

ANNUAL REPORT 2018-19



UNIVERSITY OF OTTAWA
HEART INSTITUTE
INSTITUT DE CARDIOLOGIE
DE L'UNIVERSITÉ D'OTTAWA



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A MESSAGE FROM OUR PRESIDENT AND CEO

“The next five years will be among the most exciting of our history as an institution.” You can find this quote on page two of the University of Ottawa Heart Institute’s 2015-2019 strategic plan, titled “Stronger Together.” The Heart Institute has endured a period of great change and transformation, but our model continues to be the foundation upon which we build.

Based on our successful Heart Team model for valve disease (TAVI and Mitraclip teams), we have established five more multidisciplinary, patient-centered Heart Teams to address issues related to the most common cardiovascular diseases, such as valve or coronary disease and arrhythmias. Team members work together to harmonize care in complex units such as critical care or cardiac imaging. The teams focus on the particular concerns of a specific patient population, such as women with heart disease. This is a very unique approach that has been recognized and lauded in academic journals and international meetings.

We also have made great progress to serve our community beyond our walls through our exemplary hub-and-spoke model, together with all our partners in the Champlain region and beyond. Furthermore, our Patient Alumni Association has been instrumental in ensuring we continue to deliver outstanding patient-centered care.

On April 1, 2018, we opened the doors of our new critical care tower to our patients and community. This expansion increased our critical care capacity with the addition of state-of-the-art operating rooms, electrophysiology and catheterization labs, and surgical critical care beds. This expansion has helped us reduce our surgical waitlist by 50%, and it has provided our highly skilled teams with leading-edge medical equipment, such as the da Vinci Surgical Systems robot and the latest imaging technology from Azurion. We now have capacity to help more patients and save more lives while maintaining the best clinical outcomes and expanding new clinical programs.

A profound digital transformation is underway. It took a huge effort on all fronts. In collaboration with The Ottawa Hospital, Hawkesbury and District General Hospital, Renfrew Victoria Hospital, St. Francis Memorial Hospital, and The Ottawa Hospital Family Health Team, the Heart Institute implemented a new Health Information System called Epic on June 1, 2019. This innovative and integrated system is changing the way we provide care.

Epic offers clinicians a set of novel tools to care for their patients. It transforms patient experience and engagement for the better. With Epic, we are entering a new era in medical information technology.

On the research front, we saw the completion of our strategic plan, ORACLE (Ottawa Region for Advanced Cardiovascular Research Excellence). The plan for the next five years, ORACLE 2.0, has been launched. The new research plan aims to ensure the Heart Institute continues to maximize regional and interdisciplinary clinical research, support basic science, and promote translational research. It calls for enhanced integration of clinical and basic science into clusters known as “innovation hubs,” which focus on five major themes, similar to our Heart Teams.

I want to recognize as well the exceptional work of the entire administrative team, who manage clinical and research growth, new projects, and construction, while balancing budgets year after year. A lot of work is constantly done behind the scenes with great pride and dedication for the Heart Institute.

Nothing would be possible without the engagement of our community through our great Heart Institute Foundation, ending successfully an unprecedented \$83 million campaign. Big kudos to the entire Heart Institute Foundation team!

Yes, we are “Stronger Together” when we think back to where we were five years ago. However, we will enter our next five-year plan carrying the burden of sadness in our hearts since we had to say goodbye to Dr. Wilbert Keon, the founder of the Heart Institute, on April 7, 2019. He will be sorely missed. We owe this Institute to Dr. Keon’s vision and dedication. He was true to his dream. As we embark on the next five-year cycle in the Institute’s history, we vouch to remain true to his legacy and spirit.



Dr. Thierry Mesana
President and CEO

This expansion has helped us reduce our surgical waitlist by 50%, and it has provided our highly skilled teams with leading-edge medical equipment, such as the da Vinci Surgical Systems robot and the latest imaging technology from Azurion.



A MESSAGE FROM OUR BOARD CHAIR



A great deal has happened since our last annual report. The new addition to the Heart Institute has been successfully completed and is now providing enhanced clinical services to the members of our community. Regrettably, we have lost Dr. Keon, the inspired founder of the University of Ottawa Heart Institute. I am pleased to announce Dr. Thierry Mesana, originally recruited by Dr. Keon as an international leader in cardiac surgery in 2001 and now leading the Institute, has accepted a new five-year term as the Heart Institute’s president and CEO.

This past year has seen success on many fronts, from clinical care to research, to education. We have successfully completed the last chapter of our current strategic plan with a reduction in waiting lists as a result of our new critical care tower, a harnessing of the power of the Heart Teams in research, and the attraction of new talent from around the world to name but a few of the achievements.

None of this would be possible without the generous and relentless support of our community, the Heart Institute Foundation, our partners, including the Government of Ontario, The Ottawa Hospital, the University of Ottawa, and the Champlain Local Health Integration Network.

My hope is reading this annual report makes you feel proud to be a part of this great institution at such a defining moment in its history. For all we have achieved together since 1976, I can promise you, this is only the beginning. New technologies and new challenges are changing the face of healthcare and bringing new opportunities to enhance patient care and continued excellence in cardiovascular research.

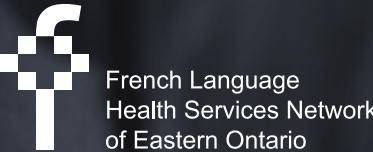
We will, together with our partners, physicians, technicians, staff, and community continue to be dedicated to the University of Ottawa Heart Institute and its ongoing success in being a world-leading institute in cardiovascular care and research.

Thanks to all of you, we will because we can. With your continued support, we look forward to realizing an innovative strategic plan, and to building an ever-evolving, always-improving Heart Institute.

Paul LaBarge
Chair, Board of Directors

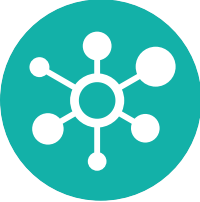


PARTNERING IN THE
DELIVERY OF OUTSTANDING
CLINICAL SERVICES



STRONGER TOGETHER: A FIVE-YEAR REFLECTION

What follows is a look back at some of the key milestones achieved as a result of our 2015-2019 strategic plan



The Heart Institute has developed a collaborative clinical practice model of care in the Champlain LHIN that effectively organizes limited resources, builds capacity between primary and specialty care, and links to the appropriate community supports. Our hub-and-spoke structure is patient-centered, rooted in the primary care sector, and is integrated with specialty services and with community-based teams of healthcare professionals, including home care and related community supports for patients.



We established five multidisciplinary Heart Teams comprised of cardiovascular specialists who work collaboratively between disciplines to provide centralized care for today's cardiac patients, effectively paving the way for a new paradigm in health care.



We broke ground in 2015, then erected and inaugurated our brand new state-of-the-art clinical care tower in 2018. The tower expanded our operational capacity by more than 50 per cent and reduced waitlist times by the same measure.



The establishment and expansion of the Cardiocore platform now serves as a gold mine of pertinent research data, helping Heart Institute scientists, physicians, fellows and other trained personnel access and analyze a unique dossier of information quicker than ever before.



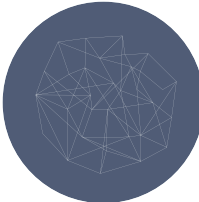
The tremendous success of our Telehome Monitoring Program, our Prevention and Rehabilitation Program, and our One-Year Follow-up Program have provided hundreds of Heart Institute outpatients with access to continuous support, information and care beyond our institute's walls.



We launched the first of its kind Canadian Women's Heart Health Centre in November of 2014, and hosted two of the first Canadian Women's Heart Health Summits in history, one in 2016 and another two years later. A third Summit is currently in the works for 2020.



We revamped the way we tell our story through the application of a refreshingly modern makeover of our ottawaheart.ca website and a dramatic upswing in our online presence through social media. As a result, we're proud to say our Heart Institute's online family is steadily increasing. Our social network continues to grow, amassing hundreds of new fans, followers, and subscribers with each passing year.



