

# PEDIATRIC EMERGENCY RESEARCH TEAM

ALBERTA CHILDREN'S HOSPITAL  
Annual Report 2025





## MISSION

TO IMPROVE OUTCOMES FOR  
ACUTELY ILL AND INJURED  
CHILDREN BY CREATING AND  
SHARING NEW KNOWLEDGE.

## VISION

EXCEPTIONAL ACUTE CARE  
FOR CHILDREN THROUGH  
INNOVATION AND DISCOVERY.



# BACKGROUND





The emergency department (ED) at the Alberta Children's Hospital provides care to acutely ill and injured children 24 hours a day, seven days a week. During the past 12 months, **80,071 children** received care in the Alberta Children's Hospital ED. The high volume and diversity of patients seen in the ED provides a unique opportunity for generating new knowledge and improving the quality of pediatric care. Our research team is one of the largest pediatric emergency teams in Canada. Team members contributed to the science of acute infectious diseases, resuscitation, precision medicine, quality improvement and simulation. During the past year we published **59 peer reviewed articles** and received over **\$1,193,153 dollars** in new peer review funding from local, national, and international sources.



## Year in Review

### May 1, 2024 — April 30, 2025

#### Clinical Care

Exceptional care for

**80,071 Children**

Provided by a team of

**66 physicians**

And

**170 nurses**

#### Research

The research team enrolled over

**523 participants**

And generated

**59 publications**

With grant funding totaling

**\$1,193,153**

Principal investigator or co-principal investigator

**\$1,120,488**

Co-investigator or collaborator

**\$72,665**

#### Education

Approximately

**222 Medical Trainees**

including medical students, residents and fellows

## Who We Are

### Physicians

#### Tania Principi

Section Chief, Pediatric Emergency Medicine

#### Antonia Stang

Department Head, Department of Pediatrics

#### Graham Thompson

Research Director, PEMRAP & PERT Lead

#### Adam Cheng

Simulation Research Lead

#### Stephen Freedman

Alberta Children's Hospital Foundation,  
Professor in Child Health and Wellness

Associate Dean, Clinical Trials,  
Cumming School of Medicine

#### Mohamed Eltorki

Associate Professor of Pediatric Medicine

#### Vincent Grant

Medical Director for eSIM Provincial Simulation

#### Kelly Millar

Education Lead

#### Jennifer Thull-Freedman

Physician Lead for Quality,  
ACH Emergency Department

### Pediatric Emergency Medicine Fellows

#### Dana Stewart

#### Duncan Simmons

#### Keon Ma

#### Mary Tong

#### Michelle Fric

#### William MacDougall

### Research Nurses

#### Kimberly Wolf

#### Kristen Kersey

#### Michael De Los Santos

#### Vicki Jacobs

### Research Manager

Sarah Williamson-Urquhart

### Medical Lab Assistants

#### Anna Ang-Becker

#### Kyu Hwa Lim

#### Natalie Uy

#### Sarah Abouchami

### Coordinators/Research Assistants

#### Alicia Kanngiesser

#### Alma Muropa

#### Angela Wallace

#### Ashley Jones

#### Beata Mickiewicz

#### Brigitte Vaissade

#### Chantal Schultz

#### Dorota Biggs

#### Jeffrey Cheng

#### Jena Shank

#### Jianling Xie

#### Jina Seok

#### Joy Gobran

#### Kate Winston

#### Nidhi Lodha

#### Sheena Neilson

#### Timi Ajayi

#### Ximena Huertes-Mancipe

#### 50+ Volunteer Research Assistants

(Pediatric Emergency Medicine Research Assistant Program PEMRAP)

### Research Trainees

Anna Funk — Post-Doctoral Scholar

Areeb Qayyam — Master's Student

Conné Lategan — Medical Student

Eryn Bugbee — UME student

Frederick Dun-Dery — Post-Doctoral Scholar

Hannah Byles — Pediatric Resident

Jennifer Wytsam — UME student

Jessie Fergusson — BSc. Undergrad

Keon Ma — PGME fellow

Kosar Khani — Master's Student

Lan Truong — Medical Resident

Madeleine Sumner — Medical Student

Sarah Williamson-Urquhart — Master's Student

Sydney Guderyan — UME student

### Administration

#### Abby Heron

#### Gertrud VanDerMey

#### Heather Numrich

#### Jeffrey Stone

#### Tanya Borthwick



# HIGHLIGHTS



## Awards and Recognition

Stephen Freedman received the Amy Plint PERC Mentorship Award. This is awarded every year to a mentor demonstrating excellence in clinical research. This award recognizes outstanding performance in the mentoring of research trainees and junior colleagues in the PERC network.

