	Pillar Three: Practices
50	Challenges and Barriers
51	Looking Forward

## **53 2.3 Faculty Development Report**

53	Overview
53	The Faculty Development Office
54	Faculty Development Subcommittees
54	1. Career Development
55	2. Leadership
55	3. Wellness
55	Scholarly Activity
56	Subcommittee Challenges and Priorities Looking Forward
56	Well-being of Learners and Faculty
56	Voice of the Learner Surveys
57	Staff Engagement at SickKids
58	Physician Wellbeing Index (WBI)
59	Professionalism and Communications
59	Leadership Skill Development for Divisional Leadership
59	Leadership Pulse 360
60	Elevating the Voice of Early Career Faculty
60	The Early Career Advisory Committee
60	Faculty Recognition
60	The Awards Recognition Committee ('ARC')
62	Department of Paediatrics Awards Day
63	Department of Paediatric Grand Rounds

## **65 2.4 Medical Education Report**

65	Introduction
65	Undergraduate Medical Education (UME)
65	Overview
66	Administrative Structure
66	Major Accomplishments
70	Postgraduate and Sub Speciality Medical Education
74	Subspecialty Medical Education
79	Continuing Medical Education
79	Overview
79	Major Accomplishments
80	Education Scholarship
80	Medical Education Scholarship Office

<b>81</b>	Major Accomplishments
<b>84</b>	Partnerships and Future Directions
<b>85</b>	Medical Education Priorities
<b>85</b>	Excellence in Teaching and Education
<b>85</b>	Advanced Training for Faculty and Learners
<b>87</b>	Faculty Appeals Process
<b>88</b>	Leadership and Impact
<b>88</b>	Faculty in senior leadership positions at the Temerty Faculty of Medicine, include:
<b>89</b>	Awards and Recognition
<b>89</b>	Education Grants and Publications
<b>90</b>	Medical Education and the COVID-19 Pandemic
<b>91</b>	Learner Wellbeing
<b>91</b>	Equity, Diversity, Inclusion and Accessibility in the Educational Mission
<b>93</b>	Learner Enrichment
<b>94</b>	The Transition to Competence By Design
<b>94</b>	The Learning Environment
<b>95</b>	Future Directions, Challenges and Opportunities

## **98 2.5 Research Report**

<b>98</b>	Introduction
<b>98</b>	Structure
<b>101</b>	Research Productivity (2019-2023)
<b>106</b>	Research Priorities and Strategies
<b>113</b>	Opportunities, Challenges, and Future Directions

## **117 2.6 Network, Collaborations, and Relationships**

<b>117</b>	Relationships: Centers and Networks (University and SickKids)
<b>117</b>	The Edwin S.H. Leong Centre for Healthy Children
<b>120</b>	Joannah & Brian Lawson Centre for Child Nutrition
<b>121</b>	SickKids Centres
<b>121</b>	Labatt Family Heart Centre
<b>121</b>	The Garron Family Cancer Centre
<b>122</b>	The Gary Hurvitz Centre for Brain& Mental Health
<b>122</b>	The Centre for Global Child Health (CGCH)
<b>122</b>	Centre for Healthy Active Kids
<b>123</b>	Transplant & Regenerative Medicine Centre
<b>123</b>	SickKids Cystic Fibrosis Centre
<b>123</b>	Inflammatory Bowel Disease (IBD) Centre
<b>124</b>	Programs
<b>124</b>	SickKids Child Health Policy Accelerator
<b>125</b>	Policy Accelerator - Case Study

## **127 2.7 Creative Professional Activity (CPA) and Clinical Innovation**

- 127** Overview and Leadership
- 127** Clinical Statistics
- 128** Inpatient Clinical Activity
- 129** Ambulatory Clinical Activity
- 130** Creative Professional Activity (CPA) Highlights
- 130** Supporting Academic Clinicians: The Creative Professional Activity Grant Competition
- 131** Quality Improvement
- 132** Networks
- 134** Novel Emergency Department and Urgent Care: Virtual ED and RAPP clinic
- 134** Transition to Adult Care (TAC)
- 135** Novel Therapeutics
- 136** Health Informatics, Artificial Intelligence & Machine Learning Initiatives
- 137** Clinical Care Challenges and Future Directions

## **140 2.8 Finance Report**

### **144 2.8.1 Philanthropy and Advancement Office**

- 144** Advancement Office and Department of Paediatrics – 2019 to 2024
- 144** Philanthropic Funding for Department of Paediatrics – Summary
- 145** Alumni Engagement, Awards and Events
- 145** Raising profile through Communications
- 146** Transformative and collaborative gifts to the Temerty Faculty of Medicine
- 146** UofT medical building in spring

## **148 3.0 SickKids Divisional Reports**

### **150 The Division of Adolescent Medicine**

### **155 The Division of Cardiology**

### **159 Clinical Pharmacology & Toxicology**

### **164 The Division of Clinical & Metabolic Genetics**

### **170 The Division of Neonatology**

### **178 The Division of Immunology & Allergy**

### **183 The Division of Infectious Diseases**

### **188 The Division of Respiratory Medicine**

- 193 The Division of Neurology**
- 200 The Division of Emergency Medicine**
- 206 The Division of Endocrinology**
- 211 The Division of Gastroenterology, Hepatology & Nutrition**
- 216 The Division of Haematology & Oncology**
- 222 The Division of Nephrology**
- 228 The Division of Paediatric Dermatology**
- 232 The Division of Rheumatology**
- 237 The Division of General Paediatrics & Hospitalist Medicine**
- 242 The Division of Developmental Paediatrics**
- 249 Michael Garron Hospital, Department of Paediatrics**
- 253 Mount Sinai Hospital, Sinai Health**
- 257 North York General Hospital, Department of Paediatric within the Maternal, Newborn and Paediatric Program**
- 262 St. Joseph's Health Centre, Unity Health Toronto, Department of Paediatrics**
- 266 St. Michael's Hospital, Unity Health Toronto, Department of Paediatrics**
- 268 Sunnybrook Hospital, Sunnybrook Health Sciences Centre**
- 271 Trillium Health Partners, Division of Children's Health**
- 276 Scarborough Health Network**



# Section 1

## Introduction

# 1. Introduction

## Message from the Chair



**Dr. Meredith Irwin**

I am extremely pleased to share this report for our Department of Pediatrics, which includes The Hospital for Sick Children (SickKids) Department of Paediatrics as well as the Temerty Faculty of Medicine Department of Paediatrics. It has been an immense privilege to lead an incredible team of faculty, trainees, and administrative staff and I am extremely indebted to all of our faculty and especially the current and emerging leaders who have been a part of this dream team, some of whom I have attempted to identify in the acknowledgement section including, but not limited to the Department Executive, Division Heads, Program Directors, Hospital Executive, Early Career Advisory Committee, Chief Residents (x8), and our administrative team. I am also grateful to the leadership of the Hospital and University for their endless hours of advice, support and commitment to me, and our department, during the last 4 ½ years.

My term started on April 1, 2020, which was a time of great change as it coincided with the start of one of the most unprecedented and challenging times in healthcare. However, I believe out of the pandemic (and the paediatric triple viral surge) came many “COVID positives” that led to innovations, and in some cases, transformations that would not have been possible a few years prior. Collaborations across hospitals, community partners, and research teams led to important synergies in patient care, treatments and discoveries. Our core paediatric residency and subspecialty residency and fellowships completed re-accreditation (undergoing the first-ever national virtual review). At SickKids, as part of the first phase of a long campus re-development, we moved into a new tower repatriating divisions and teams in a state-of-the-art space, which provides much-needed personal interaction spaces in the post-pandemic era, where we must enhance our dedication (in a data-informed manner) to the well-being and our clinical, learner, and teacher environments. We have also amplified our efforts to recognize faculty by enhancing our local awards and initiating ARC (Awards Recognition Committee) focused on national and international award nominations - with significant early successes already! Finally, with the creation of the ECAC (Early Career Advisory Committee) junior faculty have a new voice in decisions and are helping to influence our priorities.

Newer areas of focus including quality improvement (QI), AI and health informatics, and virtual care have grown exponentially. Furthermore, with our Equity, Diversity, Inclusion & Accessibility (EDIA) leadership, we have begun our journey to weaving EDIA into all aspects of our academic mission and I am especially proud of the new framework for recruitment, allyship training, and, at SickKids, our gender equitable compensation project. Understanding and mitigating the health inequities of our patients and families that were magnified during the pandemic must also remain a top priority, and I am proud of the work of the Temerty Department of Paediatrics Edwin S.H. Leong Center for Healthy Children (Leong Centre). The Centre is using a data-driven approach to tackle these issues while also building bridges across the Faculty of Medicine and other University departments drawing in the best and brightest minds and importantly, training the next generation of scholars in health equity. A future focus on child health policy will ensure that this work translates into important changes for our patients and families.

Finally, our department and the incredibly talented faculty are key to realizing our dream of Precision Child Health (PCH) for all our patients and families. Broadly, PCH includes not only “omics” matched treatments for rare and more common complex disorders, but also ensuring that our patients get care in the right place at the right time with a recognition of the social determinants that, in many cases, have a greater impact on outcomes than a specific biomarker or access to the newest drugs. Our clinicians are experts in almost every organ system and disease as well as for those with the most medically complex needs and are sought after to care for children from around the city, country, and world. Our faculty is also highly accomplished academically. For example, at SickKids, approximately 35-40% of full-time faculty hold Research Institute (RI) appointments as Scientists or Associate Scientists across the eight RI programs. Department of Paediatrics faculty are catalysts contributing to the discovery, clinical trials, and increasingly the implementation of novel

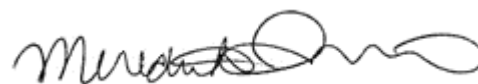
**“I believe out of the pandemic (and the paediatric triple viral surge) came many “COVID positives” that led to innovations, and in some cases, transformations that would not have been possible a few years prior.”**

approaches to treatment and ultimately prevention of childhood diseases.

The challenges in the Department that threaten our academic mission for physician researchers, but also educators, academic clinicians, and health informatics specialists, are many but at the top is our outdated Physician Practice Plan [Alternate Funding Plan (AFP)]. The AFP was initially the enabler of our academic structure at SickKids and several of the other hospitals with similar plans such as Holland Bloorview Kids Rehabilitation Hospital (Holland Bloorview) and Sinai Health. Without renewal and additional non-government sources to support academic time for faculty sustainability, and even maintenance of the status quo, further growth will be challenging. Moreover, with shrinking interest in academic paediatrics and, in particular, physician scientist

careers (supported by the [NASEM](#) report), we need innovative solutions to nurture and hire the next generation of academic paediatricians. The competition to hire and retain our superstar faculty is high. The Department of Paediatrics is known as the place that ‘trains and nurtures the best.’ What is unique about our department and has led to our #1 or #2 academic paediatric hospital international status over the past four years (Newsweek magazine) has been commitments to academic paediatrics and our training mission. The structures and systems to support academic paediatrics are now outdated and urgently require change moving forward. The increased patient complexities and workloads only further magnify this concern. This focus on structural changes and support for the academic paediatrician model(s) must be a guiding principle as our future goals of utilizing big data, “omics”, and other resources to improve child and family health, while also training the next generation of paediatricians and subspecialists, depend on a robust and innovative paediatric academic workforce at SickKids, the Toronto Academic Health Science Network (TAHSN), and our community hospitals. This is our greatest challenge, but I also believe is perfectly timed as SickKids celebrates its 150th birthday and all the great firsts and accomplishments of the past, and we embark on the planning for a new departmental strategic plan that synergizes with the soon-to-be-developed Temerty Faculty of Medicine and SickKids strategic plans (2025-2030).

As you review the many sections we have prepared in this report to show off the great work of our clinicians, educators, researchers, trainees and many others I hope you will see what I do – passion, dedication, and infinite opportunity. I feel very privileged and honoured to help in enabling our department to achieve these goals while being their biggest advocate locally, nationally, and globally!



Dr. Meredith Irwin, MD  
Paediatrician-in-Chief, Department of Paediatrics  
Chair, Department of Paediatrics, Temerty Faculty of  
Medicine and Professor, Departments of Paediatrics, Medical  
Biophysics, and Laboratory Medicine & Pathobiology

# Executive Summary of Report



The Department of Pediatrics at the Temerty Faculty of Medicine is the largest in the country and within the Department we have the largest Canadian paediatric academic hospital - The Hospital for Sick Children (SickKids). The structure of a combined hospital physician-in-chief and university department chair role is unique to the Department of Paediatrics at Temerty. However, across Canada and the US, these roles are combined at many universities and academic health sciences centres, especially those with free-standing children's hospitals. Like the previous Department of Paediatrics' combined University/Hospital reviews, this document will provide a consolidated University and Hospital report. We will also highlight, where possible, specific issues that apply across the Department as well as those that may only impact SickKids or other TAHSN hospitals. In addition, the section on hospital clinical care will be mainly based on SickKids operational data. To recognize the specific achievements and opportunities across the Department and specific divisions we have provided short summaries of TAHSN departments and divisions (with input from the Chiefs and Division Heads, respectively).

The Department of Paediatrics is committed to improving child health locally, provincially, and nationally through excellence in clinical care, education, and research. The Department also offers comprehensive training for medical

students, residents and fellows, and continuing education and mentorship for faculty. Patient care is delivered at multiple hospitals across the Department affiliated hospitals in the Greater Toronto Area (GTA) and province with services ranging from primary care to highly specialized complex diseases. Expert faculty members are involved in provincial and international networks for almost all specialties and diseases. Research is a key pillar with many faculty having Research Institute (RI) appointments to pursue clinical, translational, and basic science programs.

Our goal in this report is to share a snapshot of the accomplishments, innovation, and creativity that have resulted in better outcomes to support our greatest assets – our trainees, faculty, staff, and most importantly, our patients and families. These examples are framed by our Departmental Strategic Priorities (2019-2025), which are highly aligned with the Temerty Strategic Plan and SickKids' priorities and vision for Precision Child Health.

In this introduction section we provide a high-level overview of the Department, organizational structure and governance, significant accomplishments and highlights from the larger report, as well as a mini-SWOT analysis and response to the 2015 external reviewer comments.

# Overview of the Department of Paediatrics

## Strategy

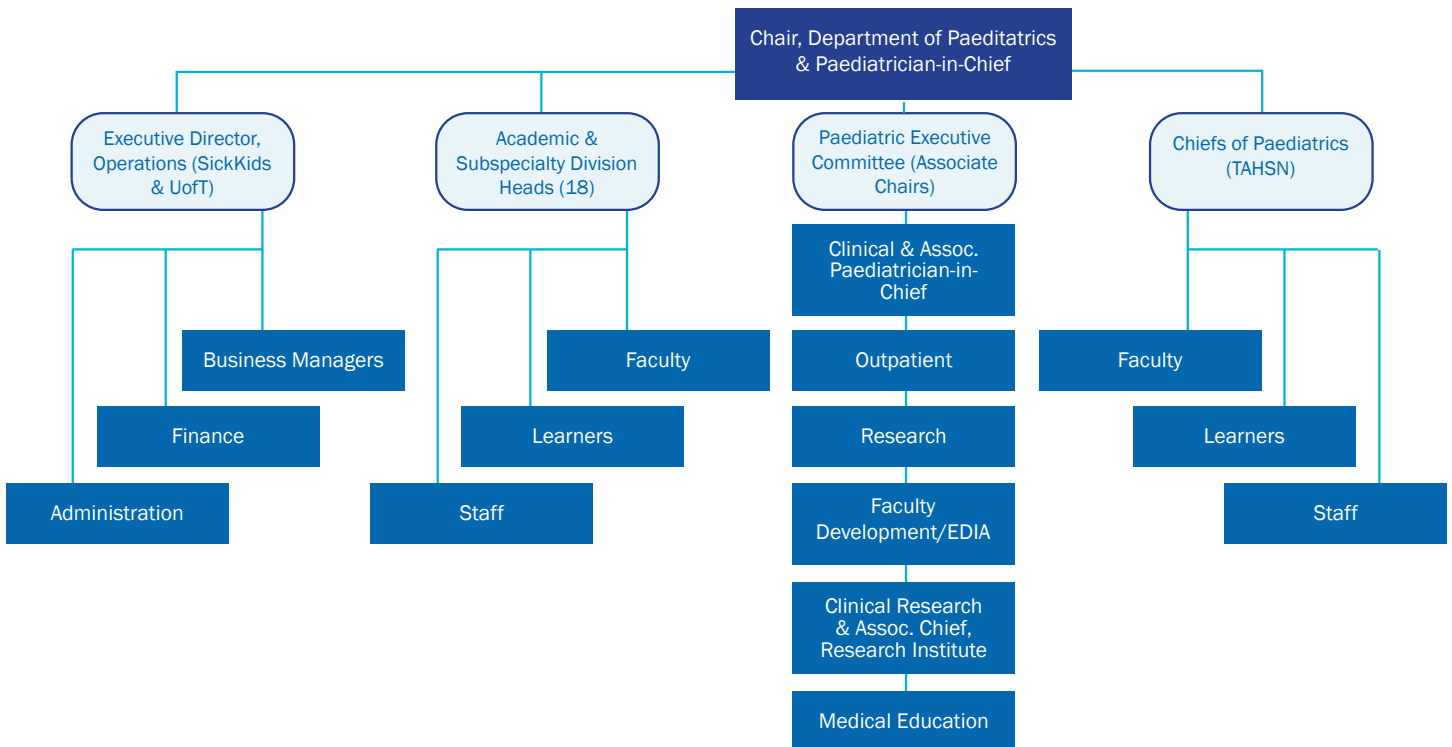
The Department’s strategic plan, VISION 2023 (Appendix 1.1), focuses on enhancing paediatric healthcare delivery, improving child health outcomes through research and education, and embracing innovation in data science and precision medicine. This strategic plan was developed under the leadership of the previous Chair, Dr. Ronni Cohn; however, Dr. Irwin in her previous role as Associate Chair, Research, was highly involved in the planning and developing the plan. Due to the pandemic and the plan for Temerty Faculty of Medicine and SickKids to develop new strategic plans in 2025 we have delayed a refresh of our Departmental plan and have continued to use and adapt VISION 2023 for this review (2020-2024). Our VISION 2023 plan aims to build robust and clinically relevant care models, prepare learners, and enable faculty and staff to lead in meeting these challenges while excelling in clinical and discovery-based research.

Our strategic priorities from this plan are to:



## Governance and Organizational Structure

The Department of Paediatrics organizational summary is shown below. The Department Chief-Chair has a reporting structure to the CEO (at SickKids) and the Dean of Medicine (Temerty Faculty of Medicine, University of Toronto), respectively. The Paediatric Executive team (summarized in the following section) also have roles that overlap with SickKids and the University of Toronto.



# Executive Leadership

## Paediatric Executive Committee

Chaired by the Department Chair and Paediatrician-in-Chief, this committee consists of Associate Chairs representing key strategic, operational, academic, and clinical leadership areas. This group meets weekly and provides expert guidance to the Chair. Notably all executive positions since 2020 have been advertised and selected by a committee advisory to the Chair.



**Dr. Meredith Irwin**  
Paediatrician in Chief and Chair,  
Department of Paediatrics



**Dr. Jeremy Friedman**  
Associate Chair / Chief, Clinical  
Affairs



**Dr. Mark Palmert**  
Associate Chair / Chief,  
Ambulatory / Outpatient



**Dr. Adelle Atkinson**  
Associate Chair / Chief, Medical  
Education



**Dr. Annie Huang**  
Associate Chair / Chief,  
Research



**Dr. Indra Narang**  
Associate Chair / Chief, Faculty  
Development and EDIA



**Dr. Padmaja Subbarao**  
Associate Chair / Associate  
Chief, Clinical Research,  
Research Institute



**Judy Van Cleef**  
Executive Vice President, Clinical  
Operations



**Chris Carew**  
Executive Director, Paediatrics  
Operations

- **Dr. Meredith Irwin** – Paediatrician-in-Chief and Chair, Department of Paediatrics
- **Dr. Jeremy Friedman** - Associate Chair, Clinical and Associate Paediatrician-in-Chief: The Associate Chair, Clinical, oversees clinical excellence across the Department of Paediatrics at Temerty and SickKids and serves as the Associate Paediatrician-in-Chief at SickKids. Important additional roles include mentorship and oversight of academic clinicians, especially concerning triennial and promotion reviews, QI, operational, and billing initiatives. This role and that of the Outpatient Associate Chair are described in more detail in [Section 2.7](#).
- **Dr. Mark Palmert** - Associate Chair, Ambulatory / Outpatient (New SickKids and Department position as of 2018; reappointed 2022): A second Associate Chair position, focused on Outpatient Care at SickKids (with connectivity to community subspecialty clinics) was introduced in 2018.
- **Dr. Adelle Atkinson** - Associate Chair, Education (succeeded Dr. Rayfel Schneider in 2021): All medical education activities are overseen by the Associate Chair, Education. Dr. Atkinson previously held the position of Director, Postgraduate Medical Education for the Department. She also holds the position of Chair (and formerly Vice-Chair) of the Specialty Committee (Paediatrics) at the Royal College of Physicians and Surgeons of Canada (RCPSC). Her team of directors and administrative staff are described in more detail in [Section 2.4](#).

- **Dr. Annie Huang** - Associate Chair, Research (succeeded Dr. Meredith Irwin in 2021): Dr. Huang oversees a portfolio dedicated to the mandate of promoting excellence in transformative research and discovery and undertaking activities to optimize and enhance the research enterprise, including education and mentorship, within the Department of Paediatrics at the University of Toronto and SickKids
- **Dr. Indra Narang** – Associate Chair, Faculty Development and EDIA (New position as of 2019): This role was created in 2019 in alignment with our strategic priorities to promote engagement and excellence in our faculty, learners and staff and advance social accountability, equity and impact. Over the past five years, Dr. Narang has played a pivotal role in influencing the Department’s ability to develop strategies, structures, priorities and accountabilities to achieve success and measured outcomes in both faculty and trainee development and equity, diversity and inclusion. These efforts have been in collaboration and alignment with the University and SickKids. Of note, for the past year, Dr. Narang has also been the SickKids Executive Lead (interim) for EDIA.
- **Dr. Padmaja (PJ) Subbarao**, Associate Chair / Chief, Clinical Research, Research Institute (Appointed 2021, ex-officio role; succeeded Dr. Rulan Parekh): Dr. Subbarao, was appointed as Associate Chief, Clinical Research, which is a SickKids Research Institute role, in 2021. This role reports directly to the Chief of Research and oversees the Hospital’s clinical research agenda and infrastructure, including the Clinical Research Services (CRS) staff. Importantly, Dr. Subbarao has continued in her current role as Co-Lead, Precision Child Health (PCH), which will facilitate the integration of clinical research into the PCH strategy and priorities.
- **Chris Carew** – Executive Director, Paediatrics Operations: This dual role includes the Temerty Departmental Business Officer role. Mr. Carew thus oversees the administration/ administrative support, finance and strategy for the Department across both the University Department and SickKids Department of Paediatrics. At SickKids, this role also involves physician recruitment and retention as well as administrative oversight of the Alternative Funding Plan (AFP).
- **Judy Van Clieaf** – Executive Vice President, Clinical Operations and Nursing: The VP, Clinical Operations at SickKids is a critical member of the Executive who together with her leadership team of directors partners with the physician leadership to provide operational oversight of the paediatric medical (non-surgical, non-mental health) wards including the NICU.

## Supplemental Departmental Governance

Several standing committees exist within the Department to advise the Chair, especially around areas of finances and the direction of funds. In addition to the Departmental Executive described above we also have a separate Finance Committee:

Executive Finance & Audit Committee – Meets monthly to review departmental finances and evaluate the proposed allocation of new funding for various strategic initiatives. Membership consists of representative staff and faculty from across the Department including community membership and is chaired by the sitting Chair of the Department. Membership and Terms of References are available in Appendix 1.1. The terms were updated two years ago and included the addition of an Early Career Advisory Committee member, more structured member terms, and additional representation outside of the Executive Committee.

## Divisions and Divisional Leadership

The Department is largely organized into 18 paediatric subspecialty divisions, each with an appointed Division Head. All divisions are based at SickKids except Developmental Paediatrics which is based out of Holland Bloorview Kids Rehabilitation Hospital (Holland Bloorview). Although the majority of Division Heads are located at SickKids, where the majority of paediatric subspecialists in the GTA are based, there has been an increase in both academic, but also clinical and education/training collaborations with community subspecialists. For many Division Heads, this collaboration is an important strategic priority for the future to increase our capacity, provide care closer to home for patients and families, and develop an academic home base for community subspecialists. The Division Head group comes together monthly for discussion, consultation, and mission-critical updates (with more frequent meetings during the height of the pandemic). These highly selected leaders are charged with providing clinical, educational, and research-oriented leadership to the faculty, learners, and staff within their divisions. The majority meet monthly or bi-monthly with the Chair. For new Division Heads, there is a pilot “buddy” mentorship system (with a former or current senior Division Head). We have also been offering Pulse-360 to the newest Division Heads together with more formal group or individual leadership development programmatic opportunities (See [Section 2.3](#)).

Division Heads are appointed for an initial term of five years and are typically reappointed for an additional five years following the successful completion of a five-year internal review as mandated by Hospital bylaws. Upon completion of a 10-year term, the Division undergoes a 10-year external review before commencing the search for a new leader. Between permanent appointments, there is often a need to appoint an interim Division Head to hold the position until an international search, selection, and transition are completed. All searches since 2020 follow the Department’s Inclusive Recruitment Terms of Reference (Appendix 2.2), which is highly aligned with the Temerty framework. Of note, this framework also specifies roles and representation on the selection

committee in addition to physicians, nurses and allied health from the specialty. These include members from research/RI, Early Career Advisory Committee (ECAC), and EDIA champion(s). There have been some delays over the past four years in completing reviews and searches due to the pandemic. In addition, in some specialties where the pool of leaders is exceptionally small exceptions are made. We continue to make progress in reviews and renewal, especially in the past two years and continue to work, where possible, towards aligning leadership searches with Departmental, University, and institutional strategic priorities.

### Newly appointed Division Heads for this review period are listed below:

- **Dr. Elizabeth Donner** - Neurology (2023), also co-lead Gary Hurvitz Centre for Brain and Mental Health
  - Succeeded Dr. Steven Miller (10 years) after an interim Division Head appointment of Dr. Mahendranath Moharir (18 months)
- **Dr. Theo Moraes**, Respiratory Medicine (2023)
  - Succeeded Dr. Felix Ratjen (18 years)
- **Dr. Christoph Licht**, Nephrology (2023)
  - Succeeded Dr. Lisa Robinson (10 years) followed by interim Division Head appointments of Dr. Valerie Langlois and Dr. Michael Zappitelli (2 years)
- **Dr. Tamorah Lewis**, Clinical Pharmacology & Toxicology (2022) - External recruit
  - Succeeded Dr. Shinya Ito (20+ years)
- **Dr. Anne Kawamura**, Developmental Paediatrics (2022) (note: search was carried out together with Holland Bloorview Rehabilitation Hospital leadership)
  - Succeeded Dr. Darcy Fehlings (16 years)
- **Dr. Elena Pope**, Paediatric Dermatology (2021)
  - Dr. Pope is the inaugural Division Head. Dermatology was formerly a section under Paediatric Medicine and; became separate following an external review.
- **Dr. Eytan Wine**, Gastroenterology, Hepatology and Nutrition (2024)- External recruit
- New Division Head Allergy, Immunology and Rheumatology (AIR) (2025)\*

\* It is anticipated that the new Division Head appointment for AIR, following an international

# Department Overview: Division Heads



**Adolescent Medicine**  
Dr. Michelle Shouldice (interim),  
Academic Clinician and  
Associate Professor, Paediatrics



**Cardiology**  
Dr. Mike Seed, Clinician  
Investigator and Professor,  
Paediatrics



**Clinical & Metabolic Genetics**  
Dr. Roberto Mendoza, Academic  
Clinician and Associate  
Professor, Paediatrics



**Clinical Pharmacology & Toxicology** Dr. Tamorah Lewis,  
Clinician Scientist and Associate  
Professor, Paediatrics



**Developmental Paediatrics**  
Dr. Anne Kawamura, Associate  
Professor, Paediatrics



**Emergency Medicine**  
Dr. Jason Fischer, Academic  
Clinician and Associate  
Professor, Paediatrics



**Endocrinology & Gynaecology**  
Dr. Jill Hamilton, Clinician  
Investigator and Professor,  
Paediatrics



**Gastroenterology, Hepatology  
& Nutrition** Dr. Yaron Avitzur  
(interim), Academic Clinician and  
Professor, Paediatrics



**Haematology & Oncology**  
Dr. Jim Whitlock, Clinician  
Investigator and Professor,  
Paediatrics



**Immunology & Allergy**  
Dr. Mark Palmert (interim),  
Clinician Investigator and  
Professor, Paediatrics



**Infectious Diseases**  
Dr. Upton Allen, Clinician  
Investigator and Professor,  
Paediatrics



**Neonatology (NICU)**  
Dr. Estelle Gauda, Academic  
Clinician and Professor,  
Paediatrics



**Nephrology**  
Dr. Christoph Licht, Clinician  
Investigator and Professor,  
Paediatrics



**Paediatric Medicine**  
Dr. Michelle Shouldice,  
Academic Clinician and  
Associate Professor, Paediatrics



**Neurology**  
Dr. Elizabeth Donner, Academic  
Clinician and Professor,  
Paediatrics



**Paediatric Dermatology**  
Dr. Elena Pope, Academic  
Clinician and Professor,  
Paediatrics



**Respiratory Medicine**  
Dr. Theo Moraes, Clinician  
Scientist and Associate  
Professor, Paediatrics



**Rheumatology**  
Dr. Brian Feldman, Clinician  
Scientist and Professor,  
Paediatrics

search will result in an appointment to commence in 2025. AIR division was the result of a decision to merge the two individual divisions (Allergy/ Immunology & Rheumatology) after significant external and internal consultation.

## Renewed Division Heads

- **Dr. Jason Fischer**, Paediatric Emergency Medicine
- **Dr. Mike Seed**, Cardiology
- **Dr. Estelle Gauda**, Neonatology

## Active Division Head Searches

- Immunology/Allergy & Rheumatology (AIR)
- Neonatology

## Planned Searches for 2025

- Haematology/Oncology (and Medical Director, Garron Family Cancer Centre)
- Adolescent Medicine
- Infectious Diseases
- Paediatric Medicine (Includes general paediatrics, hospitalist medicine, complex care, and palliative care)

## TAHSN Chiefs of Paediatrics

Each of the TAHSN sites has a Chief. Many Chief searches took place over the past four years with the Department Chair (Dr. Irwin) serving as the Dean's Delegate for those at the largest sites including the selection of:

- **Dr. Asaph Rolnitsky** (Sunnybrook Health Sciences Centre)
- **Dr. Doug Campbell** (Unity Health, St Michael's Hospital site)
- **Dr. Anne Wormsbecker** (Unity Health, St Joseph's Hospital site)
- **Dr. Kim Zhou** (North York General Hospital)

Details of the leaders, faculty and their accomplishments are included in the Divisional and Departmental Reports (See [Section 3.0](#)).

## Faculty and Trainees

The recruitment data and demographics for faculty is covered in [Section 2.1](#).

As of 2024:

# 333

total number of full-time faculty

# 93

total number of core residents  
(4 year program)

# 207

total number of subspecialty fellows

## Summary of Achievements and Milestones

Provided in this section are examples of accomplishments over the last 4-5 years across all pillars in the Department (subset are specific to SickKids). Reports summarizing a larger number of achievements (linked to our Departmental and Hospital priorities) over the past two academic years were presented to the SickKids Board and are included in Appendix 1.1.

### 1. Response to the COVID-19 Pandemic

During the pandemic, our department (facilitated by the GTA Chiefs of Paediatrics and their operational partners) across the GTA collaborated to provide care to patients in the optimal setting in a coordinated manner that enabled us to work as a paediatric system. There also were innovations to deal with the medical issues related to the COVID-19 virus and disease sequelae as well as adapting our care delivery models during lockdown. Some of the “COVID-positives” from 2020-2022 are highlighted below and in the detailed sections. Of note:

- Many Infectious Diseases (ID) faculty members were leaders during pandemic
- The ID and Infection Prevention and Control teams received the SickKids President’s Award
- Examples of Faculty Leaders (among many):
  - Dr. Michelle Science who serves as Public Health Ontario IPAC (Infection Prevention and Control) physician was also locally our “go to” IPAC lead (for years) - both for patient issues but also challenging clinical staffing discussions ranging from symptom management, vaccine advice, masking and treatments. Dr. Science also led timely and important studies including examining the role of masking in schools
    - Dr. Upton Allen was appointed co-lead of the Ontario COVID-19 Advisory Table (2022) and led ground-breaking studies examining the impact of vaccine hesitancy in Black communities
    - Dr. Ari Bitnun with others in the division and hospital co-authored a school guidance document

that was used throughout the province and beyond.

- Dr. Anu Wadhwa and colleagues started the first long COVID paediatric clinic in Ontario
- COVID School testing and vaccine clinics – multi-disciplinary teams led by Department of Paediatrics faculty
- Innovations in education delivery and virtual care
- Numerous research studies and collaborations across Department of Paediatrics including seminal work defining MISC (Multi-System Inflammatory Syndrome in Children) and its similarities to Kawasaki Disease (Dr. Rae Yeung and multiple Departmental colleagues)

### 2. Advancing Child Health Outcomes Through Transformative Research and Discovery

Department of Paediatrics broad research spectrum spans cohorts/epidemiology, health services research, clinical trials and basic bench research. Accomplishments include:

(1) University of Toronto Temerty of Medicine Department of Paediatrics is amongst the most highly ranked and productive paediatric academic health sciences departments in North America and globally (Top 3).

- Top 3 worldwide for publications
- Ranks #1 amongst Canadian Paediatric University Departments and in Top 3 (#1 in 2019 and 2022) for total and annual average number of scholarly publications.

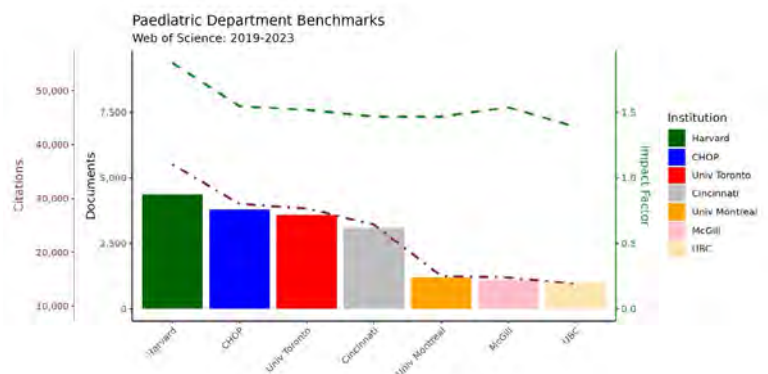


Figure 1. Paediatric Department Benchmarks

(2) Growth in Research Grant Funding:  
 From 2019-2023, >1,000 awards/year and \$350 million dollars total; 180% increase in 2023 vs 2012

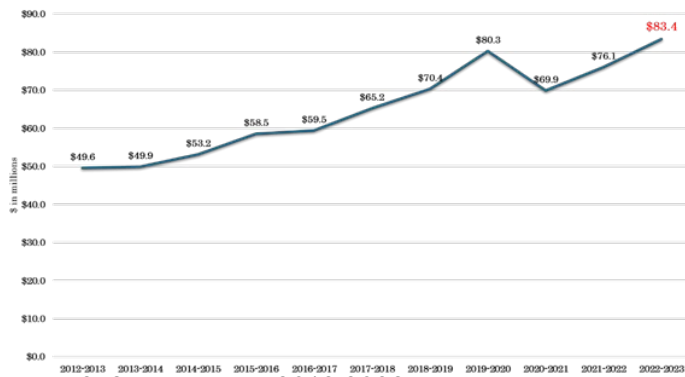


Figure 2. Grant Funding 2012-2023

(3) Areas of Research Focus and Connections across Themes: Our faculty and trainees have active research across the spectrum of topics as outlined below- all of which are critical to achieving our vision of Precision Child Health (PCH).

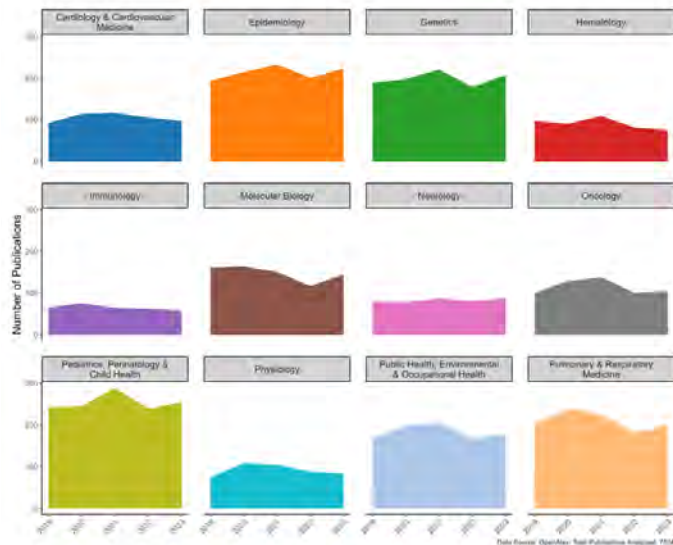
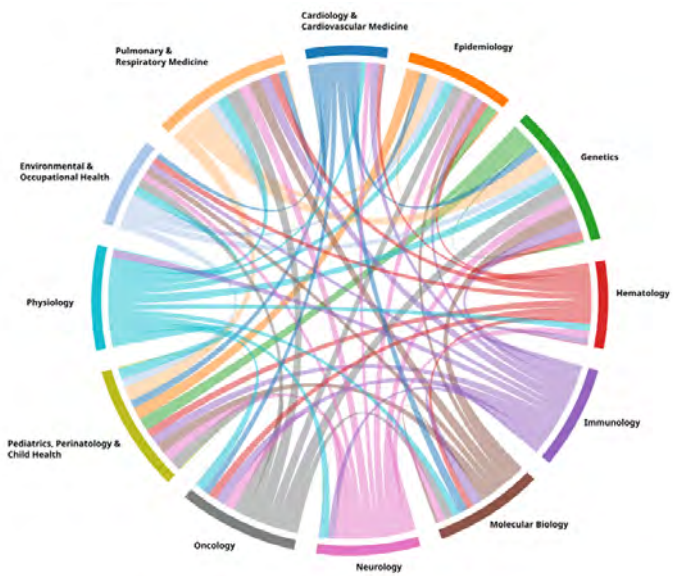


Figure 3. University of Toronto, Department of Paediatrics – Top Areas of Research Themes (2019-2023)

(4) Research Leadership: many of our faculty have leadership roles locally, nationally and internationally as described in [Section 2.5](#). Importantly, many have research leadership roles at SickKids, TAHSN hospitals and University that advance our pediatric research priorities and our overall vision for Precision Child Health (PCH) - a few critical local roles are highlighted below.

- Dr. Padmaja Subbaro – Co-Lead, PCH, Associate Chief, Clinical Research, SickKids
- Dr. David Malkin – Co-Lead PCH
- Dr. Devin Singh – Co-Director, Artificial Intelligence in Medicine (AIM), SickKids
- Dr. Nicola Jones – Director, Integrated Physician Scientist Training Program
- Dr. Evdokia Anagnostou – VP Research, RI Director, Holland Bloorview
- Dr. Prakesh Shah – Sinai Health, Director Canadian and International Neonatal Outcomes Networks
- Dr. Lillian Sung – Chief Clinical Data Scientist, SickKids
- Dr. Astrid Guttman – Chief Science Officer ICES, Co-Director Leong Center
- Dr. Eyal Cohen – RI Program Head, CHES (SickKids), Co-Director Leong Center
- Dr. Peter Gill: Co-founder Canadian Pediatric Inpatient Research Network (PIRN)
- Dr. Ripudaman Minhas- Research Director (Unity Health), OurKidsHealth founder
- Dr. Greg Costain- Co-Lead Translational Genomics PCH, SickKids
- Dr. Daniel Morgenstern, Lead for Clinical Trials, RI (SickKids), Co-Lead Advanced Therapeutics PCH, SickKids

(5) Research Chairs and Awards (2020-2024):

- 27 Endowed Chairs (Temerty, SickKids)
- 13 Canada Research Chairs (2 additional nominations under review)
- 3 faculty inducted as Fellows of Canadian Academy of Health Sciences, 1 Royal Society of Canada fellow
- 7 Pediatric Chairs of Canada (PCC) Leadership Awards
- Gairdner Global Health Award

- AAP and CPS special achievement awards

(6) Precision Child Health (PCH) and Clinical Research: Faculty in the Department of Paediatrics are highly involved in research related to PCH, described in [Section 2.5](#). Below is a snapshot of clinical research studies and examples of PCH Genome Clinic programs led by the Department of Paediatrics faculty.

- 1,142 total Research Ethics Board-approved studies in Paediatrics (SickKids)
- Genomic Clinics (subset of examples across the Department): Autism, Epilepsy, Hypotonia, Cardiac Genome clinic, Genodermatoses, Kids Cancer Sequencing (KICS), Autoimmune/Inflammatory Disorders, IBD & very early IBD

### **3. Building Academic Health Sciences Centres of the Future: Innovations to Address Volumes and Complexity**

- Accelerated Ambulatory Virtual Care Implementation and Adoption - >80% at the height of the pandemic to ~30% in 2024
- ED innovative strategies: Virtual ED and RAAP (rapid assessment clinic for low acuity)
- Focus on day hospital care and novel therapy delivery (including PCH-related drugs)
- Choosing Wisely designated as Leading Practice (HSO/Accreditation Canada)
- Transition to Adult Care (TAC) launched in 2023: jointly sponsored Temerty Departments of Paediatrics and Medicine clinical and research pilot program to design, implement and, evaluate new interventions for 16+ year old youth with complex conditions to transfer to adult teams (led by Drs. Alene Toulany and Julia Orkin)

### **4. Integrating EDIA Across Care, Research, and Education Initiatives**

Under Dr. Indra Narang’s leadership as the first Departmental EDIA Associate Chair (2019-2024) together with our program manager (Anna Hossain) our EDIA program has been extremely productive, while also helping to guide the Department (and in some cases hospitals) through incredibly challenging periods. Highlights are shown below

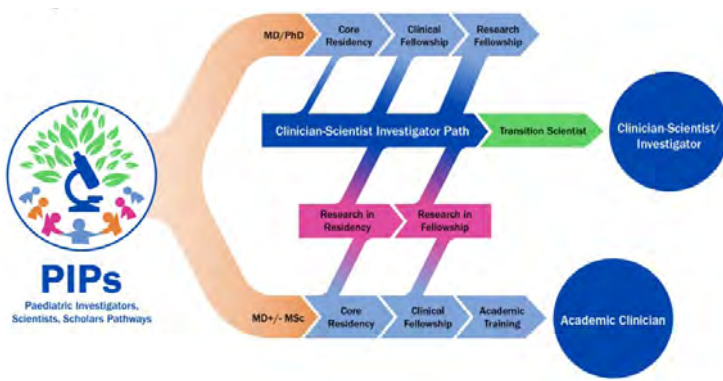
and expanded in [Section 2.3](#).

Inclusive Recruitment Guidelines used for all faculty and leadership searches at SickKids and shared with Departmental members at TAHSN sites (includes embedding “EDI champions” on all selection committees)

- Culturally safe care training completed for the majority of Departmental faculty and administrative staff (Program topics: Allyship, Mitigating Implicit Bias in Care and Anti-Racism)
- New England Journal of Medicine publication describing our Allyship program (2022)
- Equitable compensation analysis and adjustments (SickKids, 2020/2021)
- Initiated pilot projects to collect social determinants of health data (now expanding across the Hospital)
- Special call for 1-2 specific Paediatric Consultant Departmental Grants focused on EDIA

### **5. The Learner and Teacher Environment**

- 400 + Residents (core and subspecialty) and fellows and ~1,000 students in the Department
- 18 Royal College Accredited Programs (each with Program Director(s) and a coordinator)
  - 50+ sub-sub specialty programs across the 18 foundational accredited programs
- Enhanced system in Department (Learner Environment Committee) to complement resources at Temerty for trainee reporting and reviewers
- Proactive Learning environment data-driven reviews of Divisional faculty evaluations (Led by Drs. Adelle Atkinson, Tina Martimianakis); includes AI approaches to examine five year database of learner concerns to identify patterns and support evidence based CQI interventions and programs.
- Successful Royal College accreditation of all Paediatric residency and fellowship programs
- Enhanced Accreditation processes, reviews and training program action plans
- Program Directors supported for leadership training (ESP, NEAL, Stepping Stones)



## 6. Training the Next Generation of Academic Paediatricians (Physician-Researchers & Physician-X)

- Department and SickKids hosted the largest ever trainee event at Pediatric Academic Societies (PAS) (>500 international students, residents and fellows attended “Trainees in the (CN) Tower”
- PAS 2024 Toronto: 143 Department of Paediatrics poster and talks
- Developing pathways for physician scientists

but also physician-X profiles to expand areas of scholarship beyond classic research or education, where X = informatician, QI, equity researcher, etc.)

- Enhancements to paediatric training pathways (PIP pathway from residency to faculty)
- Transition Clinician-scientist Program grows (with matching partnerships)
- MD-PhD research resident stream continues to recruit an average of 1-2 core paediatric residents per year: two former trainees of the program are now on faculty!

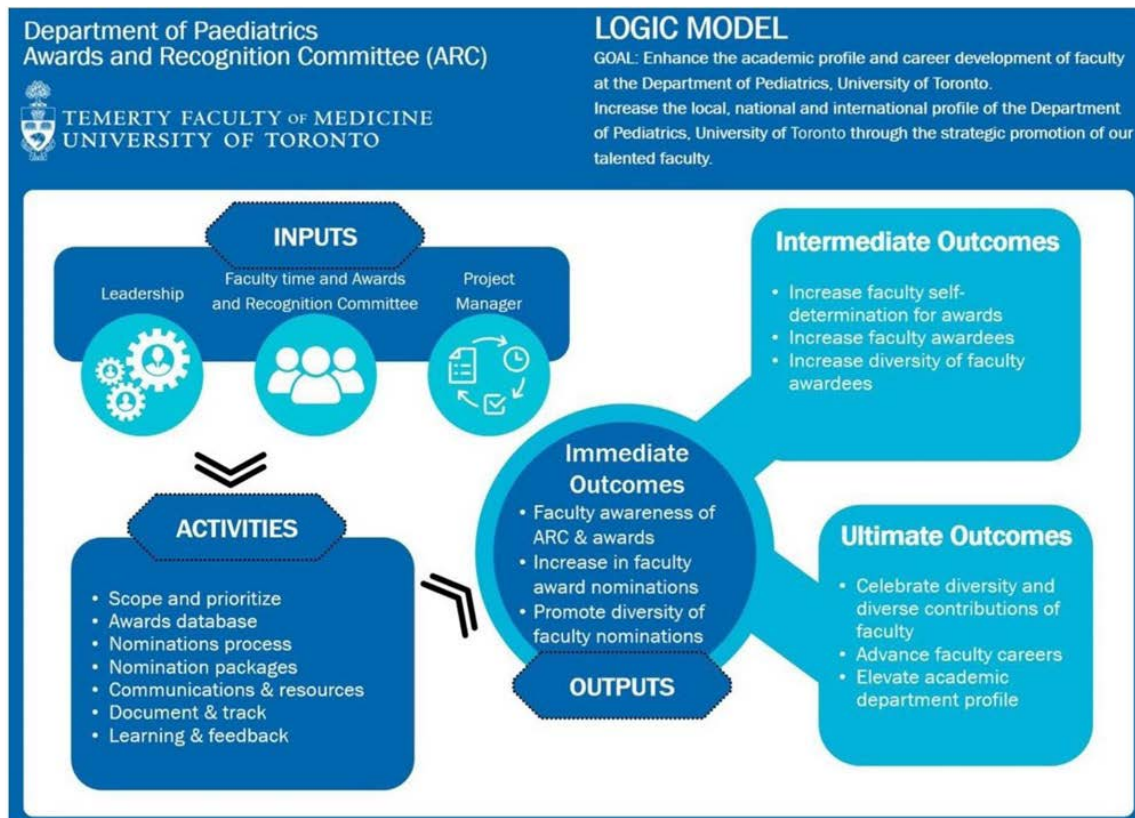


Figure 1. Logic Model for Department of Paediatrics, University of Toronto Faculty awards strategy (Mahant S, Ling SC, Williams S, Shah P, Fayyaz J, Lim-Shue C, Irwin MS, Huang A. Developing a Faculty Awards Strategy in an Academic Department: Recognizing Faculty and Promoting the Department. *J Pediatr.* 2024 Aug;271:113899. doi: 10.1016/j.jpeds.2024.113899. Epub 2024 Jan 3. PMID: 38181977).

## 7. Faculty and Staff Recognition and Engagement

- New Awards Recognition Committee (ARC) initiated in 2021: facilitated nominees for national and international awards; publishes quarterly bulletin
- Supported 2- 3 NEAL (New and Emerging Leaders) participants per year (competitive process)
- Inaugural Early Career Advisory Committee initiated (18 members across division and community)
- Project (R3) to revise career development and assessment process completed (plan for implementation in 2025-2026)

### Awards Recognition Committee



Dr. Sanjay Mahant  
Dr. Annie Huang  
Dr. Simon Ling  
Dr. Prakesh Shah  
Dr. Suzan Williams  
Dr. Jabeen Fayyaz  
Catherine Lim Shue

## 8. University Leadership Roles

Across the Temerty Faculty of Medicine, Department of Paediatrics faculty hold a high proportion of leadership roles across multiple portfolios including education (at multiple levels) and research.

Below is a list focused mainly on Departmental faculty currently in these leadership roles (see Appendix 2.4 for a list of all leadership positions).

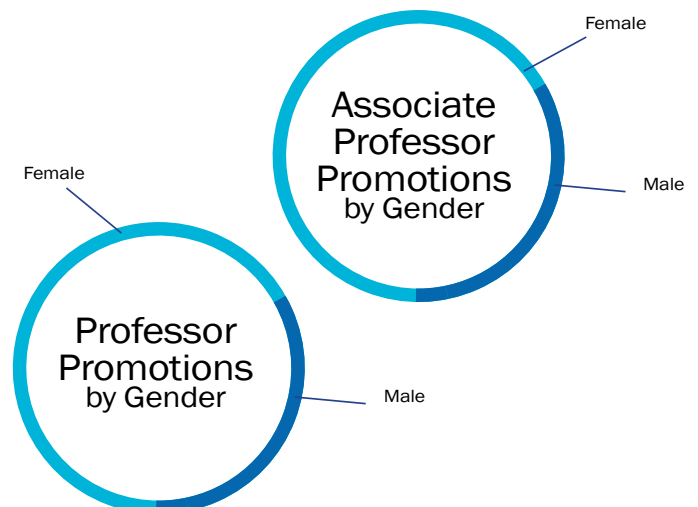
- Dr. Lisa Robinson, Dean of Medicine
- Dr. Susan Schneeweiss, Associate Dean, Continuing Professional Development
- Dr. Nicola Jones, Director of the Integrated Physician-Scientist Training Program
- Dr. Maria Mylopoulos, Director for Research and Innovation
- Dr. Catharine Walsh Director, Medical Student Research Scholars Program
- Dr. Julie Johnstone, Director of Assessment and Special Projects
- Dr. Nirit Bernhard, Faculty Lead, Portfolio and Theme Integration
- Dr. Seetha Radhakrishnan, Director, Year 4 Clerkship
- Dr. Angela Punnett, Written Assessment Lead and Faculty Lead, Workplace-based Assessment, and Faculty Undergraduate Accreditation Lead
- Dr. Evelyn Rozenblyum, Course Director, Concepts, Patients, and Communities 3
- Dr. Zia Basmillah, Director, Clinical Skills
- Dr. Susanna Talarico, Faculty Lead, Faculty Development
- Dr. Anne Matlow, Faculty Lead, Postgraduate Leadership
- Dr. Ryan Giroux, Faculty Lead, Indigenous Health

## 9. University Promotions

Across the Department, we have continued to have an incredible record (100%) of success with promoting our faculty across most sites including community-based office practices (See [Section 2.1](#)). The dedication and hard work of our Decanal committee, Department Associate Chairs, and especially Departmental Promotions committee chair Dr. Ron Laxer has been critical to these results.

Between 2020-2024 110 faculty were promoted across the Department of Paediatrics:

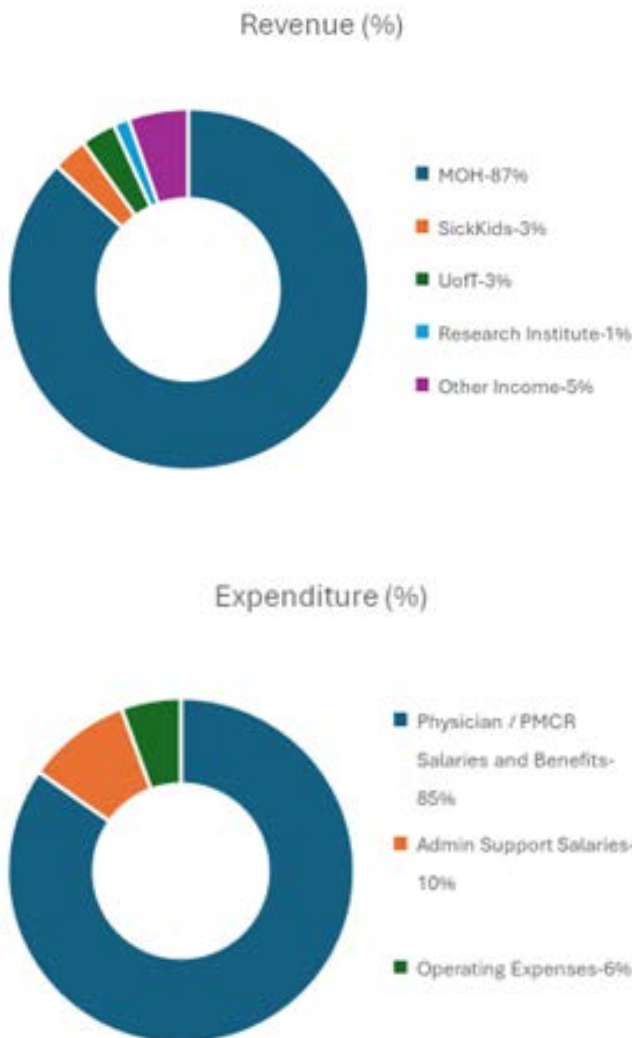
- o 44 to Professor
- o 66 to Associate Professor



## 10. Financial Stewardship

- Combined (Temerty Faculty of Medicine and SickKids) annual budget (2024/25) - Revenues and expenditures are summarized below with the majority of revenue from MOH (AFP)
- No deficits between 2020-2024; however projected consolidated cumulative budget deficit of \$4.9 million in 2029-2030
- Additional SickKids Physician FTE business cases approved (funding has not started)
- SickKids Shadow Billing increasing from 2020-2024

Figure 1: Current breakdown of revenue sources and expenses. See additional details in [Section 2.8](#).



(Abbreviations: PMCR, Physician Medical Coverage, replacements (NPs, PAs, Clinical Associates)

## 11. Chair Leadership and Advocacy for Paediatric Workforce

**Local Advocacy:** Locally, Dr. Irwin has worked with the Department's administrative and finance teams (and the Ontario Medical Association) to collect data for the SickKids AFP negotiations from local, provincial and other sources to advocate in negotiation with the Ministry of Health (MOH) for repairs to salaries and new business cases. Thus far, the Department has been successful in negotiating for 25.5 additional FTE positions across >12 divisions (final funding pending). Working with leadership in Perioperative Services and collaborating with hospital leadership additional proposals to demonstrate evidence for our unique programs and expertise have also been developed and shared with the MOH. Advocacy for training priorities and positions for paediatricians and subspecialists will need to be a future focus working with Dr. Atkinson, Associate Chair, Education.

**National Advocacy:** Dr. Irwin has led the Pediatric Chairs of Canada (PCC) Workforce team since 2022 (and was elected PCC Vice-President in 2024). The team's overall goals are to: (1) identify pan-Canadian paediatric workforce and training priorities and identify solutions in the context of ongoing federal and provincial workforce strategies (2) collaborate with other child health organizations to elevate awareness of paediatric workforce challenges, and (3) ensure paediatrics is engaged, understood, and captured within the context of ongoing/existing workforce planning and sustainability initiatives. To date, we have engaged with six groups involved in initiatives as part of goal #2 and have met with government leaders as part of PCC Hill Days. In addition, with Dr. Steven Miller UBC Department of Paediatrics Chair and PCC Advocacy theme team lead we participated in a podcast to discuss these important issues with former Canadian Medical Association President Dr. Katherine Smart. In PCC we have begun a data collection project with a tool we developed to determine the faculty numbers and demographics in different subspecialties at each of the 17 paediatric university departments/academic health science centres, including ranks,

age, international/Canadian medical graduates status (gender, EDIA metrics will be collected when available at most sites). Similar data has been collected for general paediatric core and subspecialty trainees. Part of our rationale for collecting this data is that current national and provincial systems categorize paediatrics as a specialty but do not recognize paediatric subspecialties separately in most databases (in contrast to adult subspecialties). A secondary goal is to determine if we are training enough future paediatric subspecialists and use data to advocate for additional training spots. Currently, at the University of Toronto, we have an average of 18 subspecialty paediatric CARMS match slots each year (for all paediatric subspecialties). Due to both unmet training needs and our mission to train local and international academic paediatricians our department and some practice plans (e.g., SickKids, Sinai Health) support additional training positions in many divisions. This work assessing the subspecialty workforce will be complementary to initiatives at the Canadian Paediatric Society (CPS) focused on general community, and rural paediatric workforce challenges.

**International:** Dr. Irwin is the PCC/Canadian Chair ex-officio member of the AMSPDC (American Medical School Pediatric Chairs) board (since 2022) and has been liaising with AMSPDC groups who worked with NASEM on the US Pediatric subspecialty workforce study to leverage lessons learned, especially in areas related to challenges around reduced compensation for paediatrics vs. Adult specialists as well as strategies to enhance physician scientist trainees in paediatrics.



## Strengths and Potential Risks

### Strengths

#### People

Clinical care at SickKids focuses on the highest acuity patients with the most severe forms of illness and complex rare diseases. Our physicians see more unique diagnoses and provide near-exclusivity in more programs, services, and procedures than any other paediatric hospital in the country. As outlined in the accompanying sections we have top experts (at many of our TAHSN sites) in almost every field, leaders of clinical trials and numerous consortiums and highly trained researchers and educators. Our sites also serve as a magnet for trainees, some of whom stay on to become our next generation of academic paediatricians in the GTA. Many of our TAHSN hospitals have world-leading Departments of Paediatrics with unique areas of expertise in clinical care and research. For example, Holland Bloorview (Hospital and RI) is internationally recognized for its expertise in developmental disorders and novel approaches to autism diagnosis and care. St Michael's Hospital (Unity Health) has a strong and unique focus on newcomer immigrants and refugees and school-based clinics as well as research in health equity and social determinants of health.

#### Training

The Department trains the majority of paediatric subspecialists in Ontario. Only ~30 paediatric subspecialty trainees graduate across official MOH-supported training spots in Ontario each year. Training paediatric generalists and subspecialists locally and internationally is part of our mission and the residents and fellows that we attract, and mentor not only deliver outstanding service to our patients and families, but a subset also participate in ground-breaking research (see [Sections 2.4](#) and [2.5](#) for metrics for trainee academic output). Moreover, our training programs ranging from common tracks to “boutique” sub-subspecialty programs produce the world's experts for both rare and common diseases. Importantly, we have programs for Canadian trainees and international fellows from multiple areas of the world, including specific programs to support those from low and

middle-income countries to build capacity in partnership with our Center for Global Child Health (e.g., Dr. Victor Blanchette Caribbean Program for Haematologist-Oncologists).

### **Unique Programs and Services**

SickKids is the sole or largest provider of many programs and services provincially, and often nationally, and is the only centre able to manage certain patient populations, thus serving all jurisdictions in Ontario. While some programs are not unique as per the specific service delivered, they care for the most complex and challenging subsets of patients with a particular diagnosis. Importantly, many programs require collaboration between paediatric medical and surgical specialists. In addition, these patient populations are studied in large cohort studies and smaller rare disease-based programs. Furthermore, our portfolio of Research trials continue to grow with leading practices in creating Health Canada N of 1 protocols.

### **Word Class Research Productivity**

Our Department of Paediatrics (University of Toronto) ranks #1 in Canada and between #1-3 internationally based on publication metrics (despite being significantly smaller in size than the other Top 2 departments (Boston Children's/Harvard and CHOP/U. Penn). Additional research and scholarly output data are summarized above and throughout [Section 2.5](#).

## **Risks**

### **Alternate Funding Plan**

Our total AFP funding has had only very small increases in the last four years (as a result of the provincial physician services agreement, PSA); however, between 2007-2019 our AFP did not receive these PSA base increases leading to our staff falling behind compared to community paediatricians and those in other provinces. In addition, our SK AFP contract for 1.0FTE faculty does not permit additional “moonlighting” outside of our institution, limiting potential mechanisms to augment salaries. A substantial portion of AFP funding is also directed to additional “unfunded” positions as well as trainee and PA salaries as these groups are required to deliver the 24-7 care needed by our increasingly complex patient

populations. In addition, our practice plan provides funding to cover administrative support for individual physicians and to supplement University funds that support the medical education administration for UME and PGME programs in the Department. The current and future focus on the AFP renegotiation is discussed throughout this review document and highlighted as our top priority currently and moving forward.

### **Recruitment and Retention of Faculty and Leaders**

A predominant issue for the organization is physician recruitment and retention, or more specifically, the ability to attract and retain world-class, highly trained paediatricians and subspecialists of all job profiles. Three challenges have increased over the past 4-5 years. First, as the differential between community salaries and academic centre remuneration grows those with more clinical job profiles (Academic Clinicians and Clinician Teachers) are often recruited to these more lucrative opportunities. Secondly, the smaller pool of physician researchers leads to more competition for fewer candidates. Finally, attracting division heads and other leaders is also challenging, especially in smaller specialties with fewer mid-senior level academic subspecialists. The decreasing interest in pediatric subspecialty careers in the US is predicted to potentially impact our faculty recruitment as we have many internationally trained faculty and leaders with a high percentage from the US. Furthermore, as US paediatric subspecialist trainee graduates continue to decrease in number (for the past 10 years consistently) centres south of the border frequently attempt to recruit faculty from our department, which is well-known as a strong training centre for clinicians, educators and researchers in almost every paediatric subspecialty.

While a multifactorial issue, SickKids' AFP is an essential conduit for talent which had historically underpinned our high international rankings; however, with compensation that has not been significantly adjusted in almost two decades, we are at a critical juncture. After numerous departures, there is concern about diminished mid-level and senior expertise and it has proven difficult to fill positions.

Challenges are across the board but have been especially marked in Cardiology, Bone Marrow Transplant (in Oncology), Eating Disorder specialists (Adolescent Medicine), Clinical & Metabolic Genetics, as well as in many of our pediatric surgical subspecialties. Importantly, for many of these positions, we are often searching for a “sub-sub” specialist, such as a cardiologist with subspecialization in interventional/catheterization, which requires additional training and expertise and thus, represents a very small pool globally. At present, the Department of Paediatrics actively recruiting for two Division Heads and planning for an additional search for three in 2025 out of the total of 18 Division Heads.

### **Sustainable Funding for Additional Human Health Resources**

In addition to the excellent training, mentorship and research experience for fellows and residents it is important to recognize that trainees shoulder a significant clinical workload in the Department, with many arriving for advanced training already as leaders in niche fields. Establishing and maintaining training programs to equip future leaders is an essential role, and also one that draws heavily on the bandwidth and finances of the medical divisions. Although we have some philanthropic support in certain divisions and disease areas most are not endowed funds, requiring the need for additional resources if training remains a top priority as it has for decades. For the past 5-8 years our Physician Assistant (PA) workforce has been a critically important part of our model of care –together with trainees, NPs and other team members. PA roles are mostly concentrated in the ED, general paediatrics (hospitalist) ward, and Oncology, with the first Cardiology PA hired last year (with Heart Center Philanthropic support for this pilot). Many roles were initially funded by government programs but are now, at SickKids, mainly supported by the AFP. As these groups grow, especially in the setting of paediatric NP shortage and reduced trainee work hours, long-term planning for support will be important. The PA role is one of the areas selected for an Audit review this year and the report should provide additional environmental landscape information and recommendations moving forward.

### **Fatigue and Burnout**

Similar to many medical departments our Department of Paediatrics is grappling with morale, fatigue, and well-being issues, heightened by the challenges of the pandemic. Some particular drivers in Paediatrics include the

relatively higher proportion of women; this is based on data that emerged during the pandemic demonstrating women were more significantly impacted in terms of their academic output, in part due to increased caregiver burdens. Our Paediatric Department (like many others) experienced the RSV/influenza/COVID-19 tripledemic” at the tail end of the major part of the pandemic- a point in time when all medical providers were at their most exhausted. Many surveys (outlined in [Section 2.1](#)) provided data for our department supporting findings of fatigue, low well-being indices and other evidence of burnout. Faculty also expressed in these surveys that difficulties renewing our AFP impact their well-being and feeling valued. We are working with university and hospital wellness leaders to move beyond studying wellness to intervening to make an impact. At SickKids, an initiative to get rid of senseless stuff (GROSS) is underway with several early priorities, including a reduction in administrative burdens. In addition, disrespectful behaviour is often associated with workload burdens and burnout and thus, a new focus led by our Associate CMO Dr. Trey Coffey has begun to develop and implement a Respectful communication framework based on the Vanderbilt model. At Temerty several programs have been initiated for leaders and faculty including through our Departmental Wellness Committee (e.g., Balint groups). Despite these initiatives, a focus on well-being and impactful interventions needs to be prioritized moving forward, and these objectives need to apply to faculty, trainees and our clinical and administrative team members.

### **Learner and Teacher Environment**

We have made significant progress in an evidence based approach to our learner environment and as outlined in [Section 2.4](#) this has required significant time and investment by our teachers and Education leadership. The Temerty Department of Paediatrics is second only to the Department of Medicine in terms of the number of Royal College accredited training programs with 18 total- the core paediatric 4-year program and 17 Royal College accredited paediatric subspecialty training programs as well as more than 50 super (or sub-sub) specialized additional programs across those divisions. Maintaining a robust medical education administrative structure to support the very strong 18 PGME subspecialty residency/fellowship program directors and 400+ PGME trainees will continue to be a focus but also a challenge as we aspire to not only maintain but continue to innovate in training the next generation of general and subspecialist paediatricians.

## Response to the Previous Review

### Response to 2015 External Review Recommendations

Reviewers 2015 Dr. Allison Eddy, UBC/BC Children's Hospital; and Dr. Gary Fleischer, Harvard/Boston Children's Hospital) (Reviewers: 2010: Dr. Sheryl Rockman-Greenberg, University of Manitoba; and Dr. Allan Schwartz, Washington University)

Below I have listed Drs. Fleischer and Eddy's comments and suggestions from the 2015 review and highlighted some of the directions and accomplishments that address these (many are addressed in more detail in other sections of the 5-year report). I have also acknowledged challenges that they have raised that remain areas of focus for the Department moving forward. Notably, there is a subset of the 2010 recommendations and comments that are thematically similar to those from 2015 and are mentioned where relevant in the response. Response to Conclusions and Recommendations (2015).

Note: the direct comments have been shortened. For the full report from Drs. Eddy and Fleischer see Appendix 1.1.

### Recommendations # 1 and # 2

**Need to move from a top 10 children's hospital to a top 10 pediatric health system. Next chair should play a key role in helping the department and the hospital in adapting to a new health care paradigm including community physicians and affiliated hospitals. It will also mandate a greater focus on quality and outcomes.**

### Response:

With initial support from Ontario Health (OH) Dr. Julia Orkin was appointed lead for Greater Toronto Area (GTA) Region and Community Pediatric services. Two years ago, this role was formally

integrated into the SickKids leadership team as Associate CMO for Integrated Community Partnerships where Dr. Orkin supports system integration and partnership across the broad healthcare sector (working with hospital and Departmental leadership). In this role, Dr. Orkin oversees weekly GTA Pediatric Chief meetings, which focus on clinical care operational challenges and education and academic topics relevant to the different sites. During the pandemic and viral surges in 2020-2023, sites met daily to distribute patient care across the system. This role reports to both the hospital CMO and Chair of Paediatrics and in addition to 1:1 meetings presents regularly to the following committees: Hospital Senior Management, Paediatric Executive and Division Heads. In a complementary role, Dr. Mark Feldman continues to oversee academic appointments for community paediatricians to facilitate teaching and mentorship across the TAHSN and community sites (and offices) affiliated with Temerty Faculty of Medicine.

Quality and outcomes have evolved into a strong academic focus for many faculty and trainees. We have supported and encouraged faculty and trainees (mainly fellows and early career faculty) across the Department from all hospital sites to participate in training and leadership roles in cQUIPS ([Center for Quality Improvement and Patient Safety](#)). Dr. Olivia Ostrow, Pediatric Emergency Medicine Staff and Associate



Professor Pediatrics is now the Associate Lead for cQuIPS. Others in the Department have taken on leadership roles including Dr. Beth Gamulka who has been on staff as a general pediatrics hospitalist at both SickKids and North York General Hospital (NYGH). To catalyze interest, we have also had focused calls for grants on QI topics within our Paediatric Consultants grant competition. Dr. Ostrow is involved in the selection of these targeted grants with the adjudication panel. More details about our QI initiatives are included in [Section 2.7](#).

### Recommendation #3

**Investment in information technology and data management systems that touches all pillars (Clinical, Research, Teaching and Administration). Although the responsibility for improving systems does not rest solely with the Department, the department could assist the process greatly by developing a division of clinical informatics, with paediatricians trained in information science who could inform and facilitate the development of the EHR system, not just for clinical care, but also as a tool for research, quality improvement, and education.**

### Response:

Soon after the 2015 review SickKids transitioned to the EHR EPIC in 2018 under the leadership of Dr. Karim Jessa (SickKids CMIO and Associate Professor, Department of Paediatrics). The transition occurred for both inpatient and outpatient services at the same time and over the past seven years, the system has had multiple upgrades aligned to priority clinical needs and strategic oversight. As mentioned by Drs. Fleisher and Eddy the governance and resources for the EHR are hospital-based; however, much of the informatics expertise that has developed over the past 4-5 years is within the Department of Paediatrics. For the year before the transition EPIC champions in each division had funded protected time to work on order sets/algorithms and other division/disease-specific tasks; however, this was

not maintained long-term, including the period under review. Many divisions have interested and increasingly expert faculty, often due to their clinical roles or need to improve data for their own/their division's research initiatives. The current leadership structure related to EPIC/EHR system includes the CMIO Dr. Jessa and a single 0.1FTE Associate CMIO (Dr. Shawna Silver, Hospitalist Paediatrician at SickKids and NYGH) and Bren Cardiff, Chief Nursing Information Officer, as well as committees including paediatricians, surgeons, nurses, pharmacists and other health care professionals.

Over the last 3-4 years there has been a focus on identifying and developing faculty members with interests in the spectrum of health informatics and artificial intelligence. With a lens to the future, we are considering a job profile that recognizes a track within the academic clinician profile with a focus on health informatics. Rather than creating a separate program or division in the Department of Paediatrics, we are identifying informatics-focused faculty across various divisions. We have summarized the Health Informatics and AI initiatives and faculty leading this work in the Department in [Section 2.7](#).

An **important goal** for the next five years in the Department is to strengthen our ability to collect and utilize data (especially in our EHR) – both for academic/research purposes but also to better support our physician activities with respect to patient complexity and workload. At SickKids this should align well with hospital initiatives and lead to important data for our provincial Ministry of Health discussions related to both compensation (AFP) and need for additional physician and non-physician HHR.

### Recommendation #4

**New funding strategies are needed to enable faculty development and growth. The clinical and education programs are stressed but the research mission is even more vulnerable if the Ministry of Health AFP funding moves in the direction of prioritizing clinical care over research, as many people fear it will.**

## Response:

This concern, which was also highlighted in the 2010 external review, has become **the biggest threat** to the academic mission of our department. As predicted in Drs. Fleisher and Eddy's report the Ministry of Health has in fact over the last four years moved towards "bean counting" and using our shadow billing data as the main metric for our workload, a measure that does not recognize the complexity of our pediatric patients and the unique skills and expertise of our faculty. It also threatens the service delivery model that was at the core of our AFP agreement since it was initiated in the 1990s and provided 35% protected time for research and education. At SickKids, this has impacted our ability to hire significant clinician investigators or scientists, as well as other academic portfolios with protected time. Historically the Department of Paediatrics had some additional resources to offset this academic effort - including the SickKids International Qatar project that generated income for the Department during Dr. Daneman's tenure. Before the last corrections of the AFP (all before 2008) the Department of Paediatrics also received more funding from the foundation and other sources to enable support of the academic non-clinical effort of our faculty. Since the Canadian system does not have significant salary support granting opportunities, we have limited ability to offset academic salaries and creative solutions are urgently required to enable support of clinician-researchers, especially given this is a time when fewer trainees are choosing this career path, thus limiting candidates and increasing the competition for recruitment and retention.

In comparison to the recruitment rate outlined by Dr. Daneman for researchers between 2006-2015 (29 clinician-scientists and 23 clinician investigators), we have only recruited six clinician scientists and seven clinician-investigators over the past four years in the SickKids Department of Paediatrics. Notably, of the clinician scientist hires, one was bridged by four years of funding through the transition scientist program and the second was recruited with an opportunistic shared salary model with the RI based on a Research

Institute genetic models Scientist position opening. Although these two recruitments speak to the spirit of collaborative funding and partnerships, there remains a significant gap in funding and process strategies to achieve better outcomes in this domain. Recent programs such as SickKids Innovator philanthropic funding in strategic areas of research have recently been used to partially fund salary for new physician-scientist faculty. Innovators are like expendable chairs and can provide support for 5-10 years.

## Recommendation #5

**There should be a more formal organizational relationship between the Chief/Chair of Pediatrics and the Chief of Research. Whether this occurs or not, they need to continue to work as partners on strategic planning for the Clinical and Translational Research portfolio, areas of new expertise, recruitment plans including feasibility or not of a Transition Program for new investigators, and how to enable/enhance the research output of 58% of the department faculty who do not hold appointments in the Research Institute. With the right nurturing and resources, the Learning Institute should also flourish.**

## Response:

Over the four-year tenure there have been three Chiefs of Research though Dr. Scherer is now in the role for his first of two five-year terms. There has been excellent collaboration since he began ~3 years ago and specifically, recognition of the need for increased focus and resources for clinical research operationally. The collaboration across the Research Institute (RI) and Department of Paediatrics is based on the leaders in these positions and not a formal relationship. Strategic planning for the Research Institute and Department of Paediatrics includes engagement from the respective stakeholders but they are separate processes. Given that the Department of Paediatrics MD and MD-PhD faculty includes almost 100 RI Associate Scientists and Scientists

(almost the same number of Research Institute-funded PhD scientists) some ability to partially support academic salary may be required moving forward to maintain a robust cadre of physician-researchers. Funding denoted “Research FTE” from the Research Institute has been contributed to the Department of Paediatrics for over two decades, however, the amount (<2% of our total salary budget) has not changed. Currently, the majority of endowed chair funds are directed towards the chair’s operational budget rather than towards their non-clinical FTE. It will be important to maintain (and ideally grow) our physician-researcher faculty to be able to deliver on our vision of Precision Child Health. While we need a diverse physician-researcher faculty, for Precision Child Health we need to especially target clinical trials expertise and foster the increasingly rare lab-based physician-researchers.

In terms of the Learning Institute (LI), an investment in the new Simulation facility in the one-year-old Patient Support Centre has been transformational. Department faculty including Drs. Jabeen Fayeze (Paediatric Emergency Medicine) and Catharine Walsh (Gastroenterology, Hepatology & Nutrition) have leadership roles as Simulation Director and LI education scientist, respectively.

## Recommendation #6

**Develop a strategy to maintain, or improve, the fiscal foundation of the department, including the creation of mechanisms to draw revenue from increased clinical activity, both on the main campus and the community, and to address the issue of senior members of the faculty with decreased clinical and academic productivity.**

### Response:

**(1) Re: Increased clinical activity revenue:**

At SickKids our AFP contract with the Ministry of Health does not allow us to bill or collect revenues for activities outside of the SickKids



campus. Identifying additional mechanisms (outside of Ministry of Health funding) to support our academic activities are and continues to be a focus of our leadership team.

**(2) Re: Senior faculty members with decreased clinical and academic productivity:**

There have been limitations to addressing senior members with decreased clinical and/or academic productivity within our current contract structure. Senior faculty members have rarely significantly decreased academic productivity. The challenges are more on the clinical needs for divisions and the inability to hire new faculty. We have achieved success through the development of individualized plans for faculty to continue their academic work while retiring from full-time AFP positions to enable divisions to recruit junior faculty. However, additional solutions are needed, especially in areas of unique expertise where it is challenging to plan transitions and overlap.

## Future Planning

### Strategic Plan Refresh

Future planning will be informed by the findings from the five-year external review and through alignment with the redevelopment of the strategic plans for both the University (strategic planning initiates 2025) and SickKids (to be launched in 2025). The objective is to reassess the direction established by VISION 2023 and to integrate the paradigm shifts, innovations, challenges, and opportunities that emerged during and after the pandemic. To ensure that the strategy remains comprehensible and actionable, a concise approach will be adopted. Comprehensive consultation across the Department of Paediatrics and our collaborating departments across the university and Sick Kids will be pivotal to the formulation and subsequent implementation of the new strategy. In contrast to our VISION 2023 where EDI and health equity were called out as a separate priority, we must embed EDIA into all our priorities throughout clinical, research, and education/teaching. Strategic planning will be an opportunity to enhance our communications strategy, which during the past term has not been supported with any formal communication resources.

In addition to some of the challenges highlighted above in the **Response to Previous Reviews**, we have identified some early high-level priorities for the Department over the next five years. Within each section of the report, specific challenges and future opportunities are discussed in more detail but four early priorities for five future planning are described below.

### Advancing Academic Collaborations across TASHN Paediatrics

While our individual Departments have specific areas of focus, often aligned with their affiliated hospitals, our collective synergies have not been realized. In particular, many of our sites have different unique populations and patient demographics. We have an opportunity to address many child health priorities, especially child

**“... in the next five years, we should think about new ways to work together to catalyze our overall vision and transform outcomes.”**

health equity- working with the Department’s Leong Center as our hub. Research aimed at understanding how the social determinants of health impact different patient populations across our campuses will be accelerated over the next five years with the Leong Centre expertise in interventions, policy research, and data. We can also strive for better integration of the social determinants with data on disease phenotypes, and the biology and genomics to ultimately lead to better care and where relevant, policy changes. We have good foundations with TARGet Kids!, CHILD, and Empower Kids and the additional power of the university as well as the Institute for Clinical and Evaluative Sciences (ICES) is the ability to study across the ages from prenatal to adolescent and adult years with linkages to additional datasets from government sources (e.g., Stats Canada, school districts). Finally, the recently initiated Child Health Policy Accelerator will fuel the translation of all this research into action over the next five years.

### Beyond Alignment and Integration with the Research Institute

Over the past decades there continue to be goals in both the SickKids Department of Paediatrics and the RI strategic plans to “integrate” and “align.” Although there remain challenges, and this has been mentioned in the last two Department of Paediatrics reviews, significant steps have been made to align our priority planning, and where possible, try to start working together in the recruitment of physician-researchers at SickKids. Two recent examples include (1) a Division Head

physician-scientist candidate with a microbiome research program, a focus for growth identified by the RI executive and (2) a junior physician-scientist/clinical geneticist whose research area- genetic variant modelling- aligned with an RI scientist position and PCH funding opportunities. The need to align priorities between clinical pediatric departments across TAHSN and their respective hospital RIs is not unique to SickKids, and in larger hospitals that are not stand-alone pediatric centres, there may be even more significant challenges.

We need to continue to work together to identify strategic areas for joint recruitments and minimize overlap and duplication in the multiple annual and triennial review processes. However, in the next five years, we should think about new ways to work together to catalyze our overall vision and transform outcomes. To do this, we need to bolster our clinical trials expertise and support access to infrastructure and trials to more clinical groups. Precision approaches require more and more separate trials for ever smaller groups of eligible patients (including N of 1 protocols). At one time trials and innovative treatments were limited to a few divisions but now with our increasing access to faster molecular and genomic diagnoses, the pace of possibilities for trials and “off-trial” novel treatments is growing. With this comes exciting potential for our patients and families but also more work for those physicians and teams who treat these patients as well as those who develop and run trials to make sure we learn from every patient. Solutions and strategies will require a shared vision and workplan to identify where we are doing well and where we need to focus to make sure we can impact all of our patients and develop careful data and metrics to measure success and validate that they resonate with patients and families (and funders). For example, we are sequencing more and more patients’ genomes faster and faster, but our next challenge is making sure this translates into effective therapies that are available, can be studied on trials or in some cases, need to be developed in our research labs.

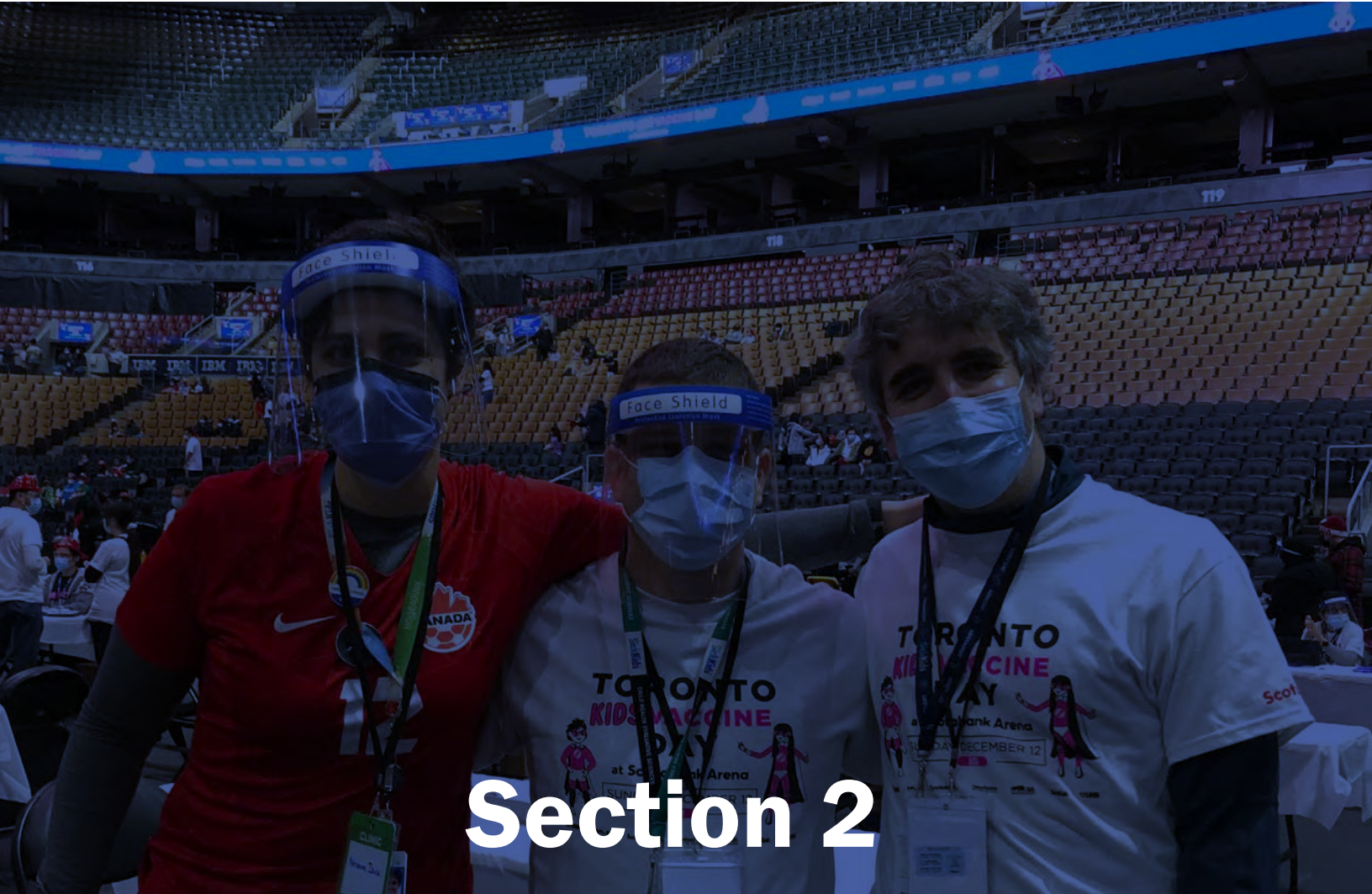
## **Funding Academic Time for Physician-Researchers**

Developing a sustainability model to support paediatric physician-researchers is an urgent need. As discussed in **Response to Previous Review Recommendation #4** above and in [Section 2.5](#) the system in place since the late 1990s, which relies on our AFPs to support academic time, requires a new revised model. While at SickKids our AFP provides an average of **0.35 FTE protected time for the 219 funded positions-** this 0.35 includes both teaching and research. At SickKids almost **40% of our faculty have a job profile with 50% or 75-80% research FTE required for RI Associate Scientist and Scientist positions,** respectively. This results in a significant gap for the clinical workload, and over time has led to the hiring of additional full-time faculty (~250) and part-time and sessional locums. As a result, we are both hiring fewer early career physician-researchers, resulting in an ageing faculty that will be challenging to renew. Similar to other Paediatric Departments in North America we are seeing fewer paediatric trainees choose this career path, especially those with basic and translational lab interests. Thus, competition is very high for a small pool of candidates. Our programs aimed at mentorship and career development pathways are necessary, but not sufficient. Investment will be required to bridge the gaps to fund research time as well as the required equipment and start-up operating funds. A newly renegotiated AFP, which has not yet been successful, will not alone solve these challenges. The era of precision child health is not the time to hire fewer physician-researchers; however, this is the current trend over the past 15 years due to these limitations. Importantly, these approaches to supporting physician-scientists need to also be expanded to other TAHSN centres that have also been challenged by out-of-date practice plan models. The focus for our department over the past decades on training the next generation must continue but we now need to enhance our focus on identification and support for the career trajectory of our pediatric physician-researchers.

## AFP 2025

Throughout the report, we discuss numerous times the critical need for the SickKids 2007 AFP to be renegotiated and similar concerns exist at other TAHSN paediatric sites with fully converted AFPs (that provide salary with minimal funding provided by billings). Significant work has happened over the past four years with the MOH and OMA (Ontario Medical Association) to re-negotiate. At this time, we are in negotiation but predict that mediation or arbitration may be necessary to move forward with the repair of salaries to at least the 75th percentile of subspecialists in the community. Although all of our current and future priorities are important none are possible without a robust workforce that feels they are valued. We know this is the #1 priority for our faculty and is reflected in engagement and wellness surveys and Departmental meetings. We will continue to prioritize the new AFP to support our academic mission as well as patient care and enable us to recruit and retain amazing trainees, faculty and leaders and develop a diverse and expert paediatric workforce.





## Section 2

## Section Reports



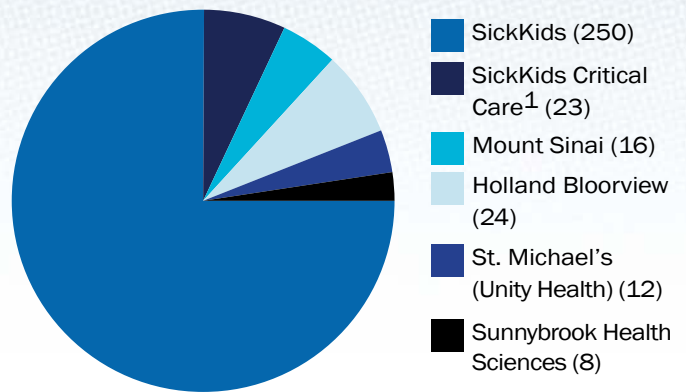
## 2.1 People

## 2.1 People

### Overview

The University of Toronto's Department of Paediatrics, Temerty Faculty of Medicine is the largest in Canada – with 333 clinical full-time faculty members primarily based out of Toronto's Hospital for Sick Children (82%) with additional full-time faculty based out of Mount Sinai, Holland Bloorview Kids Rehabilitation Hospital (Holland Bloorview), St. Michael's Hospital (Unity Health), and Sunnybrook Health Sciences Centre. Within the Department, there are also 437 clinical part-time and adjunct faculty with appointments at health centre sites and community offices across the GTA (Greater Toronto Area) and the province of Ontario. The Department's entire faculty complement comprises clinicians, clinician-researchers and educators, all working together to deliver on the Department's mission of pushing boundaries to enable discovery and enhancing research and education to provide transformational and equitable patient and family-centred paediatric healthcare.

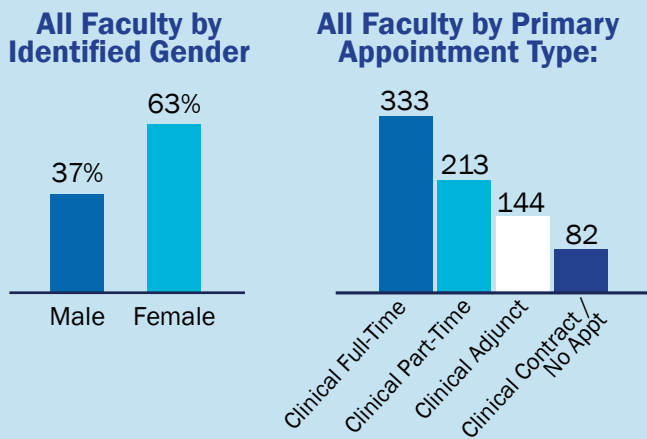
### Clinical Full-Time by Affiliation:



### Faculty Complement

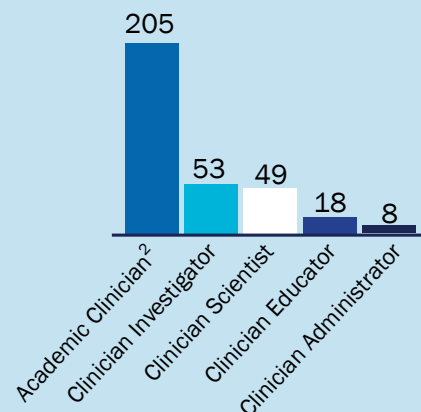
This section provides access to summary data of the faculty complement across the Temerty Faculty of Medicine, Department of Paediatrics as of July 2024. Clinical and hospital-affiliated faculty are listed in our summary below.

