



Unity Health Toronto Simulation Program Report

2024-2025

Introduction

The Unity Health Toronto Simulation Program is a pioneer in simulation, with the St. Michael's site becoming Canada's second simulation centre in 1996. We became the Unity Health Toronto Simulation Program in 2017, with opportunities for simulation across critical and acute care, rehabilitation, and long-term care. Since 2015, we've trained almost 45,000 learners and held more than 4,500 simulation events across and beyond Unity Health Toronto.

We've also built an internationally renowned Translational Simulation Program and are constantly producing high-impact scholarship.

As we close out our second decade as a simulation program, we continue to grow and evolve. With emerging technologies such as virtual reality (VR) and the rapid emergence of artificial intelligence (AI) tools and applications, the Unity Health Toronto Simulation Program continues to look for ways to improve the performance of individuals, our teams and our systems.

The purpose of this report is to highlight the depth and breadth of simulation activities our program supports. We also want to inspire healthcare practitioners, administrators and leaders to see the value and possibilities simulation can bring.



Quick Stats

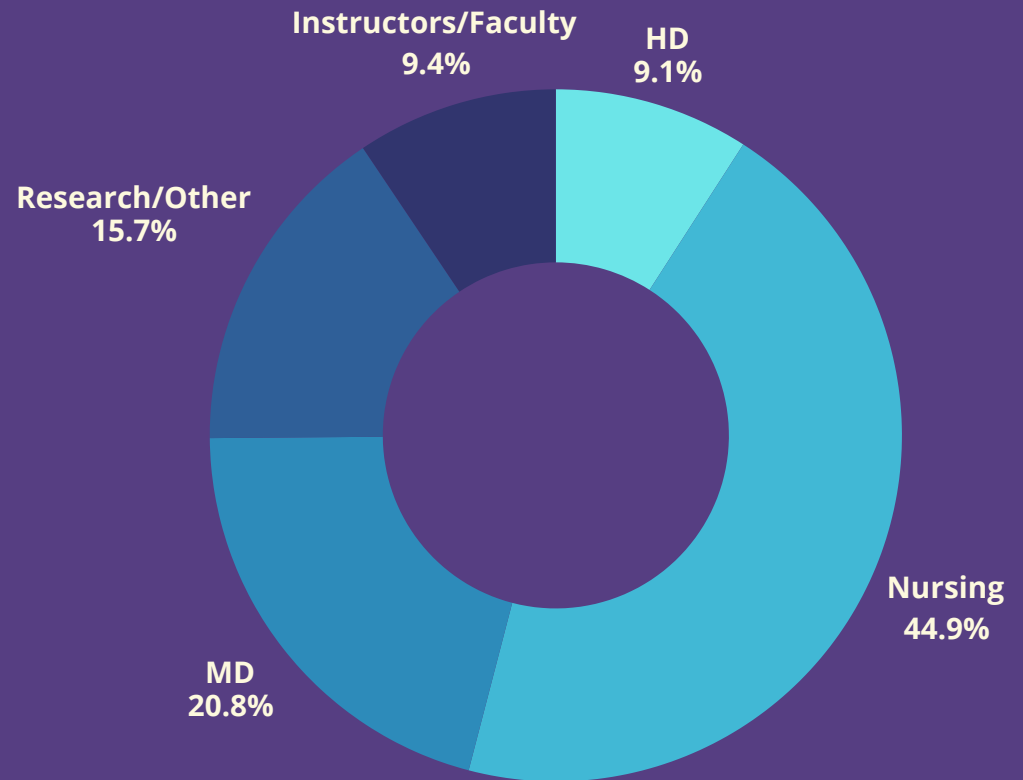
We use simulation to enhance the performance of individuals, teams, spaces, and systems in healthcare. Here is a snapshot of simulation activities across Unity Health and beyond.



