



RESEARCH STRATEGIC PLAN

2021-2026

FOREWORD



Dear Colleagues,

Health research is undergoing a revolution, powered by technology and a global awakening to social justice, equity and inclusion. With this strategic plan, Research and Innovation at Unity Health is preparing to lead through these pivotal times.

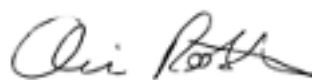
The talent, capabilities, and commitment of our clinicians, clinician-researchers, scientists, staff, students and trainees; the opportunities available to our research enterprise as an integral part of Unity Health Toronto; and our long-standing community partnerships will equip and guide us as we undertake the ambitious five-year journey outlined in this plan.

As a hospital-based research enterprise, our purpose is to improve the health and well-being of our Unity Health Toronto patients, and also that of populations globally. But this strategic plan commits our institution to more. It highlights how we will centre equity and inclusion at the core of research and how we will co-create, together with our patients, families and communities, optimal ways of harnessing the data revolution, to realize exponential benefits and not cause harm. It also helps us to see and embrace our truly remarkable scientific environment as one ecosystem, with all the necessary elements to discover, test, pilot, validate, implement, disseminate and adopt innovative clinical solutions. Improving care and the quality of life for people across the globe could not be more within reach.

We knew, even at the start of this process that our success would be predicated on disciplinary focus. This means a new level of commitment to nurture and develop the exceptional scientists and trainees we currently have, to recruit visionary, top talent, maximize our partnerships, and direct infrastructure investments in areas of research and innovation, where we are uniquely positioned for global impact: Critical Care, Urban and Community Health, Organ Injury and Repair, Brain Health and Wellness. It also means instituting new state-of-the-art policies, processes and technologies to make the inner operations of our academic research centre seamless, user-centred and conducive to the ground-breaking research that we will continue to conduct.

I would like to acknowledge our Research Strategic Planning Steering Committee members for their thoughtful insight and guidance throughout the strategic planning process. And my sincere thanks to the many people who invested their time and talent to develop this plan. This includes the hundreds of Unity Health Toronto community members who responded to our survey, participated in consultations and attended the various community forums focused on strategic planning. We achieved great clarity in our opportunities, gaps, and intentions through your generous feedback and meaningful engagement.

Our work has just begun, and I am energized by the prospect of working with each and every one of you to fulfill our institution's promise of powerful, lasting impact on health and wellbeing. With you, Research and Innovation will continue to play an important role in bringing to life Unity Health's vision: *The best care experiences. Created together.*



Ori D. Rotstein, M.D., F.R.C.S.C
VICE PRESIDENT, RESEARCH AND INNOVATION,
UNITY HEALTH TORONTO

OUR PURPOSE

World-class research and innovation that transform patient care and population wellbeing.

OUR 5-YEAR GOAL

Build pillars of world-class research & innovation, distinct to Unity Health Toronto.

Scientists at the Li Ka Shing Knowledge Institute (LKSKI) and the Keenan Research Centre for Biomedical Science (KRCBS)—Unity Health Toronto's flagship research entities—have made a mark on the international stage in several fields of health research. We have made ground-breaking, globally-recognized contributions to critical care (including in the areas of sepsis, trauma and acute care), to urban and community health (including in the areas of homelessness and housing, healthcare access, social policy, global, youth and Indigenous health), to organ injury and repair (including genetic-, age- or disease-related fibrosis, diabetes and cardiovascular disease), and finally

to brain health and wellness (for instance in the areas of multiple sclerosis, traumatic brain injury, mental health, suicide and substance abuse). Our research strengths underpin Unity Health Toronto's world-class specialties, areas of clinical expertise and the quality of care delivered to patients and families.