Mohamed Eltorki received the Terry Klassen PERC Young Investigator Award. This is awarded annually to the young investigator who demonstrates excellence in clinical research and embodies the spirit of interpersonal and interdisciplinary collaboration as envisioned by one of PERC's founders, Dr. Terry Klassen

Adam Cheng received the King Charles III Coronation Medal. This is awarded by the Government of Canada to Canadian citizens who had made significant contributions made to their country and fellow citizens. This award recognizes outstanding contributions made towards advances heart health of Canadians

For Sarah, PERT has been a place of growth, mentorship, positivity, and purpose. She is proud to be part of a team that fosters collaboration across disciplines and institutions and that continuously pushes the boundaries of what is possible in pediatric emergency medicine. Along the way, Sarah has formed meaningful friendships and grown within a team culture defined by support, collaboration, fun, and a sense of shared purpose.

Looking ahead, Sarah envisions PERT continuing to lead transformative research by strengthening national and international partnerships, building sustainable research infrastructure, and mentoring the next generation of researchers. She remains passionate about creating systems that support high-quality, patient-centered research and drive meaningful change in pediatric acute care.

## Team Member Highlight

**Sarah Williamson-Urquhart, MSc CCRP**  
PERT Research Program Manager



Sarah Williamson-Urquhart has been a pillar of PERT for over 13 years. In her role as Research Program Manager, Sarah facilitates a dynamic and multidisciplinary team of research staff who drive impactful research initiatives locally, nationally, and internationally. Sarah's

thoughtful management has enabled the successful execution of multiple complex, multi-site clinical trials and research initiatives that have contributed meaningfully to pediatric emergency medicine. She has also developed and implemented systems that elevate the quality and consistency of the research conducted by the team.

While working with PERT, Sarah was supported in completing her Master of Medical Science degree, focusing on optimizing the collection of post-discharge patient-reported outcomes in pediatric emergency research studies. This work reflects her commitment to improving outcomes for acutely ill and injured children through innovation and discovery—values that are at the heart of PERT's mission and vision.

## Project Highlights

**DOSE-AGE Study — Multidose Ondansetron after ED Visits in Children with Gastroenteritis**

Prior to embarking on this study, our team had previously demonstrated that a single dose of oral ondansetron administered in the emergency department (ED) improves outcomes in children with acute gastroenteritis-associated vomiting. However, it was unclear if providing doses of ondansetron to be taken after discharge offered additional benefits.

To clarify how clinicians should approach this issue, Dr. Stephen Freedman led a multi-center Canadian clinical trial investigating whether multiple doses of ondansetron, administered as needed at home for ongoing vomiting or nausea, could lessen the severity of illness in children with acute gastroenteritis-associated vomiting treated in EDs. The study enrolled children aged 6 months to 18 years, who were randomly assigned to receive either ondansetron or a placebo during the 48 hours following their ED visit. Their symptoms were monitored for seven days through follow-up surveys.



*A total of 1,029 children were enrolled across six tertiary care centers. The findings showed that children who received ondansetron experienced a lower risk of moderate-to-severe gastroenteritis after enrollment in the study compared to those who received a placebo. Children administered ondansetron had fewer vomiting episodes and the time to the last vomiting episode was shorter. They also experienced fewer repeat health care visits, repeat ED visits, and were less likely to receive intravenous fluids. These results confirm that providing children with acute gastroenteritis-associated vomiting with additional doses of ondansetron at the time of ED discharge is beneficial and it is a treatment that should be adopted.*