2024-25: Quick Stats

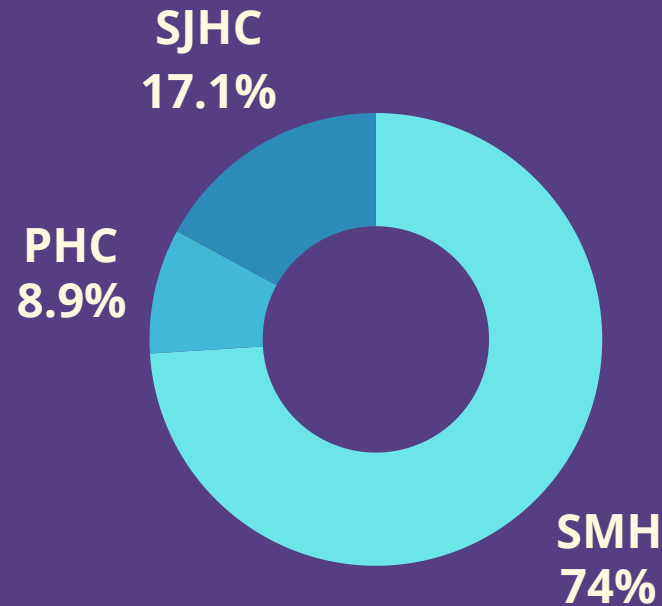
Across Unity Health Toronto, the Simulation Program collaborates with frontline clinicians, administrators, leaders, learners, and others to integrate simulation activities across all our sites.

**Total
Participants:** **4669**



Quick Stats 2024-25

Simulation Events Across Unity Health



504
simulation
events



2497
simulation
hours

Collaborations

We employ a co-design model, bringing simulation expertise to all our partnerships. This allows us to explore, research and innovate new ways of using simulation in healthcare while supporting a growing simulation community.



Unity Health Collaborators

Unity Health Toronto has world-class programs that provide exceptional patient care. The Simulation Program works in lock-step with our clinical partners to design impactful simulations that prepare clinicians for their work.