### Faculty Complement by the Numbers



### Clinical Full-Time by Job Profile

Job Profiles are generated in two ways; JP created based on the needs of the clinical division and the conditions outlined within the physician's contract and Memorandum of Understanding, and secondly for physicians continuing their tenure in the Department, percentages are calculated based on the physician's anticipated time distribution for the upcoming academic year. The clinical FTE for each profile is approximately 70-80% for Academic Clinician, 50% for Clinician Investigator, 20-30% for Clinician Scientist, and 50-60% for Clinician Educator.



Notes:

<sup>1</sup>SickKids Critical Care faculty are listed separately from other faculty at SickKids. They do fall under the Temerty Department of Paediatrics; however, unlike the faculty in the other 18 divisions, Critical Care physicians are within the SickKids Department of Perioperative Services, not the Department of Paediatrics, AFP. See Appendix 3.0.

<sup>2</sup>The SickKids Department of Paediatrics uses the term "Academic Clinician" to describe faculty with job profiles that include >50-60% FTE clinical; whereas most other Department of Paediatrics faculty at other health TAHSN centres define this profile as "Clinician-Teacher." Throughout this report, the profile of Academic Clinician will be used for those faculty with >50-60% clinical FTE.

## Recruitment (SickKids)

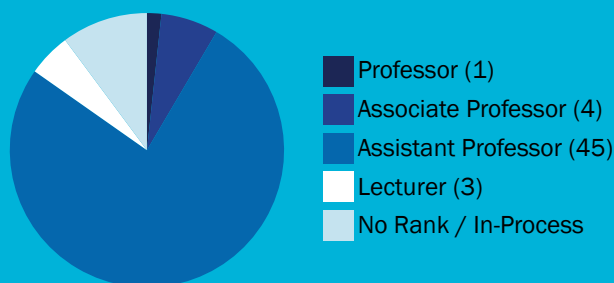
The Department of Paediatrics created 'Standardized Inclusive Recruitment principles' that were adopted across the 18 divisions and medical education teams in 2020. These principles ensured a standardized approach and best practices for our faculty searches.

Since April 2020, the SickKids Department of Paediatrics has recruited 62 full-time faculty members across many disciplines and subspecialties. Most new hires are replacements of faculty who have retired or left SickKids with no significant growth in faculty numbers. In addition, a subset of these new full-time faculty were already on contract at SickKids and had status as Lecturer or Assistant Professor.

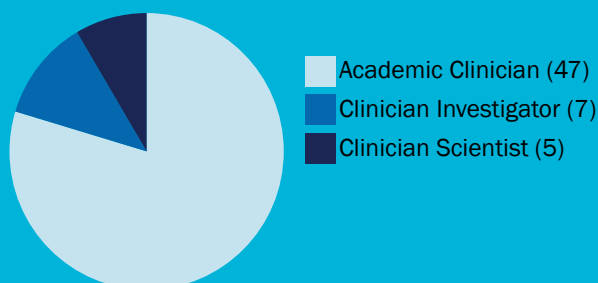
With the increased demand for clinical capacity within the Department and the need to meet the AFP expectation of 65% clinical: 35% academic split, the Department has prioritized hiring Academic Clinicians (80% of new hires) with fewer new hires in Clinician Investigator (12%) and Clinician Scientist (8%) job profiles. The Department remains dedicated to enabling all faculty to pursue academic and research interests through protected time for research and education. The job profiles, ranks, and genders and a list of new SickKids faculty recruits from 2020-2024 are shown below. Similar data by gender, rank and job profile is only available for SickKids site.

## Clinical Full-Time New Recruits (SickKids): 59 (M- 28%, F- 68%)

### By Rank & Gender



### By Job Profile



## Resignations & Retirements (SickKids)

There are several important findings when reviewing faculty turnover. First, the rate of turnover was higher than in previous periods for the SickKids Department of Paediatrics. Most physicians who resigned since 2020 have been on faculty at SickKids for an average of 10 years (with a large subset having been in practice for >10-15 years). In contrast, most new hires had less than five years' experience and often had just completed residency and fellowship at the time of recruitment. Having a stable cadre of experienced and highly specialized physicians is critical to providing high-quality care to the most medically complex children in Ontario and in some cases, the country. It should be noted that many of the highly subspecialized positions held by those who have departed require residency and fellowship training of at least five, and often more than 10 years following graduation from medical school. Due to recruitment constraints (shortage of certain paediatric subspecialists and a lack of ability to offer competitive salaries), the Department is often replacing physicians who have years of highly specialized knowledge and experience with earlier-career, newly trained physicians. While it is very important to invest in newer and younger faculty, bridging the knowledge gap and accounting for years of institutional and subspecialized knowledge continues to be a challenge without either a transition period or the ability to recruit a subset of early-mid mid-level faculty for some of these positions. There are also concerns about the pool of candidates, especially Canadian-trained, given that there are few paediatric subspecialty training spots in Ontario. In 2023, there were 31 paediatric subspecialty fellow graduates (including all subspecialties).

Moreover, there is a decline in North America with fewer trainees choosing paediatrics, and paediatric subspecialties (data supporting this decrease is US data and the total number of training spots in Canada is significantly <10% of the number available in the US).

### 1. Age and Tenure of Faculty

- Resigned (SickKids): 29 (average tenure of 9.2 years and average age of 46)
- Retired (SickKids): 14 (average tenure of 28.8 years and average age of 68)

### 2. Reasons for Departure, N=43 with available data

35/43 lateral moves; 12/35 US/International centers; 8/35 within province; 15/35 Ontario-community, other.

### 3. Career Stage

Career Stage: Faculty that left SickKids Department of Paediatrics (Figure 1A) vs. Career Stage for New Recruits (Figure 1B)



## Faculty Appointments and Evaluation of Performance

### Faculty Appointments

All new faculty in the Department of Paediatrics are reviewed by the Department Appointments Committee (DAC) to assess the professorial level in an advisory role to the Department Chair who then provides final recommendation to the University. Since 2021 all new AFP-funded positions at SickKids are also reviewed by a small subset of members of the CDCP (Career Development and Compensation Programme) Committee to advise the Pediatrician-in-Chief on the CDCP starting level.

Annual reappointment of all part-time and adjunct faculty is undertaken by the University departments; full-time faculty appointment requests incorporate an academic plan, which is developed and approved prior to the request for appointment by the Chief.

### Evaluation of Faculty Performance

All members of the Department of Paediatrics undergo performance assessments depending on the hospital and position description and may be performed by the respective hospital's Department Chief of Paediatrics, divisional leads/heads, and/or Research Institute leadership. Most reviews require the submission of a CV summary and an annual activity report, summarizing the activities performed over the past year in clinical care and creative professional activities (CPA), research and scholarship, clinical teaching, and administrative service. Since 2021 annual reviews at SickKids also include EDIA-related activities.

### Continuing Faculty Appointment Review

All initial full-time appointments are probationary pending the successful Continuing Faculty Appointment Review (CFAR). For the majority of faculty who are located at SickKids the Career Development and Compensation Programme (CDCP) provides the CFAR assessment (see below). This is completed after three full years on faculty.

Faculty may extend for up to five years for deferrals or leaves of absence. Documents (dossier and CV) are reviewed against the job activity profile and expectations of the individual's academic position description. The committee makes recommendations to the Chair (pass, deferral, no pass). For SickKids faculty, the first three-year review may lead to a change in CDCP level. All faculty are provided feedback from this process. Since 2020 the Department initiated an in-person meeting with the Chief-Chair, faculty member, division head and Associate Chair (Clinical, Research, or Education) to provide feedback and career development guidance. For non-SickKids faculty, the Department works with the Hospital chief and the local decanal committee to provide a review. Many three-year reviews were delayed and deferred during the pandemic.

## The Career Development and Compensation Programme (CDCP)

The Career Development and Compensation Programme (CDCP) is the current model to support career development and recognition for faculty at SickKids. Introduced in 1996, the model provides faculty with a clear understanding of the expectations for their role through an open evaluation and peer review focusing on achievement and where growth and/or improvement are needed. The Program consists of three components: Job Profiles (JPs) determined by a faculty's activity distribution across the areas of clinical care, research, teaching, and leadership; an Annual Review between faculty and Division Heads; and a comprehensive peer-review process known as the Triennial Review. During the Triennial Review dossiers are submitted to a review committee representing a cross-section of divisions and subject matter expertise, as well as tenure (though more mid to senior level to date). Each faculty member is reviewed by a primary and secondary reviewer from the committee who will score each "category of achievement" (Appendix 2.1) based on previously developed benchmarks in clinical care, research, medical education, and leadership. This peer-evaluated performance score for each faculty is then reviewed by the subcommittee leads for clinical care, research,

and medical education; faculty are assigned to the subcommittee lead aligned to their JP. The Chief of Paediatrics – considering all scores/recommendations, JP, and annual review – will determine if a faculty's level should: remain the same ("performance consistent with current level"); increase by 1 level ("expected career progression"); or increase by 2 levels ("exceptional achievement"). Faculty receive written feedback and for the past four years, the Chief meets with faculty who are undergoing their first CDCP review together with the Associate Chair most relevant to their JP. These meetings, often with the Division Head, are to both review feedback and provide career advice and planning for promotion and other opportunities.

While all components of CDCP are part of the evaluation process, the triennial review is associated with movement through career stages ("Levels") and compensation. Given the shared requirements, for AFP-funded faculty, the triennial review, is conducted in place of the CFAR at SickKids.

The R3 Project (Reassess, Reenvision, and Remodel) in the Department of Paediatrics, Hospital for Sick Children, set out to reassess the current Career Development and Compensation Program (CDCP) and re-envision and remodel a new career development model for faculty. Starting in 2023, the R3 Project, led by Dr. Sanjay Mahant, General Paediatrics and Hospitalist Medicine gathered information on the strengths, weaknesses, and opportunities of the current CDCP model and completed an environmental scan and literature review of programs at other academic health science centres and best practices. Faculty feedback was gathered in two forums 1) at an individual level based on specific roles or expertise (e.g., divisional leaders) and 2) in semi-structured feedback sessions by career stage. Findings demonstrated that a new strength-based, developmental approach to career development is needed to faculty to achieve success in their personalized career trajectory. Key recommendations for the remodel include including tracks within the Academic Clinician JP (e.g., Informatics) and introduce a

## **“Since 2020, the Department has successfully promoted 110 of 110 faculty submitted to the Temerty Decanal Promotions Committee”**

career development meeting, in place of the CDCP triennial review, where faculty focus on short- and long-term career goals and action plans with a career development committee (Division Head and mentors) The comprehensive project findings and recommendation will be presented to the Pediatrician in Chief and Paediatrics Executive Committee in late 2024. Recommendations will also include considerations for implementation – projected for 2025 - including subject matter expertise and resourcing.

### **Academic Promotions**

Since 2020, the Department has successfully promoted 110 of 110 faculty submitted to the Temerty Decanal Promotions Committee. This 100% promotions success rate speaks to the calibre of our faculty across the Department at our many sites and is in large part thanks to the leadership and dedication of our Faculty Development and Promotions Committees as well as the outstanding work of Dr. Ronald Laxer, Chair of the Temerty Department of Paediatrics Promotions committee.

Dr. Laxer has been instrumental in the promotion success within the Department of Paediatrics. Dr. Laxer meets 1:1 with all promotions candidates (multiple times over several years) to aid in the preparation and coach them through the process while our Faculty Development office encourages and informs faculty of the process, creating a strong system of support for advancing faculty. In recognition of his dedication to advancing our faculty, Dr. Laxer was awarded the Dr. Denis Daneman Faculty Mentorship award in 2023 – recipients of this award display an outstanding approach to mentorship through long-term commitments to advising and coaching paediatric

faculty members. In addition to Dr. Laxer, other members of the Departmental promotions committee assist faculty; Dr. Jeremy Friedman, Associate Chair, Clinical and Dr. Adelle Atkinson, Associate Chair, Education work closely with faculty on their creative professional and teaching dossiers, respectively.

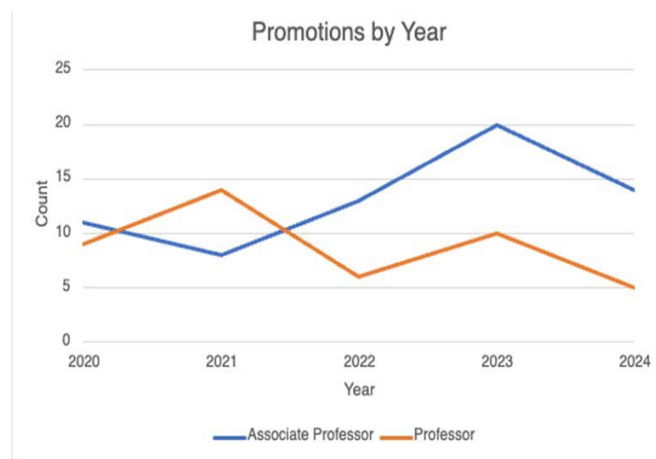
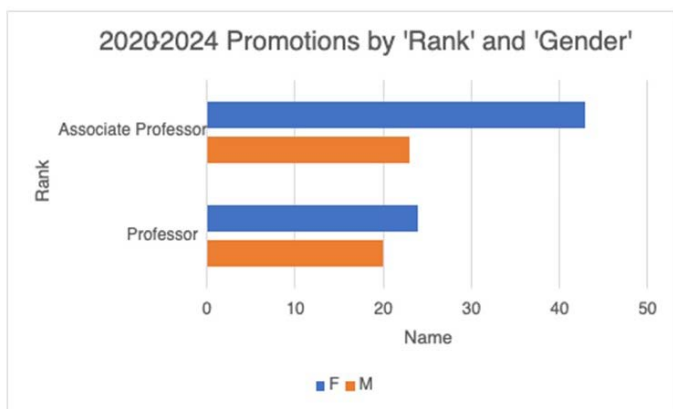
In September 2023, Dr Upton Allen, Professor, and Infectious Disease specialist in the Department of Paediatrics was appointed to Chair of the Temerty Faculty of Medicine Decanal Promotions Committee. Dr. Allen has long been a champion for the professional and academic advancement and development of his peers in the Department of Paediatrics which will serve him well as he chairs this important committee at the University level.

### **Count of Promotions across the Department of Paediatrics from 2020-2024**

The number of annual candidates promoted across the University of Toronto’s Department of Paediatrics has remained consistent throughout the review period apart from 2023 - a record-breaking 30 faculty members promoted. This increase may have been due to some delays for faculty submitting dossiers during the pandemic. During the period 202-2024, the following summaries profile the number of promotions and corresponding demographics across the Department of Paediatrics.



Dr. Ronald Laxer



110 Promotions

66 Associate Professor f-43, m-23

44 Professor f-24, m-20

In 2024, the Department invested time and resources into modernizing the promotions packages and materials to increase awareness and interest in promotion among faculty across the Department and create some excitement for the program. Through instructional and promotional departmental videos, emails, and handouts as well as the continued mentorship and leadership of Dr. Laxer and members of the Departmental Promotions Committee and Faculty Development Committee, the Department hopes to see these numbers grow even more in the coming years.

19-2020: 20: 11 Assoc, 9 Prof

20-2021: 22: 8 Assoc, 14 Prof

21-2022: 19: 13 Assoc, 6 Prof

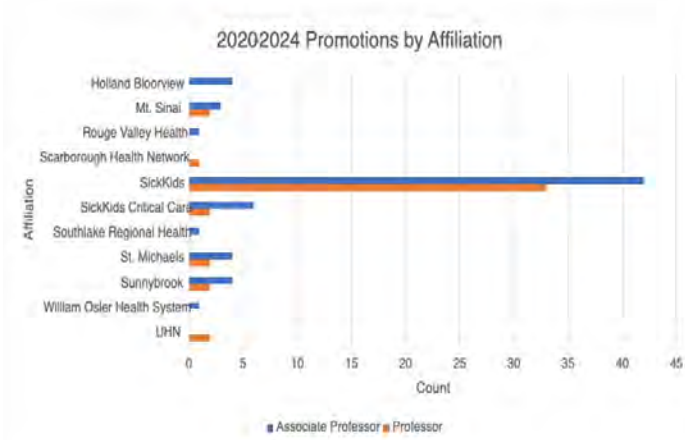
22-2023: 30: 20 Assoc, 10 Prof

23-2024: 19: 14 Assoc, 5 Prof

Of note is the increase in the number of promotions for community paediatricians over time. While many promotions have been faculty from SickKids, the Department has focused on increasing promotions of faculty within Paediatrics across many TAHSN and community Ontario health centres as well as several office-based paediatricians. For example, there has been large

increases in promotions for faculty in the University of Toronto’s Division of Neonatology, where a total of 19 faculty (6 from SickKids, 6 from Mount Sinai Hospital, 6 from Sunnybrook Health Sciences Centre, 1 from St. Michael’s Hospital) have been promoted since 2017. It was the goal of Dr. Estelle Gauda, Division Head, Neonatology to encourage and facilitate the activities and preparation required for the promotion of these faculty, many of whom had been at their academic rank for over ten years. With these efforts and guidance from Dr. Gauda and support from Dr. Ron Laxer, all candidates were promoted: 10 Full Professors and 9 Associate Professors.

All faculty promoted to full professor are invited



Below is a breakdown of the rank of faculty across the University of Toronto Department of Paediatrics

Lecturer: 213

Assistant Professor: 252

Associate Professor: 116

Professor: 117

to present at the Departmental Grand Rounds, which is attended by over 100 faculty and trainees each week. These rounds are among the highest rated each year with many faculty not only reviewing their academic achievements but also providing trainees and junior faculty with pearls and career advice.

### Clinical Full-Time

Site Affiliation	No Appt / In-Process	Lecturer	Assistant Prof.	Associate Prof.	Prof.	N
SickKids	7	7	71	75	90	250
Critical Care (SickKids)	0	1	9	7	6	23
Mt. Sinai	0	0	8	4	4	16
Sunnybrook	0	0	2	4	2	8
St. Michael's (Unity Health)	0	1	3	6	2	12
Holland Bloorview	0	5	13	4	2	24

### Clinical Part-Time

	0	90	103	14	6	213
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### Clinical Adjunct

	0	106	35	1	0	142
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### Contract \*

	60	3	8	1	5	77
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Additional 5 faculty on contract hold Emeritus status.

\*Contract refers to non-permanent locums roles- shifts, clinics, service weeks)



## 2.2 Equity, Diversity, Inclusion and Accessibility in the Department of Paediatrics

## 2.2 EDIA in the Department of Paediatrics

### Background and Introduction

The Equity, Diversity, Inclusion and Accessibility (EDIA) Office in the Department of Paediatrics was founded in September of 2019. At that time, The Hospital for Sick Children (SickKids) did not have an organization-wide EDIA Office. A new role of Associate Chair, Equity, Diversity, and Inclusion was created in 2019 which also incorporated the Faculty Development Portfolio. This role was added to the Paediatric Executive Committee as a key leadership position in the Department and its inaugural appointee was Dr. Indra Narang who continues to hold this position today. Since the group's inception, a Program Lead and Coordinator have also been hired. This role and its subcommittees pre-dated the appointment of a SickKids EDIA Executive Lead and EDIA Office, which for the past year has also been led by Dr. Narang as Interim Executive Lead.

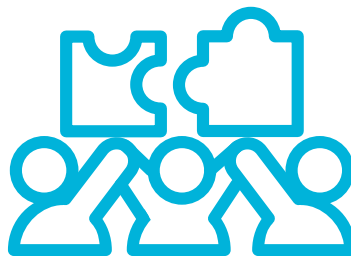
To achieve its aims, the Office utilizes a reflexive approach and applies an intersectional lens to its work through courageous conversations and actions confronting the structural barriers underpinning racial, gender, and other inequalities. The Office strives to create and sustain a department where diverse groups are reflected in the people and lived experiences around them through building safe spaces for difficult conversations.

**Through action, the Office is committed to supporting faculty, staff, learners, and community in promoting a culture of EDIA, belonging, and cultural safety in planning, processes, collaboration, and service delivery within the Department.**

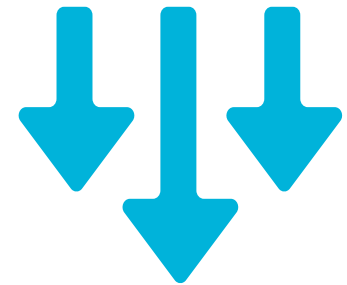
### The Department assumes the responsibility, although not limited to:



**Identify and execute activities that support principles of EDIA**



**Build capacity to promote diversity awareness and knowledge**



**Reduce systemic biases and barriers to an inclusive workplace**



**Enable the recruitment and retention of a highly skilled, engaged and diverse workforce**



**Identify creative and innovative resources and activities to sustain change across all divisions**

## Departmental EDIA Framework

The Departmental EDIA framework is embedded in the Hospital's guiding principles of compassion, integrity, collaboration, inclusion, innovation, and excellence. It is underpinned by evidence-based best practice, consultation, and global standards of EDIA adapted from EY's Global Equality Standards, Temerty Faculty of Medicine University of Toronto, and Ontario Health's Anti-Racism and EDI framework.

Department-specific EDIA work focuses on the factors and conditions that influence the development of intersectional identities of faculty, administrators, and learners alike – pinpointing the various aspects that can either encourage or hinder such development (e.g., the prestige of an occupation; working and training conditions; work activities; and social relations in the workplace). The associated inequalities that can arise, collective and individual “occupational identity”, encompass complex connections. The Office uses this novel occupational identity approach to customize workshops and training as well as hosting special programming, such as Diversity and Inclusion Grand Rounds.



Grand Round, Indigenous Mental Health 2023. Mikaela Gabriel, Anna Hossain and Ashley Gaagige Kagige

The Department's EDIA framework is guided by the University of Toronto and the Hospital's EDIA strategy and principles. Through three pillars: **people, processes, and practices**, the Office integrates recommendations and considerations from the Temerty EDIA Action Group Report of 2020. The Office utilized the “Voice of the...” survey to build foundational workshops, Mitigating Bias and Allyship and engaged academic and administrative leaders to advance diversity management practices. In harmony with the SickKids organizational EDIA commitment, each of the three pillars addresses individual, team, and institutional level disruption of bias, harassment, and discrimination.

## Key EDIA Pillars

The EDIA team assumes responsibility for making recommendations on appropriate initiatives and interventions to support the maintenance of a diverse, inclusive, and psychologically safe working environment, out of which excellence through diversity can be achieved. The framework is supported by the three action areas, the pillars, people, process, and policies.

As the Department of Paediatrics' Office preceded the organizational EDIA Office, it continues to be a go-to for consultation and advice in all matters related to EDIA. In fact, the Hospital's EDIA Steering Committee was co-created by the Office, along with the Research Institute (RI). As the organizational EDIA strategy was not launched until 2022, the Office has used a bottom-up approach in designing the framework as gaps and needs were identified by staff, leadership, and divisions. This bottom-up approach is most fitting for EDIA initiatives because it is guided by the voices which are impacted most by the initiatives and increases involvement and engagement.

## Pillar One: People

Our people drive our processes and practices at SickKids. Values, beliefs, and lived experiences enhance the culture in the work environment and the Office uses a proactive approach to creating inclusive and brave spaces for all staff, including learners, physicians, faculty, fellows, administrators, and community partners. The Office works closely with other committees and groups throughout the Hospital, such as the EDIA Steering Committee, EDIA Advisory Committee, RI, and the Learning Institute, to ensure the work is complimentary and streamlined.

In response to a 'voice of the residents' survey' in 2019 which reported that 44% of residents experienced micro-aggressions, racism, discrimination, and/or harassment, an EDI Champions group, comprised of clinical faculty, was established. Through the EDI group, the Office set priorities to address the ongoing concerns around microaggressions, racism, and discrimination.



EDIA Program Lead, Anna Hossain (left) and winner of the Advocacy, Equity, Diversity & Inclusion Award Dr Krishna Anchala, 2024

### Learning and Development

During the review period the Office:

- **Designed and delivered 'Allyship' workshops** that were specific to the cultural context of residents, fellows, faculty, and staff in the Department of Paediatrics. The first workshop was delivered in 2019.
- **Delivered 60 workshops** across the Department of Paediatrics, the organization, and to TAHSN and other academic institutions such as Queen's University.
- **Trained over 1,100 staff and faculty**, including 27 EDIA action group members/champions on a suite of bespoke workshops, to build capacity.
- **Established a train-the-trainer program to train other healthcare providers across the organization on Allyship.** This workshop, now the intellectual property of SickKids, was supported by written materials that were designed by the Department, e.g. 'the Allyship Toolkit'.



(Noone D, Robinson L, Niles C, Narang I. Taking Action Against Inequities and Racism in Healthcare Through Authentic Allyship. *New England Journal of Medicine*. <https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0358>)

- **Published in the New England Journal of Medicine in May 2022.**

- Delivered local, national, and international Grand Round presentations.
- Acted on frequent requests for consultations on an EDIA focused roadmap to build capacity and implement similar EDIA-related workshops build capacity in other institutions (e.g., Perth Children’s Hospital).



Allyship Training workshop

- **Created a suite of three workshops: Mitigating Bias, Anti-Racism and Anti-Oppression** which is offered to all health care workers and administrative staff including outside of the Department of Paediatrics.

- Worked closely and continues to be highly integrated with medical education leaders and teams in the Department to coordinate content and initiatives related to trainees and other learners.

### Optimizing Equity of Opportunity and a Diverse Workforce

The Office customizes workshops based on the needs of divisions at a point in time to ensure all voices are heard, and accessible to all levels of staff, considering power dynamics between senior leaders and staff. For example, conflict resolution using an inclusive approach and disrupting bullying, and harassment are workshops created on demand and just-in-time in response to emerging issues in a division or team. This also includes training and dedicated consultation for recruitment committees including a dedicated and trained EDIA advisor provided to all recruitment committees, voluntarily:

- The Office adopted the first Standardized Inclusive Recruitment guide for the Department to attract and reflect local, national, and international diversity in education, experience, and identities. The Office provides ongoing input and feedback to the guide; it is a living document and revised annually. This is used for all faculty and leadership searches in the division. In addition, it is shared across non-SickKids Departmental faculty whose searches are often governed by hospital and practice plan frameworks (See Appendix 2.2)
- Under the leadership of the Associate Chair, Department of Paediatrics faculty (paid through the SickKids Alternate Funding Plan (AFP)) underwent an equitable compensation review in 2020-2021. The goal was to evaluate the salaries of faculty (0.5 FTE and greater) to ensure that there is fair and

equitable compensation for faculty after adjusting for gender, years of service, and job profiles. Following internal de-identified data collection, all data analyses were completed by an external Biostatistician. All data was reviewed by the Equitable Compensation Working Group, the Department of Paediatrics Executive Committee, and SMC (SickKids Senior Management Committee). The Departmental Executive and Finance Committees approved an additional salary expenditure in 2022. Adjustment was made for 42% of faculty with a median adjustment of \$5,093. Subsequently, as a commitment to ongoing equity, a framework was established to ensure standardization of salaries for all new faculty.

### Faculty Awareness, Education and Engagement

Through EDIA education, the Office intentionally creates separate spaces to diffuse the power dynamics between various staff levels. Given the successful outcomes, the Office continues to offer independent workshops to divisions and cross-disciplinary workshops based on pre-survey and intake conversations with the divisional administrators. Actively providing and engaging staff, faculty, and learners in conversation circles helps to create safe/brave spaces as various needs emerge. Examples include:

- In 2023 and 2024, the Office held coffee chat drop-ins for all staff and learners to provide them with an informal opportunity to gather and share reflections on the impact of the war in the Middle East.
- Recognizing and rewarding staff contributions through the annual EDIA Award at the Department of Paediatrics Awards Day.
- The Departmental Paediatric Consultant Grant Competition has included a specific category for EDIA-related proposals and has awarded 11 in the past four years.
- In 2023, the Office started Indigenous Conversations, held every season to signify

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Faculty Development, Equity Diversity, Inclusion and Accessibility Office



emerging topics and introductory conversations led by the Indigenous Program Manager and with consultation from the Executive Office. This employs ceremony and storytelling to educate on a topic, such as the medicine wheel, with ample time for informal conversation and active questioning.

- In 2022, in collaboration with the University of Toronto, the Department hosted We All Belong, a diversity event, with a multi-disciplinary and global panel, focusing on leveraging lessons from the pandemic to ameliorate inequities in the healthcare system. Since the EDIA team's growth, the Office continues to host We All Belong independently as part of a special Diversity and Inclusion feature of Grand Rounds. The sessions include scholars, clinicians, and practitioners who are affiliated with the Temerty Faculty of Medicine with all programming being vetted by a committee with input from the University of Toronto. The programming features emerging topics in EDIA in health care; in 2023, the topic was Indigenous mental health, and the 2024 program will centre on refugee health with Dr. Meb Rashid (Women's College Hospital).

The Office includes and engages key voices to staff and communities and incorporates their ideas and feedback into the design, delivery, and evaluation of programs and services specifically partnering with the Hospital's Indigenous Health Council and Indigenous Program Manager to ensure the Department's programs and products align indigenous health equity and self-determination principles. The Office also has partnerships with residency EDIA committees to provide them with brave spaces for collaboration, presenting of ideas,

and generation of projects which integrate clinical education and EDI principles.

## Pillar Two: Processes

Based on the framework above, the Office's processes are collaborative, transparent, continuously revised, and informed by the organizational strategic plan, Temerty Faculty of Medicine's EDIIA commitments, EDI Working Group action plan (2020), and industry standards. Processes are the systems, structures, and procedures that guide the way work gets done. Using an anti-oppression and anti-racism, trauma-informed lens, the Department's activities disrupt institutional barriers through awareness, education, advocacy and allyship in reducing disparities in population health. During the review period the Office:

- Adopted the first Standardized Inclusive Recruitment (SIR) guide for the Hospital to attract and reflect local, national, and international diversity in education, experience, and identities. The EDIA team provides ongoing input and feedback to the guide; it is a living document and revised annually. The SIR is often used by the broader institution and other SickKids departments in their recruitment processes.
- Made available an EDIA advisor (appointed by the Associate Chair) from the EDIA Action Group to participate in selection/search committees for recruitment across the Department to ensure biases are mitigated, an EDIA lens is applied to the overall process, and the SIR is followed.
- Provided support and guidance if staff voice EDIA-related concerns and refer them to hospital services such as peer support, occupational health, and the safety reporting system.
- Hosted a bi-monthly meeting for EDIA Action Group members to discuss emerging issues, share updates across divisions, and organize special sessions. The EDIA Action Group was

formed to develop local leadership in EDI; building capacity and deepening knowledge within a set of individuals who have self-identified as interested and keen to advance the culture of EDI at SickKids.

- Deployed a pre-survey before running our Mitigating Bias, Allyship, and Anti-Racism/Anti-Oppression workshops to inform structure and delivery of topics. After workshops are completed; a post-evaluation survey is used to revise the workshops if required.
- Created awareness through education programming consultation with the organization, to flatten disparities and enhance health equity, through the first module of health equity iLearns. During the development of diversity iLearns, the Department provided in-depth feedback and testing employing EDIA analysis in curriculum design and delivery.
- Implemented an EDIA component as a standard procedure during the onboarding of new clinicians.



## Pillar Three: Practices

Practices are the actions, behaviors, and approaches both on a micro and macro level. The Office's practices are both formal and informal, intentional, and unintentional. As part of the commitment to continuous improvement, the Office is also involved in professional development. Whenever available by University of Toronto, the Office's staff participates in workshops and educational sessions. In 2024, the Program Lead attended a two-day workshop on Conflict Resolution and Dialogue; in 2023, the staff attended University of Toronto's session on

Learning, Teaching, and Working in a Time of Crisis: Addressing Antisemitism, Islamophobia, and Anti-Palestinian Racism on Campus. Ongoing academic endeavors include:

- **Culturally responsive care through workshops, observations, and one on one consultations with staff.**
- **Health equity toolkit through social determinants of health pilot project.**

From a research perspective, certain workshops, and events, such as Diversity and Inclusion Grand Rounds, formerly known as We All Belong, include education and discussion around inclusive research practices, irrespective of the theme. For example, in 2023, the topic was Indigenous Mental Health Pillars; the keynote speakers highlighted approaches to ethics and psychological safety in research involving indigenous populations, or discourse which has a great impact on Indigenous communities. The Office also introduces the importance of an EDIA lens in research during annual orientation for new trainees.

In 2023, paediatric residents along with the EDIA Office, published Providing culturally responsive care in a pediatric setting: are our trainees ready? ([Chen, A., Blatman, Z., Chan, A. et al. BMC Med Educ 23, 681 \(2023\)](#)). This was an interdisciplinary scholarly project with clinical, education, curriculum, EDIA, and health equity implications. Many postgraduate medical programs have introduced EDI content into the formal academic curriculum. To address this systemic oppression in healthcare, it is necessary to embed principles of EDI at an early stage within medical education. This study aimed to assess paediatric trainees' perceived interest in EDI curricula and their confidence in applying this knowledge to provide culturally responsive care. Through a cross-sectional survey, the findings strive to inform educational strategies required to develop a more comprehensive and integrative EDI curriculum that prepares trainees to deliver culturally responsive clinical care.

On a community, national, and global level, the EDIA Office has received many informational requests to share resources and meet with the program as other paediatric centers and medical schools embed EDIA into their work in various domains. Specifically, in 2022/2023, the Department provided a set of three workshops to Queen's University. In 2023, Perth Children's hospital tasked with spearheading an EDIA unit came on-site to shadow and gather information on the key pillars and activities, specifically the practices and processes the Office employs to galvanize EDIA theory to practice integrating best practices to all departmental functions. The Office is keen on sharing and mobilizing knowledge to strengthen EDIA in the broader paediatric community while learning from other pioneers in EDIA in health care to continue to be innovative and creative in sustaining spaces of inclusion and belonging.

## Challenges and Barriers

The pursuit of EDIA is closely affected by external factors such as the current government's mandate, global issues, and socio-economic and geopolitical climate. In Canada, Conservative politicians in early 2023 challenged colleges' diversity, equity, and inclusion efforts to recruit and retain faculty and students of color leading to anti-EDI, or "anti-woke" backlash. Furthermore, last year's US Supreme Court decision striking down affirmative action in college admissions only intensified that scrutiny; this has a domino effect not just on the Department, but the Hospital and the medical school in general as culture shifts take years, if not decades or generations to shift; the global scrutiny on EDI investments resulted in some individuals being resistant to mandatory workshops on anti-racism and anti-oppression. To address this complex issue, the Office discusses readiness with divisions before a course is designed and delivered to a division. To reduce the chilling effect of the pushback, the Department is proactive and realistic, and takes guidance from the organizational EDIA Office and University of Toronto, on renewing the community and connection to the purpose of organizational excellence through equity.



Allyship Training workshop

The Office has ongoing resource constraints; currently, it is not adequately staffed. To address capacity issues and build people capital, the EDIA Program Lead actively solicits interest from divisional EDIA champions to be trained to facilitate workshops and seminars, as needed. In recent times, the Office has lost some co-facilitators due to staff turnover and is building capacity using creative approaches, including providing early career/new staff to shadow the Program Lead to build a presence and create awareness and outreach about the importance of EDIA in ‘everything we do’ in the Department, and beyond. In the future, the Office hopes to have an FTE allocation for a program coordinator.

Some other key constraints include human capital and capacity building through human resources for ongoing sustainability; possible burnout on the individuals who drive the EDIA work as the Office is overextended often with scope creep and expectations to “solve” EDIA issues for the Department; desire for more central strategy and execution on organizational EDIA Office to avoid silos; need for more standardized EDIA resources and guidelines to guide departmental EDIA offices; need for formal paid continuing education for EDIA leads and coordinators; analytics and metrics to interpret the meaning and impact of our work; community partnerships beyond the Hospital to promote health and well-being of various populations; governance and leadership as the Organizational EDIA Office recently restructured and more structure and collaboration will be valuable to the Department; and improving patient health outcomes and interdisciplinary collaboration across divisions with more EDIA champions “on the ground.”

## Looking Forward

In alignment with the EDIA Executive Office, the Department’s EDIA Office will support the collection, reporting and use of equity data, set up systems and supports to report findings and inform future decisions to enhance and innovate programming, research, education, teaching, and learning. The Office will continue to inform, guide, and improve recruitment and workplace culture in a manner that exemplifies inclusive excellence, societal relevance, and impact in diverse local, regional, national, and global communities. Priorities include:

- Raising awareness beyond the Department by developing attitudes, knowledge, and skills to foster positive interpersonal and intergroup relations, a culture of respect and inclusion, and a climate where all members of the community experience dignity and belonging.
- Joining community partners to collaborate on education and research opportunities.
- Addressing patient healthcare inequities by expanding culturally responsive care awareness.
- Revising the EDIA website with consultation from the Department of Paediatrics staff to be a living and accessible resource for all staff (intranet redevelopment).
- Data collection driven by the organizational unit, and the Department in alignment with tools and practices once established by the organization.



## 2.3 Faculty Development Report

## 2.3 Faculty Development Report

### Overview

A new role of Associate Chair, Faculty Development and Equity, Diversity, and Inclusion was created in 2019. This role was added to the Paediatric Executive Committee as a key leadership position in the Department and its inaugural appointee was Dr. Indra Narang who continues to hold this position today. Dr. Narang oversees the Faculty Development Office for the Department of Paediatrics, University of Toronto and its various foci not limited to career development, leadership, wellness, and scholarly activity. The Faculty Development Office intersects or complements additional departmental, Hospital, and/or University-led initiatives (e.g., staff engagement) and committees.

### The Faculty Development Office

The Faculty Development Office in the Department of Paediatrics is committed to creating programs that address career development, education and training, mentorship, scholarly activity, and wellness for faculty and trainees, and to promote equity of opportunity to ensure that all faculty can reach their full potential as clinicians, researchers, educators, leaders, and advocates. Programming is centred around system needs, and relevancy for academic units within the University of Toronto, Toronto Academic Health Science Network (TAHSN) and the broader paediatrics health professions community. The Office has created several sub-committees, and each of these committees are co- led by two faculty members from the Department.

#### Where Faculty Development Meets Equity, Diversity, and Inclusion

Equity involves ensuring fair treatment without favouritism or bias. Access to opportunities, such as leadership roles and participation in key committees, as well as the allocation of resources like funding, workspace, and research support, significantly influences faculty members' perceptions of a fair and equitable environment.

The departmental philosophy is to reconceptualize faculty development anchored in EDI. We strive to foster a culture to approach faculty as learners as well and galvanize faculty development as a facilitator of transformational institutional change (Castillo-Montoya, M., Bolitzer, L.A., Sotto-Santiago, S., 2023).

As concerns grow regarding inequitable access to education for underrepresented populations in health education, clinical faculty members increasingly prioritize Equity, Diversity, Inclusion, and Accessibility (EDIA). Faculty play a crucial role in establishing and reinforcing the norms within educational settings, significantly influencing student experiences. However, literature on faculty capacity for EDIA within medical education is limited, as is the evidence identifying barriers to development in this area. To effectively identify equity issues, it is beneficial to have systems in place to review data related to key departmental activities, such as recruitment, appointments, wellness, career development, mentorship opportunities, promotions, talent management, and research and scholarship (Castillo-Montoya, M., Bolitzer, L.A., Sotto-Santiago, S., 2023).

Recognizing that different faculty may require varied forms of assistance at different stages in their careers, resource and opportunity allocation should be transparent and comprehensible to all members of the Department. Equitable distribution of teaching, advising, and administrative responsibilities is crucial for fostering departmental harmony and cultivating a positive, engaging climate. Notwithstanding, the learning environment is profoundly shaped by established norms and practices in inclusive leadership and pedagogy, which faculty members help reinforce.

#### References

Castillo-Montoya, M., Bolitzer, L.A., Sotto-Santiago, S. (2023). Reimagining Faculty Development: Activating Faculty Learning for Diversity, Equity, and Inclusion. In: Perna, L.W. (eds) Higher Education: Handbook of Theory and Research. Higher Education: Handbook of Theory and Research, vol 38. Springer, Cham. [https://doi.org/10.1007/978-3-031-06696-2\\_11](https://doi.org/10.1007/978-3-031-06696-2_11)

## Faculty Development Subcommittees

The following sections outline the achievements, goals, objectives, and deliverables/programming of the four subcommittees that contribute to this environment.

### 1. Career Development

The value of structured development processes has been recognized and implemented in formal physician training programs such as residencies and fellowships. In recent years, several academic medical centres have implemented formalized early-career development programs for physicians, largely those who have a major research focus. However, beyond the early stage of physicians' careers, formalized and intentional physician career development programs are rare.

Engaging faculty in career development is not ancillary; it is essential to the holistic education of trainees and future generations of physicians. This subcommittee aims to foster the professional growth and advancement of faculty with a focus on mentorship; a comprehensive orientation program; and one-on-one consultation.

#### A) Mentorship:

- a. Mentorship networks and teams- pilot study evaluated, and current career mentorship program leverages these data.
  - i. The pilot included 15 mentors and five mentees with findings and feedback collected through 3, 6, and 12-month surveys informing future mentorship program development.
- b. Skill-building workshops
- c. Personalized career guidance
- d. Grand Rounds where invited keynote speakers have addressed strategies for career development and promotion.
- e. Open door policy where Associate Chairs are available to provide guidance, mentorship, and support on an individual basis to all faculty.

#### B) Comprehensive Orientation Program:

In 2024, the Faculty Development office hosted the inaugural new faculty orientation program at the departmental level. The goal of the half-day event was to orient new faculty to the people, places, programs, and culture of the Hospital; meet and greet with one another; facilitate faculty in building a platform for success in clinical care, education, and research; key steps to academic promotion; and highlight of resources available to faculty; and overview of business operations. After the orientation, a survey was sent out to the 30 participants. The responses to the feedback survey will help shape the 2025 new faculty orientation session.



New Faculty Orientation 2024

#### C) Academic Promotion:

The Academic Promotion workshop is a long-standing initiative of the Department. Every year, usually in spring, all Departmental faculty at SickKids and TAHSN sites, who are considering applying for promotion in the upcoming academic years are encouraged to attend this workshop. Notwithstanding, faculty who are already at the Professor level are encouraged to attend as the information provided is helpful for their role as mentors to younger faculty members. This annual workshop is highly attended with typical attendance numbers ranging from 30-60 faculty members. The sessions are offered hybrid and recorded to align with the Department's EDIA framework and ensure they are accessible to everyone, at any time. The agenda items are standard from year to year and updated regularly to ensure best practices for success and information on how to prepare the promotion dossier. There

are individual presentations from the Associate Chairs of Clinical, Education, and Research who focus on the promotion requirements for clinical excellence, teaching and education, and research respectively. In 2023 and 2024, the Program Lead of EDIA offered individual sessions to those pursuing University promotion to develop their EDIA statement for their promotion dossier.

## 2. Leadership

### A) New & Evolving Academic Leaders (NEAL) Program:

The Department of Paediatrics (with funds from Dr. Irwin's endowed chair) cosponsors emerging faculty leaders (average 3-4/year) to participate in the University of Toronto NEAL program; a one-year advanced leadership development program offered by the Centre for Faculty Development (CFD). Applications are adjudicated and prioritized by the Departmental Faculty Development Committee.

### B) Women in Medicine Leadership course:

- The Department sponsors a 2-day in-person leadership course specifically designed for faculty towards promoting and enhancing the leadership skills of early and mid-career faculty.
- **Objectives:** This course focuses on deepening self-awareness and self-knowledge, identifying and developing individual skills and strengths, and highlighting capabilities necessary to address and successfully meet challenges unique to women leaders in health care.
- According to the facilitator, the ideal number of participants is 30 to 40; however, it is anticipated to double; 400 individuals are interested. This may necessitate a future session, based on the feedback from the inaugural session in February 2025.

## 3. Wellness

This subcommittee is comprised of over 15 faculty members. Representatives also sit on the hospital-wide CopeWell committee and liaise with wellbeing

leads and experts at other TAHSN hospitals and beyond.

Programming includes:

### A) Wellness-oriented grand rounds, workshops, and webinars

- November 2020** - Psychological Safety as a Key Driver of Wellbeing - Grand Rounds by Dr. Jo Shapiro
- April 2021** - Is Wellness Another 'To Do' for You? - Grand Rounds by Dr. Susanna Talarico and Dr. Nirit Bernhard. The attendance for this event was 123 attendees.
- May 2021** - Psychological First Aid - Webinar with Dr. Melanie Joannis
- December 2022** - We are not all Perfectly Fine: How Telling your Story will Transform our culture - Webinar with Dr. Jillian Horton. (an associated book club event was organized by Bioethics with Dr Horton in the winter of 2023 featuring Dr. Bernhard as a panelist)
- March 2023** - Patient-Centered Communication Skills and Navigating Challenging Patient Encounters - Webinar by Dr. Shirley Lee
- February 2024** - Strengthening Your Well-being through the Three Pillars of Physician Wellness - Webinar with Dr. Katie Baldwin

### B) Balint groups including sponsorship for external training of faculty who then "train the trainer" locally

### C) Coffee socials with timely topics and themes impacting faculty

### D) Faculty lunches

## Scholarly Activity

The goal of the Scholarly Activity Committee is to support the faculty within the Department to thrive as scholars. Committee members represent a range of job profiles and experiences, engaging in diverse forms of scholarship. This collective expertise enables the Department to reflect the broad range of scholarly activities and work experiences of faculty.

Needs assessments of the supports for scholarly activity required in the Department that have helped to identify the barriers and facilitators that impact faculty engagement in scholarship; a small grant has been obtained to complete this work.

## Subcommittee Challenges and Priorities Looking Forward

Most subcommittees met regularly over the first two years after the groups were formed, however many have since left the Department or cannot engage in consistent committee work. To expand, invite various perspectives, and revive the committees, socialization through the faculty orientation program and meeting with new faculty one-on-one will be a priority moving forward. The group hopes to emphasize exciting new programming such as the Women in Medicine leadership course offered in Winter 2025 to help attract new members of subcommittees. Another significant challenge the group faces is managing competing priorities and finding sufficient time to dedicate to the committee’s initiatives; in 2025, the Office will conduct a needs assessment session to explore ways to work smarter and optimize synergies within the subcommittees. Furthermore, learnings from the Chair and Associate Chair meetings with new faculty following their first three-year review will be integrated into assessments for future directions of faculty development and mentorship activities.

## Well-being of Learners and Faculty

The Department of Paediatrics places a high priority on fostering wellness and morale among both faculty and learners, recognizing that a supportive and healthy environment is essential for effective education, scholarship, and excellent patient care. By promoting work-life balance, mental health resources, and professional development opportunities, the Department actively nurtures a positive atmosphere that supports resilience and professional growth. Initiatives such as wellness workshops, mentorship

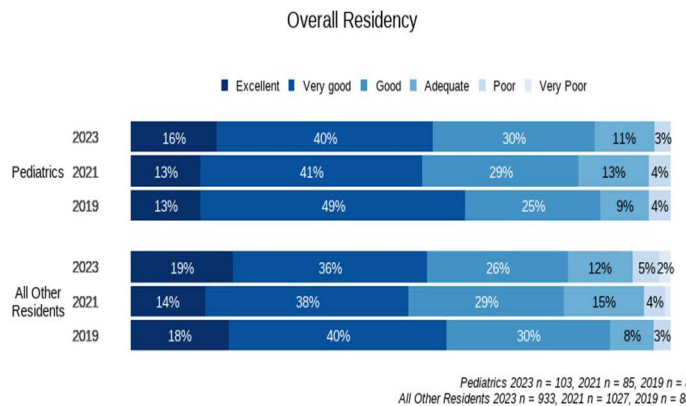
programs, and peer support networks are designed to address the unique challenges faced in paediatric healthcare, creating a collaborative space where faculty and learners can thrive. This commitment to wellness not only enhances individual well-being but also strengthens the Department’s capacity to deliver outstanding paediatric care and education.

## Voice of the Learner Surveys

The Voice of the Resident Survey (VotR) was first introduced in 2016, and the study aimed to collect data about residents’ experiences during the past academic year. Since then, VotR has become a bi-annual reflection survey for all residents who have been active in clinical settings for more than one month in the past academic year. The survey includes distinct modules asking about various aspects of residency training (e.g., learning and work experience, wellness, mistreatment, inclusion and equity, intent to practice, etc.). The data collected in these surveys helps to identify issues and inform decision-making.

The results below include data from the last three iterations of the VotR survey (2023, 2021, and 2019). The report presents the key results for departmental learners relative to all other residents.

The response rate for the Department of Paediatrics in 2023 was 67% compared to 53% for all other residents across the University of Toronto’s Temerty Faculty of Medicine.



VOTR Survey results

Included below are also high-level summaries of overall University of Toronto Faculty of Medicine results for both MD students and Clinical Fellow (non-paediatrics-specific).

### **Voice of the MD Student (All of Temerty Faculty of Medicine):**

Response Rate: 75%

Overall Experience (excellent & very good): 56% (+24% 2021)

### **Voice of the Clinical Fellow (All of Temerty Faculty of Medicine):**

Response Rate: 26%

Overall Experience (excellent & very good): 59% (+0% 2021)

Examples of work done at the University of Toronto Temerty Faculty of Medicine and Department of Paediatrics resulting from these surveys over the years include new standards of remuneration for clinical fellows, which the Department of Paediatrics has adopted; an inaugural fellowship strategic retreat to promote initiatives and services such as the Office of Learner Affairs; mentorship opportunities; a primer for teachers on how to navigate when they witness learner mistreatment; personal and career counselling, etc.

## **Staff Engagement at SickKids**

At SickKids, hospital leadership administers an engagement survey every two years (2020, 2022, 2024) to all faculty, learners, and staff to understand the current environment and general levels of engagement for employees. The results of these surveys inform engagement and wellness strategies at the hospital, departmental, and individual team levels.

Despite best efforts by departmental leadership to encourage participation in the survey, the SickKids Department of Paediatrics' average response rate was 46% across the three years the survey was administered during the review period (2020-45%, 2022-44%, 2024-50%), making it a challenge for departmental leadership to use SickKids scores as a reflective sample of the broader faculty engagement. Despite the low



response rate (similar to other physician groups including Perioperative Services and Diagnostic Imaging at SickKids) departmental results are always thoughtfully reviewed by departmental and divisional leadership and strategies to improve on areas of concern are developed as a result.

Across the three years that the survey was administered, scores did not fluctuate significantly across the three major factors, signaling an engagement status quo. Given the challenges faced by healthcare and specifically paediatrics (e.g., triple viral surge), themes that remain a concern (receiving generally lower scores overall) year over year, though improving marginally, are workload, wellness, and feeling valued through recognition and compensation. The top theme mentioned in the verbatim comments continues to be concerns about compensation and an outdated Alternate Funding Plan (AFP). Overall, it is notable that at SickKids physician engagement scores were several points lower than the hospital average across non-physician staff.

Areas that are consistently top-scored are general feelings of pride and belonging as well as collaboration and cooperation among colleagues.

Some of the actions taken by departmental leadership (often in collaboration across

departments) to address the areas of concern include initiatives described throughout this report. Specific priorities related to workload, wellness and feeling valued include programs and committees to decrease administrative burden (GRoSS, Getting Rid of Senseless Stuff) in collaboration with the hospital wellness team and increased recognition through the Awards Recognition Committee (ARC).

The work with the OMA (Ontario Medical Association) and MOH (Ministry of Health) to negotiate additional business cases /physician positions and enhanced AFP compensation has been a major focus, but in response to the surveys and other feedback from faculty, the Department has increased communication about the status of these efforts at bi-monthly town halls, where faculty receive updates on annual and longer-term compensation issues providing opportunities for questions (in-person and hybrid options).

## Physician Wellbeing Index (WBI)

In response to the increase in burnout, fatigue and general wellness concerns among physicians stemming from and exacerbated by pandemic workloads, the SickKids Office of Medical and Academic Affairs launched the Physician Well-Being Index (WBI) in 2023. This tool ([mywellbeingindex.org](http://mywellbeingindex.org)) is commercially available and was developed and validated by the Mayo Clinic. The Well-Being Index is a 100% anonymous, web-based tool used to evaluate multiple dimensions of distress. It is designed to



measure burnout, provide valuable resources, and allow users to track progress over time to promote self-awareness. After completing this short assessment, each participant receives a Well-Being Index score. Scores can range from -2 to 9. Any score of 3 or above is categorized as a high level of distress.

Similar to the engagement survey, the Department participation in the WBI was 42% (initial survey) and 34% (follow-up survey). Response rates were similar across other clinical physician groups at SickKids. Levels of “distress” among physicians in the Department of Paediatrics at SickKids have remained consistent year-over-year with a score of 3, the highest among other departments at SickKids, all of which have seen significant decreases since last year. It is important to state that although higher than other groups the magnitude of difference is not significant and most SickKids physician groups overall had a similar score to that identified at other academic hospitals in the GTA and elsewhere. Based on the limited qualitative data received, high levels of distress within the Department of Paediatrics tend to be associated with perceived unfair treatment in the workplace, being early- to mid-career, and having a disability. When asked what strategies or tactics leadership could implement to lessen distress and burnout, most physicians quoted improving the current compensation and AFP program, lessening administrative burdens, and addressing workload—many of which were like the feedback received in the Hospital’s engagement survey. Initiatives to address these issues are ongoing.

## Response to Wellbeing Index (WBI) Results

SickKids has enacted strategies in response to feedback submitted through the WBI and the most advanced initiative is summarized below.

Getting Rid of Senseless Stuff (GRoSS) is a three-month pilot project focused on finding solutions for two key drivers of burnout - administrative burden and inefficient work practices - that were identified through the WBI. To enable this program, a portal was launched in 2024 for front-line faculty to submit and discuss ways to address everyday challenges.

Some examples of GRoSS initiatives that have already been implemented through feedback in the WBI include transforming “me-time” rooms and select outpatient rooms into call rooms to increase capacity for staff working overnight to have a place to sleep/rest.

Since implementation, over 50 suggested “quick-fix” issues have been submitted by front-line faculty and feedback from participants has been overwhelmingly positive.

In addition to the GRoSS program, the Hospital (under the leadership of Dr. Catharine Walsh, Gastroenterology, Hepatology & Nutrition) has also received funding for a CIHR grant to implement coaching for wellness. To date, more than 20 educational presentations and focus groups have been delivered to leadership and front-line staff. Metrics and tracking results will be an important deliverable for this work with dissemination of results and broader knowledge translation planned at the conclusion.

## Professionalism and Communications

Fostering a culture of professionalism and respectful communication is a priority in the Department of Paediatrics. The Department benefits greatly from resources at Temerty Faculty of Medicine and also works closely with TAHSN partner hospitals and Paediatrics Chiefs to address any faculty (or trainee) concerns in their departments. At SickKids, the Department of Paediatrics is involved in an initiative to improve the tracking of and intervention strategies for professionalism and communication concerns. This



work follows an external consultation led by Dr. Robert Bell, UHN and is informed by best practices including the Vanderbilt Center for Patient and Professional Advocacy Model. Led since 2022 by Dr. Maitreya (Trey) Coffey, Professor of Paediatrics and Associate CMO at SickKids this initiative will provide faculty and leader training/development and importantly, a team to help coach and mentor staff in which complaints or other professionalism concerns are raised. Dr. Irwin is one of the steering committee members. Other systems used by the Department of Paediatrics at Sick Kids for faculty with professionalism concerns include the Peer Review Committee (PRC) co-led by the CMO (Dr. Lennox Huang) and MAC co-chair (Dr. Jeremy Friedman). The PRC provides a venue for review of challenging cases from all clinical departments guiding Chiefs and Division Heads and follow up in consultation with HR and legal. All issues that involve faculty with teaching responsibilities also are reported to the University Faculty Affairs and are involved from the Department’s Associate Chair of Education.

## Leadership Skill Development for Divisional Leadership

### Leadership Pulse 360

All Department of Paediatrics Division Heads appointed since 2020 have been enrolled in The Leadership PULSE (P.hysicians U.niversal L.eadership S.kills E.ducation). PULSE is a “360-degree” educational program that provides physician leaders with behaviorally anchored feedback that highlights their strengths in professionalism, communication, collaboration, and leadership style as well as identifies any developmental areas that would benefit from improvement. Through the Program, participants compare how they perceive their own communication, teamwork, and leadership skills in contrast to 360 feedback collected from an anonymous survey process from healthcare leaders, colleagues, and staff. Feedback is reviewed in both a report and with a PULSE Coach to identify leadership development goals. The experiences at peer AHSC have shown that most

# EARLY CAREER ADVISORY COMMITTEE



participants who receive developmental feedback show significant improvement on follow-up surveys after reviewing the report and setting goals for excellence.

## Elevating the Voice of Early Career Faculty

### The Early Career Advisory Committee

The Early Career Advisory Committee (ECAC) was established in 2022 to elevate the voice of early career stage faculty and create a space to represent a diverse set of viewpoints from faculty across the Department of Paediatrics. As part of its mandate, ECAC seeks to provide informed recommendations and feedback on Departmental priorities to the Paediatrics Executive Committee, Division Heads, and other leadership committees/councils through formal and informal engagements and is a key stakeholder in long-range planning for the Department. Over the past two years the ECAC has consulted on a number of strategic initiatives including funding allocation, new faculty orientation, and career development frameworks. In 2022 a member of the ECAC was appointed to the Executive Audit & Finance Committee, and it is now a Departmental requirement for an ECAC member to sit on all leadership (mainly division head) reviews and searches.

The ECAC is co-chaired by the Department Chair and Dr. Alene Toulany, Adolescent Medicine Specialist and is comprised of eighteen members all the first 10 years of their career, and who reflect a cross-section of divisions and job profiles across the Department. The ECAC plans to extend a second call for Expression of Interests to early career faculty in 2025 with the goal of engaging additional faculty members outside of SickKids as standing members. In addition to the work of the

### Awards Recognition Committee



Dr. Sanjay Mahant  
Dr. Annie Huang  
Dr. Simon Ling  
Dr. Prakesh Shah  
Dr. Suzan Williams  
Dr. Jabeen Fayyaz  
Catherine Lim Shue

ECAC, the Department Chair has initiated dinners with 8-10 new faculty, usually with a member of the Executive or another Departmental leader.

## Faculty Recognition

### The Awards Recognition Committee ('ARC')

In March 2021, the Department of Paediatrics formed the Awards and Recognition Committee (ARC) to lead, develop, and implement a department strategy for faculty awards. The goals of the Committee are to (1) enhance the academic profile and career development of Department of Paediatrics and (2) increase the local, national, and international profile of the Department overall by strategic promotion of its talented faculty. The ARC has set out to accomplish these objectives by facilitating faculty nomination for provincial, national, and international awards, including research, education, clinical care, leadership, mentorship, professionalism, and advocacy excellence.

Over the past three years the ARC, under the leadership of Dr Sanjay Mahant, has increased

awareness around faculty awards; begun to change perceptions around a faculty's role in awards; and enhanced faculty engagement in peer recognition within the department. It has also been recognized that being nominated for an award, especially in the early career stage, can be a valuable endorsement of the impact of their work and have secondary effects on competitiveness for leadership positions, research funding, salary awards, and academic promotion. While no data has been collected yet, it is expected that after a 5-to-10-year period of activity, an awards program may positively influence faculty retention and recruitment, academic promotion, and external ranking of the department. Importantly, Dr. Mahant and colleagues published their initial ARC experience in the *Journal of Pediatrics* last year (see below).

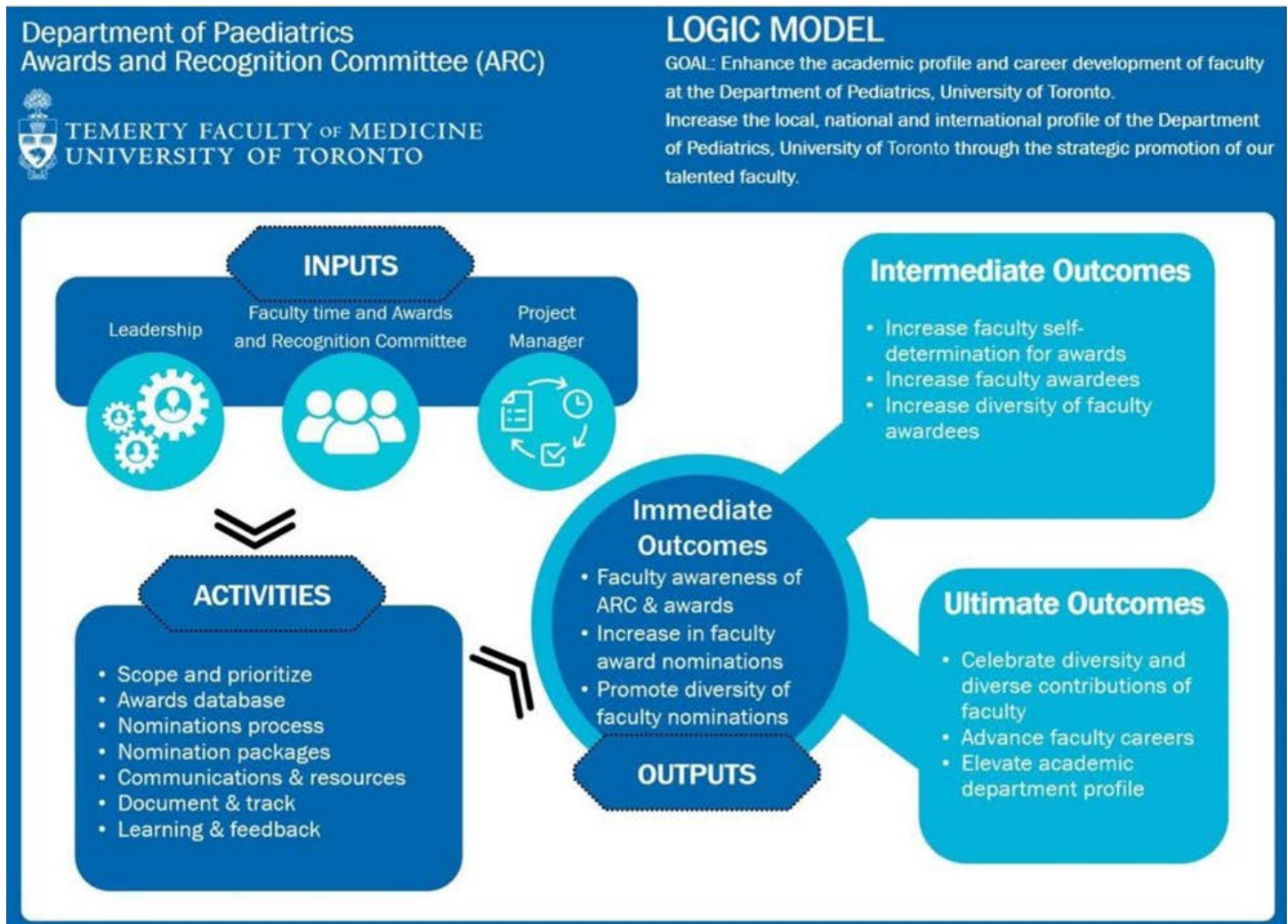


Figure 1. Logic Model for Department of Paediatrics, University of Toronto Faculty awards strategy (Mahant S, Ling SC, Williams S, Shah P, Fayyaz J, Lim-Shue C, Irwin MS, Huang A. Developing a Faculty Awards Strategy in an Academic Department: Recognizing Faculty and Promoting the Department. *J Pediatr*. 2024 Aug;271:113899. doi: 10.1016/j.jpeds.2024.113899. Epub 2024 Jan 3. PMID: 38181977).

The continued focus for the ARC will be on faculty engagement so that faculty are aware of the goals and resources to reach the entire department with this strategy. This includes targeting Department of Paediatric hospital sites outside SickKids and collaborating further to align activities with the research institute and the university awards-related committees. The membership includes department leaders from all job profiles and includes one Chief of Paediatrics from a non-SickKids TAHSN site. The ARC presents annually at the Research Institute Awards committee and the two committees have started to collaborate, in particular on award nominations for international awards for clinician-researchers. Over the past year we successfully co-nominated Dr. Sumit Gupta for an international award through Weil Cornell and he received the 8th annual Gale and Ira Drukier Prize in Children's Health Research.

## Case Study: The Pediatric Chairs of Canada Awards

The Pediatric Chairs of Canada (PCC) Leadership Awards for education, clinical, and research excellence and emerging early-career leaders are prestigious Canadian national awards given by this organization representing department chairs of pediatric academic institutions across Canada. The ARC committee felt these should be a high priority for the department, given that they are national and prestigious. The Committee sought faculty nominations through broad invitation to division heads and faculty. After receiving internal nominations, a scoring tool was used to enable ARC members to independently rank the faculty and choose the top-ranking faculty as the departmental nominations. The Committee

worked closely with the nominees to develop their applications, using experiences from past faculty as well.

From 2021 to 2023, since ARC was formed, the Department has nominated faculty for each of the four awards (12 nominations over three years), maximizing the department's chances of success. In the era before ARC, from 2007 to 2020 (14 years) there were six successful Department of Pediatrics PCC awardees. From 2021 to 2023 (three years), with the involvement of ARC, there have been five successful Department of Paediatrics awardees, a substantial increase from the pre-ARC era. There is also increased diversity of the faculty awarded, including three women, and that faculty had won across all categories.



### Department of Paediatrics Awards Day

The Department of Paediatrics Awards Day is celebrated annually in June to honour members of the Department of Paediatrics, University of Toronto, for their outstanding achievements. Twenty-seven awards recognize excellence in various areas such as research, education (undergraduate, postgraduate, continuing education, and community), clinical care, mentorship, and administrative excellence. Over the past four years, additional awards have been added including ones to recognize clinical team innovation

and EDIA excellence. Department of Paediatrics staff are encouraged to nominate their colleagues with awards adjudicated by multiple selection committees. In the case of some Medical Education awards, winners are based on learner feedback or testimonials from patients and families. Due to the COVID-19 pandemic, the Awards Day celebration was placed on a temporary hiatus and was reintroduced in 2022 with attendees joining in person from across the Department of Paediatrics. A communication celebrating the Department's most recent Awards Day winners can be found online and demonstrates the wide representation among awardees across TAHSN and community sites.

## Department of Paediatric Grand Rounds

Paediatric Grand Rounds has been the Department's main Continuing Education (CE) event for over 20 years. The primary goals of the Grand Rounds are to provide relevant CE to expose faculty and trainees to new and emerging topics, reflect diverse voices and forms of scholarship, promote a sense of community, and offer opportunities to showcase scholarly work. Notably, having moved to a virtual, and later hybrid format beginning in 2020, the percentage of community paediatrician attendance increased from 12% in 2019 to 32% in 2023. Grand Rounds has recently undergone a new leadership model moving from one to three co-chairs with Dr. Stacey Bernstein, General Paediatrics, Anu Wadhwa, Infections Diseases, and Peter Gill, General Paediatrics

appointed in 2023. The Co-chairs commenced a 'refresh' to increase in-person attendance and opportunities to network over coffee and breakfast following rounds; broadening and balancing the range of topics; engaging junior faculty in facilitating rounds; and increasing opportunities for Department faculty to present. The Chairs have also conducted an in-depth program evaluation and needs assessment. Findings show that well-attended and highly scored talks feature dynamic strong speakers; clinically relevant and timely CME updates; exploration of new and exciting future possibilities; accessibilities to a broad audience; and opportunities for audience interaction. They have also piloted novel formats including sessions with multiple presenters around a specific topic often hosted by the Chair ("Meredith and Friends") or other Departmental leaders.

SickKids



## PAEDIATRIC GRAND ROUNDS

Introducing our New Grand Rounds Chairs



### DR. STACEY BERNSTEIN (CO-CHAIR)

Staff Physician, Division of Paediatric Medicine  
Professor, Department of Paediatrics



### DR. ANU WADHWA (CO-CHAIR)

Staff Physician, Division of Infectious Diseases  
Associate Professor, Department of Paediatrics



### DR. PETER GILL (VICE-CHAIR)

Staff Paediatrician, Division of Paediatric Medicine  
Assistant Professor, Department of Paediatrics



## 2.4 Medical Education Report

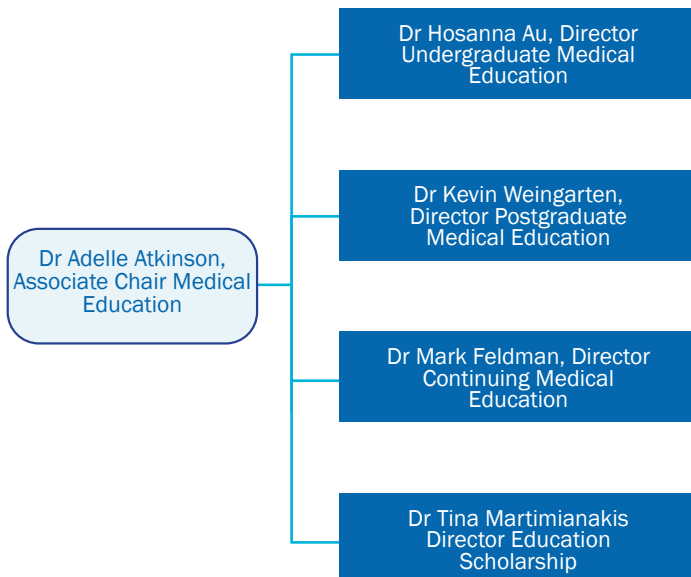
## 2.4 Medical Education Report

### Introduction

The Department of Paediatrics has a long history of prioritizing medical education in all domains including Undergraduate, Postgraduate, Continuing Education and Education Scholarship. Education underpins excellent clinical practice and research and leads to better outcomes for patients and their families. The Department’s training programs are internationally renowned, a testament to the dedication and talent of the Department’s teachers, educators, researchers, and education leaders.

### Governance

During the past five years, education in the Department of Paediatrics has continued to grow in each portfolio. Currently, medical education activities, including all training programs, are overseen by the Associate Chair, Education, Dr. Adelle Atkinson and an educational team consisting of the Director of Undergraduate Medical Education, Dr. Hosanna Au, the Director of Postgraduate Medical Education, Dr. Kevin Weingarten, the Director of Continuing Education, Dr. Mark Feldman, and the Director of Medical Education Scholarship, Dr. Tina Martimianakis. Dr. Adelle Atkinson has oversight of the Subspecialty Programs, led by 26 Program Directors as of 2024. The Medical Education Administrative Team is led by Business Operations Manager, Victoria Snell.



## Undergraduate Medical Education (UME)

### Overview

The Department of Paediatrics Undergraduate Medical Education (UME) Program is responsible for the teaching of Paediatrics to all four years of learners in the MD Program at the University of Toronto. The curriculum is designed to foster a strong foundational knowledge of paediatrics with the goal of graduating medical doctors who can provide care for both children who are healthy and those with medical and social complexity by emphasizing the bio-psycho-social aspects of family-centred care. The four-year program includes five weeks of learning dedicated to paediatric content (Year 1 and 2); a six-week clinical placement in paediatrics (Year 3) and exposure to multiple elective and selective placements in Paediatrics (Year 4). During clinical placements, students see patients in acute and chronic settings, in hospital and community office sites, and have additional learning modalities such as seminars and e-learning modules. Additional placements are offered as electives/selectives and range from community offices to hospitals and student-as-teacher programs. See Appended Table 1 for UME Site Leads.

**The UME Program trains between 400 and upwards of 600 learners per academic year. Over the past five years we have trained 2,400 medical students.**

Table 1 Number of Medical Students taught/supervised by Department of Paediatrics faculty across Academic Years

		2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
1st Year Medical Students **		0	0	0	0	0
2nd Year Medical Students **		0	0	0	0	0
3rd Year Medical Students		272	264	268	267	257
4 <sup>th</sup> Year Medical Students	University of Toronto Electives and Selectives	86	79	71	108	50
	Canadian Electives	10	0*	0*	0*	109
	International Electives	0*	0*	0*	0*	23
Total Trainees		464	422	410	483	621

\* Visiting Electives closed across the nation for a few years related to the pandemic  
 \*\*Year 1 and Year 2 students have occasional lectures and small group tutorials led by Department of Paediatrics faculty

## Administrative Structure

The UME leadership and administrative team includes one Course Director and 2.5 FTE Program Coordinators and several Portfolio Leads. Dr. Hosanna Au was appointed Course Director in 2022 following the 10-year tenure of Dr. Angela Punnett. Multiple faculty members hold portfolios within UME and participate in the Paediatric Undergraduate Medical Education Committee (PUGMEC), which includes the UME core team, a minimum of two student representatives, faculty leads for pre-clerkship and clerkship programming, the site supervisors for the clerkship rotations, and a Postgraduate Medical Education (PGME) representative. See Appendix 2.4 for the PUGMEC and Terms of Reference and Member List.

The UME faculty oversee classroom and clinical content development, learner assessment, support, faculty engagement, and maintaining a high-quality learning environment. Department of Paediatrics faculty teach and assess students in Years 1 and 2. In Year 3, they supervise and assess students during their six-week paediatrics rotation. In Year 4, students in Paediatrics electives receive direct clinical supervision. Many community hospital paediatricians teach pre-clerkship tutorials, including clinical skills and case-based learning. About 50% of clerkship placements are in TAHSN-affiliated hospitals.

**Over the past five years, a total of 2,912 formal educational contributions in the form of teaching, supervision, and program development were made by faculty in the Department.**

Faculty play many roles in the educational experience of UME learners (see Table 2). Over the past five years, a total of 2,912 formal educational contributions in the form of teaching, supervision, and program development were made by faculty in the Department.

## Major Accomplishments

### Evidence-Informed Medical Education

#### Curriculum Review with an EDI Lens

After a literature review on appropriate language use to improve equity, diversity, and inclusion (EDI), a small team including medical students,

**Table 2 Faculty involved in teaching and supervision across all Department of Paediatrics teaching sites 2019-2024.**

Department of Paediatrics (all teaching sites)	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
Faculty who delivered teaching*	57	74	70	69	88
Faculty involved in direct Supervision**	472	450	444	478	544
Faculty involved in program development***	30	28	29	32	47

\*Faculty who delivered teaching includes those who taught for all levels of undergraduate teaching including CBL (Case Based Learning), Portfolio, Clinical Skills, HSR (Health Systems Research) & lectures.

\*\*Direct supervision includes those involved in 3rd & 4th year teaching

\*\*\*Program development includes those involved in PUGMEC, Faculty Development, Paediatric Clinical Skills, Clerkship Rotations, Exam Development, Curriculum Development, PeRCS (Paediatric Research and Clinical Summer)/SPReSS (Social Paediatrics Research Summer Studentship), PedLE (Paediatric Longitudinal Experience) & Paeds On The Go'

residents, fellows, and faculty reviewed paediatric clerkship learning elements including seminar material, e-modules, and rotation handbook. The review resulted in changes that are aligned to best practices and scholarly work presented at national and international medical education conferences, notably the International Conference on Academic Medicine (ICAM) and the Council on Medical Study Education in Pediatrics (COMSEP) in 2023.

### **The Learner Handover Study**

With growing interest in competency-based education at the undergraduate level, a team of medical students, residents, and faculty conducted the ‘Learner Handover Study’ to explore perspectives on learner handover, where one rotation shares information about a learner’s strengths and growth areas with the next. Over 170 students and 40 faculty participated in the survey. While both groups saw benefits of having a learner handover process, concerns about bias and confidentiality were significant. Faculty generally favored learner handover, but both groups expressed hesitation and suggested careful deliberation between faculty and learners before implementation. This study was presented in 2024 at both ICAM and COMSEP as well as the Pediatric Academic Societies (PAS) conference and is informing conversations locally about the implementation of learner handover.

### **Implementation of Entrustable Professional Activities**

Incorporating the AFMC (Association of Faculties of Medicine of Canada) Entrustable Professional Activities (EPAs) has been a focus of the MD program in recent years. The Department was selected as a pilot site for implementing and testing EPAs. Pilots were conducted in early 2023. Data collected from the pilot experience in the Do (General Paediatrics wards and Haematology/Oncology clinics) helped to inform the practice and clerkship-wide implementation of EPAs for medical students in the entire clerkship at the medical school.



Dr. Hosanna Au with 2024 UME Award winners Drs Nicolas Blanchette and Claudio Fregonas

### **Strengthening Relationships and Capacity with Paediatrics in the Community**

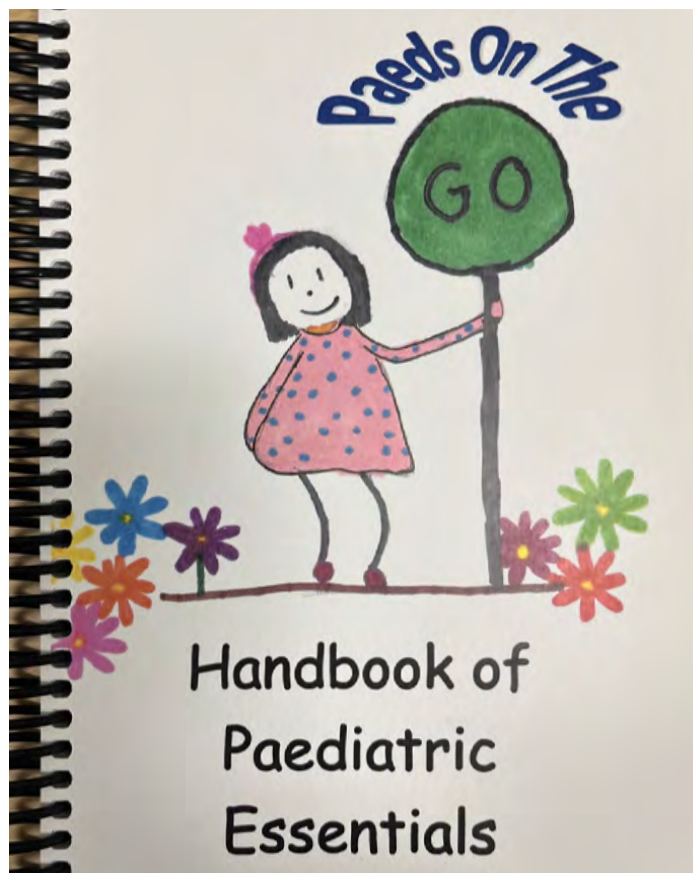
Many learners spend time in community paediatric offices and wards, which are crucial for their medical education. Over the past four years, the UME Program has enhanced relationships with these sites through better communication, site visits, engagement with community paediatrician leads, and an annual appreciation event. With the upcoming launch of the Scarborough Academy of Medicine, UME will collaborate with the Scarborough leads to increase capacity for paediatric learners. Efforts are also ongoing to secure community office placements for clerkship students by building relationships with newly licensed paediatricians.

### **Nurturing Diverse and Inclusive Paediatric Health Care Learning Environments**

The ‘Paeds on the Go Handbook’ is a unique resource for Department of Paediatrics UME; only two other departments in the MD program have a similar resource, and many schools are in the process of developing a handbook across Canada. The Handbook is continually reviewed to ensure the content is appropriate, with formal publications every two years incorporating updates. In the most recent editions, there is now a dedicated section

on Diversity including discussion about Indigenous peoples, Refugees and New Canadians, Young Families, and Patients who identify as 2SLGBTQIA+. The Department's Paediatric Dermatology leads developed a supplement to the Handbook including colour photographs of rashes as they may appear in children with different skin tones.

In the pre-clerkship curriculum, the "Complex Pediatrics and Transitions in Care" week emphasizes the care of children and youth with medical complexity and disabilities. The week covers topics such as caring for children and their families, how to interpret behaviours that challenge, prescribe physical exercise for individuals with a disability, and enhance the transition from childhood into adulthood in an inclusive way. The week includes a discussion surrounding ableism that asks students to challenge their thinking. In addition, the "Adolescent" week has modules on caring for transgender youth, adverse childhood experiences, 2SLGBTQIA+ and mental health, gender dysphoria, and trauma-informed care.



The 'Paeds on the Go Handbook'

## Summer Student Programs

Through funding from the Department of Paediatrics, the Temerty Edwin S.H. Leong Centre for Healthy Children and the SickKids Centre for Global Child Health, the Social Paediatrics Research Summer Studentship (SPReSS) and Paediatric Research and Clinical Summer (PeRCS) Programs provide summer undergraduate medical students with opportunities to do research including projects with a specific focus on equity, diversity, and inclusion. Although these programs began prior to the period of the review (2013) the involvement and partnership with the Leong and Global Health Centres began in 2021. Students participating in SPReSS and PeRCS are engaged in exciting research with many projects related to the field of social paediatrics, several leading to publications for participating medical students. Each year there are on average between 15-20 total summer students. Examples of research projects include studying factors influencing access to mental health and substance use resources for adolescents, exploring health inequities on time to diagnosis and outcomes of neonatal stroke, assessing the impact of socioeconomic status on renal function in adolescents with type 1 diabetes; and exploring barriers to health care for refugee, new immigrant, and Indigenous children. The SPReSS Program has been formally evaluated, resulting in a peer review publication (Talarico et al, Acad Med. 2019) demonstrating the transformative impact of the program on learner attitudes and perspectives relating to health inequities, poverty, vulnerability, and forms of discrimination. It should be noted that in addition to these Department-run programs many Department of Paediatrics faculty and UME trainees participate in additional Temerty Faculty of Medicine summer programs including ones led by Temerty departments including Institute of Medical Sciences (IMS) and the SickKids RI Summer Student program (with additional programs within many of the SickKids centres).

## Incorporating the Learner Perspective

Student representatives from every year of training are part of the UME committee and provide

## **“The opportunities at the University of Toronto and SickKids felt limitless”**

- Chandandeep Bal MD, MSc, FRCPC

# Chandandeep's Journey:



Reflecting on my time as a resident physician in the Paediatrics Residency Program at the University of Toronto, I am filled with gratitude for the experiences and growth I encountered during this period of my medical training.

My journey began as a medical student drawn to Toronto for community paediatric electives, where I quickly felt a strong sense of belonging. This connection led me to leave my hometown to pursue residency training for a program and city that felt like home.

The opportunities at the University of Toronto and SickKids felt limitless, allowing me to explore both academic and clinical interests. Throughout my residency, I engaged in projects focused on advocacy, resource stewardship, and quality improvement. With the mentorship of many physicians within the Department of Paediatrics, I was able to publish and present my work at national and international conferences. This exposure and mentorship inspired me to pursue additional academic opportunities including fellowship and a master's degree after completing residency.

During my training, I encountered a broad range of clinical presentations across paediatric care. The diverse population of Toronto enriched my clinical training, exposing me to a wide range of patient presentations. I grew confident in diagnosing, managing, and following paediatric patients with significant biopsychosocial complexity in diverse settings, including high-acuity inpatient wards and longitudinal outpatient consultative clinics. The supportive learning environment at SickKids and in

the various community hospitals across the GTA fostered my independence while ensuring that guidance was always within reach.

Residency is a physically and emotionally demanding time, marked by long hours and challenging encounters. I feel fortunate to have been part of a program that prioritized the well-being of its residents. I recall a particularly difficult moment when I experienced the loss of a patient. In that time of grief, program leadership provided me with timely support, connecting me to mental health resources and allowing me to take necessary time off. This is one of many experiences I had during my time as a resident that highlights the program's commitment to nurturing residents not only as professionals, but as individuals.

The relationships I built with my mentors within the department during residency have endured, providing support as I transitioned into fellowship and now as I embark on my journey as an independent paediatrician in a new city. Their guidance continues to influence my practice, reminding me of the profound impact of mentorship in medicine and the importance of forging these relationships during residency.

My time at the University of Toronto's Pediatrics program has been a pivotal chapter in my life, shaping me into the physician I am today. As I enter this next phase of my career, I carry forward the lessons learned and the relationships built, committed to ongoing learning and growth.

valuable feedback and insight into the program. End-of-course evaluations are collected at the University and thoroughly reviewed for areas of strengths and improvements with changes made each year to improve the learner's experiences. Medical students are encouraged to get involved in educational innovation and program development. For example, students have participated in international medical education journal clubs and a literacy program for uninsured paediatric patients; organized career exploration events, and additional learning sessions such as neonatal resuscitation; reviewed new online learning modules before incorporation into the clerkship course; and developed an online Temerty Faculty of Medicine resource ('Paediatrics Hub') for UME.

## Collaborations

The UME Program collaborates with PGME to host a residency information night for medical students interested in applying to paediatrics. The event connects students with residents and the residency program director to provide more information about the program.

Within SickKids clinical groups and divisions, UME has strong relationships with Paediatric Medicine, Emergency Medicine, and some subspecialty areas where students complete their rotations. The UME Program also works closely with the SickKids Learning Institute as a member of the Learner Engagement Advisory Committee and provide knowledge and expertise on UME to other Departments at SickKids.

Internationally, in partnership with SickKids International Learning Institute, UME developed a strong curriculum for learners at Shanghai University to further interest in paediatrics on an international forum. A second partnership with Shanghai Jiao Tong University was launched in

**Student representatives from every year of training are part of the UME committee and provide valuable feedback and insight into the program.**

2020 as an optional summer program and is now incorporated into the annual paediatrics curriculum for medical students who receive credit for this course. Most teachers for both University partnerships are community paediatricians, and sessions are delivered virtually with interactive lectures.

## Postgraduate and Sub Speciality Medical Education

The University of Toronto has the largest paediatric core and subspecialty training programs in Canada with 17 RCPSC-accredited residency training programs. There are 80+ residents in the Core Paediatrics Program, and approximately 400 (both Royal College and non-Royal College affiliated) subspecialty residents and clinical fellows in the subspecialty training programs (Appended Table 2), currently from 54 countries around the world including low- and middle-income countries. Ninety-five percent of postgraduate paediatric residency training programs received full approval by the Royal College of Physicians and Surgeons of Canada in the 2020 accreditation cycle. Through a robust continuous quality improvement process supported by departmental educational leadership and scholarship, as of 2024 100% of programs are fully accredited with one program requiring a repeat site visit review (described below), which resulted in full accreditation. The programs attract outstanding residents and fellows from across

**17** RCPSC-accredited residency training programs

**80+** residents in the Core Paediatrics Program

**400** subspecialty residents and clinical fellows in the subspecialty training programs

Training Program	Total Residents	Total Clinical and Research Fellows	Total Electives
Adolescent Medicine	28	10	22
Developmental Pediatrics	28	11	0
Genetics & Metabolics	65	27	2
Neonatal-Perinatal Medicine	17	221	14
Paediatric Endocrinology & Metabolism	21	16	22
Paediatric Cardiology	29	109	38
Paediatric Clinical Immunology & Allergy	23	13	46
Paediatric Clinical Pharmacology	0	3	58
Paediatric Dermatology	2	15	0
Paediatric Emergency Medicine	59	34	204
Paediatric Gastroenterology	22	71	29
Paediatric Haematology/Oncology	69	189	65
Paediatric Infectious Diseases	30	14	32
Paediatric Nephrology	28	42	14
Paediatric Neurology	83	99	37
Paediatric Respiratory Medicine	29	45	15
Paediatric Rheumatology	26	39	25
Paediatric Medicine	13	86	3
Paediatrics (Core)	418	0	0
<b>Total Trainees</b>	<b>957</b>	<b>870</b>	<b>572</b>

Neonatal-Perinatal Medicine includes SK, MSH, SHN sites

Total Residents include Canadian, International, and Visa sponsored

As of 2022 the Department no longer appoints Research Fellows (total n for review period=11)

Total Elective include Canadian and International learners

Data for Critical Care Medicine not available

Table 3 - Count of PGME trainees across programs, 2019-2024

Canada and internationally and consistently match highly ranked candidates both in the core and subspecialty national CaRMS (Canadian Resident Matching Service) matches each year.

## Core Residency Program

The Temerty Faculty of Medicine University of Toronto's Core Paediatric Resident Program provides excellence in patient care, education, and scientific investigation. Similarly, the goal is that all trainees will emerge from the program with first-class clinical skills, the ability and desire to continue to learn throughout their career, and the ability to ask appropriate questions and contribute to understanding and knowledge in their field of interest. Trainees in the residency program are supported and encouraged to find ways to better the world of paediatrics and beyond through advocacy and empowerment. The Program is committed to nurturing a culture of diversity, fostering a welcoming environment where everyone belongs, and can share their unique selves, resulting in an incredible program. Indeed, the selection processes have been reviewed through an EDI lens. While much of the residency training is spent at SickKids, residents also can gain invaluable experience at a growing number of community and rural affiliate training sites (See Appended Table 3).

The Program is currently led by Dr. Kevin Weingarten (since 2021) and was previously headed by Dr. Adelle Atkinson. Faculty in the Department of General Paediatrics and Hospitalist Medicine hold leadership positions. Examples include Dr. Julie Johnstone, Director of Assessment and Special projects and CBD Faculty Lead; PeRLS (Paediatric Resident Lecture Series) Curriculum Lead; Dr. Michael Weinstein, STACER (Standardized Assessment of a Clinical Encounter Position) and OSCE (Observed Structured Clinical Examination) Faculty co-Lead; and Natalie Jewitt, Balient Group Faculty Lead. Several committees engage faculty and learners formally in the oversight of the program including the Postgraduate Medical Education Committee, the Acute Care Resuscitation Program (ACRP) Leadership Committee, the Advocacy Committee, the Competency by Design Steering Committee, the Competence Committee, the Equity Diversity and Inclusion Committee, the Paediatric, Resident Lecture Series (PeRLS) Committee, the Remediation Committee, the Resident Engagement Committee, the Resident Research and Scholarship Committee, the Resident Selection Committee, the Resident CaRMS Committee, the Wellness Committee. See Appendix 2.5.

## Nurturing a Culture of Support and Wellbeing



A career counselling program is in place, resident retreats are organized on a yearly basis, and social functions including a baseball game, holiday party, annual fundraising gala, and many other activities arranged by the resident engagement committee ensure an excellent spirit of camaraderie in the program. In addition, a wellness committee run by residents with faculty support ensures a proactive approach to the health and well-being of residents, building skills and resilience.

## Diverse Training Streams



A separate MD/PhD application research stream exists in the PGY-1 Core Paediatric CaRMS match to encourage and support the development of Clinician Scientists and Clinician Investigators. Currently, five residents are enrolled in this training stream, which began in 2015. In addition, newly introduced to the program is a concentrated research block experience, for those residents that come later to the realization that research will be a major aspect of their careers. Selection for this “sub-stream” occurs in the Winter of PGY1.

In addition, the Community Paediatrics stream was recently launched as a new track for residents whose goal is to work in the community. The Program currently has funding and a partnership with Trillium Health Partners to implement a track within the next 12-18 months.

A Health Policy and Advocacy stream provides an opportunity for Residents to work with provincial MOH staff and politicians, to learn to affect change within paediatric health care. This stream is enabled in part by the Department’s new Child Health Policy Accelerator (See [Section 2.7](#)).

