



research
innovation
discovery



2020-21 year at a glance

Our Purpose

We lead and facilitate research, innovation, and discovery excellence to improve the health of Nova Scotians and to transform the delivery of health care.

Our Focus

- Increase **capacity** to lead excellence in research, innovation and discovery
- Build a strong research, innovation and discovery **culture** across Nova Scotia
- Deepen our impact via **collaboration**

Our Teams

Nova Scotia Health's Research, Innovation and Discovery portfolio includes four teams:

- **Innovation**
- **Interprofessional Practice and Learning**
- **Implementation Science**
- **Research**



Building the Next Chapter for Nova Scotia: The Health Innovation, Research and Discovery Hub

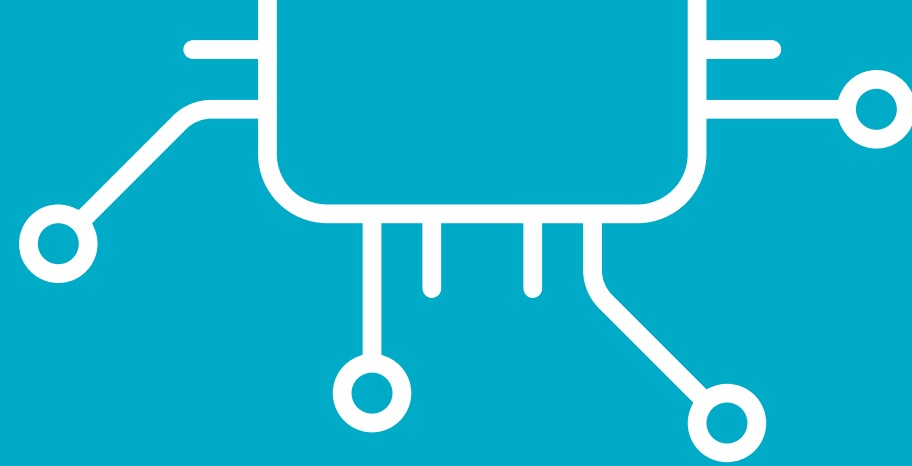
Over the past couple of years, the Research, Innovation and Discovery portfolio has been created to lead the charge to transform health care delivery and improve the health of all Nova Scotians. Nova Scotia Health is an ecosystem leader well positioned to drive research and innovation initiatives that deliver high-impact health care solutions through strategic partnerships with clinical champions, industry, healthcare foundations, governments and academic partners.

Our newly formed Health Innovation, Research and Discovery Hub stands to transform the future of healthcare through the best available evidence and innovative solutions. By pairing leading researchers, innovators, and clinicians with entrepreneurs to improve health and health care, their creative solutions contribute directly to Nova Scotia's economy.



As part of the **QEII New Generation project**, there will be dedicated space for the Health Innovation and Discovery Hub within the redeveloped Halifax Infirmity site in the coming decade. The open concept design will foster co-creation and ideation through an inviting space that facilitates networking and collaboration. This new space will enable us to continue to attract and retain the best and brightest healthcare professionals and provide the optimal conditions for leading and conducting progressive research, developing and delivering innovative treatments, and generating new and innovative technologies with local partners.





Innovation

Nova Scotia Health began forming its Innovation team at the beginning of 2020; this team established a Strategic Partnership Office last year and created the Innovation Launchpad, along with launching a number of new initiatives and funds to catalyze innovation in our health system.

STRATEGIC PARTNERSHIP OFFICE

The **Strategic Partnership Office** supports an entrepreneurial environment by leveraging partnerships, both internal and external to the organization, to maximize research and innovation and promote the delivery of best-in-class health care for Nova Scotians. It is the point of connection where external partners come together with clinical teams on research and commercialization initiatives to create health system transformation as well as societal and economic benefit. This office is an ‘open door’ for partners to collaborate and find new ways of innovating with Nova Scotia Health.

INNOVATION LAUNCHPAD

Created last March, the **Innovation Launchpad** allows for innovative and emerging technologies to be tested and trialed in a real-life healthcare environment over a finite period. The Innovation Launchpad is positioned to work with clinical teams to determine their needs, complete scans of the market, and conduct due diligence to best align technologies with clinical opportunities. Companies gain valuable clinical feedback, and clinicians get to test and try a product without a long-term commitment, and Nova Scotia Health is able to invest in ideal, well-vetted solutions to deliver leading edge care. As well, the launchpad is aligned with a number of Nova Scotia Health’s clinical priorities: Cancer Care, Mental Health and Addictions, and Primary Health Care.