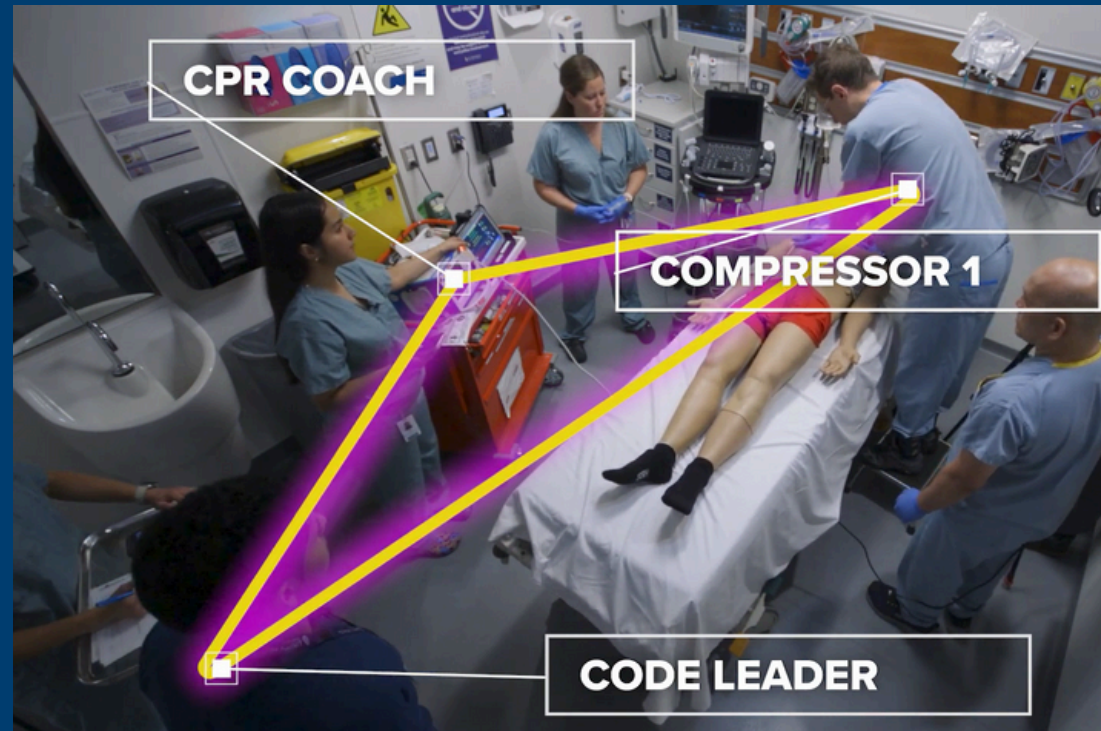


Centre for Clinical Ethics
Children's Health
Critical Care
Diabetes, Kidney & Transplant
Emergency
Family Health Teams
General Internal Medicine
Heart & Vascular
Information Technology
Long-term Care
Medical & Diagnostic Imaging
Operational Readiness
Pharmacy
Professional Practice
Rehabilitation
Research
Respiratory Therapy
Respirology
Stroke and Cerebrovascular
Surgery
Trauma & Neurosurgery
Women's and Children's Health

St. Michael's ED CPR Coach

The St. Michael's Emergency Department (ED) wanted to support its clinicians in providing high-quality cardiopulmonary resuscitation (CPR). Built from past collaborations with the Simulation Program, the ED implemented a new CPR Coach role. This role is dedicated to ensuring high-quality CPR, timely pulse checks, rapid defibrillation, and the appropriate administration of life-saving medications. The CPR Coach role improves individual and team performance in high-stress situations.

This is an excellent example of how programs can build upon long-term collaborations with the Simulation Program.



Translational Simulation

Our Translational Simulation (TSim) Program focuses on enhancing the healthcare system through innovative simulation activities that improve our policies, processes, and patient outcomes.

This past year, we had two main priorities. To better demonstrate the return on investment (ROI) in our TSim projects and to support our organization with Project Connect and our Epic rollout.

Translational Simulation ROI Domains

Cost: direct project cost savings.

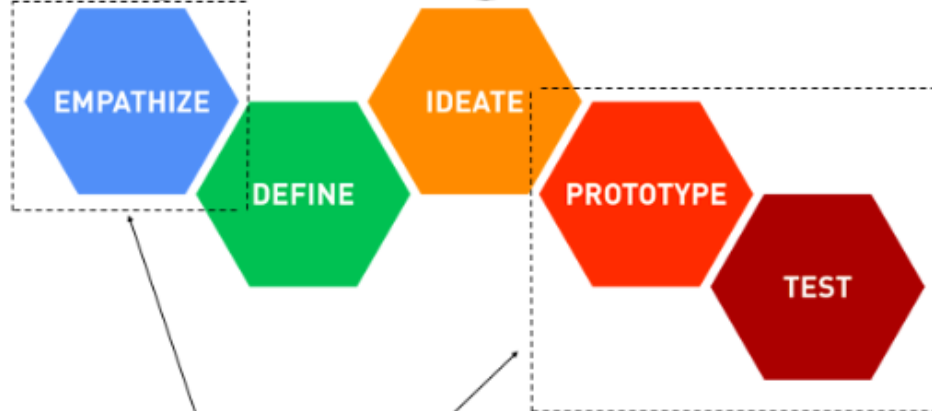
Time savings: reductions in personnel, decision making and processing time.

Enhanced decision making: different and better decision through simulation.

Patient Safety & Outcomes: identification and mitigation of latent safety threats and improved patient outcomes.

Culture: engagement of participants & stakeholders improving team and safety culture.

design thinking



opportunities for simulation

Project Connect Epic Implementation

Project Connect's rollout of the Epic system was one of the biggest changes Unity Health Toronto has undergone since its inception. Our TSim program had multiple opportunities to play a part in this huge undertaking, testing devices, processes, and decisions to support the rollout.