We've achieved the goals set out in our 2015-2019 strategic plan. We've proven we are indeed "Stronger Together." We are now ready to embark on a bold new adventure together in ORACLE 2.0, the beginning of a new era in cardiovascular research.



We stretched our influence all the way to Qingdao, China, where a new cardiac care and research centre has opened its doors. The centre is based on the hallmarks of our Heart Institute model: care, research, and education.



With the acquisition of revolutionary new technology the likes of Azurion's image-guided therapy systems and the da Vinci surgical robot, the Heart Institute is now providing innovative, less invasive, and overall better procedures for today's patients with much less need for recovery time, and with durable benefits.



We launched myOttawaHeart, an innovative online patient portal which gives patients access to their personal health records and other educational information, tools and resources from the comfort of their home and accessible from anywhere else.



Take a trip down memory lane to learn about more of our achievements. Please visit ottawaheart.ca/strongertogether.



OUR BOARD OF DIRECTORS

The Heart Institute’s governance structure provides solid ground to promote organizational development. Its commitment to the measurement of outcomes and its steady engagement in our pursuit of excellence across all areas has helped us reach new heights.

ELECTED MEMBERS

Paul LaBarge
Chair, Board of Directors

Donald Bayne
Vice-Chair, Board of Directors
Chair, Governance Committee

Graham Bird

Zita Cobb

Jacques Emond

Roger Hatch
Chair, Information Technology Committee

Tom Manley

Dalton McGuinty

Lori O’Neill
Chair, Joint Finance and Audit Committee

Robyn Osgood

Keira Torkko

EX-OFFICIO MEMBERS

Sylvain Charbonneau
Vice-President, Research, University of Ottawa

Katherine Cotton
Chair, Board of Governors, The Ottawa Hospital

Dr. Robert Cushman
Chair, Board of Directors, Ottawa Heart
Institute Research Corporation

Barbara Farber
Chair, Board of Directors, University of Ottawa
Heart Institute Foundation

Kathryn Butler Malette
Chair, Board of Governors, University of
Ottawa

Dr. Thierry Mesana
President and CEO, University of Ottawa
Heart Institute

Dr. Virginia Roth
Chief of Medical Staff, The Ottawa Hospital

Heather Sherrard
Executive Vice-President, Clinical Operations
and Chief Nursing Officer, University of
Ottawa Heart Institute



PATIENT CARE



RESEARCH



EDUCATION

WHO WE ARE

VISION

To be a world-class, patient-centered Heart Institute in Canada.

MISSION

Inspired by a unique culture of excellence and innovation, we promote heart health and lead in patient care, research and education.

VALUES

PATIENTS COME FIRST

By relentlessly demonstrating a strong commitment to world-class care and health promotion, our team creates a unique environment for our patients and their families, exceeding their expectations and offering the best care through integrated clinical practice, education and research in a bilingual setting.

TEAM WORK

We build and foster interdisciplinary teams with blended skills that work well together, and improve outcomes and efficiency, while recognizing the contributions of all.

EXCELLENCE

We are committed to uncompromised excellence, which means believing in the power of innovation, achieving the highest standards by continually measuring quality, seeing change as opportunity, and being a resource to influence health care, education and research beyond our borders.

INTEGRITY

We are committed to transparency, adhering to the highest moral principles and standards of professionalism, making our institution accountable and worthy of trust.

PARTNERING

Guided by openness and good communication, we build solid collaborations with other health care facilities, research institutions, universities, regional stakeholders, industry and government in Canada and abroad.



OUR INSTITUTE BY THE NUMBERS



1,432
Staff



245,206
Patient Visits



57,905
Diagnostic Tests



1,863
Open-Heart and Catheter-Based Procedures



12,129
Non-Surgical Interventions



1,241
Pacemaker and Defibrillator Implantations



\$8.8M
in External Peer Reviewed Grants and Awards

For a breakdown of our procedure, intervention and clinical visit volumes, see page 20.

VISITING RESEARCHERS

Once again this year we had the pleasure to welcome professors and researchers who have made significant contributions to their fields of expertise, including 15 lecturers from the United States and five more from abroad. Some notable examples are named below.

FROM THE UNITED STATES

- Dr. C. Noel Bairey Merz, Cedars-Sinai Medical Center, Los Angeles, California.
- Dr. Marc Gillinov, Department of Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio.
- Dr. Henry Lieberman, Computer Science and Artificial Intelligence Lab, Massachusetts Institute of Technology, Cambridge, Massachusetts.

LECTURERS FROM ABROAD

- Dr. Peter Collins, National Heart and Lung Institute, Imperial College London and Royal Brompton Hospital, London, England, United Kingdom.
- Dr. John F. Beltrame, University of Adelaide, Queen Elizabeth Hospital and Central Adelaide Local Health Network, Adelaide, Australia.
- Dr. Tsung-Yi Ho, Department of Computer Science, National Tsing Hua University, Hsinchu City, Taiwan.
- Dr. Wen-Jeng Lee, Department of Medical Imaging, National Taiwan University Hospital, Taipei City, Taiwan.
- Dr. Mark Richards, University of Otago, Christchurch, New Zealand.

JOINING OUR FAMILY



Dr. Alper Aydin
Cardiology



Dr. Greg Manning
Cardiac Anesthesiology



Dr. Andrew Crean
Cardiology



Dr. Steven Promislow
Cardiology



Dr. Andres Klein
Cardiology



Dr. Hadi Toeg
Cardiac Surgery



Dr. Mariana Lamacié
Cardiology

Strategic Plan 2015-19

STRATEGIC DIRECTION NO. 1: REINVENTING CARDIAC CARE

Leading the Way with Heart Teams

The University of Ottawa Heart Institute is well positioned to lead the way in adopting and expanding the evolving concept of Heart Teams in Canada. Heart Institute President and CEO Dr. Thierry Mesana and colleagues Norvinda Rodger, MPH, and Heather Sherrard, BScN, MHA, co-authored an article published in the Canadian Journal of Cardiology that outlines the Heart Team landscape in Canada, the evolving role heart teams play in the improvement of clinical outcomes, collaborative research, and education, as well as the ongoing logistical, cultural and financial challenges ahead for Heart Teams.

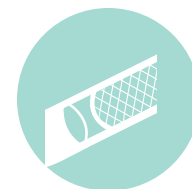
As part of its 2015-2019 ORACLE strategic plan the Heart Institute identified the Heart Team concept as the centerpiece for delivering patient-centered cardiac care. Dr. Mesana et al's paper, titled "Heart Teams: A New Paradigm for Health Care," makes a case for other heart institutes and similar models of integrated cardiovascular centres of excellence to consider the implementation and development of this ever-progressing concept.



CARDIAC IMAGING HEART TEAM (NEW!)

The Cardiac Imaging Heart Team will impact prevention strategies and early detection of disease by defining a total cardiovascular risk that will combine classic risk factors such as age, gender, smoking, hypertension, cholesterol, and diabetes, with imaging data such as coronary artery calcifications, cardiac hypertrophy, and extent of vascular atherosclerosis. Combined with the use of biomarkers, great research opportunities will be created and will include the use of imaging as a surrogate for the evaluation of novel drug development.

This team is currently working on AI projects using big data in imaging for predictive analysis.



COMPLEX CORONARY REVASCULARIZATION HEART TEAM

A great deal of collaboration between cardiologists and surgeons and other specialists is required to provide optimal care to patients presenting with varying degrees of coronary artery disease. With increasing patient comorbidities and complexity, the optimal form of revascularization is difficult to ascertain. For this reason, and by recommendation in national and international guidelines, a Complex Coronary Revascularization Heart Team has been formed at the Heart Institute. The team's main focus is to develop novel processes for identifying patients at risk of a complex multi-vessel disease and to deliver the best solutions for each patient in our care. This year the Complex Coronary Revascularization Heart Team has been integrating residents and trainees in collaborative decision-making.

An enhanced level of discussion and collaboration developed rapidly through this team on a weekly basis.



