



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

STRONGER TOGETHER

STRATEGIC PLAN 2015 - 2019



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MESSAGE FROM THE **PRESIDENT & CEO**

The University of Ottawa Heart Institute (UOHI) has come a long way since its creation, in 1976, by our visionary founder Dr. Wilbert Keon. Over the last decades, the UOHI has evolved as a leading cardiovascular centre bringing together patient care, education and research within the same building. Many have worked hard to achieve this, and continue to do so. There is something here that does not exist anywhere else. Our patient satisfaction is second to none, survey after survey. Our research success compares with the top research institutes in the world. We have a real passion for delivering world-class compassionate care through innovation.

BUILDING ON OUR CULTURE: PUTTING THE PATIENT FIRST AND TEAMWORK

This is who we are, a Heart Institute with a strong legacy. Still we are a “young” Institute, which continues to grow. In this regard, the next five years will be among the most exciting of our history as an institution.

In the coming years, we will grow considerably in size, expanding our infrastructure by 50 per cent. We will attract new staff. New programs will be deployed. The UOHI will have better tools to face the challenges of the future and seize the opportunities. As people are more important than buildings, the UOHI must continue to relentlessly recruit and retain the best and the brightest and to promote leadership opportunities. I see the UOHI as a “dream team” of top-notch cardiovascular specialists and talented researchers, working together, without walls between basic science and clinical science, working as dedicated Heart Teams breaking down borders between specialties.

We must grow with the same esprit de corps, the same culture and same dedication for deeply integrated patient care with the best outcomes, offering hope, and compassion when there is no hope, making our community proud for having Canada’s best Heart Institute here in Ottawa, Canada’s capital city.

The objectives of this five-year strategic plan are, first, to define our fundamental directions towards a vision, while keeping with our mission as a leading academic cardiovascular centre, and, second, to generate both engagement and alignment towards these directions within the boundaries of our core values.

This is what you will find in this document which I hope you will read carefully, enjoy and share.



Thierry Mesana, MD, PhD
President and CEO



The next five years will be among the most exciting of our history as an institution.

The Board is committed to working closely with Dr. Mesana and his team in making this vision for the Institute's future a reality.

MESSAGE FROM THE **CHAIR OF THE BOARD**

As chair of the Board of Directors, and on behalf of my fellow directors at the Heart Institute, I am proud to welcome the Institute's new 5-year strategic plan developed by Dr. Thierry Mesana and his senior management team. The Board is committed to working closely with Dr. Mesana and his team in making this vision for the Institute's future a reality.

Upon his appointment as the third CEO of the Heart Institute, the Board asked Dr. Mesana to prepare a strategic plan that would guide the Institute through the next phase of its evolution. The Institute has achieved pre-eminence in cardiac care, research and education and accordingly, its leadership faces the challenge of preserving that legacy while being prepared and able to innovate, to excel, and to be a dynamic world leader in its field. I believe that the Institute's leadership has met this challenge fully and that Dr. Mesana's vision will lead the way to accomplishing these objectives.

This document is a blueprint for the future of the Institute. It is a promise of continued excellence to its patients, supporters, volunteers and our entire community. We thank Dr. Mesana and his senior management team for this contribution.



Lawrence Soloway
Chair of the Board

French version available upon request.

For more information, please contact communications@ottawaheart.ca



*A WORLD-CLASS,
PATIENT-CENTERED
HEART INSTITUTE
IN CANADA*

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.