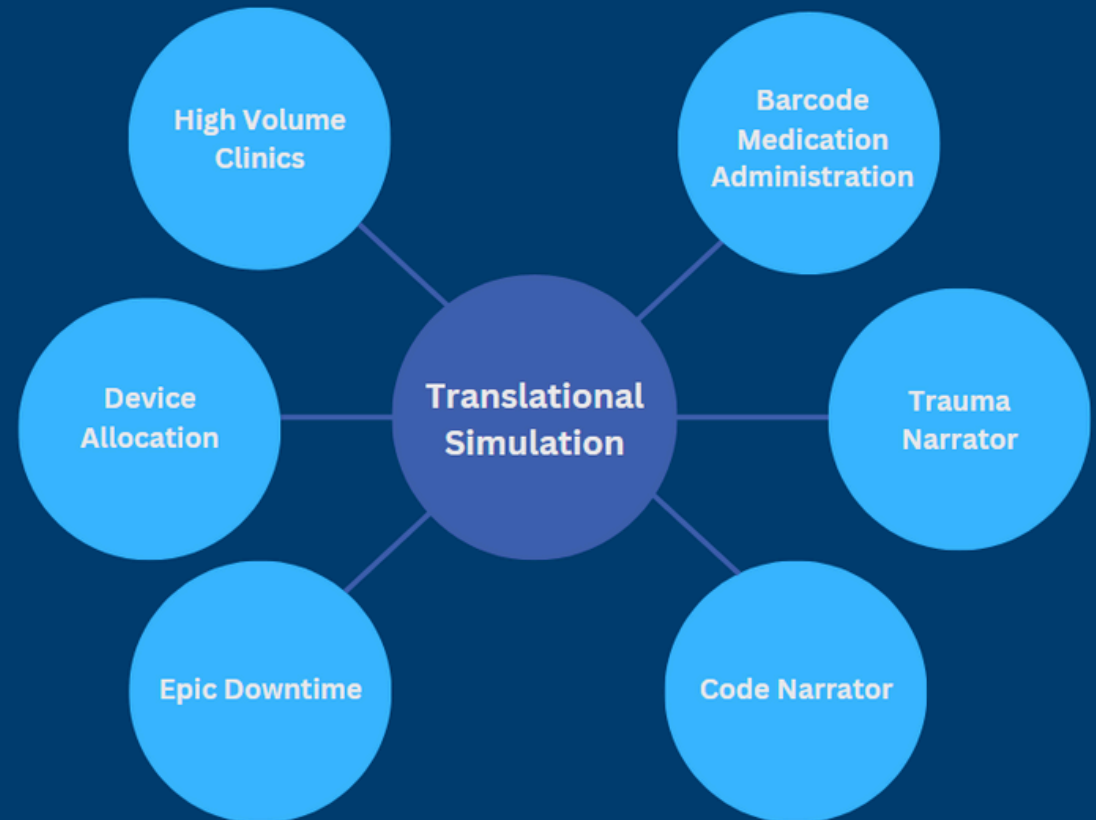
The impact:



Confidence in decisions made

Workflow efficiencies

Increased staff readiness

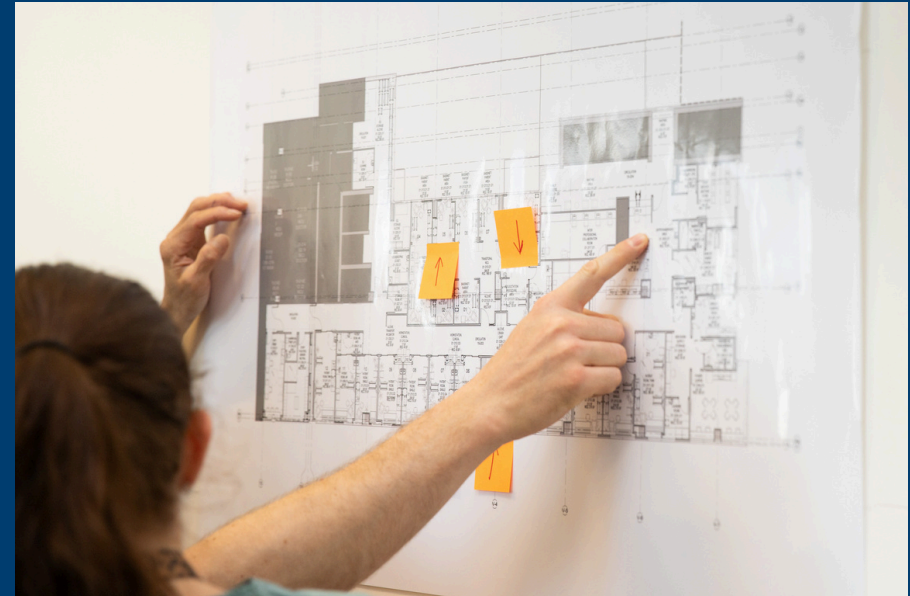


*Please see full Unity Health Simulation Program EPIC report for additional details