COMPLEX ARRHYTHMIA HEART TEAM

The Complex Arrhythmia Heart Team develops novel strategies and processes for patient screening, triaging to appropriate treatment, and implementation of optimal patient follow-up. This specialized Heart Team explores innovative approaches, opportunities for collaborative research, and possible hybrid approaches using trans-catheter technology along with minimally-invasive surgery in a dedicated hybrid electrophysiology room. The team works to identify the right strategy for each patient, as decided by collaborating cardiologists, cardiac surgeons, heart failure specialists and others. The Complex Arrhythmia Heart Team is poised to take advantage of the wealth of big data from Epic (our new Health Information System) and our research database, Cardiacore.



COMPLEX CRITICAL CARE HEART TEAM

The Complex Critical Care Heart Team provides care for the most critically ill patients who require the most complex and prolonged stays in our intensive care units. The team has established a working group comprised of advanced heart failure and intensive care specialists, interventional cardiologists, and cardiac surgeons to understand the standard operating procedures and specific care pathways in our Cardiac Intensive Care Unit (CICU) and Cardiac Surgical Intensive Care Unit (CSICU). In making regular rounds, the team evaluates the quality of care our critically ill patients receive, ensuring a uniform, cross-functional model of critical care services only available at the Heart Institute. More specifically, they are focusing on mechanical circulatory support and the collaboration between the medical and surgical sides of cardiac care in cardiogenic shock. A broader CICU database (Cardiacore) has been created and has already enrolled thousands of patients.



WOMEN'S HEART HEALTH TEAM

The Women's Heart Health Team works across the fundamental pillars of research, clinical services, education and awareness with regard to cardiovascular health in women. This year, the Canadian Women's Heart Health Centre launched a national alliance for knowledge translation in women's heart health to increase awareness and bridge knowledge and practice gaps. As part of the alliance, the Canadian Women's Heart Health Centre launched the first Wear Red Canada campaign and a women's heart health advocacy toolkit to increase awareness about cardiovascular disease in women. This team has been critical to enhance gender-based outcomes research. The team is currently planning the third international meeting on women's heart health, which will take place in Ottawa in 2020 and will gather experts from around the world.

STRATEGIC DIRECTION NO. 2: BUILDING UP OUR INFRASTRUCTURE

Thanks to the generous support of the Ministry of Health and Long-Term Care, Infrastructure Ontario and the community, the first phase of the Life Support Capital Project (also known as the Heart Institute’s expansion project) was completed in March 2018. The new tower opened April 1, 2018.

This year, the Heart Institute underwent even more transformations.

Extensive renovations at the front of the Heart Institute have been ongoing for the past year. The first two of three phases have been completed. A section of the new main entrance to the Heart Institute recently opened. It features an updated lobby space, which is bright, attractive, and inviting for all staff and visitors.

With the operating rooms, catheterization labs and ICU beds having relocated into the new tower, the vacated S-Level was totally demolished and is now being rebuilt to house our state-of-the-art Cardiac Imaging Centre, which is set to open in June 2019.

Our Prevention and Wellness Centre (which includes the Canadian Women’s Heart Health Centre) will also be relocating to the S-Level of the Heart Institute in June/July 2019.

The Life Support Capital Project is scheduled to be completed in January 2020.



STRATEGIC DIRECTION NO. 3: GROWING OUR INSTITUTE MODEL

The Heart Institute is unique in that it provides excellence in patient care, research and education in a single facility. Our organizational model is unlike any other known in Canada.

THE HEART INSTITUTE’S MODEL

Our institutional model is rooted in a strong and powerful esprit de corps shared among a core group of trained professionals who work together across disciplines to achieve common goals.

It is backed by a solid foundation on which we can depend for the planning and implementation of our major fundraising initiatives, and for nurturing the enviable reputation we’ve established within our community, maintaining key relationships with our existing partners, and fostering new, mutually beneficial ones for years to come.

Our continued success is ensured by a well-structured and efficient leadership team and Board of Directors who continually seek out novel strategies for steering us toward a bigger and brighter future.

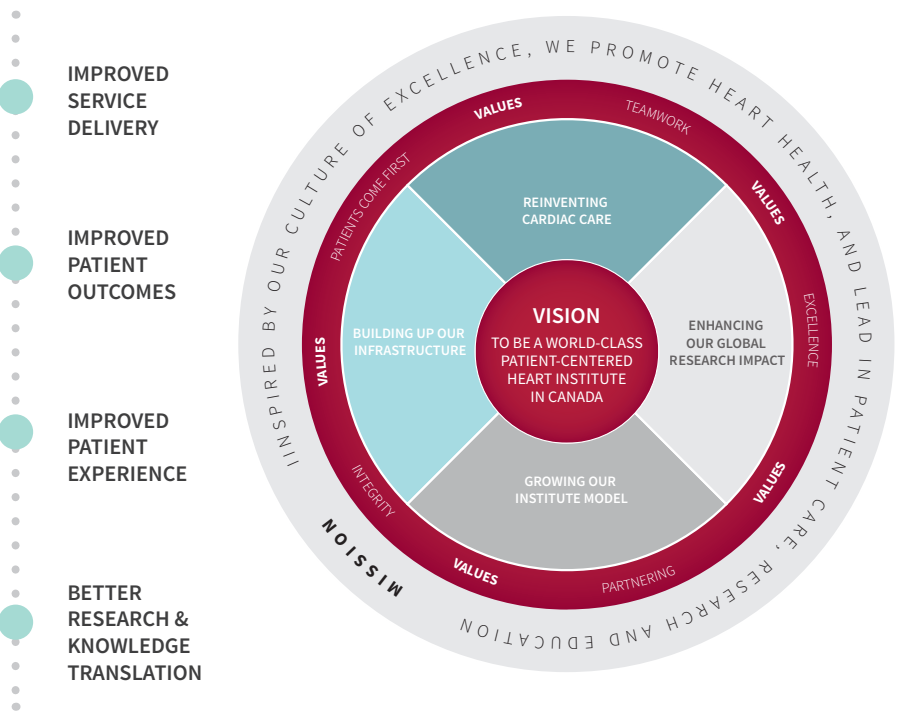
And finally, though certainly not last, our patient referrals and the number of complex cardiac procedures completed here are among the highest in Ontario. With the renovation of our facilities soon to be complete, these numbers are expected to rise.

PROGRAMS, TOOLS AND OPPORTUNITIES EMPOWERING PATIENTS AND FAMILIES

In partnership with the University of Ottawa Heart Institute Patient Alumni Association, the Patient Partnership Council, and the Patient Engagement in Research Advisory Council, the Heart Institute is committed to encouraging the input of patients, family members, and caregivers by including and engaging them in the way we deliver care. The Heart Institute continues to cultivate a patient-centered approach to cardiac care and research.

This may include contributing to quality improvement and research projects by participating in surveys and group discussions, assisting with the development or revision of patient documents, and supporting patients with similar experiences and/or conditions. Patients and families may also take on more formal roles by becoming patient care partners or patient partners in research, working alongside clinical and research staff, and becoming an integral part of the process by improving service delivery.

THE DIMENSIONS OF PATIENT ENGAGEMENT AT THE HEART INSTITUTE



UNPARALLELED CARE IN CANADA'S OFFICIAL LANGUAGES

As a public service agency designated by the Ministry of Health and Long-Term Care under the French Language Services Act, the Heart Institute must:

- offer quality services in French on a permanent basis;
- guarantee access to French-language services, which can be provided for all or some services and during business hours;
- ensure effective representation of Francophones sit on the Board of Directors and administrative committees;
- have an effective representation of Francophones among its senior management team, and;
- ensure that the Board of Directors and senior management are accountable for the quality of French language services.

As such, the Heart Institute's French Language Services Office has developed several tools to foster a caring environment in which Francophones can easily understand and be understood by their caregivers.