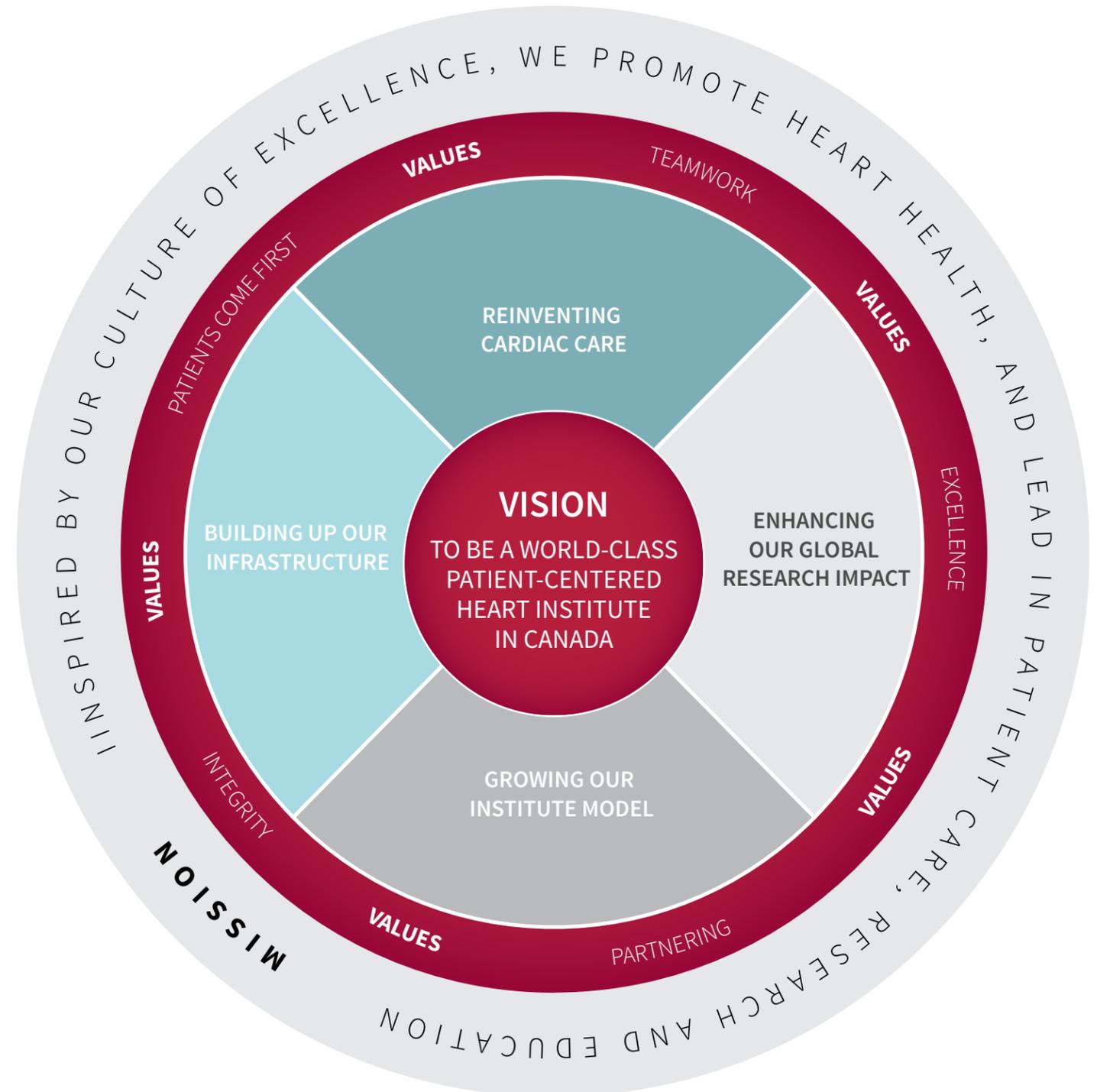
STRATEGIC DIRECTIONS 2015-19

Developing the Institute as a world-class patient-centered Heart Institute with global research impact will require a comprehensive five-year plan with clear strategic directions and measurable goals.

Our aim will be to re-invent cardiac care around Heart Teams, offering those teams a state-of-the-art expanded facility, while growing our Institute model and organization.

OUR FOUR STRATEGIC DIRECTIONS ARE

- Reinventing Cardiac Care*
- Building Up Our Infrastructure*
- Growing Our Institute Model*
- Enhancing Our Global Research Impact*



STRATEGIC DIRECTION NO. 1



REINVENTING CARDIAC CARE

STRATEGIC GOALS

- Implement Heart Teams
- Expand our clinical care delivery in the community

The Team concept applied to health care has the capacity to defragment the way care is usually provided. Indeed, the UOHI has a tradition for **delivering world-class care** with highly skilled and dedicated professionals working together extraordinarily well. We have demonstrated in many instances our capacity to successfully implement **innovative clinical programs for advanced diagnosis, treatment and prevention of all cardiac diseases**. We are well poised to respond to new challenges and reinvent cardiac care. Based on our exemplary deployment of cross-functional Heart Teams in valve disease (TAVI and MitraClip), we will be expanding the concept of the Heart Team to other domains to disseminate at multiple levels totally **integrated patient-oriented solutions**.