The distinctive enabler of our success is our multi-faceted research ecosystem, characterized by extensive research infrastructure and deep methodological expertise across a range of scientific domains, spanning the LKSKI and KRCBS. Our ecosystem supports:



Discovery science, where we investigate the root causes of disease;

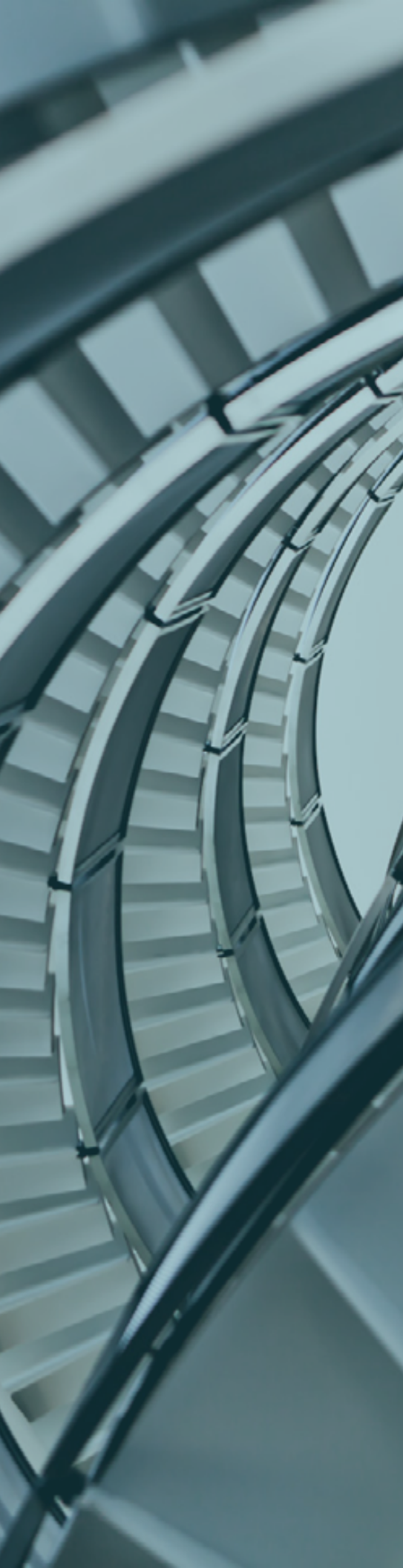
Translational research, where we test and pilot innovative solutions;

Clinical research, where we examine the effectiveness of interventions in improving patient outcomes;

Health services and policy research, where we unpack and optimize healthcare access and delivery at the system level; and

Knowledge translation, where we synthesize evidence and guide practice and policy change.

This holistic scientific environment provides our researchers with a unique platform to better understand the complex set of processes that contribute to healthy living, disease, exceptional care, and recovery. It lends a multi-dimensional lens, through which we can better understand and address gaps in healthcare access and disparities in health outcomes. In this way, our scientific ecosystem helps us to actualize our deep commitment to health equity and social responsibility. It also facilitates more fluid translation of our discoveries into new innovations, and the co-creation of real-world health solutions with and for patients and communities.



The hospital environment within which our enterprise is nestled is a natural receptor and a launchpad for research-based innovations, further strengthening our foundation for local, national and international impact. The majority of our researchers also lead best-in-class clinical practices and have forged meaningful partnerships with community organizations and health-care providers. As such, we are able to pose particularly relevant research questions and our research findings can directly impact the journey of care for patients and the health trajectory of our communities. With these advantages we have also been able to tangibly influence population well-being, disseminating and scaling effective evidence-based practices beyond the borders of our institution.

In the upcoming five years, we intend to build on our areas of historic strength, bolstering our distinct “ecosystem” approach, and taking advantage of our blended clinical/research milieu, to establish four pillars of world-class research and innovation in:

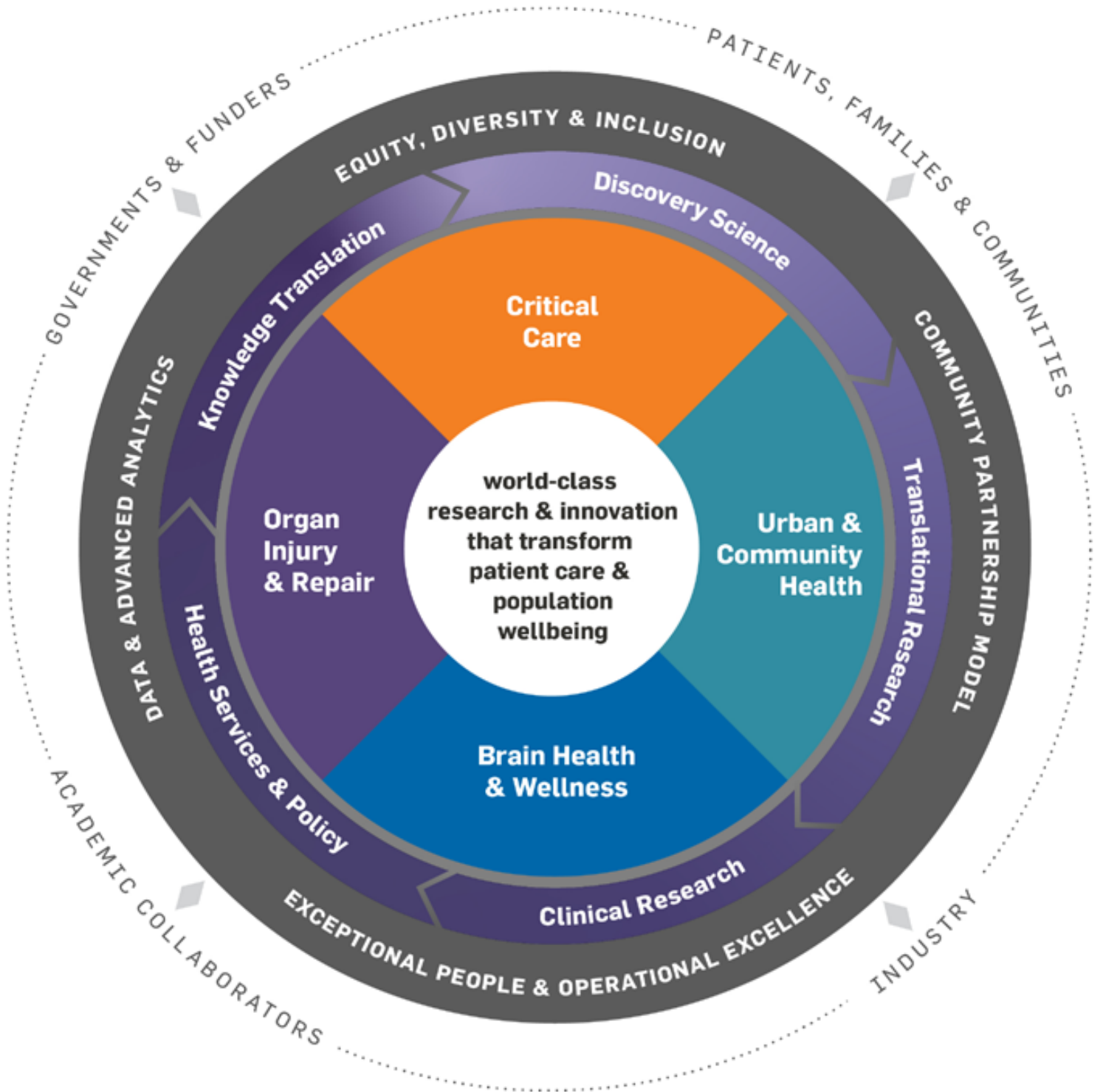
**Critical Care,
Urban and Community Health,
Organ Injury and Repair,
Brain Health and Wellness.**

IN DIRECT ADVANCEMENT OF THIS GOAL, WE WILL:

- **Engage and structure investigators** across our four pillars of world-class research and innovation
- **Proactively mobilize networks of scientists, clinicians and other healthcare practitioners** to bring to bear (existing and emerging) areas of research strength
- **Attract, recruit and retain best-in-class scientists and trainees** to advance research excellence in our scientific pillars
- **Invest in cutting-edge infrastructure**, including core and specialized systems (e.g. IT), equipment and service capacity to fuel world-class research in our areas of focus
- **Establish alliances** with industry, government, academic and community partners to remain at the frontier of scientific advancement in our areas of focus
- **Strategically align and substantially enhance our fundraising efforts** to support and advance our pillars
- **Trailblaze in health equity research**, across all of our pillars, developing and disseminating ground-breaking solutions and interventions aimed specifically at improving health system responsiveness, alleviating health disparities in society and promoting social accountability
- **Elevate our flagship methodology research hubs**—the Applied Health Research Centre and the Knowledge Translation Program—to propel internal and external (sponsored and/or partnered) research, maximizing impact in our focus areas
- **Strengthen our innovation and commercialization systems**, enhancing our proficiency to translate and commercialize research in our areas of expertise and increasing our aptitude to adopt ground-breaking policy and clinical solutions within Unity Health Toronto