- The “Je parle français” and “J'apprends le français” button campaigns help patients identify quickly who speaks French, and who is learning the language on their care team.
- The Language Skills Database helps determine the French language capacity on every team and in each position across the Heart Institute.
- The French Language Learning Program helps employees develop their French skills or learn basic French.
- Translation services ensure all written material accessible to patients is available in both official languages.

MES
PATIENTS
SAVENT QUE...



ADDING MORE HEART TO CARDIOCORE

Cardiocre at the Heart Institute is an integrated database made up of data from many facets of cardiac procedures and related care. This innovative and harmonized approach to data collection and storage acts as a gold mine of data, helping our researchers, physicians, fellows and other trained personnel access and analyze a unique dossier of information quicker than ever before. Already Cardiocre is paving the way for more groundbreaking medical discoveries than in any other period in our history, improving how we provide patient-centered care in real time and for decades to come.

Founded by Heart Institute President and CEO Dr. Thierry Mesana, directed by Dr. Louise Sun, and managed by Dr. Mary Zhang, the Cardiocre platform has grown to contain health research data modules from our clinical departments of Cardiac Surgery, Anesthesiology, Cardiology and Critical Care. The team as noted above is currently motioning to expand Cardiocre's capacity to encompass the departments of Cardiac Imaging and Prevention and Rehabilitation. Future planning will see the addition of a medical therapy-only group, which will help to delineate the natural history of cardiac disease and provide the ideal comparison group for any interventional study.

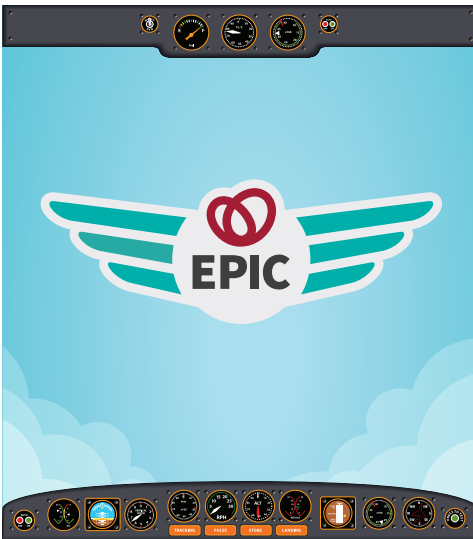
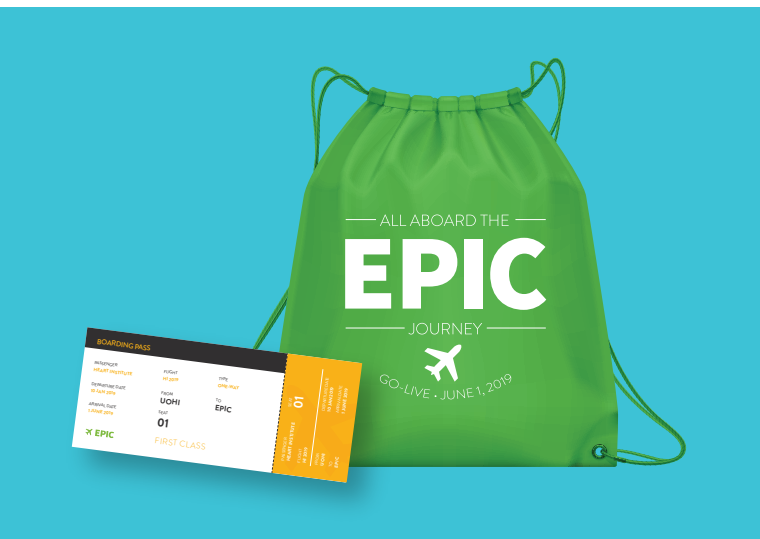
“We are pleased to support the clinical research productivity at the Heart Institute through the provision of comprehensive linked data that represents our excellence and collective expertise in cardiac patient care.” — Dr. Louise Sun, Director, Cardiocre.

EPIC LAUNCH PARTY



OUR EPIC JOURNEY IS ABOUT TO BEGIN

As such, an epic celebration will be held for all staff passengers travelling to Epic-land.



AN EPIC UPDATE

Much work has been done over the last several months to ready Heart Institute staff for the introduction of a revolutionary new Health Information System, called Epic. Most notably our change management, operational readiness and communication teams have collaborated to implement an exciting and refreshingly creative campaign aimed at informing and engaging staff who will begin using Epic starting June 2019.

The first leg of the campaign, appropriately titled “All Aboard the EPIC Journey,” ran from January to May 2019. Its principal objective was to ensure the buy-in of staff, including nurses, physicians, and other frontline health practitioners, as well as support the smooth transition of those tasked with learning the new system in time for go-live.

Upon completion of a rigorous training regimen staff received a special pin, similar to what a pilot might wear on their lapel, adorned with a Heart Institute swirl in the centre of two outstretched silver wings to signify their proficiency with the new system.

The final leg of the All Aboard the Epic Journey campaign began in late May/early June. It focusses on informing external audiences, including patients and families, about Epic's features and benefits.

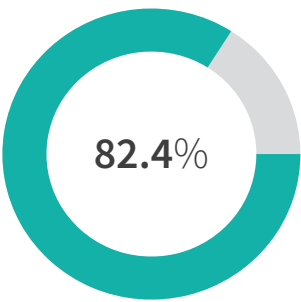
WHAT DOES EPIC MEAN FOR PATIENTS AND FAMILIES?

- One digital health record that is accessible from anywhere.
- Reduces the need for duplicate testing.
- Empowers patients to manage and update their own health information with ease.

MEASURING AND EVALUATING QUALITY AND OUTCOMES

The Heart Institute prides itself on its quality of care and high levels of patient satisfaction.

Year after year, our patient satisfaction ratings remain among the very best in Ontario.



PATIENT
SATISFACTION

EXPANDING OUR CLINICAL SERVICES

OPEN-HEART AND CATHETER-BASED PROCEDURES	2018-19
Coronary Artery Bypass Grafts (CABG) & Other	974
Valve/CABG (combined)	221
Valve Surgery	435
Transplants	12
Ventricular Assist Devices	10
TAVIs (Percutaneous valve replacement)	165
Mitraclip	46
Total	1,863

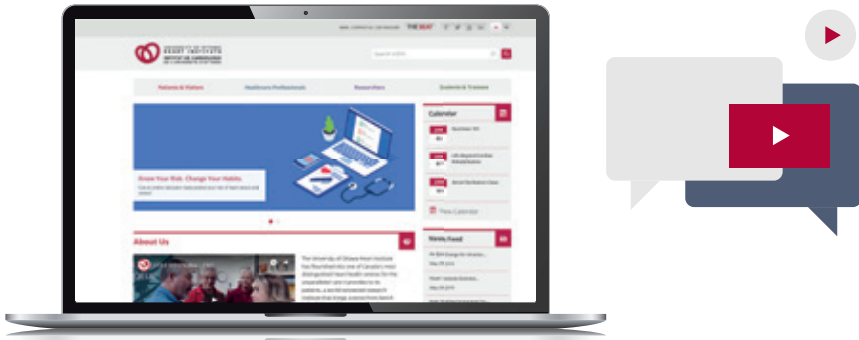
NON SURGICAL INTERVENTIONS	2018-19
Catheterizations	6,705
PCI (Angioplasty)	2,595
Electrophysiology Studies	746
Ablations	805
Pacemakers	816
Defibrillators	425
Left Atrial Appendage Closures	37
Total	12,129

CLINICAL VISITS

SPECIALTY CLINIC VISITS	2018-19
Pacemaker/Defibrillator Clinic	10,579
Pre-Admission Unit	2,291
Cardiology Clinics	23,738
Cardiac Rehabilitation	3,664
Telehealth	793
Anti-Coagulation	111
Adult Congenital	1,338
Cardiac Surgery	5,478
Smoking Cessation	1,053
Rapid Intervention	99
Hypertension	2,230
Other Clinics	63,519
Total	115,253