The Black and Indigenous student pathway is based on the successful University of Toronto program and designed to ensure that the core

program recognizes and improves on selection practices that have historically had the potential to bias against certain populations.

## Reinforcing Equity Diversity and Inclusion as Integral to Paediatric Care



Equity, diversity, and inclusion, advocacy, and social responsibility are core values of the Department of Paediatrics and are emphasized in the Residency Training Program – from selection to graduation. The program has a well-integrated advocacy program, run by residents with faculty oversight. Social Paediatrics is emphasized and taught throughout the program, appropriately layered throughout the academic curriculum, as part of everything we do. EDI tenants are integrated and encouraged within all lectures of the robust academic half-day. Child Health Policy and Patient Safety are also woven into the curriculum through teaching and clinical experiences. Opportunities to participate in the Paediatric Outreach Clinic for under/uninsured families are easily accessible as are opportunities to deliver health education curricula to elementary and high school students’ experiences with health education, through the program’s advocacy days.

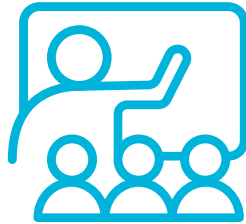
**“Equity, diversity, and inclusion, advocacy, and social responsibility are core values of the Department of Paediatrics and are emphasized in the Residency Training Program – from selection to graduation.”**

Experiences in Global Child Health have become an integral part of the training program. Many residents take part in international electives, research and local courses pertaining to issues affecting these populations. Oversight of international electives exists (both within the program and through the University of Toronto)

**“From bench to bedside, advocacy to policy and medical education research, residents present and often are award winners at SickKids Research Day, as well as at many regional, national, and international conferences.”**

to ensure trainees are fully supported with their international endeavours.

### **Teaching, Scholarship and Leadership Development**



Residents in the program have an opportunity to participate in teaching activities, both formal and informal, through their clinical work and through close ties to the undergraduate medical education provided at the University. For example, senior residents in the Core Paediatric Residency Program have the chance to help teach the acute care resuscitation sessions held throughout the year for junior trainees. In addition, a Resident as Teacher elective is offered for PGY-2/3/4 residents. The elective provides residents the opportunity to learn how to teach and practice teaching on the ward over a 2–4-week block. This experience allows residents to have dedicated time to learn about what makes a good teacher, teaching strategies, how to improve their bedside teaching, how to prepare an effective presentation, how to give feedback, etc. Residents also practice teaching through a variety of activities such as bedside teaching, one-on-one teaching, small, and large group presentations.

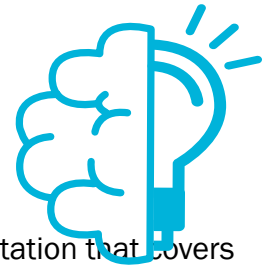
The Program is also fortunate to have access to world-class researchers and facilities which allow residents to work on scholarship of their choosing in extraordinarily supportive environment. From bench to bedside, advocacy to policy and medical education research, residents present and often are award winners at SickKids Research Day, as well as at many regional, national, and

international conferences.

The Program also provides multiple opportunities for residents to participate on clinical, educational, research and countless hospital committees in formal leadership roles. This form of involvement provides opportunities to learners to develop leadership skills and allows the program to maintain close connection with the day-to-day concerns of resident learners. The program also supports the Chief Residents to attend the Canadian Resident Leadership Conference each year and provides funding to do so. During the conference, Chief Residents discuss common resident issues, learn about the roles of the resident leader, and how to give and receive effective feedback as leaders.

PGY-1 residents present at Chairs Rounds once in their first year of residency and residents are encouraged to attend and present their work at conferences throughout their residency and have the opportunity to obtain Department of Paediatrics funding to do so. The Program encourages residents to attend ICRE (International Conference on Resident Education) each year, where they will have a chance to share ideas, challenges, innovations, and advanced training within residency programs across Canada. Furthermore, in their final PGY-4 year residents present scholarly cases at the Department of Paediatrics Grand Rounds.

### **Innovative Enrichment Opportunities**



- CPS Statement Blitz: Each PGY2 resident is required to prepare a 20-minute presentation that covers material from 1 CPS statement by going through practice questions (MCQ, true/false, etc.). The questions are then used to introduce a specific topic, and then material from the statement is used to explore why the answers are correct or incorrect.
- Top Paediatric Papers (TPP): TPP aims to help trainees become familiar with the landmark studies that impact day-to-day medical

decision-making in paediatrics. It provides a great opportunity for residents to present to their peers for the purpose of improving their presentation skills.

- **Royal College Lecture Series:** This Academic Half Day is dedicated to and coordinated by the PGY-3/4 residents and assists them with prepping for their Royal College Exam. It consists of four hours of protected time per week.
- **TTP (Transition to Practice) Curriculum:** This specialized and curated program is for PGY-4 residents who have written their Royal College Exam and is made up of a national half-day curriculum, in which all Royal College objectives are covered and colleagues from around the country participate, combined with important local lectures that will aid in the transition from training to staff jobs and fellowships alike (i.e., Billing, local legal issues, etc.).

### **Incorporating the Learner Perspective**

In addition to participation on departmental committees, the Core Paediatric Residency Training Program hosts a retreat for each PGY cohort of residents at the end of each academic year that focuses on team building and the CanMEDS competencies on each rotation as well as CBD implementation. Trainee's feedback is reviewed by the PGME Committee and has influenced changes in how the call schedule was designed, the addition of a new elective rotation that adds value to the program, and an increase in simulation experience for procedures relevant to the discipline.

Residents complete an evaluation for every core rotation that they complete during residency. Responses are then collated and sent to the divisions along with their individual Retreat Report. This helps to improve the learning experience within the program.

The Core Paediatric Residency Training Program hosts two Resident Town Halls per PGY cohort as well as two All-resident Town Halls per year. During these Town Halls, the Program Director and Chief

Residents will take the time to answer residents' questions and/or concerns as well as reflect on the various strengths and areas to improve on within the program.

Each resident meets with the Program Director two times per year to reflect on the feedback they have received on rotations as well as on their most recent Competence Committee Report. This gives them the opportunity to explore the feedback while also receiving some overarching coaching over time around opportunities to further develop their skills.

Residents are also encouraged to introduce and development educational initiatives that will improve the overall educational experience of the core program. For example, the Teaching Scan Survey was conducted by the Chief Residents to try to capture all the places that teaching happens in the program and aims to be able to recognize best practices and all the general efforts that are being put into resident education. The Night Float model was implemented in the Core Paediatric Residency Training Program as of the 2023-2024 academic year to improve daytime continuity; facilitate preparation and studying for the Royal College exam; improve patient safety; and benefits resident wellness.

## **Subspecialty Medical Education**

The Subspecialty Programs are overseen by the Associate Chair, Education, Dr. Adelle Atkinson, who also chairs the Subspecialty Program Directors' Committee. This is a vibrant group of committed Program Directors, who have formed a collaborative community of education leadership and practice. Individual expertise and program innovations are widely shared across the different programs (See Appended Table 4). Recruitment to the subspecialty training programs continues to be a priority in the Department. The last several subspecialty matches have gone very well for the Department with a 100% Ministry of Health (MOH) match rate for University of Toronto/SickKids core paediatric residents to their first choice of program and location in the 2025 match and the Department attracting top trainees from Canada and around the world.

**“My fellowship at SickKids has not only enhanced my clinical acumen but also broadened my perspective on global pediatric healthcare”**

- Edan Itzkovitz, MD, Auto-inflammatory Fellow, Division of Rheumatology



## Edan's Journey:

Dear Members of the Department of Paediatrics,

I am writing to share my experiences as an international Paediatric Rheumatology fellow within the Department of Paediatrics at the Hospital for SickKids. I arrived in Canada in the summer of 2022, and my time here has been a transformative experience, both professionally and personally. I have had the privilege of working alongside some of the brightest minds in rheumatology as well as other pediatric subspecialties. The hospital's collaborative environment has allowed me to learn from multidisciplinary teams, engage in complex case discussions, numerous academic activities, and improve my clinical decision-making skills.

As someone coming from a different healthcare system, I initially faced challenges, adjustment to a new health and computer systems, giving medical advice in a different language, adapting to local protocols, and navigating complex processes like medication applications or procedures. However, SickKids provides

full support in a structured and helpful manner, making the adjustment period smoother than I expected.

Additionally, the hospital fosters a culture that supports academic growth and research, encouraging fellows to pursue their scholarly interests. The diversity of patients I encountered further enriched my experience, providing insights into a wide spectrum of pediatric rheumatology conditions.

Ultimately, my fellowship at SickKids has not only enhanced my clinical acumen but also broadened my perspective on global pediatric healthcare, reaffirming my passion for making a difference in children's lives.

Sincerely, Edan Itzkovitz

Several division-specific educational initiatives are described below that highlight the growth and innovation of subspecialty programs in the past four to five years.

## The Launch of New Programs

- Child Abuse and Maltreatment (SCAN) became an Areas of Focused Competence (AFC) accredited program in 2020 through RCPSC with successful external review. Currently, it is one of two AFC programs in Child Maltreatment Paediatrics in Canada and the only location that has had successful graduates (five graduates to date). This program is increasing the capacity of child abuse specialists in this niche area of significant need nationally.
- Palliative Care became an accredited Royal College of Physicians and Surgeons of Canada entering the match for the first time in 2023. It is now one of only four accredited programs in the country and sits at all important tables



within the paediatric palliative community in Canada. This 2-year Royal College program is aimed at training the future academic physicians in paediatric palliative care, will welcome its first Royal College fellow in October of 2024.

- Clinical Pharmacology and Toxicology initiated a new fellowship in Paediatric Clinical Pharmacology. This fellowship offers advanced training opportunities in clinical care and research, further enhancing the division's educational offerings and providing trainees with specialized expertise in this field. There are also opportunities to combine this with other subspecialty fellowships (e.g., with Oncology, Nephrology).
- Clinical Genetics & Metabolics is leading training to integrate genetic knowledge across all specialties, ensuring sustainable growth within the field of genetics to optimize testing capacity and interpretation. The long-term goal is to train subspecialists who are not Geneticists to develop skills to understand genetic basics.

## Examples of Learner Enrichment through Collaborations and Innovative Programming

- The Immunology/Allergy training program collaborates with seven other programs across Canada to share their academic half day. This enriches the trainees' learning experience by adding diverse perspectives and allows them to work and interact with trainees and staff from across the country.
- Endocrinology trainees can do their core training scholarly project in an area of medical education. For instance, trainees have created training material for fertility preservation in the transgender population and teaching residents on puberty examination as two examples.
- Dermatology has close working relationships with national Canadian Pediatric Dermatology groups across the country and will be



implementing a National Canadian Pediatric Dermatology quarterly education rounds in fall 2024.

Education Committee, clinical learning and academic half day teaching.

### Capacity Building , Outreach and New Clinical training experiences

- Infectious Diseases has close relationship with numerous divisions across SickKids including Microbiology with fellows completing two rotations each in their first year and Infection Prevention and Control, for a six-week rotation. This partnership enhances the training experience for the residents and fosters a valuable exchange of knowledge and expertise between teams.
- The Developmental Paediatrics program has numerous relationships and collaborations with other disciplines at Holland Bloorview, including allied health and other medical specialties. Trainees work in multidisciplinary teams at Holland Bloorview to deliver holistic, high-quality care. The program also has partnerships with other hospitals and children’s treatments centres (UHN, SickKids, Surrey Place, Grandview Kids) which provide trainees with diverse learning opportunities in both community and academic settings with varied populations of clients.
- The Adolescent Medicine training program has strong interprofessional clinical teams and members of these teams make significant contributions to and are highly valued clinical teachers and supervisors for learners. Social workers, dieticians, nurse practitioners and others all contribute to the RPC, Division
- Rheumatology trainees are engaged in Outreach Clinics (Sudbury Outreach Clinic and Thunder Bay telemedicine clinics) to gain exposure and experience providing care in underserved areas, without access to many paediatric subspecialists.
- Nephrology has increased elective opportunities to observe and work with community nephrologists throughout training. This has resulted in four recent fellowship graduates choosing to practice Nephrology in the community across Ontario.
- Respiratory Medicine is advancing training opportunities for interventional bronchoscopy procedures such as biopsy and cryotherapy. The first divisional bronchoscopy simulation workshop for trainees was completed in July 2024. Procurement of an onsite cryotherapy device will further enhance the ability of trainees to gain skills in this interventional procedure.
- Starting in 2023, a simulation lab for Bone Marrow Biopsy training was introduced for incoming Paediatric Haematology/Oncology trainees based on feedback from trainees and faculty. This program has been well received



and is currently being evaluated for its impact on reducing inadequate Bone Marrow biopsies.

- In 2022, the SickKids' Paediatric Emergency Medicine Simulation Team developed online learning modules housed on Affinity ([affinitylearning.ca](http://affinitylearning.ca)). This digital platform allows for interactive asynchronous learning of critical pediatric topics including respiratory distress, shock, trauma management and neonatal resuscitation. Trainees complete online modules ahead of attending simulation sessions to enable practice of skills in a team-based environment.
- Gastroenterology trainees are gaining increased exposure to endoscopy through development and pilot of new third year adult endoscopy and polypectomy rotation in collaboration with Scarborough Health Network. The Division was awarded \$20,000 from the University of Toronto PGME in support of this initiative as part of a larger priority to expand training programs to sites outside the downtown GTA.

### **Continuous Quality Improvement and Post Accreditation Improvements**

All the University of Toronto training programs underwent accreditation site visit (virtual) in 2020. Our core pediatric training program and 16/17 subspecialty training programs received full accreditation status. With a CQI lens, the

programs below have exhibited systematic program improvement processes to ensure programmatic success.

- Neurology has implemented a program improvement working group to monitor the learning environment. The group reviews rotation effectiveness evaluations, feedback from the Program Director's exit interviews with graduating residents, the resident retreat report, and other direct feedback given to the Chief Residents. They generate rotation feedback reports for approval by the RPC, which are then disseminated to the various internal and external rotations.
- Cardiology formed a Program Evaluation and Improvement Subcommittee with the mandate of providing a safe forum for all trainees to voice concerns and provide feedback on all aspects of the training program. Including but not limited to rotation evaluation, teacher performance, and the learning environment. This subcommittee has provided a report to the RPC monthly as a standing item on the agenda since January 2021. After an initial rating of "notice to withdraw" at the 2021 site visit the Cardiology program received a full accredited status at the subsequent site visit in 2024.
- Neonatal-Perinatal Medicine initiated a Learning Environment working group in 2021 with representation from trainees, nursing, and members of the interprofessional team. The goal of the working group is to have open discussions about conscious and unconscious bias and how they influence our interactions with trainees, as well as identify strategies for conflict resolution enforcing mutual respect and professionalism. All sites with large neonatology units (Mt Sinai, Sunnybrook, SickKids and St Mikes) have local site program directors and representation on this committee.

# Continuing Medical Education

## Overview

The Continuing Education (CE) portfolio includes a diverse range of educational activities, showcasing high-quality professional development across various subspecialties. The mission of the CE portfolio is to advance healthcare knowledge and skills through innovative and relevant educational programs tailored to the needs of paediatric professionals. Priorities include delivering evidence-based content, fostering interdisciplinary collaboration, and enhancing the practical application of learning through scholarly evaluation of the Department's CE programs. The portfolio encompasses a broad scope, covering numerous subspecialties in paediatric medicine, and is supported by a dedicated team of experts, division representatives, and Learning Institute leads who ensure the high standard and impact of each program. The Program also collaborates with the Royal College of Physicians and Surgeons of Canada in meaningful lifelong learning opportunities and strategies for the Maintenance of Competence. It also promotes quality improvement in continuing education by providing ongoing feedback and evaluation of programs. Excellence in continuing education is recognized annually with the Department of Paediatrics Continuing Education Award. This portfolio also helps to oversee Departmental initial and renewal appointments for community teachers and coordinates continuing education opportunities.



Continuing Education Award Winners Drs Rebecca Levy and Irene Lara-Corrales, 2024

# Major Accomplishments

## Course Offerings

Over the past five years, more than 400 courses have been delivered, reflecting steady growth in course offerings. Annual numbers increased to 68 in 2020, and currently stand at 50 courses for 2024. Each course continues to use best-practice educational strategies and tools (See Appended Table 5). In addition, City Wide Rounds occurs quarterly, providing CPD, on a wide range of topics, tailored to general paediatricians across the GTA. On average 100 paediatricians attend each round, during which three 'quick-hit' style topics are presented.

**>400**  
courses delivered

**50**  
courses currently offered for 2024

**100+**  
paediatricians attend GTA City Wide Rounds quarterly

VIRTUAL  
**paediatric  
UPDATE**  
conference 2024



May 8–11  
2024

**SickKids**

## SickKids Paediatric Update Conference

Over the past five years, the SickKids Paediatric Update Conference has solidified its position as the largest paediatric Continuing Education event led by a department of paediatrics in Canada. The conference has been recognized for its innovative approach to continuing medical education, marked by significant accomplishments such as the expansion of electronic pre- and post-conference assessments designed to enhance learning and knowledge retention. In 2016, a Randomized Controlled Trial investigated Test-Enhanced Learning (TEL), providing valuable insights into pre-testing effectiveness. Building on this, in 2021, further research funded by the Phil Manning Research Award explored the comparative effectiveness of pre-testing versus post-testing in continuing education.

The conference has experienced significant growth and transformation from 2019 to 2024. The shift to a virtual format in 2021 due to the COVID-19 pandemic enabled the conference to reach a wider audience and better meet participant needs.

This format has been continuously refined to maintain high standards of educational delivery and engagement. Attendance increased from 387 in 2019 to 564 in 2021 and remained strong with 523 attendees in 2024. The international reach also expanded, with participants from 10 countries in 2019, peaking at 22 countries in 2021, and maintaining engagement with 14 countries in 2024.

The conference featured a range of subspecialty days addressing key areas in paediatric medicine, including Haematology/Oncology Day (2019), Gastroenterology, Hepatology, and Nutrition Day (2021), Rheumatology Day (2022), Immunology & Allergy Day (2023) and Dermatology Day (2024).

Participant feedback consistently showed high satisfaction with the conference, with average ratings above 4.8 out of 5 based on overall evaluation surveys. This positive feedback highlights the conference's success in delivering valuable and relevant educational content.

The conference has maintained a high standard of quality in its educational offerings.

## Education Scholarship

### Medical Education Scholarship Office

The Department's Medical Education Scholarship (MES) Office led by Dr. Tina Martimianakis, contributes to the Department's mission to foster an environment that advances education scholarship, through leadership, mentorship, and knowledge mobilization. The Director of MES, works closely with the Associate Chair (Education)

and the other Directors of Education to inform educational planning and quality improvement across the department's training programs. Of note, Dr. Martimianakis is also an active member in the [Wilson Centre](#) and has been appointed as their Associate Director, Collaborations and Partnerships.

The office of MES liaises and collaborates with individuals throughout the Department of Paediatrics and beyond with an interest and/or aptitude in program development and

## **“The Department’s Medical Education Scholarship (MES) Office... contributes to the Department’s mission to foster an environment that advances education scholarship, through leadership, mentorship, and knowledge mobilization.”**

evaluation, mentorship and faculty development and educational research to develop and deliver educational offerings. The faculty and learner development work of the MES office is conducted with the support of the Educational Scholarship Enhancement Committee (ESEC), Chaired by the Director of MES. Members of the Committee include scientists, clinical educators, and clinical learners with expertise in educational science and educational development, research methodologies, program development and evaluation, pedagogy/teaching, and faculty development. The ESEC sets standards for recognizing and rewarding educational scholarship and contributes to the Department’s strategic planning process, by forecasting educational priorities and needs. Members of ESEC provide mentorship to learners and faculty engaged in education scholarship and help develop opportunities for educators to network and collaborate with educational scholars across TASHN.

### **Major Accomplishments**

#### **The Learning Environment Committee**

The LEC was created in 2022 to identify and implement evidence-based initiatives explicitly focused on the learning environment with the overarching goal of enhancing the clinical training programs of the Department of Paediatrics. The LEC has focused on a two-part strategy for supporting the Department’s learning environment. First, it established guidelines and administrative pathways for identifying, reporting, and addressing learning environment concerns. Second, it initiated a department-wide needs

assessment to baseline the current function of the Department’s learning environment and to develop short- and long-term recommendations for better supporting learners and teachers. The LEC produces reports containing a summary of positive and negative trends for the learning environment and recommendations for amplifying things that are working well and for improving areas identified as problematic. The analytical strategy used to produce these reports is anchored in established empirical approaches to the study of learner socialization and hidden curriculum effects and to the development of clinical expertise and professional identity formation and a utilization-focused evaluation approach. The work is aligned with current accreditation standards and is providing an evidence base for ongoing educational quality improvement work. Of note, Dr. Martimianakis has also worked with other departments (including Department of Medicine) on LE strategies.



*Drs. Tina Martimianakis (Director, MES) Rayfel Schneider (former Associate Char, Education) and Adelle Atkinson (Associate Chair, Education) at Medical Education Day 2023*

#### **Enhancing the Department’s Educational Scholarly Practice through Educational Programming**

##### **Medical Education Day**

Medical Education Day is the annual capstone conference for celebrating educational achievements and promoting best practices related to medical training across the department and our community partners. ESEC serves at the program planning committee for Medical Education Day, choosing a thematic direction for the Conference and ensuring that the program meets

strategic priorities of the Department. In recent years the program has focused on humanism and compassionate care, workplace assessment, issues of professional identity, productive struggle/failure among other topical issues. Medical Education Day brings together experts in education science, curriculum development, as well as educators, teachers, and learners. It begins with Grand Rounds on an educational scientific topic of practical relevance to academic pediatricians, followed by keynote presentations and workshops that are more specialized in nature and aim to provide continuing education for clinical educators. Participants receive faculty development on pressing education topics to support the ongoing quality improvement of the Department's training programs. Educators and scholars from the Department of Paediatrics, the Wilson Centre, and other educational centres and partner hospitals across TAHSN, are invited to participate or disseminate their educational research and scholarship.

### **Faculty and Learner Development Addressing the Hidden Curriculum**

When the Royal College made monitoring the effects of the hidden curriculum an accreditation standard, the MES office initiated a series of interventions to prepare faculty and learners to address questions related to the hidden curriculum. Since 2019, over 50 workshops to our faculty and trainees have been delivered by the office of MES on how to approach hidden curriculum work systematically as a form of quality improvement to faculty, learners and administrators. The workshop provides practical approaches to monitoring and addressing hidden curriculum effects and have helped programs both prepare for accreditation and address post accreditation requirements. Dr. Martimianakis has consulted to Departments across the Temerty Faculty of Medicine, University of Toronto and across Canada. In addition to the in-person workshops, she has developed an e-learning module to be used across SickKids and the Temerty Faculty of Medicine as a primer on the Hidden Curriculum for both faculty and learners.

In addition, she has worked closely with Temerty Faculty of Medicine education leads to align the work of the LEC and MES office with faculty-wide initiatives and has attracted graduate students who are interested in pursuing hidden curriculum research to mentor in this area.

**“Since 2019, over 50 workshops to our faculty and trainees have been delivered by the office of MES on how to approach hidden curriculum work systematically as a form of quality improvement to faculty, learners and administrators”**

### **Building a Community of Practice**

The Office of Medical Education Scholarship develops opportunities for dissemination, networking and sharing of ideas on ongoing projects through rounds and journal clubs. This line of programming meets the Department's educational strategic priorities for facilitating integration of new knowledge and best practices in education, promoting a community of practice in education scholarship, promoting and facilitating networking between faculty teachers, educators and researchers and encouraging and supporting trainees to pursue research in education. To support strategic initiatives Rounds and Journal Club sessions have been periodically themed to support strategic educational initiatives, such as supporting the role out of CBD, with a special journal club series on Competency Education and Workplace Assessment.

### **Medical Education Scholarship Rounds**

*“Moving our ideas forward”*

Rounds provide a forum for faculty and trainees to share their educational research and scholarship and an opportunity to think about methodological issues. The rounds are intended to have practical application to educational work. Resources are also shared at each session to provide

participants with the opportunity for future learning. Attendance varies by topic and interest with an average of ten to upwards of 25 attendees. There are between 8-10 rounds per year. Rounds were postponed during the COVID-19 pandemic to release time faculty and to allow the MES office focus on focus on the hidden curriculum work and relaunched in 2024.

### Educational Journal Club

*“Integrating knowledge into practice”*

At each session, participants are exposed to a selection of interesting articles published in the last couple of years on topics such as competency-based teaching, assessment and evaluation, the hidden curriculum, professionalism, etc. Speakers and journal club facilitators are invited from within the Department and SickKids as well as the broader educational community at the University of Toronto. When opportunities arise, the international speakers are also invited with expertise in educational research, program development and innovation. Rounds and Journal clubs are accredited through the Royal College self-accreditation program. The journal club sees similar attendance numbers of the MES rounds, and were also postponed during the pandemic, and later relaunched in 2024.

### Special Presentations and Workshops

Several special seminars, full day, or half-day workshops and learning opportunities are organized annually and by invitation of education leads across the Department to meet specific needs of faculty and learners. Some examples over the past four years include the following: formative workshops on disseminating research, writing for publication, on interviewing and coding qualitative research and on preparing education dossiers for promotion. Joint lectures have also been organized with the Wilson Centre for Research in Education and the Scholarship/Education Offices in the Departments of Family and Community Medicine, Departments of Psychiatry and the Departments of Internal Medicine. These ongoing partnerships with other educational centres, help promote networking and the establishment of a broader community of practice.

### Supporting Educational Scholarly Practice through Funding Initiatives

The Director of MES oversees the Paediatric Consultants Medical Education Research and Development and Innovation Grant competitions and conducts adjudication of grant submission with the help of ESEC. The adjudication process includes multiple phases for formative feedback for applicant teams. Consultation is available to applicant teams during the grant development. All applications, whether they are awarded funds or not, are provided with formative feedback for improving their proposal. Often, if the ESEC review committee suggests that the proposal can be improved within a short time frame, applicants are provided feedback and asked to resubmit. This formative approach has enhanced the quality and rigor of the submissions and meets the strategic priority of providing mentorship in research. In addition to these two internal grants,

**“From 2019 to 2024, 20 grants have been awarded, totalling \$177,025.18.”**

the ESEC committee also adjudicates an internal competition for matched funding for the Temerty Faculty of Medicine Educational Development Fund. The committee provides coaching and mentorship to applicant teams. As part of the internal competition for funding, applicants also receive comments for improving their proposals before they are submitted to the Temerty Faculty of Medicine.

From 2019 to 2024, 20 grants have been awarded, totalling \$177,025.18. Twelve of these grants have focused on curricular innovations and development, including the development of a paediatric professionalism curriculum, the development of a virtual simulation curriculum to improve

emergency department neonatal resuscitation care among interprofessional teams and the implementation of an individualized trainee dashboard using informatics data for competency acquisition. Research projects have explored several different topics such as experiences of inclusion and exclusion in clinical training programs, deliberate practice as an educational method for differentiating accidental burn and bruise injuries in children, paediatric caregivers' involvement in resident assessment as part of a developmental paediatrics subspecialty residency and fellowship training program, moral distress in postgraduate trainees, and disparities in academic promotion. All grants contribute to our ongoing improvement of clinical training across the continuum. Most projects have led to dissemination outside our department and have been shared in educational conferences nationally and internationally. Research projects aim to produce academic publications.

### **Mentoring Faculty and Trainees in Educational Practice**

All initiatives organized through the MES office are used to provide training opportunities for clinical and graduate learners interested in developing expertise in educational research or scholarly educational development. The Director of MES provides ongoing mentorship and consultations to faculty and trainees interested in education. She also introduces faculty and trainees to other educational experts locally and internationally as their project requires and provides educational resources. In addition, educational leaders in other departments consult Dr. Martimianakis to contribute to their educational visioning, planning and profiling efforts.

### **Partnerships and Future Directions**

Dr. Tina Martmianakis is a member of the Faculty Development Scholarship Committee which allows her to promote the philosophy of a scholarly approach to teaching, curricular development, assessment, and innovation as a priority for FDC initiatives across the Department. Furthermore,

the Directors of UME, PGME and CE sit on ESEC and LEC, which facilitates close collaboration and alignment of initiatives across the Department's clinical training continuum. The Director of MES is also appointed as an Educator at the Centre for Faculty Development and as a Scientist at the Wilson Centre for Research in Education. She sits on education committees across the University. Also, the Office has established strong ties with education scholarship offices in the Departments of Psychiatry, Family Medicine, and Internal Medicine. These connections have allowed the Director of Scholarship and the ESEC committee to develop joint offerings with other programs, to keep abreast of educational issues affecting local capacity building and to leverage funding opportunities. The portfolio will continue to liaise with individuals throughout SickKids and beyond with an interest and/or aptitude in program development and evaluation, mentorship and faculty development and educational research. These collaborations will contribute to future program development.



## Medical Education Priorities

### Excellence in Teaching and Education

A growing community of practice of teachers and education scholars enhance the Department's clinical training offerings through leadership and administrative roles, and by generating research and innovative curricula and assessment approaches that are then integrated into its programs. Faculty teachers receive outstanding teaching evaluations at all levels of training. Their work is supported and prioritized with faculty development, skill-building opportunities and continuing education tailored to the evolving needs of teachers and educators on site. These initiatives are designed to enhance teaching skills, stay abreast of the latest pedagogical advancements, and foster a positive learning environment where everyone thrives.

Teaching excellence is supported and encouraged through the incorporation of review of faculty teaching evaluations into the Annual Review of faculty conducted by Division Heads and ongoing faculty development offerings including the Teacher Scholar Program and the New faculty Teacher Orientation as examples. Education programs are developed using best practices in education, including regular program evaluation and ongoing revision of pedagogical practices and curricula.

Faculty and learners are encouraged to develop funding proposals to pursue educational scholarship and receive mentorship to support the development of projects from inception to completion.

### Advanced Training for Faculty and Learners

The Department's commitment to scholarly evidence-based education is evidenced in the growing number of faculty and trainees who have completed or are pursuing formal training in education to enhance their academic contributions to the Department. In the past five years 11

faculty members have enrolled and completed the Stepping Stones Program at the Centre for Faculty Development. This 1–3-year program provides support to health professionals in their multiple education roles and activities including teaching, education scholarship, advocacy, and academic leadership. In addition, three faculty have completed the Wilson Centre and Centre for Faculty Development Atelier: Foundations in Health Professions Education Research. This short intensive course prepares faculty to engage effectively in collaborative research in health professions education.

A number of trainees also complete the Master of Science in Community Health- Health Practitioner Teacher Education at the University of Toronto:

- **Dr. Kelsey Shannon**, Chief Resident, 2022-2023, explored the professional identity experiences of residents in the role of teachers. Her research identified several key characteristics perceived by residents to be prototypical of the ideal physician teacher including someone who fosters psychological safety, role models vulnerability and uncertainty, and teaches using a constructivist approach. Residents reported experiencing tension between hospital service needs and education, their presumed position in the medical hierarchy, perceived lack of medical expertise, and a limited formal curriculum on teaching as barriers to their development as teachers. This research is finding its way into curriculum efforts to improve the Residents as Teachers curriculum for trainees.
- **Dr. Tanvi Agrawal**, Assistant Professor, Department of Paediatrics, Pediatrician SickKids and Credit Valley Hospital, conducted a needs assessment to develop a new curriculum for paediatric leadership training, in response to Royal College of Physicians and Surgeons of Canada (RCPSC) requirements. While the RCPSC endorses leadership training for postgraduate trainees there is a gap between buy-in and formal opportunities. The needs assessment identified a lack of trust placed in trainees, as evident in faculty

***“I was trained by passionate educators who gave me the room to scaffold new skills each rotation”***

- Justin Lam, Former Co-Chief resident

## Justin's Experience:

In my 7 years of training at the Hospital of Sick Children, I have had the pleasure and privilege of being a resident, chief resident, and fellow in the Department of Paediatrics at the University of Toronto.

Throughout my training, I felt supported in developing each facet of my professional identity. In becoming a hospitalist pediatrician, I was trained by passionate educators who gave me the room to scaffold new skills each rotation, and gave me feedback to help me learn and grow as a clinician. The flexibility independence afforded me during my academic general paediatrics fellowship, as well as the graduated independence, gave me the space and opportunity to start practicing as if I were a staff physician; looking back now as a new staff paediatrician, these experiences for structured independence were invaluable for building my clinical confidence and preparing me to work effectively and collaboratively in an academic inpatient setting. In becoming an education scientist, I felt sponsored by the education leaders in the Department who opened doors to career-building opportunities through collaborations with other education scientists, teaching opportunities; who created the funding structures within the fellowship program to support my further education, and built platforms for celebrating education scholarship within the Department. In becoming a leader,

I learned so much from working with other leaders in the department during my time as a chief resident and fellow, and was inspired by the kinds of leadership role modeled by those around me throughout my training at SickKids.

During my training, I always appreciated how responsive the training programs were to trainee feedback, its openness to dialogue, and how trainee feedback would result in the co-construction of solutions related to call models, wellness initiatives, or scheduling. The Department of Paediatrics' dedication to taking an evidence-based approach to establish a program of assessment through its learning environment committee is another highlight in the learning environment. Furthermore, the department's openness to new ideas, such as its support for establishing the residency EDI committee, demonstrates its willingness and continued commitment to continual growth and improvement, which I believe is a cultural asset for the Department.

micromanaging practices in clinical settings. Such factors hinder a growth mindset and indicate a need to demonstrate the value of leadership skills in patient care. Participants framed leadership development within a growth mindset orientation offering recommendations with the potential to bridge the leadership training gap through observed experiences, and suitable feedback or coaching models alongside structured leadership sessions.

- **Dr. Amy Lu** is a Paediatric core resident and haematology-oncology fellow, 2022-2024). Her Master's project investigated how IMGs (international medical graduates) influence and contribute to the learning environment and experience of their peers (whether CMG or IMG) and what factors mediate or hinder learning between IMG and CMG trainees. The results of this research will inform ongoing efforts to improve the integration of CMG and IMG learners in paediatric clinical training programs and offer insights into how to better validate expertise development by harnessing the potential of diversity in perspectives and lived experience.

More recently, Department of Paediatrics learners and faculty have pursued graduate training at the PhD level:

- **Dr. Justin Lam**, a general academic paediatrics Fellow, was enrolled in the CIP (Clinician Investigator program) to pursue clinician scientist training in education. He is pursuing a PhD in Health Professions Education Research to track hidden curriculum and governmentality effects related to the professional identities of trainees and faculty. His thesis project will explore faculty experiences with adapting to organizational change and how it affects their professional identities, with an interest in using EDI organizational mandates as a case study. The aim of this work is to make learning environments equitable and safe for teachers and learners, with the goal of contributing to better patient care.

- **Dr. Emer Finan**, an Associate Professor and Neonatologist (Sinai Health), is pursuing a PhD in Health Professions Education Research focused on understanding the co-regulation of learning within the clinical space; namely the people, activities and the tools, which trainees access to regulate their learning, and the mechanisms therein. She will also be seeking to understand how self-regulation impacts and in turn is impacted by these sources of regulation within the busy clinical workspace. Her work will find application in the resident training program.
- **Dr. Anne Kawamura**, a Developmental Paediatrician, Holland Bloorview is also pursuing a PhD in Health Professions Education Research. Her research addresses the contemporary concern that healthcare professionals require the capability to continually generate new knowledge and to innovate in practice in an increasingly complex clinical setting. In order to innovate, healthcare professionals rely on deep, interconnected networks of knowledge linked by conceptual understanding that must be restructured over time as new discoveries are made. Her research will explore how knowledge is restructured through instruction and social learning practices, how this conceptual change prepares individuals for future learning, and how elements within the sociocultural context may support and restrict innovation. Her research will also find application in clinical training programs across the continuum.

## Faculty Appeals Process

Recognizing that challenges can arise, the Department has implemented a robust faculty appeals process, chaired by Dr. Angela Punnett, to address concerns and grievances faculty may have about their evaluations, in a fair, transparent, and data-driven manner. The Department also provides dedicated support for faculty members experiencing difficulties, including personalized coaching and access to health-related resources where appropriate. For training programs facing challenges, including accreditation, targeted

interventions and collaborative problem-solving strategies are deployed to ensure their successful operation. Dr. Tina Martimianakis, Director of MES, has been instrumental in leading these targeted interventions. The Department's approach to supporting clinical teachers is anchored in continuous quality improvement, ensuring that feedback is actively sought and utilized to refine and enhance support systems, thereby fostering a nurturing and effective educational environment for both faculty and trainees.

## Leadership and Impact

Faculty are recruited regularly to lead educational initiatives across the University, at the Royal College at other institutions and internationally. During the past five years, faculty have held important leadership positions outside of the Department, including the Temerty Faculty of Medicine and the Royal College, as Chairs of Specialty Committees (see Appendix 2.4). At the Temerty Faculty of Medicine, they are involved in setting learning goals and developing curricula for medical learners across the continuum. They also bring expertise to learner assessment and program evaluation. Several faculty are involved in knowledge implementation work, including developing faculty-wide strategies for improving the learning environment and creating safe and equitable learning spaces.

## Faculty in senior leadership positions at the Temerty Faculty of Medicine, include:

- **Dr. Lisa Robinson**, Dean of Medicine
- **Dr. Susan Schneeweiss**, Associate Dean, Continuing Professional Development
- **Dr. Nicola Jones**, Director of the Integrated Physician-Scientist Training Program
- **Dr. Maria Mylopoulos**, Director for Research and Innovation
- **Dr. Catharine Walsh Director**, Medical Student Research Scholars Program

- **Dr. Julie Johnstone**, Director of Assessment and Special Projects
- **Dr. Nirit Bernhard**, Faculty Lead, Portfolio and Theme Integration
- **Dr. Seetha Radhakrishnan**, Director, Year 4 Clerkship
- **Dr. Angela Punnett**, Written Assessment Lead and Faculty Lead, Workplace-based Assessment, and Faculty Undergraduate Accreditation Lead
- **Dr. Evelyn Rozenblyum**, Course Director, Concepts, Patients, and Communities 3
- **Dr. Zia Bismilla**, Director, Clinical Skills
- **Dr. Susanna Talarico**, Faculty Lead, Faculty Development
- **Dr. Anne Matlow**, Faculty Lead, PG Leadership
- **Dr. Ryan Giroux**, Faculty Lead, Indigenous Health

Faculty members also lead various Royal College Paediatric Specialty and Examination Committees including but not limited to Dr. Adelle Atkinson (Chair, Specialty Committee Paediatrics), Dr. Catharine Walsh (Chair, Specialty Committee of Gastroenterology and Co-Chair Specialty Standards Review Committee), Dr. Mindy Solomon (Chair, Speciality Committee for Respiratory Medicine) and Dr. Elaine Gilfoyle, Chair Specialty Committee in Critical Care Medicine). In addition, members of our faculty are helping shape educational standards for paediatric training across Canada, including assessment at all levels of training by contributing to the development of examination questions for national exams and participating as examiners in licensing examinations.

Paediatric faculty have lent expertise to the development of scientific programs for various educational forums including the International Conference for Residency Education, The Society in Europe for Simulation, Simulation Canada,

Canadian Thoracic Society, and the Association for Medical Education Europe and Medical Education on the Edge, among others.

Two education scientists (Dr. Martimianakis and Dr. Mylopoulos) hold Associate Director Positions at the Wilson Centre for Research in Education the leading health professions education centre in Canada and internationally for theory development and empirical research in health professional learning sciences.

The past and current UME Course Directors have held leadership positions in PUPDOC (Paediatric Undergraduate Program Directors of Canada) in COMSEP (Council on Medical Student Education in Paediatrics) and at the CPS (Canadian Paediatric Society).

## Awards and Recognition

The Department of Paediatrics celebrates the meaningful contributions of teachers annually with several awards. In addition to the local recognition, the impact of the educational contributions of faculty in research, educational leadership and teaching has been recognized with significant awards by the University of Toronto, and National and International organizations such as the MD program Teaching Excellence Award (Dr. Angela Punnett), University of Toronto Temerty Faculty



Drs. Bernhard, Talarico, and Au at the 20th Annual Education Achievement Celebration, May 2022

of Medicine Postgraduate Medical Education Excellence in Development/Innovation Award (Dr. Shirley Tse), the Temerty Faculty of Medicine Helen P. Batty Awards (Dr. Susanna Talarico) and W.T. Aikins Awards (Dr. Hossana Au, Nirit Bernhard) Institute of Medical Science Faculty Recognition Award for Strong Teaching and Exceptional Citizenship Award (Dr. Neil Sweezey), The Canadian Pediatric Society – Michael Weber Education Award (Dr. Adelle Atkinson), the Canadian Rheumatology Associate Master Award (Drs. Rayfel Schneider and Ron Laxer), The Association of Faculties of Medicine of Canada, Young Educators Award (Dr. Catharine Walsh), and the Pediatric Chairs of Canada National Medical Educator award (Dr. Stacey Bernstein) (See Appendix 2.4).

## Education Grants and Publications

### Grants

Project based funding underpins education research and development work at the Department of Paediatrics. Approximately \$1,539,810 in grant funds was secured (combination of internal and external funding) since 2020. Funding sources have included Tri-Council Funding from SSHRC and CIHR, the Royal College, and other sources such as, Physicians Services Incorporated, the Canadian Paediatric Society and the Canadian Federation of Dietetic Research. The focus of the funding has included both educational research (how we learn, how the learning and work environment impact learner capacity to succeed, the relationship between learning and professional identity formation/construction, how to optimize curriculum and assessment for efficient and effective learning etc.) as well as applied educational activity (i.e. comparisons of pedagogical approaches, assessment of effectiveness of current curricular practices, incorporation of educational technology in local educational practice etc.) Education grant applications are highly collaborative, with links between educational scientists and clinical educators and teachers as well as evidence of cross-divisional and cross-departmental partnerships and collaboration.

# “207 peer-reviewed education-related publications were achieved in the past 5 years.”

## Publications

207 peer-reviewed education-related publications were achieved in the past 5 years. Peer reviewed publications are in the top peer reviewed education journals of the field of health professions education including Academic Medicine, Medical Education, Advances in Health Sciences Education, BMC Medical Education and Medical Teacher. Educational output was also disseminated in clinical journals that have educational sections such as Gastrointestinal Endoscopy. 31.1% of the authorship of these publications includes international collaborators from the United States, the Netherlands, the United Kingdom, Australia, and Africa for example. For a full listing of peer-reviewed publications please refer to Appendix 2.4.

Three full-time education scientists have their primary academic appointment in the Department of Paediatrics and pursue programmatic research related to education: Dr. Tina Martimianakis (Department of Paediatrics), Dr. Maria Mylopoulos, (Temerty Faculty of Medicine) Dr. Catharine Walsh (Learning Institute and Division of Gastroenterology, SickKids). Their research programs have evolved in collaboration with pediatric faculty and trainees and their annual publication rates range from 8-12 publications each per year. Dr. Kathryn Parker is an Evaluation Scientist with an interest in education. Dr. Parker previously held the role of Senior Director of Academic Affairs at Holland Bloorview and is currently the Associate Director, Transformative Change with the Centre for Advancing Collaborative Healthcare and Education at UHN. The office of MES will engage Dr. Parker to evaluate the LEC program in the future. As well, faculty who have

made educational development and/or research a primary focus of their careers also publish regularly. The research conducted by Department of Paediatrics faculty contributes to the learning, cognitive and social, and basic sciences. Theory building in areas such as adaptive expertise, professional identity, socialization effects, self-directed learning, self-assessment, simulated learning, clinical decision-making is conducted in parallel with curricular innovation and program evaluation. This body of scholarship has garnered international recognition, and scholars have received research awards and numerous invitations to keynote, and present around the world.

## Medical Education and the COVID-19 Pandemic

The COVID-19 pandemic profoundly impacted medical education in paediatric training programs, reshaping both the structure and delivery of curriculum. Multiple challenges faced departmental leadership with the priority being to deliver high-quality care for patients while keeping learners safe and ensuring the delivery of necessary education. Traditional hands-on experiences, such as clinical rotations and in-person patient interactions, were significantly curtailed for undergraduate students due to social distancing and infection control measures. For postgraduate learners, quickly shifting to new protocols and changes in curriculum to prioritize frontline care required flexibility and focused leadership. The Department's educational enterprise underwent the rapid adoption of virtual learning platforms, where academic half days, case discussions, and even some simulation exercises transitioned to online format. While this adaptation ensured continuity of education, it also highlighted the limitations of remote learning in providing the experiential, patient-centred training crucial for paediatricians. The pandemic underscored the need for innovative approaches to integrate virtual and in-person learning post-pandemic, emphasizing flexibility and adaptability in future medical training paradigms. This also was the period during which all the programs, including those in the Department of Paediatrics, underwent

their planned Royal College accreditation review and site visit (virtual).

## Learner Wellbeing

Emphasizing wellness in all the paediatric training programs in the Department is crucial for fostering a supportive and effective learning environment. Prioritizing wellness not only enhances the overall well-being of trainees but also significantly impacts their clinical performance and patient outcomes. There is a focus on wellness in each of the programs, and specific strategies have been implemented to help residents manage stress, prevent burnout, and promote work-life balance, which are essential given the demanding nature of paediatric training. The core pediatrics and many divisional programs have wellness committees, supported by faculty, tasked with designing a wellness curriculum for the specific program. The integration of wellness curricula in the programs with faculty engagement and support ensures that trainees are not only prepared to provide high-quality care but are also equipped to sustain their personal and professional growth over the long term.

**“There is a focus on wellness in each of the programs, and specific strategies have been implemented to help residents manage stress, prevent burnout, and promote work-life balance”**

At the undergraduate level, issues of learner well-being, mistreatment, support, and accommodations are managed centrally through the University and within the Department with the Associate Chair of Education. Locally the paediatrics rotations enabled study periods before exams, an exam review session, and shortened the workday from the University’s guidelines

recognizing there is travel. The Program receives data from learner surveys and evaluations and make efforts to improve their experiences, sharing the data with specific sites as required. Requests for learner accommodations set forth by the University are adhered to within the local rotation.

Core residents established a Wellness Committee to evaluate factors influencing the physical and mental wellbeing of during training with the goal of implementing strategies to enhance resident wellbeing. Projects will include but are not limited to formal education, curricular activities, mentorship, Balint groups and advocating for systems-level change.

## Equity, Diversity, Inclusion and Accessibility in the Educational Mission

Equity, Diversity and Inclusion is a core value in the Department of Paediatrics. In 2019 the core paediatrics training program formed the Department’s first trainee EDI committee, chaired by residents to ensure the principles of EDI permeate all of the processes of the core program from resident selection to curriculum design. EDI initiatives now exist in all training programs and there is centrally discussed EDI curricula shared by all programs through the Program Directors Committee.

Starting in 2022, the Associate Chair, Education, with support from the Paediatric Executive, and administrative leadership undertook a project to ensure equal work for equal pay across the core clinical training programs in the Department. The results of this project led to 75 clinical fellows getting a pay increase to align with their MOH-funded counterparts and PAIRO guidelines. Continued work is ongoing ensure that there is an equitable approach to salary decisions and guidelines developed for learners completing sub-fellowships. Before this adjustment for our non-MOH clinical fellows the Department had already established a framework to meet (or exceed) the salary guidelines from the Temerty Faculty of Medicine. The equitable salary project went above the university guidelines level of compensation.

**“The department has many incredible faculty members who truly care about education and supporting the next generation.”**

- Victor Do, Co-chief Resident 2023-2024

## Victor's Reflection:



I was a resident physician within the Department of Paediatrics at the University of Toronto from 2020-2024. During this time I benefited greatly from the educational focus of the department which helped me find my passion in clinical and academic practice. I am grateful for the transformative learning experience that I had the opportunity to engage in over my four years as a resident.

Overall I really enjoyed my four years. I have to particularly note how much the program directors, Adelle Atkinson and Kevin Weingarten influenced my residency experience in a positive, empowering way. The department has many incredible faculty members who truly care about education and supporting the next generation.

A few things particularly stood out as I reflect on my training experience :

1. The Department and all of its faculty members were always invested in my learning, growth and supported my personal endeavours. I appreciated that whenever I sought opportunities, asked for enrichment and wanted to try new things, everyone was always open to hearing my thoughts and asked “How”? This is a very unique experience in education and demonstrates a culture of innovation that is critical to fostering the next generation of health professionals.

2. The department has continued to undergo significant self-reflection and undertaken quality improvement efforts around building a more positive, health -promoting learning environment that centers equity, diversity and inclusivity in all of

its efforts. A number of new initiatives including the learning environment committee and EDI efforts launched over the course of my training. As a resident leader I have been able to contribute to these advancements. I felt that the department was interested in my perspective, wanting to ensure that they could capture my contributions.

3. A significant strength is that the department is able to support learners to further develop their interest and expertise in a very wide range of interests. My resident colleagues all had very different areas of focus, yet they were all able to find mentors and support within the department to grow and develop. I encourage the department to continue to seek residents with diverse interests and to hire faculty that can continue to support learners in growing these broad interests.

Looking forward, the department continues to have ongoing opportunities to grow. I believe there continues to be significant opportunity to grow their relationships and strategic partnerships with equity-deserving groups, in particular, we need to thoughtfully consider partnership with Indigenous patients and communities. I know there are efforts underway to do this and continue to encourage the department to engage deeply in this process.

Overall, I am glad to say that my residency training experience has helped launch my academic and clinical career in a very positive way. I'll look forward to continuing to see how the department will grow its educational mandate.

Social Paediatrics is emphasized and taught throughout the Core Residency Program, appropriately layered throughout the academic curriculum. EDI tenants are integrated and encouraged within all lectures of the robust academic half day. Child Health Policy and Patient Safety are also woven into the curriculum through teaching and clinical experiences. Opportunities to participate in the Paediatric Outreach Clinic for under/uninsured families, are easily accessible as are opportunities to deliver health education curricula to elementary and high school students' experiences with health education, through the program's advocacy days.

## Learner Enrichment

The Department of Paediatrics is committed to fostering a dynamic and supportive environment for medical learners, ensuring their training is comprehensive and enriching. Central to this commitment are various activities and opportunities, that span the Department's many programs, designed to enhance academic and clinical learning experiences.

Academic Half Days are essential for medical learners, offering focused learning aligned with the curriculum. These sessions deepen knowledge through interactive lectures, case discussions, and peer-based learning, ensuring learners are well-versed in both foundational and cutting-edge developments in their specialty. Academic Half Day's specific to residents include:

**Paediatrics Resident Lecture Series (PeRLS):** This rich curriculum provides a wide variety of learning opportunities addressing all the CanMEDs roles and features experts in all subspecialty and general paediatrics fields. Several sub-curricula run through this program including those that address leadership, EDI and Indigenous health topics and the medical humanities.

**PGY1 Skill Training and Education Program for Success (STEPS):** A comprehensive 12-week program aimed at providing PGY1 residents with foundations skills and knowledge to excel in their residency. While medical expert lectures are

features there are many other important practical topics covered to ease the transition into the program.

The Teaching Scholars Program (TSP) further supports those senior learners interested in honing their teaching and education skills. Since 2019, 67 Fellows have completed this program enabling them to become proficient educators in clinical and academic settings. By participating in the TSP, learners not only enhance their own teaching capabilities but also contribute to the broader mission of advancing quality medical education within the department. Graduates receive a CPD certificate from the University of Toronto.

Learners are also encouraged to actively engage with professional development opportunities, such as conferences. The Department offers funding for learners presenting their scholarship at conferences, ensuring they can share their work with broader academic and professional communities. Additionally, partial funding is available for attending conferences to promote exposure to new knowledge, networking, and continuing education. These experiences are invaluable in helping learners stay at the forefront of their specialty.

The Department's postgraduate trainees are actively pursuing scholarly projects in basic science, social science and educational topics. Trainees have consistently strong research and scholarly performance. Postgraduate learners take part in educational scholarship exploring such topics as; experiences of residents in various aspects of their training, tracking major curriculum changes and their effects on learning, residents' experiences with professionalism in the curriculum, residents' experiences with assessment with the launch of CBD, as examples. Projects related to postgraduate education almost always involve residents and/or subspecialty fellows as collaborators. This involvement of trainees in educational research and development projects provides them with opportunities to develop methodological expertise. (See Appendices 2.4 for details related to grants and publications).

Participation at all levels in decision-making processes is another key element of the Department's learner enrichment strategy. By joining committees such as the Residency Program Committee (RPC), learners have a direct voice in shaping the educational landscape of their program and beyond. Active involvement in various committees ensures that their perspectives are considered in the ongoing development and improvement of the residency program, fostering a sense of ownership, leadership, and co-creation.

## The Transition to Competence By Design

Competence-By-Design (CBD), the Royal College of Physicians and Surgeons of Canada (RCPSC) brand of competency-based medical education (CBME), is the fully adopted pedagogical approach to postgraduate training in Canada. The goal of CBD is to improve the quality of training in all specialties and subspecialties to improve the outcomes of patients and families.

In July 2018, Paediatric Nephrology became the first program in the Department to launch CBD, setting the stage for support and faculty development across all programs. By July 2019, two more programs had launched, and now all Department of Paediatrics programs have fully transitioned to CBD. Initially, a CBD committee supported the postgraduate programs, using early experiences to ensure ongoing faculty development during the transition. With all programs now launched, the committee has been sunset, but the Department continues to provide departmental faculty development to sustain this significant curricular change. Dr. Adelle Atkinson, Associate Chair, Education maintains a national leadership role at the RCPSC in CBD implementation.

In October 2019, the National Specialty Committee for Paediatrics at the Royal College, chaired by Dr. Adelle Atkinson, changed the national curriculum to ensure that all residents moving forward have adequate time to meet the required competencies of general paediatrics. In the 2024/25 academic year, the first cohort of CBD residents will now complete four years of robust training before moving on to the next stages in their careers.

**“Improving the learning environment is a critical focus for the Department with the development of a Learning Environment Committee to develop a comprehensive departmental strategy across all training programs to raise awareness, identify issues, provide support and faculty development to work towards a sustainable ideal learning environment.”**

## The Learning Environment

Our strategic plan includes the development and support of the Department's teaching staff and rigorous assessment and monitoring of the clinical learning environment, with precision recommendations for improvement. Addressing learner concerns is approached comprehensively and worked into the recommendations moving forward.

The Department of Paediatrics has made significant strides in adopting a data-driven approach to enhance and evaluate the clinical learning environment. Central to this effort has been the establishment of the Department Learning Environment Committee (LEC) in 2022. Under the leadership of Dr. Tina Martimianakis, this committee spearheaded a comprehensive strategy for collecting and analyzing data across the Department's clinical divisions, focusing on creating a safe, inclusive, and supportive learning environment for both learners and faculty. Improving the learning environment is a critical focus for the Department with the development of a Learning Environment Committee to develop a comprehensive departmental strategy across all training programs to raise awareness, identify issues, provide support and faculty

development to work towards a sustainable ideal learning environment. This key priority, started in 2022 by the Director of MES, involves a robust approach to assessing and improving the Learning environment. Using a scholarly data-driven approach, the learning environments across the Department are being assessed and recommendations made around improvements. This continuous quality improvement (CQI) approach is innovative and a leading edge in medical education and is being shared nationally and internationally.

Over the last two years, a database has been built to collect data, from a variety of sources specific to the learning environment of the Department's divisions. This database has been instrumental in capturing and analyzing learner feedback and concerns. The approach will be further refined by leverage advanced AI techniques to evaluate these data, allowing us to identify patterns and trends that might otherwise go unnoticed. The analyses of these data allow the committee to develop evidence-based interventions and continuous quality improvement programs, ensuring that strategies are both responsive and effective in enhancing the learning experience. One practical example is the creation of a robust "Fellowship Orientation Day" for the subspecialty residents and fellows, which was reimaged for the 2024 iteration to include information gleaned from the Learning Environment work as to what learners felt they needed when they started training in the Department. Feedback from this new design has been outstanding.

By integrating data-driven insights with proactive support measures, the Department is committed to fostering a dynamic and responsive educational environment. This approach not only helps address immediate concerns but also drives long-term improvements in the quality of education and training within the Department.

Medical student representatives and trainees sit on the LEC to represent the student's viewpoint on learning environment issues. Discussions here help to promote a positive, healthy environment for all learners in the Department.



Dr. Kevin Weingarten (Director, PGME) (front) and trainees at the Department of Paediatrics holiday party 2023

## Future Directions, Challenges and Opportunities

CBD will continue to be a strategic priority for the Department's education program. As the first cohort is just reaching their fourth year, it will be paramount to assess and augment program-based lessons learned during this first cycle of CBD residents. This will also include implementation of CBD 2.0 as per the Royal College. The Department continues to provide outstanding support to programs as they walk the journey of transition and sustainability of CBD and looks forward to leading the way in innovation in medical education. This ultimately will ensure the training and development of the highest quality practitioners and, in turn, patient outcomes.

The education leadership is exploring ways to partner with urban indigenous communities, to inform efforts to integrate an indigenous health focus in paediatric curricula across the department.

Recognizing the importance of connecting in an ever-expanding digital age, the postgraduate education program will continue to focus energy on integrating the medical humanities into formal and informal offerings. In addition, some core paediatrics residents have done elective health informatics rotations with the Chief Informatics officer and team.

The diverse CE portfolio underscores the Department's commitment to delivering high-quality educational opportunities across a wide

range of paediatric subspecialties. However, there are challenges, such as adapting to the increasing demand for digital engagement and managing costs associated with high-quality virtual content. To address these challenges and capitalize on emerging opportunities, there will be focus on enhancing the use of existing digital tools, exploring international partnerships to broaden the Department's reach to resource-challenged nations, and integrating new educational strategies and technologies while continuing to pursue scholarly evaluation of the Department's offerings and dissemination of findings. Future priorities include expanding our virtual offerings to improve accessibility, fostering interdisciplinary collaboration to enrich content, and continually updating the Department's programs to meet evolving healthcare needs.

The learning environment will continue to be a focus for the MES office with an emphasis on developing a sustainable model for data capture to reinforce continuous quality improvement efforts across training programs. The potential of AI and machine learning will be explored in the upcoming years. Programs will need support in making decisions about how to allocate resources and for evaluating new initiatives launched to support learners and faculty. Therefore, there is a need to develop a critical mass of educators championing learning environment reform and to build stronger capacity in program evaluation. Learning environment issues cannot be addressed in silo, thus continued efforts are needed to build collaborations between university and hospital leadership and between medical and interprofessional groups to advance to goals of a more supportive clinical working and learning environments.

While the Department has had an outstanding record of accomplishments in our training programs combined with educational scholarship achievements there are also challenges in maintaining the excellence of our programs. Recruitment and retention of program directors has become challenging, and the Medical Education portfolios will continue to work in collaboration with division heads to promote thoughtful recruitment and succession planning for these positions, emphasizing the potential career trajectory that could evolve for those interested in medical education. The emphasis on the learning environment has been an important focus of the past 4-5 years; importantly, feedback of the impact of increased learner reporting on the "teacher environment" needs to be carefully monitored and is actively being addressed in the Department. Similarly, identification and support of community teachers, in particular for UME, has been a priority for Dr. Au and her team, however, with additional medical schools and a limited pool of teachers participating this will need to be closely followed. The Department will also be examining its education administrative support structure to maximize efficiencies while meeting the increasing demands. Finally, the Department's Medical Education programs aimed at developing clinician-researchers continue to attract some trainees but struggle to increase the numbers in paediatrics when compared with other countries (US, EU). A focus on the Department's own local and national data will be critical as will be innovative training programming already being piloted to continue to nurture and produce the clinician scientists needed to support our research mission.



Medical Education Day 2023 with debate and invited speaker Dr. Barret Michalec



## 2.5 Research Report

## 2.5 Research Report

### Introduction

The Department of Paediatrics at the University of Toronto is one of the largest and the most highly ranked and productive paediatric academic health sciences departments in North America and globally. A majority of the Department's full-time faculty are based at The Hospital for Sick Children (SickKids) (~83%), with others across the Toronto Academic Health Science Centre (TAHSN) campuses including Unity Health (St. Michael's Hospital & St. Joseph's Hospital), Holland Bloorview Kids Rehabilitation Hospital (Holland Bloorview), Sinai Health, Sunnybrook Hospital. A smaller proportion are based in community hospitals. Scholarly activities in the Department aim to improve child health through research innovation and the integration of discoveries and disruptive technology to advance Paediatrics. The Department's faculty lead nationally and globally in discovery, clinical, and translational research that directly informs holistic care of children and their families, addressing the biological/genetic, environmental, and social determinants of health.

The Department of Paediatrics has one of the highest numbers of paediatric researchers with expertise in a wide spectrum of scientific and clinical disciplines including fundamental biomedical investigations, education scholarship, health policy and services research, as well as equity and global health initiatives. The Department is consistently ranked as one of the Top 3 paediatric departments in North America based on publications and ranks competitively against international peer institutions. Over the last four years, the Department of Paediatrics faculty has continued to be highly competitive in securing research funding, ranking amongst the top of the University of Toronto Faculty of Medicine clinical departments. The Department of Paediatrics also continues to be a national and global leader in training paediatric clinical generalists, subspecialists, and researchers and remains deeply invested in developing the next generation of innovative paediatric academic and research leaders. The Department has continued

**“The Department is consistently ranked as one of the Top 3 paediatric departments in North America”**

to develop and enhance initiatives to retain, attract and support paediatric clinician scientists and investigators, and trainees who are equipped for collaborative team science.

### Structure

Research activities in the Department of Paediatrics are coordinated under the direction of Dr. Annie Huang, Associate Chair of Research with the support of a Research Advisory Committee (RAC), and research leaders from each of the TASHN paediatric departments. The RAC is comprised of mid-level and senior clinician scientists and investigators across TASHN with research expertise spanning discovery/translation science, clinical trials, epidemiology, and health services (Table 1). The RAC collaborates and advises on strategic priorities, evaluation of research faculty, development, and assessment of initiatives for training and career development for residents, fellows, and junior faculty and seeks opportunities for research collaborations across TASHN sites. The RAC is also advised ad-hoc by other senior researchers leading University/TASHN/SickKids-based research centres or programs.

### Research Faculty, Affiliations and Areas of Strength

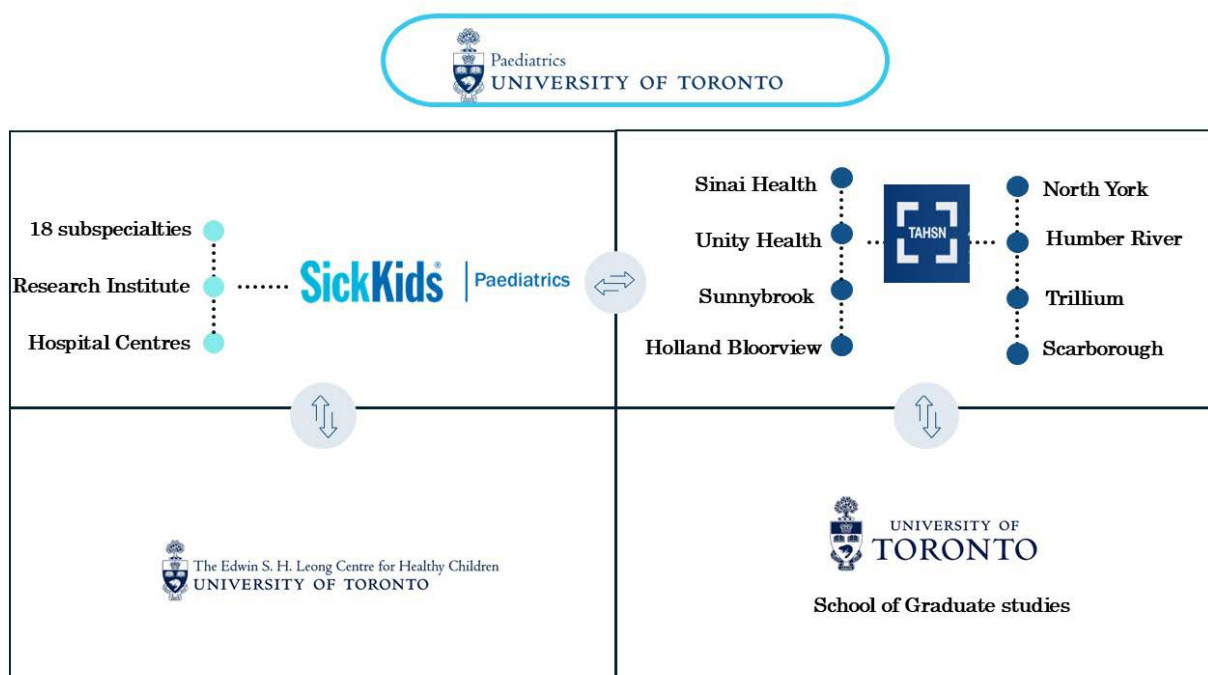
There are 364 full-time faculty members in the Department of Paediatrics, all of whom have academic appointments at the University of

Table 1 - Research Advisory Committee Membership			
Role	Name	Division	Start Date
Chair	Annie Huang	Haematology/Oncology	2020
Member	Seema Mital	Cardiology	2022
Member	Padmaja Subbarao	Respiratory Medicine	2021
Member	Eric Benchimol	Gastroenterology, Hepatology and Nutrition	2021
Member	Uri Tabori	Haematology/Oncology	2021
Member	Steve Miller	Neurology	2021-2022
Member	Ripu Minhas	Unity Health, Paediatrics	2024
Member	Evdokia Anagnostou	Holland Bloorview, Developmental Paediatrics	2024

Toronto, and varying types of clinical and research appointments across TASHN sites. (Figure 1). Reflecting on the mandate to train future scholars and researchers across a broad spectrum of basic science and clinical disciplines, Clinician Scientists (CS) and Clinician Investigators (CI) from the Department are expected to hold academic appointments in one or more of the many health or basic science post-graduate degree-granting departments at the University of Toronto School of Graduate Studies (SGS), including the Institute of Medical Sciences (IMS), Institute of Health Policy,

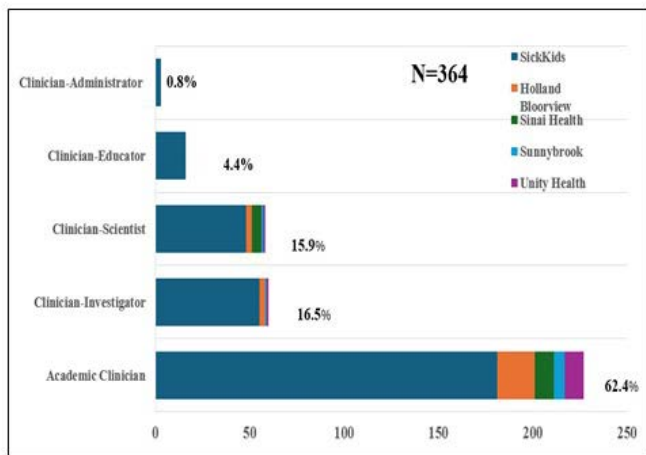
Management, and Evaluation (IHPME), Physiology, Pharmacology and Toxicology, Lab Medicine and Pathobiology, Immunology, Biochemistry, Medical Biophysics, and Molecular Genetics.

Amongst full-time Department of Paediatrics Faculty, 32% (118/364) have hospital-designated appointments as a CS or CI with > 50-75%, respectively, dedicated research time and are appointed as Scientist or Associate Scientist at their corresponding TASHN research programs; a subset (15-20%) will hold clinical and research



cross-appointments at more than one TASHN site. A majority of full-time faculty (62.4%) with hospital appointments as an Academic Clinician (AC) or Clinician-Educator (CE) also have research appointments as Project or Team Investigators (titles vary by hospital), and importantly, many of these faculty are also highly productive in terms of publications and grants. The distribution of faculty academic profiles across TASHN divisions in the Department of Paediatrics is shown in Figure 2A. Generally, most medical-based research is concentrated at SickKids, while population, policy, and other related clinical research are conducted across SickKids and all TASHN sites. While

**Figure 2A**

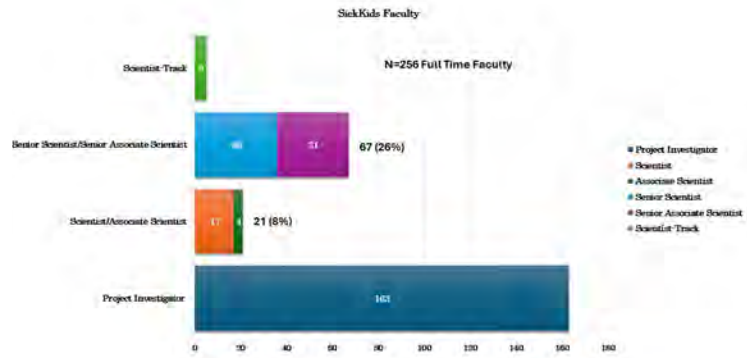


Site	Academic Clinician	Clinician- Investigator	Clinician- Scientist	Clinician- Educator	Clinician- Administrator
SickKids	181	55	50	16	3
Holland Bloorview	20	3	3		
Sinai Health	10		5		
Sunnybrook	6	1	1		
Unity Health	10	2	1		

Total Full Time Faculty = 364

faculty in general and developmental paediatrics with CS and CI profiles are distributed across all TASHN divisions, the majority of subspecialty CS and CI in the Department of Paediatrics are based at SickKids (Table 2). Of note, over the review period, almost 40% of full-time SickKids Department of Paediatrics faculty have job profiles as CS or CI (Figure 2B) and have scientific

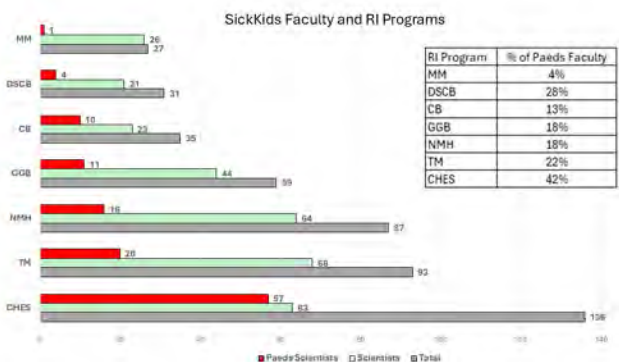
**Figure 2B**



appointments spanning all seven RI research programs. Department of Paediatrics faculty (i.e., physicians) also comprise the majority (40-100%) of all healthcare professionals (i.e., physicians, surgeons, allied health) in individual RI research programs (Figure 2C).

Over the past several years, the Department of Paediatrics has continued to build and grow the Department's strengths in genome-informed medicine, global health, health services, and health equity research by supporting key research platforms/centres including the SickKids Precision Child Health (PCH) initiative, the University of Toronto Edwin S.H. Leong Centre for Healthy Children (Leong Centre) and many other Temerty Faculty of Medicine and SickKids centres (See [Section 2.6](#)). Faculty continue to leverage these and other SickKids/TASHN/University of Toronto resources to lead and advance innovative cross-disciplinary research on the biological and social determinants of child health and health equity. Faculty have also leveraged unique technologies in

**Figure 2C**



**Table 2: Distribution of Clinician Scientists/Investigators in Subspecialties**

	2019	2020	2021	2022	2023
Division	CI/CS	CI/CS	CI/CS	CI/CS	CI/CS
Adolescent Medicine	2	2	2	2	2
Cardiology	8	9	9	9	10
Clinical and Metabolic Genetics	3	4	4	4	4
Clinical Pharmacology	1	1	1	3	3
Critical Care	3	4	4	4	5
Dermatology					
Developmental Paediatrics	7	7	7	7	7
Endocrinology	4	4	4	4	4
Gastroenterology, Hepatology and Nutrition	8	9	9	9	9
Haematology/Oncology	19	19	19	19	19
Immunology/Allergy	3	3	3	3	3
Infectious Diseases	3	3	3	3	3
Neonatology			1	1	1
Neonatology	7	7	7	7	7
Nephrology	6	6	6	6	6
Neurology	8	8	8	8	8
Paediatric Emergency Medicine	3	3	3	4	4
Paediatric Medicine	9	9	9	9	10
Respiratory Medicine	6	6	6	6	6
Rheumatology	4	4	4	4	4
<b>Totals</b>	<b>104</b>	<b>108</b>	<b>109</b>	<b>112</b>	<b>115</b>

CI= Clinician Investigator; CS=Clinician Scientist

the SickKids RIs and University research hubs including gene editing and accessible genome sequencing, ICES (Institute for Clinical and Evaluative Sciences), and the University of Toronto Data Science Centre to improve the understanding of and interventions for a spectrum of rare and more common childhood diseases. Some examples of leadership in innovative, impactful research from each division are highlighted in Appended Table 1, and full faculty profiles are listed in Appended Table 2.

## RESEARCH PRODUCTIVITY (2019-2023)

The Department of Paediatrics faculty continues to be highly productive, ranking amongst the top paediatric academic institutions globally in research publications and innovation. Many faculty are world leaders in clinical and basic/translational science, lead national and international organizations and global research initiatives, are funded by competitive peer-ranked national and international organizations, and are recognized with multiple national and international awards for significant contributions in their fields. Based on paediatric-specific publications and citations the Department ranks #1 in Canada and consistently amongst the Top 3 among comparable global paediatric academic centres or hospital-based research institutions. Since the last review (2015), the



(From Left to Right) Dr. Annie Huang (Associate Chair of Research) and the Paediatrics Research Symposium Co-Chairs, Drs. Linda Hiraki, Alene Toulany and Mathieu Lemaire



Group photo from Lancet visit



Linda Hiraki Awards Day

Department of Paediatrics faculty productivity has ranked competitively with much larger clinical departments such as Surgery and Medicine at the University of Toronto.

## Publications

Academic productivity of the Department of Paediatrics faculty has continued to rise across all divisions with an increasing number of publications in competitively ranked clinical, translational, and basic science journals. In analyses of paediatric subject research documents, using both the Incite and Scopus bibliometric databases, the

Department of Paediatrics faculty produced an annual average of 832 documents, a significant increase over the prior review period. The Department continues to consistently rank #1 amongst Canadian paediatric departments, and amongst the Top 3 (#1 in 2019 and 2022) for total and annual average number of scholarly publications, as well as the number of citations in relation to Harvard Medical School and Children’s Hospital of Philadelphia (CHOP) both, in comparison, have significantly larger numbers of paediatric faculty members (Figure 3A, B, C). Underscoring the Department’s impact and global reach, as compared to 27% and 23% of faculty

Figure 3A

University of Toronto Dept of Pediatrics Global Academic Ranking 2019-2023

Name	Web of Science Documents	Times Cited	% Docs Cited	Category Normalized Citation Impact	International Collaborations	% International Collaborations
Harvard Medical School	4896	44936	71.31	1.71	1369	28.02
Childrens Hospital of Philadelphia	4866	35835	68.39	1.49	1114	22.89
University of Toronto	4552	32198	65.62	1.31	2520	55.36
Cincinnati Children's Hospital Medical Center	3891	27930	66.67	1.34	899	23.1
University of British Columbia	1736	12765	65.84	1.24	858	49.42
McGill University	1288	9417	67.86	1.47	636	49.38
Universite de Montreal	1151	8118	67.94	1.21	587	51

Figure 3B

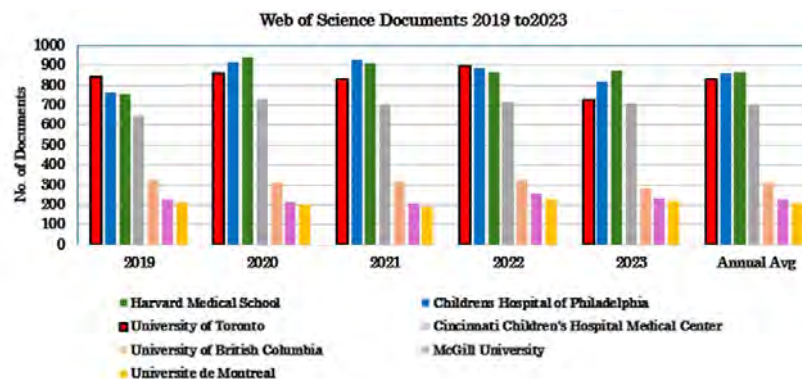
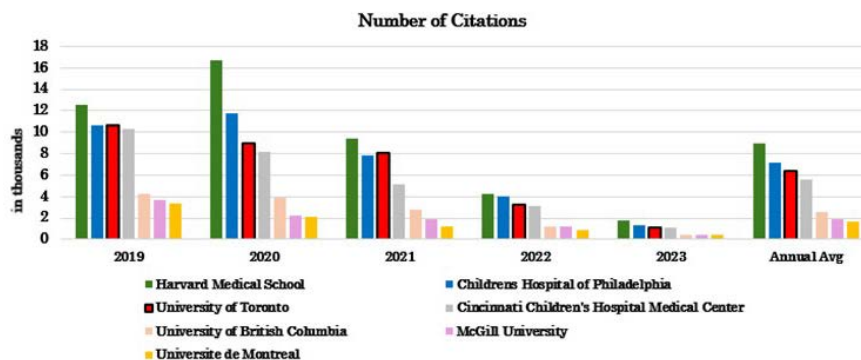


Figure 3C



**Table 3 - Grant Funding by Clinical Divisions**

Division	2019	2020	2021	2022	2023 Total	
Adolescent Medicine	\$ 18,804.85	\$ 10,207.88	\$ 2,612.94	\$ 27,194.28	\$ 276,891.13	\$ 335,711.08
Cardiology	\$ 6,324,529.62	\$ 6,413,119.64	\$ 3,601,862.43	\$ 3,610,497.95	\$ 4,115,625.38	\$ 24,065,635.02
Clinical and Metabolic Genetics	\$ 3,737,454.33	\$ 3,862,851.07	\$ 3,600,348.43	\$ 3,925,573.90	\$ 3,846,223.31	\$ 18,972,451.04
Clinical Pharmacology	\$ 495,843.49	\$ 517,401.91	\$ 343,658.08	\$ 204,374.36	\$ 43,449.38	\$ 1,604,727.22
Critical Care	\$ 1,803,360.75	\$ 2,471,770.77	\$ 2,173,366.50	\$ 1,594,846.12	\$ 1,802,595.71	\$ 9,845,939.85
Dermatology	\$ 135,262.74	\$ 209,930.39	\$ 174,899.17	\$ 329,466.60	\$ 240,489.88	\$ 1,090,048.78
Developmental Paediatrics	\$ 2,964,694.21	\$ 3,320,607.16	\$ 3,701,260.17	\$ 3,516,507.34	\$ 3,648,472.78	\$ 17,151,541.66
Endocrinology	\$ 2,064,958.98	\$ 2,412,644.30	\$ 2,105,786.09	\$ 3,079,711.36	\$ 2,269,635.81	\$ 11,932,736.54
Gastroenterology, Hepatology and Nutrition	\$ 4,728,728.98	\$ 5,203,968.05	\$ 5,553,044.49	\$ 7,131,470.99	\$ 8,380,590.83	\$ 30,997,803.34
Haematology/Oncology	\$ 13,221,523.31	\$ 15,862,129.37	\$ 12,964,110.27	\$ 14,146,887.13	\$ 25,157,083.74	\$ 81,351,733.82
Immunology/Allergy	\$ 1,083,977.97	\$ 1,178,564.75	\$ 956,992.35	\$ 970,278.02	\$ 924,283.95	\$ 5,114,097.04
Infectious Diseases	\$ 860,588.59	\$ 937,724.88	\$ 2,401,704.45	\$ 3,785,820.42	\$ 3,409,060.05	\$ 11,394,898.39
Neonatology	\$ 6,080,285.65	\$ 4,361,012.06	\$ 4,255,040.73	\$ 3,061,442.85	\$ 2,288,336.30	\$ 20,046,117.59
Nephrology	\$ 3,583,240.86	\$ 3,165,130.83	\$ 4,022,422.90	\$ 3,477,675.92	\$ 3,952,457.78	\$ 18,200,928.29
Neurology	\$ 5,601,716.27	\$ 6,322,980.56	\$ 5,448,218.36	\$ 6,167,025.03	\$ 6,741,270.71	\$ 30,281,210.93
Other Faculty	\$ 6,586,896.82	\$ 9,414,797.61	\$ 4,711,249.23	\$ 4,020,206.23	\$ 2,940,388.32	\$ 27,673,538.21
Paediatric Emergency Medicine	\$ 393,331.43	\$ 377,625.46	\$ 352,893.56	\$ 537,693.08	\$ 615,023.21	\$ 2,276,566.74
Paediatric Medicine	\$ 6,887,927.86	\$ 8,777,787.98	\$ 8,968,955.89	\$ 11,361,898.12	\$ 7,676,493.30	\$ 43,673,063.15
Respiratory Medicine	\$ 3,434,821.26	\$ 5,039,687.91	\$ 3,882,875.33	\$ 4,025,422.34	\$ 4,106,413.17	\$ 20,489,220.01
Rheumatology	\$ 359,631.82	\$ 439,316.84	\$ 662,574.99	\$ 1,076,074.57	\$ 1,014,605.42	\$ 3,552,203.64
<b>Total</b>	<b>\$ 70,367,579.79</b>	<b>\$ 80,299,259.42</b>	<b>\$ 69,883,876.36</b>	<b>\$ 76,050,066.61</b>	<b>\$ 83,449,390.16</b>	<b>\$ 380,050,172.34</b>

publications at Harvard and CHOP, 54% of faculty publications are international collaborations, many from clinical trial and research networks and consortiums led by Department of Paediatrics faculty. These include, amongst many, high-impact publications from the Paediatric Inpatient Research Network (PIRN) led by Drs. Peter Gill and Sanjay Mahant and the CHILD study led by Dr. Padmaja Subbarao. There are numerous additional examples from national and international consortiums and networks led by faculty from almost, every division. While faculty appointed as CS and CI continue to be major contributors of research publications, publications from Clinical/Project Investigators have also continued to grow. A high proportion of publications are in high-impact scientific journals and leading journals in paediatrics and/or subspecialties (See Appended Tables 3-5)

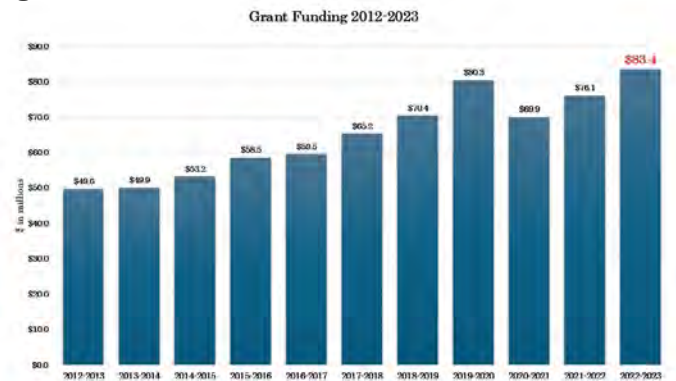
**Research Funding**

Despite national research budget constraints, the Department of Paediatrics has shown remarkable growth and consistent success with faculty research awards. Over the 2019-2023 period, faculty members secured a cumulative average of 1,000 awards/year exceeding \$350 million in total funding. Total department investigator

operating funds averaged \$77 million/year, with total funds secured in 2022-2023 exceeding that in 2019-2020 pre-COVID interruptions (Figures 4A-C). Funded projects led by faculty ranged from biomedical discovery to population-based science, policy research, clinical trials, and training initiatives. Research funds secured by different sub-specialty faculty members are shown in Table 3. Underscoring the Department’s faculty leadership in large-scale team-based research innovation and training are notable national team grants, including one for a new Canadian Paediatric Cancer Consortium (\$23 million) and a national training grant for digestive health research (\$2.3 million).

Most funds awarded to faculty (70-80%) were from

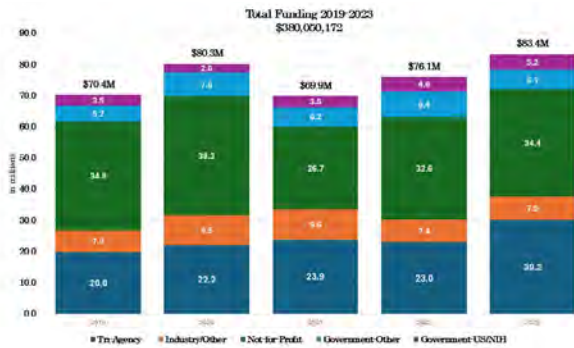
**Figure 4A**



**Figure 4B**



**Figure 4C**



competitive peer-reviewed non-profit agencies including tri-council (CIHR, NSERC) and national agencies (CFI, Canada Foundation for Innovation) as well as competitive international organizations (NIH, DOD) and disease-specific (e.g., Canadian Cancer Society Research Institute, Heart and Stroke Foundation, Brain Canada) and industry-sponsored awards. Faculty have also been highly successful in securing salary awards (independent of their operating grants) through research chairs (Table 4). These include 27 endowed chairs and 13 competitively awarded Canada Research Chairs (10 CRC Tier 1 for senior scientists, 3 CRC Tier 2 for emerging research leaders). Of note, nominations for CRC awards are competitively selected by the Research Institutes for SickKids and other TAHSN hospitals. Details of research funding are provided in Appended Table 6.

**Table 4 - Paediatric Faculty Research Chairs**

Chair Type	Numbers
Canada Research Chair	13 (+ 2 under review)
Hospital Chair	17
University Chair	10
Total	42

## Leadership

In addition to research program funding successes, a large proportion of the Department of Paediatrics faculty have been competitively selected for local, national, and international research leadership roles, many with significant roles in academic and research training for clinician-scientists at all levels. Examples include:

- **Dr. Lisa Robinson** – President, American Pediatric Society (APS); Dean, Faculty of Medicine, University of Toronto
- Dr. Rulan Parekh - Vice President Research, Women’s College Hospital (WCH)
- **Dr. Eric Benchimol** – Co-lead of the national ENRICH Program
- **Dr. Devin Singh** – Co-director of Artificial Intelligence in Medicine (AIM) Initiative, SickKids
- **Dr. Norman Rosenblum** - Scientific Director, CIHR Institute of Metabolism and Nutrition; Lead, University of Toronto Translational Science/Eureka Program
- **Dr. Nicola Jones** – Director of the Integrated Physician Scientist Training Program; Lead, University of Toronto Clinician Investigator Program (CIP) and MD-PhD Program.
- **Dr. Evdokia Anagnostou** – Vice-President of Research, Director of Holland Bloorview Research Institute
- **Dr. Prakesh Shah** – Paediatrician-in-Chief, Sinai Health; Director of Canadian Neonatal, Pre-term Network, and International Neonatal Outcomes Network



Poster presentation and networking session at the 2024 Paediatrics Research Symposium. Credit: Kenncourt.Photography

- **Dr. David Malkin** – Co-lead Precision Child Health Initiative, SickKids; Vice Chair, Graduate Program Medical Biophysics, University of Toronto
- **Dr. Lillian Sung** – Chief Clinical Data Scientist, SickKids
- **Dr. Astrid Guttman** – Chief Science Officer ICES, Co-Director Leong Centre, University of Toronto
- **Dr. Eyal Cohen** – Program Head, CHES RI research program, SickKids; Co-director Leong Centre, University of Toronto
- **Dr. Padmaja Subbarao** – Co-director, Precision Child Health Initiative, SickKids; Director, CHILD Cohort Study; Associate Chief of Research, SickKids
- **Dr. Peter Gill** - Co-founder, Canadian Paediatric Inpatient Research Network ([PIRN](#)); Director, Resident Research and Scholarship Program
- Department members have held leadership roles in PAS/SPR including, most recently, Drs. Tamorah Lewis and Emily Tan
- A substantial proportion of faculty have leadership roles in large international multi-institutional collaborative research efforts, and serve as journal editors, and grant panel chairs. Amongst many are the COG (Children's Oncology Group), PIRN (Pediatric Inpatient Research Network), [TARGet Kids!](#), NIH Pediatric Toxicology Trials Network and NIH-Diabetes Clinical Trials Group, and Lancet Oncology Commission for Sustainable Pediatric Cancer Care.



Dr. Prakesh Shah receiving the PCC Clinician Investigator Award in 2023



Dr. Peter Gill receiving the PCC Emerging Academic Leader Award in 2023



Dr. Stacey Bernstein receiving the Clinician Educator Award in 2024

## Research Awards and Recognition

In addition to leadership roles, many Department of Paediatrics faculty across TASHN have been recognized with prestigious national and international awards for their scientific contributions. These include the Fellow of the American Association for Cancer Research, Royal Society of Canada (Dr. David Malkin), Fellow of the Canadian Academy of Health Science (Drs. Lisa Robinson, Meredith Irwin, Evdokia Anagnostou), Fellow of the American Society of Nephrology (Dr. Lisa Robinson) North American Society of Paediatric Gastroenterology, Hepatology and Nutrition Award (Dr. Nicola Jones), Gairdner Global Health Award (Dr. Zulfiqar Bhutta), Empowered Kids Ontario (Dr. Ripudaman Minhas), American Academy of Pediatrics Special Achievement Award

(Dr. Anna Banerji), Paediatric Chairs of Canada (PCC) (Drs. Ann Yeh, Prakesh Shah, Nomazulu Dlamini, Peter Gill, Avram Denburg, Angela Punnett, Stacey Bernstein and Indra Narang), Canadian Paediatric Society (CPS) Leadership Awards (Drs. Astrid Guttman, Natasha Saunders, Savithiri Ratnapalan, Peter Gill, Ripudaman Minhas and Peter Wong), and the Drukier Prize in Child Health Research (Dr. Sumit Gupta).

## RESEARCH PRIORITIES AND STRATEGIES

Research remains a vital part of the Department of Paediatrics' success as a global leader in child health innovation. The future of paediatric research is threatened by the continued decline in physician-scientists locally and globally. Analyses of three consecutive five-year periods since 2009 show CS and CI comprised 37%, 30% and 21%, respectively, of new faculty Department of Paediatrics recruits at SickKids, which currently has the largest Paediatrics Research Program in Canada, and one of the largest globally. The nature of paediatric research training is also at a crossroads as the scope of paediatric science continues to evolve rapidly with disruptive technology, big data science, and holistic, policy-informed approaches to determinants of child health and disease. Strategies and initiatives to replace and transform the physician-researcher landscape and workforce have been an ongoing priority for the Department. Over the last four years, the Department has continued to consolidate and/or build on the following priorities in collaboration with stakeholders at the University of Toronto, TASHN research programs, and SickKids RI:

### 1. Strategic Research Faculty Recruitment and Retention

Over the last four years, the Department has continued to focus on competitive recruitment/retention of physician-researchers by leveraging strengths and areas of growth at SickKids, TASHN and clinical divisions as well as other University of Toronto Faculty of Medicine centres including policy and data science, Genomic Medicine, developmental and social paediatrics and education technology, and the SickKids Precision Child Health (PCH) strategy launched in 2018. With rapidly evolving data science and large-scale technology, multi-disciplinary team-based science has also become increasingly important. Thus, the Department has also focused on identifying physician researchers/investigators and leaders with strengths in translation, implementation, and policy to complement discovery and biomedical programs.