INNOVATION LAUNCHPAD PROCESS





DOCTOR'S INNOVATION HELPS COVID-19 PATIENTS AND STAFF

Dr. Stephen Beed worked with engineers, nurses, and designers to develop a COVID-19 innovation that assists health care teams to easily turn patients to a prone position, which drastically improves their ability to breath.

“It is a demanding but important intervention that’s done relatively infrequently, and that’s because it’s so hard. That’s what really got me thinking.”

Watch the Video



INNOVATOR IN RESIDENCE PROGRAM

Nova Scotia Heath’s new innovator in residence program is intended to promote and enhance the visibility and mandate of the Innovation team with internal and external stakeholders. As a thought leader with clinical teams, administration, and executive leadership, this seasoned innovator will be a champion for the implementation of new technologies, services, and solutions, adding clinical insight, process recommendations, and policy change proposals. As well, the innovator in residence will be positioned locally, nationally, and beyond to drive new business opportunities for the organization. The inaugural appointment will be announced shortly.

INNOVATION CATALYST FUND

Developing the next big idea in clinical care starts with smart investment in locally-driven projects. Established in March 2021, the Innovation Catalyst Fund provides financial support to the earliest of ideas emerging from Nova Scotia’s most talented clinical researchers who have the potential to transform into globally applicable solutions that improve the lives of patients. Four recipients have been awarded \$100,000 each, along with a number of others who received funding amounts of \$5,000 and \$10,000 to support their projects (totaling \$50,000).



HEALTH CHALLENGE SERIES

The [Health Challenge Series](#) provides a pipeline of Atlantic Canadian companies and technologies for the Innovation Launchpad. Hosted in partnership with Volta, BioNova, the QEII Foundation, and ACOA, winners receive \$100,000 and an invitation to test and trial their cutting-edge technology through the Innovation Launchpad. Two health challenges were hosted in 2020: Adaptiiv Medical Technologies Inc. won the first health challenge focused on cancer care for their revolutionary radiation therapy product, and WeUsThem Inc. won the second health challenge focused on mental health with a mental health monitoring app for youth.