STRATEGIC ENABLERS

We will employ several strategies to facilitate the realization of our five-year goal. Our strategic enablers pertain to retaining and nurturing our people and community; underscoring equity and inclusion as a cross-cutting approach; deepening our engagement with patients, families and communities; advancing our edge in big data, advanced analytics and artificial intelligence, and instituting state-of-the-art research operations. We will secure and channel capital towards each of these enablers, in close collaboration with our Foundations and other public and private partners.



PURPOSE

World-class research and innovation that transform patient care and population wellbeing.

5-YEAR GOAL

Build pillars of world-class research & innovation in Critical Care, Urban and Community Health, Organ Injury and Repair, Brain Health and Wellness

STRATEGIC ENABLERS

1. Support the health and wellbeing of our research community members and empower their growth and success
2. Embed Equity, Diversity and Inclusion as a core value
3. Establish a robust patient, family and community partnership model
4. Integrate data and advanced analytics as a driver
5. Achieve excellence in research operations

1

STRATEGIC ENABLER

Support the health and wellbeing of our research community members and empower their growth and success

Our strong institutional performance is a direct result of the creativity, dedication and hard work of our exceptionally-talented scientists, trainees and research staff.

We will prioritize the health and wellbeing of our greatest asset, **our people**, intentionally fostering the unparalleled sense of community and family that already permeates our work environment. We will ensure that all scientists, staff and trainees who are working within each and every facet of our ecosystem feel valued and recognized, know that they belong, and understand how their individual contributions help advance our pillars of excellence and our broader institutional purpose. We will endeavour to provide equitable and culturally-appropriate support systems, including mentorship and professional development opportunities, so that each Unity Health research community member is fully-equipped and empowered to realize their personal and professional goals.



KEY AREAS OF WORK

- **Develop standardized career advancement frameworks and resources** to proactively support scientists and staff in their professional and personal growth (including leadership development), and to incentivize all Unity Health Toronto community members to meaningfully engage with research
- **Define transparent systems and processes to ensure equitable access to research opportunities** for all Unity Health scientists (funding, partnerships, space, resources and leadership positions)
- **Elevate our institution into a sought-after training environment** where students and postdoctoral fellows grow and thrive
- **Deepen our culture of integrity, respect, equity and collegiality**



2

STRATEGIC ENABLER

Embed Equity, Diversity and Inclusion as a core value

For Unity Health Toronto, our commitment to Equity, Diversity and Inclusion (EDI) is not just a principle, but integral to our mission and values. Our hospitals were established on a premise to serve Toronto's diverse urban communities, intentionally seeking to democratize access to high-quality care for people experiencing marginalization. The work of our research enterprise has evolved to underpin and complement this clinical mission. Our scientists have worked tirelessly to unpack the impacts of social and economic disparities on health and wellbeing, developing interventions to address these inequities, sometimes at the very frontlines of care delivery.

Going forward, we intend to draw from the roots of our institution and bring EDI to the very forefront of our work. We will embark on a journey of learning and understanding, aiming for a culturally-responsive, highly effective research enterprise that is powered by diversity. We will begin by intentionally uncovering and dismantling systemic barriers to inclusion and equity. We will continually distill new learnings and apply best practices to counter bias and foster social justice, among our Unity Health peers and with our external stakeholders. EDI will be Unity Health Toronto's signature approach to driving excellence in research, training and service.