NICU Staff Designing Their New Space

Despite Epic, other projects still needed to move forward, including the design of the new neonatal intensive care unit (NICU) at St. Michael's. We are working with the Women's and Children's Program to answer the question, 'How do you build the ideal NICU?'

Even before the drawings are finalized, the Simulation Program has taken dozens of healthcare professionals, patients, and family partners through a simulated NICU based on the current drawings. Why do this?



Because the experts are the people who provide and receive care in these spaces every day. These design-focused TSim activities have resulted in

\$50,000- \$100,000

in cost avoidance through changes identified pre-construction.

Academic Collaborators

Our relationship with the University of Toronto is essential. Together, we train the next generation of physicians.

Undergraduate Medicine (UGME)

- Trauma TEAMS Course
- Prelude to Surgery
- Surgical Exploration & Discovery
- Trauma Seminar for Clerkship
- Clinical Clerks in ED

Post Graduate Medicine (PGME)

- Anesthesia Crisis Resource Management
- Obstetrics and Gynaecology
- Emergency Medicine
- Respiriology
- Cardiology
- Internal Medicine
- Critical Care
- Family Medicine
- Pediatrics



TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

Industry Collaborator: Fine-tuning AI Project

The adoption of AI into virtual reality avatars for healthcare simulation training is growing exponentially, but can we make them better? The Unity Health Simulation Program partnered with start-up Lumeto and the University of Manitoba, supported by a Digital Supercluster grant, to find out.

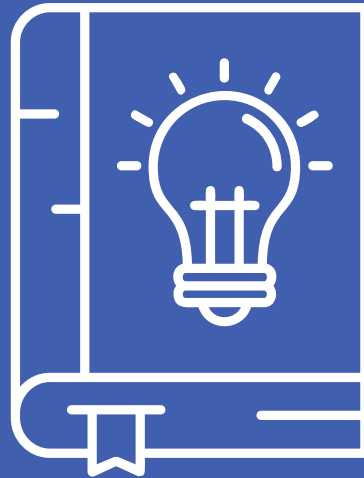


We wanted to know if we could fine-tune a large language model (LLM) to produce a better AI-driven VR patient. The project ultimately employed three different approaches to fine-tuning, utilizing recorded simulations fed into an LLM. The work is ongoing, but it has helped us understand where to focus our energies on AI and VR patients, and that is on the prompts.

Just as real-life simulations require strong and defined objectives that guide the simulation, VR scenarios that incorporate AI into their avatars require strong and defined prompts to guide their responses. This opens up a whole new and exciting professional development stream for our simulationists who continue to co-design best practices in simulation and the use of AI.

Research

The Unity Health Simulation Program is dedicated to conducting research and scholarship that produces innovative and evidence-informed simulation and technology-enabled education.



Research

The Unity Health Simulation Program has four research pillars that guide our work and enable us to ask important questions such as *'How & why does translational simulation affect clinical practice?'*

While the pillars build on our existing strengths and identity, growth cannot happen without being open to new ideas – we encourage innovative thinking outside these pillars.

Simulation for Quality Improvement & Patient Safety:

Optimizing our use of simulation as a modality for improving the quality and safety of our patient care.

Integration of Simulation-based and Workplace-based Education:

How simulation-based and workplace-based practices can be combined to enhance the training and/or assessment of healthcare professionals.