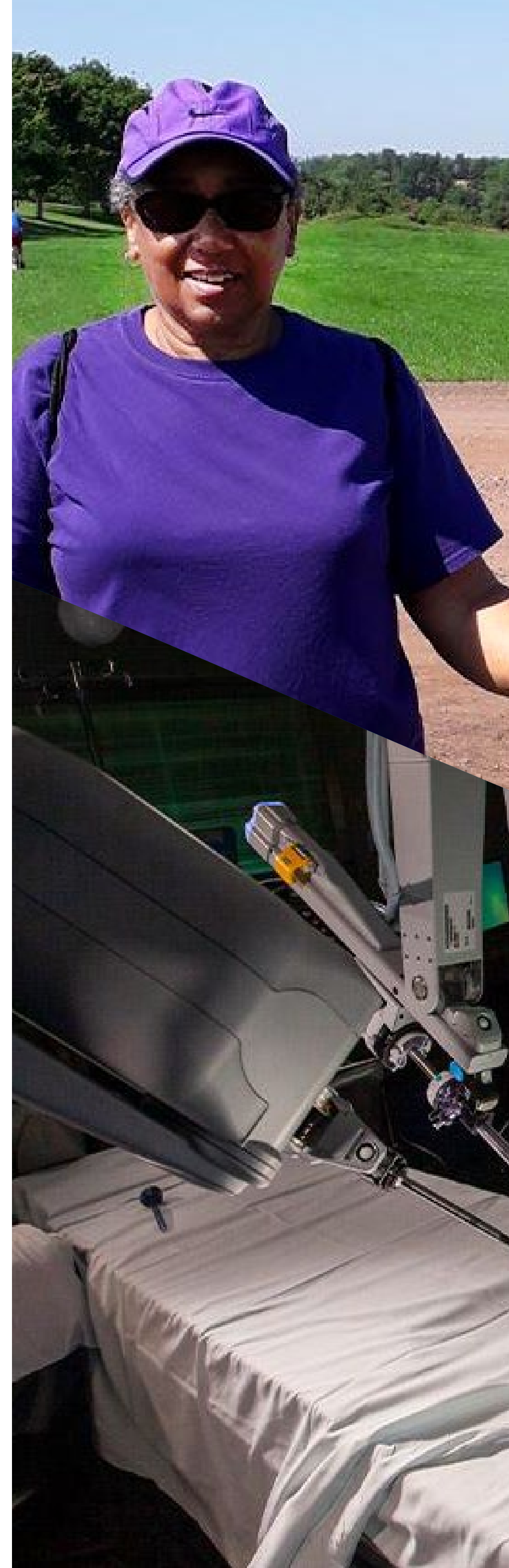


PATENT FUND

The new Patent Fund has been recently established to financially support and protect the intellectual property owned by Nova Scotia Health. The Innovation team has extensive expertise in working with external patent counsel to obtain robust patent protection on commercially relevant intellectual property. The Innovation team will also lead business development activities to partner this intellectual property with an already established company or create a local spin-off company that will commercialize the intellectual property.

INNOVATION ROUNDS

Earlier this year the innovation team relaunched **Innovation Rounds**, a monthly series that brings people together to learn, support, encourage, and discuss innovative ideas and solutions within the healthcare system. As well, Innovation Rounds serves as a mechanism to facilitate relationships between health researchers, commercial partners, students, healthcare foundations and others.



INNOVATION SPOTLIGHT: SURGICAL ROBOTICS

Surgery performed using the da Vinci surgical robot at the QEII Health Sciences Centre is minimally-invasive, meaning less pain, less risk of infection, and a quicker return home for patients. Read about Margaret Aucoin's experience, who underwent surgery for endometrial cancer.

Read the full story →



Virtual Care Proof of Concept

Together, the Innovation and Implementation Science teams have been working with a number of health system partners to support virtual care proof of concept initiatives that are being tested and trialed through the Innovation Launchpad:

VIRTUALCARENS

VirtualCareNS is a virtual primary care clinic for people on the Need a Family Practice Registry to access a primary care provider online. As a pilot project that was launched in mid-May of this year, people on the registry who live in Middleton, New Glasgow, Truro, and Yarmouth are being contacted in a phased approach to participate. The program will be expanded to more communities in the Northern and Western Zones in the coming months, and also evaluated for expansion across the province. As of the end of June 2021, 11,000 people have been contacted to register for the program.

VIRTUALCARENS EXCEEDS YARMOUTH RESIDENT'S EXPECTATIONS OF ONLINE CARE

Ian Everett has been on Nova Scotia Health's Need a Family Practice registry for two years. After downloading the app, Ian was able to have a meaningful conversation with a family doctor that exceeded expectations.