Since 2019, the Department has recruited a total of 12 junior (80%) and senior (18%) CS/CI, with the goal of leadership succession and growing existing programs, while junior faculty with new skills were recruited to grow capacity in areas of innovative clinical and biomedical research. Where possible, recruitments and retention have been made in conjunction with the RI/ University of Toronto/other research centres, to build capacity and strengthen collaborations in cross-cutting programs of emerging research and clinical importance. For example, the research program of the three newest faculty (Drs. Gregory Costain, Dilan Dissanayake, and Ashish Deshwar) leverages research and clinical next-generation sequencing (NGS) data to understand the significance of rare variants using computational, cell biology, and animal model approaches. Dr. Costain's computational research focused on the prediction of pathogenic gene variants has broadly benefited discovery projects across the SickKids RI and beyond; Dr. Dissanayake's program has led to the discovery of genes important in inflammation – a major focus of fundamental research in the RI Cell Biology Program where he is strategically appointed as Scientist; and Dr. Deshwar is collaborating with clinical colleagues across divisions to create models of rare diseases in zebrafish. Finally, Dr. Devin Singh, a new clinician-investigator, and AI scientist in Emergency Medicine, is a critical collaborator for scientists at SickKids RI, TASHN, and is the paediatric lead in the [Faculty of Medicine's T-CAIREM AI initiative](#).

Between 2019 and 2023, 12 newly recruited SickKids research faculty were appointed to five RI programs. Of note 5/12 (50%) of these completed their graduate, post-graduate, or early-career research training at SickKids, underscoring the success and importance of the physician-researcher training pipeline to faculty retention and research workforce development strategy. All SickKids new faculty with CS or CI job profiles require an appointment in the RI to grant them access to space and RI resources (in addition to those from the Department) to start their lab/research program. Currently, most of the salary support for CS and CI, their administrative support, and a proportion of operating start-up funds

is from the Alternate Funding Plan (AFP) and Departmental funds (See [Section 2.8](#)). Examples of several recent strategic recruits are listed below:

**1. Gastroenterology, Hepatology & Nutrition:**

Eric Benchimol MD, PhD (Scientist, CHES), with expertise in IBD epidemiology and health services research, was recruited from CHEO to succeed Dr. Anne Griffiths, who developed and established the SickKids IBD research and clinical program. He is supported by an endowed chair, to co-lead the IBD centre that leverages rich biomedical discovery research to drive innovative therapies. He serves as an important mentor for the many trainees attracted to IBD fellowships at SickKids as well as young faculty including Amanda Ricciuto MD PhD (Scientist Track Investigator, CHES) focused on IBD and related disorders.

**2. Clinical Pharmacology & Toxicology:**

Tamorah Lewis MD PhD (Scientist, Translational Medicine and staff neonatologist) - an expert in neonatal pharmacology - was recruited from the University Kansas to lead the growth and transformation of the division. Rudd Versteegen MD PhD (Project Investigator, Translational Medicine) – dually trained in pharmacology and rheumatology - was recruited after a fellowship at SickKids to help lead new initiatives in pharmacogenomics, precision therapeutics, and paediatric drug development.

**3. Haematology/Oncology:**

Adam Yan MD MBI (Project Investigator, CHES), was recruited after a clinical fellowship at SickKids and Clinical Informatics fellowship at Boston Children's/Harvard University, to lead the implementation of EPIC-centered clinical informatics. There are also two transition scientists in the division (Drs. Grace Egan and Sarah Cohen-Gogo), both of whom have research programs aligned with precision oncology.

**4. Clinical & Metabolic Genetics:**

Gregory Costain MD PhD, Ashish Deshwar MD PhD, and Dr Yiming Wang (Scientist Track and

Project Investigators, Genetics and Genome Biology) were recruited after graduate and post-doctoral training at SickKids to develop research programs in clinical genomics, disease modeling, and cancer genetics.

**5. General Paediatrics and Hospitalist Medicine:**

Katharine Nelson MD PhD (Scientist Track Investigator, CHES) was recruited after completion of her PhD at the University of Toronto, to lead health outcomes research in palliative care. Laura Kinlin MD PhD (Project Investigator, CHES) was recruited to develop a nutrition research program in General Paediatrics and Hospitalist Medicine.

**6. Rheumatology:**

Dilan Dissanayake MD PhD (Scientist, Cell Biology) was recruited after completion of a Transition Scientist appointment at SickKids to develop a research program in rare immune and inflammatory disorders.

**7. Cardiology:**

Dr Lindsay Freud (Associate Scientist, Translational Medicine) was recruited from Columbia University to lead the fetal cardiology clinical and research program. Olivier Villemain MD PhD \*(Associate Scientist, CHES) was recruited from the Necker Hospital, France, to lead cardiac imaging.

**8. Paediatric Emergency Medicine:**

Devin Singh MD MSc (Clinician Scientist, CHES) was recruited after completion of clinical and research training at SickKids/ University of Toronto to co-lead SickKids' artificial intelligence program together with Anna Goldenberg, PhD. He also has roles in the University T-CAIREM program.

**9. Neonatology:**

Brian Kalish MD PhD \* (Scientist, Neuroscience

\*Note: Although recruited over the past 4-5 years faculty with \* have resigned from SickKids positions

and Mental Health), was recruited from Boston Children’s Hospital to lead a research program in biological mechanisms of early neonatal development.

### 10. Neurology:

Gulia Longoni MD \*(Scientist Track Investigator, Neuroscience and Mental Health) was recruited to develop research in brain imaging and inflammatory diseases.

## 2. Fellow-Faculty Transition-Scientist Program

To enhance retention of highly skilled research-focused trainees, Dr. Meredith Irwin who was the previous Associate Chair of Research, launched the Transition Scientist (TS) Program modeled after the NIH K08 awards to address gaps in the research training pipeline for senior research trainees transitioning to early research-focused faculty careers.

The goal of this program, launched in 2017, was to provide a highly structured mentored training program to foster a talented pool of senior fellows with demonstrated research productivity towards a career path as a full-time faculty within 3-4 years. Senior fellows selected after a highly competitive process are contracted as junior faculty with 80% of paid protected research time to develop or continue with an innovative research program under the mentorship of a senior scientist. The candidate is guided by regular meetings with an advisory committee comprised of at least

2-3 senior scientists and/or physician-scientists including at least one member of their selected RI research program, and the Associate Chair, Research as a career advisor. Progress and continued funding are assessed based on annual progress towards a major project publication and prospects for independent competitive external secured grant funding within the three-year duration of training. In line with staff recruitment and retention strategies, TS candidate selection aims to address future workforce gaps informed by research priorities in specific divisions and departmental, hospital, or university initiatives.

To date, this model has demonstrated great success. A total of seven senior MD/PhD fellows with clinical subspecialty training have entered the TS program; four candidates who completed TS training between 2019-2023 now hold research-focused faculty positions at paediatric academic centres (Table 5). Of these, half (50%) are now retained as staff physicians in Critical Care and Rheumatology with scientific appointments in Translational Medicine and the Cell Biology Program in the SickKids RI. Of note, due to the funding sources for this TS program applications are limited to Department of Paediatrics members at SickKids.

## 3. Mentorship Programs for Physician-Researchers in Collaboration with SickKids Research Institute

SickKids faculty have long benefited from the structured mentorship programs for clinician-researchers, a collaboration between the RI and the Department. The Scientist Track Program provides newly hired permanent faculty with a three-year mentored program in which the faculty is embedded in/near a senior scientist/ associate scientist’s research group. At least twice-yearly mentorship committee meetings are held that include the division head, RI program head, and 2-3 researchers (including potential members outside SickKids and the Department based on content expertise). Advice related to the research content and career development are critical roles for the committee. The majority of faculty “reclassify” to Scientist based on

**Table 5 Faculty-Fellow Transition Clinician-Scientists 2019-2024**

Term	Name	Subspecialty	Area of research	Current Position
1 2017-19	Dr. Fuchs	Endocrinology	Understanding the enteroendocrine system	Physician Scientist, Israel
2 2019-20	Dr. McKinnon	Critical Care	Effects of sedation on memory and learning	Clinical Investigator, SickKids Paediatrics
3 2019-22	Jack Brzezinski	Haematology / Oncology	Discovery and validation of biomarkers for renal tumors	Clinical Investigator, Seattle Children’s Hospital
4 2019-23	Dilan Dissanayake	Rheumatology	Characterization of immune genetic disorders	Physician-Scientist, SickKids Paediatrics
5 2022-	Grace Egan	Haematology / Oncology	Identification of novel therapeutic targets in AML	Transition Scientist
6 2024-	Ori Scott	Immunology and Allergy	Interrogation of STAT1-related immune dysregulation	Transition Scientist
7 2024-	Sarah Cohen-Gogo	Haematology / Oncology	Novel therapeutic trials for high-risk cancers	Transition Scientist

their mentorship committee recommendation followed by a presentation and application to the RI Appointments Committee. Since 2019 this program was also broadened to include an Associate Scientist-Track. Associate Scientists are the RI appointment for the Department of Paediatrics Clinical Investigators, with approximately 50% protected time for research. Although most new faculty begin in the TS programs for those who are hired following completion of a TS position the starting appointments may be as a Scientist or Associate Scientist based on the recommendation of the Department Chair, RI Chief, and the Appointments Committee.

PhD/MD PGY1 entrants ([C-SIP](#)) co-lead during the review period by Dr. Jim Dowling (previously Dr. Aleixo Muise)

- Development and introduction of the Research in Residency (RIR) program led by Dr. Mark Friedberg (Please see Appended description of RIR program), and now under the leadership of Dr. Peter Gill (since September 2024)
- Opportunities in the national ENRICH ([Empowering Next Generation Researchers in Perinatal and Child Health](#)) program for multi-disciplinary research
- Enrollment in the Clinician Investigator Royal College program for more senior trainees with significant research backgrounds

#### 4. Enhancing Research Education and Training Pathways in Residency

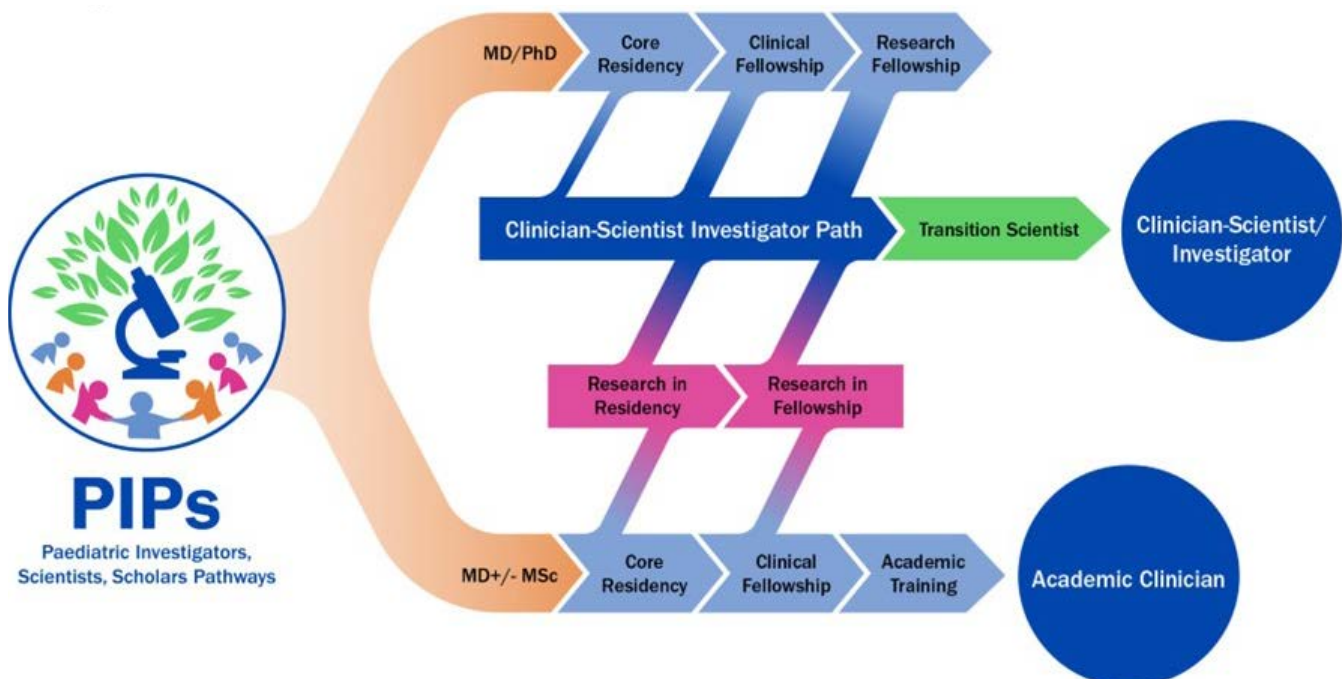
Paediatric Research Training had undergone substantial growth during the tenure of Dr. Meredith Irwin as Associate Chair, Research who had highly successful collaborations with Dr. Adelle Atkinson (prior Residency Director and current Associate Chair, Education), to create a variety of formal and informal opportunities for residents to explore or continue research interest during residency. These included:

- A dedicated CaRMS match spot for MD/PhD or

In addition to the above, senior and subspecialty-level trainees had opportunities for exposure to translational research through various organized workshops (Eureka, PAS).

To make scholarship and research an accessible and integral part of clinical training across all disciplines, under the leadership of Dr. Annie Huang, Associate Chair of Research since 2020, various existing research training pathways were consolidated and streamlined into a single umbrella training platform called PIPs (Paediatric Investigators Scholars Scientists Pathways). The PIPs platform (Figure 5) was introduced in 2020

Figure 5



and designed to improve structure and trainee engagement through more versatile research entry and experience. Trainees engaged in PIPs have opportunities for bespoke longitudinal mentorship in residency and fellowship training. Under the leadership of Drs. Dowling and Friedberg, Directors of the Basic/Translational and Clinical/Education Track, respectively, the PIPs longitudinal mentorship program aims to harness and grow the talent of trainees from varied backgrounds with significant emphasis on targeted skills acquisition through a research experience and tailored career development – including writing, funding applications, identification of networking opportunities tailored to individual professional growth objectives. To date, PIPs has created excitement and improved the visibility of the University of Toronto paediatrics training program amongst trainees with or without advanced degrees. Currently, a core resident without an advanced degree has progressed successfully through a tailored skills-targeted research experience and will continue his research towards his PhD in a bespoke integrated clinical-research subspecialty fellowship. We expect in the future to have options for the integration of selected part-time biomedical graduate degree programs into the PIPs platform to cater to a broader range of trainee career choices. A pilot program has been developed by Dr. Friedberg and Dr. Brandon Maser (Paediatric resident, PhD candidate, CIP trainee).

## 5. Advancing Integration of Clinical Research into the Research Institute

In addition to Clinician Scientists and Investigators with clinical research and trials portfolios, the Department of Paediatrics faculty with primary patient care responsibilities (>50% FTE clinical) make up a majority of the Department's workforce (~60-65%) and are critical enablers, and in many cases, leaders of clinical intervention studies such as clinical trials. Despite a lack of formal research support, they continue to be highly productive academically securing competitive peer review grants, and leading vital roles in international therapeutic studies and trials. Recognizing the substantial academic contribution of faculty primarily involved in patient care, particularly in



(From Left to Right) Drs. Justin Lam (former Paediatrics resident), Dr. Liana Figueiredo Nobre (Research Fellow), Dr. Dilan Dissanayake (former Transition Clinician-Scientist and current Staff Physician) and Erica Wennberg (PhD student).

therapeutic studies, Dr. Rulan Parekh, previously Associate Chief, Clinical Research, SickKids RI, launched SPRINT (Streamlined Pathway for Research Initiation) – a program to provide clinical researchers with services including statistical methods, ethics applications, clinical research staff training. These efforts have been continued and further consolidated by her successor and co-lead of the SickKids Precision Child Health (PCH) initiative (Dr. Padmaja Subbarao), with new support for clinical trials leadership roles (Drs. Daniel Morgenstern and Ann Yeh) in the Department of Paediatrics. Dr. Huang has also embarked on collaborations with the clinical research office at SickKids RI to develop a framework and a college of mentors with expertise in clinical research including methods and trials to address gaps in mentorship for clinical research faculty. In addition, Dr. Huang is working with RI Program Heads to develop strategies to integrate clinical faculty with clinical research interests that overlap with specific RI program areas of focus (e.g., specific diseases), for mutual education and to facilitate collaborations on clinical and translational projects that may seed team grants and other impactful projects, many of which are linked to our PCH vision. See Supplementary Report and Appendix 2.5.1 for more information regarding Clinical Research at SickKids.

## 6. Strengthening and Integrating Research Connections and Communications

Research by faculty and trainees can be conducted at any of the TASHN Departments of Paediatrics with overlapping but distinct clinical expertise and patient populations (e.g., Developmental Paediatrics at Holland Bloorview, Indigenous Health and health equity at Unity Health). Over the last 10-15 years, the number of paediatric faculty and faculty engaged in clinical and interventional research at TASHN paediatric departments has also grown. In the last four years, it has been a priority to strengthen academic and research relationships with other TASHN divisions. Initiatives have included the integration of non-SickKids faculty into various departmental committees including the Research Advisory Committee (RAC), the Department Awards Recognition Committee (ARC), and most recently, the Paediatrics Research Symposium planning committee leadership. In addition, the Department has sought to highlight the research activity at the different sites through social media, the [Department's University of Toronto website](#), engagement at the Paediatrics Research Symposium, and via nominations for national and international awards including the Paediatric Chairs of Canada (PCC) and Canada Research Chair (CRC) Awards. Through nomination efforts of the ARC over the last four years at least eight major research recognitions (including national and departmental) were awarded to faculty from Holland Bloorview, Sinai Health, and Unity Health. To enhance clinical and research collaborations, and opportunities for trainees, faculty at each of these sites are increasingly asked to collaborate and mentor trainees (including resident research projects) and junior research faculty at SickKids to enable them to expand their research scope to populations primarily served by these TASHN sites. For example Dr. Anagnostou, Research Lead at Holland Bloorview, is an important mentor and collaborator for Dr. Laura Kinlin, a recently appointed Clinician Investigator (CI), studying nutritional deficiencies in children with behavioral disorders. Research leaders at SickKids have also been increasingly engaged in strategic discussions related to research programs and institutes and participating

in direct research mentorship of junior and senior faculty at Holland Bloorview, Sinai Health, and Unity Health.

## 7. Developing a Paediatrics Research Office

The Department established a University of Toronto Department of Paediatrics Research Group within the Departmental Administrative Office based at SickKids in 2020 to fill gaps in research-related support for all faculty and trainees. These include:

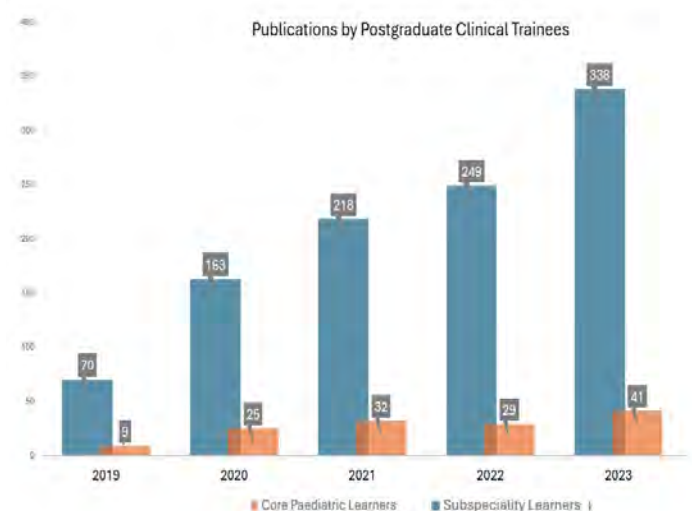
### 1. Peer support initiatives

- “Discovery Dinner Series” - informal peer networking and mentorship events facilitated by junior research faculty leads. These events aim to gather clinicians, clinician researchers and researchers, early careers, and senior trainees with varying research interest for unstructured peer mentorship and networking.

### 2. Dissemination, connecting, and informing on research across TASHN divisions

- Support the development of Annual Paediatrics Research Symposium to a well-attended education and networking event for faculty and trainees
- Support promotion of the Department's research and research faculty via social media/ University of Toronto Research web page

Figure 6A



### 3. Research education initiatives for clinical trainees

- Support the development of curriculum and programs for post-graduate clinical trainees (residents and fellows)
- Assist with research trainee awards nomination
- Work with Research training directors and Associate Chair of Research to identify competitive trainee research funding awards/fellowships

inform on future strategies to support research faculty, and research training strategies

- Data for the period of 2019-2023 indicate impressive publications from trainees across all divisions (Figure 6A, B)
- Trainees secured > \$8 million in research awards including highly competitive tri-council fellowship, Vanier Awards for doctoral research and Banting and Best postdoctoral awards (Figure 7A, B), indicating the value in supporting trainee award applications

### 4. Tracking research and research education output to inform strategies

- Support the development of a comprehensive department-wide database for research training and activity, KPIs of new initiatives and

Figure 6B

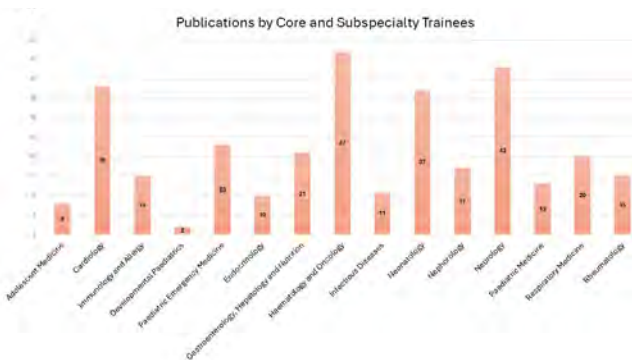
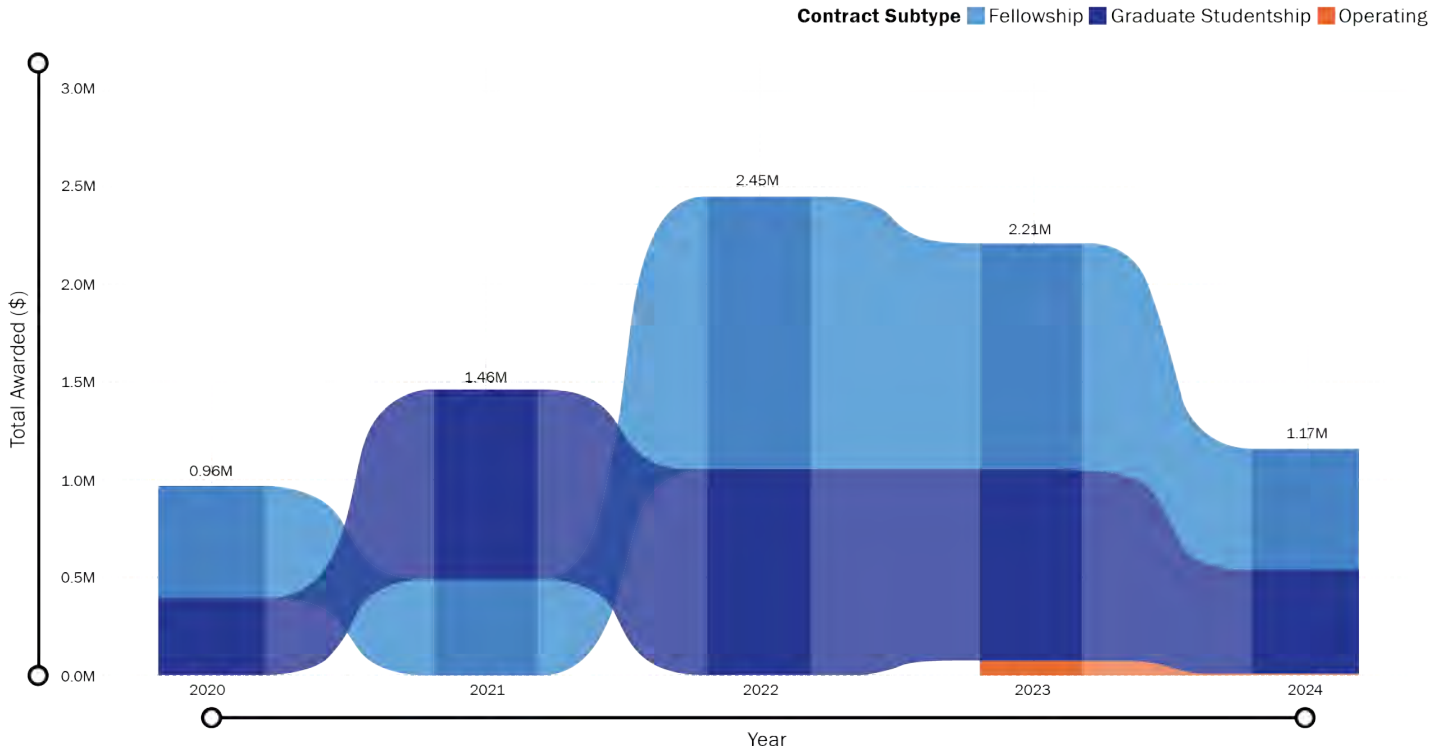


Figure 7A



Figure 7B



## OPPORTUNITIES, CHALLENGES AND FUTURE DIRECTIONS

The Department of Paediatrics has continued to thrive, grow, and remain one of the top academic paediatric units in the world. Collectively TASHN faculty rank amongst the most productive and collaborative child health researchers working with global colleagues to drive patient care informed by science. Faculty across TASHN sites represent many highly respected clinicians and researchers with expertise ranging from paediatric health policy and outcomes, developmental and rehabilitation, genomic medicine, and novel biological interventions. The Department continues to draw large numbers of highly talented and ambitious trainees that help break barriers and accelerate progress in paediatric medicine. Together with the Department's resilient faculty, they continued to be exceptionally productive despite the long shut down in Canada during the COVID-19 pandemic. While the Department has access to the best of technology and great minds, the changing faculty demographics, diminishing next generation paediatric researchers, increased cost of training physician-scientists together with inconsistent research funding and research training support, pose considerable challenges for future growth and innovation in paediatrics. Importantly, the SickKids Board of Trustees initiated a Research Subcommittee in ~2021 and Dr. Irwin (and other Clinical Chiefs) are members of this committee co-led by the Chief of Research, Dr. Scherer, and Board Trustee member Yongah Kim.

### Addressing Challenges in Research Training Path for Physician-Scientists

#### Lack of harmonized pathways for clinician-scientist training:

Medical trainees in Canada undertake one of the longest durations of training with a minimum of 10 years to complete training for general family practice (university, medical school, and residency) and an additional 3-6 years for paediatric subspecialty trainees and 8-10 years (or more) for those pursuing research training and additional advanced degrees (e.g., MSc,



(From Left to Right) Dr. Dilan Dissanayake (former Transition Clinician-Scientist and current Staff Physician), Dr. Justin Lam (former Paediatrics resident), Dr. Liana Figueiredo Nobre (Research Fellow) and Erica Wennberg (PhD student) in the SickKids Research Institute laboratory

PhD). The Department attracts some of the most competitive clinical trainees (nearly 50% of PGY1 residents/fellow had advanced research degrees including master's and PhD) however due to limited advanced pathways to support research continuation or formal research degrees, few trainees pursue advanced research training, and many others leave the country to do so. Additionally, the change in duration of training for a paediatric residency to four versus three years, is likely to influence physician-scientist training further negatively in Canada (US physician-scientist paediatric trainees in dedicated research tracks can often complete core training in 2-2.5 years if followed by subspecialty training). To address these recent changes, with Dr. Nicola Jones (Temerty Faculty of Medicine Director of Integrated Physician-Scientist Training), the Departmental Research leadership team is in initial discussions of a potential Royal College certified advanced paediatric residency pathway with contracted clinical training time combined with dedicated research time during residency (modelled after some US programs). Additional strategies include maintaining contact with University of Toronto MD PhD graduates pursuing residency and fellowship training in the US and working closely with the Department of Paediatrics core paediatric leadership team to utilize Competence by Design opportunities to provide additional research

training time for Temerty Faculty of Medicine core paediatric residents interested in physician-scientist careers.

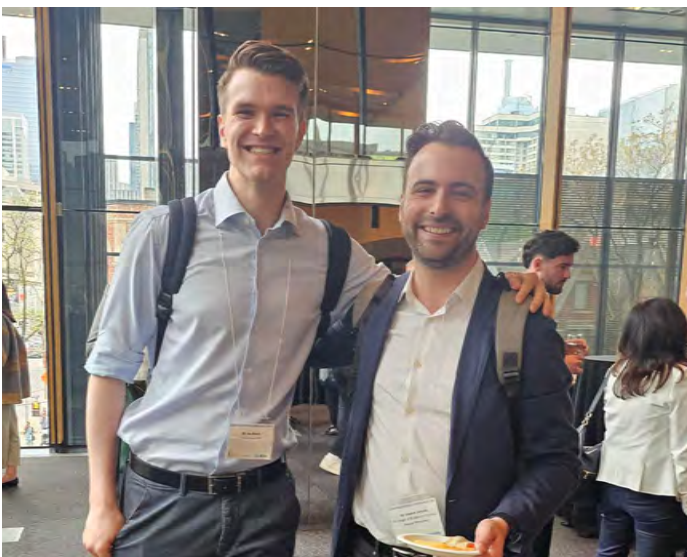
### **Mentored fellow-faculty physician-scientist training program:**

The Department of Paediatrics has demonstrated using both dedicated Departmental and combinations of “in-house” (Centers, other disease-based funds) and external new investigator funding that a fellow-faculty transition program (like the NIH K08 program) is a powerful strategy to retain the next generation of talented physician-researchers – 50% of trainees were retained on as faculty. There is a potential opportunity to expand and share the Transition Scientist (TS) program with additional funds to support salary during this transition period from SickKids/RI, TASHN partners and potentially from foundation/advancement strategic funds to support physician researcher development across the entire University of Toronto Department of Paediatrics. Additionally, some cost constraints may be alleviated via collaborative research network or programs (as discussed below), but it would be difficult to attract applicants to this physician-researchers incubator, without consistent and committed funding to continue this as a core pillar program accessible to trainees across Canada like the NIH K08/K23 model. Notably SickKids Alternate Funding Plan (AFP) funds cannot be used for these contract

development TS positions. Finally, although it has not been the norm in Canada, the Department may consider a business model in which we open the “incubator” to trainees from economically advantaged countries that have rigorous medical training, but which lack the expertise for physician scientist training. Such a model potentially has many benefits as many international trainees are already attracted by the top global ranking of the University of Toronto, SickKids, and other TASHN centres. If successful, such a model would allow the Department to maintain a program with a critical mass even if there is no competitive Canadian candidate. Furthermore, such an incubator could be a bed for health innovation and create opportunities for trainees to build their network and “cache” early.

## **Physician-Researcher Faculty Recruitment and Retention Challenges**

There are two main obstacles to maintaining and growing the physician researcher pool – 1) financial and 2) workforce. Although some of the issues highlighted below are specific challenges to SickKids, many of these may be similar across TASHN sites. First, as mentioned elsewhere in this report and in the response to the 2015 Department’s external review report recommendations, the Department’s Alternate Funding Plan (AFP) can no longer be the main source of funding for physician-scientist salaries and start up/operating funding. The AFP contract with the Ministry of Health (MOH) includes only 35% protected academic time within their FTE for research and education across the entire faculty (and this is believed to be the highest proportion across Ontario paediatric centres). With current job profiles and over one third of faculty having 50-80% research time based on their RI appointments it is difficult to meet MOH clinical metrics. Although the RI and centres have provided some start-up funding, the Department often funds nearly half of the start-up operating funds and usually 100% of the salary. Opportunities, including, but not limited to salary awards, that provide funds towards faculty’s research FTE would provide improved ability to hire part-time clinical faculty to “backfill” clinical



(From Left to Right) Dr. Ian Burns (oral presenter) and Dr. Joseph Jamnik (Hugh O’Brodivich Scholar Award presenter) at the 2024 Paediatrics Research Symposium

service. The sustainability of the model for funding clinician-researchers is particularly difficult without a new, adjusted AFP agreement for 17 years and concerns that MOH expectations for clinical service will continue to increase. Additional models are required for sustainability and ultimately, growth of the Department's academic paediatrics mandate. Beyond finances and budgetary issues, the overall workforce in paediatrics, and especially subspecialty paediatrics is decreasing due to fewer graduates choosing these specialties. A large data driven paediatric health human resource workforce initiative in the US led by [NASEM](#) has reported on the drivers and potential solutions. Importantly, the report highlights the very small and decreasing numbers within this limited pool choosing to pursue extended physician scientist training. SickKids is one of the top institutions to train and begin a career as a physician researcher. However, challenges with the AFP, and increased competition from other sites in Canada, US, and internationally will threaten the Department's ability to hire these rare paediatrician-researchers. Importantly, retention must also be a focus as many leading paediatric health science centres are aware that the Department has an incredible faculty who are frequently recruited to leadership, but also lateral, positions elsewhere.

### Advancing Growth of Research Across TASHN Paediatrics

Over the last 10-15 years, each of the TASHN paediatrics sites have grown substantially with each site having distinct focus: neurodevelopment and rehabilitation medicine at Holland Bloorview; inner city health, health inequity, mental health, and developmental disorders in adolescents and young adults at Unity Health; and perinatal and maternal health at Sinai Health, Women's College Hospital, and Sunnybrook Hospital, which draws on diverse demographics (e.g., Indigenous, newcomers to Canada). There are untapped opportunities to leverage the unique strengths of each site and build networks for powerful cross-cutting sociologic and biologic population-based research networks. Such networks could potentially provide longitudinal data ranging from preconception to adolescent and young adults



(From left to right) Drs. Annie Huang (Associate Chair of Research), Linda Hiraki, Catharine Walsh, Jim Dowling and Robert Hamilton who were 2023 Department of Paediatrics Research Awards recipients.

– adulthood (like the CHILD Study and POND Network cohorts) to study the natural history and complex environmental and genetic/biologic etiology of common, complex disorders such as mental health or other neurodevelopmental disorders. Additional areas of potential convergence include transition of children with chronic or complex medical conditions to adult care - an area of active research by many at different TASHN sites where collaborations can powerfully endorse health services policy for this patient population which is often lost to follow-up. Early work led by Drs. Alene Toulany and Julia Orkin (See [Section 2.7](#)) is an example of early pilot research and clinical implementation in this area.

Outputs from such cross-TASHN collaborations are likely to have meaningful uptake by community practitioners given the centralization of paediatrics training at the University of Toronto, historical affiliation of the majority of GTA paediatricians with SickKids and other TASHN sites, and with Temerty Faculty of Medicine paediatrics serving as centre for career development such as continuing medical education etc., and support for promotion processes. Furthermore, a portion of the topics outlined are currently within the priority of the Leong Centre, which can serve as a hub for some of these networks.



## 2.6 Network, Collaborations, and Relationships

## 2.6 Network, Collaborations, and Relationships

### Relationships: Centers and Networks (University and SickKids)

The Department of Paediatrics faculty benefit from incredible participation, collaboration and leadership roles in many centres based at the University and The Hospital for Sick Children (SickKids). Highlighted below are centres housed in the Department or have a large representation of faculty members as leaders and/or members.

#### The Edwin S.H. Leong Centre for Healthy Children

Launched in January 2020, [The Edwin S.H. Leong Centre for Healthy Children \(Leong Centre\)](#) is a partnership between the University of Toronto's Temerty Faculty of Medicine and The Hospital for Sick Children (SickKids). The Centre's vision of "harnessing interdisciplinary research to promote the flourishing of every child and family" is being achieved through three pillars of work: (1) child health intervention, (2) child policy research and (3) data science for child health equity. Embedded within the governance structure, the Centre's activities and initiatives are guided by two scientific advisories. The Scientific Leadership Advisory Council (SLAC) is a multi-disciplinary expert panel from across the University of Toronto (UofT) and provides informed direction in executing research objectives. The International Scientific Advisory Committee (ISAC) is a panel of global experts who advise the Co-Directors towards achieving the Centre's vision and mission.

Since the appointment of Co-Directors (Drs. Eyal Cohen and Astrid Guttman) in January 2020 and the recruitment of the Research Program Manager in April 2020, the Edwin S.H. Leong Centre for Healthy Children has operationalized to deliver training, education and research initiatives that address equity in the health outcomes of children and their families.

Two funding competitions are run on an annual basis to provide operational research funding for research addressing child health equity to members of the Department of Paediatrics and other departments across the University of Toronto and TAHSN.

- **Catalyst Grants:** To support multi-disciplinary teams of investigators to seize upon their most innovative, disruptive ideas and new avenues of inquiry that will have a major impact on child health equity. They are currently preparing to launch a 5th competition and have funded 15 projects since launching in 2020.
- **Studentship Award:** Operational funding for University of Toronto graduate students, post-doctoral research fellows, and clinical trainees. Since 2021 18 trainee projects have been funded.

A comprehensive program of educational opportunities through three unique series is available to anyone across the UofT community and beyond, with many lectures recorded for access through the Leong Centre's YouTube channel. As well, the Leong Centre seeks opportunities to partner with other groups across the Hospital and University to expand their network. There was an inaugural Leong Symposium at the PGCRL (Peter Gilgan Center for Research and Learning) in 2022 and a second symposium is planned for 2025.

- **Trainee Hub:** Forum for trainees (13 sessions since 2023) to learn from community partners and researchers about the foundations, ethics, and planning for community-engaged research. Community Engagement Series (12 sessions since 2020): For researchers, trainees, and community members to discuss innovative community-engaged research projects and methods.

**13**  
forum for  
trainee  
sessions  
since 2023

**12**  
Community  
Engagement  
sessions since  
2020

- **Leong Centre Rounds** (32 sessions since 2020): Hosted in partnership with the RI Program Child Health Evaluative Sciences (CHES), these rounds provide a venue for researchers, community members and policy users to showcase how they are making an impact on child health equity.

**32**  
Leong Centre  
Rounds  
sessions  
since 2020

- **2022 Leong Centre Symposium** (Nov 2022): The inaugural symposium (124 in-person attendees) was on the theme “Seizing the Opportunity: Child Health Equity Research in Post-Pandemic Recovery” with keynote speaker Dr. Cindy Blackstock.
- **Partnered Lectures:** Co-hosted lectures with the SickKids Research Training Centre, the Edwin S.H. Leong Centre for Healthy Aging at the University of British Columbia, SickKids Precision Child Health, and Statistics Canada.

**124**  
in-person  
Symposium  
attendees

The Leong Centre offers unique research training opportunities for graduate students, post-doctoral research fellows, and clinical trainees.

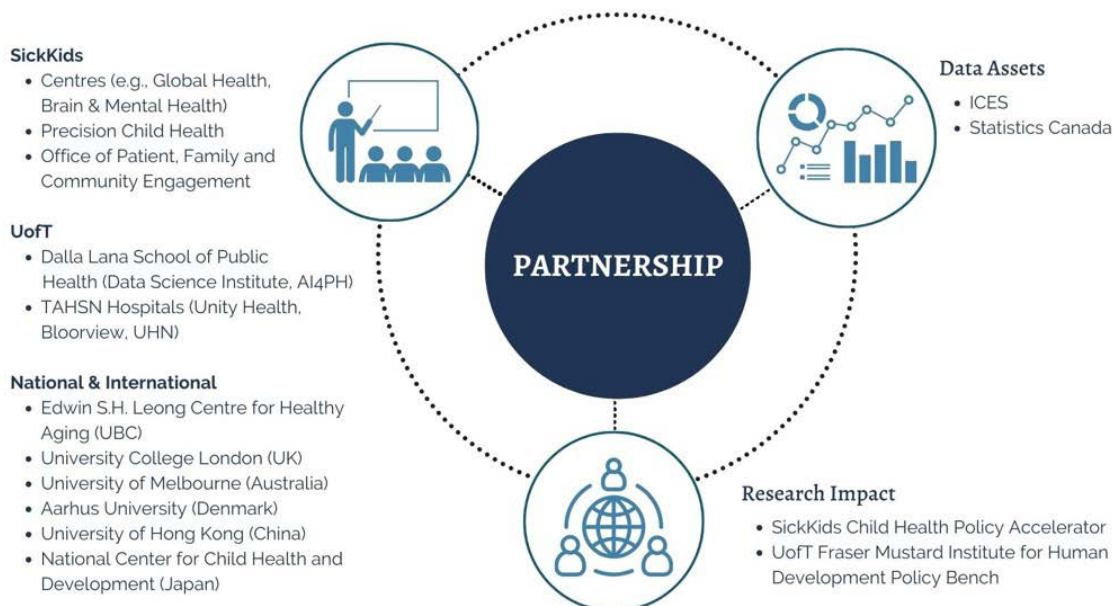
- **Leong Fellows:** Post-doctoral research fellows supervised by a Leong Centre Co-Director or

Chair. Of the four Leong Fellows, two have since received faculty appointments at their respective Universities.

- **Leong Scholars:** In partnership with the SickKids Research Training Centre, scholarships are awarded to support salary for eligible MSc and PhD student trainees through Restracom and CSTP (Clinician-Scientist Training Program) The centre is currently supporting nine Leong Scholars and two past Scholars have now graduated.
- The Leong Centre’s endowed Research Chairs are leaders within their respective fields and help to establish three core research programs and inform the strategic priorities at the Centre. Dr. Arjumand Siddiqi started July 1, 2023, in the role of inaugural **Edwin S.H. Leong Chair in Child Policy Research**
- Dr. Catherine Birken started February 2021 in the role of inaugural **Edwin S.H. Leong Chair in Child Health Intervention**

The Leong Centre collaborates with several departments across the University of Toronto and The Hospital for Sick Children and partners with other institutions, healthcare organizations, and communities with the goals of shared learning and leveraging strengths.

- **Local:** Partnering on events, advisories, joint



recruitment, and in-kind support with the following:

- **SickKids:** Precision Child Health, Office of Patient, Family & Community Engagement, Child Health Policy Accelerator, Research Training Centre, Centre for Brain and Mental Health.
- **University of Toronto:** Dalla Lana School of Public Health, Fraser Mustard Institute for Human Development Policy Bench, OISE, Munk School, Lawson Centre
- **Other:** Holland Bloorview Kids Rehabilitation Hospital, Unity Health Toronto, Institute for Better Health (Trillium Health Partners)
- **National:**
  - Close working relationship with the **Edwin S.H. Leong Centre for Healthy Aging at the University of British Columbia** that includes joint lectures and a workshop (2025).
  - **Statistics Canada:** Co-hosted a six-part lecture series in 2022/2023 to support deeper use of national cross-sectoral data relevant to child health and well-being.
- **International:**
  - Establishing an international network in child health equity research with an early goal to facilitate international training exchanges for PhD and post-docs to enhance their program of research. The Leong Centre hosted the first international training exchange at SickKids in May 2024 (Dr. Ania Zylbersztejn, University College London).
  - Dr. Astrid Guttmann presented a “*State of the Nation of Canada’s Children*” at the UK Academy of Medical Sciences – Policy Workshop in February 2024. A joint statement, endorsed by the Leong Centre, was released calling to improve child health and wellbeing, and address inequities.

- Centre members are a network of individuals involved in health equity research supporting the Centre’s vision. The Leong community of practice is engaged through bi-monthly newsletters and social media channels.

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### Current programmatic and recruitment milestones for 2025:

- Edwin S. H. Leong Chair in Data Science for Child Health recruitment for a fully endowed Chair at the Dalla Lana School of Public Health, University of Toronto is planned for July 2025 posting. will start July 1, 2025.
- Hosting a second symposium at SickKids in October 2025 on the theme of “Health and Education”
- Launching a Social Epidemiology Workshop in Spring 2025, hosted by Dr. Arjumand Siddiqi (University of Toronto) and Dr. Silvia Stringhini (University of British Columbia)

## Joannah & Brian Lawson Centre for Child Nutrition

The Joannah & Brian Lawson Centre for Child Nutrition (Lawson Centre), based at the University of Toronto, brings nutrition researchers and healthcare providers together with public and community health experts and multiple global resources to address the nutrition of children in Canada and around the world. The centre is a network of scholars and educators working to improve child health and prevent obesity, malnutrition, and chronic disease. The Centre's affiliates are drawn from the Departments of Nutritional Sciences, Paediatrics, Community, and Family Medicine and University-affiliated hospitals. The Lawson Centre aims to improve nutrition knowledge and literacy, with initiatives in medical training, community engagement and international research collaborations focused on gathering excellent knowledge and putting it into policy and practice.

The Lawson Centre supports many research, education and policy development activities including the annual Food as Medicine Update, the Lawson Seminar Series and special microbiome seminars, the Lawson Nutrition Centre Digital Series, the lifestyle medicine program and culinary medicine workshop for undergraduate medical students, a biannual newsletter, Public Policy and Nutrition Collaborative Grants, Advancing Public Policy briefs, the Parkdale Infant Nutrition Security Targeted Evaluation Project (PINSTEP) and the Feeding Kids, Nourishing Minds School-based Research Initiative (FKNM).

**Faculty members from the Department of Paediatrics are integral to the Lawson Centre for Child Nutrition, contributing in various capacities such as steering and planning committees, working groups, and leading child nutrition research funded by the Centre.** They also facilitate nutrition medical education initiatives like the Food as Medicine Update, Lawson Centre Nutrition Digital Series, and Culinary Medicine, while serving as Chairs and Lawson Distinguished Fellows.

Recently, the Raymond Chang Chair in Nutritional



Dr. Jessie Hulst



Dr. Jonathon Maguire



Dr. Meta van den Heuvel



Dr. Chris Tomlinson



Dr. Zulfiqar Bhutta

Medical Education was established to enhance child nutrition training and resources for clinicians, including medical residents and fellows. This inaugural chair is currently held by **Dr. Chris Tomlinson** (Department of Paediatrics, SickKids Neonatologist). Additionally, **Dr. Jonathon Maguire** (Department of Paediatrics, Unity Health General Paediatrician) serves as the Lawson Chair in Patient Engagement in Child Nutrition, focusing on patient-oriented research. Among the Lawson Distinguished Fellows from the Department of Paediatrics are **Drs. Jessie Hulst** (Gastroenterology, Hepatology & Nutrition), **Meta van den Heuvel** (General Paediatrics), and **Zulfiqar Bhutta** (SickKids Centre for Global Child Health).

All of this work has been fully funded, co-funded or seed-funded by the Lawson Centre, which consistently values the world-class skills and active contributions of Pediatrics faculty members working on child nutrition topics. The relationship between the units is characterized by a strong alignment of goals and priorities. Many pediatric faculty members also actively participated in the Lawson Centre's 2023 External Review and 2024 strategic planning processes. Paediatrics faculty have taken key roles in Lawson Centre advancement efforts to secure growing donor support and benefitted from matching grants and funding commitments from the Lawson Centre to secure external funding for large-scale research projects. Although early funding of the Centre required initial contributions from the Department of Paediatrics (and other clinical departments) the Centre has not required ongoing departmental funding.

## SickKids Centres

Centres were created over 15 years ago to integrate care, research, and education. After the establishment of the inaugural Labatt Family Heart Centre, nine additional Centres were created. The Hospital currently has nine Centres (three of which are named by donors) – **the Labatt Family Heart Centre, the Garron Family Cancer Centre, the Hurvitz Centre for Brain & Mental Health,** the Centre for Global Child Health, the Centre for Healthy Active Kids, the Transplant Centre, the Pain Centre, the Inflammatory Bowel Disease Centre, and the Cystic Fibrosis Centre. The centers in bold are the largest (based on funding and size/scope) and the Department of Paediatrics division heads lead or co-lead them. Each Centre is unique in its operational structure and the resources available to them. Centres are reviewed approximately every five years and when relevant, may be reviewed at the time of a Departmental divisional review (usually when the centre head/co-head is the Division Head).

The purpose of a Centre is to integrate care, research and education across SickKids and allow a group of like-minded individuals to come together around a common aim/interest/disease without being bound by operational or functional silos. Centres for the most part were developed bottom-up. They are governed by the Centres Review Committee which is co-led by the Chief of Research and either the Chief of Surgery or the Chief of Paediatrics (served by the Chief of Paediatric Dr. Irwin since 2022) and includes a subset of the Senior Management Committee as well as the Director of Foundation Relations, Marie Bomba. The Centre Heads meet regularly to discuss common issues and look for opportunities to collaborate and streamline efforts (e.g., seed grant competitions, and education opportunities). Recently, Centres have engaged in discussions to determine how they align with the SickKids strategic plan and key institutional initiatives – Precision Child Health, big data/AIM, mental health, virtual care, and child health policy/advocacy. In most centres, philanthropic funds related to education and research in the area are centralized in the centres and these

funds are managed by the centre executive and administrative team.

### Labatt Family Heart Centre

[The Labatt Family Heart Centre](#) at SickKids is among the top three heart centres in the world, driving innovation that consistently leads to better outcomes for patients with heart disease. The Centre is led by an executive that includes Dr. Mike Seed, Division Head, Cardiology (other MD Executive members include Chiefs of Cardiac Surgery and Cardiac Critical Care).

The Centre is leading Paediatric cardiac research including translational work that combines basic science and clinical care, particularly in the areas of genetic modification of disease and regenerative/restorative therapies. Twenty-three staff Cardiologists in the Division of Cardiology are Centre's Principal Investigators.

The Centre also offers one- to two-year funded research fellowships for \$55K CAD/year. Fellowships commence each academic year, and the focus is to enhance cardiology research (basic, clinical, translational) among trainees, and to develop a career in the field of cardiology. These can be held by trainees across the Department of Paediatrics but also other Departments.

### The Garron Family Cancer Centre

[The Garron Family Cancer Centre \(GFCC\)](#) at SickKids is the largest paediatric oncology centre in Canada. The Centre brings together scientists, clinicians, and educators across multiple disciplines to advance the diagnosis, treatment and outcomes of children, adolescents, and young adults with cancer. The Department collaborates closely with the GFCC with faculty members integral to various unique and highly specialized oncology research and education initiatives and programs. The Centre is led by Dr. James Whitlock, Division Head, Haematology/Oncology; four of the six medical (MD) GFCC Executive Council members are Department of Paediatrics faculty.

A generous new gift of \$15 million over 15 years from the Garron family, beginning in 2021, supports high high-priority needs of the Centre as well as the four Garron Family Chairs in Childhood Cancer Research, two of which are currently held by the Department of Paediatrics faculty in the Division of Haematology/Oncology, Drs. Sumit Gupta and Uri Tabori. Since 2016, the centre has funded the development and partial operating funds for the Precision Oncology SickKids Cancer Sequencing (KICS) program, which has enabled next-generation sequencing approaches (gene panel, RNA sequencing, and whole genome sequencing) for pediatric patients with relapsed/refractory cancer and possible germline predisposition. To date, approximately 800 patients have been enrolled in KICS, which is now part of the national sequencing program PROFYLE.

## The Gary Hurvitz Centre for Brain & Mental Health

[The Garry Hurvitz Centre for Brain & Mental Health \(GH-CBMH\)](#) at SickKids cultivates the multidisciplinary integration of clinical care, research, and education to improve the outcomes of children and youth living with brain and mental health disorders. Since 2023 the Centre has been co-led by Dr. Elizabeth Donner, Division Head, Neurology (with Dr. Louise Gallagher, Psychiatry). Several core programs of the GH-CBMH fall within the Division of Neurology; associate programs sit within Adolescent Medicine and Neonatology.

The GH-CBMH holds several award and catalyst grant competitions. Examples of recent catalyst-funded projects led by Department of Paediatrics faculty include:

- **Dr. Rosanna Weksberg:** DNA methylation as a predictive biomarker of psychosis in 22q11.2 deletion syndrome
- **Dr Catherine Birken:** Improving neonatal development and parental mental health by addressing poverty – the Financial Navigator Program
- **Dr Linda Hiraki:** Investigating the genetics

of anxiety and depression in children and adolescents with systemic lupus erythematosus

## The Centre for Global Child Health (CGCH)

Global child health is the health and well-being of children everywhere, independent of geographic borders. SickKids [Centre for Global Child Health \(CGCH\)](#) provides a dedicated hub for global child health-focused activities and connects researchers and health-care professionals around the world. The Centre is dedicated to improving the lives of children and their families in low- and middle-income settings with limited resources through education and capacity-building initiatives as well as collaboration in ground-breaking research, and by informing policy through the active use of advocacy, knowledge synthesis and knowledge translation.

In 2023, Dr. Shaun Morris, Infectious Diseases, Department of Paediatrics, Senior Scientist in Child Health Evaluative Sciences and Mining4Life Chair in Global Child Health at SickKids was appointed as Co-Director of the CGCH. Dr. Morris joins Dr. Zulfiqar A. Bhutta, Inaugural Robert Harding Chair in Global Child Health at SickKids who co-leads the Centre's novel research, advocacy, and global collaborations. Dr. Morris provides oversight for all Centre activities and Dr. Bhutta directs research activities for the Centre. Both Dr. Morris and Bhutta are world-renowned experts in maternal, newborn and child health. Moving forward CGCH is working on a new strategic plan, and priorities and continues to develop collaborations and partnerships with other centres, including the Leong Centre.

## Centre for Healthy Active Kids

[The Centre for Healthy Active Kids \(CHAK\)](#) brings together clinicians, researchers, and educators to investigate the underlying mechanisms that impact childhood obesity and its related conditions through innovative research projects, and a wide range of programs related to healthy lifestyles, including the prevention and treatment of type-2

diabetes in children, and exploring how changes in diet, environment and physical activity can improve metabolic health. The Centre is led by Dr. Jill Hamilton, Division Head, Endocrinology. Key staff include Dr. Catherine Birken (General Paediatrics); Dr. Brian McCrindle (Cardiology); Dr. Alene Toulany (Adolescent Medicine); Dr. Catherine Walsh (Gastroenterology, Hepatology & Nutrition). Several CHAK projects have received funding, including several new collaborations involving fundamental and applied scientists from SickKids, the University of Toronto, and the international scientific community. One example is [TARGet Kids!](#) (The Applied Research Group for Kids) cohort (Drs. Catherine Birken, and Johathon Maguire (Unity Health)); a primary care practice-based research network which leverages Canada's extensive primary care practice model to study children and discover the factors which may be interfering with their health, growth and development.

## Transplant & Regenerative Medicine Centre

The SickKids [Transplant and Regenerative Medicine Centre \(TRMC\)](#) is Canada's most research-intensive paediatric transplant program, and the largest centre dedicated to comprehensive transplant care. Case volumes are now within **the top five per cent of centres in North America**, and survival rates match or exceed the best programs. With a staff that includes professionals from all disciplines of health care and research, the TRMC provides the best in complex and specialized care by creating scientific and clinical advancements, sharing knowledge and expertise, and advocating on behalf of children who need transplant care. The Centre's executive leadership is comprised Department of Paediatrics faculty from five divisions with specific expertise across TRMC programs and disciplines:

- **Dr. Upton Allen** – Interim Medical Director, Transplant and Regenerative Medicine Centre; Division Head, Infectious Diseases
- **Dr. Anne Dipchand** – Medical Director, Heart Transplant Program; Staff Cardiologist, Division of Cardiology

- **Dr. Chia Wei Teoh** – Medical Director, Kidney Transplant Program; Staff Physician, Division of Nephrology
- **Dr. Vicky Ng** – Medical Director, Liver Transplant Program; Paediatric Gastroenterology, Division of Gastroenterology, Hepatology & Nutrition
- **Dr. Melinda Solomon** - Medical Director, Lung Transplant Program; Staff Respiriologist, Division of Respiratory Medicine
- **Dr. Yaron Avitzur** - Director, Group for Improvement of Intestinal Function and Treatment (GIFT). Medical Director, Joint program in Intestine Transplantation (UHN & SickKids); Interim Division Head, Division of Gastroenterology, Hepatology & Nutrition

## SickKids Cystic Fibrosis Centre

The mission of the SickKids Cystic Fibrosis Centre is to drive therapy discovery and the clinical application of new therapies, care, and education for cystic fibrosis (CF) that benefit children and youth around the world. Harnessing new technologies in large-scale genomics, and therapy validation in patient-derived tissues, Centre researchers and clinicians have provided a comprehensive understanding of the disease and helped move new, personalized CF therapies into the clinic.

The Centre is led by Dr. Felix Ratjen, RI program Head for Translational Medicine, Paediatric Respiriologist, and former division head of Respiratory Medicine. The Executive Council has physician representatives from the Divisions of Respiratory Medicine, Infectious Diseases, and Gastroenterology, Hepatology & Nutrition.

## Inflammatory Bowel Disease (IBD) Centre

[The SickKids IBD Centre's](#) overall goal is to optimize the health and lives of children and youth with IBD and their families locally and globally by integrating world-leading innovative



research that translates into new diagnostics, treatments, precision care, and disease prevention; a biopsychosocial approach to clinical care; and training and mentoring of the IBD care professionals and scientists of the present and the future. The Centre has been co-lead by two members of the Division of Gastroenterology, Hepatology & Nutrition Dr. Aleixo Muise and Dr. Anne Griffiths together with the former Cell Biology Program Head Dr. John Brummell. Both Drs. Muise and Griffiths have significant research programs. Of note, the centre leadership will be re-evaluated when the new Gastroenterology Division Head recruitment is finalized. The center leadership have international roles including Dr. Muise as co-lead for the interNational Early Onset Paediatric IBD Cohort Study (NEOPICS), which uses next-generation sequencing and modelling approaches to identify novel genes and targetable pathways. The consortium was recently awarded renewed funding (2020-2025) from the National Institutes of Health.

Dr. Griffiths has been the PI of the [Canadian Children IBD Network \(CIDSCANN\)](#) - 12 academic paediatric IBD centres that enroll and follow outcomes for newly diagnosed IBD (Crohn's and ulcerative colitis) cohorts prospectively. The Centre more recently also has initiated Lassonde, The Gary Hurvitz Centre for Brain & Mental Health

## Programs

### SickKids Child Health Policy Accelerator

The SickKids Department of Paediatrics [Child Health Policy Accelerator](#) started in 2023/2024, is Canada's first hospital-based applied child and youth health and social policy initiative. It aims to close the gap between "what we know" is effective in optimizing the well-being of children and youth, and "what we do" to attend to the needs of young people in the provincial and federal public policy space.

The Child Health Policy Accelerator is designed to:

- **Enable change** by leveraging the expertise, resources, and reputation of SickKids to enable clear and focused policy objectives designed to deliver positive evidence-based change for children and youth in Canada
- **Train the next generation of change-makers** through formal instruction, project-based consultation, and longitudinal advocacy experiences for current and future maternal and child health leaders. To date, the Accelerator has initiated formal mentorship roles for two ENRICH fellows.

[The Child Health Policy Accelerator](#) employs a structured and rigorous process to set policy objectives. Comprehensive strategies are developed and applied to each area of focus, ensuring a high-impact approach to equitable, evidence-based policy change. Dr. Charlotte Moore-Hepburn (Hospitalist Pediatrician and former Canadian Paediatric Society president) is leading the Accelerator with a director with policy and government experience. Current policy priorities for the upcoming year(s) approved by the Accelerator's advisory board include the following:

- (1) Expanding Health Canada's Investigational Status Assessment (ISA) pathway to allow for full exemptions from regulatory oversight for paediatric clinical trials studying only Standard of Care (SOC) Therapies
- (2) Advance paediatric-friendly Precision Drug Regulation by defining paediatric-sensitive Foreign Decision / Reliance pathways
- (3) Reduce the public health risk associated with synthetic nicotine The Accelerator also can re-evaluate priorities based on unexpected or timely opportunities that may arise with discussion with the advisory board.

## Policy Accelerator - Case Study

### Vaping among Canadian youth aged 15-19 nearly tripled in just seven years, with 63% preferring fruit-flavored vapes.

In May 2024, the Accelerator sent a letter addressed to the Honourable Mark Holland, Minister of Health regarding protecting the health and well-being of Canadian youth from the dangers of nicotine addiction. Because some nicotine products do not contain tobacco and are not inhaled, they fall outside of provincial and national tobacco and vaping legislation. It is widely known that children and youth are particularly vulnerable to the negative effects of nicotine, which include addiction and damage to their still-developing brains.

In response, Health Canada invited the Accelerator members involved in this initiative (Dr. Charlotte Moore-Hepburn (Accelerator Lead), Drs. Victor Do and Mirriam Mikhail (former General Paediatrics chief residents), Dr. Kevin Weingarten (Residency Director), Dr. Alia Sunderji (Paediatric Emergency Medicine), and Dr. Trisha Tulloch (Adolescent Medicine)) to participate in an intimate stakeholder consultation, hosted by David Lee,

Health Canada's Chief Regulatory Officer and Stephen Norman, Health Canada's Director General of the Natural Health Product Branch; Accelerator members served as the only "pediatric representatives" in the 18-person conversation. By working with community partners and the government to suppress the marketing and sale of flavoured nicotine products, as of August 2024, these products can only be sold from behind pharmacy counters and some flavours are banned.

Restricting the marketing and sale of flavoured nicotine products is just one of several critical policy areas affecting children and families. Canada lags behind international leaders in implementing health and social policies that best serve children, marking the urgent need for better coordination between health care and government.

In addition to the Policy Accelerator and the centres highlighted above there are many other programs, which are smaller in scale, scope, and funding but have had critically important roles in many divisions, supporting research, education, and clinical care (including the FAAP (Food Allergy and Anaphylaxis Program) and Autoimmune Research Program).





## **2.7 Creative Professional Activity and Clinical Innovation**

## 2.7 Creative Professional Activity (CPA) and Clinical Innovation

### Overview and Leadership

The Department of Paediatrics focuses on providing comprehensive, patient and family-centered care that addresses the unique needs of children and their families. The Hospital for Sick Children (SickKids) emphasizes the importance of multidisciplinary approaches, integrating various specialties to ensure holistic comprehensive treatment plans. A key priority is enhancing accessibility to high-quality healthcare, ensuring that all children, regardless of their background, receive the best possible care. The Department of Paediatrics is comprised of 18 clinical divisions and short summaries for each Division are included in [Section 3.0](#).

Dr. Jeremy Friedman is the Associate Paediatrician-in-Chief at SickKids (and Associate Chair Department of Paediatrics, Clinical) and oversees a portfolio that covers the inpatient clinical care delivery provided by departmental faculty at SickKids. He is the current co-chair of the hospital MAC (Medical Advisory Committee) and serves on committees including Senior Management, Quality Management, Board of Trustees, and Board Quality and Safety. He also mentors and advises full time clinical faculty going through the triennial CDCP (Career Development and Compensation Programme) review process, and University promotions (for all predominantly clinical faculty). He also chairs the Departmental CPA Grant Competition.

Dr. Mark Palmert was appointed the inaugural Associate Chair of Ambulatory Services effective April 1, 2018, for the Department of Paediatrics. In his role, Dr. Palmert champions the culture and practice of outpatient clinical excellence for the Department in collaboration with the VP, Clinical Programs. Dr. Palmert has been instrumental in creating the hospital's ambulatory care strategic plan and works closely with divisional clinic leaders

to optimize operations. Furthermore, he has had a critical role in leading us through the transition to virtual care over the past five years.

Ambulatory Care is overseen by the Ambulatory Steering Committee (ASC), a structured platform for interdisciplinary collaboration and decision-making across the ambulatory and outpatient clinic areas within SickKids. The primary objective of the ASC, aligned with the SickKids strategic directions, is to move priorities forward, establish and monitor priority KPIs, champion initiatives, and address issues related to ambulatory services. It aims to improve patient care, enhance operational efficiency, and promote innovative solutions through cross-disciplinary representation and engagement. The ASC is co-chaired by Dr. Palmert and Christine Clarke, Clinical Director, Ambulatory Operations.

In this section, there is a brief selection of clinical data (SickKids) to highlight overall patient populations (inpatient and outpatient) with a focus specifically on those services provided by faculty from the Department of Paediatrics. Previous external reviews (2010, 2015) included mainly aggregate hospital data, but current data tools now allow for the reporting of specific Department of Paediatrics data. For the purposes of this review the Department's individual divisions and faculty from TASHN partner sites have described their clinical activity and achievements in [Section 3.0](#), and thus, this section will only highlight a few of the many creative professional and clinical innovation activities as examples. These focus on clinical care, but many also include components of research and education.

### Clinical Statistics

The Hospital for Sick Children (SickKids) sees more unique diagnoses and provides more unique procedures, programs, and services than any other paediatric hospital in Canada. With over 30 distinct programs and services, SickKids provides near-exclusivity in over 200 procedures.

Clinical divisions within the Department of Paediatrics at SickKids are the sole or largest

provider of many programs and services provincially, and at times nationally. While some programs are not unique as per the specific service delivered, they care for the most complex and challenging subsets of patients with a particular diagnosis thus serving a critical role for the paediatric care across Ontario. Many programs require collaboration between paediatric medical and surgical specialists both within SickKids and across TAHSN.

## Inpatient Clinical Activity

From fiscal years (FY) 2020/2021-2023/2024 inpatient clinical activity for services within the Department represented approximately 60% of the total discharges and 73% of patient days for all of SickKids. Within the review period, discharges from SickKids Department of Paediatrics services specifically totaled 60,658 and remained relatively consistent year-over-year (Figure 1).

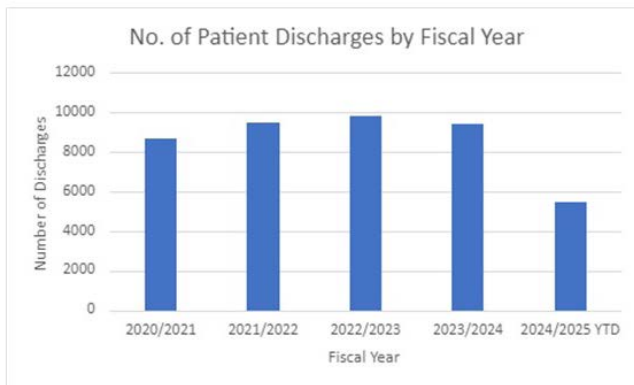


Figure 1: Number of Paediatric Discharges by Fiscal Year, Department of Paediatrics Patient Services, SickKids

The Department cares for some of the most fragile and complex patient populations at SickKids. Throughout the review period, the average HIG weight<sup>1</sup> for inpatients cared for within the Department of Paediatrics' services was 3.10 compared to 2.64 for the hospital overall. From FY2021/2022 to date, there has been a 15% increase in the average HIG weight of patients

<sup>1</sup> HIG weight is a measure of a patient's resource intensity and case mix, adjusted for patient characteristics. It's used to calculate the expected length of stay (ELOS) for acute care inpatient cases in Ontario.

cared for by Department of Paediatrics' services (Figure 2). Comparatively, the hospital has seen a 9% increase in the average HIG weight during this time.

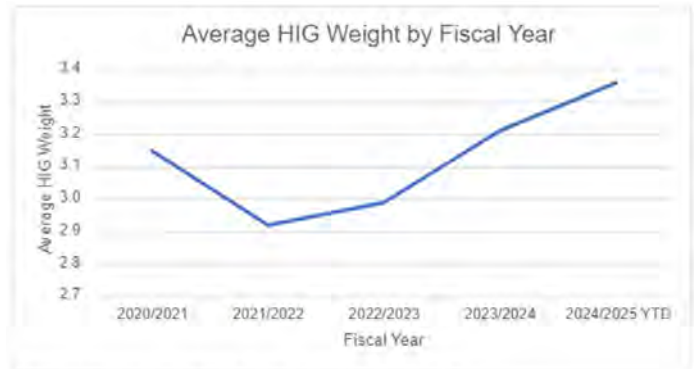


Figure 2: Average HIG Weight by Fiscal Year, Department of Paediatrics Patient Services, SickKids

With increasing complexity, Department of Paediatrics services saw a rise in patient days (length of stay) from FY2020/2021 to 2023/2024 as well as average length of stay (Figure 3 A, B). Of note, significant reductions in overall length of stay had occurred over the years prior to 2020.

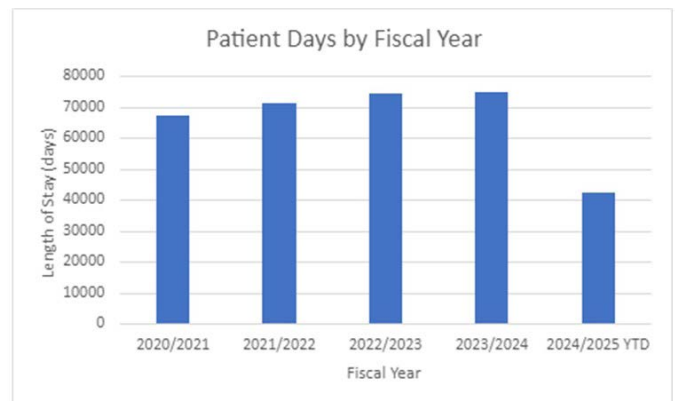


Figure 3A: Patient Days (length of stay) by Fiscal Year, Department of Paediatrics Patient Services, SickKids

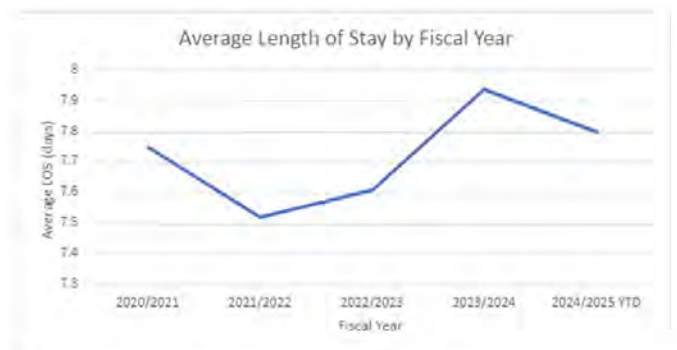


Figure 3B: Average Length of Stay (days) by Fiscal Year, Department of Paediatrics Patient Services, SickKids

The average length of stay (ALOS) in FY2023/2024 was 7.94 compared to 6.44 for the hospital overall. The difference may be in part attributed to specific patient populations. For example, the average length of stay of neonates throughout the review period was 15.83.

All inpatient clinical activity data were derived from the HIM Coding Discharge Abstract Database, SickKids.

## Ambulatory Clinical Activity

Overall, 83% of patients seen in the Department of Paediatrics at SickKids in FY2023/2024 had at least one ambulatory visit and 60% of patients only had an ambulatory visit during this period. For additional information about Ambulatory Clinical Activity see Appendix 2.7.

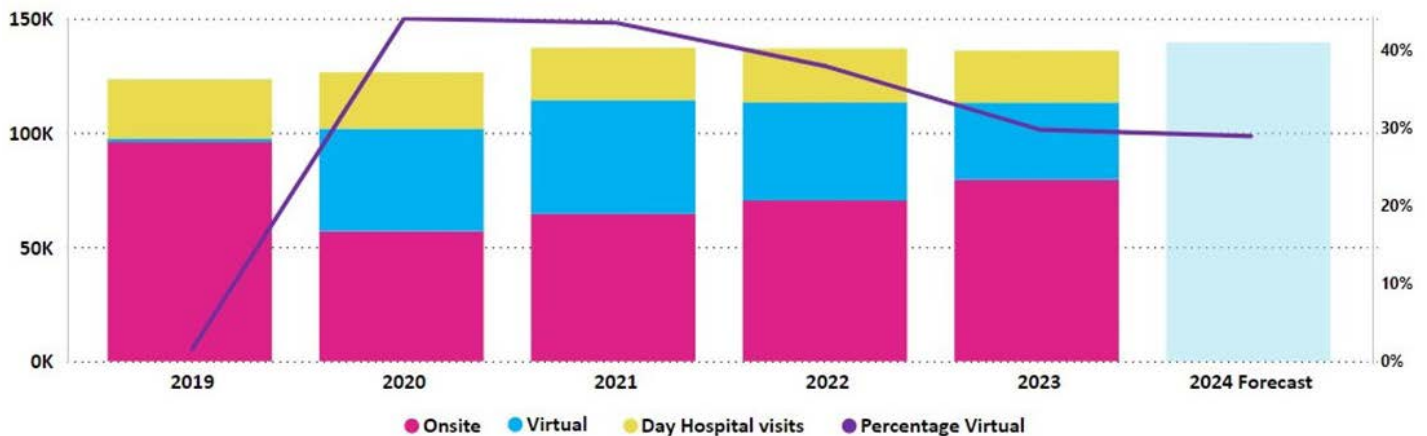


Figure 4. Total Outpatient visits (Completed), SickKids Department of Paediatrics 2019-2024


### Virtual Care

The development of a departmental virtual care strategy became one of the top priorities to strengthen clinical care models across the health system. The COVID-19 pandemic accelerated the timetable on this strategic priority with transformational progress in converting many clinic visits to 'virtual' technology. As an example, in Oncology, the number of virtual clinic patient visits/day for the month of April increased from ten to over three hundred in 2020 compared with 2019. Virtual Care is a key strategic priority for the Hospital with a target rate of utilization at 30% of all outpatient visits.

Continued efforts to facilitate virtual care modalities align with patient and family preferences. In 2023, of the 139,154 outpatient appointments completed in the Department of

Paediatrics at SickKids, 25% were virtual. This equates to an annual savings of approximately:

 **4,993,998 KM** of patient travel

 **1.3K tonnes** of carbon emissions (from travel averted) = 170 homes' energy use for 1 year

 **\$2.5M** total patient and family travel costs

Additionally, clinical services are piloting various remote care management pathways including 'severe asthma' and 'home peritoneal dialysis' from proof of concept.

## Emergency Medicine

From April 1, 2020-September 31, 2024, the Emergency Department (ED) at SickKids saw a total of 277,201 unique visits. For the same period:

- The median length of stay at SickKids ED was 272 minutes (approx. 4.5 hours)
- The average time for a patient to be attended to by a physician was 137 minutes
- The average time for a patient to complete Triage was 34 minutes
- 36,432 (13%) of all patients presenting to the ED required hospital-level care (admit, transferred to another facility, transferred to OR)
- 11,067 (4%) patients who presented to the ED returned within 72 hours
- 17,498 (6.5%) patients who presented to the ED left without being seen by a physician

## Physician Billing

Physician professional billing in the Department of Paediatrics is managed by a central team of six billing associates. The team is responsible for billing all physicians' services (inpatient, outpatient, procedures), providing physician education and reporting for up to 375 departmental physicians.

In 2018, SickKids transitioned to Epic Systems and the Department was the first Canadian site to integrate physician billing within Epic. The operations team was instrumental in developing the framework and logic to optimize billing by leveraging documentation pathways. Over the past five years, billing revenue has increased year over year, with an average fiscal year increase of 6%. This increase likely reflects some increase in complexity, in addition to billing efficiency. Of note, the Department receives a total of 22% of all billings from the Ministry of Health

(MOH). In addition, the MOH uses billings, which are known to be suboptimal in paediatrics and especially for medically complex patients, as a surrogate to measure physician activity.

## Creative Professional Activity (CPA) Highlights

### Supporting Academic Clinicians: The Creative Professional Activity Grant Competition

The Creative Professional Activity (CPA) Grant Competition was introduced in 2005 to encourage and promote the clinical academic scholarship activity and careers of the members of the Department of Paediatrics.

The Competition is open to all clinical departmental faculty, priority being given to junior faculty whose roles involve a significant amount of clinical time. Faculty are encouraged to submit innovative research approaches to improving the scholarly care of patients, as well as clinically relevant projects that will have a direct impact on better care for patients and families. Successful grant winners over the last decade have a strong record of publishing their work in high impact peer-reviewed journals, presenting nationally and internationally and leading to external funding for further work in the area of study. Importantly these projects have also

CONGRATULATIONS TO THE 2024 SPECIAL CALL GPA GRANT WINNERS!



#### QUALITY IMPROVEMENT DR. PIERRE-PHILIPPE PICHÉ-RENAUD

##### Infectious Diseases

Identifying and Addressing Immunization Gaps Amongst Children with Medical Complexity: A Quality Improvement Initiative

Co-Investigators: Caitlyn Hui, Shaun Morris, Julia Orkin, Eyal Cohen, Erin Brandon, Sarah Mauti



#### INFORMATICS DR. AMY ZIPURSKY

##### Paediatric Emergency Medicine

Breaking new ground in Pediatric Elbow Fracture Diagnosis and Interpretation using AI (PEDI-AI)

Co-Investigators: Kathy Boutis, Andrea Doria, Jennifer Stimeec, Devin Singh



#### EQUITY, DIVERSITY & INCLUSION DR. MIRIAM WEINSTEIN

##### Dermatology

Increasing representation of patients with skin of colour in SickKids' dermatology-focused content on AboutKidsHealth

Co-Investigators: Alexandra Pennal, Beth Gamulka



resulted in many rapid innovations in models of care and advances in practice with a direct impact on children at SickKids and elsewhere. On average there are 10-15 applications per competition with 8-9 applications funded with an average budget for each grant of approximately \$10,000. Feedback is given to the investigators and unsuccessful grants that have important clinical impact and potential for success are given guidance on revising and resubmitting their proposals.

**In 2020, special calls were introduced to recognize the departmental strategic priorities as well as unique funding challenges for academic clinicians engaged in CPA related to Equity, Diversity & Inclusion, Virtual Care, as well as COVID-19. Subsequent calls for projects focussed on Quality Improvement and Medical Informatics were introduced in 2023-2024.**

## Quality Improvement

### Choosing Wisely

Established in 2016, the SickKids Choosing Wisely Program aims to improve high-value health care by reducing the overuse of tests and treatments in Paediatrics. Currently, the program is led by Dr. Jeremy Friedman (Associate Chair Paediatrics, Clinical) and Dr. Olivia Ostrow (Paediatric Emergency Medicine QI Lead). Over the past eight years, the program has published four recommendation lists with a total of 19 initiatives targeting unnecessary tests and treatments that clinicians and patients should question in a tertiary care hospital. Each initiative represents an independent QI project with implementation strategies led by SickKids clinicians across various medical and surgical specialties, pharmacy, and laboratory medicine. The Program was the second hospital in Canada (first children's hospital) to be recognized at the highest level and is currently



(From left to right) Dr. Olivia Ostrow, Lauren Whitney, and Dr. Jeremy Friedman

listed as a national hospital leader by Choosing Wisely Canada, in addition to being designated as a Leading Practice by Accreditation Canada (2024). Both achievements reflect the Program's deep commitment to reducing overuse through organizational leadership, culture change and mentorship. The Program also has a strong track record of scholarly output in high-impact journals (e.g., Journal of Pediatrics, Pediatrics) and national and international dissemination through clinical tool development and platform presentations. Despite the pandemic, the Program launched a Community of Practice (CoP) which includes a webinar series held quarterly. The CoP has grown to over 300 members in five years with representation from most of the academic children's hospitals across Canada. There has been a focused effort to engage paediatricians at community hospitals interested in resource stewardship by widening the applicability of topics and tapping and leveraging existing community paediatrics networks and City-Wide Rounds (GTA). As part of an initiative to integrate Choosing Wisely principles into resident education, lecturers are asked to include one slide in their presentation listing a Choosing Wisely recommendation that is relevant to their field/presentation. Two recent examples of published projects include (1) Improved process for diagnosis and management of urinary tract infections in children (Ostrow et al, Pediatrics, 2022) and (2) review of Choosing Wisely Framework, including 15 examples of successful initiatives (Friedman et al, Pediatrics and Child Health, 2023).

## Centre for Quality Improvement and Patient Safety (CQuIPS)

The Department encourages learners to participate in the Centre for Quality Improvement and Patient Safety (CQuIPS), where they can gain first-hand experience in quality improvement initiatives. Through this participation, learners acquire crucial skills in patient safety, quality of care, and system-level improvements—an essential component of modern medical practice. By engaging with CQuIPS, learners are better equipped to implement and advocate for high standards of patient care in their future careers, and many of them move on to leadership roles in QI in their clinical areas. In addition to learners, faculty can also gain advanced training certificates in fellowship programs. Dr. Olivia Ostrow, Division of Paediatric Emergency Medicine is co-Director for CQuIPS; Dr. Beth Gamulka, Division of General Paediatrics and Hospitalist Medicine is the Associate Director.

Participants by the Years (Fall 2020 to Present)

Cohort	Divisions	Faculty	Trainees
2020/2021	11	31	77
2021/2022	15	37	124
2022/2023	13	27	65
2023/2024	13	24	90
2024/2025	12	26	80

Faculty and learners participate from across the Department of Paediatrics with a total of 18 paediatric divisions /subspecialties programs represented to date.

### CQuIPS Scholarly Accomplishment Examples from the past year:

#### Respiratory Medicine

- Abstract at European Respiratory Society conference in Milan, Italy September 2023
- Publication in Pediatric Pulmonology Sept 2024: <http://doi.org/10.1002/ppul.27274>

Title: Screening for E-Cigarette Use in Patients with Cystic Fibrosis and Primary Ciliary Dyskinesia



CQuIPS Fellows with Dr. Trisha Tulloch (Supervisor, Adolescent Medicine)

#### Dermatology

- Abstract at Pediatric Dermatology Research Alliance (PeDRA) in Atlanta, GA November 2023

Title: Quality Improvement in Pediatric Dermatology: Increasing rate of usage and documentation of Eczema Area Severity Index (EASI) and Patient-Oriented Eczema Measure (POEM)

#### Paediatric Emergency Medicine

- Abstract at Canadian Pediatric Society (CPS) in Vancouver, BC June 2024 and presentation during the CPS President's Lecture and Awards for Excellence

Title: Improving Language Concordant Care in the Paediatric Emergency Department

## Networks

### Regional Networks

Hosted at SickKids, the **Toronto Regional Maternal and Child Health Network (TRN)** is one of six regional networks in Ontario focused on strengthening linkages among maternal-child healthcare providers with the goal of improving health outcomes and equity.

The TRN is initially focused on strengthening inter-hospital partnership and improving access, flow and education across hospital-based health services in the Toronto Region. As part of the

TRN, the governance structure includes the **GTA Neonatal-Paediatric Clinical Committee** (formerly the GTA Chiefs and Operational Leads Committee), consisting of clinical and operational leadership from SickKids, Holland Bloorview, and 15 community hospitals from across the GTA. During the pandemic this group collaborated on patient care operations across the system as well as practice and scholarly updates. Post pandemic the Network has transitioned to delivery of monthly speaker sessions to enhance situational awareness and improve access to care. Examples of monthly speaker sessions include:

- **Paediatric RSV immunization**, including discussion around standard immunization protocols across facilities, resulting in more consistent patient care and improved resource allocation
- Transitional care and respite beds to improve bed utilization through coordinated access protocols, reducing wait times and improving patient transitions between facilities
- Best practices around paediatric measles management to strengthen regional response capabilities and treatment consistency
- Share and align on **Paediatric Viral Surge strategies**, by discussing an integrated response strategy enabling hospitals to collectively manage patient volumes during peak periods, including clear transfer protocols

Aligning on system capacity optimization and discussing data-driven forecasting for anticipated surges, allowing proactive resource allocation and staffing adjustments

## The Paediatric Inpatient Research Network

Established in 2019 by Department of Paediatric faculty Drs. Peter Gill (Vice-Chair) and Sanjay Mahant (Chair), the [Paediatric Inpatient Research Network \(PIRN\)](#) is a Canadian research network dedicated to generating evidence and building research capacity to improve care and outcomes for hospitalized children in the General Paediatric Inpatient Unit. With a focus on conducting pragmatic, multi-centre trials and observational studies in partnership with patients and families,

PIRN is playing a critical role in advancing the field of paediatric hospital medicine across Canada. **PIRN comprises members from all children’s academic centres from Newfoundland to British Columbia and community hospitals, including many in the Toronto Academic Health Science Network (North York General Hospital, Trillium Health Partners, Scarborough Health Network, William Osler Health System, Unity Health).** Patient partners, trainees, researchers, and healthcare professionals are all integral members of PIRN. PIRN’s Trainee Advisory Committee is heavily involved in the research mentorship and education of new clinicians and researchers to build the next generation of child health clinician researchers in paediatric hospital care.

**Since its inception in 2019, PIRN has secured over \$27 million in grants as principal investigators, including CIHR, and authored over 35 publications, including in high-impact JAMA journals.**

Currently, more than 18 studies are taking place at multiple sites in Canada. PIRN was awarded a highly competitive ‘new network’ grant from the CIHR-funded Advancing Clinical Trials network to advance trials in paediatric hospital medicine. PIRN leads and partners with other Canadian paediatric research networks, such as POPCORN and PERC, on national collaborative child health research. Drs. Gill and Mahant established an international network in paediatric hospital



PIRN network at the 2022 Annual meeting held at SickKids

medicine, [INSPIRE](#), which includes research networks from Canada (PIRN), the USA (PRIS), Australia and New Zealand (CIRCAN), and the UK and Ireland (GAPRUKI). Drs. Gill and Mahant leveraged PIRN to obtain Ministry of Health funding to expand the adult [GEMINI](#) Ontario hospital data analytics network at Unity Health, led by Drs. Amol Verma and Fahad Razak in the Department of Medicine, to include children and youth and create GEMINI-Paediatrics to realize the vision of an Ontario paediatric hospital learning health system.

## Novel Emergency Department and Urgent Care: Virtual ED and RAPP clinic

### The Emergency Virtual Urgent Care (VUC) platform went live April 2021, with approximately 14,600 encounters in 2022.

Notably, planning for this initiative began pre-pandemic but was accelerated as a high priority as the pandemic began. The platform directs patients to either seek emergency care, see their primary provider, or launches a first-come first-serve virtual visit with a PEM (Paediatric Emergency Medicine) provider. A symptom checker supports this efficient self-triage. Initial survey data indicated:

- **89%** of families responded as feeling “at ease” after the encounter
- **95%** of families know the next steps in their care, and 77% felt their experience was the same or better than if seen in person.

Moreover, **64% would have sought care in an ED if the virtual care had not been available.** This aligns with the target of transitioning 5-10% of in-person ED. This has reduced ED overcrowding and will become an increasingly important decanting and triage strategy as volumes grow. Many of the virtual care platforms developed by hospitals (CHEO, LHSC, UHN) at the beginning of the pandemic have now closed or reorganized into regional services; SickKids VUC platform has remained a sustainable and cost-effective service, which continues to grow and become a model for provincial expansion.

Between April 2021 and September 2024, the Virtual Urgent Care Clinic attended to a total of

**10,728 patients (Figure 5). Total ED patient encounters during this period (ED and Virtual Urgent Care) totaled 242,266.**

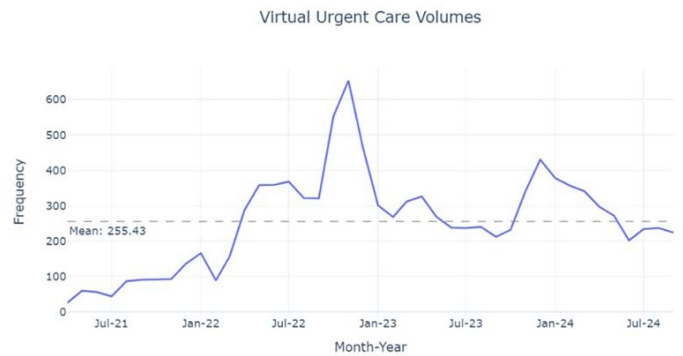


Figure 5: Virtual Urgent Care Volumes

In Fall 2022, the ED experienced unprecedented number of visits. In response, RAPP clinic was launched based on data driven insights. The Rapid Assessment of Paediatric Patients (RAPP) clinic, staffed by an emergency physician and a flow coordinator, operates during peak ED arrival times. Patients are selected prior to ED triage using a novel self-triage, screening tool built in partnership with [Hero.AI](#) based on low acuity and low resource need. Patients and families move to a detached, purpose-built, rapid-turnover clinic. Early metrics suggest very high patient, family and provider satisfaction, cost-effective care delivery, and a minimum diversion of 20% of low acuity patients with opportunity for growth. RAPP can be scaled seasonally to reduce ED overcrowding. Of note the development of Hero AI was spearheaded by SickKids Paediatric Emergency Medicine staff physician, Clinician Investigator and Assistant Professor Dr. Devin Singh during his Paediatric Emergency Medicine fellowship training.

## Transition to Adult Care (TAC)

Transition is a challenging process for many youth with complex health conditions and their families. Increasingly, youth with medical complexity are living into adulthood and require transition from paediatric to adult services. Currently, there are challenges identifying caregivers for complex care patients and many subspecialty (or multi-specialty) medically complex patients once they “graduate” from Paediatric Departments and programs at age 18. The TAC Program and advisory council

is co-led by Department of Paediatrics clinician investigators Dr. Alene Toulany (Adolescent Medicine), Julia Orkin (Complex Care and Hospitalist General Paediatrics) and Department of Medicine Endocrinologist and Sunnybrook CMO Dr. Ilana Halperin with sponsorship from Chairs of Departments of Paediatrics and Medicine. An internal and external environmental scan revealed a notable gap in supports addressing the unique transition needs of youth who have medical complexity, multimorbidity and/or rare diseases, in addition to social complexity. Early stakeholder engagement with youth, caregivers and providers validated the need for intensive transition supports for these vulnerable patient populations. In 2022, a CIHR research grant and SickKids' Foundation funds were acquired to evaluate two new models of care to address this gap. Early program development focused on engagement with key stakeholders to co-develop the models, hiring an interdisciplinary team, developing a robust evaluation framework and building relationships with external partners in primary care and adult services. Current efforts are focused on collecting data for patients in the transition age range and clinical details (collaborating with SickKids Data office and Dr. Lillian Sung's team to utilize the SickKids Enterprise-wide Data in Azure Repository (SEDAR , described below).

The foundation of the TAC program is based on [Ontario Health's Quality Standard: Transitions from Youth to Adult Health Care Services](#). Released in 2022, these quality standards outline what high quality care should look like for youth transitioning to adult services. In alignment with SickKids' strategic direction of Individualizing Child and Youth Health Care, the TAC Program's vision is to *“empower and support youth at highest risk for poor transitional outcomes, and their caregivers, by using an individualized and holistic approach to transition from paediatric to adult care.”*

## Novel Therapeutics

SickKids is an international leader in the development and application of novel, advanced therapeutic approaches. While many of these therapies are delivered as a part of clinical

trials there are also an increasing number being prescribed (for inpatients and outpatients) via compassionate access or as a new standard of care, which may or may not be covered by the government (OHIP). These therapies are increasingly informed by genetic or molecular profiling as part of SickKids' Precision Child Health (PCH) initiative. Importantly, these often-complex treatments require major efforts from faculty and their teams to access and deliver an increasing number of medications. In addition, SickKids is often the only site in Ontario, and sometimes all of Canada, with access to some of these unique treatments. To advance the PCH agenda the Department needs to support clinical teams (across multiple divisions) to develop the programs and systems required to implement this care. This often includes teamwork from physicians, NPs, pharmacist and drug navigators and many others. Developing frameworks and resources for delivering these novel therapies to inpatients (and outpatients) needs to be a priority over the next 3-5 years and may require an additional physician leadership role within the PCH initiative to champion implementation of these treatments.