#### **STEC Daycare Outbreak — Long Term Follow-up**

In September 2023, Calgary experienced the largest *E. coli* O157 outbreak ever recorded in children < 5 years of age. While tragic, this outbreak offered an unprecedented opportunity to precisely define the risk of long-term consequences associated with Shiga toxin-producing *E. coli* (STEC) infection. In this study, funded by the National Institutes of Health, we are seeking to clarify if children infected with *E. coli* O157:H7 experience greater sequelae in specific clinical domains than those who are uninfected, and to evaluate if the degree long-term complications are associated with the severity of the acute infection. To achieve these goals, we have enrolled uninfected (STEC negative) and STEC-infected (STEC positive) children who attended the affected daycares during the outbreak. Currently, we have completed follow-up appointments for 6- and 12-months post-outbreak and have already collected data for 146 children. The 24-month follow-up commenced in August 2025 where we continue to evaluate growth and development metrics, collect and analyze biospecimens to assess renal, gastrointestinal, and cardiometabolic functioning two years after the outbreak creating a robust dataset. With a retention rate of over 90% for this cohort over the past two years, we hope that the knowledge gained from this project will provide better long-term care for children impacted by STEC infection.

#### **Intravenous Ketorolac Vs. Morphine in Children Presenting with Suspected Appendicitis (KETO-App)**

Acute abdominal pain accounts for up to 10% of all emergency department visits in children, and in Canada, appendicitis is the most common reason for emergency surgery in children aged 6-17 years old. KETO-App is a CIHR funded, Health Canada regulated clinical trial comparing IV morphine to ketorolac in children presenting to the Emergency Department with abdominal pain. In a national survey of 200 Canadian pediatric ED physicians performed by our team, 60% of respondents reported choosing morphine for children experiencing abdominal pain as their first line medication.

*Ketorolac is the only non-opioid IV NSAID commonly used for children with moderate to severe pain, and it provides similar analgesia to opioids like morphine. Our main objective is to determine if IV ketorolac is non-inferior to IV morphine at 60 minutes post drug administration in reducing children's abdominal pain. Our second aim is to determine if there is any difference between the morphine and the ketorolac group in the rates of adverse events. We are currently 1 year into enrolling patients into the study at 4 ED centers across Canada and have 3 more years to go.*



# PARTNERSHIPS & COLLABORATIONS





## Partnerships & Collaborations

### **Pediatric Emergency Medicine Research Associate Program (PEMRAP)**

*Focused on a mission to highlight the importance of research, our PEMRAP program continues to grow while focusing on performance excellence. The program strives to inspire future health professionals by providing direct research experience in the acute care setting while supporting the participation of University of Calgary researchers in local, national and international collaborations.*

Through a 3-tier mentorship approach, new volunteer research assistants pair up with an experienced peer-mentor for several months to develop the necessary skills to fulfill the strict requirements of research projects. Upon confirmation of established autonomy, membership reliability and adequate judgement in various situations, mentees are promoted to work independently. A minimum of 250 hours of training is invested to reach the required level of proficiency. The final tier to achieve is the peer-mentor role, generally awarded by the end of the 2nd year (500+ hours) of involvement in the PEMRAP program, a hallmark of the excellent training received by the educators. While many volunteer students carry on and pursue careers as physicians and nurses, others elect disciplines critical to the provision of comprehensive health care including physiotherapy, social work, kinesiology and even graduate degrees leading to becoming independent researchers. Timi Ajayi, a current Research Assistant on the PERT team, started at the Alberta Children's Hospital in the PEMRAP program.

### **PEMRAP Testimonials**

*"I joined PEMRAP after my first year of university, new to research, clinical work, and the emergency department. I felt nervous in a place that is often seen as fast paced and intimidating. In PEMRAP I met support that felt unmatched in any other experience. The leadership was approachable, kind, and wanted me to succeed. Senior volunteers came from different and similar programs to mine, and shared advice about careers, classes, degree planning, and life. I felt accepted into the PEMRAP community and fully supported.*

*Over three years, PEMRAP helped me understand the scientific process. I learned how studies are conducted, from design to consenting to careful data collection. I spoke with coordinators and the circle of care involved in studies and asked higher level questions to deepen my learning. This experience informed the rest of my research. Finding and completing projects in an honors program and with the Calgary Stroke Program became easier because of this early clinical experience.*