Read the full story →

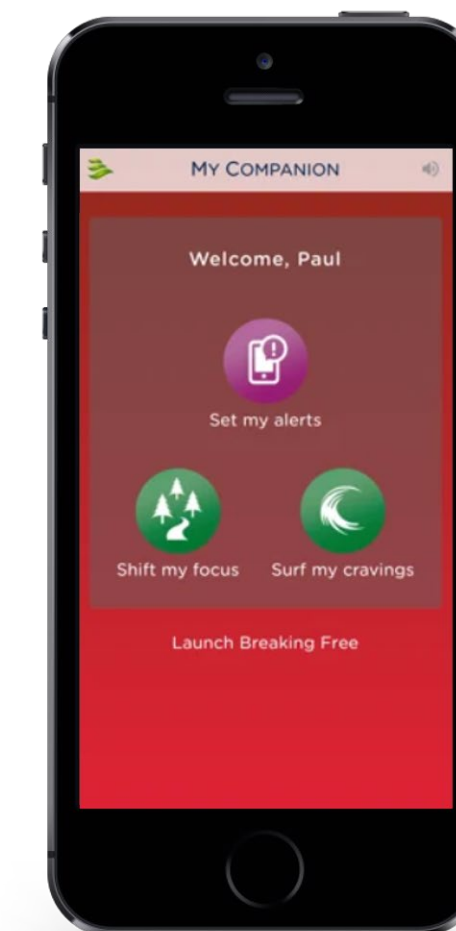


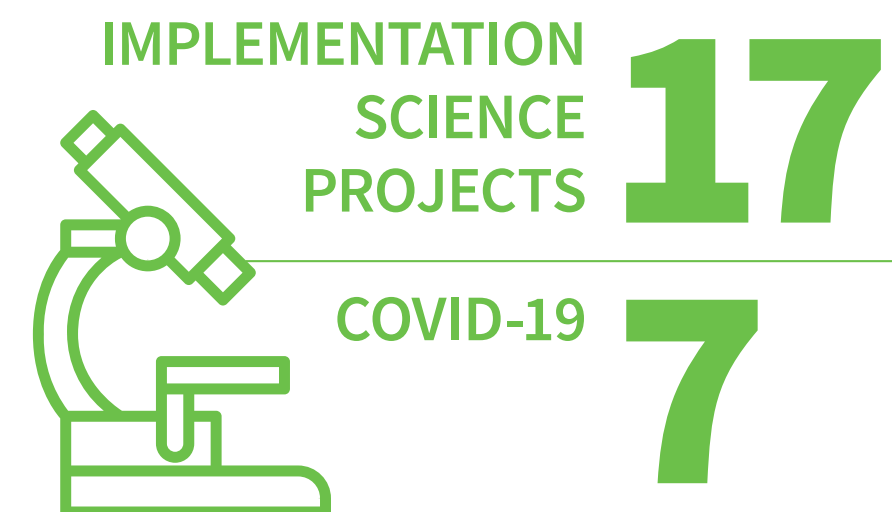


VIRTUALCARENS MOBILE APP

BREAKING FREE ONLINE

Breaking Free Online is an e-Mental Health intervention tool for those living with a substance use disorder that can be accessed using a computer or mobile device. This virtual tool was recently soft-launched in the mental health clinic in Yarmouth, with the aim to expand to two other clinics as part of the proof of concept over the next 12 months. The program will be evaluated to determine how this self-management support for substance use disorders might be of benefit to Nova Scotians.





Implementation Science

The Implementation Science team works with providers, clinical teams, patient partners, and embedded scientists to support decision making in the health system by leading rapid reviews and knowledge translation and evaluation activities.

To enhance the capacity of Nova Scotia Health to engage in best practice evidence and research, the Implementation Science team:

- informs the development of policies and practices based on published literature and local evidence;
- supports the implementation of policies, recommendations and standards in an evidence-informed and sustainable way;
- conducts rapid cycle evaluation of implemented strategies and recommendations within the organization.

RAPID REVIEWS

The Implementation Science team engages with academic partners, clinical champions, patient partners and others to conduct rapid-cycle research reviews (and implementation science projects) to help inform key policies and practice improvement initiatives with a broad goal to improve health outcomes and efficiencies. These reviews include synthesis of best practice evidence, jurisdictional scans and some even include analysis of local data and interviews with key informants.

ACCESS RAPID REVIEWS ONLINE

Almost 70 rapid reviews are now available online. Topics include COVID-19, long-term care, PPE, surge-capacity planning, and more.

Visit Rapid Reviews →

Rapid Review of Clinical Network Structures

Nova Scotia Health began its restructuring process over a year ago with the aim of increasing accountability and to support local autonomy across the organization. A rapid review was completed to investigate network models within other jurisdictions and their success and suitability for Nova Scotia Health. The research on these models helped to inform the planning of a network structure that supports zone level operations and decision making, while maintaining the right balance for sustaining provincially established guiding policies and standards.



Adapted from: Agency for Healthcare Research and Quality

CREATING A STRATEGY FOR A LEARNING HEALTH SYSTEM

Achieving a learning health system means there's a culture of learning and continuous quality improvement that supports the use of evidence to improve policy and practice throughout the healthcare system. Nova Scotia Health's Implementation Science team is currently developing a strategy to implement, test, and evaluate learning health system practices and programs in multiple settings within the organization. Working closely with the Interprofessional Practice and Learning and Quality and System Performance teams, the Implementation Science team is engaging key partners in our health system, provincial, national and international quality improvement leaders, along with patients, families, and communities to use best practice evidence to transform health and health care in Nova Scotia.



It is exciting to be part of a team who walks the talk. Integrating the perspective of lived experience, at each stage ... is widening the horizons on what questions are asked and where data or solutions may be found ... This will translate into practical benefits and support innovation in healthcare.