### Case Study: Paediatric Neurology

SickKids Neurology is a world leader in the development and delivery of precision medicine for rare disorders. The Neurology Division team has been involved in pioneering new innovations in care and bringing new treatments to the point of care. The success of this integration is reflected in two recent multi-disciplinary clinical programs: the novel therapies/rare disorders clinic and deep brain stimulation clinic. The rare disorders clinic is an inter-disciplinary initiative that is bringing research advances to the point of care: e.g. Brineura (cerliponase-alpha) for children with a subtype of Neuronal Ceroid Lipofuscinosis (CLN2) under the direction of Drs. Elizabeth Donner and Mahendra Moharir and NPs Elisa Nigro and Ivanna Yau, and Spinraza (Nusinersen) for children with spinal muscular atrophy (SMA), under the direction of Dr. Hernan Gonorazky and NP Elisa Nigro. The former involves Neurology partnering with Metabolic Genetics, Neurosurgery and the day-surgery unit team. The latter requires

Neurology collaborating with multiple partners including genetics, day-surgery unit, image-guided therapy section of Diagnostic Imaging, respiratory, orthopedics, Holland Bloorview team, and adult neuromuscular teams. In addition, Dr. James Dowling successfully implemented an N=1 single-patient phase 1 trial. This trial, which delivered gene replacement therapy to one Canadian patient with an ultra-rare disease (hereditary spastic paraplegia type 50), is likely the first of its kind in the world (Dowling, et al, Nature Medicine 2024). It will serve as the critical model for the development of individualized therapeutics at SickKids and will position SickKids to be a world leader in this emerging area of medicine. See [Section 3.0](#) for further examples of novel therapies.

## Health Informatics, Artificial Intelligence & Machine Learning Initiatives

The Department has had a focus over the past four years on identifying and developing faculty members with interests in the spectrum of health informatics and artificial intelligence (AI) and as part of this focus and redefining job profiles e.g., considering adding a profile within the Academic Clinician role that has a health informatics track. Some examples of faculty with a academic emphasis in informatics and AI are described below:

- Two recent subspecialty graduates, Drs. Amy Zipursky (Paediatric Emergency Medicine) and Adam Yan (Haematology/Oncology) completed the Boston Children's Informatics Master's program and are now on faculty.
- Dr. Dan Rosenfield (Paediatric Emergency Medicine) completed his MSc in Health Informatics at University of Toronto (Dalla Lana School of Public Health), and his leadership has been key to the success of the virtual ED and multiple registry and ED patient data collection initiatives.
- Drs. Lillian Sung (Professor Department of Paediatrics, Oncologist and Clinician Scientist) and Devin Singh (Assistant Professor Department of Paediatrics, Paediatric Emergency Medicine and Clinician Investigator) have leadership roles that span the transition

from informatics to AI. Dr. Singh is co-leading the Hospital's AI in Medicine initiative and has developed novel machine learning algorithms that streamline efficient and safe ED care. An example of Dr. Sung's work as Chief Clinical Data Scientist is described in the case study below.

The work of these individuals together with other leaders and committees at SickKids and in collaboration with SickKids Chief Data Officer Rachel Solomon is moving the Department towards better data collection for use in both operational/ QI and research purposes. Goals moving forward include better access to data for research projects, systems to enable all faculty to leverage data for their patient populations for clinical care and research, and the development internally of a training program (fellowship) for paediatricians interested in pursuing careers that combine their subspecialty with health informatics or AI. For the past two years, the Garron Family Cancer Center has had a competition for an AI fellowship (1-2 years) after core haematology/oncology training. In addition, the T-CAIREM (Temerty Centre for Artificial Intelligence Research and Education in Medicine) Catalyst Program in the Temerty Faculty of Medicine, University of Toronto provides additional connections, collaborations, and opportunities for both training/education and funding for faculty work on AI projects. The Department has also had several recent invited Department of Paediatrics speakers in this area including keynotes for both the Department's Research Day and 'We all Belong' EDI continuing education event over the past two years.

As an important goal for the next five years the Department of Paediatrics needs to strengthen the ability to collect and utilize data – both for academic/research purposes but also to better support physician activities with respect to patient complexity and workload. At SickKids and in the Department more widely this should align well with hospital and university initiatives and lead to important data for provincial Ministry of Health discussions related to both compensation (AFP) but also need for additional HHR (physicians, NPs, PAs, etc.) and a variety of academic and QI projects.

## Case Study: Paediatric Hematology/Oncology

Drs. Yan and Sung have created the PREDICT (Pediatric Real-world Evaluative Data Sciences for Clinical Transformation) program to develop machine-learning models to integrate into clinical care. This program leverages Dr. Sung's development of symptom screening tools and earlier success in creating a validated data warehouse (SEDAR, SickKids Enterprise-Wide Data in Azure) structured to support machine learning using data extracted from SickKids her (Epic) daily. The SEDAR initiative was funded by the Garron Family Cancer Center (GFCC) to enable paediatric oncology EHR-based machine learning which supports QI initiatives that evaluate symptom management, medication or test (lab, imaging, etc.) utilization and accelerates clinical and translational research that require clinical data extraction from the EHR. The SEDAR data warehouse is not restricted to oncology applications and is broadly available for use across the institution. The PREDICT team's first proof-of-principle matching learning project evaluating "Prevention of Weight Loss in Paediatric Oncology Patients Using Machine Learning: Advancing Precision Child Health." Several other machine learning QI and academic projects are planned and awaiting the results of internal and external funding applications. Some examples of high-priority projects in development are those that identify (1) patients at increased risk of vomiting after admission to the Oncology and BMT services; (2) patients likely to be admitted for >15 days; (3) patients likely to require a drug with a pharmacogenetic indication. Each of these are in different stages of development, which include retrospective analyses, silent trials and ultimately implementation into clinical care. Expansion of these prediction models to other divisions and disease groups will be a departmental and institutional priority and will be done within SickKids' AI governance framework.

## Clinical Care Challenges and Future Directions

We have made great progress in caring for complex patients with novel approaches to inpatient and outpatient care across the Department. These innovations have resulted in improved quality of care and outcomes. Challenges and future directions for the next five years for both inpatient and ambulatory care are as follows:

**1. Evolve models of inpatient care with optimal organization of teams with staff, trainees, PAs, NPs, allied health:** Multiple factors are driving this priority, including reduced numbers of trainees /trainee work hours and increased complexity of patients, Different models that continue to utilize physician "extenders" such as PAs, NPs may be needed across subspecialties, hospitalist wards and ED. It will be important to collaborate with hospital leadership to create and evolve these models at SickKids and with Department members across the GTA to optimize location for care, especially during surge periods.

Implementation of PCH therapies will also require different models of care to enable medication access and delivery.

- 2. Planning for a new ambulatory model and campus:** With a planned split campus where majority of outpatient care will be in a different building (in approx. 5-8 years) it will be important to evaluate optimal care models for ambulatory clinics. The ambulatory portfolio is working to optimize clinic workflow including focusing on scheduling and room utilization and highly involved in planning for the new models required to provide care across two non-contiguous sites as part of the Project Horizon campus re-development.
- 3. Informatics and data:** There is a strong need to work towards a better integration of operational EHR planning/resources and acquisition and access to data to inform research, machine learning approaches, and optimal clinical care to support a true learning health system. Robust EHR data should also be leveraged to support the Department's Ministry

requests for additional physician business cases and other HHR FTEs.

**4. Maximizing partnerships and networks across the Department and GTA:** The clinical leadership team continues to address referral-related needs to improve referral data quality (e.g., access to wait times), and workflows through partnership with Epic teams and establishing referral management standards of practice. Overall, with increasing complexity of patients across the general pediatric service and the majority of the subspecialties it is critical to build increased collaborations with community hospital and office based specialists. This will include building bridges with many former trainees who now work in the community and many divisions have prioritized these partnerships for advancing their subspecialty clinical care, teaching and research across TAHSN.

**5. HHR at SickKids and subspecialties:** As mentioned throughout this report and the divisional summaries recruitment and retention are major challenges. Due to the highly specialized care provided at SickKids these challenges are further exacerbated by the need to identify and successfully

**“There is a strong need to work towards a better integration of operational EHR planning/ resources and acquisition and access to data to inform research, machine learning approaches, and optimal clinical care to support a true learning health system.”**

recruit (and retain) sub-sub specialists (e.g. in Cardiology - interventional cardiologists, imaging specialists, fetal and electrophysiology specialists in addition to general cardiologists). The Department is often competing for these highly trained faculty with other large academic centers in Canada, but more commonly internationally. Furthermore, in some divisions the specific expertise for a rare but complex population often is a single or very few physicians, leading to vulnerabilities with departures. While developing highly subspecialized sections of divisions has been critical in providing expert care for unique patient populations, HHR planning must include succession planning and strategies to have resiliency in our divisional programs.



GTA Chiefs



## 2.8 Finance Report

## 2.8 Finance Report

The Department of Paediatrics combined (Temerty Faculty of Medicine and The Hospital for Sick Children (SickKids)) annual budget amounts to approximately \$107M (F2024/2025). These funds are mainly composed of revenue from the Ministry of Health funding the Physician Alternate Funding Practice Plan (AFP) (\$93.4M). Other annual revenues include the University of Toronto Temerty Faculty of Medicine (\$3.6M), SickKids (\$3.3M), other billings (international and out-of-province patients) and external revenue (\$3.2M), SickKids' Foundation (\$2M) in restricted funding focusing on departmental clinical fellowship salaries, and Research Institute (RI) funds (\$1.5M).

Outside of the Department of Paediatrics operating budget, the SickKids Foundation and the University of Toronto Advancement Office provide targeted (restricted) funding contributing to numerous academic and research initiatives. The Temerty Advancement Office provided two main philanthropic gifts during this reporting period: (1) the Edwin S.H. Leong Centre for Healthy Children (\$20M), and in 2023, a gift of \$500,000 was received from Open the Joy, Inc. directed to the existing expendable Education and Research Trust Fund, to specifically support research activities in a lab focused on atypical hemolytic uremic syndrome (aHUS). The SickKids Foundation provides restricted funding of approximately \$2M annually that is directed to support both the Department's clinical and educational academic mission (clinical fellowship salaries and prescribed medical education initiatives) for the Department and University partners.

During this reporting period, the Department of Paediatrics has endured a structural deficit, stemming from an operational shortfall from faculty and administrative/education support salaries and commitments for unfunded academic and education activities and partnerships.

The five-year budget projection for the University of Toronto portion of the Department of Paediatrics budget increases to a projected cumulative deficit of \$4.9M in year five (FY2029/2030).

Ongoing pressures to ensure alignment for a shared academic vision and achievement of common goals with the Department's TAHSN (Toronto Academic Science Network) hospitals and community partners remains one of the greatest challenges for the Department of Paediatrics to ensure the reach and support can be maintained and expands into the future. Currently, a significant portion of the Temerty budget (Table 2) supports medical education (with additional funding provided from the AFP).

The Department's practice plan currently provides funding for 219 FTEs. At present, the structural operational deficit with the Physician Practice Plan (Alternate Funding Plan, AFP) remains critical, with close to 40 FTEs unfunded in addition to an additional unfunded expense of 1.7% (\$1.5M) in sessional contracts (clinics, weeks on service) to meet clinical demand. In addition, the Department provides an additional \$4.5M (57.9 FTEs) for unfunded clinical fellowships and currently Physician Assistant Salaries are also supported by the AFP. The current SickKids AFP practice plan has not been renegotiated since 2007. It is expected that the new Practice Plan will be renegotiated (potentially via mediation or arbitration) with the Ministry of Health (MOH) in F2024/25, and this new contract will hopefully provide the much-needed relief to stabilize the ongoing human resources pressures and stabilize recruitment and retention pressures. In multiple discussions, presentations and briefings presented to the MOH with support from partners at the Ontario Medical Association Provincial Negotiations Task Force the Department has outlined the data to support the need for the repair of salaries to the 75th percentile for general and subspecialist paediatricians.

There are two streams to increase MOH funding to the AFP: (1) repair /re-negotiation and (2) separate applications and negotiations for additional positions or business cases. Between 2021-2023 the Department successfully negotiated for 25.5 FTE new positions to potentially offset part of the current 40 unfunded FTEs. Although funding letters from MOH were sent the new funds have not been received. It is further anticipated that funding for

these faculty positions through the approved business cases will be provided by the MOH to help offset the clinical staffing pressures (current unfunded FTEs) partially contributing to the ongoing structural deficit for the Department of Paediatrics.

The Tables below provide a four-year summary review of the Department of Paediatrics financial position:

Figure 1: Fiscal 2024/25 Budget – Sources of Revenue and Expenditure

(Abbreviations: PMCR, Physician Medical Coverage Replacements (NPs, PAs, Clinical Associates))

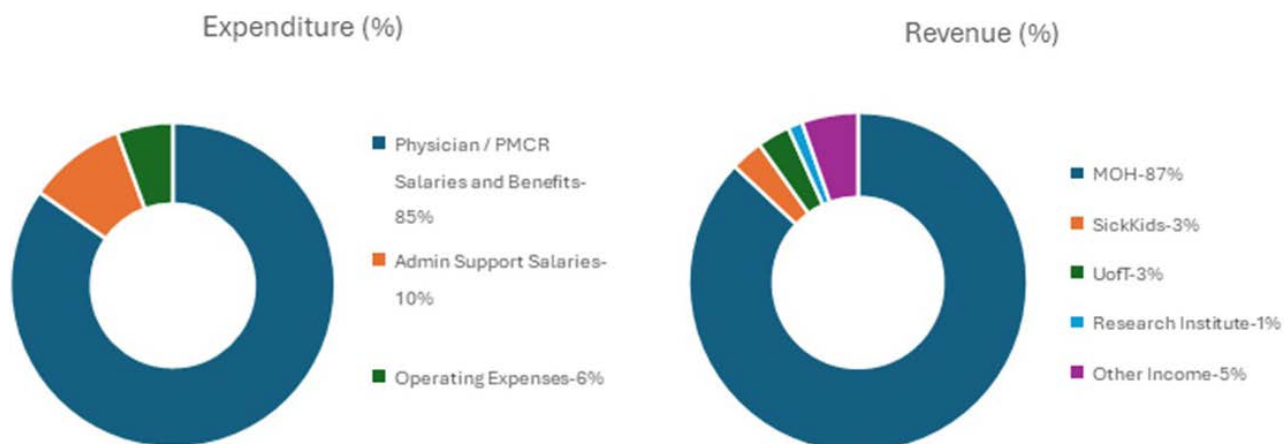


Table 2: University of Toronto 5 Year Forecast – Abbreviations (T&R, Teaching and Research)

For the years ending March 31					
(\$ Thousands)	2025/26	2026/27	2027/28	2028/29	2029/30
<b>Revenue</b>					
Net Base Budget	\$857	\$831	\$806	\$782	\$758
T&R	1,180	1,180	1,180	1,180	1,180
Resident Funding	1,328	1,369	1,411	1,454	1,496
Other Revenue - Internally Reallocated	330	330	330	330	330
	<b>\$3,694</b>	<b>\$3,710</b>	<b>\$3,727</b>	<b>\$3,746</b>	<b>\$3,765</b>
<b>Expenses</b>					
<u>Operating</u>					
Billed Salaries and Benefits	\$644	\$666	\$689	\$712	\$737
Dept of Paeds Admin/Finance Leadership Support (Shared with SickKids)	320	328	337	345	355
Resident Funding Allocated	1,129	1,164	1,200	1,308	1,347
Internal Reallocation of Other Revenue	325	325	325	325	325
Paeds Grad and Resident Functions, and Departmental Research Day	88	90	93	96	99
Resident Exams, Licensing, and Memberships	119	126	132	140	148
Other Operating Expenses	75	75	75	75	75
<u>T&amp;R</u>					
Appointed Salaries and Benefits	1,236	1,292	1,350	1,411	1,474
Billed Salaries and Benefits	289	302	315	330	345
	<b>\$4,223</b>	<b>\$4,367</b>	<b>\$4,516</b>	<b>\$4,742</b>	<b>\$4,903</b>
<b>SURLUS/DEFICIT</b>	<b>(\$529)</b>	<b>(\$657)</b>	<b>(\$788)</b>	<b>(\$997)</b>	<b>(\$1,138)</b>
<b>Cumulative</b>	<b>(\$1,364)</b>	<b>(\$2,021)</b>	<b>(\$2,809)</b>	<b>(\$3,806)</b>	<b>(\$4,944)</b>

Table 3: Paediatrics Revenue for the past 4 Fiscal Years

For the years ending March 31				
(\$ Millions)	2023/24	2022/23	2021/22	2020/21
<b>Revenue</b>				
MOH				
Core & HOCC	\$89.5	\$90.1	\$87.6	\$89.3
One-Time Funding	1.9	1.8	1.8	2.9
The Hospital for Sick Children	3.3	3.3	3.3	3.3
University of Toronto	3.7	3.4	3.5	3.4
Other Income	7.2	5.8	5.0	4.0
<b>Total Revenue</b>	<b>\$105.7</b>	<b>\$104.4</b>	<b>\$101.3</b>	<b>\$102.9</b>

Table 4: Paediatrics Expense for the past 4 Fiscal Years

For the years ending March 31				
(\$ Millions)	2023/24	2022/23	2021/22	2020/21
<b>Expenses</b>				
Compensation				
Paediatric Medical Services and Medical Coverage Replacement	\$84.3	\$84.9	\$80.3	\$83.2
Administration	10.1	9.6	8.8	8.5
Benefits	2.0	2.0	2.1	2.0
Operating Expenses	5.7	5.5	6.0	6.7
<b>Total Expense</b>	<b>\$102.1</b>	<b>\$102.0</b>	<b>\$97.2</b>	<b>\$100.4</b>

Table 5: Consolidated Department of Paediatrics 5 Year Forecast

For the years ending March 31					
(\$ Millions)	2025/26	2026/27	2027/28	2028/29	2029/30
<b>Revenue</b>					
MOH					
Core & HOCC	\$100.5	\$102.0	\$103.5	\$104.8	\$105.8
One-Time Funding					
The Hospital for Sick Children	3.3	3.3	3.3	3.3	3.3
University of Toronto	3.4	3.4	3.4	3.4	3.4
Other Income	7.3	7.4	7.5	7.6	7.6
	<b>\$114.5</b>	<b>\$116.1</b>	<b>\$117.7</b>	<b>\$119.1</b>	<b>\$120.3</b>
<b>Expenses</b>					
Compensation					
Paediatric Medical Services and Medical Coverage Replacement	\$98.3	\$99.4	\$100.6	\$101.8	\$103.0
Administration	10.9	11.1	11.4	11.7	12.1
Benefits	2.2	2.2	2.2	2.3	2.3
Operating Expenses	6.6	6.8	7.0	7.2	7.5
	<b>\$117.9</b>	<b>\$119.5</b>	<b>\$121.2</b>	<b>\$123.0</b>	<b>\$124.9</b>
<b>NET SURPLUS/(DEFICIT)</b>	<b>(\$3.4)</b>	<b>(\$3.4)</b>	<b>(\$3.5)</b>	<b>(\$3.9)</b>	<b>(\$4.6)</b>

## 2.8.1 Philanthropy and Advancement Office

The Department of Paediatrics receives philanthropic support from both the University Advancement and the SickKids Foundation.

The support for the Temerty Faculty of Medicine Department of Paediatrics is summarized in the report below from the Advancement Office and the majority of this funding over the review period has supported the Edwin S.H. Leong Centre for Healthy Children and a specific nephrology lab at SickKids.

The SickKids Foundation works closely with the Department of Paediatrics at SickKids. The majority of philanthropic funding that supports research and education initiatives in the Department is in the form of restricted funding either to a particular faculty member and/or designated indication or disease. The system and framework that is in place currently for funding results in either the specific faculty member/researcher and/or Division Head to direct the spending of these funds.

The balances under the control of the 18 divisions range from < \$20,000 to > \$1,000,000 (generally these higher balances fall under the SickKids Centres). Funds are used for many divisional needs, commonly training (often fellowships) or other Division Head or PI priorities. The Department Chair and RI Chief of Research are required to sign off for most of these funds once the budget requests are submitted by PIs and Division Heads. The Department has very limited unrestricted funds that can be used for education and other initiatives and does not have any standing unrestricted foundation funding commitment. The Department Chair has access to funds through the R.S McLaughlin endowed chair.

The SickKids Foundation leadership transitioned from long-time CEO/President Ted Gerrard to Jennifer Bernard ~18 months ago. There has been significant engagement and collaboration between the foundation leadership and the Department of Paediatrics. The Chair of Paediatrics participates

in multiple donor events ranging from Precision Child Health to specific programs (e.g. Food Allergy & Anaphylaxis Program (FAAP), Garron Family Cancer Center) (See [Section 2.6](#)). In addition to these specific events, there have been frequent opportunities to present the importance of training next-generation physician-researchers as a high priority for the foundation and integral to their Precision Child Health fundraising strategy (See [Section 2.5](#)).

To align Departmental priorities with available funds and new donor opportunities the Chair meets frequently with Marie Bomba, SickKids Director of Philanthropy and Center Initiatives. Marie serves as the liaison between the Hospital and the Foundation and her role has been instrumental in developing proposals and strategic alignments between our faculty and division needs and foundation/donor opportunities.

Moving forward continued strategic collaboration with both the Advancement Office and SickKids Foundation will be critical to our many priorities especially those related to training and research, with specific opportunities to support Paediatrics across TAHSN (Advancement) and Precision Child Health enabling trainees and faculty (SickKids Foundation).

### Advancement Office and Department of Paediatrics – 2019 to 2024

#### Philanthropic Funding for Department of Paediatrics – Summary

*Report Below Provided by Temerty Faculty of Medicine Advancement Office*

Over the past five years, over \$25 million has been raised for the Department of Paediatrics, including one of the largest gifts in U of T's history directed to paediatrics.

A major highlight in philanthropy includes a \$20 million gift to establish the University of Toronto's Edwin S.H. Leong Centre for Healthy Children. In partnership with SickKids, the Leong Centre is

a one-of-a-kind centre that brings together top researchers to help reduce inequities in child health outcomes, including those caused by social and structural determinants of health. The gift provided funding for a Director a fund to support new initiatives of the Director, a trainees fund, an AI implementation fund, funding for three new Chairs – including the Edwin S.H. Leong Chair in Child Health Intervention, specifically housed at the Department of Paediatrics – as well as funding for education and knowledge translation efforts. The Centre strategically invests in research, education, training and infrastructure to execute the vision of “harnessing interdisciplinary research to promote the flourishing of every child and family.”

In 2023, a gift of \$500,000 was received from Open the Joy, Inc. directed to the existing expendable Education and Research Trust Fund, to support the impactful work of Professor Mathieu Lemaire (Division of Nephrology). This gift is an example of the working partnership between Advancement and the Department of Paediatrics, to bring together academic research needs and the interests of prospective donors.

## Alumni Engagement, Awards and Events

As of August 2024, there are 623 alumni of the Department of Paediatrics, and 196 of those alumni are engaged with the Department and the University of Toronto in some way (about 31% of the total). Engagement is counted in the form of event attendance, participation in meetings with advancement, volunteerism, and philanthropic giving.

During these five years, two faculty members and alumni of the Department have been recognized as part of the Dean’s Alumni Awards for their outstanding contributions. The Temerty Faculty of Medicine’s Dean’s Alumni Awards are among the highest honour from the Faculty and highlight the contributions of alumni as they advance clinical care, health research and medical education. Recipients include: 2020 – Dean’s Alumni Lifetime Achievement (National/Community Impact), The Honourable **Rosemary Gay Moodie** (PGME ’88) (Paediatrics)); 2024 – Dean’s Alumni

Humanitarian Award, **Anna Banerji** (MD ’89, PGME ’90 (Paediatrics)).

Our Advancement team includes a dedicated team for special events and alumni relations, and each year, through events and communications, there are specific opportunities that highlight the successes and expertise of the Department to our alumni, donor and university communities. In 2024, **Suzanne Beno** (Associate Professor, Paediatric Emergency Medicine, Department of Paediatrics, PGME ’00) was featured in the advancement-created and led event, Temerty Medicine Talks, on the topic: The Trauma Team: Advancing City-Wide Injury Care, Research and Education. The panelists discussed the city-wide approach to trauma care by the University of Toronto and partner hospitals, as well as how novel training opportunities innovative research and public advocacy efforts are laying the foundation for a new era in the treatment – and prevention – of injuries of all kinds. In 2021, **Trish Tulloch** (Assistant Professor, Adolescent Medicine, Department of Paediatrics, PGME ’12) was featured as a panelist on the Temerty Medicine Talks event, on the topic: The Age of Anxiety, where the group discussed healthy worry in the context of individual well-being, relationships and medical practices, as well as techniques for living with anxiety in daily lives. Both virtual events welcomed more than 150+ participants via Zoom.

Our alumni team also supports annually the Paediatrics PGME Graduation Ceremonies by providing logistical planning support, and strategies to engage alumni early on with the Department of Paediatrics. In 2023 and 2024, the team supported – through resourcing, staff and logistical support - the Annual Jack Crawford Day Conference for Paediatrics Ophthalmology.

## Raising profile through Communications

An effort has been made to produce content that demonstrates the impact of the Department of Paediatrics and amplify stories across the Temerty Faculty of Medicine and University communication channels. This includes the Temerty Faculty of Medicine’s X (31,100 followers), Instagram

(11,800 followers) and Facebook (8,000 followers).

The Office of Advancement benefits from a dedicated three-person communications team focused on advancement priorities and collateral, including donor and alumni profiles. In the last five years, many stories featuring the Department of Paediatrics and its faculty members, students and alumni were posted to the Temerty Faculty of Medicine website and amplified on social media channels (see Appendix for links to several of these stories). This includes Alumni Profiles, including a special feature on paediatric resident, **Michael Gritti** (MD '19), now a Chief Cardiology Fellow, in the 2022 "Faces of Temerty Medicine". A list of Alumni Profiles can be found in the Appendix.

Over the years, the team also featured Department of Paediatrics faculty with alumni via the UofTMed Magazine. The digital distribution for the magazine is approximately 40,000, and it is mailed to approximately 25,000 donors, alumni and community members, raising the profile of the Department to an audience outside of Temerty Faculty of Medicine alumni, and reaching the wider U of T community. A list of featured faculty and alumni in UofTMed Magazine can be found in Appendix 2.8.1.

## Transformative and collaborative gifts to the Temerty Faculty of Medicine

Several gifts have been received in the last five years that have a wide impact across Departments, benefiting many of our faculty members and learners. As the University has entered a new campaign as of December 2021 (the Defy Gravity Campaign) we anticipate these Faculty-wide gifts will become more common, to the benefit of Departments such as Psychiatry.

On September 24, 2020, the Faculty of Medicine announced a historic \$250-million gift from James and Louise Temerty and the Temerty Foundation – the largest gift in Canadian history. This gift is advancing biomedical research and innovation, medical education, and health care in Toronto, Canada and beyond, and renamed the Faculty in

recognition of this historic gift to be the Temerty Faculty of Medicine. The faculty members and learners of the Department of Paediatrics, like many departments, are benefitting from this investment as there is significant funding for fundamental, translational and clinical research.

There has also been significant funding secured for the Joannah and Brian Lawson Centre for Child Nutrition, where the Department of Paediatrics is one of the Centre's three leading academic departments. Since 2019, \$3 million has been secured from Joannah and Brian Lawson for the Lawson Centre, supporting Fellowships in areas of child and adolescent nutrition, as well as for a school food program intervention and implementation fund. Two of our Fellows – Dr. Jessie Hulst and Dr. Mathilda van den Heuvel, are both Associate Professors of Paediatrics in the Department of Paediatrics and Staff Physicians at SickKids. As well, the G. Raymond Chang Foundation supported the inaugural Raymond Chang Chair in Nutritional Medical Education with a gift of \$1.5-million, and Dr. Chris Tomlinson, Professor of Paediatrics, Department of Paediatrics, and Director of the Neonatal Intensive Care Unit at SickKids, in our inaugural incumbent.





# Section 3

## Divisional & Site Reports

### 3.0 SickKids Divisional Reports

This section includes short summaries (accomplishments, challenges, opportunities) for each of the 18 Divisions in the Department prepared by Division Heads and training program directors with data and input from Departmental leadership and Temerty Faculty of Medicine, University of Toronto. Of note, the faculty included in each division includes all full-time or major part-time physicians including, but not limited to, those that are funded by the MOH AFP (as of July 1, 2024). Most summaries, where available, include division-specific research and education data.

The table below reflects the departures within the Department (SickKids) from April 1, 2020 – July 31, 2024.

Division	Departures
Adolescent Medicine	3
Cardiology	7
Clinical and Metabolic Genetics	2
Clinical Pharmacology	1
Emergency Medicine	3
Endocrinology/Gynaecology	2
Gastroenterology, Hepatology & Nutrition	2
Haematology/Oncology	5
Immunology/Allergy	1
Neonatology	2
Nephrology	5
Neurology (incl Developmental Paediatrics)	5
Paediatric Medicine	1
Respiratory Medicine	3
Rheumatology	1
<b>Grand Total</b>	<b>43</b>

Table 1: Resignations and retirements by SickKids Department of Paediatrics Division, April 1 2020 – July 31, 2024.

More information regarding each division’s faculty and where provided recruitment and retention narratives can be found in the individual reports.

#### Toronto Academic Health Sciences Network Reports

The Toronto Academic Health Science Network (TAHSN) is a dynamic network of academic health organizations providing leading-edge research, teaching, and clinical care with many sites contributing to advancements in child health. Where provided, narratives have been prepared with contributions from Department Chiefs, training Program Directors with data and input from Departmental leadership and Temerty Faculty of Medicine, University of Toronto.

Of note, trends related to physician turnover in Paediatrics indicate a generally positive retention rate with most turnover attributed to retirements and temporary leave of absence. However, there is a subset of sites seeing trends towards faculty opting for out-of-hospital daytime clinical work due in part to high-acuity on-call coverage; predominately mid-career Paediatricians have shifted their practice out of hospital, including primary care.



## 3.1 SickKids Division Reports



# The Division of Adolescent Medicine

## Overview

The Division of Adolescent Medicine at SickKids is dedicated to improving adolescent health. Our mission is to provide the best inclusive, compassionate and developmentally sensitive care, to advance the understanding of the specific health needs of youth in Canada, and to prepare the next generation of leaders in adolescent health. Adolescent medicine team members are actively engaged in quality improvement, teaching and research initiatives.

The interprofessional Adolescent Medicine team provides comprehensive care for youth with a range of physical health and mental health conditions. The Division offers two concurrent clinical services: (1) an inpatient service covering eating disorder patients admitted to unit 7A (shared unit with Psychiatry) and (2) a consultation service available to any unit in the hospital and to providers in outside hospitals and the community. In addition to these services and general

Adolescent Medicine clinics, the Division offers specialized assessment and treatment programs, including the Young Families Program (YFP) for pregnant and parenting teens, the Transgender Youth Program (TYP) for transgender and gender-questioning youth and their families, and the Substance Use Program. The Transition to Adult Care Program (TAC) supports youth across the hospital with chronic health conditions to make the transition from the paediatric to the adult care system. The Division maintains active clinical care in inpatient, day treatment and outpatient settings. The Division has a strong history of leadership, education and research in adolescent health. It is the largest and most established Division across Canada and members of the Division are recognized nationally and internationally for their leadership, advocacy, and research contributions.

## Faculty

Dr. Michelle Shouldice has held the role as interim Division Head since 2018. Dr. Shouldice is a general paediatrician and educator with a background and training in child development and child maltreatment and is the Division Head for Paediatric Medicine.



Dr. Michelle Shouldice

As of July 2024, the Division has a total of seven full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B. The Division hired four Academic Clinicians during the review period, and there were three full-time faculty departures.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Grand Total
Adolescent Medicine	4	1	2	7

Division	2 - Lecturer	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Adolescent Medicine	3	1	1	2	7

## Clinical Programs

**Eating Disorders** – The eating disorders program serves children and youth aged 8 to 18 years old with a broad range of eating disorders, including anorexia nervosa, bulimia nervosa and ARFID. The program includes a 15-bed inpatient unit, which is shared with Psychiatry, a day treatment program (ages 12-18), and an outpatient program. The program requires close collaboration between Adolescent Medicine, Psychiatry and allied mental health practitioners and works within a network of care in the GTA and province.

**Adolescent Medicine Consultation Service** – To address the growing need for specialized adolescent care, the Adolescent Medicine Consultation Service was launched in 2019 at SickKids. Serving youth aged 12 to 18 with complex or chronic issues, this service offers consultations for conditions such as chronic health issues, gender identity questions, substance use, reproductive health, and mental health, including vulnerable populations like street-involved or incarcerated youth.

**Transgender Youth Clinic** – The SickKids Transgender Youth Clinic (TYC) is an interprofessional, multidisciplinary program designed to provide information, options and care to pubertal youth experiencing gender dysphoria, including assessment and treatment planning. The clinic takes an affirming approach to gender identity and care. Through ongoing assessment and discussions, youth and their families are supported in exploring and deciding about options that can help the young person feel more comfortable in their body to decrease feelings of gender dysphoria. The TYC currently serves approximately 280 youth.

**Young Families Program** – The Young Families Program (YFP) supports adolescent-led families facing challenges like ACEs, mental health issues, and systemic barriers. Using the Medical Home model, YFP provides trauma-informed, family-centered care to promote the health and development of young parents and their children.

Services include local care through the Sexual Health Promotion and Resource Clinic (SPARC), virtual education via the Ujima Project, and developmental support backed by the SickKids and Canadian Children’s Literacy Foundations.

**Substance Use Program** – The Substance Use Program offers Outpatient and Day Treatment Services for teens up to age 18 dealing with substance-related challenges. It provides comprehensive, evidence-based care through individual counselling (using motivational interviewing, CBT, DBT, and ACT) and a family support component. The intensive day program includes treatment groups, medical care, and academic support from the Toronto District School Board. The Adolescent Medicine Consultation Service (AMCS) offers ER and inpatient consultations. The program also pioneers clinical approaches for youth vaping, substance withdrawal, and nicotine addiction.

**Transition to Adult Care Program** – This program aims to support the transition for youth with complex chronic illnesses who are expected to be able to self-manage their care, to make a successful transition from paediatric to adult care. In this program, providers collaborate with the youth and caregiver to help prepare for the transition, build self-management skills, coordinate care, as well as support adult and primary care providers accepting these youth for one-year following transfer. The goal is to enable an individualized, holistic, and coordinated transition for each patient across multiple settings, focused on the youth’s highest priority needs, while also supporting the caregivers.

## Research

The types of projects that are currently being conducted by the Division include: understanding early-onset eating disorders; medical complications of eating disorders; clinical outcomes for adolescents with anorexia nervosa and bulimia nervosa; interventions aimed at the health and developmental needs of high-risk children of teen parents; effective approaches to

treating adolescents with heroin/opiate addiction; effectiveness of HIV prevention education with incarcerated youth; information technology for health promotion with youth; and Web-based treatment resources for HIV-positive youth.

Over the five-year review period, the Division has had 123 publications, generating 1,403 citations and resulting in an average H-Index of 14. These past five years, Division Faculty were awarded \$335,711.08 in grant funding.

## Medical Education

The Division of Adolescent Medicine provides clinical teaching for medical students, residents, fellows, and other interdisciplinary trainees.

The Royal College of Physicians and Surgeons of Canada (RCPSC)-accredited subspecialty training program in Adolescent Medicine provides clinical training, research experience and leadership opportunities for subspecialty residents and clinical fellows. The curriculum of the 24-month program is designed to meet the objectives of training of the RCPSC. These objectives are met through a strong clinical experience, a robust Academic Half-Day (AHD) curriculum, and significant research exposure. The Division offers a similar training experience for Clinical fellows who are international medical graduates (IMGs). Many of these IMG trainees have established adolescent medicine programs in their countries. To date, the program has trained most Adolescent Medicine subspecialists in the country.

Trainees in the Adolescent Medicine Program benefit from a wide range of collaborative learning experiences. Examples include the following:

- The Division collaborates with internal divisions to provide learning opportunities for fellows during their fellowship, such as Psychiatry, Gynecology, and Haematology (complex care clinic) and other allied health professionals within the division such as social work, dietitians and nurse practitioners.

- The Division collaborates with external sites to provide learning opportunities for fellows during their fellowship. This includes sites such as Micheal Garron Hospital, North York General, CAMH, Women's College Hospital, Covenant House, University of Toronto Student Health and the Toronto Metropolitan University Health Clinic.
- The Division collaborates with the other RCPSC-accredited Adolescent Medicine training programs in Canada to provide National AHD four times per year, as well as National Adolescent Medicine Rounds four times per year along with creating an annual in-training SAQ (Short Answer Questions) examination for our trainees, and the annual summer AHD Orientation series.
- We have also combined AHD sessions with other subspecialty training programs at SickKids such as Paediatric Med for leadership topics and CAMH Addiction Medical trainees for substance use-related topics.
- The Division of Adolescent Medicine has strong interprofessional clinical teams and members of these teams make significant contributions to the clinical services and are highly valued clinical teachers and supervisors for our learners. Social workers, dietitians, nurse practitioners and others all contribute to the RPC, Division Education Committee, clinical learning and academic half-day teaching.

## Medical Education Priorities

### *Ongoing Priorities*

- Embedding EDIA into Divisional activities through the establishment of an antiracism working group. Activities to date have included modifying evaluation forms for both Divisional rounds as well as AHD utilizing the CAMH document: Centre for Addiction and Mental Health (2023). Health Equity and Inclusion Framework for Education and Training. CAMH

- Introduced additional community-based learning into the core rotations for our learners (e.g., Michael Garron Hospital, North York General Hospital)

wellness committee and various activities to support the wellbeing of our teams.

## Divisional Accomplishments

### Short Term

- Working on creating orientation and a smoother transition into Clinical Fellowship for international learners.
- Create more explicit ways of fostering the global community of program graduates through a What's App group as well as regular Zoom meetings to share successes and challenges and provide ongoing peer mentorship
- Working with the SickKids simulation centre to create additional learning for our trainees in areas such as pelvic examination skill development as well as using VR for learning de-escalation
- Review and refresh our approach to assessment of learners/learning to incorporate more explicit assessment of areas such as written documentation

### Long Term

- Explore ways to collaborate with other subspecialty programs within the Department of Paediatrics for activities such as AHD (academic half day), other learning activities that may have shared learning goals
- Engage in visioning at the national level about what kinds of Adolescent Medicine subspecialty are needed to serve the needs of Canadian adolescents (and adolescents globally) to reimagine our training programs
- In addition, much attention is paid to the well-being of our learners as the practice of Adolescent Medicine involves a lot of psychosocial complexity and risk-taking behaviours in the patient population. Our learners also contribute to the Divisional

### 1. Mental Health & Addictions

Many of our Adolescent Medicine programs centered around mental health have experienced success in various areas over the course of the review period, but of special note are the following:

- **Eating Disorder Program** - Development and implementation of the Intensive Outpatient Program (IOP) and integration of DBT (dialectic behaviour therapy) approach to therapy to serve patients with emotion regulation, self-harm or suicidal ideation which impedes treatment progress. The impact has been a dramatic reduction in suicidal ideation and behaviours for patients in the program.
- **Substance Use Program** - Developmentally appropriate interventions for youth with substance use, including motivational interviewing and acceptance and commitment therapy (ACT), in addition to typical psychotherapeutic approaches in both outpatient and day treatment settings. Development and implementation of a clinical practice guideline for adolescents presenting to the hospital with substance-related health concerns and withdrawal management

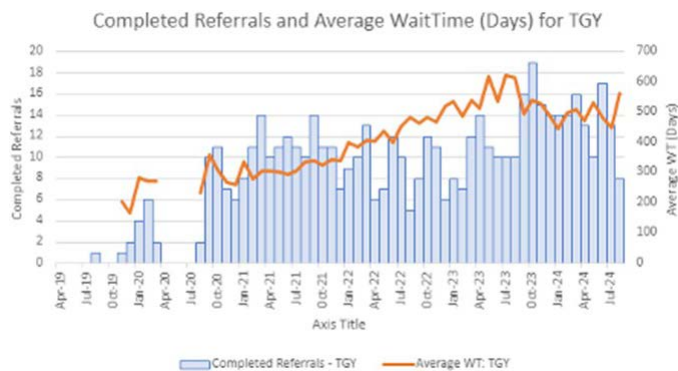
### 2. Launch of the Transition to Adult Care (TAC) program

Transitioning from paediatric to adult care is challenging for youth with complex health conditions. Many now live into adulthood, requiring specialized transition support, particularly those with medical complexity, multimorbidity, or rare diseases. Recognizing this need, SickKids launched the TAC Program in 2022 with a CIHR grant and SickKids Foundation funding to develop and evaluate two care models. Based on Ontario

Health's Quality Standard for transitions, TAC's goal is to empower high-risk youth and their caregivers through an individualized, holistic approach. The Adolescent Medicine Arm Model supports youth in developing autonomy with a dedicated team, providing coordinated care and ongoing support post-transfer. Additionally, SickKids is working with primary care and adult specialists to create a regional Transition Network, aiming for broader systemic improvements.

### 3. Care for Gender-diverse and Transgender Youth

The TYC's biggest accomplishment is the significant expansion of our team, and our associated increased capacity that has enabled both shorter wait times for initiation of care, and expanded opportunities for engagement with supportive services once connected to our program. Additionally, our team continues to collaborate with system partners to ensure access to high quality, safe and appropriate gender-affirming care for adolescents across the province and country. The TYC Adolescent Medicine physicians have led the recently published national TYC guidelines.



## Divisional Challenges

### 1. Eating Disorder Program Structure and Function

The Eating Disorder Program at SickKids has a long history of challenges in terms of the program leadership structure, team integration and interprofessional collaboration. Over the pandemic, there was a dramatic increase in

youth eating disorders worldwide leading to significantly increased admissions, and at the same time, intensifying stress and dysfunction within the program. Currently, a mediation process is underway on 7A intended to target respectful communication and collaboration. Physician and NP resources have been optimized. In addition, a new model of care committee has been struck with interprofessional membership, led by a recently hired Advanced Practice Clinician (psychologist). These ongoing program concerns and conflicts around the model of care require significant time and collaboration between several leaders and represent a significant time commitment for the Division Head. The wellness of all the multidisciplinary members of the Eating Disorder Team is at risk with impacts on recruitment and retention. There is currently no Adolescent Medicine physician lead for the program and the interpersonal dynamics are such that appointing a single lead is challenging and yet crucial for the forward movement of the program.

### Division Head succession planning

Dr. Michelle Shouldice stepped into the role of interim Division Head in 2018, with the plan for transition to an Adolescent Medicine Specialist within 1-2 years. The pandemic and other priorities have delayed moving forward with a search and selection process for a Division Head. The Division needs to have a physician leader who is an Adolescent Medicine Specialist and a strong leader, with sufficient time and support to move the Division forward successfully.

### Sociopolitical climate and care for gender-diverse youth

The current sociopolitical climate continues to threaten access to care for transgender and gender-diverse youth. The TYC team remains highly focused on best practices and the best interests of patients, and team members carry high personal and professional risk related to this work. They have been proactive in assessing new information as it becomes available, leading best practices, and ensuring senior hospital leadership is aware.



programs. Recent Ministry of Health support for two new faculty positions and SickKids Foundation fundraising enhance this growth.

SickKids also offers comprehensive medical education, including certification in paediatric cardiology and subspecialist fellowships. Recent funding created additional fellowships in areas like fetal cardiology and pulmonary hypertension. Changes to training programs are fostering a more supportive learning environment for trainees, who now practice globally.

## The Division of Cardiology

### Overview

The Labatt Family Heart Centre at SickKids leads Canada’s paediatric cardiac care, performing over 600 surgeries annually—over 80% of Ontario’s paediatric cardiac operations. Acting as a surgical hub for CHEO (Ottawa), LHSC (London), and McMaster Children’s Hospital (Hamilton), SickKids ensures top-notch surgical outcomes and high-quality care through its Division of Cardiology, which provides precise diagnoses and pre-/post-operative support. Benchmarking shows better-than-average surgical mortality rates and adherence to international care standards.

With cardiologists across various subspecialties, SickKids has expanded its clinical services by creating programs like single ventricle and pulmonary vein teams, a cardiac neurodevelopment program, and transition

### Faculty

Dr. Mike Seed is the Division Head of Cardiology at The Hospital for Sick Children (SickKids) in Toronto. He went to medical school at the University of Newcastle, U.K., where



Dr. Mike Seed

he also trained in paediatrics. He did residency training in Radiology at Leeds and a paediatric cardiology fellowship at SickKids. His clinical work at SickKids includes cross-sectional cardiac imaging and fetal cardiology. His research is in fetal and infant circulatory physiology and brain development. He is also working on a swine model of the artificial placenta.

As of July 2024, the Division has a total of 22 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Cardiology	14	7	1	22

Division	1 - In Process	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Cardiology	1	6	5	10	22

## Clinical Programs

**Inpatient Services** – A 24-bed Cardiology inpatient unit (4D) including 6 “step-down” beds for high acuity patients. Manages post-operative transfers from cardiac critical care and medical cardiology patients

**Outpatient Services** - High volume outpatient clinic activities for general cardiology and multiple specialist clinics

**Echocardiography** - The diagnostic “work-horse” of our division, our echo lab undertakes ~12,000 examinations per year including inpatient and outpatient investigations, including transthoracic and transesophageal studies that provide image-guidance in the operating room and catheter lab. The Ecolab has an important role in supporting other divisions including neonatology and oncology

**Electrophysiology**- Our specialist service for patients with heart rhythm diseases, including invasive procedures such as permanent pacemakers and ablations. Annual activity includes 1,500 Holters and 120 ablations.

**Interventional Cardiology** – This section performs the full range of percutaneous cardiac interventions, including a large proportion of neonates and percutaneous pulmonary valve implants in older patients that provide an effective alternative to cardiac surgery. Our combined catheterization/MRI facility is unique in Canada and provides advanced hemodynamic assessments in complex patients.

**Heart Function** - Clinical service serving patients with cardiomyopathies and other causes of heart failure including advanced therapies such as ventricular assist devices, team cross-cover with transplant service

**Heart Transplant** - Specialist service for all Eastern Canada undertaking 10-20 paediatric cardiac transplants per year, including follow-up management for many in collaboration with local teams

**Fetal Cardiology** - Provides prenatal diagnosis of congenital heart disease in collaboration with Mt. Sinai to inform families and make appropriate plans for delivery, as well as offering prenatal treatment for arrhythmias and percutaneous interventions in select patients (uniquely for Canada)

**Cardiac Imaging** - In collaboration with the Department of Diagnostic Imaging (SickKids), the service undertakes cardiac MRI and CT in a growing number of paediatric cardiac patients to help guide management in a range of settings, including our unique expertise in 3D-printing for surgical planning for complex repairs, fetal cardiac MRI and perioperative neuroimaging

**Preventative Cardiology** - This service caters for patients with dyslipidemias and Kawasaki Disease, and incorporates our novel Exercise Medicine Program

**Pulmonary Hypertension** - Specialist program for complex cardiac patients, as well as patients affected by pulmonary vascular disease cared for by other hospital services

**Single Ventricle** - Dedicated team focusing on the initial management of patients with these complex forms of congenital heart disease that typically require staged surgical palliation

## Research

SickKids is renowned in cardiovascular science, achieving milestones such as pioneering treatments for transposition of the great arteries and infant ABO-incompatible transplants. Faculty in the Division are leaders in genome diagnostics for common and rare cardiac pathophysiology to enable pre-symptomatic diagnosis and novel interventions. The Ted Rogers Centre for Heart Research, a research collaboration with UHN and the University of Toronto, has further advanced research and partnerships.

Over the five-year review period, the Division had 763 publications, generating 16,215 citations and resulting in an average H-Index of 29.6. These past five years, Division Faculty were awarded \$24,065,635. Funding was granted from a mix of not-for-profit and private sector sources. Notably 16 tri-agency grants were awarded totaling over \$4 million. Some of the many research highlights can be viewed below:

- [SickKids researchers will lead PRIORITY, a pan-Canadian precision medicine study that aims to identify biomarkers for earlier diagnosis and more tailored therapies for patients with childhood heart failure.](#)
- [Using computational methods developed at SickKids, scientists identify tandem repeats are expanded in DNA of patients with cardiomyopathy.](#)
- [A research team from SickKids has proven that a digital tool they developed can successfully identify paediatric patients with cardiomyopathy who are at high risk for sudden cardiac death.](#)

## Medical Education

The Core Paediatric Cardiology Program at SickKids is designed as a three-year comprehensive training program in academic paediatric cardiology. Trainee wellness and a safe inclusive learning environment are at the core of our program. Our program is recognized

by both the Royal College of Physicians and Surgeons of Canada and the American Board of Pediatrics. We have transitioned fully to Competency by Design since 2020. Rotations are typically one month in duration. Protected research time occurs throughout the duration of training. Elective opportunities exist in a wide range of subspecialties and the option of electives outside the program exists. The first year of the program is focused primarily on clinical cardiology with one month dedicated to research. The second year of training continues with the core disciplines of cardiology but includes both elective (one month) and research time (three months). The third year of training solidifies training in the core disciplines and gives autonomy to the trainee in 'senior trainee' roles. One month is spent at Toronto General Hospital (University Health Network) gaining exposure to adult congenital heart disease. Again, significant time is dedicated to elective and research time (four months). Exposure to outpatient clinics occurs at each stage of training.

### Medical Education Priorities

Over the past five years, the Division has made significant improvements to our paediatric cardiology subspecialty residency program, resulting in the reinstatement of our Royal College accreditation. As the Accreditation review highlighted concerns about the learning environment, our new Program Director, Dr. Conall Morgan, introduced structural changes, including a faculty evaluation system, a revised interview and chief fellow selection process, a new research training program, and trainee awards. A quality improvement committee was formed to address these issues, and faculty are enhancing teaching skills through workshops and coaching. The new "Competence by Design" curriculum focuses on coaching and evaluation, allowing individualized progress. Other priorities included the following:

*Learner Wellness:* Trainee wellness was identified as a major area of concern in the accreditation report. Subsequently, the program and the Program Director have prioritized trainee wellness as a central part of the training program. Initiatives include the following:

- As of February 2021, the program added trainee wellness as a standing item on the monthly Residency Program Committee (RPC) agenda. Following this, a wellness subcommittee was established and began meeting in June 2021. This subcommittee consists of two faculty and two trainee members. The Program Director is an ex-officio member of the subcommittee. The subcommittee meets quarterly and provides regular updates to the RPC. The purpose of the subcommittee is to assist in identifying factors that influence the physical and mental well-being of pediatric cardiology residents

and implement strategies to enhance resident and trainee well-being.

- The Program Director advocated for and was successful in prioritizing the paediatric cardiology trainees to access Department of Pediatrics-led Balint sessions. These sessions are facilitated by two paediatricians (palliative care and complex care physicians) and are held 3-4 times per year.
- Faculty development sessions have taken place since 2021. These sessions focus on in the areas of providing feedback, psychological safety, and mentorship.
- In June 2021, the Program held the inaugural Divisional trainee and faculty teaching and research awards. These awards were developed by the RPC and have a faculty lead for each (Research: Dr. Villemain and now Dr. Lindsay Freud; Teaching: Dr. Dragulescu). The award for outstanding teaching is given to a core trainee, a subspecialty trainee, and a faculty member. Winners are determined by anonymous voting by all trainees and faculty. The research award is for a core trainee and subspecialty trainee and is based on a review and short presentation of a project abstract to a judging panel. Winners are given a small monetary award and are posted on our website and Twitter account.

*Creation of a Comprehensive Research Curriculum:* In March 2022, in response to both feedback from our trainees and what was highlighted in the accreditation report, a new Scholarship Oversight Committee (SOC) was formed. Trainee input was sought in all stages of the creation of this subcommittee. This committee has several roles and responsibilities that include oversight of scholarly projects, providing 1:1 research mentorship, overseeing the creation and maintenance of a research curriculum, and maintaining the annual research award. The SOC subcommittee reports to the RPC twice yearly. We now offer innovative research opportunities that include mock grant reviews, participation as a reviewer on Heart Centre Innovation Fund panels, and an introduction to basic science laboratories at the SickKids Research Institute.

## Divisional Accomplishments

### 1. Launch of the Exercise Medicine and Transition Clinic Programs

Two new programs in the Division of Cardiology, the Exercise Medicine Program and the Transition Clinic, were launched in 2019. In collaboration with Toronto General Hospital's adult congenital cardiac program, these initiatives ensure seamless transition from paediatric to adult care, preventing loss to follow-up and offering psychological support. Donor funding

established a full-time specialist nurse at SickKids, with similar funding now secured at our adult partner hospital. This team, including physician champions, aims to improve follow-up, coordinate elective procedures, and enhance communication, addressing patient concerns and improving understanding of long-term treatment impacts from childhood care.

## **2. First Paediatric Physical Activity-Centered Cardiac Program**

In 2017, SickKids launched Canada's first paediatric program focused on physical activity and lifestyle guidance for children with heart disease, led by Dr. Barbara Ciffra who completed training in sports medicine and exercise physiology. Supported by philanthropic donations and funding from the Department of Paediatrics and Labatt Family Heart Centre, the program now serves over 200 patients, including those with lung, rheumatologic, endocrine conditions, and cancer. It provides guidance on physical activity, nutrition, and sleep, with progress tracked via cardiopulmonary tests. Virtual technology has facilitated care, especially during the pandemic, addressing increased obesity and inactivity. For cardiac patients, such as those with Fontan circulation, exercise medicine has shown benefits in improving cardiovascular health.

## **Divisional Challenges**

### **1. Faculty Retention / Turnover**

The Division of Cardiology has faced significant faculty physician turnover over the past five years due to factors such as staff moving to leadership roles elsewhere, competitive salary issues, and internal employee relations problems. Although new recruits have joined, delays in licensing and immigration have affected their start times. The small size of the physician team and lack of new positions have increased workloads and contributed to burnout. The departure of experienced cardiac surgeons in 2019 exacerbated the situation, which was further complicated by the COVID-19 pandemic, a new electronic patient record system, and increased administrative burdens. Specific clinical areas in which we are transitioning in terms of leadership and staffing include preventive cardiology, interventional cardiology and electrophysiology. Issues with recruitment may be compounded by a future shortage of trainees entering our specialty, as we have witnessed a reduction in the number of paediatric residents applying to our fellowships. Efforts to attract and support junior doctors remains an important priority for our division, which is responsible for training the majority of paediatric cardiologists in Canada and many International Medical Graduates (IMGs) who will practice internationally.

### **2. Reduced Fetal Cardiology Clinic Referrals**

With the recent initiation of a fetal cardiology program based at Mount Sinai Hospital (within the Obstetrics and Gynecology Department), we have experienced a reduction in the volume of referrals to the fetal cardiology clinic at SickKids. We are working with our maternal-fetal medicine and fetal cardiology colleagues at Mt. Sinai to establish appropriate referral patterns and collaboration. While we are currently prioritizing the work required to ensure the provision of appropriate clinical care for our shared patients, we recognize we will also need to safeguard the academic activities we have previously undertaken in fetal cardiology at SickKids.

### **3. Respectful Communication**

While important progress has been made in terms of our learner environment, and our interactions with other divisions, our recent external review identified shortcomings in terms of respectful communication and professionalism within the Division of Cardiology. We are currently working through some of the recommendations from the review in this regard with a facilitator. In addition, several individual members of faculty are working with coaches. Our physicians are passionate about their work, and some conflict is expected in a competitive academic environment such as ours. However, ongoing efforts to promote physician wellness, EDIA and a collegial working environment will be critical for our continued success.

### **A Note on Resiliency**

While we have faced significant challenges over the past five years that include the COVID-19 pandemic and the departure of two senior cardiac surgeons, we have shown great composure and resilience to maintain excellence throughout our clinical and academic work. The culture of joint decision-making that has been fostered in the Labatt Family Heart Centre (with a collaborative leadership model across Cardiology, Cardiac Surgery, Cardiac Critical Care and Nursing) is the envy of other institutions and reflects our philosophy of teamwork and openness to new ideas. Within SickKids' Division of Cardiology, these values are held in higher regard than the achievements of any single individual and we believe that our humble but determined approach will stand us in good stead to face whatever challenges the future has in store. Going forward, we hope to partner with experts in cutting-edge fields of science including, but not limited to, genomics, stem cell biology, bioengineering and computer science to harness the technological breakthroughs that may benefit our future patients. In addition, we will endeavour to ensure the Division of Cardiology can be proud of a leading residency training program that attracts the brightest young minds and provides them with a stimulating and supportive workplace.



## Clinical Pharmacology & Toxicology

### Overview

The Division of Clinical Pharmacology & Toxicology at The Hospital for Sick Children is one of very few dedicated paediatric clinical pharmacology divisions in North America and Canada. Our mission is to provide clinical care, conduct research and offer education to understand and manage unpredictable and variable drug response, side effects, toxicities, pharmacogenetics, and cases of overdose and poisoning. Our current priorities include supporting the hospitals in implementation of Precision Child Health, focusing on pharmacogenetic-guided drug optimization, precision dosing based on individual drug metabolism and clearance, and conducting research to improve drug dosing in “therapeutic orphan” populations, including neonates.

Our division is unique for multiple reasons. Firstly, our clinical care team is multi-disciplinary in providing a hospital-wide clinical pharmacology consult service staffed by two paediatric clinical pharmacists, residents, fellows and pharmacology physician faculty. This service receives consults from every location across the hospital (NICU, PICU, transplant teams, ward teams, oncology, etc.) offering expertise in adverse drug reactions, drug pharmacokinetics and pharmacodynamics, and pharmacogenetics, to aid primary teams in

optimal drug dosing. Secondly, our division hosts the largest paediatric pharmacogenetic program in Canada. Led by pharmacist Iris Cohn, this program provides a pharmacogenetics consult service with patient testing and return of results to families, primary medical team and consulting medical teams. Over the past five years, this program has grown remarkably. Thirdly, our division is the academic home for the Ontario Poison Centre (OPC), one of the largest poison centres in North America serving the entire provinces of Ontario, Manitoba and Nunavut.

Our division’s expertise encompasses a wide range of medication-and toxin-related issues that are often distinct from those encountered in adults. While we leverage knowledge from adult pharmacology research and clinical practice, we also bring a paediatrics perspective, striving to understand how pharmacology and children differ. We use advanced technologies such as drug level measurements, pharmacogenetic testing, along with other data on individual susceptibility to drug toxicity or inadequate drug response. We interpret these results by considering other medications the child is taking and their underlying conditions. Our goal is to provide a clear understanding of the potential causes of variable drug responses and toxicity to patients, along with management plans and prevention strategies to patients, their families and the clinical teams.

### Faculty

Dr. Tamorah Lewis was appointed as the Division Head for Clinical Pharmacology and Toxicology at SickKids in February 2022. Dr. Lewis is a physician-scientist dual-trained in neonatology and clinical



Dr. Tamorah Lewis

pharmacology and an Associate Professor at the University of Toronto. She is a highly respected international leader in paediatric pharmacology. She sits on the Executive Committee of the American Academy of Pediatrics Section of Clinical Pharmacology & Therapeutics. She currently

Table 1A (top) and 1B (bottom)

Division	Clinician- Investigator	Clinician- Scientist	Grand Total
Clinical Pharmacology	1	1	2

Division	3 - Assistant Professor	4 - Associate Professor	Grand Total
Clinical Pharmacology	1	1	2

serves on the Board of Directors for the American Society of Clinical Pharmacology & Toxicology.

Her appointment as Division Head follows the 20+ year tenure of Dr Shinya Ito. Dr Ito’s significant contributions to the field of paediatric clinical pharmacology include his widely recognized research program of drug safety in breastfeeding mother and child. In this role, Dr. Lewis’ goal is to advance the hospital-wide vision for Precision Child Health and collaborate with multiple clinical Divisions to research and implement precision therapeutics.

As of July 2024, the Division has a total of two full-time faculty with a third (academic clinician) starting in early 2025. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B below.

The Division hired one Clinician Scientist and one Clinician Investigator during the review period, and there was one full-time faculty departure (former Division Head Dr. Ito retired). Of note, Dr. Lewis has also incorporated pharmacists as part of the divisional subspecialty consult team.

## Clinical Programs

**Pharmacogenetics** – Led by Iris Cohn, this unique clinical service program provides both inpatient and outpatient intake counseling, pharmacogenetic testing (foundation funds), interpretation of results, and return of results to family and clinical teams. Pharmacogenomics

helps identify individuals at an elevated risk of drug toxicity or ineffectiveness. As one of the areas of precision medicine, pharmacogenomics allows us to decipher whether a patient has genetic changes in genes responsible for metabolism in response to medicine. If genetic changes are present, we can work with the family and the clinical team to modify medication treatment plans.

## Research

Over the five-year review period, the Division had 110 publications, generating 1,007 citations and resulting in an average H-Index of 20.8. These past five years, Division Faculty secured a total of \$1,604,727.22 in grant funding; most of this funding is from not-for-profit sources. New research avenues included a novel pharmacogenomics service integrating patient genetics and drug pharmacology to individualize patient treatment with conventional and new biologics.

## Medical Education

**Royal College Fellowship in Clinical Pharmacology and Toxicology** – a distinguished two-year training opportunity offered at two premier institutions: Sunnybrook Health Sciences Centre and The Hospital for Sick Children in Toronto. This program is one of the few of its kind in North America, offering a unique and comprehensive education in human pharmacology, therapeutics, and toxicology. The curriculum

is tailored to address the needs of different age groups (pediatric and adult) and diverse populations, with a particular focus on gender, ethnicity, and ethical considerations.

Throughout their training, fellows acquire an extensive understanding of pharmacokinetics, pharmacodynamics, pharmacogenetics, pharmacoeconomics, and pharmacoepidemiology. They are also trained in drug development and regulation, management of adverse drug reactions and interactions, and therapeutic drug monitoring, with a strong emphasis on improving health outcomes across communities and specific population groups. In addition to clinical training, fellows engage in research, applying advanced statistical analytic methodologies and developing the skills necessary to critically appraise scientific publications.

### **Subspecialty Fellowship in Paediatric Clinical**

**Pharmacology** - an exceptional training opportunity, offering hands-on experience in the clinical care of children and adolescents facing a diverse array of drug-related issues, including exposure to medications, non-medicinal substances, and environmental toxins. This program, affiliated with University of Toronto's Department of Clinical Pharmacology & Toxicology, provides a comprehensive education in pediatric clinical pharmacology. The fellowship covers a broad spectrum of clinical consultations, with a focus on the following key areas: Adverse drug reactions, individualized therapeutic choices, pharmacogenetic testing and interpretation, exposures to toxins, including heavy metals and substances of abuse, and early life exposure, including medication use during lactation. Non-clinical activities constitute approximately 50% of the fellowship, are highly customizable and tailored to each trainee's specific interests and career goals.

We prioritize integrating trainee feedback into our educational programs to enhance their relevance and effectiveness. Annual retreats and regular Resident Program Committee (RPC) meetings provide vital platforms for trainees to voice their

insights, with senior residents advocating for their peers' needs. Recent trainee suggestions have led to significant updates in the fellowship curriculum, including the introduction of a new elective rotation to enrich learning experiences. Monthly feedback meetings between the Education Coordinator and trainees ensure ongoing dialogue, enabling prompt responses to concerns and continuous program improvement. By valuing and incorporating trainee perspectives, we strive to keep our programs aligned with best practices in medical education.

**Externally**, the Division partners with Sunnybrook Hospital's Lactation Clinic with Dr. Jonathan Zipursky, St. Michael's Hospital's various departments enhancing care of patients with complex pharmacological needs, and the GeriMedRisk Clinic exposing learners to the pharmacological needs of older populations.

**Internally**, the Division partners with all subspecialties to deliver tailored and crosscutting learning opportunities as well as elective rotations. Of note are our collaborations with the Ontario Poison Centre (housed within SickKids), and the Divisions of Rheumatology optimizing pharmacological treatments for autoimmune diseases, and Neonatology applying pharmacological research to the care of neonates.

In addition to the universally offered educational opportunities for all learners across the Department of Paediatrics, learners in this Division have access to the following:

**Toxicology Orientation Block at the Ontario Poison Centre (OPC):** This block, which is an important part of training for all learners in the Division provides a thorough introduction to the management of poisoning and overdose cases, with hands-on experience in a high-stakes environment. Trainees work closely with toxicologists and other specialists, gaining practical skills that are crucial for their future roles.

**Clinical Pharmacology Course:** A University of Toronto course which provides in-depth knowledge of pharmacokinetic principles and their clinical pharmacology and toxicology applications,

including but not limited to drug responses, adverse drug reactions, clinical study design and Pharmacoeconomics.

## Medical Education Priorities

The Division focused on expanding clinical and research expertise by enhancing capacity in specialized areas like pharmacogenetics and toxicology, crucial for personalized medicine. A new fellowship in Clinical Pharmacology was introduced, offering advanced training and fostering educational growth. Research programs were strengthened through new collaborations and funding, advancing knowledge in clinical pharmacology and toxicology. Additionally, principles of equity, diversity, inclusion, and accessibility (EDIA) were integrated into the fellowship curricula to prepare trainees for equitable care. Enhanced hands-on training opportunities were provided to ensure comprehensive clinical experience for trainees.

The Division plans to further develop the recruitment strategy to better incorporate equity, diversity, inclusion, and accessibility (EDIA) principles, focusing on outreach to diverse candidates, implementing bias-free selection processes, and providing mentorship for underrepresented groups. Additionally, new channels for trainee feedback, such as anonymous surveys and focus groups, will enhance engagement and improve educational experiences. To further enrich training, interdisciplinary learning opportunities are being expanded through collaborations with other departments and institutions, including joint workshops and cross-training experiences.

The Division aims to expand educational and research opportunities by forging new partnerships within the hospital and with academic institutions, enhancing our training programs' scope and impact. Our long-term goal includes boosting engagement with community and global health initiatives, focusing on addressing global pharmacological and toxicological challenges to provide trainees with a broader healthcare

perspective. Additionally, we are committed to the continuous improvement of training excellence through regular curriculum updates and incorporating feedback from trainees and faculty to adapt to emerging trends and needs in the field.

## Divisional Accomplishments

### 1. Launch of a novel therapeutic drug monitoring service to optimize drug dosing.

Our division has provided therapeutic drug monitoring services for many unique drugs and biologics to aid in optimal drug dosing and minimize unexpected toxicities and adverse responses. This effort, led by Dr Ruud Versteegen, has improved clinical care and outcomes for children with complex medical physiology who receive their care at The Hospital for Sick Children. Example drugs for which we have provided individualized TDM services and dose optimization include rituximab, trametinib, alpelisib and ruxolitinib.

### 2. Engaged as an active site in multi-site pharmacology research and advocacy across Canada.

(1) We are a site for the Canadian Pharmacogenetic Network for Drug Safety ([CPNDS](#)) and one of the highest enrolling sites of children with adverse drug reactions in this network. (2) Our division leadership helped write and obtain a 20-million-dollar CIHR grant to create and sustain a Pediatric Rare Disease Clinical Trial Network ([RareKids-CAN](#)). We lead the Pharmacology, Pharmacogenetics and Translational Pharmacometrics sub-platform of this new network, in close collaboration with [MICYRN](#). (3) Our division has helped lead a joint effort with Health Canada to develop a National Priority List of Pediatric Drugs (priority list) that are available elsewhere and needed in Canada as the country currently trails other leading nations. As part of a small national advocacy group, our division leadership partnered with Health Canada between 2023-2024 to develop this list and strategize

about next steps. (4) Members of the Division joined province-wide committees to ensure that children are considered in a provincial plan for offering and payment of pharmacogenetic testing in clinical care.

### **3. Growing a Pediatric Pharmacogenetics Consult Service to implement Precision Child Health.**

SickKids is one of the first hospitals in Canada to offer a paediatric pharmacogenetics testing and clinical consult service, enabling pediatric populations to benefit from advancements in this area. Paediatrics populations already benefiting from this include solid organ transplant, oncology, cardiology, gastroenterology, psychiatry, pediatric pain, among others. The program has grown dramatically in the past 5 years with Program Director, Iris Cohn, [leading to both improved patient care and new knowledge generation](#). As leaders in paediatric pharmacogenetic implementation in Canada, Iris and other staff from the Division have been invited to join a province-wide effort to implement pharmacogenetic testing for clinical care across Ontario.

## **Divisional Challenges**

### **1. Lack of interest in subspecialty**

In the greater Toronto area, there have been very few paediatricians trained in this subspecialty in the past 10 years. With support from University of Toronto and SickKids PGME, we will continue to expose paediatricians to this opportunity and recruit talent into our field. We are hopeful that a promising recruit into the Royal College program starting in April 2025 will encourage other pediatricians to consider this path.

### **2. Pharmacology research requires team science**

The SickKids Research Institute has many scientific priorities, and it is hard to convince all stakeholders of the need to recruit and retain

pharmacology scientists. Many niche research areas, such as pharmacometrics and systems pharmacology have not been represented at the SickKids RI in the past, and we need these types of PhD scientists hired for the research in the Division to flourish and grow, both academically and clinically.

### **3. Lack of Pharmacogenetics counsellors & staff ahead of growth plans**

In the past, we performed targeted pharmacogenetic testing based on consults, and this kept the number of patients manageable. With hospital plans to begin offering secondary pharmacogenetic results from routine genetic sequencing, the number of patients will increase dramatically. In addition, we are planning to implement the Genomics Module in Epic, and our Division will design and roll out the clinical decision support for pharmacogenetic-guided drug dosing.



## The Division of Clinical & Metabolic Genetics

### Overview

The Division of Clinical and Metabolic Genetics at the Hospital for Sick Children is one of the largest quaternary care centres for medical genetics and inborn errors of metabolism in the country. The role of the Division of Clinical and Metabolic Genetics at SickKids is to develop and maintain facilities, services and personnel for the diagnosis, management and genetic counselling of individuals/families affected with or at risk for the development of genetic disorders. While most families referred for genetic services will come from southern Ontario, particularly the Greater Toronto Area, the division also accepts referrals from other Canadian and international centres.

In addition to the General Genetics, Genetic Metabolic, and Genetic Counselling clinics, several subspecialty clinics have been developed, including Craniofacial, Overgrowth, Skeletal Dysplasia, 22q Deletion Syndrome, Cardiac, Neurogenetics, Neurofibromatosis, Cleft Lip and Palate, PKU, Cancer Genetics, Gaucher disease, and mitochondrial disorders.

The Division is heavily involved in several programs within Toronto Academic Health Science Network (TAHSN) that include Cancer Genetics, Adult Genetics and Prenatal Diagnosis Programs. The

Division uses excellent specialized laboratory facilities available at SickKids including molecular genetics, biochemical and cytogenetics as well as needed testing outside the country with prior arrangements.

Our mission is to provide timely, equitable access to genetic assessment, precise diagnosis, and individualized treatment options for patients with diagnosed or suspected genetic conditions.

Recognizing the unique challenges posed by genetic conditions, particularly rare diseases, we strive to optimize the care of the patient and their extended family members. We commit to partnering with and empowering patients and their families in their healthcare journey, fostering an environment of understanding, empathy, and respect.

### Faculty

Dr. Roberto Mendoza-Londono is the Division Head for Clinical Genetics & Metabolics. Dr. Mendoza-Londono is an Associate Professor of Paediatrics and Molecular Genetics at the University of Toronto and The Hospital for Sick Children. He is the Head of the Division of Clinical and Metabolic Genetics, Chair of the Women's Auxiliary of Clinical and Metabolic Genetics, and the Co-Director of the Centre for Genetic Medicine.



Dr. Roberto Mendoza-Londono

As of July 2024, the Division has a total of 13 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired four Academic Clinicians and one Clinician Scientist during the review period.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Clinical and Metabolic Genetics	9	3	2	14

Division	1 - In Process	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Clinical and Metabolic Genetics	1	5	4	4	14

## Clinical Programs

**Neurogenetics** - The GENIC (Genetic Epilepsy and severe Neurological Impairment Clinic) in the Division of Clinical and Metabolic Genetics provides diagnostic assessments and genetic counselling for children with genetic epilepsies and neurodevelopmental disorders. The clinic also supports family participation in genomics research to improve diagnosis and treatment of rare genetic conditions. SickKids serves a unique, complex cohort of neuromuscular patients, including those with muscular dystrophies, myopathies, and hereditary ataxias, in a joint clinic with Neurology and Genetics for multidisciplinary care. Patients with Friedreich ataxia, the most common childhood inherited ataxia, are seen in a joint clinic with Cardiology and Genetics.

**Hearing Loss, Craniofacial** - The Genetic Hearing Loss Clinic offers genetic counselling, testing, and referrals for patients with hearing loss of suspected genetic origin. A dedicated genetic counsellor collaborates with otolaryngologists, geneticists, lab staff, and a social worker to provide tailored care. The counsellor reviews each patient’s history and works with the team to create a care plan, ensuring counselling is provided in the most suitable setting—ENT clinic, genetics clinic, or virtually.

**Overgrowth** - The Overgrowth Clinic evaluates children with growth disorders to determine causes and optimize management, including tumor surveillance and addressing cardiac, orthopedic,

and neurodevelopmental risks. Utilizing advanced research technologies for genetic insights, the clinic develops precision-based guidelines to improve long-term outcomes and quality of life.

**Cancer Genetics** - The SickKids Cancer Genetics Program (CGP) serves children and families at increased genetic risk for cancer. Our multidisciplinary team, including experts in genetics, oncology, and endocrinology, assesses cancer risk, provides genetic testing, and offers long-term monitoring, facilitating earlier detection and improved survival rates. CGP providers participate in research initiatives, such as paired tumor-germline genomic sequencing through the SickKids Cancer Sequencing (KiCS) Program, ensuring equitable access to advanced research opportunities and promoting seamless patient-specific translational research.

**Dermatology** – CaLMS, Genoderm - The Cafe-au-lait Macules (CALMS) Clinic is a referral center for children with CALMs in the Greater Toronto Area, focusing on timely assessments and quick identification of Neurofibromatosis Type 1 (NF1) and other rare conditions. Now operating two to three times a month, the clinic is co-led by Dermatologists, Geneticists, and Genetic Counsellors. Patients with inconclusive standard testing can join the Canadian Genodermatosis Registry for advanced research opportunities.

The Genodermatosis Clinic evaluates patients with suspected or diagnosed genetic skin disorders, offering coordinated assessments,

genetic testing, and counselling in as few visits as possible. This monthly clinic also allows patients with unclear results to participate in the Canadian Genodermatosis Registry for innovative research tools.

**Skeletal Dysplasias and Bone Health** - The Hospital hosts the largest multidisciplinary center for genetic disorders causing dwarfism and disproportionate short stature, serving over 200 patients annually and offering the latest clinical and research treatments in collaboration with orthopedic surgery and endocrinology.

**Ehlers Danlos Syndrome and Connective Tissue Program** - The Ehlers-Danlos Syndrome (EDS) and Connective Tissue Program was established in 2016 following funding from the Ministry of Health. The team includes a pediatrician, nurse practitioner, registered nurse, genetic counsellor, physiotherapist, psychologist, and social worker. Recognized as a center of excellence by the EDS Society, the program treats 240 patients each year.

**PKU** - The Phenylketonuria (PKU) Clinic at SickKids, founded by Dr. Bill Hanley in 1963 as Canada's first PKU program, supports the health and development of children diagnosed with PKU through the Newborn Screen. The clinic monitors around 100 children from birth to 18 years and has actively participated in clinical trials for new PKU treatments.

**Metabolics** – Lysosomal Disorders - Lysosomal storage diseases (LSDs) are rare, and standard care in Ontario often falls short. To address this, a specialized LSD clinic was launched in 2019, followed by the LSD Program in 2022, providing compassionate care and clinical trials. Patients may receive enzyme replacement (ERT), substrate reduction (SRT), or hematopoietic stem cell transplantation (HSCT), supported by a multidisciplinary team.

## Research

Over the five-year review period, the Division had

436 publications, generating 5,895 citations, and resulting in an average H-Index of 27.5. These past five years, Division Faculty have secured grant funding totaling \$18,972,451.04; most of this funding is from not-for-profit sources. Tri-agency funding during the review period totaled over \$2 million. Research accomplishments are described herein.

## Medical Education

Our Division houses the largest Medical Genetics Residency Program in Canada. Our 5-year residency program covers the full life cycle (prenatal, paediatric, adult) and is a direct entry residency program, not a subspecialty of paediatrics. Our residents spend time in obstetric, paediatric, and adult settings and support call for SickKids and for Adult Genetics at the University Health Network (UHN). Our program led our specialty with the implementation of competency based medical education; establishing our competency committee and transitional rotations for TTD and TTP well in advance of our launch. Our program actively works to lead national collaborative educational experiences across our specialty including a PAN CAN information night and a Royal College Exam Preparation Series. Although residents have rotations across multiple Departments (Paediatrics, Obstetrics, Internal Medicine) the training program has historically been led from Sick Kids and the Department of Paediatrics.

Canadian College of Medical Geneticists - CCMG Fellowships Programs: Our division houses two clinical fellowship programs accredited through the CCMG; a three-year clinical genetics fellowship program and the two-year clinical biochemical genetics fellowship program. Both fellowship programs run collaboratively with our residency program sharing clinical responsibilities and educational resources to provide a more comprehensive learner experience for both learner groups.

Specialized Training Routes: In addition to our

core MD residency and fellowship training routes our division has also been able to offer some specialized non-accredited training routes for specialists interested in training in a specific area of genetics. These fellows often run in collaboration with other programs and divisions and include the Advanced Genetics and Genomics Fellowship, Paediatric Ehlers-Danlos Syndrome Fellowship, and Prenatal Genetics Fellowship.

## Medical Education Priorities

**Increasing Genetic Knowledge and Collaboration:** A major focus was on enhancing genetic knowledge and fostering collaboration across all specialties. By helping to integrate genetics into various disciplines, we aimed to broaden the understanding and application of genetic principles in clinical practice. Our faculty and trainees regularly provide teaching to other specialties across Paediatrics and Adult Programs including Internal Medicine, Paediatrics, Developmental Paediatrics, Neurology and Dermatology. We have also developed seminars and workshops for other specialties and within Genetics to better connect our MD and non-MD colleagues. Moving forward, we will continue to promote and integrate genetic knowledge across all specialties, ensuring sustainable growth within the field of genetics to optimize testing capacity and interpretation.

**Creation of the Genetic and Genomics Fellowship Training Route:** The goal of this fellowship is to provide specialized training to non-geneticists to obtain more focused competence in genetics within their specialty.

**Meeting the Demand for Genetics and Metabolic Specialists:** Recognizing the growing need across Canada, we focused on expanding our training program capacity and securing funding to meet the demand for genetics and metabolic specialists. In addition, we were able to secure an additional Canadian Medical Graduate-CaRMS position in 2019, 2023 and 2024. Looking forward, we will continue to expand training program capacity and secure funding to meet the national demand for genetics and metabolic specialists, ensuring that

Canada remains at the forefront of these critical fields.

**Implementation of CBD:** Our residency program led our specialty and shared our learned experiences and resources with leads from across Canada to ensure a successful launch of CBD for all genetic residency programs in Canada

## Divisional Accomplishments

### 1. Repatriation of Genome-Wide Sequencing

SickKids and CHEO (Ottawa) partnered on an application to the Genome Canada Genomic Applications Partnership Program. Through this grant, clinical exome sequencing for rare disease diagnostics was repatriated to Ontario effective April 1, 2021. In addition, the Genome-wide Sequencing Ontario (GSO) clinical collaboration undertook a two-year pilot project co-designed with the Ontario Ministry of Health to offer, and compare the performance of, exome and genome sequencing. This protocol, which was published in CMAJ (Canadian Medical Association Journal), allowed for a comparison of diagnostic utility and timeliness of exome sequencing and genome sequencing, and an analysis of cost-effectiveness (expressed as the incremental cost of genome sequencing versus exome sequencing per additional patient with a causal variant detected). GSO has now reported over 3,000 cases and with a diagnostic rate of 30%, offering a unique opportunity to describe the rare disease landscape in Ontario. Ongoing activities seek to define the optimal positioning for genome sequencing in the care pathway and to explore the possibility of mainstreaming access to genome-wide sequencing.

### 2. Sequencing for Genetic Epilepsy

Gene-STEPS, (Shortening Time to Epilepsy Services), the study is the first collaboration launched through the International Precision Child Health Partnership (IPCHiP), an international consortium (Boston Children's Hospital, Murdoch Children's Research Institute with The Royal

Children's Hospital in Melbourne Australia, SickKids, and UCL Great Ormond Street Institute of Child Health and Great Ormond Street Hospital) that leverages each institution's expertise and genomic infrastructure to accelerate discovery and the development of therapies for children.

Published in *The Lancet Neurology*, this international study sequenced the genomes of 100 infants with unexplained seizures, along with their parents, from four countries (England, USA, Canada and Australia) to better understand the potential strengths of early, broad genome sequencing (a process which looks for changes across the entire genome) for infantile epilepsy.

The researchers used rapid genome sequencing (rGS) to investigate the impact of an expedited genetic diagnosis on care for the first time. Across all children enrolled in the study, 43% received a diagnosis within weeks, and that diagnosis impacted prognosis in nearly 90% of those cases, guiding treatment options for over half.

### **3. Translational Genomics node with Precision Child Health**

The Translational Genomics (TG) node is one of the pillars of the Precision Child Health initiative at SickKids. Several initiatives have been launched to promote genetics education and support genomic research and the downstream translation of research findings to clinical care:

- The Genome Board (GB): Created in 2020, this free consultation service is available to SickKids researchers seeking guidance relating to the design, best practices, and returnability of specific individual-level genomic study results, as well as the approach to returning such information, where relevant. The GB includes representation from clinical genetics, genome diagnostics, genetic counselling, and research ethics. Since its inception, 67 submissions have been reviewed.
- SickKidsSeq: Although genome-wide sequencing (GWS) is now available clinically

in Ontario, not all patients suspected of rare disease are eligible for clinical GWS, leaving many patients undiagnosed following standard-of-care genetic testing. The SickKidsSeq research study aims to address the access gap by broadening access to genome sequencing (GS) by providing clinicians a pathway to offer genome sequencing these patients and to evaluate the diagnostic and clinical utility of GS in this group. To date, submissions have been received from 15 divisions across SickKids.

## **Divisional Challenges**

### **1. Genetic Testing Volumes**

Expansion of genetic testing led to a significant increase in patients diagnosed with genetic disorders in need of treatment (referral volumes on the patient side) time for counselling and figuring out variants of uncertain significance. Increase in NBS (Newborn Screening) screened and treatments, and long-term management of these patients has led to a greater workload that has not been balanced with a concomitant increase of the number of funded positions for staff.

### **2. Lack of Trained Geneticists**

The increased demand for genetic services has not been met by an increase in the number of training spots for geneticists. In Canada, there is currently a greater demand for new geneticists than the number that are being trained per year. This has been in part addressed by mainstreaming the ordering of genetic tests by other subspecialties. However, this mainstreaming also results in downstream demand for genetic services for assessment and counselling regarding both novel diagnoses and greater number of variants of uncertain significance.

### **3. Research Funding**

Medical Genetics and Genomics is a specialty that balances the need for basic and applied research with translation of these innovations. As

the clinical and translational demands increase, there is no clear pathway for alternative sources of funding for the research component of the practice. In turn, financial constraints of the government have meant decreased support for protected research time for physicians (similar to other divisions in the department). There is a need for effective alternative models of funding (that include philanthropy, research dollars and university funds) that recognize the need to support physician-scientists and clinician investigators. Alternative funding for research effort would enable these professionals to use their unique skills to generate and implement new knowledge.

#### **4. Turnover**

The Division medical staff has undergone a significant turnover in the last five years. This has resulted in the recruitment of five new junior staff. Unfortunately, the pandemic, along with increased clinical and academic demands has led to feelings of burnout and frustrations in some of the senior and mid-career staff. At any given time in the last five years (due to staff turnover, medical and parental leaves), we have been understaffed by two or more positions, with the resulting need to cross-cover by increasing the clinical workload of the remaining staff. To compound the pressures, salaries for the staff have not increased in proportion which compounds the dissatisfaction. To overcome this period of stress, there would need to be an infusion of funds to allow the recruitment of adequate numbers of staff to maintain excellence in the clinical, educational, research and administrative aspects of the job.



# The Division of Neonatology

## Overview

The Neonatology Program at SickKids specializes in the transport, care, and follow-up of the most complex medical and surgical patients in Ontario, offering advanced training in neonatology. It is recognized for managing severe conditions such as hypoxic respiratory failure, hypoxic-ischemic encephalopathy, seizures, stroke, sepsis, and various surgical issues. The program includes the Neonatal Intensive Care Unit (NICU), Neonatal Neurodevelopmental Follow-Up Clinic, and Acute Care Transport Services (ACTS), with a vision of “Exceptional Care, Together.”

SickKids, along with Mount Sinai Hospital (MSH) and Sunnybrook Health Sciences Centre (SHSC), collaborates clinically, with approximately 20% of SickKids admissions from MSH and 7% from SHSC. The NICU at SickKids is a leading Level III care unit with 47 beds, focusing on innovative, collaborative care for medically complex newborns,

and it has the highest volume of therapeutic hypothermia cases in North America.

The Neonatal Neurodevelopmental Follow-Up Program (NNFU) screens and diagnoses children aged 0-3 with neurodevelopmental disabilities, providing care through an interdisciplinary team for about 1,550 patients annually.

ACTS is a premier program responsible for transporting critically ill infants, expanding its annual transport volumes from 1,450 in 2017 to 1,975 in 2023, handling over 45% of all neonatal transports in Ontario and 25% in Canada.

In the past five years, the Division has enhanced its faculty team, advanced clinical care and research, and expanded educational and outreach programs.

### Faculty

Dr. Estelle Gauda is the division head of Neonatology. She joined SickKids in March 2017 as Head of the Division of Neonatology, Women’s Auxiliary Chair of Neonatology and Senior Associate Scientist



Dr. Estelle Gauda

in the Research Institute. She is a Professor of Paediatrics at the University of Toronto and Director of the Toronto Centre for Neonatal Health.

As of July 2024, the Division has a total of 10 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired four Academic Clinicians and one Clinician Scientist during the review period.

Table 1A (top) and 1B (bottom)

Division	Clinician Administrator	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Neonatology	1	8		1		10

Division	2 – Lecturer	3- Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Neonatology		4	3	3	10

## Clinical Programs

**NICU** - Tertiary and Quaternary Level Unit with 47 physical beds (45 Ministry of Health funded). Primary surgical and neurocritical care referral centre across the GTA. 35% of admitted patients require surgical intervention. ~90 patients/year with neonatal asphyxia: Therapeutic hypothermia, ~878 patient admissions per/year and ~13,154 inpatient days per/year.

### **Neonatal Neurodevelopmental Follow-Up Program**

- The Neonatal Neurodevelopmental Follow-Up Program (NNFU) follows medically complex neonates until age 3, with referral criteria including hypoxic ischemic encephalopathy, stroke, extreme prematurity, complex congenital heart disease, and surgical anomalies. It conducts monthly combined clinics with Neonatal Neurology and Stroke teams, serving approximately 1,550 patients annually. Established in 2014, the NNFU is part of the broader Cardiac Neurodevelopmental Follow-Up Program, featuring an interdisciplinary team from various specialties. The program is involved in several CIHR and NIH-funded research studies and has a dedicated online learning hub on AboutKidsHealth, launched in 2019, which has received over 1 million Google hits.

**Acute Care Transport Services (ACTS)** - Transports the most critically ill infants in the province and has separate funding from the Ministry of Health that supports clinical operations. ~1,975 Neonatal & Paediatric transported patients in 2023 and ~1,180 Neonatal Transports, accounting for > 45% in the province, and ~25% of all Canadian neonatal transports in 2023.

## Newly Implemented Clinical Programs

### **Device Closure for Hemodynamically Significant Patent Ductus Arteriosus (hsPDAs)**

- In 2019, Canada's first percutaneous device closure for significant patent ductus arteriosus (PDA) in infants as small as 800 grams was established, replacing open thoracotomy. Since then, over 71 device closures have been performed, compared to just 10 surgical ligations, reducing the previous

average of 20 per year. This program is now among the largest in North America, with infants often repatriated within 24 to 48 hours post-procedure.

### **Management of Post Haemorrhagic Ventricular Dilatation (PHVD)**

- Premature infants born before 26 weeks gestation are at risk for intraventricular hemorrhage (IVH) and may develop posthemorrhagic ventricular dilatation (PHVD), requiring surgical drainage. A process established in 2018 enables early identification and intervention to improve outcomes. Infants undergo serial ultrasounds, and if ventricular size exceeds a threshold, lumbar punctures (LPs) are performed. If LPs fail, an Ommaya reservoir is placed at SickKids for cerebrospinal fluid (CSF) drainage. If this is ineffective, a ventricular peritoneal shunt is placed once the infant reaches an appropriate weight. The program has been presented internationally, and long-term follow-up data will be published.

### **Improved Ventilation Strategies and NICU Surgeries for Infants Born at the Limit of Viability**

- Many premature infants with surgical emergencies, such as severe necrotizing enterocolitis or midgut volvulus, require advanced invasive ventilation techniques like high-frequency oscillation (HFO) or high-frequency jet ventilation (HFJV). To enhance care, the Division developed a process in 2021, in collaboration with Paediatric Surgery and Anesthesiology, to perform emergent laparotomies in the NICU, reducing the time from presentation to operation.

### **Expansion of ACTS Teams to Improve Transport**

- In 2019, ACTS expanded its scope to include children up to 18 and transported adults for ECMO during the pandemic. Transport volumes increased from 1450 in 2017 to 1975 in 2023, with neonatal transports rising from 980 to 1180. Funding for a fourth team came in 2018 and a fifth in 2022. The MOH provided two dedicated ambulances at SickKids to reduce response times. In 2020, ACTS began structured debriefs for complex cases with referring hospitals.

### **Precision Child Health: Early Diagnosis of Genetic Disorders**

- The Divisions of Neonatology

and Genetics developed a pathway for whole genome or exome sequencing that reduces diagnosis time from months to weeks. This rapid diagnostic capability for genetic disorders that may not fully manifest in the neonatal period exemplifies our commitment to Precision Child Health.