KEY AREAS OF WORK

- **Establish EDI governance**, including dedicated leadership, a Research EDI task force, as well as representation on the Equity, Anti-Racism and Social Accountability Council within the broader hospital network
- **Deploy pan-institutional equity and inclusion policies, resources and training** to uncover and address systemic bias and support people who are impacted by racism or other forms of discrimination
- **Prioritize inclusive consultation, open communication, transparency and co-creation** as key components of leadership decision making



3

STRATEGIC ENABLER

Establish a robust patient, family and community partnership model

All of our research programs, from discovery science to practice-based studies are designed to improve the lives of patients and communities. Whether we are striving to understand the biological phenomena that are contributing to disease, or designing system-level interventions to promote healthy outcomes in societies, we wish to do it in partnership with patients, families and communities. Patient partners ensure we are asking relevant questions about the nature of disease, define outcomes and endpoints that are significant in the disease experience and contribute as experts in determining research directions and priorities.

We will pioneer, evaluate and disseminate robust models of engagement with our patient and community stakeholders. We will prioritize equity in our frameworks and strive for reciprocal value generation with patients and communities. We will apply dedicated resourcing and create consistent, mutually beneficial and lasting structures to respect and cultivate this relationship with our most valued partners.

Our work with patients and communities will be harmonious with that of the planned Care Experience Institute at Unity Health Toronto. We will draw from the Institute's core practices and structures, to meaningfully partner with patients, families and communities in the co-creation of research. We will also contribute to the mission of the Institute, by co-designing solutions that effectively cater to the individual needs and desires of patients and families, as they interact with Unity Health Toronto hospitals.



KEY AREAS OF WORK

- **Establish institutional structures for equitable and ethical patient, family and community engagement in research and innovation**, in close collaboration with the Unity Health Toronto Patient Experience and Community Engagement Office and the Care Experience Institute
- **Integrate research and innovation into select priority areas of the Care Experience Institute which align with our scientific pillars**, as a means to understand and create the very best care experiences for Unity Health Toronto patients and families
- **Co-create best practices and build the research community's capacity for partnering with patients, families and communities in different research contexts**, defining specific approaches for value generation and harm prevention
- **Forge strategic partnerships with patient and community groups and organizations** whose needs and expertise align with our research foci



4

STRATEGIC ENABLER

Integrate data and advanced analytics as a driver

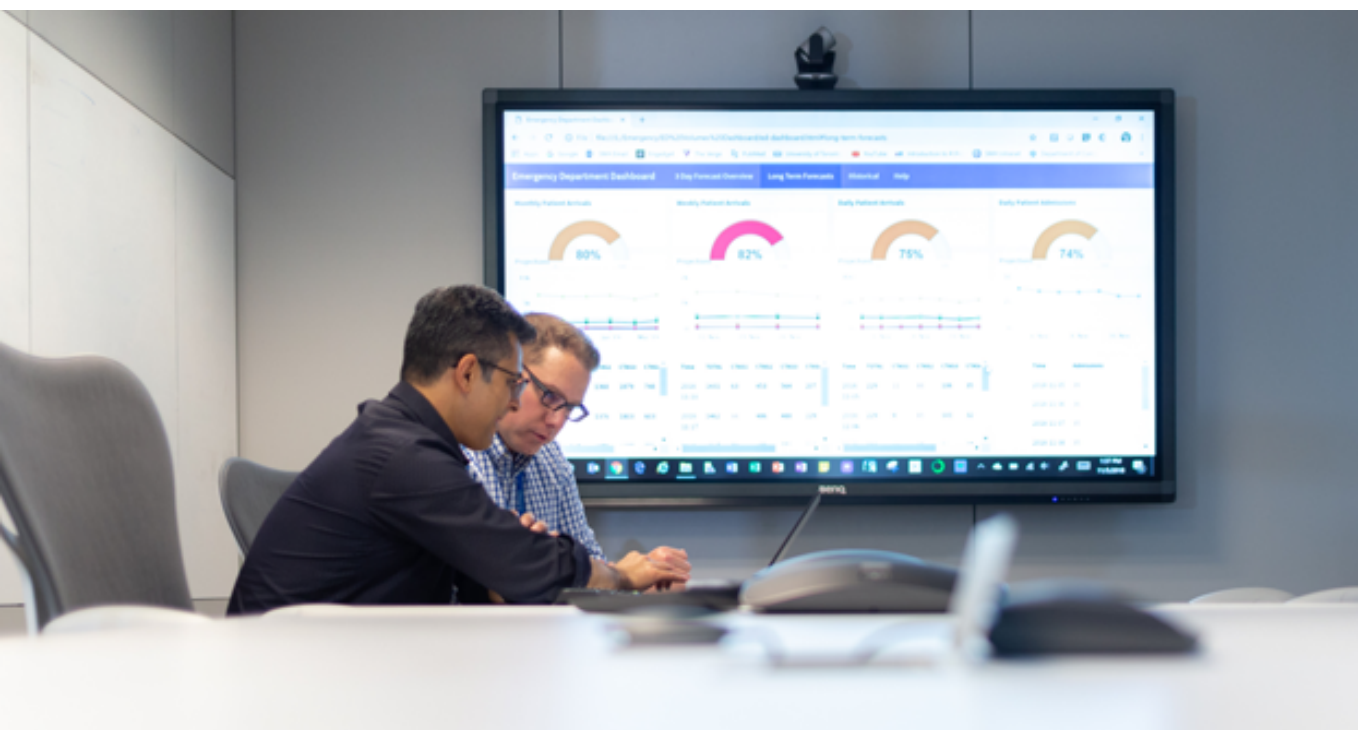
Advanced analytics, including artificial intelligence (AI), is ubiquitously recognized as one of the most important drivers of health research and healthcare, now and into the future. Unity Health Toronto was among the first healthcare institutions in Canada to make significant investments in data systems and machine learning. Moreover, Unity Health is situated in a global AI hotspot and has strong ties to key ecosystem players such as the University of Toronto and the Vector Institute. Anchored by our infrastructure, expertise and partnerships, and considering our rich and diverse repositories of health data (spanning well beyond our hospital data warehouse to urban communities in the Toronto region and global populations in low and middle income countries), our institution is uniquely positioned to apply big data and advanced analytics to the healthcare context.