Network of Scholars Patient Partner, Donna Rubenstein

NETWORK OF SCHOLARS

Nova Scotia Health has been forming a **Network of Scholars** that enhances embedded research, innovation and implementation science initiatives and activities within the organization. They are responsible for transforming the results of their scientific research into health care practice. This interdisciplinary network has more than 100 members with a range of backgrounds and disciplines including nursing, occupational therapy, engineering, pharmacy, medicine, computer science, business and health administration, community health and epidemiology, along with Health System Impact Fellows, students and learners, along with patients, families, and community members. This network is further enhanced by approximately 100 affiliate scientists, who are researchers with cross-appointments at local universities. The Network of Scholars also provides mentorship to early career researchers who bring their diverse experiences to health system initiatives.

DEVELOPING A POST COVID-19 CARE MODEL

The Implementation Science team is working with multiple partners within Nova Scotia Health to support the integration of key evidence and implementation strategies in creating a system-wide strategy for post COVID-19 care. The model will include screening, assessment and navigation supports for patients and health care providers, referrals to specialty services, rehabilitation and community resources (as needed) and ongoing support for symptom management and self-management. A rapid cycle evaluation will be completed by the Implementation Science team on this model.



3M HEALTH CARE QUALITY TEAM AWARD: NEWCOMER HEALTH CLINIC

Watch the video

Interprofessional Practice and Learning

The Interprofessional Practice and Learning team facilitates and advances person-centred care through a variety of services and programs that are designed provincially and implemented locally to enhance collaborative learning and practice. Through strong partnerships with the academic sector, regulators, and government, the Interprofessional Practice and Learning team has an integral role in influencing and operationalizing health system priorities.

A REFRESHED FOCUS

The team undertook a strategic planning and review process earlier this year to refresh its mandate, identify areas of alignment and integration within the Research, Innovation and Discovery portfolio, and define priority areas of work.

The Interprofessional Practice and Learning team provides leadership and accountability across Nova Scotia Health for:

- Person-Centred Care
- Team-Based Care
- Evidence Informed Practice
- Learning, Professional Development and Academic Partnerships

COVID-19 NETWORK

The Interprofessional Practice and Learning team has provided a leadership role in the clinical and medical advisory council during the COVID-19 pandemic, which has evolved into the COVID-19 Network. This group of clinical and operations leaders set standards and expectations of care across the organization, ensuring these are based on population needs, reflect the most current evidence and research, and meet operational requirements and priorities.

COVID-19 HUB

In response to a need to efficiently share timely information related to the pandemic, the Library Services team created the [COVID-19 Hub](#). The Hub is an online resource for all employees and physicians across Nova Scotia Health to access clinical information to guide the care and management of COVID-19 patients, and includes other information to guide the organization's COVID-19 response.

2020-21 COVID-19 Hub



DOCUMENTS ADDED

1,184



ANNUAL PAGE VIEWS

818,522



YARROW MERRITT PARTICIPATED IN THE NURSE PRACTITIONER EDUCATION INCENTIVE PROGRAM, GRADUATING WITH A MASTER OF NURSING – NURSE PRACTITIONER, IN 2020.

“Having worked in the Digby emergency department, I recognized the need for primary care to promote and protect the wellbeing of our community. This is one of the many reasons why I wanted to become a nurse practitioner.”

Yarrow Merritt, nurse practitioner

PROVINCIAL NURSING STRATEGY

Nurse Practitioners: The Nurse Practitioner Education Incentive program was re-offered in alignment with an increase in education seats at Dalhousie University last fall. The intention of the program is to assist Nova Scotia Health to recruit and retain nurse practitioners to improve access to primary health care. Since 2018, ten new nurse practitioners were added to collaborative family practice teams in areas of the province with greatest need.

Registered Nurse Authorized Prescribing: Evolution and expansion of the registered nurse role to include prescribing authority of certain medications and therapeutics in certain settings within Nova Scotia is underway. The first cohort of RN-Authorized Prescribers entered the first of three courses at Dalhousie University at the beginning of this year. They will complete their program in December 2021 and work with a nurse practitioner and/or physician in emergency medicine or a primary health care setting.

STUDENT LEARNER PLACEMENTS DURING THE PANDEMIC

At the beginning of the pandemic, many employers were not able to proceed with welcoming students as they normally would. Nova Scotia Health was able to quickly adapt processes to continue to safely include **students and learners** in their clinical placements. More than 5,500 learners were welcomed into our organization over the last year.