## The Toronto Centre for Neonatal Health

The Toronto Centre for Neonatal Health is a neonatal and perinatal community driven to consistently deliver the best comprehensive care for all newborns. That ceaseless drive is nourished by an active space where we can share, learn and grow. Our space educates healthcare professionals and the next generation of neonatal experts, informs with basic and clinical research and elevates with information, resources and sharing.

## Research

Over the five-year review period, the Division (SickKids) has had 204 publications, generating 2,206 citations and resulting in an average H-Index of 15.1. These past five years, Division Faculty were awarded \$20,046,117.59 in grant funding.

## Medical Education

- The Neonatal-Perinatal Fellowship program is formally integrated with three University of Toronto teaching hospitals, SickKids, Mount Sinai Hospital (MSH) and Sunnybrook Health Sciences Centre (SHSC). MSH and SHSC are both inborn perinatal units, and SickKids is an outborn neonatal unit. Trainees rotate between the 3 NICUs, giving them an exceptionally rich and diverse training experience that is unique in Canada. The rotations at MSH and SHSC emphasize experience in antenatal consultation and in the delivery room management of high-risk neonates, including preterm infants, and those with antenatally diagnosed anomalies.
- Trainees are provided the opportunity to rotate at two Level 2 NICU sites: St. Michael's Hospital

and North York General Hospital. Additionally, rotations in the Cardiac Critical Care Unit and Paediatric Intensive Care Unit are encouraged.

The Division of Neonatology has a strong education mandate with 10 advanced fellowships including the Royal College accredited Neonatal-Perinatal Medicine fellowship, Departmental fellowship, Acute Care Transport Services (ACTS) fellowship, Neonatal-Neurology fellowship, Advanced Clinical Research fellowship, Karen Pape fellowship and the Neonatal-Perinatal Ethics fellowship, Neonatal Cardiac Intensive Care Program (NCICP) fellowship, and Neonatal Hemodynamics Subspecialty fellowship (NHSF). These training programs attract trainees provincially, nationally, and globally for their strong commitment to clinical excellence, research skills, output, and mentorship. In addition, the education programs focus on creating learning environments that are inclusive and diverse with a focus on physician wellness and resilience.

Approximately 35 trainees participate in the Neonatology education program over an academic year. Fellowships are 1-2 years (core program) in duration and can extend to 3 years dependent upon the program.

## Descriptions of Subspecialty Fellowship Training Programs

### University of Toronto Integrated Neonatal-Perinatal Fellowship Training Program

The University of Toronto Training Program in Neonatal-Perinatal Medicine offers a 2-year program, which combines clinical and research training. This program has received full approval from the Royal College of Physicians and Surgeons of Canada and satisfies the requirements for two years of neonatal-perinatal training as set by the American Academy of Pediatrics. This program is formally integrated within three University of Toronto teaching hospitals – Mount Sinai Hospital (MSH), Sunnybrook Health Sciences Centre (SHSC) and The Hospital for Sick Children (HSC). MSH and SHSC are inborn perinatal units and HSC is

an outborn neonatal unit. Combined, these three facilities provide a total of 38 Level II and over 100 Level III beds, which service the Central East region of the province of Ontario, a region with approximately 85,000 deliveries per year. Training includes rotations in the NICU, neonatal transport, antenatal, neonatal follow-up, paediatric critical care and research/elective time. An antenatal rotation, paediatric critical care, one month of follow-up and 4-5 months of research/elective time. Progression from first year to second is dependent on satisfactory performance and success at our Structured Oral Examination and OSCE.

### **3rd Year**

A third year of training is available for selected trainees who are pursuing academic careers and who wish to pursue research projects. Third-year applicants must seek external funding. The program reserves 1-2 positions for third year trainees who are unsuccessful in obtaining salary support and whose research proposals are deemed meritorious. A third year in our programme could satisfy the full Neonatal-Perinatal subspecialty training requirements of The American Academy of Pediatrics.

### **SickKids Departmental Clinical Fellowship**

The SickKids Departmental Clinical Fellowship program is not an accredited program of the Royal College of Physicians and Surgeons of Canada. Positions are generally for one year with two months in research/electives. The NICU at SickKids is a busy outborn referral centre which services a large population base and cares for the most complex neonatal medical and surgical patients. Departmental Fellow positions enable individuals to gain valuable clinical experience. Positions are for individuals who have completed their pediatric training, have at least six months of neonatal experience and are interested in pursuing a career in academic neonatology or pediatrics with a significant neonatal component to their practice.

### **SickKids Acute Care Transport Services (ACTS) Fellowship**

The ACTS Fellowship program is a competency based one year fellowship that encompasses both the medical and operational aspects of interfacility critical care transport. The Hospital for Sick Children receives 3500 neonatal and pediatric transport calls per year and is the busiest center in the country allowing for excellent clinical exposure. Positions are generally for one year. Trainees participate in providing management recommendations to RN/RT transport teams, accompany them on critical complex interfacility transports, attend high risk deliveries and provide consultations to the referral community-based physicians. This is an ideal training ground for a neonatologist interested in developing clinical and academic expertise in transport medicine year. This program is not accredited by the Royal College of Physicians and Surgeons of Canada.

### **Neonatal-Neurology Fellowship**

The Neonatal-Neurology Fellowship program allows trainees to participate in the clinical care of newborns at SickKids with neurological diseases, develop enhanced skills in neonatal and paediatric neurology subspecialties, and conduct clinical/translational and basic research related to Neonatal Neurology. Positions are generally for one year. Fellows who complete this Neonatal-Neurology training program will have advanced competencies in the neurological assessment and clinical management of newborn infants with complex neurological disorders. Moreover, the fellow will have the training to determine the utility of bedside monitoring tools (i.e., aEEG and continuous EEG) and advanced MRI techniques to enhance assessment and management. This program is not accredited by the Royal College of Physicians and Surgeons of Canada.

### **Advanced Clinical Support and Research Fellowship Program**

The Advanced Clinical Support and Research Fellowship program was aimed at physicians who completed neonatal training with a focus to

acquire additional research experience prior to transitioning to a Staff position. This fellowship was offered in 2019. Fellows were offered 60% protected research time and 40% clinical service in the NICU or follow-up clinical at SickKids. Positions were generally for a one-year period. This program was not accredited by the Royal College of Physicians and Surgeons of Canada.

### **Karen Pape Fellowship Program**

The Karen Pape Fellowship program is a two to three-year fellowship combining both clinical and research training in the field of neuroplasticity, specifically early brain repair. This fellowship was established in 2020. The overall goal is to develop the knowledge, skills, and attitude to diagnose and manage developmental health conditions of neonates with congenital or acquired brain injury in early childhood. Trainees will advance their research methodology skills and participate in a supervised research project in the field of neuroplasticity. This fellowship is not an accredited program of the Royal College of Physicians and Surgeons of Canada.

### **SickKids Fellowship in Neonatal-Perinatal Ethics (FINPE)**

The University of Toronto Fellowship in Neonatal-Perinatal Ethics is a two-year program established in 2021 designed to train the next generation of leaders in neonatal-perinatal ethics where clinical experience informs and drives academic interests. The nature of neonatology situations such that ethical issues are inevitable and unique due to the nature of the patient population. This fellowship provides opportunity to develop competency in identifying, analyzing, and addressing neonatal-perinatal ethical issues encountered in practice by working in four renowned neonatal units. Fellows complete a master's in bioethics at the University of Toronto Joint Centre for Bioethics (JCB). This is not an accredited program by the Royal College of Physicians and Surgeons of Canada.

### **SickKids Neonatal Cardiac Intensive Care Program (NCICP) Fellowship**

The NCICP Fellowship is a one-year program established in 2023. During training the candidates can expect to (1) obtain basic and advanced training in performing neonatal ECHOs in accordance with the Royal College Area of Focused Competence Diploma guidelines, (2) receive training in the clinical integration of the acquired information and develop an understanding in managing common acute and chronic cardiopulmonary disorders encountered in tertiary neonatal clinical practice; 3) gain experience in running a hemodynamic consultation clinical service on a day-to-day basis; 4) complete at least 1 primary research project in the field of neonatal cardiovascular medicine; 5) acquire expertise in managing preterm neonates with critical congenital heart disease; and f) acquire basic (1 year fellowship) or advanced (2 year fellowship) academic training in cardiopulmonary physiology and epidemiology principles. This is not an accredited program by the Royal College of Physicians and Surgeons of Canada.

### **Neonatal Hemodynamics Subspecialty Fellowship (NHSF)**

The NHSF Fellowship is a one-year program, with a possible extension to two years, established in 2021. The NHSF program includes a minimum training period of 3 months in the Pediatric Echocardiography Lab and 9 months in one of the participating NICUs under direct supervision of the site TNE director. During training the candidates can expect to: a) obtain basic and advanced training in performing TNE; b) receive training in the clinical integration of the acquired information and develop an understanding in managing common acute and chronic cardiopulmonary disorders encountered in tertiary neonatal clinical practice; c) gain experience in running a hemodynamic consultation clinical service on a day-to-day basis; d) complete at least 1 primary research project in the field of neonatal cardiovascular medicine; and e) acquire basic (1 year fellowship) or advanced (2 year fellowship) academic training in cardiopulmonary physiology

and epidemiology principles. This is accredited as an area of focused competence by the Royal College of Physicians and Surgeons of Canada.

## Medical Education Priorities

### Ongoing Priorities

- CBD implementation occurred in 2021, under the guidance of the CBD/ Education Subcommittee. New learner training was provided and faculty development sessions on feedback and coaching were conducted.
- Appointment of Associate Program Director, Dr. Mehmet Cizmeci, to the Neonatal-Perinatal Fellowship Program in 2024.
- Increased protected time for academic teaching sessions to 240 minutes for Royal College Fellows and 90 minutes for Departmental Clinical Fellows. Teaching sessions are interactive, didactic, and facilitated by both internal and external speakers.
- Creation of several new fellowship streams including Karen Pape, Neonatal-Perinatal Ethics, Neonatal Cardiac Intensive Care Program, TnECHO, Advanced Clinical and Research Fellow
- Opportunities created for fellows to participate and contribute to the Toronto Centre for Neonatal Health (TCNH) website with case reviews
- Creation of new Orientation curriculums to include sessions on supporting learner wellness, mitigating burnout, supportive learning environments and align to meet learner needs.
- Continuous improvement to formal PEAP exam content and structure.
- Expansion of the Scholarly Activities Committee to include director representation from all three training sites (SickKids, Mount Sinai Hospital,

and Sunnybrook Health Sciences Centre) to increase research mentorship.

- Launch of Toronto Centre Neonatal Health (TCNH) Grand Rounds, with speakers invited to present on current relevant neonatal topics.
- Resident Program Committee (RPC) Retreat was held to address Royal College program structure and challenges.
- Revision of ACTS Orientation to include didactic and simulation sessions with focus on transport safety, equipment, processes, systems and provincial organization of interfacility transport.
- Research Productivity: Update to Scholarly Activities manual and structure of research for the fellows (research contract, 6-month surveys and 12-month surveys)

### Short Term

- Implementation of new Academic Half Day Curriculum
- Restructure and redevelopment of the Wellness Committee
- Royal College Accreditation for Transport Fellowship – application being submitted in Fall 2024

### Long Term

- Faculty Development – increase faculty engagement with teaching, feedback and coaching, increase opportunities for mentorship, and develop ongoing internal research training
- Strengthen partnerships with community partners through the ACTS Team

## Divisional Accomplishments

### 1. Advancements in Clinical Care and Research

#### NICU

- Reduced Length of Stay to 15.5 days (2021)
- Decreased CLABSI rates from 1.75 to 0.79
- Unintentional extubations below target (0.06/100 vent days)
- Implemented new MRI in the NICU
- Increased clinical huddles to enhance patient flow
- Daily National Therapeutic Intervention Scoring System for all patients
- Research: Two grants awarded for improving care in necrotizing enterocolitis and hypoglycemia treatment, plus a Health Outcomes grant studying citrulline in preterm lung disease.

#### Neonatal Follow-Up Clinic

- Expanded program with a hybrid virtual care model
- Recruited additional neonatologist for increased patient volume and complexity
- Created AboutKidsHealth learning hub in 2019
- Launched the Endowed Karen Pape Fellowship in Neuroplasticity for research.

#### Acute Care Transport Services

- Expanded to include children up to 18 (2019)
- Secured Ministry of Health funding for a 4th team (2018) and 5th team (2022)
- Added two dedicated ambulances from Toronto Paramedic Services for 24/7 operation
- Provided exceptional education to the community, onboarding 25 new paramedics
- Instituted structured debriefs for complex cases involving referring hospitals (2020).

### 2. Staffing, Resources and Model of Care

Enhanced the Neonatal Nurse Practitioner Program to promote a consistent and higher model of frontline care and quality improvement initiatives. Additionally, this allows for more opportunities for education of our trainees. Also implemented Coaching to improve onboarding and enhance the fellowship experience.

### 3. Enhancing the Patient Family Experience in the NICU

- Renovated NICU Family Spaces (waiting area, kitchen, breast pumping rooms)
- NicView Cameras installed – Allowing parents and extended families to stay connected
- Appointment of a Grief Support Coordinator
- Breastfeeding Program – Parent pumping kits funded by SickKids.

## Challenges & Opportunities

Below is a summary of opportunities that if pursued, will be beneficial to the continued success of the Division of Neonatology.

### 1. Enhancing the Learning Environment

- Advance SickKids Neonatal Clinical Fellowship Program- Tailored to trainees needs
- Co-create innovative and integrated curriculum and assessments strategies for trainees
- Coaching support for incoming Fellows
- Achieve Royal College Accreditation for Neonatal Transport Fellowship
- Continue to progress in Competency By Design (CBD)
- Support Leadership development for all faculty

### 2. Advancing the Research Program

- Complete ongoing cohort studies and interventional trials

- Create and maintain a prospective NICU cohort database
- Support faculty to complete data analyses and submit manuscripts for publication to enhance and support grant writing and submission
- Enhance competencies in manuscript and grant writing; the currency of academic success
- Continue to support laboratory-based research and capitalize on opportunities to collaborate with basic scientists within the RI
- Collaborations across SickKids on clinical research

### **3. People and Culture**

- Addressing staffing shortages to fulfill the clinical needs of the division by combining resources
- Foster professional growth of new faculty while harnessing individual talent for an improved collective whole
- Better Care Together: supporting interprofessional team members in high stress environment in order to deliver better care to our critically ill and complex patient population
- Enhance collaboration, camaraderie and trust between level III critically care units in the Toronto Centre for Neonatal Health (TCNH)



# The Division of Immunology & Allergy

## Overview

The Division of Immunology and Allergy provides comprehensive care for patients with inborn errors of immunity and complex allergic diseases through six specialty clinics, an immunoglobulin replacement program, and inpatient consultative services.

The Immunology clinic offers diagnosis and treatment for genetically inherited immune disorders, receiving referrals from across Canada. The Primary Immunodeficiency (PID) program is Canada’s largest center, consulting over 2,000 outpatients with complex disorders like Severe Combined Immune Deficiency. The team utilizes advanced techniques such as whole exome and genome sequencing to identify novel immunodeficiencies and treatments, including enzyme replacement therapies and stem cell transplants in collaboration with the Bone Marrow Transplant team.

The Immunology Program has also launched the Precision Immunology (PRISM) Clinic, a collaborative effort with Rheumatology for diagnosing severe immune dysregulation.

The Allergy clinic diagnoses and manages complex allergic diseases, offering allergy testing, challenges, and desensitizations for patients requiring specialized care. The program addresses the growing need for food allergy treatment through early intervention and a modified low-dose protocol for multiple allergens. This has led

to the establishment of the SickKids Food Allergy and Anaphylaxis Program (FAAP) and the Food Immunotherapy/Fellow in Training (FIT) clinic, both recognized for their research and impact on patient quality of life. The program has earned distinctions as a World Allergy Organization center of excellence and a GA<sup>2</sup>LEN Anaphylaxis Centre of Reference and Excellence, and has launched Canada’s only subspecialty fellowship dedicated to food allergy.

Additionally, the division has developed a collaborative clinic with Respiriology for children with severe asthma complicated by allergic conditions.

## Faculty

Dr. Mark Palmert has held the role of interim division head since December 2021. Dr. Palmert is a Professor in both the Department of Paediatrics and Physiology at the University of Toronto, a staff physician in the



Dr. Mark Palmert

division of Endocrinology, and a Senior Associate Scientist. He also holds the position of Associate Chair, Outpatient in the Department of Paediatrics.

The Division hired one Academic Clinician during the review period. As of July 2024, the Division has a total of six full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired four Academic Clinicians and one Clinician Scientist during the review period.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Immunology /Allergy	2	1	1	2	6

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Immunology/ Allergy	2	1	3	6

## Clinical Programs

### **Advanced Management in Immunology (AIM)**

**Clinic** - The Advanced Management in Immunology (AIM) clinic at SickKids specializes in caring for patients with complex inborn errors of immunity before and after stem cell transplants or gene therapy. A multidisciplinary team addresses the medical, psychological, and social challenges faced by these patients and their families, contributing to treatment guidelines, scientific advancements, and education for learners locally and internationally.

### **The SickKids Food Allergy and Anaphylaxis**

**Program** - The Food Allergy and Anaphylaxis Program at SickKids, a World Allergy Organization Centre of Excellence, addresses food allergies through a multidisciplinary team and contributes to scientific advancements and education for affected families.

**Precision Immunology (PRISM) Clinic** - The Precision Immunology (PRISM) Clinic, led by Drs Ori Scott and Dilan Dissanayake, offers a multidisciplinary approach to diagnosing and treating severe immune dysregulation. Tailored tests guide management with advanced therapies, while collaboration with various specialties enhances care and educational opportunities for trainees.

### **FIT Clinic (food immunotherapy clinic/fellow in training clinic)**

The FIT Clinic provides immunotherapy for children under 6 with severe food allergies, focusing on both single and multiple allergies. It integrates with the Division's education mission and uses EMR and virtual care tools for home management.

**Multidisciplinary Severe Asthma Clinic** - This multidisciplinary clinic focuses on children with

severe asthma and related allergic conditions, aiming to improve disease management through aeroallergen immunotherapy. This approach seeks to reduce reliance on biologic medications and enhance quality of life while potentially modifying the disease's course.

**Drug Delabelling Clinic** - Many children are incorrectly labeled as allergic to drugs, with over 80% lacking IgE-mediated allergies. This often leads to inappropriate second or third-line therapies, increasing hospital stays and worsening outcomes. The delabelling clinic uses a systematic approach, including oral or IV challenges, successfully delabeling over 90% of these patients.

## Research

The SickKids Food Allergy and Anaphylaxis Program actively conducts both clinical trials and basic research to better understand factors influencing the development of tolerance to food allergens, improve approaches to diagnosing allergies, and evaluate novel, safer and more effective treatment options.

Within the Division of Immunology and Allergy clinical trials include:

- Two ongoing clinical trials investigating potential low-dose oral immunotherapy (OIT) treatments for children allergic to nuts.
- A phase III clinical trial evaluating the short- and long-term efficacy of epicutaneous immunotherapy in young children. Patients are given patches containing peanut allergen to determine if desensitization to peanut is achieved over time.
- A trial investigating the use of omalizumab (an asthma medication) to facilitate safer and faster OIT for multiple allergens at the same time.
- A clinical trial focusing on the use of platelet-

activating (PAF) inhibitors to manage allergic symptoms is in planning.

Translational Research Projects include the following:

- Investigating human models for food allergy which can be used as a platform for drug testing such as human gut tissue model (Eiwegger Lab) and animal models of peanut allergy (Grunebaum Lab).
- Understanding the immunological mechanisms that contribute to the development of food allergies in patients with existing immunodeficiencies or after organ transplantation

- Developing novel methods to diagnose and predict nut allergy with a higher degree of precision than current diagnostic approached
- Identifying unique patterns of food allergen recognition by the immune system
- Over the five-year review period the Division had 468 publications, generating 7,984 citations and resulting in an average H-Index of 28.5. These past five years, Division Faculty have secured \$5,114,097.04 in grant funding.

## Medical Education

The training programs in Immunology/Allergy are as follows:

Educational Programs	
Clinical Immunology & Allergy Subspecialty Residency Program	<ul style="list-style-type: none"> <li>• 2-year subspecialty residency program, accredited by the RCPSC</li> <li>• Accepts 1-4 residents per year</li> <li>• Residents participate in quality improvement projects each year. Recent projects include:               <ul style="list-style-type: none"> <li>• Reducing use of first-generation antihistamines in inpatient units and the emergency department at SickKids</li> <li>• Reducing frequency of bloodwork for IVIG patients at SickKids</li> </ul> </li> <li>• Graduates of the program have successfully obtained academic positions or set up practices in the community</li> <li>• Each resident participates in scholarly activity.</li> <li>• Residents have presented abstracts and posters at national conferences</li> </ul>
Clinical Immunology & Allergy Clinical Fellowship Program	<ul style="list-style-type: none"> <li>• 2 year clinical fellowship program</li> <li>• Accepts 1-2 fellows per year</li> <li>• Fellows participate in quality improvement projects each year (see above)</li> <li>• Fellows participate in scholarly activity and have presented abstracts and posters at national conferences</li> </ul>
Immunodeficiency & Transplantation Clinical Fellowship	<ul style="list-style-type: none"> <li>• 1 or 2 year subprogram offering additional clinical and research experiences in inborn errors of immunity (IEI) and hematopoietic stem cell transplantation for IEI</li> </ul>
Advanced Food Allergy Clinical Fellowship	<ul style="list-style-type: none"> <li>• 1 year subprogram offering additional clinical and research experiences in food allergy and food oral immunotherapy</li> </ul>

Our program partners with 7 other allergy/immunology training programs across Canada to share the academic half day. This enriches the trainees' learning experience by adding diverse perspectives and allows them to work and interact with trainees and staff from across the country.

Our program works closely with the Adult Clinical Immunology & Allergy program at St. Michael's Hospital, increasing their learning opportunities. For example, our trainees are encouraged to attend the teaching rounds at St. Michael's Hospital

## Medical Education Priorities

Accomplishments during the review period include:

- Increasing training experiences in allergy and community practices
- Implementation of competence by design
- Implementation of a wellness committee
- Revising the selection process using EDIA principles
- Revising the academic half-day to join the distributed academic half-day that is shared with other allergy/immunology training programs across the country
- Implementation of an annual quality improvement project
- Development of a formal career mentorship program
- Development of a longitudinal clinic

Many of the accomplishments including changes in the academic half-day and development of the longitudinal clinical, were informed by learner feedback.

### Short-term priorities:

- Update the Academic Half Day curriculum
- Develop Allergy/Immunology educational modules for pediatric residents
- Start an annual Division-specific graduation celebration for residents and fellows

### Long-term priorities:

- Embed more EDIA into the curriculum
- Advocate for our specialty and graduates on a national level to improve opportunities for academic positions in Allergy and Clinical Immunology
- Review the CBD curriculum and modify EPAs as needed

## Divisional Accomplishments

### 1. New knowledge and treatment of inborn errors of immunity.

The Division focuses on understanding and treating Severe Combined Immunodeficiency (SCID), which can be fatal without early diagnosis and treatment. It is a leader in this field, having characterized novel mechanisms and tested new treatments, including enzyme replacement therapies, stem cell transplants, and gene therapies. The team also studies Combined Immune Deficiencies (CID), which, while less severe than SCID, can still lead to premature death. They have identified over 20 new genetic causes of PID and published management guidelines in reputable journals, contributing to national and international conferences and securing funding awards.

### 2. Newborn screening for severe combined immunodeficiency (SCID)

Newborn screening is an effective method for reducing morbidity and mortality from inherited disorders. The SickKids Immunology team pioneered screening for severe combined immunodeficiency (SCID), a fatal condition if not treated early. This initiative resulted from collaboration with various programs, including Genetics at SickKids, Newborn Screen Ontario, and Immunodeficiency Canada. The program has successfully detected SCID and other T cell immunodeficiencies, like DiGeorge Syndrome and Ataxia Telangiectasia. Since its inception, no newly

diagnosed SCID patients have been admitted to SickKids with life-threatening infections, demonstrating its critical role in early management and prevention of death. The team is now expanding screening efforts to other provinces.

### **3. Development of the Food Allergy and Anaphylaxis Program (FAAP).**

The Food Allergy and Anaphylaxis Program (FAAP) seeks to “Cure the Fear” of food allergies through research, education, advocacy, and clinical efforts. It has been recognized as a World Allergy Organization Center of Excellence and a GA<sup>2</sup>LEN Anaphylaxis Centre of Reference and Excellence.

The team has identified a new genetic cause of allergy (IL-33 duplication) and participated in key clinical trials, including one in the New England Journal of Medicine that tested a transdermal peanut treatment.

Active in advocacy, the team has received the National Robyn Allen Leadership Award and contributed to the National Action Plan. New initiatives include the Food Immunotherapy/Fellow in Training (FIT) clinic, providing care to hundreds of unserved children, and launching Canada’s only advanced fellowship in food allergy.

### **Divisional Challenges**

Food allergy is undergoing a seismic change from avoidance to treatment. This change is causing challenges with access to care for food allergy treatment due to large numbers of patients needing care. However, this challenge is also an opportunity to lead with EMR integration and developing ongoing efficiencies and virtual care to facilitate management.



# The Division of Infectious Diseases

## Overview

The Division of Infectious Diseases at The Hospital for Sick Children was founded in 1979 by Dr. Ronald Gold, starting with a Consultation Service, outpatient clinic, and two inpatient wards. Initially managed by part-time paediatricians, it grew to five full-time members, including clinician-researchers and a basic scientist.

In 1992, the Division became a consultation-only service, enhancing outpatient programs. By 2004, it was split into two specialized teams: one for general infections and another for immunocompromised patients.

Today, the Division is one of North America’s largest training programs, providing interdisciplinary care for paediatric infectious diseases to children across Ontario. It operates two inpatient consultation services and a third for external telephone consultations. The Paediatric Infectious Diseases Clinics offer comprehensive, family-centered care for children

exposed to or infected with infectious diseases, from assessment to chronic care management.

Heavily invested in research, the Division focuses on linking bench research to bedside applications, promoting multidisciplinary studies, and addressing both common and rare diseases. Established priority research programs guide its agenda, supported by funding from national agencies and multi-centre studies.

### Faculty

Dr. Upton D. Allen is the Division Head of Infectious Diseases. Dr. Allen is a Professor of Paediatrics at the University of Toronto and a Senior Associate Scientist in Child Health Evaluative Sciences program at SickKids Research Institute. He is cross-appointed as a professor in the Institute of Health Policy, Management and Evaluation, University of Toronto.



Dr. Upton D. Allen

Dr. Allen is a past director of the Infectious Diseases Society of America and Fellow of the Society. He is a Fellow of the American Academy of Pediatrics, a Fellow of the Royal College of Physicians and Surgeons of Canada and a Fellow of the Royal College of Physicians (UK). In 2018, he was awarded the Order of Ontario, which is the highest honour awarded by the province of Ontario, Canada.

As of July 2024, the Division has a total of nine full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired one Academic Clinician and one Clinician Scientist during the review period. During the review timeline, the Division recruited 1 Academic Clinician and 1 Clinician Investigator.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Infectious Diseases	4	1	3	1	9

Division	0 - No Appointment	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Infectious Diseases	1	1	3	4	9

## Clinical Programs

**In-patient Consult Services** - The inpatient Consultation Services at SickKids serve all divisions. The immunocompromised team focuses on transplant and cancer patients, while the general team handles others. Under Dr. Allen's leadership, the Division supports transplant teams with consultations and guidelines, and consults for neonatal intensive care unit at Mount Sinai Hospital.

**General Paediatric Infectious Diseases** - The outpatient clinics follow up with former inpatients needing antimicrobial treatment for infections such as brain abscesses and skin infections. They also handle referrals from healthcare providers across Toronto and Ontario and offer multidisciplinary programs for patients with HIV/AIDS, childhood tuberculosis, and congenital infections like cytomegalovirus.

**Paediatric HIV** - The HIV/AIDS clinic cares for infants, children, and adolescents with HIV, as well as those born to mothers with HIV or unknown risks. We provide prenatal counseling for mothers on perinatal transmission risks, infant post-exposure prophylaxis, and feeding options.

**Mycobacteria/Tuberculosis** - The Mycobacterial infections clinic specializes in complex cases of mycobacterial diseases, particularly childhood tuberculosis. Led by TB specialist Dr. Ian Kitai, the clinic provides advanced diagnostics and therapies and serves as a key resource for Ontario and beyond.

**Congenital/Perinatal infections** - The congenital infections clinic provides counseling, diagnosis, and management of perinatal infections for patients from Toronto and surrounding areas, including prenatal counseling for pregnant women and care for infants and children with congenital infections like CMV, syphilis, and toxoplasmosis.

**RAPID ACCESS/CRAFT** - The Rapid Access Clinic sees patients who were semi-urgently referred from the Emergency Department, wards and community settings. This is aligned with the CRAFT

clinic that provides assessment for febrile pediatric travelers on an urgent basis.

**Post-COVID Condition** - This clinic focuses on children who have had sequelae following COVID-19

**Special Immunizations** - Our special immunizations clinic is integrated within the general ID clinic and focuses on infants and children who have had adverse effects of vaccines, vaccine counselling and vaccine hesitancy.

**Travel Clinic** - Our travel clinic sees children and their families who are travelling and who requires counselling as well as travel-related vaccination and medications.

## Research

The Division's research initiatives are structured around themes that include host susceptibility and related factors and innovative antimicrobial and associated therapies. Specific research initiatives include multicentred paediatric HIV studies related to maternal-to-child transmission and studies on new antiretroviral drugs, vaccine studies and research into the mechanisms of host susceptibility to infections.

These infections include viral myocarditis, HIV and EBV-related post-transplant lymphoproliferative disease (PTLD) and encephalitis. Multi-centered trials related to the diagnosis and prevention of infections in transplant patients are ongoing, as well as participation in national surveillance studies and national collaborative paediatric studies through the Paediatric Investigators Collaborative Network on Infections in Canada (PICNIC). Our research in paediatric infection control includes the clinical and molecular epidemiology of paediatric nosocomial infections. Over the five-year review period, the Division had 364 publications, generating 5,175 citations and resulting in an average H-Index of 21.5. These past five years, Division Faculty has secured \$11,394,898.39 in grant funding. During the review period, members of the Division received

tri-agency (CHIR NSERC), Federal Government, and not-for-profit supported grants focused on COVID-19 including but not limited to:

- Building COVID-19 vaccine confidence (Dr. Upton Allen)
- Genetic markers of susceptibility to COVID-19 (Dr. Upton Allen)
- Enhancing COVID-19 Vaccine Confidence among African Canadians (Dr. Upton Allen)
- Optimizing the clinical management of patients with diverse events following COVID-19 vaccinations and potential contraindications (Dr. Shaun Morris)
- School-based vaccine education outreach to build trust and empower families (Dr. Shaun Morris)
- Ontario Healthcare Worker Seroprevalence of anti-SARS-CoV-2 Antibodies (Dr. Michelle Science)

## Medical Education

Our Division provides a wide range of educational programs that are appropriate for different medical training and specialty levels. We accept applicants through CaRMS who are funded by the University of Toronto, as well as International Applicants which are funded by the Department of Paediatrics at SickKids. We also accept Sponsored Applicants which are citizens of the Gulf Corporation Council and they are funded by their government. We also offer elective opportunities to medical students, fellows, and residents both domestically and abroad. We provide observerships so that medical professionals can watch our clinics and gain knowledge from our personnel. The goal of these programs is to advance professional growth and advance paediatric dermatology through specialized training and research opportunities. The success of our educational programs is evident through several key outcomes and quality indicators. We have received notable distinctions, including teaching awards. Our programs are continually improved through quality enhancement initiatives, incorporating learner feedback and best practices to ensure effective training. Furthermore, our trainees have made significant achievements, such as publishing research, presenting at national

conferences, and securing prominent roles in the field.

The Subspecialty Training Program is accredited by the Royal College of Physicians and Surgeons of Canada (RCPSC) and is one of the oldest and largest training programs in Canada. It is designed to meet the requirements for subspecialty training in Paediatric Infectious Diseases. This includes 11 blocks of Paediatric ID consult service, 2 blocks of adult ID consult service, 1.5 blocks of infection control, 1.5 blocks of antibiotic stewardship, 3 blocks of microbiology, 1 block of public health and 4 elective blocks.

The trainees also attend a half-day clinic per week. In first year, this longitudinal clinic experience includes experiences in the congenital infection clinic, auto inflammatory clinic, HIV clinic, tuberculosis clinic, and general ID clinic. In their 2nd year, trainees attend their own individual continuity clinic.

There is a structured formal paediatric ID academic curriculum that includes on average three hours of protected teaching per week. In addition to strong teaching while on the microbiology rotations, a structured year-long plate rounds series also occurs. Other formal teaching includes the week-long annual National ID fellows' retreat for which all of our fellows are given protected time to attend.

In addition to the RCPSC stream of our training program, we offer a two-year clinical fellowship for international trainees who plan to further develop the field of paediatric infectious diseases upon return to their home countries. The rotations and curriculum for this two-year fellowship program are like what is described above for the RCPSC subspecialty residency program. Funding support generally involves sponsorship from the applicant's home institution or government; however, there are also limited locally funded positions.

### Medical Education Priorities

Infectious Diseases has successfully advanced its mission by training fellows from diverse

backgrounds and focusing on increasing capacity in under-serviced areas globally. Key accomplishments include implementing a competency-based curriculum that ensures structured blocks for repeated subspecialty exposure and ongoing longitudinal experience in general paediatric infectious diseases. Additionally, the program has updated its competencies to reflect modern practices in education, leadership, and equity, diversity, and inclusion (EDI). These initiatives collectively provide a comprehensive and adaptable training experience, equipping fellows with the skills and knowledge to make significant contributions to pediatric infectious diseases both locally and internationally. Additionally, CBD was implemented starting July 2024.

Trainees in our program have several valuable opportunities to gain experience in medical education. They regularly participate in Journal Club, where they review and present one or more journals relevant to paediatric infectious diseases. This experience allows them to enhance their presentation skills and deepen their understanding of current research. Additionally, trainees are encouraged to present their work and findings through presentations and posters at various conferences, which helps them build experience in academic dissemination and public speaking. Furthermore, trainees are involved in fellow clinics with junior trainees, where they take turns providing small group teaching to pediatric residents/ electives during each rotation block. This hands-on teaching experience helps them develop skills in curriculum delivery and educational leadership.

## **Divisional Accomplishments**

### **1. Immunocompromised Host Consult Service**

The Division has created a specialized consult service for immunocompromised patients, particularly those undergoing transplants or cancer treatment. This service offers diagnostic assessments, personalized treatment plans, and ongoing monitoring, and has improved patient outcomes through tailored infection control strategies. Recognized for its excellence, it serves

as a model for enhancing care for this vulnerable population.

### **2. Specialized Infectious Diseases Clinics**

The Division has adapted to the needs of our patient populations by establishing specialized clinics that provide tailored care for various infectious diseases. The Paediatric HIV clinic focuses on children affected by HIV, while the Mycobacterial infections clinic addresses complex cases, including childhood tuberculosis, under the leadership of Dr. Ian Kitai, who guides Canadian pediatric TB management. The Congenital/ Perinatal infections clinic ensures early diagnosis and treatment for newborns and their mothers. Other clinics, including those for bone/joint infections, international diseases, special immunizations, and Long COVID, offer focused expertise and interdisciplinary care. We also have a Rapid Access Clinic for semi-urgent referrals from the Emergency Department and community settings, in addition to the CRAFT clinic for urgent assessments of febrile pediatric travelers.

### **3. Regional Leadership on Issues Relating to COVID-19**

During the COVID-19 pandemic, the Division became a regional leader in addressing COVID-19 in schools. Dr. Allen co-chaired the COVID-19 Science Table, now the Ontario Public Health Science Advisory Committee.

A key achievement was the development of a return-to-school document by Drs. Ari Bitnun and Science, which provided guidelines and risk mitigation strategies for educational institutions, setting a regional benchmark.

We also established a COVID-19 follow-up clinic for children and engaged in research, vaccine rollout, and family education. Additionally, we supported faculty through town hall meetings, guidelines, and presentations, including an annual Infectious Disease update course on COVID in children.

### **Specially Targeted Vaccine Education**

During the COVID-19 pandemic, we developed

several initiatives aimed at enhancing confidence in vaccines. These included Specially Targeted Educational Programmes aimed at educating those involved in conveying vaccine-related information to marginalized communities. Building on our COVID-19-related initiatives and our broader commitment to vaccine education, we have developed and led a pilot project for a nurse-led, phone-based consult service in Winter 2023-2024. This project will be re-launched this year under the name 'Immunization InfoLine,' focusing on supporting immunization uptake and confidence. Our efforts highlight our ongoing dedication to enhancing vaccine education and enhancing vaccine confidence.

## Antimicrobial Stewardship

The Infectious Diseases Division established an antimicrobial stewardship programme under the leadership of Dr. Michelle Science. We were one of the first paediatric centers to establish an antimicrobial stewardship program, particularly within critical care units. By developing and implementing evidence-based guidelines, we ensure the judicious use of antimicrobials to combat resistance and improve patient outcomes. Our Division is dedicated to educating trainees through hands-on experience, thereby fostering the next generation of experts in antimicrobial stewardship. We also provide national leadership and engage with other programs internationally, attracting external clinicians seeking our specialized expertise and reinforcing our position as a leader in this important area of infectious disease management.

## Divisional Challenges

### 1. Maintaining an Appropriate Balance of Service to Education Ratio for Trainees

A key challenge for our Division is balancing service and education for trainees, a concern previously noted by the Royal College. While clinical demands have risen, trainee numbers have declined. As complex patient cases increase, there's a higher demand for specialized multidisciplinary care, which can limit educational

opportunities for trainees who spend considerable time on consults and documentation, often after hours.

To address this, we need to consider strategic solutions, such as increasing faculty and clinical associates, to ensure that trainees receive comprehensive education while maintaining high-quality patient care.

### 2. Handling the Increasing Number of Calls from Community Physicians

Another pressing challenge is the increasing volume of calls from community physicians seeking advice on infectious disease issues, which can overwhelm our resources. Currently, these calls disrupt the daily activities of our fellows and are handled by an existing consult service.

To address this issue, we might consider developing a robust telemedicine platform for external consultations, which could streamline communication and provide timely advice. Additionally, training a team of specialists or creating a dedicated call rotation could help distribute the workload. Investing in technology and personnel will be crucial for effectively managing this growing demand.

### 3. Compensation of Infectious Diseases Physicians

At the divisional level, the ongoing concerns about the compensation of infectious diseases clinicians present another significant challenge. The extraordinary amount of after-hours work addressing various issues, including but not limited to those of public health significance, is not always adequately reflected in current compensation packages. This discrepancy can lead to burnout and affect job satisfaction and retention rates. Addressing this issue requires a multi-faceted approach, including advocacy for better remuneration, adjusting workload expectations, and potentially restructuring compensation models to include stipends for after-hours work. Balancing fair compensation with sustainable workloads will be crucial to maintaining a motivated and effective clinical ID team.



## The Division of Respiratory Medicine

### Overview

The Division of Respiratory Medicine at The Hospital for Sick Children (SickKids) is dedicated to providing comprehensive, state-of-the-art care for infants, children, and adolescents with a wide range of respiratory disorders. Our team of specialized paediatric pulmonologists, respiratory therapists, and support staff is committed to improving the health and quality of life for our patients through innovative clinical care, research, and education.

At SickKids, we understand the unique challenges faced by children with respiratory conditions, including asthma, cystic fibrosis, sleep-disordered breathing, and chronic lung diseases. Our multidisciplinary approach ensures that each patient receives individualized care tailored to their specific needs. We offer a full spectrum of services, from outpatient consultations and diagnostic testing to inpatient management and advanced therapeutic interventions.

The Division is also at the forefront of research in paediatric respiratory medicine. We are involved in cutting-edge studies aimed at enhancing our understanding of respiratory diseases and developing new treatment modalities. Our collaboration with other specialties, along with partnerships with academic institutions, enables us to translate research findings into clinical practice, benefiting our patients and the broader community.

Education is a key component of our mission. We are committed to training the next generation of paediatric healthcare professionals through robust fellowship and residency programs, as well as ongoing education for current practitioners. By fostering a culture of learning and innovation, we strive to advance the field of paediatric respiratory medicine.

At the Division of Respiratory Medicine, our ultimate goal is to provide the highest standard of care while promoting research and education to improve outcomes for children with respiratory conditions. We are dedicated to making a positive impact on the lives of our patients and their families, ensuring that every child has the opportunity to breathe easier and thrive.

### Faculty

Dr. Moraes was appointed to the role of Division Head in January 2023 following the 18-year tenure of Dr. Felix Ratjen. Dr. Ratjen has continued both his clinical and research work, as well as his role as Program Head, Translational Medicine at the Research Institute



Dr. Theo Moraes

The Division hired four Academic Clinicians during the review period, and there were three full-time faculty departures.

A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Respiratory Medicine	5	4	2	11

Division	0 - No Appointment	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Respiratory Medicine	1	3	1	6	11

## Clinical Programs

**Asthma** - Provides comprehensive, team-based asthma care to children with moderate to severe asthma

**Cystic Fibrosis (CF)** - This program provides multidisciplinary care for children and youth with CF. The CF team consists of paediatric respirologists, gastroenterologists, a specialized nurse-practitioner, clinic nurses, dietician, physiotherapist, social worker and psychologist.

**Lung Transplant** - The Lung Transplant Clinic offers pre-evaluations and post-operative medical management for lung transplantation in children.

**Primary Ciliary Dyskinesia** - We provide a specialized multidisciplinary clinic for paediatric patients with primary ciliary dyskinesia.

**Interstitial Lung Disease** - We provide a specialized care for paediatric patients with interstitial lung disease

**Hereditary Hemorrhagic Telangiectasia** - We are the major paediatric HHT clinic in Canada, working in collaboration with the adult HHT clinic at St. Michael's Hospital, under the direction of Dr. Marie Faughnan, to identify adults and children with HHT, and prevent the consequences of these abnormal blood vessels.

**Long Term Ventilation** - The program is dedicated to providing comprehensive consultation and ongoing management for children receiving long-term ventilation at home, as well as for those children who are at risk of requiring long-term ventilation. The aim of our program is to optimize care of these children at home and to support their families in the community.

**Chronic Lung Disease of Prematurity** - The program is dedicated to providing consultation and support for children with chronic lung disease of prematurity requiring oxygen at home.

**General Chest Clinic** - Comprehensive evaluation, consultation, treatment and educational programs

in the management of pediatric pulmonary lung diseases.

**Sleep Disorders** - The clinic is dedicated to providing comprehensive evaluation and treatment for a wide range of sleep disorders such as obstructive sleep apnea, nocturnal hypoventilation in neuromuscular and genetic diseases, children in respiratory failure and narcolepsy.

## Research

Over the five-year review period the Division had 644 publications, generating 11,673 citations and resulting in an average H-Index of 30. These past five years, Division Faculty have secured \$20,489,220.01 in research funding.

Research leaders span basic and health outcomes research in Cystic Fibrosis, asthma, sleep disorders and ventilation of complex patients. Initiatives include intervention studies for sleep apnea, metagenomics to address triggers of asthma and other reactive airway diseases, and development of patient specific epithelial organoids.

Dr. Padmaja Subbarao leads the CHILD Study. [A \\$1.7 million award from the Canadian Institutes of Health Research \(CIHR\) and Research Manitoba](#) will allow CHILD researchers to study how individuals and families across Canada have been impacted directly by COVID-19 infections, and indirectly by pandemic-related social and economic upheaval.

Dr. Reshma Amin is currently leading a multi-site clinical trial titled, [A Virtual Transition Intervention for Children and Adults Transitioning to Home Ventilation in Ontario: A Pragmatic Randomized Controlled Trial](#). The trial will evaluate the impact of a multi-component virtual care solution that overcomes distance and time by bringing the “Right People with the Right Expertise at the Right Time” into the home to improve quality of life, reduce family caregiver burden, and prevent unnecessary hospital admissions.

Dr. Hartmut Grasmann is currently leading two Research Project Grants (R01) by the [National](#)

[Institutes of Health - National Heart, Lung, and Blood Institute \(NIH-NHLBI\)](#), of which one is a longitudinal lifestyle modification study aiming to unveil metabolic and behavioral pathways in asthma and the other is a randomized controlled clinical trial on the effects of L-citrulline supplementation on pulmonary function and asthma control in obese asthmatics.

## Medical Education

### Paediatric Respiratory Medicine Fellowship (Core)

The training program has Royal College of Physicians and Surgeons of Canada accreditation and is the largest training program for paediatric respiratory medicine in the country. The training program provides broad training in all the major areas of respiratory medicine with opportunities to develop clinical, research and scholarly skills. Our program offers two years of training based in core clinical aspects of respiratory medicine including consults, wards and ambulatory care. The overall objective of this training program is to provide an academic educational opportunity that enables the resident with previous experience in General Paediatrics to obtain the clinical, and laboratory knowledge, skills and attitudes to function as a clinical consultant in Paediatric Respiratory Medicine.

### Paediatric Sleep Medicine Fellowship

A fellowship in the Paediatric Sleep Medicine Program at SickKids is an opportunity to develop specialized competency in the field of Paediatric Sleep Medicine. The fellowship includes experience in the diagnosis and management of patients presenting with sleep disorders, as well as sleep study interpretation. The Trainee will develop the knowledge and managerial skills necessary to independently operate a pediatric sleep laboratory. Fellows will also develop experience in sleep-related research (basic scientific, clinical, and/or epidemiological) and/or education, with a view to an academic career in Sleep Medicine. There is also the ability to combine 1 year of Paediatric

Sleep Medicine training with another year of Pediatric Long-term Ventilation Fellowship.

### Paediatric Long-term Ventilation Fellowship

A fellowship in the Paediatrics Long-term Ventilation Program at SickKids is an opportunity to develop specialized competency in the emerging field of Paediatrics Long-term Ventilation. The fellowship includes experience in the diagnosis and management of patients at risk of/ and or with hypoventilation. The Trainee will develop the knowledge and skills necessary to independently initiate, titrate and troubleshoot all types of respiratory technology ranging from supplemental oxygen, noninvasive ventilation to invasive ventilation via tracheostomy. Fellows will also develop experience in long-term ventilation-related research (basic scientific, clinical, and/or epidemiological) and/or education, with a view to an academic career in Long-term Ventilation. There is also the ability to combine 1 year of a Pediatric Long-term Ventilation Fellowship with another year of Paediatric Sleep Medicine Fellowship.

### Paediatric Asthma Medicine Fellowship

The goal of this fellowship program is to provide paediatric respirologists additional training in asthma. Experience at SickKids will be complemented by opportunities with community partners. The program includes both clinical and research experience.

### Paediatric Cystic Fibrosis Fellowship

The SickKids Paediatric Cystic Fibrosis Centre provides care to 240 pediatric patients with cystic fibrosis. There are two ambulatory clinics per week, along with a GI/CF clinic, inconclusive diagnosis clinic and a CF newborn screening clinic. CF in-patients are admitted to the respiratory medicine service. There is an opportunity to attend paediatric CF clinics at St. Michael's hospital. There is also an opportunity to attend lung transplant clinics.

## **Paediatric Lung Transplant Fellowship**

Fellowship at SickKids Lung Transplant Program offers the opportunity to obtain clinical experience in lung transplantation. The fellowship includes experience in the assessment of paediatric patients referred for lung transplantation, management of pre-lung transplant and post-lung transplant patients as both in-patients and in the ambulatory clinic and care of the immediate post-lung transplant patient in the ICU. Fellows will have the opportunity to develop their skills in bronchoscopy and transbronchial biopsies and will have the opportunity to complete electives in the adult lung transplant program at the University of Toronto.

## **Medical Education Accomplishments and Priorities**

### **Increasing Opportunities for Procedural Experience with Flexible Bronchoscopy**

Over the last few years, organizational workflow and preparation for bronchoscopies has been enhanced to increase procedural opportunities for trainees. Respiratory Therapy (RT) coverage has been revamped to include inpatient RTs supporting bronchoscopies if outpatient RT coverage is unavailable. There is also now a dedicated administrator to book OR time and schedule the procedures. This has translated into an increasing number of bronchoscopies being able to be performed with over 125 procedures completed last academic year. With the support of Dr. Kritzinger, Staff Respirologist, there has been advancement in opportunities for interventional bronchoscopy procedures such as biopsy and cryotherapy. The first divisional bronchoscopy simulation workshop for trainees was completed in July 2024. Furthermore, the recent capital budget approval to purchase our own cryotherapy device will further enhance the ability of trainees to gain skills in this interventional procedure.

### **Enhancing Awareness of Social Determinants of Health**

Using a team based multi-disciplinary approach,

the Respiratory Medicine division initiated a project in 2022 to identify children with social challenges that may impact the successful implementation of a medical management plan. This work was a collaborative effort of a multidisciplinary team involving Social Work, Respiratory Therapy, Faculty Development and Medicine, and Department of Paediatrics EDI Team. The project sought to maximize the chances of enacting a medical plan, whether it is simple or complex, by screening for and identifying families and children with social challenges. Those that screen positive can then have these challenges addressed in parallel to their primary medical issue. With expert opinion and existing literature, a tool was developed focusing on four domains of social determinants of health: (1) drug coverage, (2) financial stability, (3) transportation, (4) family social supports.

### **Short-term Priorities**

**Continuity Clinic for Trainees:** As highlighted in the annual retreat report where trainees have the opportunity to provide feedback and suggestions on the training program, a formalized Continuity clinic for fellows was suggested rather than ad hoc opportunities to follow patients longitudinally. In consideration of this feedback, a formalized structure of the Continuity Clinic will be implemented this academic year for second-year trainees with monthly clinics and dedicated 1:1 supervision with a selected Staff physician for each senior trainee.

**Training Simulations:** Recognizing the inconsistency in available opportunities and skill acquisition for emergency clinical scenarios, including those identified as required Entrustable Professional Activities (EPAs) within Competence By Design stages for Respiratory Medicine, our educational program has sought to start working with the Simulation Centre to provide such training opportunities using a Simulation Evaluation framework. Our goal is to be able to offer trainees education and practice managing emergency respiratory scenarios in a simulation setting by next academic year.

## Long-term Priorities

Building collaboration and capacity in the community by developing an elective experience for paediatric respiratory medicine trainees in the community with identified goals and learning objectives as well as a specific ITAR for this elective rotation.

A working group has been established consisting of Dr. Andrew Zikic (recently graduated Chief Resident), Dr. Lyzette Bonilla Garcia (Fellow), Dr. Chiang (Program Director) and community respirologists Dr. Peter Bikangaga and Dr. Dennis Gurwitz. In alignment with the University of Toronto's goal to build training capacity at community hospitals such as Scarborough Health Network and Michael Garron, our division has been awarded \$20,000 by University of Toronto Postgraduate Medical Education office (funded by the Ministry of Health) to implement this community initiative.

## Divisional Accomplishments

1. The sleep team performs over 1,200 sleep studies per year making them the busiest paediatric sleep lab in the country. This is an essential service that broadly informs paediatric clinical practice and is relied upon by multiple services. Given the volume of studies, the team is exploring novel ways to manage this workload including homebased monitoring and leveraging allied health expertise for sleep study interpretation.
2. The Division performs over 100 paediatric bronchoscopies annually. The majority of these procedures are diagnostic in nature allowing a visual inspection of the airway anatomy and sampling of the airways for inflammation and infection. Procedures may also be therapeutic allowing for improved gas exchange. As an example, this year, multiple whole lung lavage procedures were performed; these are not common in the pediatric age group and require expertise and careful planning. Most recently members of our group are advancing the use of

cyroprobes and endobronchial ultrasound; two innovations that improve the care of children with complex airway diseases.

3. The Division members are very research-focused and have made major strides in multiple areas over the past five years including cystic fibrosis (advancing personalized therapies and clinical trials), asthma biology (the CHILD cohort), and long-term ventilation (virtual care) to name a few.

## Divisional Challenges

1. We face a significant challenge in sleep medicine where the workload has led to unacceptably long wait times for clinic visits and sleep studies. This issue is broader than Respiratory Medicine in that the patients served come from every discipline and from other parts of Ontario where some academic centres are not able to perform pediatric sleep studies. Over the next few months and years, we will need to find new, collaborative and creative ways to meet this challenge.
2. Building on the collaborative theme, we need to create stronger links with our community colleagues to optimize patient care. This will require improved communication and strategies to mitigate workload concerns. Stronger community links will also improve our ability to do relevant research, enhance our efforts to educate the next generation of healthcare providers, and strengthen advocacy efforts aimed at patient well-being.
3. The Division is enriched with a dedicated and skill group of allied health. While our families and patients benefit from our existing staff, there are times when support may not be readily available. We will work with our allied health and administrative colleagues to ensure our clinical services are appropriately resourced to meet the health care needs of the patients and families we care for.



# The Division of Neurology

## Overview

SickKids Division of Neurology is an internationally recognized leader in Child Neurology for our commitment to advancing the diagnosis and treatment of both common and rare conditions and educating future leaders in our field. The Division came together in February 2024 to articulate our vision:

### Empowering our People. Inspiring Hope. Shaping the Future of Paediatric Neurology

and refocus our mission:

**To deliver compassionate, equitable and inclusive clinical care, pursue innovative discoveries and educate the next generation to optimize health outcomes, improve quality of life and advance the field of Paediatric Neurology.**

We are unique in Canada and matched only by a select number of international peer institutions in the breadth of neurology expertise we offer. Our comprehensive subspecialty programs include programs such as epilepsy, neonatal neurology, and stroke with longstanding world-class expertise and emerging areas including movement disorders, neurogenetics, and neuromodulation.

A recent external review of SickKids Neurology recognized the unique cohesiveness and collegiality among our team members. We maintain an environment of mutual respect that underlies our collective work. All team members are supported to pursue excellence and further the field of pediatric neurology.

In addition, SickKids Neurology runs the largest Child Neurology training program in Canada with

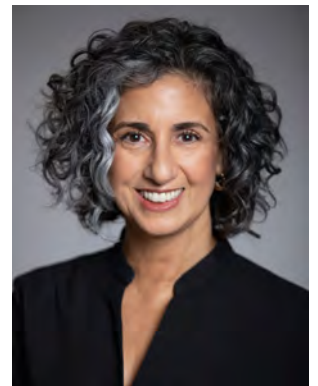
an RCPSC Paediatric Neurology Residency Program and well-established subspecialty fellowships. We represent a pipeline for child neurologists in Toronto, across Canada and around the world.

We pride ourselves on collaboration in and outside of SickKids. A 5-year review of SickKids Neurology authored in 2022 described our environment as a ‘Hub of Integration’. This is represented in the figure below.



## Faculty

Dr. Elizabeth Donner was appointed to the role of Division Head, Neurology in October 2023, Her appointment follows the 10-year tenure of Dr. Steven Miller. Dr. Mahendra Moharir served as Division Head and member of the Hurvitz Centre Executive Committee between February 2022 and Dr. Donner’s appointment.



Dr. Elizabeth Donner

As of July 2024, the Division has a total of 17 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Neurology	10	1	4	2	17

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Neurology	7	4	6	17

The Division hired four Academic Clinicians and one Clinician Scientist during the review period, and there were x full-time faculty departures.

## Clinical Programs

**Comprehensive Epilepsy Program** - The Comprehensive Epilepsy Program is an interdisciplinary team of specialists dedicated to providing optimal care for children with intractable epilepsy. We have secured funding for the expansion of our Epilepsy Monitoring Unit, and our continuous EEG program has grown by nearly 50% in the past five years. The program also leads the Provincial Epilepsy Strategy and supports Project ECHO: Epilepsy Across the Lifespan, which educates primary care providers across the province.

**Epilepsy Classroom** - The Epilepsy Classroom is a multidisciplinary program designed to support students with epilepsy by enhancing their academic performance and social-emotional well-being. In partnership with the Toronto District School Board, it operates as a Section 23 treatment program, reviewed every three years by the Ontario Ministry of Education. Running five days a week for a full academic year, it accommodates eight students whose needs are not met by local schools.

**Neuromuscular Program** - The Neuromuscular Program is revolutionizing care for children with muscle and nerve diseases. We successfully integrated Nusinersen for spinal muscular atrophy and are advancing diagnostics and

therapies for congenital myopathies through expanded multidisciplinary clinics with Genetics, Respiratory Medicine, and the Holland-Bloorview Neuromuscular team.

**Neuroinflammatory Disease Program** - The Neuroinflammatory Disease Program has broadened from multiple sclerosis to include conditions like autoimmune encephalitides. With enhanced access to immune suppression and plasma exchange, it is now a key focus of our inpatient unit. Research at SickKids is improving diagnostics and therapeutic strategies, but the program currently depends on a single neurologist, highlighting an urgent need for additional capacity.

**Pediatric Stroke Program** - The Paediatric Stroke program is a global leader in multidisciplinary care for children with stroke. Strong collaborations with neurosurgery, thrombosis, and neuroradiology support innovative therapies like intra-arterial thrombolysis and advanced diagnostics such as cerebrovascular reactivity MRI.

**Neonatal Neurology Program** - The Neonatal Neurology program has rapidly established an internationally recognized neonatal neurocritical care initiative alongside the SickKids' Neonatal Intensive Care Unit. The Cardiac Neurodevelopment program, in collaboration with the Heart Centre, Cardiac Intensive Care Unit, and Neonatal Follow-up clinic, implements brain imaging strategies for infants undergoing cardiac surgery and provides developmental care up to 1.5 years. Recently, the program expanded to include Fetal Neurology with the Mt. Sinai Maternal Fetal Medicine Program and offers consultations and

EEG readings for Mt. Sinai Hospital.

**Neuro-Metabolic Program** - The Neuro-Metabolic program continues to provide outstanding care of children with complex inherited metabolic conditions in collaboration with genetics, nephrology, hematology, endocrinology, neuro-ophthalmology, gastroenterology, cardiology and anesthesia.

## Research

Over the five-year review period the Division had 720 publications, generating 9,927 citations and resulting in an average H-Index of 28.6. These past five years, Division Faculty have secured \$30,281,210.93 in grant funding.

Notable research innovations and treatments

- Pioneering the use of zebra fish models for identifying new treatment avenues for congenital myopathies.
- The International Pediatric Stroke Study is advancing research in ischemic stroke diagnosis, acute treatment practices and long-term outcomes relating to neurobehavioural and cognitive recovery of paediatric stroke.
- The novel discovery of hyperglycemia as a critical issue in the care of neonates with hypoxic ischemic encephalopathy.
- In real time, the Paediatric Cardiac Neurodevelopment Program examines clinical practices that contribute to, or prevent, brain injury newborns with congenital heart disease.
- Identifying the “importance of the everyday to the brain health of babies born preterm”, which is leading to practice change in how pain and nutrition is managed in the neonatal intensive care unit.
- The Canadian Pediatric Sudden Unexplained Death in Epilepsy (SUDEP) Registry partnering with the Ontario Forensic Pathology Service to

identify genes that put people with epilepsy at risk of premature death.

- A longitudinal prospective study of dietary therapies for epilepsy, aimed to optimize the treatment for drug-resistant seizures in children and make those therapies easier for children and their families. The DETECT study is opening our eyes to the previously unrecognized burden of seizures in comatose children.
- Identifying how the GABAB receptor coupled with the GIRK2 channel open new therapeutic avenues for the treatment of infantile spasms in down syndrome.
- A definitive randomized trial demonstrating the efficacy of Spinraza for the care of children with spinal muscular atrophy.
- New e-health interventions for the care of children with behavioural insomnia.
- Identifying a novel link between physical activity and outcomes in children and youth with multiple sclerosis, highlighting the potential of physical activity to improve outcomes of this condition.

We anticipate expedient growth in neurological research programs, with advances in new technologies for brain imaging including neurophysiology, genomics and fetal interventions.

## Medical Education

The Paediatric Neurology Residency and Fellowship Training Program at The Hospital for Sick Children (SickKids), University of Toronto is a fully accredited program with the Royal College of Physicians and Surgeons of Canada. To date, training is also recognized by the American Board of Neurology and Psychiatry for training in Child Neurology. There are two training tracks - a three-year program with the entrance requirements being two or three years of accredited paediatrics training or a five-year training program with entrance directly from medical school. The program is committed

to excellence in training individuals for careers in both academic and community-based practice. The major foci of the clinical activities of the Division of Neurology at The Hospital for Sick Children are epilepsy, stroke, headache, neurometabolic diseases, neuromuscular diseases, sleep disorders, movement disorders, neuroinflammatory disorders, and neonatal neurology.

**5-year Paediatric Neurology Residency Program:** The Paediatric Neurology program has launched a Competency by Design based curriculum. Ample elective experiences are available in disciplines such as headache, neuro-ophthalmology, neurogenetics, neurometabolics, and movement disorders. Residents are encouraged to explore elective experiences outside of Toronto, including in global health. Residents follow their own patients longitudinally in a weekly continuity clinic in general paediatric neurology.

**3-year Paediatric Neurology Fellowship Program:** The three years of training comprise 18 months of General Paediatric Neurology, 6 months of Adult Neurology, and 12 months of training in subspecialties of paediatric neurology or electives as determined in discussion with the program director.

Residents complete 4-5 blocks of inpatient training per year on the Neurohospitalist and Acute Care Neurology teams. Subspecialty rotations include epilepsy, EEG, stroke, neuroinflammatory disorders, neurorehabilitation/neurodevelopment, neuromuscular and neurometabolic disorders, neonatal neurology and ambulatory/community neurology. There are electives offered in neuroradiology, neuropathology, neurosurgery, metabolic genetics and psychiatry, among others. Other electives, including academic electives at other institutions and global health electives, may be arranged in discussion with the program director.

The three-year paediatric neurology training program begun after completion of three years of paediatric training in Canada meets the Royal College of Physicians and Surgeons of Canada

requirements for training in Neurology with Special Competence in Child Neurology.

### Subspecialty Fellowship Training Programs

The Division has fellowship training programs in epilepsy, stroke, neuromuscular disorders, neuroinflammatory disorders, neonatal neurology, headache medicine, movement disorders, and neurometabolic disorders.

## Medical Education Priorities

### Ongoing

- Embedding EDIA into the curricula and selection processes through the formulation of EDIA workshops and a Neurology EDIA committee
- Formation of the Wellness Working Group
- Formation of the Core Curriculum working group to ensure the addition of lectures on wellness, resilience and career planning
- Introduction of Balint groups for debriefing challenging patient encounters
- Moving to a competency-based curriculum with the implementation of CBD
- Quality Improvement Projects – some residents are participating in a structured Paediatric Co-learning QI curriculum together with a faculty member
- Formal mentorship program overseen by our RPC – residents are assigned both a career mentor and a research mentor at the beginning of their training
- Implementation of a program improvement working group that meets over the summer months to monitor the learning environment. This working group is composed of the Chief Residents, PD, associate PD, and the core curriculum lead. The group reviews all rotation effectiveness evaluations, feedback from the

PD's exit interviews with graduation residents, the resident retreat report and other direct feedback given to the Chief Residents and generate rotation feedback reports for approval by the RPC. The rotation specific feedback, once approved by the RPC is disseminated to the various internal/external rotations.

### Short Term

- Rotation based curriculum with rotation coaches
- Continuous improvements to the learning environment through work done by the program improvement working group and through department-specific reporting processes to address unprofessional behaviour with individual faculty, workshops on the hidden curriculum (long-term)
- EDI initiatives such as Courageous conversations at Neurology Grand Rounds, EDI workshops

### Long Term

- Mentorship & Academic Support
  - Improvements to trainee/faculty mentorship
  - Peer/buddy mentors
  - Mentorship groups
  - Inclusion of community neurologists
  - Access to educational resources
- Scholarship
  - Research – introduce new areas of research not yet well established in the program (education research); engage/introduce subspecialty research areas/opportunities so they know what is available/ongoing
  - Medical Education - structured/organized opportunities for residents to develop teaching skills (residents teaching juniors); introduce areas of education research to trainees so they know how to get involved if they are interested

- Quality Improvement – introduce structured quality improvement rounds
- Evidence-based medicine – journal clubs, introduce summer lecture series reviewing current guidelines and the evidence surrounding them

- Full implementation of CBD
  - Prioritizing EPA completion by staff
  - Transition to practice
  - Optimizing the training curriculum
- Fostering a culture that supports a positive learning environment (including an EDIA front) among all program participants through annual/biannual workshops: Faculty workshop on EDIA, Feedback and Coaching workshop, Microaggression and Allyship workshop, and Anti-racism workshop for faculty/trainees

## Divisional Accomplishments

### 1. Deep Brain Stimulation Program

Paediatric Deep Brain Stimulation (DBS) is an innovative therapy using implanted electrodes to treat neurological, neuropsychiatric, and neurodevelopmental disorders in children. Since 2019, SickKids, led by Dr. Carolina Gorodetsky and Dr. George Ibrahim, has established Canada's only paediatric DBS program, assessing over 220 children and averaging 60 new implantations annually. A multidisciplinary team provides comprehensive care.

With a \$450K grant from the Garry Hurvitz Centre for Brain and Mental Health, the program is expanding nationally through educational initiatives and ECHO sessions. It also includes the CHILD-DBS registry, evaluating children undergoing DBS in collaboration with seven centers in the USA and Canada.

### 2. Responsive Neurostimulation for Drug-Resistant Epilepsy

About 30% of children with epilepsy experience drug-resistant seizures that do not respond to

medication. The most effective treatment is surgical resection of the seizure-causing brain region, but this can be challenging when seizure onset overlaps with critical functions like language or motor skills. In 2023, SickKids became the first centre outside the US to implant a Responsive Neurostimulator (RNS) for these cases. Using the Health Canada Special Access Program, Dr. Elizabeth Donner and NP Ivanna Yau, in collaboration with Dr. George Ibrahim and NP Sara Breitbard, have treated three children with RNS.

- <https://www.sickkids.ca/en/news/archive/2024/sickkids-implants-the-first-responsive-neurostimulation-device-in-canada-to-treat-drug-resistant-epilepsy/>
- <https://globalnews.ca/video/10378385/sickkids-surgery-in-toronto-paves-way-for-epilepsy-treatment>

### **3. Targeted Therapies for Rare Disorders**

SickKids Neurology leads in precision medicine for rare disorders, exemplified by its Rare Disorders clinic and deep brain stimulation clinic. The Rare Disorders clinic integrates research into care, providing treatments like Brineura for Neuronal Ceroid Lipofuscinosis (CLN2) and Spinraza for spinal muscular atrophy (SMA), under the guidance of Drs. Elizabeth Donner, Mahendra Moharir, Hernan Gonorazky, and NPs Elisa Nigro and Ivanna Yau.

Dr. Jim Dowling also launched an N=1 gene therapy trial for a Canadian patient with an ultra-rare disease, potentially the first of its kind, paving the way for personalized therapeutics at SickKids.

- <https://www.sickkids.ca/en/news/archive/2024/gene-therapy-halts-progression-of-rare-genetic-condition-in-young-boy/>

### **Divisional Challenges**

#### **1. Clinical Demand Outpacing Resources**

SickKids Neurology operates with fewer full-

time equivalents (FTEs) than needed for the population we serve. While our academic output is commendable, a recent review highlighted that we risk stagnation without additional resources. To meet rising clinical demands and hospital priorities, we need to bolster our academic mission, focusing on faculty numbers, fellowship positions, and infrastructure for clinical, education, and research programs.

We depend on clinical fellows for support, but they lack consistent funding, and Section Heads must seek research grants for clinic work, complicating our research goals. Furthermore, shortages in allied health professionals and inadequate infrastructure, particularly for clinical trials and EEG services, limit optimal care. Additional roles like nurse practitioners or physician assistants could help, but funding is lacking, and administrative support for clinical teams is insufficient.

#### **2. Faculty and Staff Well-being**

Wellness and morale among faculty and trainees have been negatively impacted by resource constraints. This is a very real problem that threatens the retention of all staff. There are ongoing efforts to boost team morale, but structural changes, including faculty compensation, are needed. This is directly related to the feeling among staff, that they do not have sufficient resources to do their best work. Our vision includes empowering our people to do their best work. At this time, we are often unable to do so.

#### **3. Resources to support the clinic complexity of our patient population**

We face challenges in adequately supporting children and families with complex disorders, illustrated by three key issues:

**Transition to Adult Care:** The transition for children with neurological disorders to adult neurological care remains fragmented. As these children live longer, adult care systems are not fully prepared to accept them

Mental Health Issues: There is growing awareness of mental health challenges among children with neurological disorders, yet accessing resources is often difficult due to a lack of systemic care guidelines. Collaborating with psychiatry and psychology to develop care pathways for these children is essential for timely support

Infrastructure for Precision Therapies: Although we excel in providing targeted therapies for rare diseases, we lack the necessary hospital infrastructure to support the growth of precision therapies. An Infusion Centre with adequate staff is needed to meet rising demands and ensure effective treatment pathways for these complex patients.



# The Division of Emergency Medicine

## Overview

The Division of Paediatric Emergency Medicine (PEM) is the primary care paediatric hospital for the downtown core of Toronto and the tertiary paediatric referral centre for the Greater Toronto Area. We are also the paediatric trauma centre for Toronto and the Greater Toronto Area with approximately 200 major trauma cases managed per year in our ED.

Our team of highly trained and experienced staff deal with a wide spectrum of illnesses, injuries and traumas. Our ability to promptly respond to these children comes from our strong commitment to clinical excellence, education and research. It takes a very dedicated and unique team to provide the quality of care and compassion each of our patients deserve, and we are proud of our outstanding team of health-care professionals.

The Division’s Research Council facilitates the coordination of research from within the Division as well as promotes the cooperation with other paediatric centres in Canada, and around the world. We have a dedicated coordinator that oversees research efforts in the Department in order to bring research to a new level. Our highly successful student volunteer research assistant in the child health program (SEARCH) facilitates the enrollment of emergency department patients into many impactful local, national, and international prospective research studies every year.

Our Division carries out research in many different areas. We also remain an active participant in the national Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP).

Our division plays an active role in the core training of the residents at SickKids by offering education and learning opportunities for Residency and Fellowships. Trainees encounter children with a wide variety of medical, surgical, psychiatric and social problems, meeting patients and families from a wide range of cultural and socio-economic backgrounds and with a broad variety of expectations relating to their care in emergency services. Working in a multidisciplinary clinical setting allows our learners to develop critical decision making and communication skills as well

as provide opportunities to refine approaches to the sick, injured and often anxious child, creating opportunities to learn how to perform a proper assessment and provide care in a sensitive and caring manner.



Dr. Jason Fischer

Dr. Jason Fischer is the Division Head, Paediatric Emergency Medicine

As of July 2024, the Division has a total of 31 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired six Academic Clinicians and one Clinician Investigator during the review period.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Paediatric Emergency Medicine	24	3	3	1	31

Division	1 - In Process	2 - Lecturer	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Paediatric Emergency Medicine	1	2	13	9	6	31

## Clinical Programs

### **SickKids Emergency Virtual Urgent Care (VUC)**

- The VUC platform, launched in April 2021, saw ~14,600 encounters in 2022. It directs patients to emergency care, primary providers, or a first-come virtual visit with a PEM provider, using a symptom checker for self-triage. Survey results showed 89% of families felt “at ease,” 95% understood next steps, 77% rated the experience as good as in-person, and 64% would have gone to the ED without it. This aligns with the goal to reduce in-person ED visits by 5-10%, easing overcrowding. Unlike other hospital-based virtual platforms, SickKids’ model has stayed sustainable, saving ~\$550,000 in 2022/23, and is slated for provincial expansion.

**The Virtual Physician** - During the COVID pandemic, a virtual-physical (V-MD) role was created to handle tasks like phone consultations with community providers, managing lab results, and following up on imaging discrepancies. A virtual follow-up clinic was also launched for ED patients needing close monitoring but lacking timely primary care, using Zoom Healthcare. Over time, the V-MD role evolved to focus on managing the VUC platform, ensuring patients receive “the right care at the right place at the right time.” This role is now integral to ED flow and allows physicians with accommodations or illness to support operations without disrupting in-person schedules.

**Mental and Behavioral Health** - The Division has collaborated with the ED operational team, Brain and Mental Health team, and social work to enhance care for patients with mental and behavioral health issues. Key improvements include a policy for admitting Form 1 patients, a Code White working group standardizing management and medication, a new care model with child youth counselors (CYCs) and social workers to expedite care from triage, and a streamlined referral process to the psychiatry Urgent Care Clinic for ongoing support.

**Rapid Assessment of Paediatric Patient (RAPP)** - In Fall 2022, the ED faced significant

overcrowding, prompting the launch of the RAPP clinic, informed by data insights. Staffed by an emergency physician and a flow coordinator, the clinic operates during peak times and uses a novel self-triage tool developed with Hero.AI to select low-acuity patients before triage. Patients are then moved to a separate, rapid-turnover clinic. Early metrics indicate high satisfaction among patients, families, and providers, cost-effective care, and at least a 20% diversion of low-acuity patients, with potential for further growth.

## Research

Over the five-year review period the Division had 441 publications, generating 4,687 citations and resulting in an average H-Index of 9.1. These past five years, Division Faculty have secured \$2,276,566.74 in grant funding

### **SickKids Emergency Assistants for Research in Child Health (SEARCH)**

Launched in January 2019, the SickKids Emergency Assistants for Research in Child Health (SEARCH) program supports research and education in the SickKids ED under Dr. Adrienne Davis’s leadership. The team, consisting of a Research Coordinator, Research Assistants, and volunteers, provides research screening, enrollment, and data collection from 10 a.m. to 10 p.m., seven days a week. This dedicated staff has significantly increased research productivity, supporting studies across various specialties. In 2021, SEARCH screened 11,233 patients and enrolled 5,905 participants. From May 2021 to January 2022, over 32,000 patients and caregivers granted permission to be approached for research.

## Medical Education

The Division of Emergency Medicine offers three postgraduate training programs – Royal College Program, Clinical Fellowship and Community Fellowship - as well as an innovative Advanced Learner Training Program, which provides specialized and future-focused training to new staff. There are an average of 23 post-graduate

trainees per academic year. The Division also hosts over 200 post-graduate rotating and elective learners per academic year.

### **RCPSC Fellowship Program**

Drs. Iwona Baran and Laura Simone lead this 2-year Royal College accredited subspecialty program, which is available to graduates of RCPSC accredited Pediatrics or Emergency Medicine residency programs. There are an average of four subspecialty residents per academic year.

The Royal College program is designed to produce experts in the field of Pediatric Emergency Medicine. Residents benefit from the rich teaching that is provided and the wealth of pathology and acuity seen in our department. As one of the largest training programs in Canada, our residents benefit from the large number of trained faculty who are enthusiastic mentors. Our program has been designed to meet all objectives of the Royal College and to produce confident well-rounded physicians who will become leaders in this field.

### **Clinical Fellowship Program**

The Clinical Fellowship program in Pediatric Emergency Medicine (PEM) offers a 1-year training opportunity for individuals seeking additional expertise in PEM. While not accredited towards RCPSC/CCFP certification, successful completion results in a certificate. The program attracts applicants globally, ranging from countries with established pediatric emergency centers to those developing in this area, receiving an average of 35 international applications annually.

Initially focused on clinical work, the fellowship has evolved into a balanced program integrating clinical and educational experiences. Fellows undertake 12 PEM rotations and one elective rotation, aiming to enhance their skills to potentially lead PEM initiatives in their home countries. The program also has 5-15 applicants annually sponsored by their institutions.

Many alumni of the fellowship have become leaders in PEM, expanding their training into areas

such as Simulation, Point-of-Care Ultrasound (POCUS), Research, and Quality Improvement.

### **PEM Focused Competency Fellowship**

The PEM Focused Competency Fellowship, initiated in June 2018 is a specialized 1-year program aimed at CCFP-EM physicians and PGY4+ residents. It was designed to provide advanced training in pediatric emergency medicine (PEM) within a leading academic institution, equipping participants with essential skills for efficient and effective pediatric care in busy community emergency departments. The fellowship emphasizes not only clinical exposure through 12 blocks of PEM training but also structured learning opportunities during academic half days. Participants also gain teaching and evaluation skills to support adult learning among trainees, promoting high-quality practice, education, and patient safety. At the conclusion of the fellowship, participants receive a certificate from the University of Toronto. Despite its recent inception, the program has seen steady interest, typically receiving 3-4 applicants annually. Efforts are underway to expand marketing efforts to include more rural centers, aiming to broaden access to this specialized training.

### **Advanced Training Fellowship Programs**

This one-year program provides a dedicated year of specialized training for junior staff. Areas of study include established (POCUS, Trauma, Medical Simulation, Informatics) and emerging subspecialty fields (Medical Design, Machine Learning, Social Emergency Medicine).

Applicants are required to have completed PEM training and have an independent license in order to practice as a most responsible physician (MRP) in the ED. Advanced trainers are scheduled for approximately 80% of full-time staff clinical hours, with the remaining time dedicated to academics. Some of our trainees also participate in our AFC-POCUS fellowship in collaboration with Sunnybrook. Additionally, starting in July 2024 we launched a new program called IDEAS. This program provides additional training focusing on

Clinical AI. The term IDEAS stands for Informatics, Design, Environment, Artificial Intelligence, and Systems. It brings together experts in these areas for a one-year ATF year of training.

## Medical Education Priorities

Recent initiatives implemented include:

- Full CBD was implemented in our program since July 2023
- Wellness budget and implementation of standing wellness sessions for trainees
- CaRMS interview incorporation of EDI concepts – examples include blind file review, interviewer EDI training with online modules and in-person training, redesigning interview questions
- Orientation programs such as: suturing course with Plastic Surgeon (Dr. Joel Fish), casting workshop, trauma workshop
- POCUS credentialing over 2 years in 4 core competencies
- Mandatory ImageSIM curriculum, a national online system created by SickKids' PEM researcher (Dr. Kathy Boutis) aimed at competency-based learning for radiographic, POCUS, and ECG image interpretation
- Formal QI curriculum through SickKids' QI co-learning program headed by PEM Physician Safety Lead (Dr. Olivia Ostrow)
- Innovative Competency Based Medication Education (CBME) Simulation Program for trainees on topics of Resuscitation, Trauma, and Procedures developed and run by SickKids PEM staff with formal training in Simulation and Medical Education (Dr. Laura Simone)
- Virtual Care Curriculum – hybrid curriculum designed and implemented in 2021 aimed at PEM trainees undergoing Leadership block and virtual patient encounters (Dr. Iwona Baran)

- Virtual simulation using Affinity program modules by PEM Simulation Team

### Curriculum highlights over past five years:

**Academic Days:** Residents are protected for weekly Academic days where they are exposed to a breadth of innovative teaching including Case rounds, Grand rounds, Toxicology, Trauma, and Transport rounds, Morbidity/Mortality and Acuity rounds, Radiology rounds, Interdisciplinary rounds, and resident-only sessions including Problem Based Learning (PBL) rounds. Additional teaching sessions include topics such as EDI, Advocacy, Wellness and Education. The program also offers two OSCE exams per year, two practice written exams per year, and the CITE (Canadian In-Training Exam for PEM). Residents also participate in the annual National Pediatric Emergency Medicine Conference hosted by the division.

**POCUS:** As the largest Point-of-Care Ultrasound (POCUS) program in the country, trainees can expect to have POCUS incorporated both into clinical practice and within the residency teaching curriculum, including a focused ultrasound half-day and scanning review, which residents are invited to optionally attend. Residents are taught by world leaders in this field and obtain proficiency in four core modalities with certification by the end of their training.

**Simulation:** We have a very strong high-fidelity simulation program, with formally trained simulation staff experts, in which residents actively participate, both at a local and a national level. Trainees participate in monthly fellow mock codes, competency-based simulation sessions on procedures, resuscitation and trauma, in-situ team training exercises, trauma team training, and mass casualty simulations. Residents also have the opportunity to act as facilitators in simulations for junior trainees and continuing education programs.

**Trauma:** We are a Level 1 Trauma Center and have an active and busy trauma service that is part of the University of Toronto Trauma Program along with St. Michael's Hospital, allowing residents to access the breadth of trauma education,

simulation, and clinical experience offered within the city. Residents get ample experience and become proficient Trauma Team Leaders.

**Research and QI:** As one of the largest Research hospitals in the country, residents have access to numerous enthusiastic mentors in a variety of fields including Clinical Research, Education, Quality Improvement (QI), Advocacy, Artificial Intelligence and others. All trainees are set up with a Scholarly Oversight Committee and supported through the process of developing a scholarly project that suits their interests and career goals. Residents also have the opportunity to participate in a longitudinal QI curriculum embedded into their academic day.

## Accomplishments

### 1. EDI Moments

Developed by Drs. Liane McLean and Krishna Anchala, EDI Moments address the need for the Emergency Division to share challenges and support each other in equity, diversity, and inclusion (EDI). The initiative has three goals: to spark conversation, challenge perceptions, and provide resources. Each EDI Moment, presented at monthly meetings, features a clinical challenge, personal story, or relevant topic, followed by discussions and resource sharing. Topics include implicit bias, allyship, vaccine hesitancy, digital equity, and access to care for patients with limited English proficiency.

### 2. Physician Assistant (PA) Program

In response to increasing patient volumes and an over-dependence on trainees and casual staff for clinical care, the Division of Emergency Medicine introduced the novel role of EM physician assistant (PA) in late 2016. Through Health Force Ontario sponsorship, we hired our first 2 PAs, developed a PEM specific training program, and created a new model of care. Today we have 10 active PAs in our Division, who not only provide care across the ED, but also contribute to scholarship within the Department and teach at the University of Toronto.

The group has specialized in orthopedic splinting and procedural sedation, bringing a high-level of standardization to those areas of care. Today, PA coverage provides 46 hours daily, while casual staff (non-full time ED physicians who do shift work) make up a smaller fraction of our MD staffing than previously.

### 3. Technology Implementation (Qventus, Beacon, Trauma Video Review)

The Division is enhancing care delivery through digital tools. The summer 2023 launch of Beacon's patient-facing app improves engagement and facilitates AI integration in ED workflows, focusing on self-triage and registration to streamline care. This initiative aims to optimize efficiency and ensure timely, appropriate treatment, while also opening avenues for scholarly work. Ongoing investment in digital infrastructure is essential for realizing the Division's vision.

In 2017, the ED introduced Qventus for resource optimization, but later developed Beacon in collaboration with Hero.AI and Dr. Devin Singh to overcome its limitations.

Since May 2022, trauma activations have been recorded using B-Line technology for a new video review program, where safety experts analyze flagged cases to enhance outcomes and team dynamics. This initiative has led to valuable educational experiences and improvements such as a pre-departure checklist for trauma and reduced time in neurotrauma. Dr. Sue Beno has presented this program nationally, attracting interest from other trauma programs eager to implement similar standards for quality and safety.

### 4. PEM POCUS Program

The Division's POCUS (Point of Care Ultrasound) Program is a global leader in PEM POCUS training and scholarship, with over 50 publications, 14 grants, and 28 workshops in the past five years. It has produced 19 PEM POCUS Fellows and 5 "Hybrid" Fellows, making SickKids a top site for PEM POCUS leadership.

Post-pandemic, trainee rotators increased from 101 to 144, and ultrasound scans rose from 17,900 to 22,227. Quality assurance efforts now ensure that POCUS staff review submitted images within 24 hours, resulting in a 190% increase in billing and doubling the credentialing rate for key skills. This has also led to 37 cases where POCUS significantly impacted patient outcomes.

## **5. Medical Design**

Launched in 2017 by Dr. Sasha Litwin, the medical design program at SickKids addresses complex healthcare challenges through a human-centered approach. It offers mentorship, design workshops, grants, and innovative curricula for medical education, fostering a network of health design thinkers across North America. As the only hospital-based medical design program in Canada, it is sparking growing interest in integrating design with healthcare.

## **Divisional Challenges**

### **1. Clinical Productivity Loss and Growing Service Demand**

Many factors have contributed to the declining clinical productivity in our ED over the last 5 years. Despite having a highly trained and motivated physician and physician assistant team, the increasing complexity of patients, increasing reliance on secondary servers (consultants, DI, lab), lack of physical care space, increasing burden of non-medical tasks (EPIC, transfer calls and paperwork), increased infection prevention and control measures, and increasing patient and caregiver expectations, have all decreased productivity, as measured by patients per hour, by nearly 20%. This decrease can no longer be corrected simply by asking EM providers to work harder and requires a proportional, data-driven increase in staffing and provider supports. In addition, Project Horizon (SickKids' campus development project) and provincial projections suggest patient volumes are likely to increase 18% in our ED over the next 6 years. This projection

does not account for the continuing decreased access to primary care or new federal targets for immigration. Although new models of care reduce the risk of in-person overcrowding (VUC, RAPP), continued investment in EM providers, both physicians and physician assistants, will be necessary to ensure high quality and safe care is maintained. Similar investments in operational resources (nurses, clerks, flow support, DI, lab) will also be required



# The Division of Endocrinology

## Overview

The Division of Endocrinology is dedicated to improving the health of children and adolescents with endocrine disorders through exceptional, family-centered care, scientific advancements, and training future leaders in Pediatric Endocrinology. Within the Division are the Pediatric Gynaecology Section, which provides comprehensive care for gynecologic issues, and The Healthy Living Clinic (HLC), established in 2010 to promote healthy living for youths aged 6 months to 17 years experiencing higher than average weight. HLC is one of the few programs in Canada offering bariatric surgery for adolescents with severe obesity.

Our clinics assess and treat various endocrine conditions, including puberty and growth disorders, hyperinsulinism, and thyroid issues. Many patients have complex medical needs, but we maintain a strong network of community endocrinologists in

the Greater Toronto Area (GTA) for straightforward cases, ensuring accessible care. We also provide specialized multidisciplinary clinics for complex health needs, including the Multidisciplinary Urogenital Disorders Clinic, Endocrine-Gynaecology Clinic, and others.

Our diabetes care team, comprising nine full-time faculty, part-time faculty, and allied health professionals, manages both type 1 and type 2 diabetes in children. We collaborate with other diabetes centres in the GTA to ensure proper care for children with diabetes.

Inpatient services focus on endocrine consultations for hospitalized patients, with high volumes for conditions like hypoglycemia and hyperinsulinism. We also conduct specialized endocrine testing and outpatient bisphosphonate infusions.

## Faculty

Dr. Jill Hamilton is the division head of Endocrinology. Dr. Hamilton is a Professor at the University of Toronto, and Senior Associate Scientist at the Research Institute at SickKids. She is the medical director of the Healthy Living Clinic and Director of the Centre for Healthy Active Kids at SickKids.



Dr. Jason Fischer

As of July 2024, the Division has a total of nine full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B. The Division hired three Academic Clinicians.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Endocrinology	5	3	1	9

Division	2 - Lecturer	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Endocrinology	1	2	3	3	9

## Clinical Programs

**Endocrine Program** - The Endocrine Clinic provides care to children and adolescents with a variety of endocrine conditions. This may include conditions related to growth and puberty, as well as pituitary, adrenal and thyroid function. Virtual and in-person visits are offered to patients and families.

**Newborn Screening Program** - Patients with congenital hypothyroidism (CH) and congenital adrenal hyperplasia from the Ontario Newborn Screening Program are assessed in our Endocrine clinic. A Nurse Practitioner leads a specialized CH clinic, providing education and support to families, while Dr. Diane Wherrett oversees the program and serves on the provincial steering committee.

**Diabetes Program** - The Diabetes Clinic provides care for children and adolescents with type 1, type 2, and other diabetes types through an interdisciplinary team. Both virtual and in-person visits are available. The program also offers workshops for families, including Family Diabetes Day, Teen Day, Transition Day, and specialized classes on Insulin Pumps and Continuous Glucose Monitoring.

**Self-Management, Teaching and Review (STAR) Program** - The Self-Management, Teaching, and Review (STAR) Diabetes Program, led by diabetes nurse educators and dietitians, provides general care and education for children and adolescents with diabetes. All patients are seen annually in the STAR Diabetes Clinic, with a specific focus on preparing older teens for the transition to adult care.

**Calcium and Bone Health Clinics** - The Calcium and Bone Health Program treats children with calcium and bone metabolism disorders through multidisciplinary clinics with Orthopedic Surgery. The team has established screening protocols and advances the field via collaborative research, clinical trials, and participation in national and international consortiums. They conduct regular case conferences for evaluating suspected inflicted injuries and reviewing clinical cases, enhancing training for endocrinology trainees and community

physicians. Quality improvement initiatives have reduced the waitlist from 1-2 years to just 3 months.

**Endocrine/Gynaecology Clinic** - The Endocrine/Gynaecology clinic is jointly staffed by an Endocrinologist and a Gynecologist to provide multidisciplinary education-oriented care for girls and adolescents with diagnoses relevant for both specialties. Trainees from both specialties participate and benefit from learning from learning from two different specialists on the same clinical topics. Joint educational rounds occur monthly prior to each clinic.

**Transgender Program** - The Trans Youth Clinic (TYC) is Canada's largest pediatric gender clinic, providing multidisciplinary, gender-affirming care to transgender and gender-diverse youth. It conducts research on youth characteristics and access to care, and it has secured funding for a prospective registry and follow-up study on care outcomes. TYC also trains family medicine residents and collaborates with community organizations.

**Multidisciplinary Urogenital Disorders (MUG) Program** - This multidisciplinary clinic is considered a model for provision of care to children with disorders of sex development. The Clinic is attended by representatives of Endocrinology, Urology, Gynaecology, Social Work, Psychology & Genetics.

**Gynaecology Program** - The Gynaecology Program offers a complete range of services for the evaluation and treatment of children and adolescents with gynaecologic disorders.

**Healthy Living Clinic** - The Healthy Living Clinic (HLC) is a two-year weight management program for youth aged 6 months to 17 years, focusing on nutrition, physical activity, and overall health. It employs techniques from Cognitive Behavioral Therapy (CBT), Dialectical Behavioral Therapy (DBT), and Motivational Interviewing (MI) to help families make healthy choices. Physicians from various specialties work together to provide comprehensive care for obesity and related comorbidities, with group education sessions and

specialized clinics, including a joint Respiratory Medicine and Endocrine evaluation for children with sleep and endocrine issues.

**Endocrine Neoplasia Clinic** - The Endocrine Neoplasia Clinic offers comprehensive care for children with inherited and sporadic endocrine tumors through a team of endocrinologists, oncologists, and geneticists. Services include genetic testing, biochemical screening, individualized tumor surveillance, and treatment planning such as surgery and precision therapies. The clinic also educates medical trainees, conducts outcomes research, and develops clinical practice guidelines.

**Oncology AfterCare Program** - The AfterCare Program is a comprehensive follow-up initiative for childhood cancer survivors who have completed at least 5 years post-treatment. By integrating the expertise of specialists—including endocrinologists, oncologists, neuro-oncologists, clinical psychologists, and neuropsychologists—the program ensures coordinated management of endocrine sequelae, ongoing cancer surveillance, neurological and cognitive assessments, and psychological support.