*Just as important, the ED taught me soft skills, empathy, and how to work within the workflow of the department. I learned to liaise with physicians, nurses, and allied health professionals, and to be at the bedside with vulnerable and concerned patients and families. In class I learned disease definitions and mechanisms, but*

*PEMRAP showed me the reality and severity of disease at the bedside. I practiced communication that is not one size fits all, meeting people where they are and focusing on their needs. As a senior volunteer, I learned to lead and mentor new and incoming volunteers.*

*I attribute much of where I am today to the growth and learning PEMRAP offered me. I am in my first year of medical school and I know how competitive admissions can be. For the part I could influence, PEMRAP made a large contribution. I developed research skills, communication skills, and empathy. I spent time in a clinical environment where I could meet and speak with physicians, medical students, residents, fellows, and researchers. I found mentors who read my applications and guided me in the right direction. I joined other projects in the department and the PEMRAP leadership connected me with researchers across the province who matched my interests. PEMRAP also offered seminars on paths to medicine and MMI preparation from alumni and current volunteers. I will draw on these skills and this mentorship throughout my training and future practice. I am grateful for all the program has done for me."*

**Ameen Alizada** — PEMRAP Volunteer

## PEMRAP Studies and Collaborations

### Febrile Young Infant Study (FYI)

Fever is a common reason for caregivers to bring their baby to the emergency department. While most febrile young infants have self-limited viral illnesses, fever among infants in the first 2 months of life is sometimes the only symptom of an invasive bacterial infection (IBI), even if the infant appears otherwise well. If not detected and treated in a timely manner, these infections can have serious consequences.

Because of this risk, health care teams rapidly perform testing and management in young babies with fever, including urine, blood, and spinal fluid analyses and, at times, antibiotic treatment and admission to hospital. However, the current diagnostic methods have inherent limitations; there is a clear need for developing less invasive, highly accurate, and more timely diagnostic strategies.

The goal of our study is to identify multi-omic precision medicine bio-profiles that differentiate infants with IBIs from those without. Along with researchers at Montreal Children's Hospital and CHUL Ste-Justine, we are collecting blood samples from febrile young infants. These samples are being tested for novel inflammatory proteins and markers of altered metabolism to discover a "fingerprint" of invasive bacterial infection that could be used to develop rapid point-of-care devices. Precision medicine could significantly and safely reduce invasive testing, antibiotic overuse, and health care resource utilization, while providing novel insights into mechanisms underlying invasive infections in newborns

#### Principal Investigator

Brett Burstein, Montreal Children's Hospital

#### Local Investigator

Dr. Graham Thompson

#### Site Coordinator

Beata Mickiewicz

### The Canadian Pediatric Imaging Platform (C-PIP):

#### A project to support research in child brain health

Magnetic Resonance Imaging (MRI) is a powerful tool for measuring how the brain changes across life and how conditions like preterm birth or concussion can disrupt the brain's development. Across Canada, three leading pediatric MRI research centres are developing the Canadian Pediatric Imaging Platform (C-PIP). C-PIP is launching as a partnership between the Alberta Children's Hospital-CAIR Program, the Hospital for Sick Children and the new Centre Imagine at the Centre Hospitalier Ste. Justine and aims to expand to include partner sites across the country. C-PIP will make it easier to recruit children across the country into research studies to better understand how the brain's development is disrupted by injury, exposures and genetics, and how these disruptions in turn put children and youth at greater risk for behavioural and mental health challenges. C-PIP will also make it easier for researchers to share data and adopt more 'Open Science' approaches. We are developing training modules and facilitating the scaling of new methods for collecting, processing and analyzing data. C-PIP is collecting data from children from birth across adolescence to build a national high-precision reference sample that can be used to understand how brain disruptors alter neurodevelopment. A suite of demonstration projects will showcase the platform's ability to support novel research questions into how concussions alter the brain, how brain development is disrupted in children with rare genetic conditions, and how through cross-site collaboration we can rapidly create novel methods, such as Magnetic Resonance Spectroscopic Imaging (MRSI), to be available to the pediatric neuroimaging community. The C-PIP team at ACH has used the services of PEMRAP to gather potential participants from birth to 16-years old and have been integral to our recruitment strategy. C-PIP is funded by Brain Canada Foundation, Alberta Children's Hospital Foundation, Alberta Children's Hospital Research Institute, Hotchkiss Brain Institute, Owerko Centre, and Mathison Centre for Mental Health Research & Education