SHARING OUR STORY



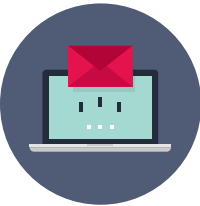
UOHI WEBSITE



1,445,785
VISITS
▲ 53%
INCREASE



2,245,573
PAGEVIEWS
▲ 37%
INCREASE



227,354
THE BEAT
PAGEVIEWS
▲ 140%
INCREASE



838,374
SESSIONS FROM
OUTSIDE CANADA
▲ 79%
INCREASE

SOCIAL MEDIA



▲ 24% INCREASE
7,300 + FOLLOWERS

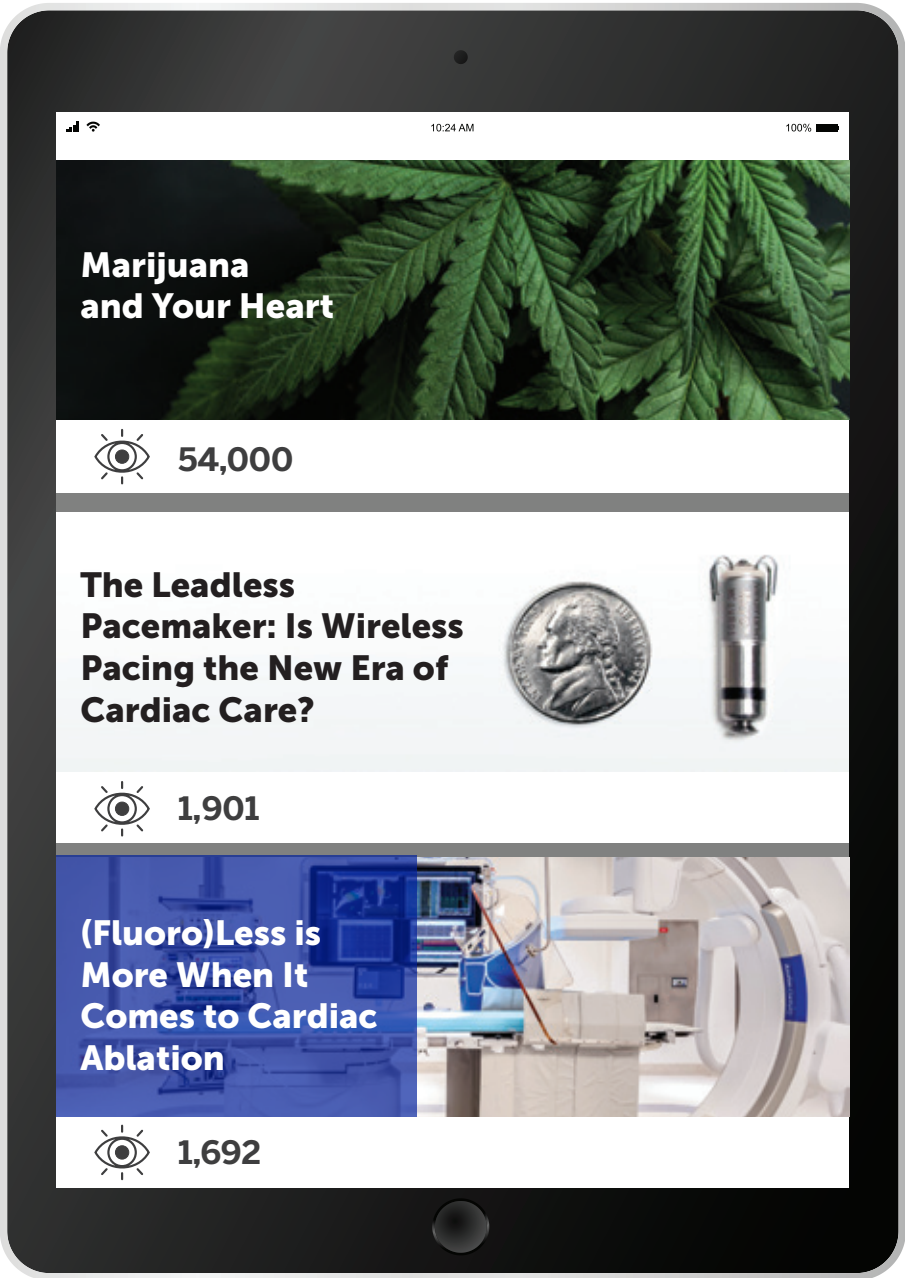


▲ 12% INCREASE
5,600 + FOLLOWERS



▲ 40% INCREASE
2,700 + FOLLOWERS

TOP THREE BEAT STORIES





IN THE MEDIA



Dr. Louise Sun became a media star in early 2018, lending her expertise to regional, national and even international news outlets. Her research into the sex differences in outcomes of heart failure earned her worldwide media coverage – from the New York Times to the UK Daily Mail and was picked up by news agencies in France and other countries.

Another study of which Dr. Sun is credited the principal investigator, which examined the prevalence of frailty and its association with long-term mortality in patients undergoing cardiac surgery, also garnered wide-scale media interest.



Dr. Thais Coutinho received much attention from media over the last year as well. She appeared on local and regional radio and television programs to talk about everything from Canada’s Food Guide to the launch of the country’s first Wear Red Canada campaign.

Keep an eye and ear out for Dr. Coutinho in 2020, as the division head is poised to become one of the Heart Institute’s most influential voices media turn to for expert commentary about cardiovascular care and research topics.



STRATEGIC DIRECTION NO. 4 : ENHANCING OUR GLOBAL RESEARCH IMPACT

THERE IS MUCH MORE TO KNOW ABOUT OUR RESEARCH

ORACLE 2.0, our bold new research strategy, aims to accelerate the Ottawa region’s global leadership by maximizing regional and interdisciplinary research to solve major questions in cardiovascular disease prevention and treatment.

This past year saw a number of activities taking place and interim milestones achieved. Five Innovation Hubs – interdisciplinary, regional research teams – have been formalized. We are continuing to engage patients in all our research activities including Innovation Hub meetings and patients’ review of seed funding competitions. Sex and gender considerations, as well as diverse populations, are becoming a backbone in all our research activities. The clinical research initiative implementation is going well as expected. Regionally, we are collaborating with our partners on large-scale strategic grant and other infrastructure initiatives.

LINKAGE OF INNOVATION HUBS AND SCIENTIFIC PRIORITY THEMES



FEATURED PUBLICATIONS

Title: Extracellular Vesicles Secreted by Atherogenic Macrophages Transfer MicroRNA to Inhibit Cell Migration

Journal: Arteriosclerosis, Thrombosis and Vascular Biology

Dr. Katey Rayner and PhD candidate Ms. My-Anh Nguyen and team members showed that microRNAs carried in extracellular vesicles secreted by atherogenic macrophages may accelerate plaque development. The study has a great potential to inform the design of nanoparticles which can deliver key microRNAs or other therapeutics directly to the plaque, opening up a novel avenue for treatment of heart disease.

Title: Greater Aortic Stiffness & Pulsatile Arterial Load Are Associated with Larger Thoracic Aortic Aneurysm Size in Women

Journal: Circulation Research – Go Red for Women Special Heart Month Issue

Dr. Thais Coutinho and Cardiology Fellow Dr. Jennifer Jue and team members assessed sex-specific associations in aortic stiffness and arterial overload with thoracic aortic aneurysm (TAA) size. The first known report looking at these associations, the study highlighted that worse arterial wall health and its hemodynamic measures correlate to larger aneurysm size in women. These findings help explain adverse outcomes in women with thoracic aortic aneurysm, and importantly, support sex-specific strategies for TAA risk assessment, monitoring, and treatment.

Title: Sex Differences in Outcomes of Heart Failure in an Ambulatory, Population-based Cohort from 2009 to 2013

Journal: Canadian Medical Association Journal

Dr. Louise Sun and her team assessed the differences in heart failure occurrence, hospital admission and death for women, and compared the data to those recorded for men. The findings showed that despite decreases in overall heart failure occurrence and death, mortality rates remain higher in women, while hospitalization due to heart failure increased in women and declined in men. Further investigations focusing on sex differences are therefore needed to guide personalized care to improve heart health for both men and women.