In Unity Health Toronto's future, we envision seamless interconnectivity between research and care, driven by robust data and informatics infrastructure. Each patient who interacts with Unity Health will have the opportunity to participate in research. We plan to co-create, together with our patient and community partners, optimal legal, ethical and governance frameworks to systematically mine large-scale clinical, social and economic data and generate novel insights that help improve patient care and the patient journey. Leveraging state-of-the-art informatics infrastructure, big health data, advanced analytics methodologies and AI, we hope to accelerate the discovery of new therapeutics, to generate more precise and sensitive diagnostic tools, to predict the efficacy of novel medical solutions, to model the effectiveness of policy and system-level health interventions, and to optimize the uptake of evidence-based clinical practices.



KEY AREAS OF WORK

- **Co-design with patient and community partners, a research data governance framework** to ensure data collection is fulsome and equitable, that data ownership is fair and transparent and that data are suitable, accessible, appropriately protected, and ethically used to promote wellbeing (not causing unintentional harm)
- **Create a patient data repository for research, as well as informatics infrastructure and advanced analytics capabilities**, in accordance with the co-created data governance framework and in collaboration with the Data Science and Advanced Analytics Office
- **Establish a new hub for AI in health research** to cultivate data science expertise in the health domain, generating new advanced analytics methodologies for interpreting health data and applying healthcare solutions and practices, in collaboration with community and patient partners



5

STRATEGIC ENABLER

Achieve excellence in research operations

Our research enterprise has grown significantly over the past decade, ranking as one of Canada's top academic hospitals for research expenditures. Centralized research services are the backbone of our establishment, having made our successes possible. However, they require direct, substantive investment to support what is now a highly complex, multi-faceted operation.

We intend to greatly reinforce our research operations, enhancing our capabilities, capacities, processes and technologies to complement the size and specialized needs of our research programs, including the channeling of new resources toward commercialization. We will establish best practices, and in some cases bold, tech-enabled and streamlined solutions, across all aspects of research operations, from contracting, ethics and research oversight systems, to patient recruitment, study monitoring, patenting, licensing and company creation. With state-of-the-art operations and a focused investment in our innovation and commercialization machinery, we will support our scientists to carry out their world-class research, and to develop and disseminate real-world innovative healthcare solutions.