#### Local Investigators

Dr. Signe Bray, Dr. Catherine Lebel

#### ED Investigator

Dr. Graham Thompson

#### Site Coordinator

Filomeno Cortese

## STress After Pediatric Pain in the Emergency Department (STRAPPED)

### Study Highlight

Emergency department (ED) visits can be stressful for families, especially when children require needle procedures such as blood draws or IV insertions. These procedures are not only painful but can also be frightening, particularly when children must be physically restrained. Research suggests that these experiences may contribute to post-traumatic stress symptoms (PTSS) or changes in behavior following hospital visits. Despite improvements in pediatric pain management, pain and distress during ED procedures are not always consistently addressed.

The STRAPPED study is examining whether painful and distressing medical procedures in the ED contribute to trauma symptoms in children and parents. Parents of children aged 3–9 years were surveyed shortly after their ED visit and again four months later. Information was collected on the child's medical care, pain management, and parent and child trauma symptoms, as well as behavioral changes following the visit. By comparing families of children who underwent bloodwork or IV insertion with those who did not, the study aims to clarify how pain and fear during ED procedures relate to later outcomes.

Findings in 75 children indicate that it is not just the needle itself, but the experience surrounding it, such as being held down, that may be linked to greater trauma symptoms and more behavioral difficulties after discharge. These results will inform future discussions about how to minimize distress during procedures, reduce the risk of lasting trauma, and improve support for families during emergency care.

### Local Investigator

Dr. Jillian Miller

### ED Investigator

Dr. Jennifer Thull-Freedman

### Site Coordinator

Neta Bar Am

## Trainee Highlights

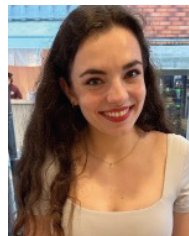
### Kosar Khani



Despite advances in diagnostic tools, timely and accurate identification of Acute Appendicitis (AA) in children remains a significant challenge at the emergency department. Delayed diagnoses can lead to severe complications such as perforation, sepsis, or death. Kosar Lotfali-Khani is an MSc student in the Medical Immunology (MDIM) Program at the Cumming School of Medicine, whose thesis stems from her interest in the Precision Medicine for Improving the Diagnosis of Pediatric Appendicitis in the Emergency Department (PRIMED) study through volunteering with PEMRAP. Her project investigates sex- and age-specific cytokine profiles in the pediatric population, aiming to distinguish children with AA from those presenting with Non-Appendicitis Abdominal Pain (NAAP). Using machine learning approaches to identify key cytokines, her work suggests that distinct sex-based cytokine patterns exist in patients with AA, which could enhance diagnostic sensitivity and specificity for both male and female patients.

### Sydney Guderyan

Sydney Guderyan is a third-year medical student at the University of Calgary whose interest in pediatric emergency medicine began while working as a volunteer in the



PEMRAP program. Since starting medical school, she has continued working with Dr. Graham Thompson and the PERT team on several projects focused on infections in children, including a scoping review with Dr. Thompson looking at the long-term cognitive, neurodevelopmental and academic/employment impacts of pediatric sepsis. She is also part of the "Indices of Inflammation in Children Presenting the Emergency Department with Wheeze" study which focuses on recruiting children presenting to the ED with wheezing, taking samples and following patient outcomes. She is presenting her research on pediatric sepsis at the American College of Emergency Physicians research symposium in September 2025.