## Research

Our division has a strong quality improvement and research program, securing over \$11 million in funding and publishing over 200 peer-reviewed articles in the past five years. Recent initiatives include:

- Dr. Farid Mahmud is leading a \$3.5 million grant studying how differences in genes, environments and social factors contribute to differences in diabetes management and outcomes for youth with T1D.
- Dr. Rayzel Shulman is leading an ongoing CIHR-funded multi-site study, KiT (Keeping in Touch), and has developed and is testing a text message-based digital tool including an artificial intelligence natural language chatbot to deliver just-in-time personalized transition education that will help young adults transition

to adult care.

- Dr. Diane Wherrett is the Centre Director and lead investigator for a network of Type 1 Diabetes TrialNet studies; an international research organization dedicated to delaying and preventing the progression of type 1 diabetes.

## Medical Education

The fellowship program aims to provide broad training in clinical pediatric endocrinology with opportunities to develop clinical, research and education skills. The program is two or more years of training. The first year is predominantly a clinical year, with the second year of training tailored to the trainee's career goals in either clinical endocrinology, clinical or basic research, education, or quality improvement.

On average, we have approximately 5-6 trainees in our program each year. We have had an excellent track record of outcomes after our training program. In the past three years of training, our trainees have secured employment as academic and community endocrinologists within Canada and abroad. During training, our trainees presented posters and oral presentations at international conferences, and they won national trainee awards in research.

### Medical Education Priorities

*Program leadership transition:* Our division underwent two education program leadership changes between the years of 2019 – 2022, as well as two administrative coordinator changes. During this period, succession planning, and smooth transition of the program became a large priority for the division.

*CBD:* With Competency by Design planned for launch in the Division in 2025, the last few years have been focused on creating a sustainable curriculum for a CBD. Several divisional training sessions were held for the faculty and the trainees. In 2022, the division embedded EPAs into the training program to enhance the division's

familiarity and update.

*Well-being:* Addressing physician well-being through formalizing a faculty wellness lead in the PETP committee and later a trainee wellness lead was implemented (2023). Team building activities and celebrations were reinstated once the pandemic restrictions were lifted. Physician/trainee wellness was formally incorporated into the teaching curriculum (“Monday Teaching curriculum”)

In addition to implementation of CBD in 2025, future priorities include embedding EDI into the fellowship curriculum and updating the program to align with the career path of the trainees (traditionally academic pediatric endocrinologists with an increasing number of trainees entering community practice in recent years).

## Divisional Accomplishments

### 1. Development of the interdisciplinary clinics for special patient populations

We have developed several interdisciplinary clinics to address multiple health conditions in one visit with various providers. Some clinics, like the Multidisciplinary Urogenital (MUG) and Calcium Bone Health clinics, are housed within Endocrinology, while others integrate our endocrinology team with clinics in areas such as Gynecology, Transgender care, Oncology Aftercare, and Endocrine Neoplasia. This approach ensures families receive coordinated care from multiple specialists in one visit, improving communication and streamlining organization. Trainees from various specialties report exceptional educational experiences and collaborative research opportunities. Some clinics also include allied health professionals, though resources can be limited.

### 2. Excellence in the management of children with diabetes

The Division of Endocrinology at The Hospital for Sick Children has a strong history in diabetes

care and research. Recently, we’ve embraced advancements in diabetes technology, particularly automated insulin delivery (AID) systems, and developed educational materials to help families use these tools effectively. Our team advocates for diabetes care improvements, including funding for insulin pumps. Dr. Mahmud led the Pediatric Diabetes Network Quality Standards Committee, creating key quality indicators for collaboration among 36 pediatric diabetes centers in Ontario. He also revised the Clinical Practice Guidelines for the International Society of Pediatric and Adolescent Diabetes. Our members actively participate in clinical research, leveraging AI to optimize diabetes care for children and youth.

### 3. Leadership in childhood obesity management

The SickKids Healthy Living Clinic (HLC) is a national leader in pediatric obesity management and played a key role in securing funding for 12 new weight management sites across Ontario. For nearly a decade, HLC was the only provider of bariatric surgery for adolescents in Canada and has since mentored a new program at Montreal Children’s Hospital. To enhance training, HLC organizes monthly academic rounds through Pediatric Project ECHO, featuring interdisciplinary case discussions. The clinic also offers a funded Clinical Pediatric Obesity Management Training Program for healthcare providers. In partnership with Rhythm Pharmaceuticals, HLC provides free genetic testing and counseling for rare genetic obesity, enabling targeted treatments. HLC is also conducting clinical trials on new obesity pharmacotherapies, highlighting its commitment to advancing pediatric obesity care.

## Divisional Challenges & Opportunities

### 1. Challenge: Increasingly Complex Patient Populations

In endocrinology, we have noted increasing complex patient populations with medical and psychosocial issues whose needs are currently not being addressed in a holistic fashion. One example of such a population is infants born with

hyperinsulinism on medical therapy. Currently, they are almost exclusively followed by our physicians but require frequent reassessment of feeding and nutrition, as they often have feeding intolerance and/or require specialized supplementation to prevent hypoglycemia. We have minimal dietitian support and that provided is not during clinic visits. Similarly, parents struggle with anxiety and fear of hypoglycemia and although we strive to address these issues our resources are limited. We are assigned 0.2 FTE social worker for over 1200 patients followed in endocrinology. At other tertiary centres, this patient group has a multidisciplinary team to care for them with dedicated expert dietary and social work support and longitudinal follow up with neurodevelopmental assessments. This is one example, but there are other groups (Prader Willi Syndrome, Turner Syndrome) that we care for that would also benefit from a similar approach.

## **2. Challenge: Changing Political Climate Threatening LGBTQ+ Youth**

Over the past few years there has been a changing political climate which has led to increased discrimination of the LGBTQ+ community internationally. This has become a particularly 'hot topic' for transgender paediatric care in the United States, which is now spilling into Canada. Developing a strategy to address this from an advocacy and medical legal aspect will be important to protect his vulnerable population of patients and ensure we are able to provide optimal care.

## **3. Opportunity: Leverage Precision Medicine and AI**

With the SickKids strategy on precision child health and use of AI to model and predict disease progression, outcomes and response to therapies, there are multiple opportunities to leverage these concepts within our endocrine and diabetes populations. As mentioned earlier, Dr Mahmud is funded to use these approaches to predict diabetes complications and outcomes using

biochemical and sociodemographic data obtained during clinic visits. However, in order to consider utilizing these types of strategies in different patient populations we will need to fully leverage EPIC capacity by improving data capture and quality. Furthermore, simplified but robust means of recruiting all of our clinical patients in research are needed to capture data in a meaningful way, and especially to capture the diversity of patients we serve.



# The Division of Gastroenterology, Hepatology & Nutrition

## Overview

The Gastroenterology, Hepatology and Nutrition (GHN) division is a leading paediatric GI program in North America, offering high-level care for complex cases from Ontario and beyond, while advancing innovative research and training the next generation of pediatric gastroenterologists. The Division provides care through four inpatient services and outpatient clinics, focusing on

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Gastroenterology, Hepatology and Nutrition	11	2	5	18

Division	1 - In Process	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Gastroenterology, Hepatology and Nutrition	1	4	7	6	18

## Clinical Programs and Accomplishments

**IBD Program** - The IBD program provides comprehensive support for children with inflammatory bowel disease (IBD), serving around 1,100 patients through clinical, educational, mental health, and research initiatives. The program offers counseling and second opinions across Canada, with many patients receiving biologic treatments or participating in clinical trials. It also features a precision IBD clinic for severe cases using multi-omic approaches, as well as specialized services for primary sclerosing

complex medical cases. Specialized clinics cover areas such as IBD, hepatology, motility, pancreas, nutrition, and transplantation. Innovative diagnostic methods and therapies developed here have advanced pediatric GI care both in Canada and internationally, integrating research into clinical practice to improve patient outcomes.

### Faculty

The Division saw a turnover in leadership during the review period. Dr. Binita Kamath (2022 through to April 2024), and recently Dr. Yaron Avitzur held the position of Interim Division Head following the eight-year tenure of Dr. Simon Ling. A new division head has been recruited and will begin their term in 2025.



Dr. Yaron Avitzur

As of July 2024, the Division has 18 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B. The Division hired four Academic Clinicians and one Clinician Scientist during the review period. Full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B. The Division hired three Academic Clinicians.

cholangitis, exclusive enteral nutrition, Monoferic infusions, and mental health support. IBD inpatients are cared for under the GHN ward service.

**Hepatology Program** - The Hepatology Program offers specialized clinical care for children with liver disorders, provides education for healthcare professionals and families, and conducts research to advance pediatric hepatology. The program sees 1,300–1,400 visits annually, including around 300 new patients, reflecting a 37% increase in volume from 2008-2019. Clinics include those for chronic liver disease, viral hepatitis, and metabolic liver disease. Inpatients are admitted under the GHN ward or transplant service, accounting for 10% of admissions. The program's hepatologists are recognized experts who provide counseling throughout Canada.

**Nutrition Program** - The Nutrition Program provides specialized nutritional care for admitted and outpatient patients, collaborating closely with dietitians, nursing, and other healthcare providers. The complex nutrition clinic caters to children with severe feeding intolerance, malnutrition, malabsorption, poor growth, and micronutrient deficiencies, primarily supporting them with enteral and/or parenteral nutrition. The program oversees hospital parenteral nutrition use (approximately 70 patients daily) and manages calorimetry tests conducted in the hospital.

**Pancreas Program** - The pancreas program at SickKids is a referral center for paediatric pancreatic diseases in Ontario, consulting for physicians across Canada. It follows around 70 patients annually, including those with pancreatic and gastrointestinal issues related to cystic fibrosis (CF). The program collaborates with the CF respiratory clinic, supporting about 50 children and 50 adults yearly, and offers diagnostic services for 75 inconclusive CF cases each year. Inpatients are admitted under the GHN ward or respiratory services.

**Neurogastroenterology / GI Motility Program** - The program addresses gut nerve and muscle integration issues through three outpatient

clinics: Motility, Aerodigestive, and MAGIC. The Motility Clinic sees about 75 new patients and conducts around 300 visits yearly, focusing on gastrointestinal dysmotility and gut-brain interaction disorders. The Aerodigestive Clinic, a multidisciplinary team for congenital GI and airway anomalies, has nearly 300 visits annually. The MAGIC Clinic specializes in anorectal and genitourinary defects. The motility testing unit performs about 50 high-resolution esophageal manometry and 40 pH/impedance tests each year.

**Intestinal Failure (GIFT) Program** - The GIFT program is Canada's first multidisciplinary team focused on treating, educating, and researching intestinal failure in children, including short bowel syndrome, motility disorders, and congenital diarrhea. It is the largest such program in Canada, managing 20-25 new cases yearly and nearly 60 children on home parenteral nutrition. The program has an inpatient service with 6-9 daily admissions and two clinics: the GIFT Clinic (about 150 patients) and a long-term clinic for those achieving enteral autonomy (approximately 80 patients). Renowned for its research, GIFT implements innovative therapies like novel lipid treatments and Teduglutide (for 23 patients).

**Liver Transplant Program** - The liver transplant program is Canada's largest, performing 25-30 transplants annually and serving children with end-stage liver disease, liver tumors, and metabolic disorders. It follows over 300 patients and includes 20% of cases from western Canada. Nearly 70% of transplants come from living donors, with a patient survival rate of 96% at one year and 91% at ten years. Patients are admitted under the GHN transplant service.

**Intestine Transplant Program** - In 2012, the adult and pediatric intestine transplant programs merged to improve expertise, now serving patients from eastern Canada to Saskatchewan. They have performed 23 transplants, including 11 in children. Advocacy for changes in organ allocation has enhanced access, leading to excellent outcomes with 10 pediatric patients alive and off TPN.

**Eosinophilic Gastrointestinal Diseases Program** - The specialized outpatient program cares for

approximately 150 children with eosinophilic gastrointestinal diseases, many seeking second opinions from other centers. A registry has been established to study this unique population. The program is the first in Canada to perform unsedated transnasal endoscopy, with the first case completed in 2024.

**Celiac Clinic** – This multidisciplinary clinic cares for around 350 children with celiac disease and gluten-related disorders, focusing on infants and complex cases. It integrates patient-reported outcome measures (PROM) into its workflow as part of the hospital’s precision medicine initiative.

### **Clinical Accomplishments: Clinical Program Development**

The GHN division offers a diverse range of unique clinical programs for complex pediatric GI cases, many of which are not available elsewhere in Ontario or Canada. These programs align with SickKids’ strategic goal of achieving “Unprecedented outcomes powered by precision child health” by fostering specialized expertise, collaboration with allied health, and innovative research.

Notable examples include:

- Precision IBD and monogenic intestinal disease clinic
- Aerodigestive and MAGIC motility clinics
- Liver vascular malformation group
- GIFT program for intestinal function improvement
- EGID clinic, the first in Canada to perform unsedated transnasal endoscopy
- CF diagnostic service through the pancreas program

### **Research**

Research is a core value of the GHN division, known for its exceptional achievements. Its productivity rivals major US academic centers, with faculty excelling in various domains, including basic and translational science, epidemiology,

and educational research. Many hold prestigious leadership positions in research consortia and top journals. See [Sections 2.5](#) and [2.6](#) for more information on the many leadership roles faculty hold at the local, national, and international level as well as leadership in the IBD and Transplant Centres at SickKids.

The division is a world-leading centre of excellence for basic/translational/health services research to inform mechanisms and biologic therapies for IBD and comorbid conditions. Examples include the discovery of novel mechanisms for mitochondrial integrity with broad implications for disease pathophysiology and metagenomics to delineate microbiome contribution in inflammatory GI diseases.

In the past four years, GHN faculty published 181-250 peer-reviewed articles annually in leading journals, showcasing their commitment to mentorship; a total of 954 publications, generating 19,639 citations and resulting in an average H-Index of 36.8 over the review period. In 2023 alone, the division secured 66 grants totaling \$21,075,890 CAD from agencies like CIHR and NIH and actively participate in key research consortia. Additional funding support includes the CF Foundation, Crohn’s and Colitis Foundation, the HJ Heinz Co. Foundation, and the Canadian Digestive Health Foundation.

### **Medical Education**

The University of Toronto’s Training Program in Paediatric Gastroenterology, Hepatology, and Nutrition is Canada’s largest and one of the top programs in North America, training 18-20 fellows at a time. Fully accredited in Canada and recognized by the American Board of Pediatrics and the Royal Australasian College of Physicians, it offers a three-year core fellowship with two years of dedicated research time. Advanced training in areas like IBD, nutrition, hepatology, and intestinal failure is also available. The program focuses on clinical training, research, and education, with many graduates taking on leadership roles in academic centers.

The core fellowship program follows a three-year structure with one clinical year followed by two research-focused years. Previous trainees who have completed the three-year fellowship program have been extremely successful in obtaining high calibre academic and leadership positions in Canada, the United States and around the world. Graduates of the program typically continue research activities and hold extramural grants to support their research programs. We also offer one-year clinical training fellowships and subspecialty fellowship programs for advanced trainees who have completed most of their core training in Gastroenterology, Hepatology and Nutrition elsewhere. During the first year of training, trainees are exposed to a large variety of clinical cases and to all aspects of ambulatory and inpatient paediatric gastroenterology, hepatology & nutrition (GHN). Trainees have a unique opportunity to engage in cutting-edge medicine and state-of-the-art clinical care. Clinical care is provided in an academic environment using an evidence-based approach under ongoing staff support and supervision.

The second and third years of the Core Fellowship Program are primarily focused on research training.

The GI training program at SickKids provides opportunities for advanced clinical and research training in specific domains of paediatric gastroenterology. The advanced subspecialty fellowship training programs include inflammatory bowel disease (IBD), hepatology and liver transplantation, intestinal failure (GIFT), Advanced Clinical Nutrition and Precision Inflammatory Bowel Disease and Monogenic Intestinal Diseases (PIMID).

### **Medical Education Priorities**

- Embedding EDI education into our curriculum – examples include an invited lecture in the division by Dr. Tina Martimianakis, Director, Medical Education Scholarship, Department of Paediatrics on “The Hidden Curriculum” in 2020
- Development of Nutrition Fellowship (2022)

and PMID fellowship (2024)

- Increased education in neurogastroenterology and motility – to accomplish this we hired a new staff neurogastroenterologist in 2022 and have developed an educational collaboration with the adult gastroenterology group from the University Health Network

**Relationships and collaborations** with other educational and clinical groups within the Department, at SickKids and across TASHN and their impacts on the education mission of our division. Examples include:

North York General Hospital (NYGH): A one-month adult gastroenterology rotation takes place at the North York General Hospital under the supervision of Dr Baron, during which the paediatric subspecialty GI Residents attend adult gastroenterology clinics, provide in-patient consultations, and particularly focus on performing endoscopic GI procedures in adults (about 50-70 endoscopies per rotation). NYGH has an average of 20 adult GI inpatients per day on the hospital census.

Additional opportunities for interested residents can be arranged on an ad hoc basis according to individual Resident’s requirements and interests, including attendance at clinics in ambulatory adult CF-GI (St Michael’s Hospital), IBD (Mount Sinai Hospital) and hepatology / Transplant (Toronto General Hospital (UHN)).

Residents may attend joint educational sessions, including the Mount Sinai IBD rounds, the Toronto General Hospital Multi-Organ Transplant rounds, the City-Wide GI rounds and the University of Toronto Hepatology Update.

Scarborough Health Network (SHN): Starting July 2024 an estimated 3 – 4 residents/clinical fellows per year, will be assigned to one of three Scarborough Health Network (SHN) sites for a two-week block. Where they will act as a junior consultant on the inpatient GI service reporting directly to the staff assigned for the week. As well as consultations and follow-up of inpatients and participate in endoscopy (gastroscopy and

colonoscopy - both in the add-on inpatient list as well as selected outpatient lists). In addition, residents/clinical fellows can spend Thursday's afternoons seeing polyp cases.

## **Divisional Challenges & Opportunities**

### **1. Endoscopy service**

The Division faces major challenges in endoscopy services, including outdated equipment, staffing shortages, and increased wait times.

- **Equipment:** Many endoscopic scopes are over 20 years old, causing frequent malfunctions. A request for \$2.3 million in new equipment has been submitted and preliminary funding has been approved.
- **Personnel:** The division relies on adult gastroenterologists for complex procedures, and while recent hires have helped, more paediatric therapeutic endoscopists are needed.
- **Wait Times:** The closure of the 4C satellite unit during the pandemic has cut available endoscopy hours, leading to a wait list increase from 40-50 patients to around 500. Significant reductions in wait times will require additional resources and new satellite space.

### **2. Motility (Neurogastroenterology) Program**

The Motility (Neurogastroenterology) Program at SickKids currently lags behind other international GHN programs, presenting an opportunity for improvement in clinical care, training, and research.

Many patients in GHN and beyond could benefit from enhanced neurogastroenterology services. However, the program is limited by staffing and, more critically, a lack of advanced motility equipment, such as for antroduodenal and colonic manometry and EndoFlip. While over 30 centers in the U.S. provide these essential tests, they are unavailable in Ontario, preventing many children

from receiving necessary care. Investing in this program would significantly enhance motility care at SickKids.

### **3. Decentralization of care**

Increasing patient volumes are straining GHN's clinical capacity, risking compromised care quality, longer wait times, staff burnout, disrupted education, and reduced research productivity.

The rise in community paediatric gastroenterologists in the GTA presents an opportunity to collaborate on care redistribution. This involves identifying patients who need SickKids' services, creating shared treatment pathways, and maintaining clinical research while decentralizing care to address future challenges.



# The Division of Haematology & Oncology

## Overview

The Division of Haematology/Oncology at SickKids is a leading provider of clinical care, research, and education for children with cancer and blood diseases. It is one of North America’s largest programs, with 35 full-time faculty and approximately 375 new oncology diagnoses annually, along with numerous referrals from across Canada.

The program is organized into five specialized sections: Leukemia/Lymphoma, Solid Tumour, Neuro-Oncology, Haematology, and Blood & Marrow Transplant/Cellular Therapy, allowing focused expertise in patient care and research. It offers advanced treatments like precision therapies, CAR-T-cell, and CRISPR-modified therapies through clinical trials and compassionate access programs.

Members engage in extensive research on childhood cancers and blood disorders, including genetic predispositions and platelet function, and lead clinical trials. The Neuro-Oncology team collaborates with neurosurgeons and pathologists to improve the management of paediatric CNS tumors, leveraging a global network of former trainees.

The Division also supports international child health initiatives, such as the SickKids-Caribbean

Initiative and humanitarian efforts for Ukrainian childhood cancer patients. Faculty members hold leadership roles in prominent organizations like the Children’s Oncology Group and the International Society for Paediatric Oncology.

Despite challenges with funding and infrastructure, the division contributes significantly to SickKids’ vision of improving child health. Its excellence was recognized in Newsweek’s 2024 rankings, where SickKids was named the second-best pediatric hospital, with Oncology highlighted as a top specialty.

## Faculty

Dr. James Whitlock is the Division Head of Haematology/Oncology. Dr. Whitlock is a Professor at the University of Toronto, and Senior Associate Scientist at the Research Institute at SickKids. He holds the Women’s Auxiliary Millennium Chair in Haematology/Oncology and is the Director of the Garron Family Cancer Centre.



Dr. James Whitlock

The Division hired three Academic Clinicians during the review period. As of July 2024, the Division has a total of 35 full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Haematology/Oncology	17	1	7	10	35

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Haematology/Oncology	7	11	17	35

## Clinical Programs

### **Blood & Marrow Transplant/Cellular Therapy**

**Section** - The Blood & Marrow Transport/Cellular Therapy Section (BMT/CT) delivers stem cell transplants and cellular therapies for pediatric patients in Ontario and the Atlantic provinces, accounting for about 40% of Canada's pediatric transplants. They manage inpatient care, consultations, apheresis/marrow harvest coordination, and post-transplant care, collaborating with multiple internal and external referral programs.

**Haematology Section** - The Haematology Section includes subsections for bleeding disorders, haemoglobinopathies, marrow failure, thrombosis, and vascular malformations. The General Haematology program provides ambulatory services for over 2,000 visits annually through four weekly clinics, receiving referrals from family practitioners, paediatricians, and other centers.

**Leukemia & Lymphoma Section** - The Leukemia and Lymphoma section delivers exceptional care to a diverse group of patients with haematologic malignancies, the most common childhood cancers. From 2013 to 2022, 130 to 170 children were diagnosed annually. Beyond clinical care, the section focuses on enhancing care delivery through program development, advocacy, quality improvement, and research.

**Neuro Oncology Section** - The Neuro Oncology team collaborates with various disciplines, including neurosurgery, neuropathology, radiation oncology, and therapy services, to ensure excellent patient care. Weekly rounds facilitate patient discussions and care planning, fostering close ties with the clinical trials unit, the Labatt Brain Tumour Research Centre, and cancer genetics programs.

**Solid Tumour Section** - The Solid Tumour section at SickKids treats non-haematologic, non-CNS malignancies and consults with oncologists nationwide. A "backpack" program enhances outpatient chemotherapy by allowing home delivery of fluids and medications, improving patient quality of life. The neuroblastoma team

works with the Bone Marrow Transplant and NAIT sections, offering access to Canada's largest MIBG suite.

**After Care Program** - The AfterCare program follows approximately 500 childhood cancer survivors from 4-5 years post-therapy into adulthood. It includes a general clinic and a specialized clinic for central nervous system tumor survivors, focusing on identifying and managing the "late effects" of cancer treatment to ensure optimal lifelong care.

**Bleeding Disorders Program** - The paediatric program for hemophilia and bleeding disorders serves about 600 children. Recent migration to Canada has accelerated growth, and a Young Women's Clinic has been launched with the Department of Gynecology to address bleeding disorders in young women.

**Cancer Genetics Program** - The Cancer Genetics Program (CGP) is the first of its kind globally, focusing on identifying children at genetic risk for cancer and managing cancer predisposition syndromes (CPS). It has completed over 3,000 consultations, identifying pathogenic variants in about 30% of cases, which enables comprehensive surveillance and cascade testing for family members.

**CART-T Cell Therapy Program** - SickKids has Canada's largest pediatric CAR-T cell trial portfolio and leads enrollment in open trials. Our program's data quality has made us a preferred Phase I trial center for Novartis. We also advise on policy issues and successfully secured additional government funding for CAR-T cells for rare diseases.

**Haemoglobinopathies Program** - The SickKids hemoglobinopathies program is one of North America's largest, caring for approximately 1,000 children with sickle cell disease and 300 with thalassemia. Ninety thalassemia patients and 20 sickle cell patients receive long-term red blood cell transfusions. As the host for the Global Sickle Cell Disease Network, the program leads global research initiatives in SCD in Africa, the Caribbean, and India.

## **Marrow Failure and Myelodysplasia**

**Program** - The SickKids paediatric marrow failure and myelodysplasia program is Canada's only such program and one of the largest in North America. It follows over 300 children with marrow failure syndromes and myelodysplasias, applying advancements in blood cell formation and genetics to care. The program also coordinates a biobank and database through the Canadian Inherited Marrow Failure Registry (CIMFR) involving 14 of Canada's 16 paediatric hematology programs.

**NAIT Program** - The New Agent and Innovative Therapies (NAIT) Program provides novel therapies for paediatric oncology patients at SickKids and across Canada. With 21 open early-phase trials as of December 2023, it has enrolled 206 patients in 54 studies since 2013, including 40% from SickKids, 45% from other Ontario hospitals, and 15% from elsewhere in Canada.

**Psychosocial Program** - Psychosocial care is essential in the Division of Haematology/Oncology, where social workers, psychologists, and child life specialists offer intensive support for patients and families. The team also engages in educational and research initiatives to further the division's mission.

**Thrombosis Program** - The Thrombosis program enhances care for children with thrombotic events through collaborations with Exercise Medicine and Adolescent Medicine. It includes over 200 patients on oral anticoagulants, with expanded clinics for direct-acting oral anticoagulants (DOAC) and Complex Thrombosis for acute cases.

**Vascular Malformations Program** - The Vascular Malformations program has rapidly expanded since its launch five years ago, seeing over 500 patients in 2022. Care involves collaboration with Dermatology, IGT, and ENT. Advances in understanding the genetic mutations behind these malformations have enabled genetic testing and targeted therapies, though accessing these treatments through provincial coverage remains complex and burdensome.

## **Research**

The Division of Haematology/Oncology is actively

involved in clinical, translational, and basic science research related to the field of blood disorders and cancer in children, including paediatric stem cell transplantation. A major research focus of the Division is the design of, and participation in, prospective clinical trials. The Division is an institutional member of the Children's Oncology Group (COG) and is one of two Canadian centres in the COG Phase I Consortia.

Other areas of significant research strength and focus are the Cancer Genetics Program, the New Agents and Innovative Therapies Program, the Retinoblastoma Program, the Inherited Bone Marrow Failures Program and the Paediatric Haemostasis-Thrombosis Program.

Laboratory-based science research in the Division is active in the following areas: the biology of paediatric cancer; the etiology of childhood leukemias with a focus on the megakaryoblastic leukemias of childhood; the biology of brain tumours in children; multi-drug resistance in clinical trials in retinoblastoma; the paediatric bone marrow failure syndromes; the pathophysiology of inherited platelet disorders; and clinical trials in the inherited and acquired bleeding disorders in children e.g. haemophilia and immune thrombocytopenic purpura.

Research by scientists in the Division is conducted in collaboration with clinical investigators and scientists in other divisions and departments within SickKids, the Research Institute, the University of Toronto, and with colleagues across Canada and internationally.

Over the five-year review period the Division had 1,894 publications, generating 38,883 citations, and resulting in an average H-Index of 31.7. These past five years, Division Faculty have secured \$81,351,733.82 in grant funding.

## **Medical Education**

The Paediatric Haematology/Oncology Training Program at SickKids is accredited by the Royal College of Physicians and Surgeons of Canada. It is the largest such program in Canada and among

the largest programs in the world with up to 56 residents and fellows being trained at any one time. Our trainees complete a two or three-year general paediatric haematology/oncology training program with rotations through all key areas of the specialty of haematology, oncology, and blood and bone marrow transplantation. In addition, there are opportunities for those already trained in general paediatric haematology/oncology to obtain further clinical and/or research subspecialty training in general haematology, haemoglobinopathies, sickle cell, bone marrow failure and myelodysplasia, thrombosis, leukemia and lymphoma, histiocytosis, neuroblastoma, neuro-oncology, childhood cancer survivorship, new agents and innovative therapies, cancer genetics, and stem cell and bone marrow transplantation.

The Garron Family Cancer Centre (GFCC) also offers a unique fellowship opportunity for clinical fellows looking to enhance their experience in cancer research. This fellowship aims to provide training through direct participation in basic science or clinical investigation under the supervision of world leaders in oncology research and clinical care. In 2022, the GFCC Artificial Intelligence Fellowship was created to allow trainees to develop their skills in artificial intelligence and machine learning.

Adolescent & Young Adult (AYA) Oncology is recognized as an Area of Focused Competence (AFC) by the Royal College. Dr. Abha Gupta, a staff physician in the Solid Tumour section, and one of the co-leads in the Adolescent & Young Adult (AYA) Oncology Program spearheaded the process of achieving recognition by the Royal College of this specific area of practice.

Our trainees can participate in elective rotations both within and outside of SickKids, broadening their experience and exposure. Within SickKids, our trainees participate in pathology rotations under Department of Paediatric Laboratory Medicine and are encouraged to take part in PACT (Paediatric Advanced Care Team) rotations. Fellows completing three years of Haematology Oncology training complete their Radiation Oncology rotation at Princess Margaret Hospital and if

trainees desire, they can undertake lab rotations at St. Michael's Hospital, Sunnybrook Hospital, and Toronto General Hospital (UHN). They can also participate in the Canadian Blood Services National Resident's rotation. Yearly, our core group take part in Transfusion Camp. Additionally, our core and subspecialty fellows have the chance to join adult rotations in various hospitals across Toronto, further enhancing their training.

In addition to our residents and fellows, our division provides core training experiences for Paediatrics and Paediatric Neurology (20-25 residents per year), Clinical and Metabolic Genetics (4-6 residents per year), Adult Haematology (six residents per year), Radiation Oncology (10-12 resident per year), Anatomical Pathology (6-7 residents per year) and Dentistry residents (sporadic) at the University of Toronto. As well as the electives mentioned above, local, national, and international paediatric residents also join us for Oncology or Haematology elective experiences.

### **Medical Education Priorities**

#### *Addressing niche areas of need within the Haematology Oncology Program*

After observing that our trainees were struggling with coping with the death of patients in their care, we organized bereavement seminars and created dedicated spaces where they could openly discuss any challenges they were facing. This initiative has been met with positive feedback and has proven to be a valuable support system. We are committed to expanding and refining this program in the coming years to ensure our trainees have the resources they need to navigate these difficult experiences.

#### *Addressing needs within specific patient populations*

We embedded a palliative care lecture series within our Academic Half Day teaching sessions to better equip our trainees to deal with patients at end of life. This was a highlight of our Academic Half Day series in the 2023-2024 academic year.

## *Equity, Diversity & Inclusion*

EDI has been integrated into the curriculum by including EDI sessions within the program and encouraging trainees to attend sessions throughout the hospital.

## *Professional Development*

We incorporate professional development talks and career sessions within our Academic Half Day (AHD) curriculum to provide trainees with valuable insights into the experiences and career paths of current and past staff. Our trainees also take part in the C17 career development sessions that are held yearly across Canada. Additionally, we address factors outside of medicine, such as financial planning, to support trainees in their overall professional and personal development.

## *Short Term Goals*

1. To gain full engagement from both faculty and trainees with the Competence by Design (CBD) curriculum, focusing on initiation and completion of work-based assessments to maximize the benefits of this initiative through active faculty development initiatives.
2. To increase faculty engagement in the activities of the education office, for example leadership of RPC sub-committees, new educational initiatives, and career and research mentorship.
3. The wellness of our trainees remains a top priority within the program, and we will continue to advocate for trainees' wellbeing through promotion of mental health and social initiatives within (local Wellness Committee) and outside (Department of Paediatrics, PGME) of the program.
4. To attract excellent candidates to our core and subspecialty training programs through provision of outstanding and enriching learning opportunities and experience. We will foster stronger connections between elective students and residents, and our fellows through structured mentorship opportunities.
5. To focus on ensuring appropriate educational to service ratios on rotations such that trainees can focus on their learning.

## *Long Term Goals*

1. To be recognized internationally as one of the top training programs in Paediatric Haematology/Oncology.
2. To provide subspecialty training that successfully prepares candidates to develop new programs in Paediatric Haematology or Oncology in diverse practice settings, including low and middle-income countries.
3. To ensure parity of compensation structures across the different types of fellowship opportunities available through the program.
4. To expand or increase the areas of focused competencies within our subspecialty realm.
5. To promote a growth mindset for our trainees through increasing faculty modelling of lifelong learning and a scholarly approach to clinical practice, research, education, and QI/QA.

## **Divisional Accomplishments**

### **1. Clinical Trials & Commercial Delivery Programs**

The Division of Haematology/Oncology has significantly expanded its involvement in clinical trials and innovative therapy delivery over the past five years. It has participated in Novartis's Eliana phase II trial for CAR-T-cell therapy in relapsed B-cell ALL patients and continues to provide commercial tisagenlecleucel (CAR-T cells engineered to target CD19 positive Bcells) across anglophone Canada. The program has also increased access to other innovative treatments, including academic CAR-T-cells, therapeutic MIBG, and precision oncology therapies for paediatric patients outside Ontario. Despite becoming a national referral center for these therapies, there is no national support mechanism, prompting the team to navigate existing policies and funding challenges to meet the needs of Canadian paediatric cancer patients.

### **2. Research**

The Division of Haematology/Oncology is Canada's

most research-intensive paediatric program and a leader in North America. It comprises ten Clinician Scientists, eight Clinician Investigators, and 17 Academic Clinicians involved in diverse research across hematology and oncology. Clinician Scientists focus on translating wet-lab research into improved child health, while Clinician Investigators work on clinical trials. Academic Clinicians participate in various academic activities, serving as principal or co-investigators for trials by COG and other international groups.

### **3. Patient Care Provider Mix**

The patient care provider mix in our program heavily relies on trainees (i.e., fellows) to meet the front-line needs of the large patient volumes seen in the inpatient and outpatient settings, in the absence of a sufficient number of more appropriate physician extenders such as nurse practitioners (NPs) and physician assistants (PAs). The addition of PAs to our inpatient provider mix beginning in 2018 has expanded the pool of non-MD providers, facilitating a long-overdue reduction of our reliance on trainees for clinical care, both during regular business hours and during weekends.

## **Divisional Challenges**

### **3. Recruitment & Retention**

Staffing and appropriate compensation in the Division of Haematology/Oncology has harmed morale and jeopardizes physician retention and recruitment. Four of the five sections urgently need more faculty to maintain productivity. Currently, physician assistants (PAs) help reduce reliance on trainees, but there's no framework for their recruitment and management. Relying on philanthropy for funding is unsustainable. To expand the PA role into outpatient and after-hours settings, we need a framework for PA governance and a provincial funding model that supports their recruitment and recognizes their value in delivering high-quality healthcare.

### **2. Equitable Access to Financial Resources**

A key challenge within the Division of

Haematology/Oncology is the inequity across sections within the Division in their access to resources. While the success of the Garron Family Cancer Centre (GFCC) in attracting and investing resources to support cancer clinical care, research and education has made it the most successful and most privileged centre within the institution, the Haematology section has no comparable mechanism to access resources. As an example, the high incidence of childhood acute leukemias as compared to other childhood cancers has led to a disproportionate number of disease-specific fundraising events supporting leukemia research benefitting the Leukemia/Lymphoma (LL) section and Research Institute-based leukemia researchers. In contrast, the exclusion of the Haematology program from access to cancer centre funds allows no internally funded opportunity for a Transition Clinician Scientist haematology research position in the absence of a directed donation for this purpose. Similarly, the haemoglobinopathy and bone marrow failure programs within the Haematology section chronically struggle to fund fellows due to a lack of available funds. An opportunity exists to address this unnecessary disparity by transforming the Cancer Centre into a Centre for Cancer and Blood Disorders.

### **3. Proton Therapy**

Currently, patients needing proton or advanced particle therapy must travel to the U.S., limiting access for many paediatric patients due to logistical challenges. Planning is underway for a provincially funded proton therapy facility to be developed and operated by Princess Margaret/University Health Network and The Hospital for Sick Children, aiming to be the first of its kind in Canada within eight years. This facility is expected to be the only provider of these services in the country for the foreseeable future, with our program involved in pediatric care. The Division Head of Haematology/Oncology and Director of the Cancer Centre is part of the UHN/SK Proton Therapy Executive Committee, emphasizing the need for ongoing collaboration with the UHN planning team to prioritize this opportunity.



## The Division of Nephrology

### Overview

The Division of Nephrology at the Hospital for Sick Children is at the forefront of paediatric kidney care, having experienced significant growth and innovation across all clinical programs in recent years. Our commitment to advancing treatment options for children with renal diseases is demonstrated through our specialized Dialysis and Apheresis Program, which has introduced cutting-edge therapies, including hemodiafiltration (HDF) and modified continuous flow peritoneal dialysis (CFPD) for vulnerable newborns.

Celebrating its 50th anniversary in 2019, our Kidney Transplant Program performs an average of 20-25 kidney transplants annually and marked the milestone of its 1000th transplant in early 2021. To support the transition of young patients into adult healthcare, we established a Young Adult Clinic for those aged 18 to 25, addressing a critical gap in care.

The Ambulatory Nephrology Program has also flourished, transitioning to a theme-based clinic model that has improved patient flow, reduced cancellations, and enhanced interdisciplinary collaboration. We have introduced a dedicated clinic for children with acute kidney injury and leveraged virtual care options during the COVID-19 pandemic to ensure continuity of care. Our in-patient services maintain a reputation for outstanding care, supported by a knowledgeable and responsive team. Recent additions of Nurse Practitioners have further enhanced our ability to manage chronic kidney disease.

Research is a cornerstone of our division, with half of our faculty engaged as clinician-scientists, leading to significant funding and contributions to the field. Our Clinical Research Program has expanded, facilitating participation in industry-sponsored trials and focusing on complement-mediated kidney diseases.

The Nephrology Training Program continues to attract exceptional trainees from around the globe, fostering the next generation of leaders in pediatric nephrology.

Our faculty's leadership extends locally and internationally, with members holding significant positions in major medical organizations and contributing to national and global initiatives. As we look to the future, the Division of Nephrology at SickKids remains committed to excellence in patient care, research, and education, continuously striving to improve the lives of children with kidney disorders.

### Faculty

Dr. Christoph Licht was appointed to the role of Division Head, Nephrology in February 2023. His appointment follows the 10-year tenure of Dr. Lisa Robinson, and her many contributions to the Division of Nephrology, The Hospital for Sick Children, and the University of Toronto throughout her term. Drs. Valerie Langlois and Michael Zappitelli both served as interim Division Heads from 2021 to 2023.



Dr. Christoph Licht

As of July 2024, the Division has a total of nine full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B. The Division hired four Academic Clinicians and one Clinician Scientist during the review period

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Clinician-Investigator	Clinician-Scientist	Grand Total
Nephrology	4	1	4	9

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Nephrology	2	3	4	9

## Clinical Programs

**Glomerular Diseases (GD) Clinic** - The GD Clinic specializes in treating various conditions affecting the kidney’s filtering units, the glomeruli. Our interdisciplinary team, which includes doctors, nurses, dietitians, and social workers, collaborates to provide the best possible care. Our physicians are world experts in this field, dedicated to delivering cutting-edge specialized treatment while working with researchers to enhance our practices. The clinic operates on Monday and Thursday mornings, and new patients require a physician’s referral.

**Kidney Stones Clinic** - The Kidney Stones Clinic specializes in caring for children with a history of kidney stones or nephrocalcinosis, as well as those at risk for developing stones. Our multidisciplinary team includes pediatric nephrologists, nurses, a renal dietitian, and a social worker. We are dedicated to providing advanced specialized care while collaborating with researchers to enhance our treatments.

**Genetic & Electrolyte Clinic** - The Genetic and Electrolyte Clinic specializes in caring for patients with genetic disorders affecting the kidneys, as well as children with electrolyte and acid-base balance abnormalities. We are dedicated to providing advanced specialized care and collaborating with researchers to enhance our treatments.

**Hypertension Clinic** - The Hypertension Clinic provides care for patients with high blood pressure, featuring a multidisciplinary team of pediatric nephrologists, nurses, a renal dietitian, and a social worker. We are dedicated to delivering advanced specialized care while collaborating with researchers to enhance treatments.

**Urinary Tract Malformation Clinic** - The Urinary Tract Malformation Clinic specializes in treating patients with kidney abnormalities and urinary tract infections. Our multidisciplinary team of paediatric nephrologists, nurses, a renal dietitian, and a social worker is committed to providing advanced care and improving treatments through research collaboration.

**Chronic Kidney Disease (CKD) Clinic** - The Chronic Kidney Disease (CKD) Clinic provides care for children with various causes of CKD. Our multidisciplinary team includes paediatric nephrologists, nurse practitioners, nurses, a renal dietitian, and a social worker, all dedicated to delivering specialized care and advancing treatment through research collaboration.

**Renal Transplant Clinic** - The Renal Transplant Clinic cares for children who have received kidney transplants. Our multidisciplinary team includes pediatric nephrologists, a nurse practitioner, a transplant pharmacist, nurses, a renal dietitian, and a social worker, all dedicated to providing specialized care and advancing treatments through research.

## Research

Over the five-year review period the Division had 405 publications, generating 4,519 citations and resulting in an average H-Index of 20. These past five years, Division Faculty have secured \$18,200,928.29 in grant funding.

## Medical Education

Educational Programs	
Educational Program	Outcomes
<b>Core Fellowship</b>	<p>Accredited 2-year training program with Royal College of Physicians and Surgeons of Canada. Approved training site with active accreditation from the American Board of Paediatrics &amp; Australasian Royal College of Physicians.</p> <p>Core fellowship provides clinical training to approximately 10 nephrology subspecialty trainees a year that have gone on to become staff nephrologists across Canada, Europe, Asia, Middle East and Australasia. Trainees engage in academic scholarship during their fellowship and publish and present at international conferences regularly. Scholarship has also included completing masters in cell biology, IHPME, and medical education as well as certificates in leadership and quality improvement.</p>
<b>Complement Fellowship</b>	<p>First official Complement Mediated Diseases Fellowship in the world, in collaboration with Adult Nephrology and Haematology Oncology Program. First official graduate is now a staff physician in our division.</p>
<b>Transplant Fellowship</b>	<p>1 year transplant focused fellowship with specific training goals and objectives as well as research. Collaborative program with TRMC.</p>
<b>Apheresis Fellowship</b>	<p>1 year apheresis focused fellowship with specific training goals and objectives as well as research. Collaborative program with Adult Nephrology programs within UHN.</p>
<b>Transplant Elective Program</b>	<p>Transplant specific 1 month elective curriculum offered Canada wide. Officially 1 trainee per year from CHEO (Ottawa), and average of 4 trainees from other programs.</p> <p>1 block elective curriculum in renal transplantation offered to cardiac transplant subspecialty trainees.</p>
<b>Dialysis Elective Program</b>	<p>Dialysis specific 1 month elective curriculum offered Canada wide. On average 1-2 trainees per year from ICU subspecialty.</p>
<b>Core Elective Program</b>	<p>Average of 5 elective trainees coming for core Nephrology training from Paediatric, sub-specialty, and dentistry programs across the country.</p>
<b>International Medical Observers</b>	<p>Average 3 international medical observers accepted to the program each year. This facilitates training environment exposure for future applicants within the fellowship program.</p>

<b>Undergraduate Clerkship Program</b>	Paediatric Nephrology has traditionally hosted average of 3-4 clerkship rotation sessions yearly via University of Toronto.
<b>Multidisciplinary Partnerships</b>	The Paediatric Nephrology Training Program has official multidisciplinary partnerships with: Adult Nephrology Training Program, TGH HLA Lab, Division of Urology, and the Division of Rheumatology.
<b>Multidisciplinary Clinics</b>	Trainees are part of our multidisciplinary clinics which include: Glomerular diseases clinic, Urinary tract malformation clinic, Kidney transplant clinic, Acute kidney injury clinic, Chronic kidney disease clinic, Hypertension clinic, Nephrocalcinosis clinic and Genetic/electrolyte disorders clinic.
<b>Multidepartmental Clinics</b>	Lupus Clinic, Vasculitis Clinic, Non-Kidney Solid Organ transplant Clinic,
<b>Academic Half-Day Education Exchange</b>	We invite the CHEO (Ottawa) and McGill (Montreal) Paediatric Nephrology Fellows to attend paediatric specific nephrology education sessions virtually during Academic Half Days.
<b>University of Limerick</b>	Faculty appointments for teaching and educational seminars with the University of Limerick.
<b>Great Ormond Street Hospital (GOSH)</b>	Educational exchange program with GOSH for international elective opportunities in dialysis and transplantation.
<b>Dialysis Bootcamp</b>	<ol style="list-style-type: none"> <li>Two week intensive dialysis curriculum provided during the first month of fellowship covering IHD, PD, CRRT.</li> <li>Joint Dialysis Bootcamp with the Adult Nephrology Program that creates and delivers sessions on Dialysis Emergencies, PD, HD and HDF through simulation-based learning.</li> </ol>
<b>Summer Education Series</b>	Two months of intensive introductory education sessions (5 hours/ week) on paediatric nephrology topics delivered at the start of fellowship July – August of each academic year.
<b>Highschool Outreach Initiative</b>	Educational outreach program delivered by fellows to high school students to increase awareness of organ transplantation.

<b>Educational Priority</b>	<b>Outcomes</b>
<b>Increase community nephrology presence in Ontario</b>	We have increases elective opportunities to observe and work with community nephrologists throughout training. This has resulted in in 4 fellowship graduates to practice community nephrology across Ontario.
<b>Increase training opportunities in highly specialized aspects of Nephrology</b>	<p>We have created specific sub-specialty focused fellowships in:</p> <ul style="list-style-type: none"> <li>• Kidney transplantation</li> <li>• Complement mediated nephropathy</li> <li>• Apheresis</li> </ul> <p>We have created sub-specialty focused curriculums in:</p> <ul style="list-style-type: none"> <li>• Acute Kidney Injury + Continouour Renal Replacement Therapy</li> <li>• Kidney replacement therapy (IHD, PD, HDF)</li> <li>• Critical care nephrology</li> <li>• Onco-Nephrology</li> <li>• Community nephrology</li> </ul>
<b>Dialysis Curriculum Re-development</b>	<p>Dialysis curriculum has been re-designed to include dialysis bootcamp (see above) and educational shift to formal multidisciplinary teaching by dialysis experts (physicians, nurses, technicians). Areas of focus have been in HD, HDF, PD and CRRT.</p> <p>In response to lack of exposure to dialysis emergencies, simulation curriculum has been created with didactic and hands-on components. This is to be expanded in 2024 with further development of simulation based education through collaboration with SIM team at HSC – NephSIM Initiative</p>
<b>CBD Implementation</b>	First Paediatric Subspecialty at the university to successfully pilot and implement CBD. The workshops and lectures we developed for our implementation was then shared with all other subspecialties through a series of workshops, mini-conferences, and lectures. These covered a range of topics including: Allyship, Coaching & Feedback, CC Structure, and Evaluations.

## Divisional Accomplishments

### 1. Appointment of Dr. Lisa Robinson as Dean, Temerty Faculty of Medicine

Dr. Lisa Robinson was appointed as Dean, Temerty Faculty of Medicine for a five-year term from July 1, 2024, to June 30, 2029. Dr. Robinson previously served as SickKids' Head of the Division of Nephrology for 11 years until January 2021. As Division Head, her contributions were extensive and positioned the division on the international stage with a highly integrated platform for clinical care and research, as well as training of the next generation of academic paediatric nephrologists. In addition, Dr. Robinson served as the Vice-Dean, Strategy and Operations and Co-Chair of the Finance Committee, Temerty Faculty of Medicine.

### 2. Continuous Flow PD

The number of children receiving chronic peritoneal dialysis therapy at SickKids has steadily risen, as well as the number of peritoneal dialysis treatments performed in in-patient and intensive care settings. In 2019, the Nephrology program performed the first clinical application of a modified continuous flow PD, bringing new treatment options for newborn infants weighing less than 2 kg and who are unable to tolerate conventional PD.

### 3. LDL Apheresis

The implementation of low-density lipoprotein (LDL) apheresis (December 2019) represents a notable innovation jointly designed and launched by the Dialysis and Transplant programs. LDL apheresis for treatment of recurrent focal segmental glomerulosclerosis (FSGS) after kidney transplantation has resulted in complete or partial remission of disease in all patients who have received the treatment so far. These children were previously plasmapheresis-dependent, requiring 1 to 3 treatments per week; after LDL apheresis

therapy, patients who had been receiving plasmapheresis continuously for 18 months are now disease-free. Our Renal Transplant program was the first transplant program in Canada to implement LDL apheresis for treatment of recurrent FSGS.

## Divisional Challenges

The Nephrology Program has achieved significant accomplishments over the past five years, but this success has led to increased workload and the need for attention to professional fulfillment to prevent burnout. Nephrology is a high-intensity specialty, and on-call coverage can be quite demanding. Data indicate that the program in Toronto is under-resourced compared to other North American programs.

The Ambulatory Program faces challenges, as clinic visits have surged without a corresponding increase in faculty, nurse practitioners, nurses, or clerical staff. Additionally, expert resources in Pharmacy and Social Work have been reduced. Demand for dialysis, apheresis, and continuous renal replacement therapy (CRRT) is rising, with increasing indications for therapeutic apheresis. These intensive extracorporeal therapies require specialized nursing and technical expertise and support critical hospital programs like bone marrow and solid organ transplantation. A pilot program for LDL apheresis in treating recurrent focal segmental glomerulosclerosis post-transplant has shown promising results, with plans to expand access for children across Ontario and potentially Canada.

While the implementation of the EPIC electronic medical record system in 2018 improved care coordination and documentation, it has also increased staff time spent on administrative tasks, contributing to fatigue and burnout. The COVID-19 pandemic has posed ongoing challenges, forcing a rapid transition to virtual care and affecting team dynamics. Many team

members struggle to balance professional responsibilities with childcare and the loss of interpersonal contact.

## **Goals & Aspirations**

The Nephrology Division has significant opportunities for future growth and restructuring of its clinical services, research, and education programs, aligning with the Department of Paediatrics and Hospital strategic plans. Increased demand for dialysis and apheresis services in the past decade has not been met with sufficient resources, particularly personnel, threatening our ability to deliver top-tier care. Urgent medical succession planning is essential to maintain our leadership in paediatric nephrology.

Restructuring the Ambulatory Program can enhance collaboration and require increased staffing, including Allied Health resources, to sustain high-quality care and better serve underserved communities. Strengthening our Clinical Research Team and securing funding for additional coordinators will bolster participation in impactful global research initiatives.

As SickKids moves towards Precision Child Health (PCH), aligning our activities with this strategy will enhance individualized care. Collaboration with the Temerty Faculty of Medicine's Centre for Artificial Intelligence will be vital, especially in genomics and patient-derived research.

Valuing and supporting our staff are crucial for reducing stress and burnout, and prioritizing succession planning will ensure we recruit future leaders in paediatric nephrology, maintaining our position at the forefront of innovation.



## The Division of Paediatric Dermatology

### Overview

The Division of Paediatric Dermatology was established in 2021 (formerly affiliated with the Division of Paediatric Medicine). The Division provides tertiary and quaternary care for a large population of children with common and rare skin disorders for the province of Ontario (with over 9000 ambulatory visits and 400 inpatient consults annually). SickKids Dermatology is a leader in Canada and internationally by providing unique, specialized and advanced interdisciplinary care for orphan skin conditions. We are one of the Canadian centres (and the largest) providing fellowship training to both Canadian and internationally trained graduates (over 4-5 fellows annually). In 2024 we revamped the teaching curriculum. We are currently working with the RCPS and respective specialties to create a pathway for direct entry residency training in Paediatric Dermatology. Our faculty are engaged in many investigator and industry-sponsored studies aimed at increasing the knowledge of the field and are active in international guidelines development and lead/collaborate widely within the Pediatric Dermatology Research Alliance (PeDRA).

**Our Vision:** Grow Flourish Innovate

**Our Mission:** We will be an internationally recognized Centre of Excellence providing comprehensive, compassionate, equitable, sustainable child and family-centered care that is fully integrated with education and research.

**Our Values:** Excellence Collaboration Compassion  
Respect Equity

### Clinical Goals:

- To provide high-level care to common and uncommon paediatric dermatologic conditions
- To provide specialized, interdisciplinary care for orphan diseases (e.g. epidermolysis bullosa, vascular tumors, morphea, cutaneous lymphoma, and genodermatoses)
- To improve the care of patients with vitiligo, psoriasis, atopic dermatitis through focused single-provider specialized clinics
- To leverage the new molecular discoveries to diagnose rare genetic skin disorders and facilitate personalized targeted therapies
- To expand the laser program for treatment of vascular lesions

### Education Goals:

- To fulfill our teaching mandate by training both Paediatric and Dermatology residents.
- To disseminate knowledge in Paediatric Dermatology through local, national and international presentations and biennial, SickKids Paediatric Dermatology Update.
- To create a sustainable and reputable fellowship program

### Research Goals:

- To advance the field by investigating new therapeutic modalities for vascular tumors, epidermolysis bullosa, vitiligo, morphea and alopecia
- To collaborate in national and international research



Dr. Elena Pope

## Faculty

Dr. Elena Pope is the Division Head of Dermatology. She is an academic paediatrician with over 20 years of special expertise in paediatric skin disorders, involved in all aspects of clinical, education and research pertaining to the specialty. She has a special interest in rare, orphan diseases that require team collaboration and innovative clinical and research approaches. Dr. Pope created/co-created and has led specialized clinics in rare vascular tumors, epidermolysis bullosa, genodermatoses, morphea and cutaneous lymphoma. She is involved in teaching at all levels and research that stems from her clinical interests.

As of July 2024, the Division has a total of six full-time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired one Academic Clinician during the review period, and there were x full-time faculty departures.

Table 1A (top) and 1B (bottom)

Division	Academic-Clinician	Grand Total
Dermatology	6	6

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Dermatology	3	1	2	6

## Clinical Programs

**Epidermolysis Bullosa** - Interdisciplinary care for patients with EB, overseeing over 150 patients and providing national consultations, seen in 2 monthly clinics.

**Genodermatoses** - Clinic unique to Canada, co-led with Genetics, providing diagnosis and counseling for patients with rare inherited skin disorders; registry for genodermatoses; focused on gene discovery for undiagnosed conditions, ~ 60 patients/year.

**Vascular Anomalies** - Interdisciplinary care for patients with vascular anomalies, collaborating with IGT, hematology, plastic surgery ~ 150 patients/yr; new since 2023 is the monthly interdisciplinary clinic focused on offering medical therapy based on the genotype.

**Morphea** - Specialized clinic, unique to Canada in collaboration with Rheumatology, seeing over 150 patients/year in 2 monthly clinics.

**CALMS Screening Clinic** - Screening clinic for patients presenting with café au lait macules, monthly ~ 50 patients/year.

**Alopecia Clinic** - New clinics, providing care and psychological support for patients with alopecia (monthly clinic), including those post-chemotherapy (monthly clinic)~ 60 patients/year.

**Psoriasis Clinic** - Specialized monthly clinic focused on patients who require biologic treatment ~ 80 patients/year.

**Hidradenitis Suppurativa (HS) clinic** - New monthly clinic (2023) focused on managing severe patients with HS who require advanced

and combined medical and surgical therapy ~ 50 patients/year.

**Laser Surgery**- Laser surgery is offered both for sedated and non-sedated procedures for patients with vascular anomalies~ 100 patients/year.

**Late Effects BMT** - Unique clinic focused on monitoring and treating patients with skin and appendages related side effects post BMT.

**Onco-Dermatology** - Monthly clinic focused on managing and preventing side effects from targeted therapies.

**Eczema management and advocacy program**  
- Weekly clinic aimed at educating patients and caregivers about eczema and its management strategies and to empower families to effectively manage their child's eczema with an overall goal of decreasing disease activity and severity.

## Research

Over the five-year review period, the Division had 217 publications, generating 1,591 citations and resulting in an average H-Index of 15.1. These past five years, Division Faculty have secured \$1,090,048.78 in grant funding. The Division leads clinical and research leadership in complex, rare and drug-related skin and vascular conditions. During the review period, the division has undertaken a multi-disciplinary research initiative dedicated to off-target effects of novel biologics.

## Medical Education

**Clinical Paediatric Dermatology Fellowship:** This program trains fellows in general paediatric dermatology, equipping them with essential clinical skills. Fellows are involved in day-to-day outpatient clinics and on-call duties, including providing consultation services to inpatient, outpatient and emergency department locations, as well as providing advice to community providers both in the GTA and across the province. The program is divided into two distinct streams, each with its

own focus. Our fellows hail from diverse training and geographical backgrounds, with a one-year program designed for dermatologists and a more in-depth two-year program designed for paediatricians.

The Division has successfully advanced its mission by training fellows from diverse backgrounds and focusing on increasing capacity in under-served areas globally. Key accomplishments include implementing a competency-based curriculum that ensures structured blocks for repeated subspecialty exposure and ongoing longitudinal experience in general paediatric dermatology. Additionally, the program has updated its competencies to reflect modern practices in education, leadership, and equity, diversity, and inclusion (EDI). These initiatives collectively provide a comprehensive and adaptable training experience, equipping fellows with the skills and knowledge to make significant contributions to paediatric dermatology both locally and internationally.

We have a close relationship with the Division of Dermatology, Department of Medicine, University of Toronto through our active participation in their rounds and conferences. Additionally, we collaborate with them to train dermatology residents from the University of Toronto, who rotate through our division. This partnership enhances the training experience for the residents and fosters a valuable exchange of knowledge and expertise between our teams. In addition, through monthly organized Derm-Pathology rounds where fellows present and discuss cases with the pathology staff, we collaborate closely with the Division of Pathology. By the incorporation of case discussions and the most recent developments in pathology, this relationship enhances our curriculum, improving clinical practice and our trainees' knowledge. Finally, we have a close working relationship with national Canadian Paediatric Dermatology groups across the country and will be implementing a National Canadian Paediatric Dermatology quarterly education round in the fall.

## Divisional Accomplishments

Despite only being established for a few years, the Division of Paediatric Dermatology has made great strides in advancing the specialty and bolstering its position as a leader locally and nationally.

- The Division launched the Hidradenitis Suppurativa and Alopecia clinics, establishing two highly specialized centres of excellence and advancing care and research for these rare conditions.
- Improved the care of patients with vascular anomalies through advocacy for a centralized referral service. We also hired a CNS-NP and established monthly interdisciplinary clinics for patients with complex vascular anomalies.
- Expanded the clinical and research molecular testing that enabled new genetic diagnoses and precision medicine (especially for patients with vascular anomalies that are currently able to have medical therapies).

## Divisional Challenges

- **Human Resources** - Increased clinical volumes and complexity is not matched with similar increases in manpower both for staff MDs and other health care professionals (our consult service alone has at least doubled in numbers in the past few years). Staff burnout continues to be a reality and there is no flexibility in the system to buffer and protect against it. There is a significant number of hospital initiatives (e.g. screenings for social determinants of health, wellbeing index, etc.) that add to the burden without demonstrable benefit for staff or patients.
- **Clinical Care** - Physical space is suboptimal for increased volumes and complexity which in turn also limits new initiatives such as light therapy, contact allergy skin testing, etc. There is limited capacity to see patients within the ideal timeframe (most patients are

seeing outside the targets set by our internal guidelines and CPSO). Significant barriers to address mental health comorbidities and concerns of patients with psychosocial impacts of their skin disease due to delays and lack of proactive psychological treatment.

- **Research** - Institutional red tape continues to hamper our ability to engage in cutting edge research, particularly industry-sponsored multisite trials, where we have frequently missed opportunities due to lengthy regulatory reviews by hospital bodies (research ethics board, legal and budget).



# The Division of Rheumatology

## Overview

The Division of Rheumatology is dedicated to providing comprehensive care for children and adolescents with a variety of rheumatic diseases. Our expert team, comprised of pediatric rheumatologists, specialized nurses, and allied health professionals across 11 ambulatory subspecialty clinics, a general JIA clinic and telemedicine clinic, is focused on diagnosing and managing conditions such as juvenile idiopathic arthritis, systemic lupus erythematosus, and other complex autoimmune and inflammatory disorders.

Recognizing that rheumatic diseases can profoundly affect a child’s physical health, emotional well-being, and social development, our division employs a holistic approach to patient care. We are committed to creating personalized treatment plans that address not only medical needs but also enhance overall quality of life. Our services encompass outpatient consultations, advanced diagnostic testing, and tailored treatment options, including cutting-edge therapies such as biologics and other disease-modifying medications.

Research is a vital aspect of our mission. The Division is actively engaged in pioneering

research and clinical trials aimed at advancing the understanding and treatment of pediatric rheumatic conditions. Through collaboration with other specialties within SickKids, we provide integrated care that optimizes health outcomes for our patients.

We also prioritize education and training within our division. Our fellowship programs and ongoing educational initiatives for healthcare providers are designed to cultivate the next generation of paediatric rheumatology specialists. By sharing knowledge and fostering professional growth, we enhance the overall care landscape for children with rheumatic diseases.

There are multiple clinics focused on areas of subspecialty focus (dermatomyositis, systemic JIA, scleroderma, etc.), although the largest number of patients are seen in the general rheumatology clinic.

## Faculty

Dr. Brian Feldman is the Division Head of Rheumatology. Dr. Feldman is a clinician scientist and rheumatologist. He holds a general rheumatology clinic, where he sees children with arthritis and other rheumatic complaints, and the childhood dermatomyositis clinic.



Dr. Brian Feldman

The Division is made up of 14 active physicians with a 3.65 clinical FTE compared to 9 active physicians with a 7.4 clinical FTE in 2013. This is due in part to the number of clinician-scientists hired since 2013 (see faculty numbers). Several of the physicians are senior and likely to retire in the next 5-10 years.

Division	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Rheumatology	4	1	1	3	9

Division	3 - Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Rheumatology	0	3	6	9

Table 1A (top) and 1B (bottom)

## Clinical Programs

**Juvenile Dermatomyositis (JDM)** - Established in 1991, the JDM clinic was one of the first comprehensive care clinics for childhood myositis. Serving around 62 patients yearly, each visit includes thorough assessments by medical and physiotherapy teams, as well as nailfold capillaroscopy. The clinic also serves as a key training site for medical and therapy trainees.

**Juvenile Spondyloarthritis (JSpA)** - Launched in 2009, the JSpA clinic at SickKids was the first to prospectively evaluate JSpA patients using a standardized protocol aimed at early identification and treatment to prevent permanent damage. This clinic is a collaboration between Rheumatology, Diagnostic Imaging, Rehabilitation Sciences, and Gastroenterology.

**Systemic Autoinflammatory Disorders (SAIDS)** - Established in 2009, the Autoinflammatory Clinic is the largest in Canada, offering comprehensive care for recurrent fever syndromes and systemic inflammatory diseases, including rare genetic disorders, some first identified in its patients.

**Systemic Lupus Erythematosus (SLE)** - The paediatric SLE clinic at SickKids, the largest in North America, has prospectively evaluated children using a standardized protocol since 1984. Led by Drs. Deborah Levy, Earl Silverman, Linda Hiraki, and Andrea Knight, the clinic integrates clinical research into patient care.

**Neonatal Lupus Erythematosus (NLE)** - The paediatric NLE clinic at SickKids is unique, originally established to study the effects of maternal autoantibodies on fetal development, which can lead to heart block, skin rash, liver disease, and blood issues in newborns. Expectant mothers receive echocardiograms at specific intervals, and treatment is initiated if complications are detected. The rheumatology nurse offers education and support at each visit.

**Kawasaki Disease (KD)** - Kawasaki disease, a multi-system vasculitis affecting coronary arteries, is the leading cause of acquired heart disease in

Canadian children. At SickKids, the Rheumatology Division consults on all suspected cases.

**Vasculitis** - Established in 2012, this clinic has cared for over 80 children with rare diseases. Co-led by Drs. Rae Yeung and Diane Hebert, it's supported by multiple specialties, including Rheumatology, Nephrology, and Cardiology. Standardized protocols are in place to enhance treatment and gather valuable data.

**Systemic Juvenile Idiopathic Arthritis (sJIA)** - The sJIA clinic is a unique, multidisciplinary clinic treating patients from across the province. These patients often require hospitalization to establish diagnosis and initiate treatment due to severe, multisystem involvement, making sJIA one of the most complex forms of JIA.

**Morphea Clinic** - The Morphea clinic at SickKids is a collaborative service between Dermatology and Rheumatology. Morphea, a rare condition with an incidence of 2.7 cases per 100,000, involves excessive collagen accumulation in the skin and subdermal tissues. Patients benefit from the combined expertise of both specialties for diagnosis and treatment.

## Research

The Division leads research innovation in basic and clinical sciences which includes lupus, rheumatoid arthritis, and Kawasaki disease, and new immune disorders including MISC and other chronic COVID associated disorders.

The basic, translational and clinical research in the department spans genetics/genomics, immunophenotyping, clinical outcomes and associated mental health sequelae.

The Division has become the lead centre for several international treatment trials for new therapeutic agents in childhood arthritis. Over the five-year review period the Division had 633 publications, generating 11,109 citations and resulting in an average H-Index of 44.6. These past five years, Division Faculty have secured \$3,552,203.64 in research funding.

## Medical Education

### Educational Programs

**Pediatric Rheumatology Residency Fellowship Program** (2-year Core Program accredited by Royal College of Canada)

- Follows the Royal College CBD curriculum and CanMeds framework
- One of the largest and most comprehensive clinical programs in North America with national and international impact
- Open for Canadian residents and international fellows

**Pediatric Rheumatology Clinical Research Fellowship** (1-year Subspecialty Fellowship)

Clinical residents/fellows who have completed training in pediatric rheumatology who wish to pursue a career in academic rheumatology can pursue a subspecialty fellowship to further enhance their clinical skills in managing complex paediatric rheumatology patients and to develop scholarly/research skills. Scholarly work can be in clinical, basic science, translational, quality improvement, educational and health administrative fields.

4 subspecialty fellowships offered (1 year): paediatric lupus, childhood vasculitis, systemic autoinflammatory diseases and childhood inflammatory myositis.

Research Fellowship

- Can be 1-2 years in duration
- Open to Canadian and International residents/fellows or faculty
- Focus on rheumatology research including clinical, basic science, translational, quality improvement, educational and health administrative fields
- No clinical duties

## Medical Education Accomplishments and Priorities

Implementation and Sustaining Competency By Design (CBD):

- CBD curriculum, goals and objections, rotational plan, competence committee
- forms/scripts and assessment tools were developed
- Pilot testing for CBD curriculum and assessments in Jan 2019 and full launch of CBD in July 2019
- Faculty development for CBD and CBD orientation provided to trainees
- Created CBD resources that were shared locally (SickKids, U of T adult rheumatology program) and nationally (paediatric and adult rheumatology programs)
- Provided support and mentorship for other programs launching in CBD during 2019- 2024 period
- PD active involvement with Royal College in development and subsequent revisions of CBD goals and objectives as well as EPA & milestones

Implementation of Longitudinal (Fellows Continuity) Clinic

- All Rheumatology Residents and Fellows attend the weekly longitudinal clinic throughout their two years in the program where they have own patient list of new and follow up patients
- This successful model was implemented in 2015 and revised in 2019 with CBD launch.
- Dr. Deb Levy established new longitudinal goals and objectives, assessment tools and clinic structure
- Rheumatology Residents report that this clinic is one of their favourite experiences. They feel connected and primarily responsible for the care of their patients as they are able to follow the course of disease over their two-year fellowship.
- Ongoing quality improvement projects are continually refining and improving the flow and

care of children and adolescents cared for in this clinic in addition to learning experience with graded responsibilities for the trainees

#### Establishment and Expansion of Subspecialty Fellowships (1-year fellowships)

- Clinical residents/fellows who have completed training in pediatric rheumatology who wish to pursue a career in academic rheumatology can pursue a subspecialty fellowship to further enhance their clinical skills in managing complex pediatric rheumatology patients and to develop scholarly/research skills. Scholarly work can be in clinical, basic science, translational, quality improvement, educational and health administrative fields
- Previously offered for pediatric systemic erythematosus lupus (SLE) and childhood vasculitis only
- Launched 2 new subspecialty fellowships in systemic autoinflammatory diseases and paediatric inflammatory myositis (with specific goals and objectives, assessment tools)

#### EDIA Initiatives

- Successfully launched EDIA moment into regular Divisional meetings (faculty, trainees and allied healthcare professionals attend). Learning forum to discuss and learn from EDIA cases
- Implemented EDIA lens for assessment of trainees applying to fellowship and residency program (new objective scoring for applicant file review, OSCE interview scoring sheets and scenarios to bring equity in assessing Canadian and International applicants)
- Mentorship opportunities
  - All new fellows/residents are paired with both a faculty and fellow buddy (takes into account specific needs and culture to make transition easier for all trainees entering program)
  - Faculty advisors for trainees are also assigned with EDIA lens

- International Fellow (Edan Itzkowitz) has further established orientation materials for international fellows and has shared at hospital-wide level

- Many faculty serve as mentors and panel speakers at local (U of T Women in Medicine Event, Pediatric Interest Group Career Night, Rheum Nuit), national (Canadian Rheumatology Association mentor/preceptor) and international (AMIGO program for rheumatology)
- Part of pilot (2023) Humanities PerLS Learning Sessions: Developed workshop for paediatric residents to learn with movements how patients with rheumatologic conditions may experience challenges (Be ready to move and you can move the world)
- Outreach Clinics (Sudbury outreach clinic and Thunder Bay telemedicine clinics) for trainees to be exposed and learn to provide care in underserved areas and with marginalized populations

#### Collaborations and Co-learning Opportunities External to SickKids

- Rheumatology Case Management rounds (every 2 months) with Cleveland Clinic. Presentation and discussion of 1-2 challenge cases. All faculty and trainees from both sites invited to participate
- March 2022: Delivery of Paediatric Rheumatology Lecture series for Paediatric Residents of the University of Rwanda Currently there is no paediatric rheumatologist in Rwanda

#### Short and Long Term Priorities

- Ongoing improvement for clinical and scholarly excellence to paediatric rheumatology fellowship program
- Increased prioritization to target underserved communities or countries that lack specialist in pediatric rheumatology
- Foster pathways to promote and support academic rheumatology career pathway

(especially clinician scientists) including funding sources

- Expansion and implementation of trainee and faculty wellness endeavors (curriculum, workshops, events, committee, director)
- Implementation of point of care MSK ultrasound training into curriculum (diagnosis, monitoring of disease activity and procedures) including securing MSK US appropriate equipment
- Planning for SickKids Paediatric Rheumatology CME Paediatric Rheumatology Boot Camp or Symposium (potential source of revenue generating initiatives)
- Possible new opportunities with merger of Division Head to be responsible for both Divisions of Rheumatology and Allergy & Immunology
  - Establishment of joint clinics (pilot dysfunctional clinic started 2024)
  - Shared and collaborative curriculum for trainees (eg. autoimmunity rounds, immunology teaching etc)
  - More research collaborations (supervisors, mentorship, translational and clinical research opportunities)

## Divisional Accomplishments

The Division of Rheumatology at SickKids is internationally recognized for its leadership in paediatric rheumatology, with faculty members who are considered world leaders in the field. The division is a national referral center for complex disorders, supporting specialized care in areas like SoJIA, SLE, and vasculitis, and its focused clinics have strengthened its reputation for excellence. The paediatric SLE clinic at SickKids is the largest of its kind in North America, with clinical research integrated into care and producing 5-10 publications annually. The Juvenile Dermatomyositis program, established in 1991, is recognized as a CureJM center of excellence. The division has a strong educational mission, developing future providers for Canada and advancing knowledge on autoimmune and autoinflammatory disorders. Its significant

research focus includes clinical, translational, and quality research, with multiple well-respected faculty members such as Drs. Rae Yeung, Dilan Dissanayake, Brian Feldman, Linda Hiraki, and Andrea Knight contributing to studies that improve outcomes, prognosis, and treatment of paediatric rheumatic diseases.

## Divisional Challenges

The Division of Rheumatology at SickKids faces several challenges, including the need for effective succession planning for key leadership roles such as the Division Head and Program Director, as well as for individual specialty clinics. There is a lack of clear career paths for young faculty and trainees, which may impact recruitment and retention. The upcoming retirement of specific faculty members and the winding down of certain clinics presents an opportunity to redirect focus to new areas, such as dysfunctional immunity. However, the Division can also leverage resilience through community rheumatologists, physiotherapists, and nurse practitioners in specific programs like Vasculitis and SLE, as well as by expanding telehealth services with local advanced practice therapists. Standardizing clinic operations would improve both the trainee experience and patient care quality. Additionally, transitioning leadership roles could bring fresh perspectives, while changes in personnel may lead to greater efficiency and cost advantages. Moving toward value-based performance models, rather than a predetermined budget, presents another opportunity for growth and improvement.



## The Division of General Paediatrics & Hospitalist Medicine

### Overview

The Division of Paediatric Medicine is one of the largest in the Department of Paediatrics, providing leadership in areas such as Academic General Paediatrics, Hospital Medicine, Complex Care, Quality Improvement, Child Maltreatment, and Palliative Care. With 30 physician FTEs, including full-time faculty and part-time hospitalists, this clinically active division is central to the mission of the Hospital for Sick Children and the educational goals of the University of Toronto.

The Division's clinical programs, particularly the General Paediatric Hospital Medicine Services, are among the largest in the department, handling about 25% of the hospital's census with 4,000 admissions annually. These services include six clinical teaching units, an inpatient consultation service, a day treatment unit (ACE), and the Paediatric Consultation Clinic.

Additionally, the Division runs the Complex Care Program, providing inpatient consultation and outpatient services, and has developed key hospital-wide programs such as the ABILITY Program (for adaptive, behavioral, intellectual, and developmental disabilities) and the G Tube Feeding Program.

The Division also includes specialized Sections for Child Maltreatment (the SCAN Program, the

largest in Canada, which conducts about 700 consultations annually and provides 24/7 support) and Paediatric Palliative Care (the PACT Team, which supports end-of-life care for patients, families, and providers).

The Division of Paediatric Medicine is actively involved in medical education, overseeing core rotations for University of Toronto pediatric residents and medical students in inpatient and outpatient pediatrics, as well as child maltreatment. Residents from other specialties also participate in core rotations. The Division offers numerous fellowship training opportunities, including in Academic General Paediatrics, Paediatric Hospital Medicine, Child Maltreatment Paediatrics, Paediatric Palliative Care, and Community Paediatrics.

Members have pioneered new Royal College disciplines, securing accreditation and expanding these fields nationwide. They are currently leading efforts to define and standardize training for Paediatric Hospital Medicine. Key educational roles within the Department of Paediatrics include various program directors and faculty leads. The Division also houses the University of Toronto Section of Community Paediatrics, led by Dr. Mark Feldman for over 20 years, which includes community pediatricians involved in teaching across the Greater Toronto Area.

The Division emphasizes impactful research in Paediatrics, supported by initiatives like the Paediatric Inpatient Research Network (PIRN), which aims to improve care for hospitalized children, and TARGet Kids!, a primary care practice-based research network.

Drs. Eyal Cohen and Astrid Guttman serve as inaugural Co-Directors of The Edwin S.H. Leong Centre for Healthy Children, which collaborates with various departments and organizations to address health inequities caused by social determinants. The Centre's vision focuses on interdisciplinary research to enhance child and family well-being, with Dr. Catherine Birkin holding the inaugural Chair and co-leading a hospital-wide social paediatrics interest group.



Dr. Michelle Shouldice

## Faculty

Dr. Michelle Shouldice is the division head of General Paediatrics & Hospitalist Medicine. Dr. Michelle Shouldice is a general paediatrician and educator with a background and training in child development and child maltreatment.

As of July 2024, the Division has a total of seven full time faculty. A breakdown of faculty by Job Profile and Rank can be found in Tables 1A and 1B.

The Division hired 4 Academic Clinicians and 1 Clinician Investigator during the review period.

Table 1A (top) and 1B (bottom)

Division	Clinician Administrator	Academic-Clinician	Clinician-Educator	Clinician-Investigator	Clinician-Scientist	Grand Total
Paediatric Medicine	1	22	4	5	4	36

Division	2 – Lecturer	3- Assistant Professor	4 - Associate Professor	5 - Professor	Grand Total
Paediatric Medicine	2	12	14	8	36

## Clinical Programs

**General Paediatric Hospital Medicine Inpatient Services** - The Division’s inpatient services provide high-quality, safe, and efficient care for general paediatric patients in a tertiary setting. Services include six clinical teaching units, an intake service, and a consultation service, catering to diverse patient needs. Specialized units include an intermediate care unit for complex cases, a streamlined care unit for predictable illness trajectories, and an Alternative Care Environment (ACE) unit for coordinated care without overnight nursing, all aimed at resource stewardship and improving access and flow.

**Outpatient General Paediatrics (Paediatric Consultation Clinic)** - The Paediatric Consultation Clinic (PCC) offers consultative care for complex pediatric issues, working closely with inpatient services and ACE to ensure appropriate patient care. Referrals come from community paediatricians needing second opinions and from SickKids physicians

in various departments. The clinic focuses on child growth, development, feeding/nutrition, and mental health, with specialized clinics for conditions like Neurofibromatosis, ADHD, PANDAS/PANS, and complex care. It also caters to children with somatic symptoms and those with Autism Spectrum Disorders and Developmental Disabilities requiring medical care at SickKids.

**Child Maltreatment Paediatrics (Suspected Child Abuse and Neglect – SCAN Program)** - The Suspected Child Abuse and Neglect (SCAN) Program is an interprofessional team that provides consultation for children and youth suspected of experiencing maltreatment. The program offers guidance to healthcare professionals, child protection agencies, law enforcement, and legal professionals regarding concerns about injuries related to maltreatment. Team members, including physicians, nurse practitioners, and mental health practitioners, assess and support children who may have faced sexual abuse or exploitation. The SCAN team offers 24/7 consultation, direct assessments, telephone support, and case reviews.

**Paediatric Palliative Care (Paediatric Advanced Care Team)** - PACT is the SickKids palliative care service, offering 24/7 on-call support for children with serious illnesses and their families to optimize quality of life. The PACT team collaborates with the child's primary care team in a shared-care model, managing distressing symptoms and assisting families with goals of care, advance care planning, and end-of-life care at home, hospice, or hospital. Additionally, PACT provides grief and bereavement support to all SickKids families who have lost a child.

**Complex Care** - The Complex Care Program provides holistic care for children with medical complexity and their families, partnering with parents to deliver goal-oriented clinical support. In collaboration with Complex Care Kids Ontario, it enhances access to integrated medical care across the province. As Canada's largest program of its kind, it supports over 650 patients through a hub-and-spoke model with 11 satellite programs in community hospitals and treatment centers.

**ABILITY Program** - The ABILITY Program at SickKids collaborates with the Department of Psychiatry and Surrey Place Centre to improve care for children and youth with neurodevelopmental disorders. It offers inpatient consultations and outpatient services through the ABILITY Clinic, which serves as a referral-based clinic for those with Autism Spectrum Disorder and Intellectual and Developmental Disabilities facing challenges that affect access to medical care, including severe restricted eating and regression.

**G Tube Feeding Program** - The SickKids Gastrostomy Tube Feeding Program is an interdisciplinary initiative that offers comprehensive care for children and youth requiring gastrostomy or gastrojejunostomy feeding, both in the hospital and at home. Established in 2019, the program focuses on delivering specialized care to enhance health outcomes and quality of life related to enteral feeding. An enteral tube weaning clinic further complements the G tube consultation services.

## Research

Faculty are innovators in population-based studies including complex care, disease prevention in healthy children, mental health, gun violence and substance abuse which informs practice and policy

New initiatives include Pediatric Inpatient Research Network (see [Section 2.5](#)) and Pan-Canadian Perinatal Opioid Use Surveillance System

Over the five-year review period the Division had 1,000 publications, generating 9,459 citations and resulting in an average H-Index of 14.1. These past five years, Division Faculty have received \$43,673,063.15 in grant funding.

## Medical Education

Please refer to [Section 2.4](#) for information on UME and PGME Residency (Core Paediatrics) training.

Subspecialty training within the Division of Paediatric Medicine includes the following:

- Academic General Paediatrics
- Paediatric Hospital Medicine, Community Paediatrics
- Complex Care Fellowship, Suspected Child Abuse and Neglect (SCAN)/Child Maltreatment Paediatrics (CMP)
- Palliative Care (PACT) Programs

Further information can be found in Appendix 3.0.

## Clinical Accomplishments

### 1. Inpatient Access and Flow

Efficient access and flow in pediatric inpatient services are essential for supporting the emergency department and ICU, while reducing surgical cancellations. Over the last decade, our Division has focused on managing patient volumes and acuity seasonally. Key strategies include

patient cohorting, optimizing care levels, and GTA system integration. We have implemented team-based care models involving physicians, medical trainees, advanced practice nurses, and physician assistants, alongside enhanced processes for transferring patients to community hospitals with a dedicated Community Transfer Access Lead (CTAL).

## 2. ABILITY Program

The ABILITY program, developed in collaboration with the Department of Psychiatry and Surrey Place Centre, provides integrated care for children and youth with Intellectual and Developmental Disabilities (IDD) and Autism Spectrum Disorder (ASD) at SickKids. As more children with IDD/ASD arrive in crisis, the program addresses urgent gaps in care, especially in the high-stress hospital environment, where unique challenges can heighten distress and safety risks.

The interprofessional ABILITY team, including developmental and general paediatricians, psychiatrists, behavioral analysts, nurses, social workers, and dietitians, offers consultative support to various hospital departments. They create tailored adaptive care plans that focus on each child's strengths and family context, significantly reducing code white events—zero in 2022 and two in 2023—for visits with adaptive care plans. The program has seen a 138% year-over-year increase in demand for its services.

In addition to improving care within SickKids, the ABILITY team has shared its expertise nationally and internationally, presenting the program as a model of care among children's hospitals across North America. The ABILITY program stands out for its innovative, multidisciplinary approach to delivering effective developmental, behavioral, and mental health care.

## 3. G Tube Feeding Program

The SickKids Gastrostomy Tube Feeding program offers comprehensive care for children and youth needing gastrostomy or gastrojejunostomy feeding, both in the hospital and at home. Established in

2019, it enhances health outcomes and quality of life related to permanent enteral tube feeding, led by a team of pediatric specialists, nurse practitioners, and dietitians.

As one of North America's highest-volume programs for permanent feeding tubes, it integrates clinical care with family input and quality improvement. The program has successfully reduced emergency department visits, ensured timely access to care, and developed a tube weaning clinic to minimize the need for permanent tubes.

Additionally, the program hosts a national G Tube Feeding Awareness Week to share best practices among Canadian children's hospitals and was awarded a SickKids President's Award for innovative care in 2022. The Enteral Tube Weaning Clinic supports healthy oral eating goals, enhancing quality of life for many patients. An upcoming remote care initiative in 2025 aims to further optimize patient experiences through integrated IT solutions.

## Additional Accomplishments

### 1. SCAN: Lotus Health Program

- Canada's first hospital-based program specializing in child sex trafficking
- Provides trauma-informed medical, mental health, and peer support services.
- Serves ~65 children annually, with 700 clinic visits per year.
- Focuses on marginalized children, primarily racialized girls aged 12-17.
- Demonstrates improvements in safety, well-being, and health outcomes.
- Collaborates with 18+ community partners to create integrated care systems.
- Over \$2 million in funding from various government and health agencies.
- 

### 2. PACT: Provincial Model of Pediatric Palliative Care

- Developing a hub-and-spoke model to provide palliative care closer to home in Ontario.

### **3. PACT: IMPACT (Infant-Maternal Pediatric Advanced Care Team)**

- Focuses on supporting pregnant women and families with seriously ill fetuses.

### **4. Complex Care: Caregiver Wellness (Caring for the Caregiver) Program**

- Enhances caregiver mental health with a comprehensive, stepped-care model.
- Integrates mental health support, psychotherapy, and social work for families.

### **5. Complex Care: Transition to Adult Care Program (PITCare)**

- Supports children with medical complexity transitioning from pediatric to adult care.
- Provides intensive care coordination and support for 2 years (ages 17.5-19.5).
- First program of its kind in Canada, facilitating a seamless transition to adult care.

## **Divisional Challenges**

### **1. HHR challenges – general paediatric inpatient services**

HHR challenges in general pediatric inpatient services are impacting capacity to manage surge volumes for 2024-25 and beyond and staff all of the services led by staff in the division. Despite support from the Department and business cases to expand physician staffing, concerns remain about providing safe, high-quality care. Key contributing factors include:

- Increased patient volumes and complexity
- Higher acuity due to critical care pressures
- Pressure to admit to general pediatrics as subspecialties face similar issues
- Changes in trainee roles, including restricted work hours and increased day-off requests
- Fewer fellowship applications due to ACGME accreditation impacts
- Longer staff absences for viral illnesses
- Recruitment and retention challenges for

physician-extender roles (NPs, PAs)

These issues significantly affect care delivery and staff well-being, and concerns about physician salaries may worsen recruitment and retention. There is an urgent need for targeted strategies to address this escalating problem.

### **2. Escalating demand - ABILITY Program**

Demand for ABILITY Program services has increased by 138% year-over-year in 2023. Additional resources are needed to expand developmental and behavioral health expertise at SickKids, as over 60% of Code White events involve neurodiverse patients. The prevalence of ASD has risen from 1 in 150 in 2000 to 1 in 40 in 2018, highlighting the urgent need for healthcare professionals to meet the needs of children with ASD/IDD. There is a significant call for program expansion to enhance support during crises in the ED and inpatient units. Increased resources would strengthen after-hours support, improving both staff and patient safety.

### **3. Professional risk and safety – SCAN Program**

Abuse referrals have increased since July 2020, with about 60 new referrals per month (800-1000 annually). Increased scrutiny of medical opinions related to child maltreatment has led to complaints, lawsuits, and adverse media coverage, raising concerns about safety and contributing to secondary traumatic stress among staff and trainees. Despite support from the Department and hospital, the impact of these challenges remains significant.



## The Division of Developmental Paediatrics

### Overview

The Division of Developmental Paediatrics, University of Toronto, is situated at **Holland Bloorview Kids Rehabilitation Hospital**. Division members are developmental paediatricians, paediatricians, and child neurologists who work in academic centres and community-based practices across the Greater Toronto Area (Unity Health/ St Michael's Hospital, Surrey Place, Sunnybrook Health Sciences Centre and in the community). Our mission is to work together with clients, families, teams and partners, to leverage our collective expertise enabling equitable, evidence-informed, and strength-based care for children and youth with disabilities and developmental differences. As leaders and advocates in Developmental Paediatrics, we strive to become more integrated in our efforts to build system capacity, drive innovation, and foster new learning in the next generation of clinicians.

**Partnering with clients, families, teams, and organizations** - Division members provide care for neurodevelopmental conditions such as acquired brain injury, autism, cerebral palsy, neuromuscular disorders, and spina bifida. Our patients often have complex needs, presenting with language, social, learning, behavior, or motor development challenges. Working in interprofessional teams, we partner with children, youth, and families to provide personalized care, drive research-based interventions, and advocate for a brighter future that respects clients' diverse backgrounds and

identities.

### Leaders and Innovators in Child

**Development** - Our Division has a major impact in childhood disability and strives for excellence. Members hold Canada Research Chairs, Endowed Chairs, and leadership roles at the Ontario Brain Institute and Royal College of Physicians and Surgeons of Canada. They lead at the Canadian Pediatric Society, American Academy of Cerebral Palsy, and International Society for Autism Research, advocating for child health equity through outreach and programs like OurKidsHealth. Our team develops clinical pathways for cerebral palsy (CP), early diagnosis and intervention for CP, and care guidelines for Duchenne Muscular Dystrophy, while also building capacity for disability care through new clinical models and professional development programs like ECHO Autism.

**A strong, integrated Community Section in Developmental Pediatrics** - The Community Section of Developmental Paediatrics is comprised of a dedicated, experienced group of community-based Developmental Paediatricians working in varied clinical settings across the Greater Toronto Area. In addition to providing high volumes of evidence-informed, family-centred care to children and families within their communities, Community Section members contribute to many academic activities, including involvement in teaching, research, quality improvement, and advocacy.

### About Holland Bloorview Kids Rehabilitation Hospital

Holland Bloorview Kids Rehabilitation Hospital is Canada's largest children's rehabilitation hospital, dedicated to improving the lives of kids with disabilities. The hospital offers a wide range of services, including inpatient and outpatient care, an integrated kindergarten school program, assistive technology services, and community outreach activities. It serves approximately 7,000 children and youth with disabilities and their families each year, addressing conditions such as cerebral palsy, acquired brain injury, muscular dystrophy, epilepsy, spina bifida, and various

developmental disabilities including autism.

Holland Bloorview's vision is to ensure the most meaningful and healthy futures for all children, youth, and families. Their mission is to deliver outstanding personalized, inter-professional care in partnership with children, youth, and families. They focus on maximizing function through advanced treatment and technology, co-creating innovative research and teaching, connecting the system, and advocating for social justice for children and youth with disabilities.

See Appendix 3.0 for further information about Holland Bloorview Kids Rehabilitation Hospital.



Dr. Anne Kawamura

## Faculty

Dr. Anne Kawamura was appointed as Head of the Division of Developmental Paediatrics at the University of Toronto in April 2022. Dr. Kawamura is a developmental pediatrician at Holland Bloorview Kids Rehabilitation Hospital. Her clinical focus is with children who have complex medical and developmental disorders with a special interest in children with cerebral palsy and neuromotor disabilities.

There are 24 Department of Paediatrics-appointed faculty across Holland Bloorview, TAHSN, and community sites.