St. Michael's
Inspired Care
Inspiring Science

Keenan Research Centre
for Biomedical Science



KEY AREAS OF WORK

- **Create state-of-the-art administrative infrastructure** with processes to facilitate and streamline research services, partner engagement and compliance
- **Co-design with our patient and community partners** optimized operational and administrative frameworks for conducting high-calibre community-, patient-oriented and clinical research
- **Establish dedicated capabilities and capacities for commercialization and entrepreneurship**
- **Evaluate new opportunities and business models for revenue generation**, in collaboration with the hospital



WHAT WILL SUCCESS LOOK LIKE?

Within five years, we expect to be:

Recognized as leaders in our declared scientific pillars:

- Critical Care
- Urban Community Health
- Organ Injury and Repair
- Brain Health and Wellness

A destination for world-class post-doctoral and graduate training in our areas of expertise

Tangibly improving the quality and nature of care, delivered to patients at Unity Health Toronto and elsewhere

INDICATORS OF SUCCESS

- We are among the top 5 research hospitals in Canada for research intensity as defined by total funding per scientist, we have enhanced our publications in high impact journals, we are housing an increased number of pre-eminent scientists in our areas of research focus
- We have successfully financed new high-profile initiatives that bridge two or more facets of our ecosystem
- In each of our four pillars, we have aligned hospital fundraising activities with our research priorities, engaging Unity Health's donor community in the significance and impact of our research
- We have expanded our reach and depth with external partners (governments, industry, NGOs and academic collaborators)
- Our ability to translate research findings is tangibly improved (for example more innovations, patents, policy recommendations) and we have advanced our capabilities in knowledge translation (synthesis, dissemination and implementation of clinical evidence)
- We will have increased the number of trainees at our institution, with 60% being PhD students and Post-Doctoral Fellows
- Our trainees feel set up for success and move on to make further contributions in our fields of expertise within the context of academic, government, industry and non-profit sectors
- We have pioneered new globally-accepted standards of care in our areas of research focus
- We have established a highly effective environment for innovation, successfully validating and incubating new clinical innovations related to our pillars of excellence, to address the needs of our patients and our communities
- We are participating in or leading an increasing number of clinical trials in our areas of expertise



Effectuating system-level change; removing social and economic barriers to healthy outcomes and healthcare access

- We have generated novel insights and identified effective interventions to alleviate systemic barriers driving health inequities
- We are influencing health and social care policies related to our fields of expertise

Leaders in engaging patients, families and communities as research partners, in a socially-, ethically-, and legally-responsible way

- Patient and community stakeholders have played an integral role in designing core ethical and legal frameworks related to patient involvement or use of patient information in research (for example: representation on decision-making committees, reported sense of empowerment and contribution)
- Engagement of patient, family and community members as research partners is enhanced and spans across the entire research ecosystem (including discovery science)
- Patient and community partners feel they are receiving tangible value in the context of our research studies

A leading institution in applying advanced health analytics and AI to health research

- We have established world-class data infrastructure, advanced analytics tools, and progressive data governance principles to enable never-before-possible research in our areas of focus
- We have benefitted our research programs, clinical care and hospital operations by capitalizing on our expertise in advanced analytics and AI (for example: generation of novel research findings predicated on advanced analytics and AI, lowering of morbidity and mortality rates in the care setting)
- We have made significant and unprecedented contributions to applied health AI and implementation, using data science to inform health practice and policy

A national benchmark for how to drive excellence in science through an intentional EDI strategy

- Our researchers, trainees and staff feel they have access to opportunities, resources and relationships they need for personal and professional growth
- Retention is at an all-time high
- Every Unity Health research community member, in particular any individual who has experienced marginalization, feels heard, empowered, supported and set up for success
- All leadership and decision-making tables have diverse representation

IMPLEMENTATION, PERFORMANCE MEASUREMENT AND IMPACT EVALUATION

We plan to appoint leadership and establish appropriate governance (including working groups and task forces) to guide implementation planning for each of the areas of work identified in this strategic plan.

Implementation plans will consist of specific reportable actions, as well as one-, three- and five-year deliverable milestones to help guide and gauge our progress and ensure we are on the right path to success.