# REPORTING



## Publications

1. Ali S, Rahimi A, Rajagopal M, Ma K, Yaskina M, Clerc P, **Stang A**, Beer D, Poonai N, Kam A, **Principi T**, et al. *A National Survey of Caregiver Needs and Experiences When Attending the Emergency Department*. *Pediatric Emergency Care*. April 2025; 41(4):p 297-304
2. Beauchamp M, Tang K, Ledoux A, Harris A, Kowalski K, Craig W, Gravel J, Doan Q, **Freedman SB**, Zemek R, Yeates K. *Optimal recovery following pediatric concussion*. *JAMA Network Open*. 2025 Mar 3;8(3):
3. Braun C, Antony E, Simard M. L, Greenhawt M, Lezmi G, **Eltorki M**, Ali S, Alqurashi W, Anagnostou K, Arasi S, Ben-Shoshan M, Daoust R, Eiwegger T, Gravel J, Turner P, Poder T, Upton J, Vincent M, Kim E, Davis A, Chinthrajah S, Paradis L, Graham F, Samaan K, Des Roches A, & Bégin P. *Feasibility study of a randomized, placebo-controlled, double-blind therapeutic trial to determine the efficacy of inhaled salbutamol in the treatment of IgE-mediated allergic abdominal pain*. *Pediatric Improvement*. 2025 March. 8(1), 81
4. **Cheng A, Grant V**, Eppich W. *The PEARLS Debriefing Checklist-Optimal Use for Faculty Development*. *Simul Health*. 2024 Aug 1;19(4):265-266
5. Cortegiani A, Ippolito M, Abelairas-Gómez C, Nabecker S, Olaussen A, Lauridsen KG, Lin Y, Sawyer T, Yeung J, Lockey AS, **Cheng A**, Greif R; International Liaison Committee on Resuscitation Education, Implementation and Teams Task Force (EIT) Task Force. *In situ simulation for cardiopulmonary resuscitation training: A systematic review*. *Resusc Plus*. 2025 Jan 3;21
6. de Koning L, Seiden-Long I, Anker K, Myers K, **Stang A**. *Whole Blood Cardiac Troponin "Triaging" to Improve Early Detection of Myocardial Injury at a Pediatric Hospital*. *J Appl Lab Med* 2024 May 2;9(3):540-548
7. Deshommes T, Freire G, Yanchar N, Zemek R, Beaudin M, **Stang A**, Weiss MJ, Carsen S, Gagnon IJ, Gabbe BJ, Bérubé M, Stelfox HT, Beno S, Labrosse M, Beaulieu E, Berthelot S, Klassen T, Turgeon AF, Lauzier F, Neveu X, Belcaid A, Ben Abdeljelil A, Tardif PA, Giroux M, Moore L. *Low-Value Clinical Practices in Pediatric Trauma Care*. *JAMA Netw Open*. 2024 Oct 1;7(10)
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9. Dharsee S, Laliberté Durish C, Tang K, Brooks B, Noel M, Ware A, Beauchamp M, Craig W, Doan Q, **Freedman SB**, Goodyear B, Gravel J, Zemek R, Yeates K, on behalf of the Pediatric Emergency Research Canada A-CAP Study Team. *Association of Psychological Resilience, Cognitive Reserve, and Brain Reserve with Post-Concussive Symptoms in Children with Mild Traumatic Brain Injury and Orthopedic Injury: An A-CAP Study*. *Journal of Neurotrauma*. 2024. July 5
10. Dhillon, BK, Kortbeek S, Baghela A, Brindle M, Martin DA, Jenne CN, Vogel HJ, Lee, AHY, **Thompson GC**, Hancock REW. *Gene Expression Profiling in Pediatric Appendicitis*. *JAMA Pediatr*. 2024 Apr 1;178(4):391-400
11. Diasso-Adamou A, Gonzalez F, Geanacopoulos A, Neuman MI, Rees CA, Phamduy TT, Chaudhari PP, Bergmann KR, Badaki-Makun O, Shapiro DJ, **Eltorki M**, Keating EM, Noorbakhsh KA, Ramgopal S. *Impact of Hurricane Helene on pediatric intravenous fluid use in the emergency department*. *JAMA Pediatrics*. In Press. 2025
12. Donoghue A, Allan K, Schnaubelt S, Cortegiani A, Greif R, **Cheng A**, Lockey A. *Manikin physical realism for resuscitation education: A systematic review*. *Resusc Plus*. 2025 Mar 24;23
13. **Dun-Dery F, Xie J, Winston K**, Burstein B, Emsley J, Sabhaney V, Gravel J, Zemek R, Kam A, Mater A, Beer D, Freire G, Poonai N, Berthelot S, Porter B, Moffatt A, Salvadori M, Dixon A, **Freedman SB** on behalf of Pediatric Emergency Research Canada (PERC) COVID Study Group. *No Association between SARS-CoV-2 Infection and Quality of Life 6- and 12-Months After Infection*. *Academic Pediatrics*. 2025 Jan-Feb;25(1)