STUDENT LEARNERS
5,500+



AFFILIATION AGREEMENTS WITH ACADEMIC PARTNERS
104

NURSING COMPETENCY ASSESSMENTS

The [Registered Nurses Professional Development Centre](#) has recently partnered with the Nursing Community Assessment Service to complete competency assessments for nurses seeking licensure in Nova Scotia, New Brunswick and Prince Edward Island. As a pilot program, competency assessment referrals for registered nurses through each province's nursing regulators are being accepted, which will extend to licensed practical nurses later this year. The assessment program has been developed with the goal to improve the assessment taker experience within a learner-centred approach that has been developed with national standardization.

RN BRIDGING RE-ENTRY PROGRAM

The [RN Bridging/Re-Entry Program](#) is offered to registered nurses who are either re-entering practice, have previously practiced nursing in another country, or who need to meet current licensure requirements. In 2020, 90 seats were approved for this program, which is an increase from previous years.

CRITICAL CARE PARAMEDIC EDUCATION PROGRAM

The Registered Nurses Professional Development Centre has recently received conditional approval from the College of Paramedics of Nova Scotia to launch a new Critical Care Paramedic Education Program for Nova Scotia. Work has been ongoing with a variety of partners to develop this new program, which is anticipated to launch in September.

PRESSURE INJURY PREVENTION STRATEGY

Key highlights of Nova Scotia Health's achievements in pressure injury prevention and management include the development of a coordinated and consistent approach to pressure injury prevention across all zones including a revised policy, care plan algorithms, documentation tools, resources, auditing, and robust education opportunities. New changes to the policy include reporting of all facility-acquired pressure injuries through SIMS for better reporting and tracking of pressure injuries. There are ongoing quality improvement activities in each zone.



RN COMPETENCY ASSESSMENTS COMPLETED **31**

RN BRIDGING RE-ENTRY

LEARNERS

47

GRADUATES

51

SPECIALTY NURSING PROGRAM

LEARNERS

214

GRADUATES

184



SIMULATION LEARNING PREPARES QEII TEAMS TO RESPOND TO THE PANDEMIC

Phuong Nguyen co-ordinates training and educates medical professionals as part of the QEII Simulation Program, and co-led COVID-19 training for operating room nurses.

“By having a simulation session, it allows staff to have an open space to learn and share information. It’s also a safe environment to ask questions — a forum for discussion.”

Read the full story →

INTERPROFESSIONAL SIMULATION LEARNING

The Interprofessional Practice and Learning team is a lead partner in the **SimEd Network**, a partnership of Nova Scotia Health, IWK Health and Dalhousie University’s faculties of Health and Medicine, which incorporates best practices in simulation-based education to support and contribute to safe patient care. The SimEd Network champions simulation-based learning, consolidates expertise, and enables practice sharing to deliver the highest quality simulation-based education in Nova Scotia.

Interprofessional simulation involving teams from different professions was offered throughout Nova Scotia Health. The focus on learning about one another’s roles in the context of COVID-19 quickly became the education modality for airway management and escalation in care. More than 55 in-situ simulations were provided pre-wave three to help interprofessional teams respond to critical care surge.

INTERPROFESSIONAL SIMULATIONS **800+** SESSIONS

Research

Nova Scotia Health is changing people's lives through research by championing advances in therapy and leveraging multi-disciplinary approaches to improve access to care. Physicians, nurses, and clinical care teams work in a collaborative environment with academic partners to translate research insights into improved patient and system outcomes.



TRANSFORMING NOVA SCOTIA HEALTH'S CLINICAL RESEARCH ENTERPRISE

Clinical trials enable us to bring new medicines, therapies, interventions, and devices to our province, providing clinicians and patients with access to cutting-edge treatment options that can potentially shape national or global clinical practice. At any given time, there are more than 400 clinical trials underway at Nova Scotia Health, involving roughly 17,500 patients. We are working to increase our volume of clinical trials by fostering partnerships with industry through our business development team, and leveraging existing partnerships. Clinical trials represent an important economic investment in our province from national and international companies.