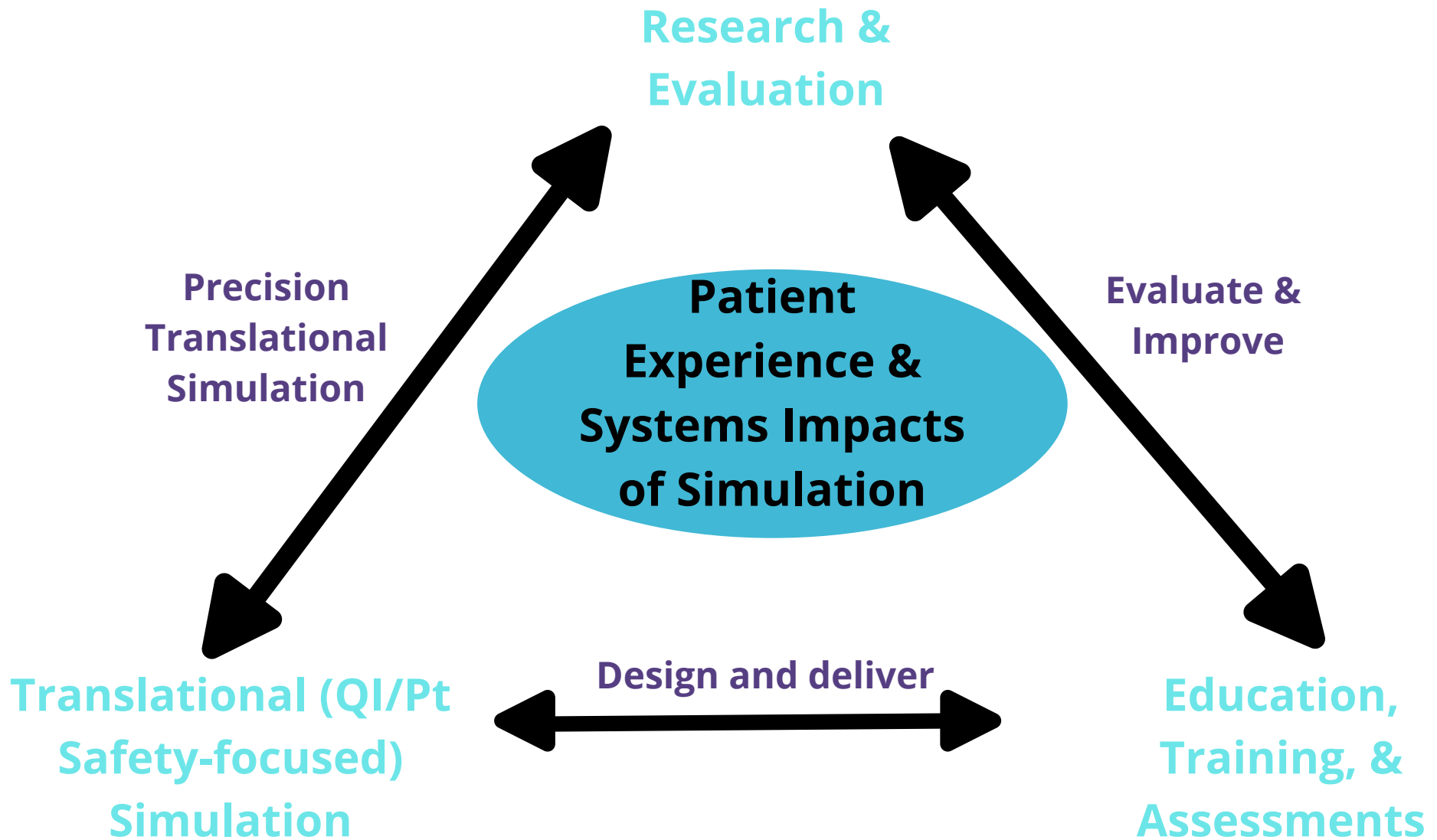
Precision Translational Simulation:

To establish how and why translational simulation affects clinical and educational practice; studying translational simulation as the object of research.

Evaluating & Improving Design & Delivery of Simulation:

To optimize how we deliver, implement, and evaluate in ways that ensure our simulation-based training and assessment programs improve educational outcomes.