14. **Dun-Dery F, Xie J**, Zemek R, **Winston K**, Burstein B, Sabhaney V, Emsley J, Gravel J, Kam A, Mater A, Beer D, Porter R, Freire G, Poonai N, Moffatt A, Berthelot S, Salvadori M, Reddy D, Wright B, **Freedman SB** on behalf of Pediatric Emergency Research Canada (PERC) COVID Study Group. *Pediatric SARS-CoV-2 Infection and Development of Anxiety and Depression*. *Frontiers in Pediatrics*. 2025 Mar 17;13
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18. **Eltorki M**, Rezk E, El-Dakhkhni W, **Freedman SB**, Drendal A, Ali S. *Trends and Factors Associated With Pediatric Opioid Use in Emergency Departments*. *Pediatrics*. 2024 Jun 1;153(6)
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20. Fric M, **Thull-Freedman J**. *Understanding caregiver preferences and technology access to plan improvement of pediatric emergency department discharge instructions*. *CJEM*. July 2024; 26, 727-731
21. Goldman RD, Hart RJ, Bone, JN, Seiler M, Olson, PG, Keitel K, Manzano S, Gualco G, Krupik D, Schroter S, Weigert RM, Chung S, **Thompson GC**, Muhammad N, Shah P, Gaucher NO, Lunoe MM, Evers, M, Pharisa Rochat C, Nelson CE, Gal M, Baumer-Mouradian SH, and the International COVID-19 Parental Attitude Study (COVIPAS) Group. *Adverse events among early caregivers' COVID-19 vaccination correlated inversely with intention to vaccinate their children*. *Vaccine*. 2025 Mar 22;55
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## FUNDING

1. **Cheng A (Co-PI)**. Swiss National Science Foundation. *AR-Screen: Evaluation of an Augmented Reality and Screen-based Decision Support System for Cardiopulmonary Arrest: Multicenter, Randomized Controlled Trial*. **\$825,191**. November 2024 – October 2026
2. **Cheng A (PI)**. Department of Pediatrics Innovation Award. *Use of ChatGPT to assess healthcare simulation debriefings*. **\$6500**. February 2025 – January 2026
3. **Cheng A (PI)**. INSPIRE Network Shark Tank Award. *The Virtual Resuscitation Assistant: Development and Usability Testing of an AI-driven and AR-based Cognitive Aid for Cardiac Arrest Resuscitation*. **\$6000**. March 2025 – February 2026
4. **Cheng A (PI)**. INSPIRE Network Shark Tank Award. *Use of ChatGPT to assess healthcare simulation debriefings*. **\$4500**. March 2025 – February 2026
5. **Eltorki M (PI)**. University of Calgary, CRF. *Topical Diclofenac versus Oral Ibuprofen for Musculoskeletal Acute Pain in Children: A Multicentre, Randomized Pilot Feasibility Trial (TOP-MAP Trial)*. **\$30,000**. March 2025 – December 2025
6. **Eltorki M (PI)**. Hamilton Academic Health Sciences Organization, Innovation Fund. *Topical Diclofenac versus Oral Ibuprofen for Musculoskeletal Acute Pain in Children: A Multicentre, Randomized Pilot Feasibility Trial (TOP-MAP Trial)*. **\$198,297**. April 2025 – Sept 2027
7. **Freedman SB (Co-I)**. Women and Children's Health Research Institute Innovation Grant. *Leveraging Large Registries to Examine Variations in Processes of Care and Outcomes for Children Presenting to Pediatric versus General Emergency Departments*. **\$60,000**. October 2024 – September 2026
8. **Thompson GC (PI)**. Alberta Children's Hospital Foundation. *PRrecision Medicine for Improving diagnosis and management of appendicitis in the Emergency Department (PRIMED) – Bridging Funds for OLINK proteomics analyses*. **\$50,000**. 2024 – 2025
9. **Thompson GC (Co-I)**, Whittier D. Cumming School of Medicine VPR Catalyst Grant. *Investigation of fracture healing in adolescents using advanced 3D imaging*. **\$12,665**. 2024 – 2026



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