To be the partner of choice with industry to conduct clinical trials in Nova Scotia, a framework has been developed for a strategically focused Clinical Trials Unit that will:

- Broaden patient participation and access to clinical trials
- Attract, retain, and develop top research talent
- Optimize use of shared resources to fuel growth
- Be recognized as a centre of excellence in oncology, neurology, and rare diseases
- Facilitate economic development through investment from industry sponsors
- Increase clinical trial revenues to support a sustainable business model that leverages economies of scale

Implementation is currently underway in oncology where we will test and try new approaches to clinical trials that will be scaled to our other therapeutic areas over the next year.



\$25.6M
RESEARCH AWARD FUNDING



1,450
RESEARCH STUDIES



17,500
PATIENT PARTICIPANTS



400+
CLINICAL TRIALS



520
RESEARCH STAFF

COVID-19 HEALTH RESEARCH COALITION

In response to the pandemic and the opportunity to study its impact in the healthcare system in Nova Scotia, a **COVID-19 Health Research Coalition** was quickly formed in partnership with the Dalhousie Medical Research Foundation, QEII Health Sciences Centre Foundation, Dartmouth General Hospital Foundation, IWK Foundation, Dalhousie University, and Research Nova Scotia. Within a few days, the coalition partners committed \$1.5M in funding, providing grants ranging in size between \$3,000 and \$75,000. More than 260 submissions were received during an application timeframe of less than one week, reviewed by a panel of experts over several days, and 40 research teams were funded to study vaccine development and effectiveness, new treatments and devices, as well as the social impacts of the pandemic over the past year.

INVESTING IN RESEARCH

Currently, the majority of research studies occur in Central Zone. Our research team is working to increase research capacity in other zones in the province, with a particular focus on Eastern Zone. In this part of the province, staff have been recruited to accommodate additional trials, and there are five joint projects underway with Cape Breton University. To catalyze this work, a Health Sciences Research Chair has been established at St. Francis Xavier University in its Rankin School of Nursing, and work is underway with the university to establish a Clinical Research Chair in Mental Health and Addictions.

AFFILIATE SCIENTIST PROGRAM

Nova Scotia Health grants **affiliate scientist appointments** to researchers who are working with clinical and community health care teams, as part of the organization's academic mandate of working in partnership with local universities and colleges. There are about 100 affiliate scientists working with various teams across the organization, and their research spans a number of areas in the health system, ranging from social work, nursing, diagnostic imaging, oncology and kinesiology, to biomedical engineering. The contributions that affiliate scientists make to our health system enables Nova Scotia Health to attract and retain students and future health researchers as well as other leading scientists from across the globe.

Eastern Zone Research Activity



ONCOLOGY

7



NEPHROLOGY

4



CARDIOLOGY

1

2

INVESTIGATOR-LED
PROJECTS

5

JOINT PROJECTS
WITH CAPE BRETON
UNIVERSITY

**AFFILIATE SCIENTIST
PROGRAM LINKS ACADEMIC
RESEARCHERS AND HEALTH
CARE TO IMPROVE PATIENT CARE**

“Many of our most active researchers are based at Nova Scotia universities, and our Affiliate Scientist program allows them to work with clinicians, policy and decision makers, as well as patients and families to improve health. These appointments foster an environment of collaboration and partnership, linking academia to health care.”

Read the full story →



Watch the video

COVID Community Virtual Care Team

Dr. Ashley Miller received funding from the COVID-19 Health Research Coalition to implement a virtual patient-centred platform to guide COVID-19 patient care in the community, and to examine clinical predictors of COVID-19 disease progression.

The COVID Community Virtual Care Team provides at home monitoring for patients who have tested positive for COVID-19, as well as access to a physician by phone for health advice. Patients are provided with information to measure their pulse and respiratory rate, and are provided with a pulse oximeter to measure their oxygen saturation level.

Learn about how a Halifax-area patient felt reassured by the health advice she received from the COVID Community Virtual Care Team while she recovered at home.

NOVA SCOTIA HEALTH RESEARCH FUND

The [Nova Scotia Health Research Fund](#) provides new researchers and students with access to their first project funding, and for more experienced researchers, access to seed funding for small projects to test new ideas and build toward larger grant proposals with national funders. Earlier this year, \$962,000 was awarded to 19 high-impact researchers to study chronic disease management, aging and continuing care, mental health and addictions, and populations with vulnerabilities.

NOVA SCOTIA HEALTH RESEARCHER AND UROLOGIST DEVELOPS NOVEL KIDNEY INVENTION

Dr. Thomas Skinner, a recipient of the Nova Scotia Health Research Fund, is working on an invention that has the potential to dramatically change one of the key components of a kidney transplant.