Impact evaluation will take place at the end of five years against the success indicators identified in this plan. A mix of quantitative and qualitative information will be collected and analyzed for this purpose. The evaluation will entail a bibliometric review, synthesis of routine funding and innovation output data as well as an internal survey and external consultations. Insights from the impact evaluation will be used to inform the next cycle of strategic planning.



APPENDIX:

STAKEHOLDER ENGAGEMENT OVERVIEW

Stakeholder engagement included a combination of semi-structured interviews, focus groups and a research institute-wide survey. Unity Health Toronto participants (200+ total) included hospital leaders, hospital and Foundation board representatives, scientists, research staff and trainees. We also consulted with 17 external stakeholders including community partner organizations, patient & family partners, academic hospitals, hospital-based research institutes, and the University of Toronto.

RESEARCH PLANNING STEERING COMMITTEE MEMBERS

NAME	POSITION & AFFILIATION
Ori Rotstein	Vice President, Research & Innovation (Chair), Unity Health Toronto
Christine Allen	Associate Vice President and Vice Provost, Strategic Initiatives, University of Toronto
Nora Aufreiter	Chair, Research & Education Subcommittee of the Board & Vice Chair, Board of Directors, Unity Health Toronto
Dalton Charters	Senior Director, Research Operations, Unity Health Toronto
Michelle Dubinsky	Graduate Student and Trainee Representative, Unity Health Toronto
Gwen Harvey	Board Member, St. Michael's Hospital Foundation
Patricia O'Campo	Interim Executive Director, Li Ka Shing Knowledge Institute, Unity Health Toronto
Tom Parker	Executive Vice President, Medical Affairs & Clinical Programs, Unity Health Toronto
Tomi Poutanen	Chief AI Officer, TD & Co-Founder and Co-CEO of Layer 6 AI
Samar Saneinejad	Senior Director, Strategy & Commercialization, Unity Health Toronto
Liana Sikharulidze	Patient and Family Partner & Director, Professional Services, Circle of Home Care Services
Tom Schweizer	Interim Director, Keenan Research Centre for Biomedical Science & Director, Neuroscience Research Program, Unity Health Toronto



UNITY HEALTH STAKEHOLDER INTERVIEWS & FOCUS GROUPS

Hospital Executives/Leaders & Board Members	14
Scientists	36
Research Trainees	6
Research Staff (incl. Research Operations)	17

UNITY HEALTH RESPONDENTS TO THE INSTITUTE-WIDE SURVEY

Scientists	35
Research Trainees	19
Research Staff	78
Research Operations/Support Services Staff	32

EXTERNAL CONSULTATIONS (VIA INTERVIEW)

NAME	POSITION & AFFILIATION
Benjamin Alman	Chair of Orthopaedic Surgery, Duke University School of Medicine
John Brumell	Pitblado Chair in Cell Biology & Head of Cell Biology Program, SickKids Hospital
Ross Feldman	Medical Director, Cardiac Sciences Program, St. Boniface Hospital
Jack Gauldie	Former Vice President Research, St. Joseph's Healthcare, Hamilton
Vivek Goel	President and Vice Chancellor, University of Waterloo (Former Vice President, Research and Innovation, University of Toronto)
Kira Heineck	Executive Director, Toronto Alliance to End Homelessness
Kullervo Hynynen	Vice President, Research & Innovation, Sunnybrook Research Institute
Darryl Knight	Vice President, Research and Academic Affairs, Providence Health Care, British Columbia
Charlotte Munro	Patient and Family Partner
Gary Newton	President and Chief Executive Officer, Sinai Health & Chair, Toronto Academic Health Science Network Research Committee
Josephine Quercia	Patient and Family Partner
Michael Salter	Senior Scientist and Chief of Research Emeritus, SickKids Hospital
Liana Sikharulidze	Patient and Family Partner & Director, Professional Services, Circle of Home Care Services
Duncan Stewart	Chief Executive Officer & Scientific Director, Ottawa Hospital Research Institute
Jeff Turnbull	Former Chief of Staff, The Ottawa Hospital
Jim Woodgett	Senior Investigator and Former Director, Lunenfeld-Tanenbaum Research Institute
Trevor Young	Dean, Temerty Faculty of Medicine, University of Toronto



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