## Clinical Programs

**Brain Injury Rehabilitation Team** - Inpatient service that serves clients aged 3 months to 18 years who require rehabilitation following an acquired brain injury

**Autism, Communication, Learning and Behaviour Team** - As a designated Autism Diagnostic Hub for Toronto, this program provides autism diagnostic assessments for children and youth

**Complex Continuing Care** - Inpatient service that provides care to clients with multi-system disease and/or compromised respiratory systems that require frequent and ongoing specialized assessment and intervention

**Extensive Needs Service** - A program that provides vital wrap-around services for children and youth with urgent and extensive needs in Ontario who have co-occurring urgent medical, physical and developmental complexities and/or social vulnerabilities

**Feeding Clinic** - Multidisciplinary team that assesses and manages problems with feeding

and swallowing. Clients are provided with plans to improve feeding safety and to develop feeding skills

**Hypertonia clinic, Selective Dorsal Rhizotomy Clinic, Intrathecal Baclofen Pump Clinic** - Team-based clinics provide specialized assessment and management of hypertonia for children and youth with physical neurodisabilities

**Neurodevelopmental Disorders Restrictive Eating Clinic** - Assessment and treatment of severe restricted food intake including avoidant/restrictive food intake disorders (ARFID) for clients with neurodevelopmental disorders

**Neuromotor Program** - Provides consultation and therapy services for children with neuromotor and neuromuscular conditions such as cerebral palsy, muscular dystrophy, Rett syndrome and physical neurodisability

**Psychopharmacology Clinic** - Serves clients whose complex medical and developmental differences require the need for medication management as part of their overall treatment plan

## **Specialized Orthopedics and Paediatric**

**Rehabilitation** - Inpatient service that provides care to clients with significant functional mobility and movement impairment related to the musculoskeletal system

## **Spina bifida and spinal cord injury -**

Multidisciplinary, family-centred approach to caring for children and youth with spina bifida and spinal cord injury

## **Research**

The division leads Health Care Utilization and Translational Neuroscience Research Networks to inform delivery of behavioral or biological therapy for developmental disorders. Areas of research during the review period include novel ASD diagnostic tools for general pediatricians to improve early diagnosis and therapeutic intervention

During the review period the division had over 290 publications generating approximately 5,000 citations and received \$17,151,541.66 in grant funding.

## **Medical Education**

The two-year residency or fellowship in Developmental Paediatrics is based in the interprofessional environment at Holland Bloorview Kids Rehabilitation Hospital. The objective of the fellowship in Developmental Paediatrics is to train academic developmental paediatricians with in-depth expertise in child development and behaviour, both typical and atypical, spanning the full age range from the prenatal period to late adolescence.

Trainees develop competence in the assessment, formulation and management of the full spectrum of neurodevelopmental disorders including conditions such as: cerebral palsy, intellectual developmental disorder learning disabilities, autism spectrum disorder, attention deficit disorder, developmental effects of recurrent or chronic illness, behavioural, psychophysiological and social-emotional problems. Clinical training

also emphasizes the longitudinal nature of these conditions and the importance of the ongoing relationship between the caregivers and the child and family. The training also involves completion of a research project. Our fellows have protected academic time weekly during which they engage in educational sessions facilitated by staff on topics mapped to the Royal College competencies.

The subspecialty program is two years in length and is usually entered after four years of approved paediatric residency training. The subspecialty program is accredited by the Royal College of Physicians and Surgeons of Canada. Applications are also considered from international medical graduates for the clinical fellowship program which follows the same curriculum model as the residency program.

Holland Bloorview Kids Rehabilitation Hospital provides various opportunities for students at all levels. We offer a Summer Medical Student Scholarship Program where medical students interested in a career in developmental paediatrics or paediatric rehabilitation broaden their paediatric knowledge and skills by working with physicians and teams on the wards and in clinics. We also offer electives for medical residents in child development.

## **Quality Improvement Programs**

As part of our Developmental Paediatrics training program, residents are expected to develop a QI project. Residents work together as a group under the supervision of a QI staff supervisor. Residents choose a feasible project in the first few months of the academic year which aligns with the group's interests and hospital and divisional quality priorities. They participate in the Centre for Quality Improvement and Patient Safety (C-QIIPS) program in the Department of Paediatrics to learn QI theory and rapid change methodology. Residents receive protected time in their academic half-day schedule monthly to allow time to complete their project. Residents present their work in poster form at the end of the academic year at the Annual CoLearnQI Presentation Day as well as our Division rounds. Examples of previous resident QI projects:

- Development and implementation of a new on call hand over tool (currently used at Holland Bloorview for weekend call handover)
- Addressing low enrolment of parents in the Holland Bloorview online clinical portal

### **Advocacy Project**

Developmental Paediatric trainees also participate in an advocacy project as part of their training. They either work individually or as a group on an equity issue they have identified that is impacted by social determinants of health. They present their project at our Division rounds at the end of the academic year. Some of the topics chosen for advocacy projects in the past include the following:

- Delivery of evidence-based pediatric health care information to the Tamil community through social media (TamilKidsHealth)
- Advocating for Evidence-based reading instruction in Ontario
- Advocating for Identification of Writing difficulties in School Age Children
- Considering a functional approach to services for children with developmental disabilities

### **Educational Innovations**

Our program offers unique simulation training integrating family members into the teaching of our learners. “Family as faculty” are parents of children with developmental conditions who are educated on giving feedback on learning in challenging conversations. Simulation sessions with standardized patients were developed in conjunction with family leaders who participate in the simulation teaching session with trainees and provide feedback as part of the debriefing team. Family leaders give feedback on the conversations that occur with simulation patients and breaking bad news (for example, sharing difficult news of a new diagnosis of autism with a parent).

### **Medical Education Accomplishments and Priorities**

- Training of residents/fellows on new virtual assessments developed to manage pandemic needs
- Co-creating EDI curriculum with trainees and EDI faculty leads and embedding sessions into academic half days
- Co-creation of EDI-related simulation teaching with trainees facilitated by simulation experts and faculty
- Enhancement of program with Wellness initiatives based on input from trainees, e.g. social events organized for resident well-being, academic half day wellness sessions (breakfast rounds, Balint groups) run by division Wellness Lead
- Enhancement of community placement training opportunities (e.g. school-based clinics) to increase exposure to marginalized communities
- Faculty and resident education on CBD principles in preparation for program CBD launch in July 2023
- Embedding critical reflection teaching and exercise into academic half day sessions
- Participation of trainees in Advocacy projects aimed at addressing health inequities and QI projects addressing clinical areas in need of improvement
- Updating of admissions process to include EDI-related content in interviews
- Providing career support to trainees through individual faculty mentoring and career panel presentations

## Short term

- Implementation of CBD curriculum, ongoing evaluation of program effectiveness, applying continuous QI approach to CBD practices, adapting CBD program to new CBD 2.0 recommendations

## Long term

- Ongoing revision of resident advocacy projects based on feedback and tailored to address current societal needs
- Continuing to embed critically reflective practice into academic half day sessions and curriculum
- Continuing to evolve admissions process using EDI principles

## Divisional Accomplishments

### 1. Improving early detection and early intervention for children with cerebral palsy

A collaborative team from Developmental Paediatrics, Neonatology, and Therapy worked to improve early CP detection (aiming to reduce diagnosis age to under 12 months) and expand early intervention programs like Baby Constraint Induced Movement Therapy (Baby-CIMT). Key achievements include:

- Hosting 7 HINE webinars for 900+ healthcare professionals; creating online resources with 3,700+ views and 900+ downloads.
- Establishing National ‘Communities of Practice’ for Neonatologists and OTs, holding bimonthly meetings to address HINE and Baby-CIMT adoption.
- Publishing a HINE Scoring Aid with international experts.
- Developing a Baby-CIMT webpage and program generator.

- Collecting data showing an average referral age of 7 months, marking successful early detection.

### 2. Our Kids’ Health Network Health Promotion and Knowledge Translation Platform

The Our Kids’ Health Network (OKH), founded by Dr. Ripudaman Singh Minhas, is a social media-based platform sharing evidence-based health information with families from 10 cultural-linguistic communities. Using a “trusted messenger model,” OKH’s chapters feature healthcare practitioners from each community offering advice and answering questions. OKH has earned awards from the WHO, Children’s Healthcare Canada, and Canada’s Senate for its innovative community engagement. A team of coordinators and 50+ practitioners create reliable, relatable content for historically underserved communities, serving Black, Filipino, Arabic, Punjabi, Tamil, Inuit, Cantonese, Mandarin, Ukrainian, and Hispanic families.

### 3. ECHO Ontario Autism Program

ECHO is a virtual education and mentorship program for community clinicians. ECHO Ontario Autism, led by a multidisciplinary team at Holland Bloorview—including Drs. Melanie Penner, Iskra Peltekova, Jessica Lynch, and Evdokia Anagnostou—supports practitioners in diagnosing and caring for autistic children, enabling families to access timely local care. Holland Bloorview also offers an annual 2-day ECHO Autism Diagnostic Boot Camp for hands-on skills training (125 participants to date). Since 2018, the program has trained:

- 189 physicians over 6 cycles,
- 306 psychological professionals over 7 cycles,
- 71 allied health professionals in 1 cycle,
- 86 educators, including 25 in the Bahamas, over 2 cycles.

Many participants return for ongoing mentorship and case consultations.

## Divisional Challenges

### 1. Developmental Paediatrics Workforce Planning

A recent national survey by McLeod et al. (2024), with responses from 145 developmental pediatricians (91% response rate), underscores an urgent need for workforce planning in developmental paediatrics in Canada. Within 3–5 years, 23% of respondents plan to retire, but replacement rates aren't expected to keep pace. Long wait times are already an issue, with most wait times over 6 months, and some extending to 18 months to 2 years. With rising demand and insufficient residency spots, wait times will likely increase. Division Heads are exploring partnerships with Family Medicine and General Paediatrics and expanding training opportunities.

### 2. Precision Health for Children and Youth with Rare Genetic Neurodevelopmental Disorders

With advancements in genetic diagnosis, the developmental pediatrics patient population is shifting toward more cases involving rare genetic disorders. This change has led our Division to re-evaluate our care models, traditionally based on diagnoses like autism and cerebral palsy. We are considering a new approach that:

- Integrates clinical data with research for precision health care
- Provides needs-based, team-based care rather than diagnosis-based silos
- Expands access to emerging treatments and connects with clinical trials globally
- Links developmental and specialized care teams for comprehensive support

### 3. Enhancing Community-Academic Partnerships for Shared Care

To address high demand, long wait-lists, and a limited workforce, we are expanding community-

academic partnerships to increase system capacity. Goals include:

- Strengthening knowledge and skills exchange
- Establishing communication and support structures
- Facilitating patient flow between community and academic centers

One example is the Neurodevelopmental Disorders Restrictive Eating Clinic, a program for clients with restrictive food intake and neurodevelopmental disorders. This interdisciplinary clinic, in partnership with the Scarborough Health Network and SickKids, provides individualized treatment plans, clinician consultations, and parent education. Teams meet quarterly to enhance collaboration, streamline patient transitions, and discuss complex cases.



## 3.2 TAHSN Reports

# Michael Garron Hospital, Department of Paediatrics

## Site Overview

Michael Garron Hospital (MGH), Toronto East Health Network is a vibrant community teaching hospital located in the heart of East Toronto. For almost 100 years, we have provided healthcare to nearly 400,000 people in 22 neighbourhoods, where over 50 languages are spoken. Our team is made up of almost 3,000 staff, more than 530 physicians and over 500 volunteers. We have the honour of caring for people at every point of their lives. From welcoming a new baby and supporting children as they grow; to providing emergency, mental health and surgical services for people of all ages; to caring for patients with compassion and dignity at the end of life. We are here for our community. A hospital without walls. This means people can get the care they need, where and when they need it. At MGH, we know that health is more than addressing illness. It includes social and economic factors, like income, housing, social status, education, employment and culture. It takes a village to address the health and social needs of a community. That's why we are a proud anchor and founding partner of East Toronto Health Partners (ETHP), the Ontario Health Team serving East Toronto. ETHP is a group of more than 100 organizations working together to create a better healthcare system. Together, we are one team, one vision, one East Toronto.

**Vision:** Great care inspired by community.

**Purpose:** Building a healthier community together.

**Values:** Compassion. Respect. Integrity. Inclusion. Courage.

## Paediatrics Department

The Paediatrics Department at Michael Garron Hospital (MGH) provides neonatal and paediatric services for East Toronto's diverse population.

We are an expert group of paediatricians, neonatologists, paediatric sub-specialists, nurses, dietitians, pharmacists, speech-language pathologists, occupational therapists, social workers, lactation consultants and a Child Life Specialist providing comprehensive care to children from birth to 18 years of age and their families.

Our Department and team are affiliated with the University of Toronto. We are a designated site for the paediatric training of residents and medical students and provide placements to many trainees in paediatrics, family practice medicine, nursing and other disciplines. We actively engage in research and quality improvement projects in the area of paediatrics.

We have strong links with The Hospital for Sick Children (SickKids) and have implemented many initiatives in partnership with this organization. In addition, MGH is a proud member of Kids Health Alliance (KHA), a network of partners committed to advancing excellence and expertise in paediatric care. KHA is founded by SickKids, Holland Bloorview Kids Rehabilitation Hospital and the Children's Hospital of Eastern Ontario (CHEO).

We provide many supports to help make the patient and family stay a little easier. We provide family-centered care and involve parents and other family members as partners in care.

## Faculty

Dr. Celia Atkinson was appointed to the position of Chief of Paediatrics in 2018. Dr. Atkinson is a paediatrician in the Division of Clinical and Metabolic Genetics at SickKids Hospital and a



Dr. Celia Atkinson

Lecturer at the University of Toronto. She is also the Co-Program Director of Maternal, Newborn, and Child Services at Michael Garron Hospital (MGH).

## Paediatrics Leadership Team

- Dr. Jejelola Ladele, Director, Neonatal Intensive Care Unit (NICU)

- Dr. Najmus Sehr Ansari, Kids Health Alliance Champion (NICU)
- Dr. Karen Rosenstein, Kids Health Alliance Champion (Emergency Medicine and Paediatrics)
- Drs. Julie Hukui and Carolyn Freedman, Undergraduate Medical Education Physician Leads
- Drs. Alex Meret and Lauren Friedman, Postgraduate Medical Education Physician Leads
- Dr. Tyler Groves, Simulation Physician Lead

- Neurology
- Ophthalmology
- Orthopaedics
- Otolaryngology
- Plastics
- Respiratory Medicine
- Urology

## Clinical Services

### Paediatrics Inpatient Service

The Paediatric Inpatient Service at MGH treats newborns and children up to 18 years of age with a variety of health conditions and cares for children before and after surgery. We provide family-centred care and encourage parents and guardians to stay with their child during hospitalization and to be active partners in their care.

*Number of beds: 10 (12 during surge season)*

*Annual admissions: 1,000-1,300*

Specialized consult services include:

- Adolescent Medicine
- Cardiology
- Child & Adolescent Psychiatry
- Developmental Paediatrics
- Eating Disorders
- Endocrinology
- Gastroenterology
- Gen Surgery
- Gynecology
- Infectious Diseases
- Metabolic
- Neonatology

### Outpatient Services

The Child and Teen Clinic at MGH is a multi-specialty clinic. We are an expert group of paediatricians, paediatric subspecialists, neonatologists, nurses, dieticians, pharmacists, social workers, occupational therapists, speech-language therapists, kinesiologist, lactation consultants and child life specialist that provide comprehensive care to neonates, children, teens and their families.

We offer safe and quality care to children and families closer to home. Parents are partners in children's care and are included in decision-making. Our team of experts is committed to working with a child's parents, doctor and other community resources to care for their specific healthcare needs.

Specialized clinics include:

- Antenatal Consultation Clinic
- Respiriology Clinic
- Breastfeeding Clinic
- Child and Youth Eating Disorders Program
- General Adolescent Medicine Clinic
- Child Development Clinic
- Early Pregnancy Clinic
- Endocrine Clinic
- Eye Screening Clinic
- Gastroenterology Clinic
- General Paediatrics Consult Clinic

- Healthy Lifestyle Clinic
- Neonatal Follow-Up Clinic
- Neurology Clinic
- Newborn Assessment Clinic
- Newborn Feeding Clinic
- Paediatric Cardiology Clinic
- Paediatric Complex Care Clinic
- Paediatric Pre-Operative Assessment Clinic
- Respiratory Syncytial Virus (RSV) Clinic
- Semi-Urgent Paediatrics Clinic
- Teen Gynaecology Clinic

*Total annual outpatient visits: 10,000*

#### Specialized Inpatient Neonatal Services (NICU)

MGH's NICU is an Advanced Level 2C NICU. The NICU provides high-quality, family-centred and life-saving care to infants born at 30 weeks gestation or greater. Patients in our NICU were born at MGH or transferred from another hospital.

We partner with other hospitals, including SickKids to coordinate additional care and consultations where needed. We also collaborate with MGH's Family Birthing Centre (FBC) to support high-risk deliveries and respond to neonatal emergencies that require resuscitation.

*Annual admissions: 400-500*

*Number of deliveries per year: 2,600-2,800*

#### Specialized Outreach Programs and Community Initiatives

Health Access Thorncliffe Park (HATP) provides health and wellness services and connects people to resources. HATP is an initiative co-led by Flemingdon Health Centre and The Neighborhood Organization to provide comprehensive health services to residents of Thorncliffe Park. Two of our paediatricians (Drs. Julie Hukui and Jojo Sowemimo) and one of our developmental paediatricians (Dr. Cynthia Goldfarb) are consultants in the school-based paediatric HATP

clinic.

## Research Highlights

- Dr. Ansari (Neonatologist) is the principal investigator for the study "A pilot study to address gaps in care for families of preterm infants post-NICU discharge: FICare Home", which is currently being carried out in our NICU. In addition, she is the contact person from our site for the TELENEO trial which is a multicenter trial of telemedicine for advanced neonatal resuscitation in community hospitals in USA and Canada.
- Dr. Ladele (Neonatologist) has been involved in the 'Maximom' and 'Optimom' studies currently running at Michael Garron Hospital alongside other hospitals in the province. She also recently presented her poster at the Pediatric Academic Societies conference and also has a recent publication titled 'Improved Cardiac Performance with Dexamethasone Therapy in Premature Neonates: Novel Insights Using Serial Echocardiographic Assessments'.
- MGH participates in [GEMINI](#), which is Canada's largest data and analytics network that provides insight into patient care. Based out of Unity Health Toronto's St. Michael's Hospital, the GEMINI data platform is focused on hospital-based research and quality improvement efforts. Recently, GEMINI received funding from the Ontario Ministry of Health for this expansion, which includes expanding GEMINI to include paediatric data at the existing community hospital sites along with adding Ontario children's hospitals. The Department of Paediatrics at MGH will be participating. Dr. Wang (General Paediatrician) will be our Paediatric GEMINI lead.

## Medical Education Highlights

- In September 2021, we launched our Simulation Program, led by Dr. Tyler Groves as the Simulation Education Lead. With support from our neonatologists, Dr. Jelena Popovic, Dr. Jeje Ladele, and Dr. Sehr Ansari, our department conducts paediatric and neonatal simulation and procedural workshops every six

weeks from September to June.

- Approximately one year ago, we introduced a mandatory didactic teaching schedule for all paediatricians to participate in (every paediatrician must deliver a didactic lecture to learners once a month). This translates into our learners receiving approximately 7-10 lectures monthly (in addition to bedside teaching).
- Attendance at simulation and delivering didactic lectures are mandatory for all paediatricians and tied to maintaining privileges in the Department of Paediatrics at MGH.
- Our faculty members deliver didactic lectures to our learners (medical students, family medicine residents and paediatric residents). Our faculty members also present regularly at our weekly paediatric grand rounds and case reviews.

## Accomplishments and Innovations

**Outpatient Eating Disorders Program:** we are approaching the 2nd anniversary of the launch of our Outpatient Eating Disorders Program at Michael Garron Hospital (launched in December 2022). It consists of two levels of care offered for eating disorder treatment: outpatient services (Child and Youth Eating Disorders Outpatient Clinic) and intensive outpatient services (NourishED Pathways). This launch was guided by the leadership of Dr. Maria Psihogios. The program continues to grow with the excellent expertise of Dr. Maria Psihogios and Dr. Nataly Mercado. We were also very fortunate to receive funding for 2 eating disorder inpatient beds.

### **Paediatric Gastroenterology and Endoscopy:**

We welcomed Dr. Kristen Bortolin, a paediatric gastroenterologist and hepatologist to Michael Garron Hospital in 2022. Dr. Bortolin has launched a paediatric gastroenterology and hepatology clinic-the first at MGH. Shortly after, we submitted a proposal to the Ministry of Health and Long-term Care to bring paediatric endoscopy to MGH. We were successful in receiving funding. We went live with our first paediatric endoscopy at MGH on February 6, 2024. This new initiative is in partnership with the Divisions of Gastroenterology

and Pathology at SickKids.

## Challenges and Opportunities

Recruitment of neonatal and paediatric nurses, aging equipment and infrastructure, and increasing paediatric Emergency Department volumes and acuity (with challenging access to primary care) are ongoing challenges for us.

# Mount Sinai Hospital, Sinai Health

## Overview

Mount Sinai Hospital, Sinai Health, is a world-renowned healthcare institution recognized for its excellence in patient care, teaching, and research. Established in 1923, the hospital has grown to become one of Canada's leading hospitals. The mission of Mount Sinai Hospital is to deliver the highest quality of care to patients, driven by a culture of compassion and innovation. The hospital is committed to advancing healthcare through cutting-edge research, comprehensive patient care, and exemplary teaching methods. By integrating these elements, Mount Sinai aims to make significant contributions to the health and well-being of the community it serves. Sinai Health has six core values: (i) person-centred care; (ii) excellence; (iii) accountability; (iv) equity; (v) collaboration; and (vi) innovation.

## Paediatrics at Mount Sinai Hospital

### Faculty

Dr. Prakeshkumar (Prakesh) Shah is the Pediatrician-in-Chief at Mount Sinai Hospital, Toronto and a Professor in the Department of Paediatrics and Institute of Health



Dr. Prakeshkumar Shah

Policy, Management and Evaluation at the University of Toronto, Canada. He is the Director of the Canadian Neonatal Network (CNN), the Canadian Preterm Birth Network (CPTBN) and the International Network for Evaluation of Outcomes of Neonates (iNeo).

The Paediatrics Leadership Team includes:

Dr. Jennifer Young, Integrated Neonatal-Perinatal Fellowship Training Program Director

Dr. Poorva Deshpande, Perinatology Rotation

Supervisor (Core Paediatrics)

Dr. Kamini Raghuram, Medical Director, Neonatal Follow-up Clinic

Dr. Yenge Diambomba, Chief of Nurseries

Dr. Amish Jain, Director Targeted Neonatal Echocardiography

Dr. Sharon Unger, Director, Roger Hixon Ontario Human Milk Bank

Dr. Tom Leibson, Associate Director, Roger Hixon Ontario Human Milk Bank

Dr. Karel O'Brien, Clinical Director, Neonatal Follow-up Program

Dr. Kin Fan Young Tai, Medical Coordinator, Neonatal Resuscitation Program

As of August 1, 2024, the 16 Department of Paediatrics faculty had their primary full-time appointment at Mount Sinai Hospital (7 Assistant Professors, 5 Associate Professors, and 4 Professors). Four (4) Mount Sinai Hospital, Department of Paediatrics faculty were promoted between 2020 and 2024.

Members of the Paediatrics team have been recognized for their leadership in Neonatal-Perinatal care, research, and education. Awards and honours received by faculty members throughout the review period include but are not limited to:

- **Dr. Amish Jain** received the 2019 Young Investigator Award from the Canadian Pediatric Society and was elected for active membership with the American Pediatric Society in 2022.
- **Dr. Ashraf Kharrat** was recognized as an American Academy of Pediatrics/Vermont Oxford Network Scholar in 2020.
- **Dr. Vibhuti Shah** was honored with the Teaching Excellence in Research Mentorship award for consecutive years from 2018 to 2021.
- **Dr. Prakesh Shah** received numerous accolades, such as the 2019 Mentor of

the Year Award from the Royal College of Physicians of Canada and the 2021 Noni McDonald Award from the Canadian Pediatric Society.

had in-utero fetal therapy or congenital diaphragmatic repair, or are participating in research studies. The team includes neonatologists and developmental paediatricians as well as a nurse practitioner, physiotherapist, occupational therapist, speech-language pathologist, dietitian,

## Clinical Services Overview

- The Frances Bloomberg Centre for Women's & Infants' Health at Mount Sinai Hospital provides expert care across many areas of reproductive health. Each year, the Centre oversees more than 7,000 births and Specialized Neonatal Care; 2/3 are delivered from high-risk pregnancies. Mount Sinai Hospital Department of Paediatrics faculty provide services including: consultation for high-risk pregnancy and high-risk pregnancy specialized care (Medical Disorders of Pregnancy, the Ontario Fetal Centre and Neonatal Intensive Care Unit (NICU)); resuscitation and stabilization of all newborn infants in Labour and Delivery; normal newborn care in the Mother & Baby Unit; Post-natal Ambulatory Clinics, infant feeding support, and care to infants; and specialized neonatal developmental follow up. At a glance:
- Each year, 1,100 pre-term and critically ill infants are admitted to the Hospital's Level III 62-bed NICU. Of these over 70 are < 26 weeks. Mount Sinai Hospital is also physically connected to SickKids and the regional delivery centre for all infants who need surgical and cardiac care.
- The Targeted Neonatal Echocardiography program was established in 2011 and follows a consultative service model. On average, close to 500 neonatal hemodynamic consults are performed annually, including a high number of complex cardiopulmonary hemodynamic cases.
- Mount Sinai Hospital's Neonatal Developmental Follow-Up Clinic enrolls approximately 300 infants per year who have been admitted to the NICU,

## Training in Neonatal-Perinatal Medicine

The RCPSC-accredited Neonatal-Perinatal Fellowship program is formally integrated with three University of Toronto teaching hospitals, SickKids, Mount Sinai Hospital, and Sunnybrook Health Sciences Centre. Trainees rotate between the three NICUs, giving them an exceptionally rich and diverse training experience that is unique in Canada. The rotation at Mount Sinai Hospital emphasizes experience in antenatal consultation and delivery room management of high-risk neonates, including preterm infants, and those with antenatally diagnosed anomalies. See [Section 2.4](#) for further information on the University of Toronto Neonatal-Perinatal Training Program, advanced Neonatal Training fellowships, and additional training opportunities.

The Mount Sinai Department of Paediatrics Fellowship is an opportunity for physicians requiring additional clinical training in neonatology. Departmental fellow positions are guaranteed for at least one year. The fellowship program could be extended for another year based on our assessment of the performance of the fellow during the first year. The positions are based at Mount Sinai Hospital and are primarily clinical with work in the NICU in both junior and senior capacities depending on the departmental fellow's skills. The departmental fellow will also provide some Labour and Delivery Room/ Neonatal Resuscitation coverage, as well as on-call coverage under the supervision of an attending staff neonatologist. Our service also includes some coverage in the Level I nursery and Neonatal Ambulatory Clinic. A month of elective can be arranged for other areas of interest. The

Neonatology Departmental Fellowship Program at Mount Sinai Hospital is not an accredited program.

## Accomplishments

### Clinical Excellence

- The Department of Pediatrics at Mount Sinai Hospital stands as a national leader in managing neonates born at the edge of viability, particularly at 22-23 weeks of gestation. Leveraging cutting-edge clinical protocols and interdisciplinary care, the department boasts the lowest mortality rates for these neonates in Canada. This exceptional achievement has garnered international recognition, including a **Guinness World Record** for saving the world's tiniest preterm twins. These remarkable children are thriving as nearly three-year-old, a testament to the hospital's innovative approach and commitment to excellence.
- **The Ontario Fetal Centre (OFC)** is a partnership with Mount Sinai Hospital and SickKids with funding from the MOH. In partnership with the Department of Obstetrics and the Ontario Fetal Centre, the Paediatrics team provides life-changing care such as in-utero surgeries for spina bifida and diaphragmatic hernia. These transformative interventions enable smoother transitions to postnatal care by pediatric teams, offering families hope and improved quality of life for their children.

### Pioneering Research

- The Mother-Infant Research Center at Sinai Health System is now an established global powerhouse in Neonatal-Perinatal research. As the custodian of data from all Canadian NICUs and 293 international NICU of 14 high-income countries, the centre drives impactful studies through the **International Network for Evaluation of Outcomes (iNeo) of Neonates fostering** innovation in benchmarking, QI, and evidence-based practice, ensuring better outcomes for newborns worldwide.

Members of the department have launched the **International Neonatal Hemodynamics Research Center**. This specialized hub unites early-career, mid-career, and senior investigators worldwide to advance the frontiers of neonatal cardiovascular health. Through collaborative training, cutting-edge research, and clinical application, the centre is shaping the future of neonatal care. In the past five years faculty have published over 430 peer-reviewed articles resulting in over 7,500 citations. Grant funding can be found in Appendix 3.0.

## Challenges

- **Recruitment and Retention of Talent:** The department will continue to grapple with challenges in recruiting and retaining top talent across all levels, including trainees, staff physicians, and nurses. Contributing factors include rising patient acuity in the unit, the escalating cost of living in Toronto, and intense competition from comparable units offering attractive remuneration packages. Gap arising from Alternate Payment Plan structure hampers efforts to attract experienced mid-career physicians from North America and Europe, as well as to secure promising early-career faculty. Addressing these barriers will require innovative approaches.
- **Achieving Sustainable Work-Life Balance:** Maintaining a sustainable work-life balance for physicians and learners in the high-stakes environment of acute critical care remains a pressing challenge. Without expanding the current staff complement, workloads will continue to grow, leading to heightened risk of burnout and reduced job satisfaction. The department must explore creative staffing solutions, leveraging interdisciplinary teams, and promoting flexible work arrangements, to safeguard the well-being of its team members while ensuring exceptional patient care.
- **Navigating Family Expectations in the Digital Age:** The proliferation of online advice and guidance platforms has created a complex

landscape for delivering family-centered care. Families increasingly rely on online information that may complicate communication and decision-making. The department faces the challenge of striking the right balance between providing accurate, evidence-based information, demonstrating empathy, and achieving optimal outcomes for patients. Developing tools to guide families through this digital maze and enhancing communication training for staff will be essential.

# North York General Hospital, Department of Paediatric within the Maternal, Newborn and Paediatric Program

## Site Overview

North York General Hospital (NYGH), affiliated with the University of Toronto, is one of Canada's leading community academic hospitals. We offer our diverse community a wide range of acute care, ambulatory and long-term care services across multiple sites. Through partnerships, collaboration and academic endeavours, we seek to set new standards for people-centred care. Working together with our patients and their families, we are making a world of difference. We provide an exceptional care experience for our patients and their families, and have proudly served our diverse communities in North Toronto, and beyond, since 1968. The hospital partners with 45 different academic institutions, including the University of Toronto, to prepare future physicians, nurses and other healthcare professionals to work in interprofessional teams, providing essential care in a community hospital setting. NYGH programs are the training site for four core clerkship programs and we provide a site for core rotations to 22 different University of Toronto Residency Programs. Over 300 North York General physicians have faculty appointments at the University of Toronto. Each year, over 1500 students come here to learn and develop their clinical skills.

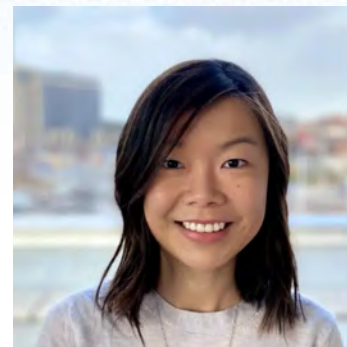
## Paediatrics Department

We are one of the largest and most comprehensive Paediatric Programs in Ontario Health's Toronto Region. While the majority of our patients and families are from within the region, we do also serve many patients from Ontario Health's other regions. We work collaboratively with SickKids, EMS (Emergency Medical Services), CritiCall and local referring centres to act as a receiving centre for paediatric patients requiring Level 2 care from anywhere in the province. We operate a 12 bed

Level 2 Inpatient General Paediatric Floor (Medical and Surgical), a 20-bed Level 2C Neonatal Intensive Care Unit, a Paediatric Short Stay Unit, and a large General and Subspecialty Paediatric Ambulatory Clinic. We often flex above census to support challenges within the paediatric patient care network.

## Faculty

Dr. Kim Zhou was appointed to the position of Chief of Paediatric and Co-medical director of the Maternal, Newborn and Paediatric Program July 1, 2024 following Dr. Ronik Kanani. Dr.



Dr. Kim Zhou

Zhou is the NYGH Lead for PIRN (Paediatric Inpatient Research Network) and a Lecturer in the Department of Paediatrics, University of Toronto.

## Paediatrics Leadership Team

Dr. Clare Hutchinson, Deputy Chief of Paediatrics

Dr. Shaheen Doctor, Medical Director, NICU

Dr. Shawna Silver and Dr. Michelle Wang,  
Education Leads, UME and PGME

## Clinical Services

### Paediatrics Inpatient Service

The Paediatric Inpatient Unit consists of 12 beds, with up to six allocated to patients with eating disorders. The unit supports a high level of acuity including patients on heated high-flow oxygen, patients who require tube feeding, and post-operative patients. The average length of stay for acute medical inpatients is three days, and for patients with eating disorders is 20 days. The MRP on the unit is a hospitalist Paediatrician rotating on a weekly basis, with medical trainees and a full complement of allied health staff. Annual admissions to the inpatient unit are approximately 1,400.

Specialized consult services include:

- Adolescent Medicine
- Allergy
- Cardiology
- Child & Adolescent Psychiatry
- Clinical Genetics
- Dermatology
- Eating Disorders
- Endocrinology
- Gastroenterology
- Gynecology
- ID
- Neonatology
- Nephrology
- Neurology
- Respiratory Medicine
- Rheumatology

Surgical and perioperative services (General Surgery, Ophthalmology, Orthopedics, Otolaryngology, Plastics, and Urology) are available only for certain cases.

#### Outpatient Services

Specialized clinics include:

- Adolescent Medicine
- Child and Adolescent Eating Disorders Program
- Child and Teen Diabetes Education Program
- Mental Health Program
- Neonatal Follow-Up Clinic
- Paediatric Complex Care Clinic
- Paediatric Feeding and Nutrition (PFAN) Clinic
- *Paediatric Clinic*
  - Allergy Clinic
  - Bowel and Bladder Dysfunction Clinic
  - Paediatric Dermatology
  - Paediatric Gastroenterology Clinic
  - Paediatric Gynecology Clinic
  - Paediatric Hematology Clinic
  - Paediatric Nephrology Clinic
  - Paediatric Respiratory Clinic
  - Paediatric Rheumatology Clinic

There are over 6,000 clinic visits annually.

#### Maternal and Specialized Inpatient Neonatal Services (NICU)

NYGH has a busy labour and delivery unit with over 4,500 deliveries per year. **The 20-bed level 2C NICU admits approximately 350 infants per year**, consisting of both babies born at our site and those transferred from tertiary centres (i.e., retrotransfers). The average length of stay is 14 days for inborn babies and 21 days for retro-transfers. During the daytime, the NICU is staffed by neonatologists and after hours, the paediatrician on call provides coverage. A neonatologist is always available on backup call.

#### Specialized Outreach Programs and Community Initiatives

- We partnered with the Midwifery program to create a Midwifery Care Clinic to offer care to postpartum mothers and their infants. This clinic is unique in that it allows the mother and infant to receive care simultaneously, and backup support is provided by Obstetrics and Paediatrics as needed.
- We partner with the Ontario Health Team (family health team) and local schools to deliver educational outreach

## Research Highlights

The Department of Paediatrics is an active participant in many research studies. There is no protected time for research; however, the work is supported by centralized grants, the NYGH Office of Research and Innovation, and the Quality Improvement Office. Dr. Zhou acts as the site representative for the Paediatric Inpatient Research Network (PIRN) and Dr. Doctor acts as the site PI for the neonatology projects.

Examples of current projects include:

- *Eating Disorder Caloric Intake study* – QI project to enable more rapid refeeding of patients with eating disorders, thereby reducing length of stay.
- *PREFER Study* – Multicenter study with

the Paediatric Inpatient Research Network. Evaluating shared decision-making and experiences when choosing between NG feeds vs IV fluids in patients admitted with bronchiolitis. Recruitment started in fall 2023 and is ongoing.

- *ROUTINE Study* - Multicenter study with the Paediatric Inpatient Research Network. Assessing the utility of renal ultrasounds in babies with their first febrile UTI under 24 months (about 2 years) of age. Recruitment started fall 2023 and is ongoing.
- *TeleNEO Study* - Multicenter study with SickKids and the Mayo Clinic to determine the impact of teleneonatology on the risk of early neonatal mortality (death within 7 days) for at-risk outborn neonates. Recruitment started October 1, 2024 and the study is expected to continue for several years.

## Medical Education Highlights

NYGH is one of the top community paediatric training sites for medical students and residents in Toronto. The department typically supervises over 100 trainees per year, totaling almost 3,000 trainee days annually.

Learners include:

- Undergraduate: (CC3, CC4 electives, CC4 transition to residency selectives)
- Postgraduate:
  - Family Medicine year 1 and 2
  - Paediatrics
    - 2 core rotations - Care of the Newborn and Community Paediatrics)
    - Fellows and residents on elective, including subspecialty
    - PGY4 continuity clinics
  - Emergency Medicine year 1

*Faculty contributions to Medical Education:*

Members of the Department hold leadership roles in medical education at

both NYGH and the Temerty Faculty of Medicine. Dr. Clare Hutchinson will serve as the Interim Assistant Dean for Toronto Metropolitan University's medical program.

Many of our hospitalist MDs are award-winning educators and are advancing excellence in Medical Education through advanced training. The Department sends members annually to educational programs that support advanced skill development in clinical teaching.

### *Dr. Clare Hutchinson*

- Master of Health Professions Education (M.H.P.E.), Department of Medical Education, University of Illinois at Chicago
- Stepping Stones Certification, Faculty of Medicine, Centre for Faculty Development, University of Toronto
- Research Fellowship, Wilson Centre for Research in Education, University of Toronto
- Tim Rutledge Award for Sustained Excellence in Education, North York General Hospital, 2023
- Peters-Boyd Teaching Award of Merit, University of Toronto, 2020
- Excellence in Specialty Teaching of Family Medicine Residents Award, North York General Hospital, 2020
- Published literature on the implementation of longitudinal experiences in clerkship training for family physicians.

### *Dr. Shaheen Doctor*

- Stepping Stones Certification, Faculty of Medicine, Centre for Faculty Development, University of Toronto

### *Dr. Joey Latino*

- Nathan Sher Pediatric Award for Excellence in Teaching
- MD Program Teaching Award of Excellence
- Postgraduate Community Paediatrics Teaching Award

*Dr. Julia Sharp*

- Stepping Stones Certification, Faculty of Medicine, Centre for Faculty Development, University of Toronto
- Department of Paediatrics Community Postgraduate Teaching Award, 2022

*Dr. Melanie Ostreicher*

- Stepping Stones Certification, Faculty of Medicine, Centre for Faculty Development, University of Toronto
- 2019 Postgraduate Community Paediatrics Teaching Award
- 2019 Stand Out Award: Complex Care Team, North York General Hospital

*Dr. Warner Finstad*

- Teaching and Learning in the Clinical Context Certificate

Contributions to continuing education include:

*Dr. Shaheen Doctor*

- T4 Neonatology Conference Committee, SickKids, Toronto, 2016-2023
- Chair, Annual Neonatal Paediatric Hospitalist Conference, North York General Hospital, 2012-present
- Board of Examiners, Neonatal-Perinatal Medicine, Royal College of Physicians and Surgeons of Canada, 2013-2023

*Dr. Melanie Ostreicher*

- BLS and PALS Instructor
- Acute Care and Simulation Education Lead, Department of Paediatrics, NYGH
- City Wide Rounds and Paediatric Update Conference Committee Member

*Dr. Joey Latino*

- Panel member for Master Class of Teaching at NYGH

- Invited speaker to the Pediatric Ontario Chronic Pain Network Education Workshop on the topic of POTS and Chronic Pain

*Dr. Rachel Barrett*

- NYGH Department of Paediatrics CME Rounds Coordinator

## Accomplishments and Innovations

**Capital Improvement:** In 2020 we completed a major capital improvement project on Paediatrics and now have a new Paediatric Inpatient Unit and Ambulatory Clinic. These new spaces are much more patient and family friendly and allow for enhanced safety on monitoring on the unit through a central station. The expansion of the clinic has allowed us to dramatically increase our clinic volumes

**Eating Disorder Program:** Throughout the COVID pandemic, Paediatricians across the country saw another shadow pandemic emerging – a large increase in youth with eating disorders who required urgent access to multidisciplinary care. Through advocacy, NYGH was awarded additional provincial funding to support the delivery of intensive, inpatient care to 100 young people annually. Following their inpatient stay, patients are transitioned to outpatient programs either in their local catchment or at our outpatient Child and Adolescent Mental Health Program.

**Simulation and Mock Code program:** Over the past few years we have greatly expanded our simulation and mock code program. We have a physician Acute Care and Simulation lead who works with the nurse educators to coordinate weekly rotating mock codes across our various inpatient units. Scope has also expanded to include Paediatric mock codes in the Emergency Department.

## Challenges and Opportunities

**RSV (Respiratory Syncytial Virus) Planning:** With the recent NACI recommendation on Nirsevimab, we are instituting universal RSV immunization on October 31, 2024. Our program is also offering

an outpatient immunization clinic to infants discharged from our NICU this year, but we do not have the capacity to immunize all eligible infants born this year.

**Primary Care:** Primary care physicians in the area are quite saturated and as the population in the North York neighborhood continues to grow, it has become increasingly difficult to ensure timely access to primary care for our patients.

**Complex Feeding Clinic:** There is a need in our community to support young children with complex feeding concerns. Patients with ADHD, ASD, ARFID, and other conditions often have serious nutritional challenges that require a multidisciplinary team to address. While we have started a PFAN clinic for young infants, the older toddler and young child age group is not being served. There is both a need and opportunity to expand this service further, collaborate with Ontario Health, and introduce paediatric GI support.

# St. Joseph's Health Centre, Unity Health Toronto, Department of Paediatrics

## Site Overview

St. Joseph's Health Centre is a community academic hospital serving Toronto's west end and beyond. The hospital is a vital resource for people at all life stages, offering obstetric care, specialized neonatal and paediatric services, family medicine, seniors' programs and more.

St. Joseph's is one of three main sites of Unity Health Toronto, a Catholic healthcare organization accredited with exemplary standing by Accreditation Canada. Unity Health's services span the City of Toronto and range from primary care to highly specialized care for complex medical cases, post-acute care, rehabilitation, palliative and long-term care. We advance excellence in health care through education, research and innovation.

## Paediatrics Department

The paediatrics Department at St. Joseph's Health Centre cares for infants, children and adolescents living in Toronto's west end communities through inpatient and outpatient services.

Inpatient care includes a 10-bed paediatric unit and a 17-bed Level 2C neonatal intensive care unit.

Outpatient care consists of community outreach via the REACH School Network school-based health centre; a Paediatric Consultation Clinic with numerous general paediatrics and numerous subspecialties; and the CIBC Just for Kids Clinic and urgent-care clinic that sees upwards of 100 children per day during viral respiratory season.

## Faculty

Dr. Anne Wormsbecker was appointed to the position of Chief of Paediatrics in 2023 following Dr. Heather Yang. Dr. Wormsbecker is a consultant Paediatrician, an Assistant Professor at the

University of Toronto and has experience as a medical epidemiologist in public health. She has been part of what is now known as REACH School Network (Research Equity Advocacy in Child Health) since 2015.



Dr. Anne Wormsbecker

## Paediatrics Leadership Team

Dr. Rana Esmailizand, Physician Lead and Head of Service, NICU

Dr. Camila Vaz, Outpatient Lead

Dr. Eddy Lau, Inpatient Lead

Dr. Justine Cohen-Silver, Reach School Network Lead

Drs. Yousef Etoom and Zamin Ladha, Postgraduate Medical Education Leads

Drs. Katie Mennie, Allyson Shorkey and Valene Singh, Undergraduate Medical Education Leads

Dr. Justine Cohen-Silver, Research Lead

Drs. Charlotte Miller and Katie Mennie, Paediatric Quality Rounds Leads

Drs. Sharon Naymark and Kate Amiel, Paediatric Grand Rounds Coordinators

Dr. Caitlin Carew, Paediatric Simulation Lead

Drs. Jessica Malach and Talia Greenspoon, IT Liaison and Epic Transition Leads

## Clinical Services

### Paediatrics Inpatient Service

A 10-bed Pediatric Inpatient Unit provides safe, compassionate care to children from infancy to their 18th birthday. Children are admitted to the unit through the hospital's Emergency Department, the CIBC Just for Kids Clinic, retro-transfers from SickKids and from paediatric offices in the community. Annual admissions totaled 1,133 in fiscal year 2023/2024.

Specialized consult services include:

- Cardiology
- Child and Adolescent Psychiatry
- Dermatology
- Endocrinology
- General Surgery (adult specialists offering paediatric care when needed)
- Gynecology (adult specialists offering paediatric care when needed)
- Infectious Diseases
- Neonatology
- Neurology
- Ophthalmology
- Orthopedics (adult specialists offering paediatric care when needed)
- Otolaryngology
- Respiratory Medicine
- Plastics with a special interest in microtia repair
- Thoracic Surgery (adult specialists offering paediatric care when needed)
- Urology (adult specialists offering paediatric care when needed)

### Outpatient Services

Children and adolescents in our community have access to a wide range of outpatient services at St. Joseph's. From the Asthma Clinic with its team of professionals ready to work closely with children and their families to the General Paediatric Clinic, the Paediatric Consultation Clinic is supporting new and better ways to serve the children and families in our area. The consultation clinic and our REACH School Network clinic (housed in a local school) have a tremendous emphasis on mental health, school difficulties and child development. There are also a number of paediatric sub-specialty clinics as below.

Specialized clinics include:

- Paediatric Consultation Clinic
  - General Paediatric Clinic
  - Emergency visit follow-up clinic through Just For Kids Clinic
  - Asthma clinic
  - Developmental clinic
  - Paediatric cardiology
  - Paediatric endocrinology

- Paediatric neurology
- Paediatric dermatology
- Paediatric infectious diseases
- Paediatric school outreach clinic
- Clinical nutrition services
- Speech and language services
- Neonatal Follow up Clinic

Outpatient visits totaled 8,541 in fiscal year 2023/2024.

Our **CIBC Just for Kids Clinic** offers urgent care to the community and had 30,203 visits in fiscal year 2023.

### Maternal and Specialized Inpatient Neonatal Services (NICU)

A Level 2C NICU provides care to newborns requiring intensive care and supports short-term ventilation of pre-term infants 30 weeks gestation or more. Our NICU is located on the same floor as The Myhal Family Birthing Centre for fast, coordinated care when needed. There is physical capacity for 20 isolettes and includes a care team of neonatologists, paediatricians, neonatal registered nurses, social workers, registered dietitians, registered respiratory therapists, occupational therapists, a lactation consultant, housekeepers and unit clerks. We also have two 'Care by Parent' rooms, where parents can room in with their babies closer to discharge. Admissions to the NICU totaled 395 in fiscal year 2023/2024.

### Specialized Outreach Programs and Community Initiatives

Our Reach School Network clinic offers services to kids at school with emphases on mental health, learning and school difficulties, behavioural concerns and child development. There were 831 visits to this clinic in fiscal year 2023.

## **Research Highlights**

As a community teaching hospital, we are committed to research that will impact our patients. One of our staff physicians is appointed as a scientist at the Li Ka Shing Knowledge Institute, St. Michael's Hospital, Unity Health Toronto.

Our research falls into a number of themes:

- REACH School Network projects in collaboration with St. Michael's Health Centre colleagues; includes incorporation of learners
- Supervision of University of Toronto medical students' summer research projects from start to finish, including publication
- Collaboration with infectious diseases and microbiology colleagues at Unity Health Toronto on pragmatic infectious diseases studies
- Involvement in multi-centre neonatal research projects including family-integrated care and video telemedicine
- Though not on site, two of our paediatricians have a primary care practice that is a site for TARGet Kids!

We have had two physician investigators succeed in the \$25 000 seed grant competition at St. Joseph's Health Centre since 2018. One physician has raised \$193 000 in funding since 2016 for her research. At the REACH School Network clinic, we have conducted a cross-site behavior intervention study in conjunction with CAMH called Coping Power. This brings mental health intervention to the school clinic led by non-mental health experts (clinic physicians and school educators). REACH conducted a COVID-19 mental health study looking at the impact of school closures on students' mental health.

In the NICU we have embarked on three multi-site studies. One, called Ficare Home under PI Dr. Jennifer Young at Mt. Sinai Hospital is helping families transition home from the NICU via peer support. We completed the IMPAC pain resource implementation study led by SickKids scientist Dr. Bonnie Harvey with \$16 000 funding. Currently, the NICU is participating in an international multi-site study of video telemedicine in neonatal resuscitation, led by the Mayo Clinic.

We have conducted two studies in the CIBC Just for Kids Clinic, one of which was a Unity Health cross-site study validating COVID-19 saliva samples over Nasopharyngeal swabs enabling our hospital to use this test widely.

## Medical Education Highlights

St Joseph's Health Centre, Department of Paediatrics has been committed to medical education for both undergraduate and postgraduate medical learners for many years, offering opportunities to learn in the inpatient paediatric setting, outpatient urgent care clinic, level 2C Neonatal ICU, and general and subspecialty consultation clinics.

Every month, we welcome medical students for their Paediatric Clinical Skills, and 6-week clerkship core rotation. We accommodate approximately 18 students on their core rotation each year. This year to date, we have also accepted five medical students for visiting electives from across Canada; and this number grows as students are attracted to the breadth of general paediatrics to which they are exposed to during their experience. Our faculty also lead teaching sessions each weekday morning on general paediatrics topics. In addition to medical students, we take at least one Physician Assistant student each year.

Both Family Medicine and General Paediatrics residents also join us for their core Paediatrics rotations in their first year of residency. In 2024, we hosted approximately 30 first year residents. In addition, many second year Family Medicine residents return for additional rotations. This year, fourth year paediatric residents will be joining us for their Junior Attending blocks, where they are given more autonomy as they complete their competency requirements in Transition to Practice. We have also mentored final year paediatrics residents who choose to maintain a Continuity clinic in the community. Many of these residents also rotate through our school clinics.

Faculty with leadership roles in Medical Education include:

- Dr. Mark Feldman, Professor & Director of Continuing Medical Education at University of Toronto
- Dr. Yousef Etoom, Associate Professor, University of Toronto & Postgraduate Medical Education Lead for Paediatrics at SJHC
- Dr. Zamin Ladha, Lecturer, University of

Toronto & Postgraduate Medical Education Lead for Paediatrics at SJHC

- Dr. Katie Mennie, Assistant Professor, University of Toronto & Undergraduate Medical Education Lead for Paediatrics at SJHC
- Dr. Allyson Shorkey, Lecturer, University of Toronto & Undergraduate Medical Education Lead for Paediatrics at SJHC
- Dr. Valene Singh, Lecturer, University of Toronto & Preclerkship Clinical Skills Lead for Paediatrics at SJHC
- Dr. Sharon Naymark, Assistant Professor & Academic Director for Physician Assistant Program, University of Toronto
- Dr. Michelle Durst, NICU Simulation Lead at SJHC
- Dr. Caitlin Carew, Paediatric Simulation Lead at SJHC

The Department of Paediatrics at St. Joseph's Health Centre is always striving to improve the experience of our learners. We have a daily morning teaching program, with a curriculum, for our learners. We are launching a new system to gather real-time feedback on our current students. Our department is actively engaged in simulation training, and our learners are always invited to participate.

Our department organizes weekly grand rounds throughout the academic year on various paediatrics topics. Speakers are invited from multiple disciplines across paediatrics, and well attended by the department and learners. Rounds accomplish learning objectives relevant to all CanMeds Roles and include topics relevant to Antiracism, Equity, Diversity & Inclusivity. These rounds are accredited for CME credits.

A number of our faculty have been invited to give lectures at conferences, as detailed below, or been assets in national continuing education programs:

- Dr. Mark Feldman is the Leader of the Planning Committee Chair of City Wide Rounds, SickKids Paediatric Update and Community Paediatric Journal Club.
- Dr. Anne Wormsbecker has presented at two St. Michael's Hospital Educational Rounds.

- Dr. Eddy Lau is on the organizing committee for Paediatric Update and is a Board Member for the Canadian Paediatric Society, reviewing practice statements.
- Dr. Jessica Malach has presented at the Canadian Paediatric Society annual meeting and Boomerang Health Rounds.
- Dr. Justine Cohen-Silver wrote a Canadian Paediatric Society position statement on Evaluating and Caring for Children with a Suspected Learning Disorder in Community Practice.

## Accomplishments and Innovations

We have developed a very strong link to the Unity Health Toronto Simulation Centre and have a robust interprofessional code pink simulation program that runs *in situ* regularly in the NICU, Family Birthing Centre, and paediatric inpatient unit. We've also worked with the ED and post-anaesthetic care unit (PACU) to do simulations in these settings as well.

Dr. Dilip Mehta celebrated 40 years of service at St. Joseph's in 2024 and in 2022 he was awarded the Canadian Paediatric Society's Distinguished Community Paediatrician award.

# St. Michael's Hospital, Unity Health Toronto, Department of Paediatrics

## Site Overview

St. Michael's Hospital is a fully affiliated teaching and research hospital serving Toronto's urban communities and beyond. St. Michael's is a level 1 trauma centre and provincial hub for neurosurgery, complex cardiac and cardiovascular care and more, and home to one of the largest MS Clinics in North America. St. Michael's is one of three main sites of Unity Health Toronto, a Catholic healthcare organisation accredited with exemplary standing by Accreditation Canada. Unity Health's services span the City of Toronto and range from primary care to highly specialized care for complex medical cases, post-acute care, rehabilitation, palliative and long-term care. We advance excellence in health care through education, research and innovation.

## Paediatrics Department

The Department of Pediatrics at St. Michael's Hospital established in July 2001 was part of the Inner City Health Program at St. Michael's Hospital and is now part of Unity Health Toronto. The Department has been restructured in the past several years and is now part of the Women's and Children's Health Program of Unity Health Toronto. The department continues to focus on the well-being of neonates and child health services in a wide variety of patients as well as socially disadvantaged populations and populations with barriers to healthcare.

The department's clinical component focuses on neonatology and ambulatory general paediatrics. The focus of the population we care for is in line with the vision, mission, and core values of Unity Health Toronto.



Dr. Doug Campbell

Dr. Doug Campbell was appointed to the position of Chief of Paediatrics following the 10-year term of Dr. Michael Sgro. Before his appointment, Dr. Campbell was the Director of the Neonatal Intensive Care Unit & Deputy Chief of Pediatrics at St. Michael's Hospital. He is cross-appointed at SickKids as a Staff Neonatologist, an Associate Professor within the Department of Paediatrics, University of Toronto, and an Investigator with the Li Ka Shing Knowledge Institute at St. Michael's Hospital for his academic work in simulation.

## Clinical Care

The department's clinical component includes neonatology and ambulatory general paediatrics, with a strong emphasis on serving vulnerable and "at-risk" children and their families.

- The Neonatal Intensive Care Unit (NICU) is a central focus of the department and includes an inpatient component, the Intensive Care Unit itself as well as outpatient services through the Paediatric Ambulatory Clinics. Clinically, the NICU continues to establish a strong focus on serving local communities "at-risk" of being vulnerable populations, including infants born to mothers with addiction, infants born to mothers with HIV, as well as socially disadvantaged populations. Additionally, the NICU supports a strong Maternal-Fetal High-Risk Special Pregnancy Unit in the Department of Obstetrics and Gynecology that requires neonatal expertise and prenatal counselling to support families and infants born to mothers followed in the specialized pregnancy unit. The NICU services local urban health community and is a vital part of CritiCall Ontario providing perinatal transfers, neonatal transfers and retro-transfers from Level III centers across Ontario.
- The Pediatric Ambulatory Clinics provide general paediatric consultative services, antenatal consultations for high-risk pregnancies, development and school problem assessments, neonatal follow-up and specialty support in the areas of fetal alcohol spectrum disorder and inner-city adolescents. The clinics provide services to

the surrounding community agencies and family physicians as well as more regional support for southeast Toronto and beyond.

## Outreach and Partnerships

- Continued growth in outreach programs and connections with the community has enabled the Department to provide chronic support services in the local community as well as develop expertise in community outreach. Programs include REACH - a joint program with the Department of Pediatrics at St Joseph's Health Care Centre.
- The Department of Pediatrics has developed partnerships with many community agencies that service vulnerable families including the Family Health Team at St. Michael's Hospital, Inner City Health Associates (ICHA), and Native Child Health Aboriginal Services. All these programs have a common goal of providing integrated pediatric care with community access and resources.

## Medical Education

The Department is a major contributor to paediatric education at the University of Toronto with a strong focus on resident training. The 3rd year general paediatrics rotation is a core rotation that provides senior paediatric residents the opportunity to develop their skills in managing the NICU and Labor Floor in an acute care hospital. The department also provides a core rotation to paediatric residents and family medicine residents in an ambulatory care setting. In addition to providing clinical support for the volume of neonates, children and their families, we aim to provide opportunities to educate future healthcare providers and seek research interventions to improve the care we offer these vulnerable populations.

## Research

- The research activities within the Department of Pediatrics at St. Michael's Hospital focuses on neonatal and

community health. There are formal linkages with University of Toronto, Department of Paediatrics, the Li Ka Shing Knowledge Institute, the Applied Health Research Center (AHRC), MAP Centre for Urban Health Solutions and the Canadian Neonatal Network (CNN).

Please see Appendix 3.0 for further information surrounding the Department's clinical, medical education, research, and leadership structure.

# Sunnybrook Hospital, Sunnybrook Health Sciences Centre

## Site Overview

Sunnybrook Health Sciences Centre, commonly known as Sunnybrook Hospital, is one of Canada's largest and most dynamic hospitals. Located in Toronto, Ontario, Sunnybrook has a rich history that dates back to its origins as a hospital for Canadian veterans. Today, it has evolved into a fully affiliated teaching hospital of the University of Toronto, providing comprehensive care across three campuses.

Sunnybrook is renowned for its specialized services, including Canada's largest trauma centre, high-risk maternal and newborn care, and advanced cancer treatments. The hospital is also a leader in cardiovascular care, neurological disorders, orthopaedic and arthritic conditions, and the treatment of traumatic injuries. With over 1.3 million patient visits each year, Sunnybrook's 10,000 staff, physicians, and volunteers are dedicated to delivering the best care during critical times in patients' lives.

The hospital is also a hub for groundbreaking research, with more than 200 scientists and clinician-scientists conducting over \$100 million in research annually.

## Paediatrics at Sunnybrook Health Science Centre

### Faculty

Dr. Asaph Rolnitsky is the Chief of the Department of Newborn and Developmental Paediatrics at Sunnybrook Health Sciences Centre. Dr. Rolnitsky is currently studying for a PhD in Medical Sciences,



Dr. Asaph Rolnitsky

focusing on QI and health services research. He teaches Neonatology and QI methods at the University of Toronto and Queen's University and teaches QI methods at international forums.

### Paediatrics Leadership Team

- Dr. Elizabeth Asztalos, Director of Neonatal Research, Women and Babies Program
- Dr. Eugene Ng, Medical Director, NICU
- Dr. Rudaina Banihani, Medical Director, Neonatal Follow Up Clinic
- Dr. Dany Weisz, Director, Targeted Neonatal Echocardiography Program
- Dr. Michael Dunn, Former Chief of the Department of Newborn and Developmental Paediatrics

As of August 1, 2024, the 8 Department of Paediatrics faculty had their primary full-time appointment at Mount Sinai Hospital; 2 Assistant Professors, 4 Associate Professors, and 2 Professors. Four (4) Mount Sinai Hospital, Department of Paediatrics faculty were promoted between 2020 and 2024.

## Clinical Services

At a glance:

- Sunnybrook's DAN Women & Babies Program provides pre-conception, pregnancy, delivery & post-birth care, as well as gynecological care. Sunnybrook Health Sciences Centre has over 3,500 deliveries a year. Specialized clinics include Fetal Assessment Ultrasound and Echocardiograms
- The 42-bed neonatal intensive care unit (NICU) at Sunnybrook Health Sciences Centre is a Level IIIa, and is one of three high-risk regional neonatal nurseries serving the Central East Region of Ontario. There are upwards of 700 admissions per year. Sunnybrook's NICU's area of clinical focus is in the management of extremely low birth weight infants.
- Targeted neonatal echocardiography (TNE) consultative service is provided by a faculty

TNE expert and dedicated sonographer and performs (approximately 450 TNEs annually).

- The Neonatal Follow-Up Clinic provides assessment of motor and cognitive development for infants born at less than 30 weeks gestation and infants who were very ill during their stay in the NICU. The Clinic enrolls approximately 225 infants per year, and has a volume of over 2,000 visits annually. The clinic follows children to six years of age with clinicians trained in both neonatal follow-up and developmental paediatrics.

## Medical Education

### Subspecialty Training in Neonatal-Perinatal Medicine

The RCPSC-accredited Neonatal-Perinatal Fellowship program is formally integrated with three University of Toronto teaching hospitals, SickKids, Mount Sinai Hospital, and Sunnybrook Health Sciences Centre. Trainees rotate between the three NICUs, giving them an exceptionally rich and diverse training experience that is unique in Canada. See [Section 2.4](#) for further information on the University of Toronto Neonatal-Perinatal Training Program, advanced Neonatal Training fellowships, and additional training opportunities.

The Sunnybrook Health Sciences Centre Paediatric Departmental Fellowship enables individuals to gain valuable clinical experience within Sunnybrook's busy inborn, perinatal unit which services a large population base. Positions are for individuals who have completed their paediatric training, have at least six months of neonatal experience, and are interested in pursuing a career in academic neonatology or paediatrics with a significant neonatal component to their practice. This program is not an accredited program of the RSPSC. The program is open to both Canadian and international trainees.

## Research

Faculty appointed to the Sunnybrook Research Institute (DAN Women & Babies Program), are leading randomized controlled trials and projects on variations in outcome, as well as multicentre studies as principal investigators, site investigators or members of study steering committees. Examples include:

Lactoferrin Infant Feeding Trial\_Canada (LIFT\_Canada) (Dr. Elizabeth Asztalos)

A multicentre, phase III, 2-arm, masked randomized controlled trial. The primary hypothesis is that oral bovine lactoferrin (bLF), through its antimicrobial, antioxidant and anti-inflammatory properties, will reduce the rate of mortality or major morbidity in very low birth weight (VLBW) preterm infants. This study will take place in nine NICUs across Canada. (Funding: Canadian Institutes of Health Research (CIHR), National Health and Medical Research Council, Australia)

REdefining the SignificancE and Treatment threshold for Patent Ductus Arteriosus in preterm infants (RESET-PDA) (Dr. Dany Weisz)

A project that aims to redefine 'significant' PDA among extremely low gestational age neonates (<28 weeks) by developing and validating postnatal-age specific prediction models for key neonatal outcomes using detailed clinical and echocardiography data. This study will take place at 17 NICUs across Canada. (Funding: Canadian Institutes of Health Research (CIHR) Project Grant)

Optimizing Mothers' Milk for Preterm Infants (OptiMom) Program of Research: Study 2-Bovine vs. Human Milk-Based Fortifier Study (Dr. Eugene Ng)

A multi-centre trial of premature infants born less than 1250 grams and less than 2 weeks of age. Premature infants require enrichment of breast milk to optimize growth. In this study, infants will be randomized to receive a human milk based fortifier versus the standard cow's milk based fortifier to enrich their breast milk until the infant reaches 7 weeks of age or when he/she is

discharged home. The study aimed at comparing these two forms of fortifier and see if infants will reach full feeds faster, and to compare which group achieves better weight gain. The study also compares the two groups in terms of the incidence of complications associated with prematurity such as blood stream infections and chronic lung disease.

only NICUs in Canada to participate in CNN, VON (Vermont Oxford Network), and the Tiny Baby Collaborative International Research Group.

## Accomplishments and Future Directions

### **Maintaining best performance nationwide of survival without neonatal morbidities in Canadian Neonatal Network (CNN) risk-adjusted model:**

Every year, of the 700 infants cared for in Sunnybrook's NICU, 90 babies are considered micropreterm (at fewer than 26 weeks of gestation). The Sunnybrook NICU is the best performer in neonatal outcomes for its acuity and micropreterm numbers. This is achieved through QI methods, teamwork and organizational culture. The risk-adjusted model includes all NICUs in Canada.

<https://hospitalnews.com/sunnybrook-leads-in-clinical-outcomes-for-the-sickest-and-smallest-babies/>

**National and international impact on neonatal follow-up and early intervention:** The Neonatal Follow-Up clinic is groundbreaking in the length of follow-up, developmental assessment, and the early intervention models implemented. This is reflected in international presence, education and outreach in the GTA and education placements. The clinic has the highest follow-up rate in Canada with 90% of NICU graduates receive follow-up care (compared to 70% in most other programs). Sunnybrook also offers virtual appointments and satellite clinics in the GTA (Whitby and Brampton).

**Successful international collaboration on neonatal QI and establishing of neo-QI fellowship training:** Ongoing contribution to and collaboration with QI collaboratives, making continuous QI and major goals of the unit. We are one of the

# Trillium Health Partners, Division of Children’s Health

## Site Overview

Trillium Health Partners (THP) is a leading hospital known for its outstanding performance, fiscal responsibility, and commitment to quality patient care. With three main sites—Credit Valley Hospital, Mississauga Hospital, and Queensway Health Centre—it offers a comprehensive range of acute care services and various community-based specialized programs. Our goal is to deliver high-quality care that is easily accessible to our community. We prioritize creating exceptional experiences for everyone who enters our facilities.

As our diverse community grows and ages and with the increasing prevalence of chronic diseases, we recognize the need for innovative approaches to healthcare delivery. We envision an interconnected system of care that centres around patients within the hospital and the broader community. Establishing the new Shah Family Hospital for Women and Children provides an unparalleled opportunity to transform the care of children in our community. This dedicated hub will enhance the quality and accessibility of paediatric services for families. Moreover, our comprehensive services enable us to adopt a life course approach to care, addressing health needs across all stages of life. This holistic perspective ensures personalized care tailored to evolving patient needs.

We can effectively meet our patients’ needs through collaboration and coordinated efforts across the healthcare system while maintaining high, sustainable, quality care standards. By partnering with our community, we are ushering in a new era in healthcare, affirming our commitment to community health and well-being, and embodying our motto: Better Together.

## Paediatrics Department

Dr. Ally Murji (Department of Obstetrics & Gynaecology) was appointed as Chief and Medical Director for Women’s and Children’s Health in

2024. Dr. Ian Zenlea, Division Head and Medical Director of Children’s Health. He is a Clinician Scientist, Institute for Better Health, Trillium Health Partners and Part-Time Assistant Professor, Department of Paediatrics, Temerty Faculty of Medicine, University of Toronto.



Dr. Ian Zenlea

### Paediatrics Leadership Team

- Dr. Catherine Taylor, Service Medical Director, Neonatal Intensive Care Unit
- Dr. Jane Healey, Paediatrics Integration Lead
- Dr. Alisha Jamal, Paediatric Emergency Department Lead

## Clinical Programs

### Paediatrics Inpatient Service

The Paediatric Care Unit at Credit Valley Hospital, a component of Trillium Health Partners, provides specialized care for patients aged from birth to 19 years. This 33-bed facility is committed to family-centred care and includes a spacious playroom for children. Most admissions originate from the Emergency Department, with an average stay of 2.1 days. The unit is staffed by a multidisciplinary team comprising physicians, nurses, dietitians, physiotherapists, respiratory therapists, occupational therapists, child life specialists, and social workers, ensuring comprehensive support for the diverse needs of pediatric patients and their families. Annual admissions in fiscal year 2023/2024) were 2,112.

Specialized consult services include:

- **Cardiology:** Failure to Thrive, poor weight gain before surgery/pre-surgical admissions with surgical admissions to tertiary centres. Care for Pericarditis, Myocarditis and hypertension.
- **Clinical Genetics:** Congenital disorders, syndromes.
- **Developmental Paediatrics:** Support

complex, technology-dependent patients needing admission

- **Endocrinology:** Admissions for patients in our community with a paediatric Diabetes Education Centre to support discharges and follow-up close to home)
- **Haematology:** Sickle cell and thalassemia factor deficient patients that meet the admission criteria for a Level 2 paediatric inpatient centre.
- **Infectious Diseases:** Supported by adult Infectious Disease physicians or supportive consultation by a tertiary paediatric centre admission, such as infectious diseases, sepsis, positive culture, and childhood diseases.
- **Neurology:** Noncomplex seizure disorders, neurological disorders that meet the criteria of a Level 2 paediatric inpatient centre
- **Oncology:** Supported by our POGO clinic, simple non-complex admission for side effects of treatment, or fever neutropenia.
- **Respiratory Medicine:** Admission for supportive care in a Level 2 paediatric unit, Asthma, childhood virus, Cystic Fibrosis (Paediatric Respiriologist on staff)
- **Rheumatology:** Admissions that can be supported in a Level 2 paediatric unit (Paediatric Rheumatologist on staff)
- **Surgical and Perioperative Services:**
  - General Surgery
  - Ophthalmology (Retinopathy of prematurity)
  - Orthopaedics (Age and growth-dependent pre/post-surgical patients)
  - Otolaryngology (Age and growth-dependent surgeries, admissions for medical that meet the clinical care of a level 2C paediatric inpatient unit)
  - Urology (Infant surgery admissions for non-complex cases)

#### Specialized Inpatient Neonatal Services (NICU)

Trillium Health Partners has a Regional Advanced Level II C NICU. The physical capacity is 48 bassinets. Just over 600 admissions (73%) to the unit annually come from the Birthing Suite.

Residence rooms are available for resting between breastfeeding and infant care for mothers discharged before their newborns are ready to leave. In fiscal year 2023/2024 there were 8,866 deliveries at THP and 1,103 admissions to the NICU.

#### Outpatient Services

The program offers various specialized clinics:

- **Asthma/Respirology:** Treatment of moderate to severe asthma and respiratory disorders.
- **Cardiology:** Congenital heart disease, arrhythmias, fetal echocardiography.
- **Complex Care:** A multidisciplinary team supports families, reducing hospital needs.
- **Developmental Paediatrics:** Community-based services for child development and behaviour.
- **Diabetes**
- **Endocrinology:** Growth, pubertal, thyroid disorders.
- **General Paediatrics:** Short-term assessment and treatment.
- **Neonatal Follow-Up:** Developmental screening and growth surveillance post-NICU admission.
- **Neurology:** Seizure disorders, headaches, and other neurological disorders.
- **Oncology:** Paediatric Oncology Group of Ontario (POGO) Satellite Clinic.
- **Ophthalmology:** Retinopathy of prematurity and eye treatments.
- **Paediatric Sexual Assault Services:** Support for victims of violence.
- **Rheumatology Clinic:** Complex rheumatological disorders.
- **Sickle Cell Disease:** Collaborative clinic for treatment.

Outpatient visits in fiscal year 2023/2024 totaled 11,358.

#### Specialized Outreach Programs and Community Initiatives

The **KidFit Health and Wellness Clinic** offers specialized weight management treatment for families with children and adolescents who are experiencing, or at risk for, severe medical and

psychological consequences associated with obesity. This clinic provides comprehensive health assessments, including physical exams and lifestyle evaluations, to develop tailored programs for improving fitness, nutrition, and overall well-being. Services might include nutritional counselling, exercise programs, behavioural therapy, and education for children and their families. Programming is delivered in the clinic and community at Community Centres through the Recreation Division in the City of Mississauga and at a food exchange, Eden Food for Change.

## Research Highlights

The Institute for Better Health (IBH) bolsters research at Trillium Health Partners (THP). IBH emphasizes population health, health system performance, implementation science, learning health systems, and patient-centred care. IBH maintains a strategic alliance with the Dalla Lana School of Public Health. The Division of Children's Health currently has one clinician-scientist who has protected time for research pursuits. The scope of research includes 52 investigator-initiated projects, including 18 randomized controlled trials and 19 studies funded by the Canadian Institutes of Health Research.

Research initiatives focus on areas such as pediatric weight management, peer support interventions for caregivers and adolescents with type 1 diabetes, transition strategies from pediatric to adult diabetes care, the development of a national pediatric diabetes registry, type 2 diabetes prevention in racialized communities, and family violence prevention. The Level 2C NICU at THP engages in studies that optimize nutrition for preterm infants, prevent neonatal malnutrition, assess thrombosis risk, and implement tele-resuscitation strategies. The POGO satellite clinic at THP also plays a critical role in pediatric oncology clinical trials.

THP actively participates in the Paediatric Inpatient Research Network (PIRN), contributing to research on bronchiolitis care and COVID-19 outcomes. This multifaceted research agenda aims to address the complex challenges in pediatric healthcare. By incorporating community-based programs and

culturally relevant health behaviours, pediatric researchers at THP seek to develop equitable, responsive healthcare solutions, ultimately promoting healthier futures for children and their families.

## Medical Education Highlights

Paediatrics training at THP includes:

- Medical students in both pre-clerkship (i.e., clinical skills – year 1 and year 2) and clerkship paediatric rotations (year 3) as well as electives and selectives (year 4)
  - Paediatric clinical skills sessions supported by faculty from the program as tutors
  - Clerkship rotations include individual topic offerings based on group interests
- Mississauga Hospital (MH) and Credit Valley Hospital (CVH) Family Medicine residents doing their paediatric rotations during PGY1 and PGY2 years in the program
- Increased number of University of Toronto residents within the program (see data below)
  - High volume of non-University of Toronto residents choosing THP as their preferred elective site for community paediatric and Level II NICU rotations
- High volume of enhanced skills residents from the Emergency Medicine program that complete community paediatric rotations at THP
- Targeted paediatrics education to the Emergency Medicine program at THP in October 2023 with an interdisciplinary team that included physicians, and respiratory therapists. Clinical Educators, and registered nurses covering topics including the diagnosis and management of sepsis, bronchiolitis, seizures, diabetic ketoacidosis and the utilization of advanced respiratory support.
- Subspecialty residents and fellows doing relevant rotations (i.e., Level I or II NICU, community subspecialty rotations, paediatric neurology, etc.)

Many of our staff are award-winning educators and are advancing excellence in Medical Education through advanced training:

- **Dr. Ishita Siddiq Adil** – Master of Medical Science (with teaching component)
- **Dr. Tanvi Agarwal** – Master of Health Practitioner Teacher Education
- **Dr. Smita Roychoudhury**
  - a. McMaster MIIETL Teaching and Learning Foundations Certificate Program
  - b. McMaster MIIETL Teaching and Learning Scholarship Certificate Program
  - c. McMaster MIIETL University Teaching Program
- **Dr. Mohammed Hassan-Ali** – MSc in Biomedical Physiology and Kinesiology (with teaching component)
- **Dr. Alisha Jamal** – Teaching Scholars Program
- **Dr. Jessica White** – Masters of Education, Stepping Stones Program at the University of Toronto's Centre for Faculty Development

Examples of continuing education, scholarship, and innovation in Medical Education:

- Physician Education Leads present at Academic Days (1-2 times per year)
- Monthly QI/M&M Rounds in conjunction with SickKids (NICU/PICU/paediatric subspecialties)
- Simulation-based skill days for faculty, including annual neonatal skills days (some coordinated in conjunction with SickKids)
- Dr. Jane Healey – Newborn Assessment Team Presentation at Family Medicine Conference (also the OMA Paediatric Chair supporting the coordination of other Continuing Education opportunities)
- Dr. Pamela Coates Award of Excellence in Undergraduate Community-Based Teaching at MAM
- New NICU education sessions
- Paediatric inpatient quality rounds
- 4<sup>th</sup> year community junior attending

rotation – first of its kind, longitudinal role

- CME accredited Clerkship Presentations (Rounds) drawing in faculty participation

## Accomplishments and Innovations

Newborn Assessment Team (NAT): Established at the Credit Valley site during the 2022 “triple-demic” season, NAT provides well newborn care, alleviating the burden on pediatricians. The program enhances discharge efficiency, as families no longer wait for paediatricians tied up in other areas. Collaboration between Paediatrics and Family Medicine ensures up-to-date care, resulting in high satisfaction rates among families and providers.

Paediatric Procedural Sedation Program: This unique program offers sedation for children and adolescents with developmental disabilities needing diagnostic imaging. Addressing long wait times at tertiary hospitals, it provides timely access to MRI studies and other painful procedures. The program involves a multidisciplinary team and follows strict sedation protocols, making it the only community hospital initiative in Ontario.

Paediatric Botox Program: This essential program injects Botulinum toxin for patients with cerebral palsy. Initially, at risk of closure, a general paediatrician was trained to administer Botox. Children needing sedation for multiple injections are referred to the Paediatric Procedural Sedation Program, ensuring minimal discomfort in a safe environment.

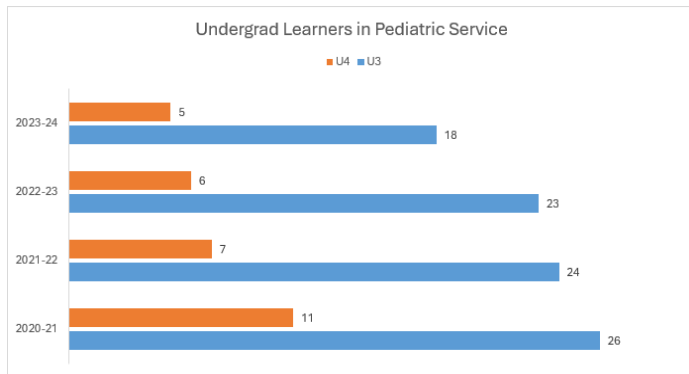
NICU Education Series: An educational series was initiated to harmonize and standardize level 2c NICU care. It covers key topics like hyperbilirubinemia and hypoglycemia, with hands-on workshops for practical training. Ongoing sessions aim to maintain high-quality, consistent care in the NICU.

## Challenges and Opportunities

As Trillium Health Partners continues to realize its academic mandate, future opportunities and challenges regarding teaching and scholarly

activities are increasingly evident. A primary challenge is conducting scholarly work without dedicated funding for clinician scientists and educational scholars, which restricts research initiatives and the development of innovative curricula. This lack of financial support makes it difficult to retain talented educators who can drive advancements in both education and patient care. In addition, the rising number of medical learners puts pressure on existing faculty and resources. As rotation numbers grow, providing individualized mentorship becomes challenging, potentially diluting the educational experience and contributing to faculty strain.

However, a compelling opportunity lies in engaging people with lived experience in community-based participatory research. By incorporating feedback from families and children, Trillium Health Partners can build a learning health system that effectively addresses the real-world needs of the community. This engagement enriches research quality and ensures that the outcomes of scholarly activities are relevant and impactful.



Moreover, establishing a community-based pediatrics residency rotation centred on Level 2 community care and quality improvement can make a profound difference. Through funding from the Department of Paediatrics for residency expansion, this initiative can empower residents to learn in a real-world setting while fostering collaboration with families and community stakeholders. Together, these efforts can create a dynamic environment conducive to innovative teaching, meaningful research, and improved health outcomes for children and families, ultimately positioning Trillium Health Partners as a leader in pediatric education and community health.

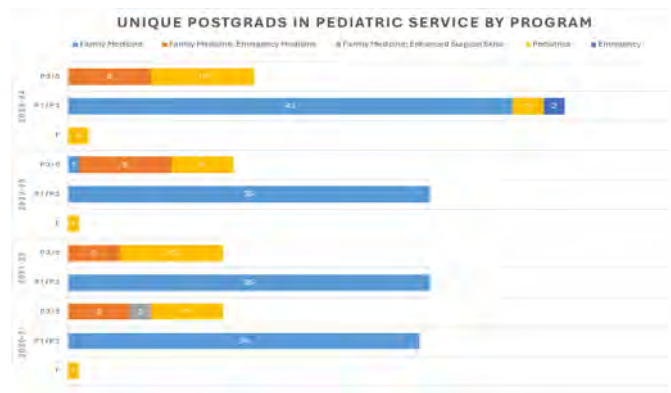


Figure 1 Summary of learners at TPH 2020-2024

A – Undergraduate learners by training year

B – Postgraduate learners by training program

# Scarborough Health Network

## Site Overview

Mission: Improving lives through exceptional care

Values: Compassionate Inclusive Courageous Innovative

Scarborough Health Network (SHN) is shaping the future of care by designing a more integrated healthcare system for one of Canada's most diverse communities. Serving over 850,000 people throughout the eastern Greater Toronto Area, SHN aims to provide quicker access to the safest, highest quality healthcare. The network operates three full-service hospitals and several community-based locations, offering essential services such as emergency care, diagnostic imaging, surgery, and rehabilitation.

SHN's workforce is incredibly diverse, speaking more than 20 languages, and bringing varied perspectives to healthcare delivery. The network is dedicated to achieving greater health equity by providing accessible healthcare to newcomers, addressing health conditions prevalent among multicultural populations, and removing barriers to healthcare for everyone. SHN is a leader in transforming the health system, working collaboratively with the Scarborough Family Physicians Network and the University of Toronto's Scarborough Academy of Medicine and Integrated Health. The SHN Research Institute is at the forefront of multicultural health research, understanding the unique healthcare needs of Scarborough.

## Paediatrics Department

The Department of Pediatrics at Scarborough Health Network (SHN) is dedicated to providing comprehensive and compassionate care to children and adolescents. SHN's pediatric services are designed to meet the diverse needs of the community, offering a wide range of specialized programs and clinics. The department is home to several centres of excellence, bringing together top expertise, doctors, and multidisciplinary teams to deliver high-quality care. On top of specialty care, SHN's paediatrics program also has an after-hours clinic available seven days a week at the General Hospital for non-emergent concerns.

**Chief: Dr. Peter J. Azzopardi**

### Paediatrics Leadership Team

- Dr. Nicole Carmichael  
Pediatric Quality of Care Lead
- Dr. Leah Tattum,  
Pediatric Education Department Lead
- Dr. Uthayavane Balasubramaniam,  
POGO Program Resource MD
- Dr. Rikin Patel, Paediatric Education – Centenary Site



Dr. Peter J. Azzopardi

## Clinical Services

### Paediatrics Inpatient Service

Pediatric Inpatient capacity exists at our Centenary and General sites and encompasses a wide range of medical and surgical capabilities which meet, or exceed the Provincial Council for Maternal and Child Health Level 2 standards of care. We are also responsible for coverage of emergency services at the Birchmount site of SHN. We have a strong Child and Adolescent Mental Health program with dedicated inpatient beds. Supported by Child life specialists, social workers, dietitians, occupational and physiotherapists.

Centenary Site - 12 beds with surge to 16 beds

General Site – 8 beds with surge to 12 beds

Dedicated pediatric inpatient units with paediatric-certified nursing specialists and allied health professionals. Pediatric units also encompass surgical programs at Centenary and General sites with specialty services (such as our POGO – Oncology Care Centre).

There are approximately 2,200 paediatric admissions per year across SHN.

List of specialized pediatric consultant physicians:

- Adolescent Medicine (2)
- Allergy (2)
- Cardiology (2)
- Child & Adolescent Psychiatry (4)
- Clinical Genetics (1)
- Dermatology (2)
- Developmental Paediatrics (2)
- Endocrinology (2)
- Gastroenterology (3)
- Hematology (1)
- Immunology (1)

- Infectious Diseases (1)
- Neonatology (6)
- Nephrology (2)
- Neurology (3)
- Pediatric Ophthalmology (1)
- Pediatric Orthopaedics (1)
- Otolaryngology
- Plastics
- Respiratory Medicine (1)
- Rheumatology (1)
- Urology

- Nephrology clinic
- Neurology clinic
- Newborn Assessment clinic
- Pediatric Dietitian clinic
- Pediatric Fetal Medicine clinic
- Paediatric Oncology Satellite Clinic
- Paediatric Occupational Therapy Clinic
- Pediatric Speech and Language clinic
- Regional Neonatal Follow-Up Clinic – 2 sites
- Rheumatology Clinic
- RSV Prophylaxis Clinic – 2 sites
- Scarborough Kids Development Clinic
- Pediatric Orthopedic/Scoliosis Clinic
- Sickle Cell Disease Clinic

SHN is collaborating with SickKids to provide high quality, subspecialty surgical care across a variety of specialties in order to reduce wait times at our tertiary center partner. SHN leads the GTA in volumes of surgery cases expedited from SickKids waitlists.

### Outpatient Services

Total annual visits were 52,000 in FY2023/2024

Specialized clinics include:

- Adolescent Medicine Clinic
- Allergy Clinic
- Bladder/Bowel Dysfunction Clinic
- Breastfeeding clinic
- Child and Adolescent Mental Health program
- Complex Care Clinic
- Dermatology Clinic
- Developmental Feeding clinic
- Diabetes Clinic
- Endocrinology Clinic
- Fetal Alcohol Spectrum Disorder Diagnostic Clinic
- Gastroenterology Clinic
- General Pediatric Consult Clinics – all 3 sites
- Genetics Clinic
- Haematology Clinic
- Health Outcomes Pediatric Program of Scarborough (HOPPS) Clinic
- Kids Pass clinic

### **Spotlights:**

#### **Healthy Outcomes Paediatric Program for Scarborough (HOPPS):**

A 2-year healthy lifestyles program which helps families build healthy bodies and prevent weight-related health conditions through healthy eating habits, physical activity, healthy sleep routines, balanced technology use and collaborative family relationships. Our team is made up of paediatricians, paediatric endocrinologists, dietitians, an exercise therapist and a social worker. We believe in multidisciplinary care and using evidence-based guidelines to help create best care plans for our families. Our program prioritizes family-based lifestyle changes.

**Kids After Hours Clinic:** SHN's pediatrician-led Kids After Hours Clinic provides direct access to a pediatrician to treat common medical issues open every day.

**Kids Pass:** Children brought to the Emergency Departments at SHN Centenary and General hospitals will be fast-tracked to the Kids Pass Clinics as appropriate.

**Kids Complex Care Clinic:** Multidisciplinary clinic with pediatrician, nurse practitioner, dietitian, social worker and OH at Home care coordinator helping to deliver and coordinate care to children with medical complexity. The CELHIN has the highest number of children with medical complexity in the province with more than 80% living in or close to Scarborough.

#### Newborn Care and Specialized Inpatient Neonatal Services

- Level 2C NICUs at General and Centenary sites with a total of 35 NICU bedspaces available. NICUs supported by neonatologists and pediatricians with qualified NICU nurses, dietitians, pharmacists, social workers, occupational therapists and clinical practice leaders. We are continuing to strive toward the new Family Integrated Care model with added parental participation in their newborn's stay in the NICUs.
- Family Birthing Centres with integrated operating rooms for Caesarean sections, offering midwifery services, waterbirths and culturally sensitive care models
- Newborn Assessment and Breastfeeding clinics operate every day for rapid newborn assessment following discharge.
- Neonatal Follow-up Clinic supported by neonatologists and paediatric neurologists to follow at risk newborns over the first few years of life to help early identification and treatment of infants and children falling away from their expected norms.

Annual NICU admissions: 750

Number of deliveries/year: 5500

#### Specialized Outreach/Community Initiatives

Improving Access to Primary Care – enhancing family practice teaching clinic and facilitating connections between hospital providers and PCPs and community service hubs in Scarborough.

Focus on Sickle Cell Disease – multi-pronged approach looking at service availability through the lifespan of these patients with expedited care in the ED and specialized clinics for pediatric and adult patients.

Developmental Care – connecting with community providers for autism services, respite and tertiary level services.

School-based Paediatric Care – One of our pediatricians, Dr. Sadhana Balakrishnan, provides specialized services to reach children and families in a school-based setting.

## Research

Participation in a variety of multi-center trials as well as individual pediatric clinical investigations continues to increase year over year as we have been fortunate to have a greatly enhanced Research Institute at SHN.

Long term multi-center trials include the MAXimom and OPTImom NICU nutrition trials and the TELENeo trial which is investigating the use of video assisted neonatal resuscitation across a large number of sites in Canada and the US. We are members of the Pediatric Inpatient Research Network (PIRN) with study centers across Canada and we recently joined GEMINI group for pediatric data sharing and research opportunities. Individual studies have looked at reducing vertical transmission of Hepatitis B and papers exploring the methods of making UTI and appendicitis diagnoses.

As a satellite Pediatric Oncology Group of Ontario hospital, we are site participants in at least 12 studies lead by SickKids, looking at paediatric oncology care.

## Education

Teaching within the SHN pediatric program encompasses pediatric residents, family medicine residents and medical students. We recently started pediatric education programs for physician assistants in training as well. The majority of our pediatric staff are appointed at the University of Toronto and we look forward to increasing our educational activities as we prepare for opening of the Scarborough Academy of Medicine of the University of Toronto Department of Medicine. Teaching activities extend to nursing students and many disciplines with the allied health department of the hospital.

Our Education Lead, Dr. Leah Tattum, is enrolled in the Education Scholars Program through the Centre for Faculty Development at the University of Toronto. A large number of our long-term teachers and preceptors have won recognition and awards for their excellent skills as teachers and mentors.

Drs. Deepali Mankad (Developmental Pediatrics) and Jessica Woolfson (Pediatric GI) have been accepted to

give seminars/workshops on Developmental Feeding Challenges at next year's SickKids Pediatric Update and the Canadian Pediatric Society meeting in 2025.

## Accomplishments and Innovations

1. Successful consolidation of Obstetrics, NICU and Paediatric inpatient care to the Centenary and General sites. Ongoing support of the Emergency Department and local community at the Birchmount site with dedicated pediatric on call physicians and a daily General Pediatric clinic on that site. Allowed the development of our Kids After Hours clinic which has played a vital role in decanting volumes from our extremely busy emergency departments.
2. Opening of our Kids Complex Care Clinic in collaboration with SK Complex Care to bring highly specialized care to our neediest children close to home.
3. Focus on Equitable Care: Review and enhancement of our services for families struggling with Sickle Cell Disease. Workgroups looking to enhance and expedite ED care to meet or exceed new guidelines for sepsis and pain therapy, added support staff (social work and nurse practitioner), as well as the recruitment of a hematologist focused on the adult Sickle Cell population.
4. Surgical collaboration with SickKids to reduce wait times and bring expert care closer to home. A highly successful venture with SickKids surgeons and support staff helping to provide care for young patients waiting for surgical procedures within ENT, Urology, Plastics and Orthopedics.

## Challenges and Opportunities

1. The recruitment and retention of specialized nursing staff with obstetrics, NICU and paediatric skills and experience remains a major challenge for SHN so that we can continue to offer the broadest range of expert paediatric care.
2. Updating our facilities and equipment to maximize safety, efficiency and a warm family experience can be difficult with old infrastructure and limited funding. Admitted pediatric patients are more complex and require closer observation and

monitoring capabilities. We are pleased that our paediatric units are dedicated mainly as care areas for infants, children and teens despite the extreme pressures within community hospitals to care for increasing numbers of admitted adult patients. We are also happy to be able to offer airborne isolation rooms in our two inpatient units.

3. The special skills and providers needed to deal with the rapidly increasing mental health and developmental care challenges within pediatrics are not easy to find or train.