FEATURED CLINICAL TRIAL

Dr. Michel Le May and his team presented ‘hot off the press’ findings from their SAFARI-STEMI trial at the American College of Cardiology Annual Scientific Meeting. Their study looked at the safety and efficacy of femoral (thigh) versus radial (wrist) access for primary percutaneous intervention. The data showed there was no difference in survival at 30 days between radial or femoral access.

These findings settled a hotly debated topic in interventional cardiology, highlighting either femoral or radial access can be selected and both are safe and efficacious for primary PCI in STEMI patients.

RESEARCH BY THE NUMBERS



62 Research Faculty, Including 27 Scientists and Clinician Scientists



\$8.8M Awarded in National Peer Reviewed Grants



263 Published Research Articles



303 Active Clinical Research Studies



10 Endowed Fellowships Awarded

KEY HIGHLIGHTS OF THE YEAR

HIGH-PROFILE PEER REVIEWED GRANTS IN 2018-19

- Dr. Erik Suuronen and his team were awarded the CIHR-NSERC Collaborative Health Research Grant to optimize injectable collagen matrices for cardiac tissue repair. The funding announcement by the Government of Canada was held at the UOHI.
- Dr. Erin Mulvihill was awarded a Diabetes Canada New Investigator Award. The application was ranked #1 in the basic science stream.
- Dr. Emilio Alarcon was awarded an inaugural New Frontiers in Research Fund Grant, a new strategic initiative by the Tri-Council to support paradigm-shifting ideas.
- Dr. Katey Rayner was awarded (as a co-principal investigator) a Joint Transnational Grant supported by the European Research Area on Cardiovascular Diseases.

CLINICAL RESEARCH

We have launched a clinical research initiative and are catalysing innovation and excellence on several fronts. Our interdisciplinary Innovation Hubs serve as vehicles for integration of and dialogue between translational and clinical research projects. Emphasis is placed on integrating methodologists into all clinical research studies. Successful forums for researchers to receive early feedback and guidance on study design and other aspects are taking place. We have also been linking our clinical research activities with and preparing for the go-live of Epic, our new electronic medical records system.

STRATEGIC COLLABORATION: FACULTY OF MEDICINE TRANSLATIONAL GRANT PROGRAM

We collaborated with the University of Ottawa’s Faculty of Medicine (and other partners) to fund five excellent translational grants in heart failure, arrhythmias, valvular heart disease, and brain and heart health. The research teams are each required to comprise of a fundamental science researcher (PhD scientist) and a clinical researcher (MD scientist) to answer key questions to advance bench-to-bedside innovation.

HIGH-PROFILE AWARDS AND PRESTIGIOUS APPOINTMENTS

EXTERNAL AWARDS

- Clinician Scientist Ruth McPherson, MD, PhD is the first Canadian to receive the prestigious George Lyman Duff Memorial Lecturer Award from the American Heart Association’s Council on Arteriosclerosis, Thrombosis and Vascular Biology.
- Scientist Mireille Ouimet, PhD received the Arteriosclerosis, Thrombosis and Vascular Biology Journal’s Daniel Steinberg Early Career Investigator Award and the CIHR-Canadian Society of Atherosclerosis, Thrombosis and Vascular Biology Early Career Lecturer Award.
- Cardiologist and Clinician Investigator Terry Ruddy, MD received the Society of Nuclear Medicine and Molecular Imaging Hermann Blumgart Award.
- Transplant Cardiologist and Clinician Scientist Sharon Chih, MD, PhD received the Canadian Cardiovascular Society Young Investigator Award.
- Cardiac Surgery Resident Janet Ngu, MD, MSc received the Dr. Paul Cartier Resident Award for her outstanding research contribution and a tremendous potential for a distinguished academic career in cardiac surgery.

EXTERNAL APPOINTMENT

- Cardiologist, Head of Cardiology and Clinician Scientist Rob Beanlands, MD is the first Canadian to be appointed president of the American Society of Nuclear Cardiology.
- Cardiac Surgeon, Head of Cardiac Surgery, and Clinician Investigator Dr. Marc Ruel, MD, is named president-elect of the Canadian Cardiovascular Society.

OTHER HONOUR

- Cardiac Surgeon, Head of Cardiac Surgery, and Clinician Investigator Marc Ruel, MD is inducted into the Order of Ottawa in recognition of his dedication to improving the access, safety and efficiency of cardiovascular care delivery.

HEART INSTITUTE AWARDS

- Scientists Emilio Alarcon, PhD and Rob deKemp, PhD received Global Achievement Awards.
- Scientist Jennifer Reed, PhD named Investigator of the Year.
- PhD candidate My-Anh Nguyen, under the supervision of Katey Rayner, PhD, named the Ottawa Region Cardiovascular Research Trainee of the Year.



CARDIAC ANESTHESIOLOGY



CARDIAC PREVENTION AND REHABILITATION



CARDIAC SURGERY



CARDIOLOGY

OUR CLINICAL DIVISIONS



Dr. Stéphane A. Lambert
CARDIAC
ANESTHESIOLOGY



Dr. Thais Coutinho
CARDIAC PREVENTION
AND REHABILITATION



Dr. Marc Ruel
CARDIAC
SURGERY



Dr. Rob Beanlands
CARDIOLOGY

CARDIAC ANESTHESIOLOGY

The Division of Cardiac Anesthesiology is made up of 16 anesthesiologists dedicated to the care of cardiac patients. Anesthesiologists at the Heart Institute take part in the careful preoperative preparation of cardiac surgical patients, provide expert intraoperative care and imaging, and give comprehensive postoperative care in the surgical intensive care unit. They also play an integral part in the rapid response to critical emergencies across the entire Institute.

The division is constantly evolving to adapt to the rapidly growing clinical needs of the Heart Institute and the changing nature of cardiac surgery, and it continues to facilitate the delivery of high-quality surgical care to a growing number of increasingly complex patients. To better serve our patients in this rapidly changing environment, our model of care has evolved over the past year to “one division, two focuses of practice,” where some anesthesiologists participate in both anesthesia and critical care, while others focus on intraoperative anesthesia services. Our members continue to play an important part in many of the Institute’s Heart Teams, notably in the area of mechanical circulatory support.

In the past year, our division saw two of its members retire, Dr. Charles Cattran and Dr. Peter Wilkes. Dr. Jean-Yves Dupuis changed his practice to outpatient clinics only.

The division continues to provide world-class teaching to University of Ottawa trainees at all levels. It is in the process of restructuring its research infrastructure in an effort to support its research talent. The division is working on integrating its sizeable anesthesia and ICU databases into the Institute’s new Cardiacore system. This massive centralized system is being developed under the leadership of one of the division’s young researchers, Dr. Louise Sun, who is also a scientist with the Institute for Clinical Evaluative Sciences.

Finally, in the same way the cardiac anesthesiology team played an important part in the smooth and successful transition to the Heart Institute’s new acute care wing last year, it is expected to play an equally important role in the Institute’s “virtual move” to its new Health Information System, Epic.

CARDIAC PREVENTION AND REHABILITATION

Programs are informed and enhanced by the division’s ongoing research activities, which address an array of issues pertinent to the prevention of heart disease. The Prevention and Wellness Centre provides a variety of resources and programs to patients and their families. The Division of Cardiac Prevention and Rehabilitation is home to the internationally-renowned Ottawa Model for Smoking Cessation and the Canadian Women’s Heart Health Centre.

The division is comprised of four physicians, 51 allied health professionals, seven investigators, six postdoctoral fellows, seven PhD students, seven full-time research staff members, and 13 trainees and volunteers.

CARDIAC REHABILITATION

The Cardiac Rehabilitation Program is one of the largest in Canada, providing rehabilitative and secondary prevention services to as many as 3,000 patients per year with growing numbers. We have a number of rehabilitation streams to increase flexibility and address our patients’ needs, including the traditional on-site program in addition to Case-Managed Home Rehabilitation, FrancoForme for francophone patients, and a brief program for patients who were physically active prior to their cardiac event.