His invention, the Kidney Skinn, is the first of its kind proven to maintain the temperature of a kidney during transplantation.

Read the full story →





DEVELOPING A 'CULTURE OF NUTRITION'

A study funded by a recent QEII Foundation TRIC grant will look at expanding the More-2-Eat program to four more hospitals in Nova Scotia, to screen and treat malnutrition in patients admitted to hospital.

"Screening patients for malnutrition when they are admitted results in assessments and treatments," said Dr. Cahill, a co-principal investigator who received the funding.

"This has been shown to reduce infections, pressure sores, length of stay, falls, fractures, hospital readmission and mortality."

**Read the
full story** →

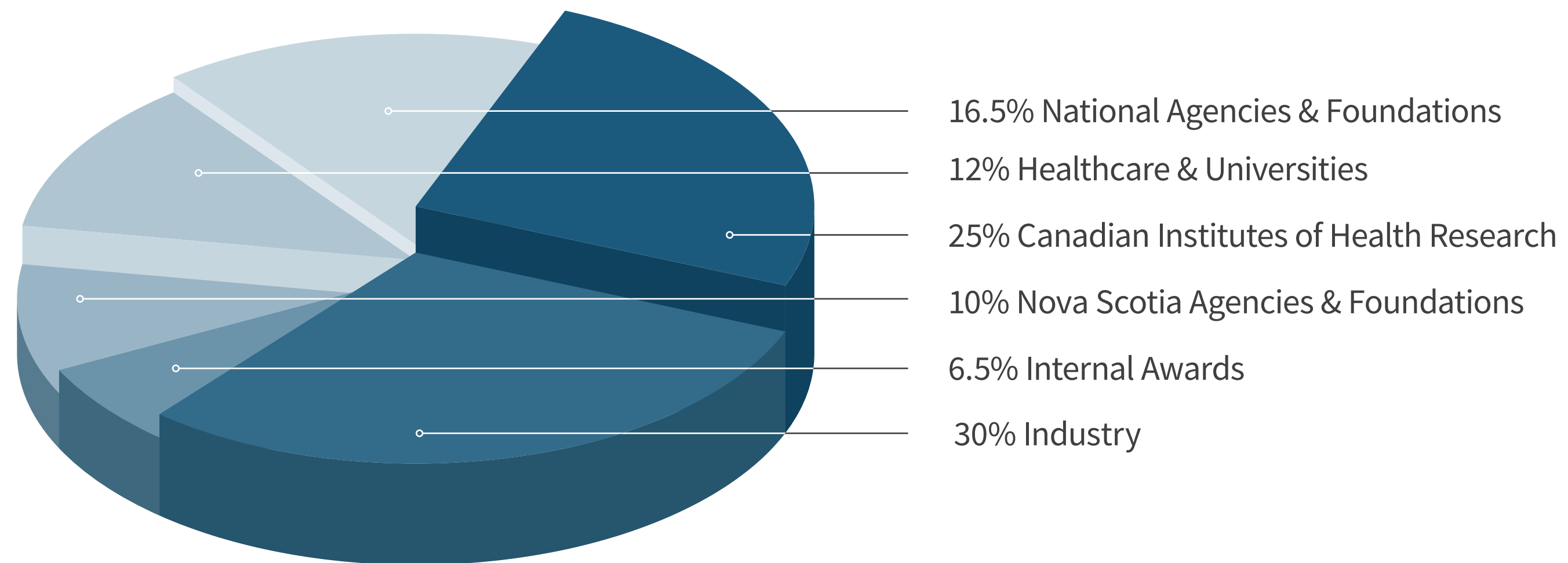
QEII FOUNDATION TRIC GRANTS

Translating Research into Care (TRIC) grants, funded generously by the QEII Health Sciences Centre Foundation, provide researchers with the opportunity to collaborate with health system administrators and patients to improve the way health care is delivered in Nova Scotia. Through the generosity of donors, 11 grants were awarded to applicants in the September 2020 competition, totaling \$215,749.

2020 Recipients →

See a complete list of QEII Foundation TRIC grant recipients and information on each researcher's area of study.

Source of Research Awards: 2020-21



Total Awards:
\$25,596,442



research • innovation • discovery

www.nshealth.ca/research-innovation-discovery