Conceptualizing the links between Education, Research and Translational Simulation



Research

The Unity Health Toronto Simulation Program continues to lead and innovate across a broad spectrum of simulation-based research. Our recent scholarship encompasses a range of themes with many local, national and international partners.

Publications

22 peer-reviewed articles

3 conference presentations



Collaborators

+ 30 authors

+ 10 collaborating institutions globally



Themes

Self-regulated learning
Anti-oppression & equity
Virtual reality



Disciplines

Medicine,
Physiotherapy,
Health
Professions
Education



Research Highlights

We are always proud of our research, and this year was no exception. Here are some high-level summaries of some of our peer-reviewed publications:

Lorello et al. (2024)

This study explores how supervisor involvement during simulation-based training can inadvertently disrupt learners' self-regulated learning. The findings underscore the importance of striking a balance between guidance and learner autonomy to optimize educational outcomes.

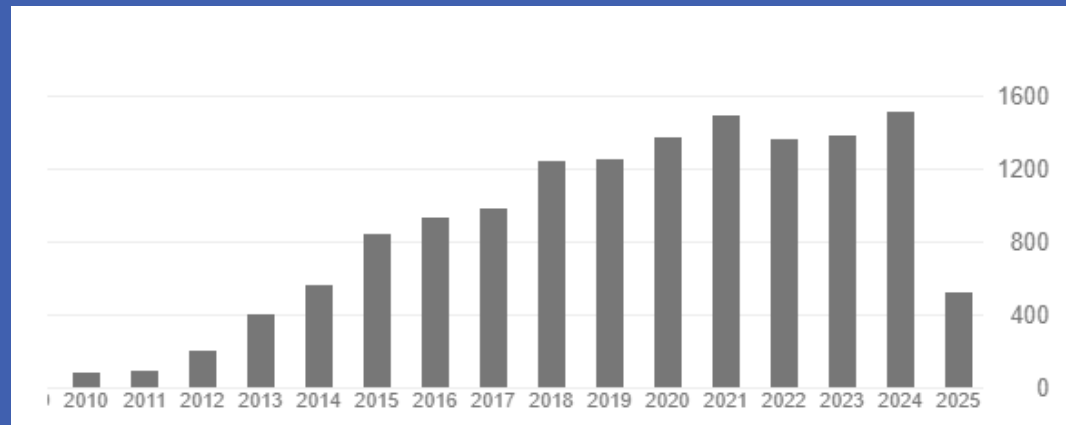
Soilis et al. (2024)

This paper introduces the PEARLS for Social Justice and Equity framework, which integrates health advocacy and equity principles into the original PEARLS debriefing tool. It offers educators practical strategies to center social justice in simulation-based education.

Beavers et al. (2024)

Using virtual reality, this study addresses how simulation can expose and challenge racism in healthcare interactions. The immersive design fosters empathy and reflection, aiming to improve equity-focused communication skills.

***full references listed on the following page*



Research Highlights Reference List

1. Lorello, G.R., Hodwitz, K., Issenberg, S.B. et al. Relinquishing control? Supervisor co-regulation may disrupt students' self-regulated learning during simulation-based training. *Adv in Health Sci Educ* 29, 9–25 (2024). <https://doi.org/10.1007/s10459-023-10244-9>
2. Soilis, N., Kinsella, E. A., Eppich, W., Cheng, A., Beavers, L., & Bhanji, F. (2024). PEARLS debriefing for social justice and equity: integrating health advocacy in simulation-based education. *Advances in Simulation*, 9(1), 47. <https://doi.org/10.1186/s41077-024-00320-4>
3. Beavers, L., Vo, T., Lee, J., Duvage, T., Mullins, H., Tewari, T., Needham, A., & Brydges, R. Using virtual reality simulation to address racism in a healthcare setting. *Adv Simul* 9, 46 (2024). <https://doi.org/10.1186/s41077-024-00322-2>

Want to work with us?

*We hope this report has inspired you!
If so, or if you have a simulation question, reach out to us!*

Follow us on X: @Sim_UnityHealth

Visit our website: <https://www.simulationprogram.ca/>

*Want to book time with a Simulation Program team member to talk about
a project? Click [here](#)!*