The Walking Rehabilitation Program for Peripheral Arterial Disease is the first and only in Canada dedicated to this population, and has been a great success. Now one year into the program, we are observing a 61% improvement in patients’ claudicant distance (distance walked before onset of leg pain), and significant improvements in quality of life, anxiety and depression scores. Patients are extremely appreciative of the program.

Many new divisional programs were launched in 2018, including Mind the Heart, a mental health program funded by the Movember Foundation which serves men who have experienced a cardiac event, and Healthy You, a weight management series for patients and family members, taught by UOHI Dietitian Kathleen Turner.



PREVENTION AND WELLNESS AND SMOKING CESSATION

The Prevention and Wellness Centre has a diverse portfolio of offerings aimed at primary prevention at the community level. The UOHI's Smoking Cessation program is world-renowned and continues to lead the way and innovate in the delivery of smoking cessation strategies to people in need.

CANADIAN WOMEN'S HEART HEALTH CENTRE

The Canadian Women's Heart Health Centre has several program streams: clinical, research, education and advocacy. Its programs for peer support for women with heart disease (Women@Heart) and cardiovascular risk reduction after hypertensive disorders of pregnancy and gestational diabetes (IMPROVE) have continued to grow and help hundreds of women improve their physical and mental health.

Specifically, in 2018 the Canadian Women's Heart Health Centre launched the first support group in Quebec, and in 2019 it launched the first Women@Heart group specific to women with Spontaneous Coronary Artery Dissection (SCAD).

In addition, in 2018 the CWHHC hosted the second Canadian Women's Heart Health Summit in partnership with the Heart and Stroke Foundation. This is the largest conference in the world dedicated to cardiovascular disease in women. This conference was a great success and brought together over 200 attendees and expert speakers from all over Canada, as well as the USA, the UK and Australia.

Further, in 2018 the CWHHC also launched the Canadian Women's Heart Health Alliance. This alliance aims to bridge knowledge and practice gaps with regard to cardiovascular health and disease in women, ultimately improving the care delivered to women with or at risk for heart disease. The alliance has 55 members across the country actively involved in projects that will increase awareness and change practice. One of the alliance's highlights has been the first Wear Red Canada campaign launched in February 2019. The campaign achieved major reach throughout the country and significant social media impact.

Moreover, in 2019 the CWHHC launched a Women's Heart Health Community Advocate Toolkit, which is helping men and women increase awareness of heart disease in women in their communities.

Lastly, the Champlain region's first Women's Heart Health Clinic was launched by Dr. Thais Coutinho in 2018.



RESEARCH

On the research front, through the efforts of the Division of Cardiac Prevention and Rehabilitation, the number of manuscripts published by UOHI scientists that focus on women or on sex differences in cardiovascular diseases has quadrupled. The division has also seen a significant increase in the number of UOHI grants that include sex- and gender-based analyses as part of the analytic plan (80% now include this). The division has also helped fund sex- and gender-based research projects in partnership with ORACLE.

Together, the division team has amassed an amount totaling \$4,478,057 in new research grants awarded over the past year (this number includes \$2,297,300 received from the Ministry of Health for the Ottawa Model for Smoking Cessation.)

CARDIAC SURGERY

The Division of Cardiac Surgery is an international leader in clinical care, quality outcomes, research dissemination, and advanced post-graduate teaching.

The division consists of nine full-time academic operating heart surgeons, one adult congenital surgeon, two surgeons with a consultancy role in quality and education, two basic scientists, and four associate surgeons.

Over the last year, the team performed over 1,800 complex cardiac surgical interventions, with outcomes maintained amongst the very best in the country, as repeatedly evidenced by external data from the Canadian Institute for Health Information, the Canadian Cardiovascular Society, and others. The Division of Cardiac Surgery is also leading the Heart Institute's robotic program. Using the highly sophisticated da Vinci Surgical System, a multidisciplinary team of specialists at the Heart Institute now complete minimally-invasive robotic revascularization and robotic mitral valve repair procedures. Thanks to this revolutionary new technology, the Division of Cardiac Surgery provides innovative, less invasive, and overall better procedures for today's patients with much less need for recovery time, and with durable benefits.

The Division of Cardiac Surgery, despite its size, was also involved in the publication of nearly 80 scientific papers, and surgeons continued to shape cardiac surgery and cardiovascular care around the world. As an internationally-renowned centre for the advanced teaching of complex surgical techniques, such as minimally-invasive bypass and valve surgery, hundreds of surgeons from around the world have come to the Heart Institute to perfect those techniques.

But above all, it is the patients and their families who are at the cornerstone of the division. Everything the surgeons do is ultimately oriented at providing the very best patient care. They work closely with the Divisions of Cardiac Anesthesiology and Cardiology, and colleagues from the Heart Institute's multidisciplinary teams to constantly achieve this goal.



CARDIOLOGY

The Division of Cardiology, recognized internationally for excellence in patient care, education and research, includes 57 physicians and four PhD scientists, each working to foster a patient-first culture.

Patients are provided unparalleled care through the nationally recognized clinical programs in electrophysiology, interventional cardiology, cardiac critical care, heart failure, multimodality imaging and clinical cardiology. The new UOHI tower expanded services in electrophysiology and interventional cardiology to enable timely access to care. New programs in 2018 include Heart Teams and Innovation Hubs in electrophysiology, revascularization, womens' heart health, critical care, valve disease and imaging. A new urgent regional transfer program has been established built on the success of the world-renown STEMI program. New interventions to treat heart failure are being tested and a program for rapid referral from the ER for imaging has been established.

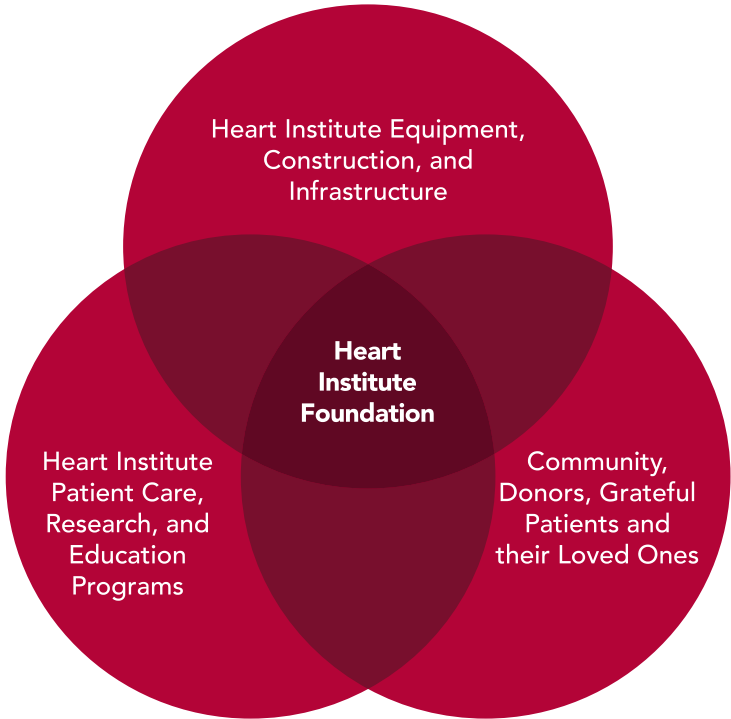
Our Cardiology Resident Training Program continues to be one of the most sought-after cardiology residency programs in Canada. The program is led by Dr. Michael Froeschl, who was bestowed the Resident Doctors of Canada Mikhael Award for Medical Education for 2017-18. Furthermore, fellowship opportunities at the UOHI attract trainees from around the world.

- The Division of Cardiology was once again recognized for its research excellence in the past year, consistently obtaining national peer reviewed grants, and publishing 145 articles, many of which in top journals. Each year, the members of the Division of Cardiology are recognized for their leadership nationally and internationally. Most notable in 2018-19 is Dr. Andrew Pipe who was appointed chair of the Heart and Stroke Foundation and named as an honorary fellow by the Royal College Council.
- Dr. Rob Beanlands was elected as the president of the American Society of Nuclear Cardiology, and Dr. Terrence Ruddy as the president of the Cardiovascular Council of the Society of Nuclear Medicine and Molecular Imaging.
- The Canadian Cardiovascular Society (CCS) bestowed honours for Dr. Sharon Chih as the 2018 Young Investigator Awardee. Cardiology Resident David Harnett received the CCS Charles Kerr Award for humanitarian contributions to patients with cardiac disease. Dr. Jean-Francois Marquis has been named the Canadian Association of Interventional Cardiology Outstanding Achievement Awardee. And Dr. Ruth McPherson was honoured as the 2018 George Lyman Duff Memorial Lecturer at the American Heart Association Annual Scientific Meetings. This prestigious award recognizes a top scientist, and for the first time it was given to a Canadian researcher.



THE HEART INSTITUTE FOUNDATION

The Heart Institute Foundation is the bridge that connects the programs, facilities and people who save lives every day, with the individual and corporate philanthropists in our community. Donors to the Foundation are central to the achievements of this world-class cardiac care centre and their engagement and financial support, a valued contribution to its success.



Thanks to the generosity of our community, the Heart Institute Foundation can provide funds to support priorities including patient care, research, and education. Funds raised support renovations to the original Heart Institute building that will improve our patients’ experience, and enable the purchase of specialized life-saving equipment — for which we do not receive any government funding.

RAISING MONEY



Last year, **15,919** generous donors in our community made over **39,546** gifts to the Heart Institute Foundation.



More than **115** community events were held to raise funds for the Heart Institute in 2018-19. We are grateful to the countless individuals, service clubs, businesses, and groups of families and friends who give their time and talent to make these events the best they can be.

FUNDING HEART INSTITUTE PRIORITIES



In 2018-19, the Patient Alumni Association received **\$250,000** in funding to support their work in patient engagement.



More than **\$250,000** in funding was provided to the Canadian Women’s Heart Health Centre in 2018-19.



Last year, through support from our community, the Foundation was able to provide **\$3,478,443** in funding to research initiatives at the Heart Institute, paving the way for the treatments of tomorrow.



In 2018/2019, the Foundation provided more than **\$8,827,600** in funding for the completion of the Critical Care Tower, purchase of specialized equipment, and the start of renovations to the original building.

PATIENT ALUMNI ASSOCIATION

The Heart Institute’s Patient Alumni Association continues in its new direction set two years ago in which all patients are now made automatic members of the association upon discharge from the institute. The Association has since grown to include over 10,000 members.

As a strategic partner of the University of Ottawa Heart Institute, the Patient Alumni Association’s main objective is to increase patient engagement in UOHI activities. This ensures all patients are given a voice and are represented in all aspects of the delivery of services at the UOHI. The voice of the Patient Alumni Association is augmented by the direct engagement and cooperation of patients, their family members and caregivers who act as “patient’s partners” when they participate in committees, activities, focus groups, training, research and clinical projects, and surveys.

More information is available on the UOHI website. In addition, a Patient Partner guide has been prepared and will be published soon.

Last year, the Health Standards Organization recognized the UOHI Patient Alumni Association as a patient-centered leading practice organization. As a result the Patient Alumni Association has been and continues to speak to other health institutions in Canada and in the USA that have requested information about the possible implementation of a similar model in their institutions.

A more detailed report of the past year’s activities is available at ottawaheartalumni.ca.

HEART INSTITUTE AUXILIARY

Members of the Heart Institute Auxiliary provide countless volunteer hours annually to the Heart Institute.

Part of the Auxiliary’s area of responsibility includes the operation of a retail boutique. Over the years, the proceeds have led to a cumulative donation of more than \$1.1 million to the Heart Institute. This has been used for the purchase of life-saving medical equipment.

Profits from the boutique have also helped to establish the Nora Greene Auxiliary Fund with the Heart Institute Foundation. This is an endowment fund named in honour of the Auxiliary’s founding director and first president.

Auxiliary members are proud to be an integral part of the operations of the Heart Institute.

FINANCIAL STATEMENTS 2018-19

GUIDING PRINCIPLES

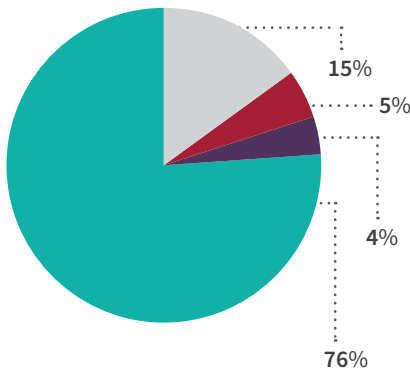
We are held accountable for the use of public funds and our financial statements are audited yearly by Marcil Lavallée.

We are transparent to all stakeholders, including all Canadians.

We give taxpayers value for money by managing responsibly.

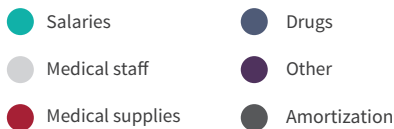
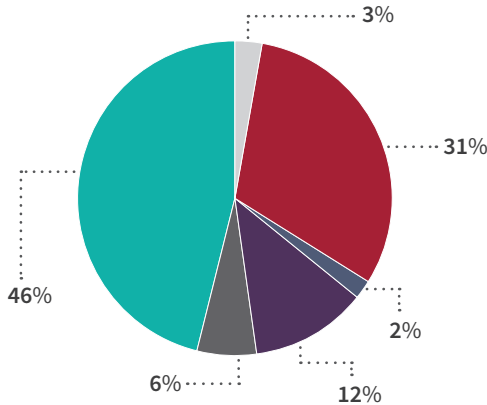
UNIVERSITY OF OTTAWA HEART INSTITUTE

REVENUE



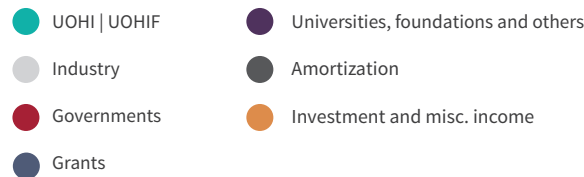
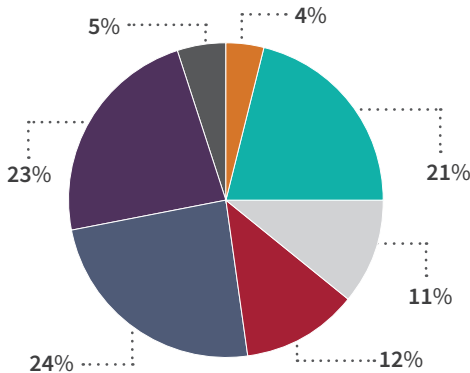
TOTAL REVENUE \$201.6 MILLION

EXPENSES



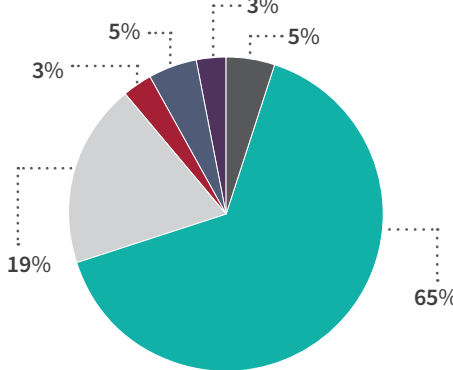
OTTAWA HEART INSTITUTE RESEARCH CORPORATION

REVENUE



TOTAL REVENUE \$36.5 MILLION

EXPENSES



The University of Ottawa Heart Institute receives funding from the Champlain Local Health Integration Network (LHIN). The opinions expressed in this publication do not necessarily represent the views of the Champlain LHIN.



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