BETTER AND FASTER ACCESS TO CARE

Heart Teams will ensure **better and faster access to care** and focus on what is best for each patient by integrating the combined expertise of highly skilled healthcare professionals from various specialties, measuring immediate and long-term outcomes, and looking at results be-

yond the hospital walls in order to **optimize the patient experience**. Heart Teams will make decisions that are informed by their patients.

This approach is about **providing the right care by the right team at the right time**. It eliminates unnecessary competition between physicians, stimulates team spirit, encourages innovation, promotes clinical research, improves efficiency of care delivery and reduces cost. Each of our Heart Teams will be dedicated to 1) measuring performance and benchmarking against the best similar centres, and 2) finding new ways to educate our patients so they will be active partners in managing their disease.

In the next five years, while expanding our existing valve disease Heart Teams, we will introduce the Heart Team concept in six additional domains: Coronary Artery Revascularization, Complex Cardiac Arrhythmia, Heart Failure, Complex Critical Care, Cardiac Imaging, and Women's Heart Health. Importantly, Heart Teams will not operate in silos but will interact, with each Division being involved to varying degrees in each of the Heart

Teams. Developing Heart Teams is an obvious way to move into personalized medicine and **incorporate new technologies into patient-oriented solutions**, providing our staff with leadership and research opportunities.

CARE AT HOME AND IN YOUR COMMUNITY

The Heart Institute has been able to develop a collaborative clinical practice model of care in the Champlain LIHN. Also known as the **'hub and spoke model'**, it effectively organizes limited resources, builds capacity between primary and specialty care and links to the appropriate community supports. This structure is **patient-centered**, is rooted in the primary care sector, and is integrated with specialty services and with **community-based teams of health care professionals**, including home care and related community supports for patients.

The Heart Institute has built over the years a very robust and highly recognized Prevention and Wellness Centre. The Centre will become an instrumental resource for the Heart Teams as it provides tried and true programs, to patients, family members and the public, such as: the Ottawa Model Smoking Cessation Program, the Cardio-Prevent Program, Heartwise Exercise, FrancoForme to name a few.

In concert with our clinical teams, our very active Patient Alumni Association has been informing the development

of our outpatient programs for decades. The Heart Teams will leverage these highly successful out-patient programs such as the Telehome Monitoring Program, our Prevention and Rehabilitation Program and our One-Year Follow-up Program giving patients access to continuous support, information, and care beyond our hospital's walls, and following their care at UOHI.

Details on each Heart Team's composition and goals are provided in Annex 1.

INFLUENCE CARDIAC CARE BEYOND BORDERS

Through the years, the Heart Institute has fostered several research collaborations. However, during the next five years, we will also strive to **enhance and formalize our clinical collaborations** starting with our unique partnership with the Qingdao Hospital in China.

The Qingdao Hospital reached out to us to learn more about the quality of care we provide and the strength of our organizational model. The five-year agreement has three components, a visiting professorship program, a fellowship program, and finally, an observership program.

We have much to share with our colleagues, and we also have much to learn from our international exchanges. These are winning propositions all around.

BUILDING UP OUR INFRASTRUCTURE

STRATEGIC GOALS

- **Phase 1:** Complete Life Support Project
- **Phase 2:** Plan for future growth
- Develop a long-term medical technology plan

The UOHI Master Plan, developed in 2007-08, identified several areas of infrastructure that needed to be addressed. The S level (Life Support) and Cardiac Imaging were the first two stages and most urgent areas for redevelopment. The S level, where all procedure rooms are still located, was first constructed in 1976 and was gradually expanded to now hold four operating rooms (ORs), four catheterization labs, two electrophysiology (EP) labs, a small procedure room and 14 Intensive Care Unit (ICU) beds.

There is no further possible expansion within this current Life Support Facility for either procedure rooms or ICU beds. Furthermore, a basement location is not ideal for staff morale and patient's comfort, especially those who may require an extended ICU stay. Finally, none of the current ORs is wide enough to accommodate modern technology and equipment such as those used in a hybrid OR, for instance (multi-modality intra-operative imaging and robotic equipment). Clearly, without the infrastructure expansion, which is a central component of this strategic plan, the UOHI would not be able to grow and develop top-notch clinical care, hence ceasing to qualify as a world class clinical facility.

PHASE 1: THE RIGHT NEW SPACE FOR ADVANCED CLINICAL CARE DELIVERY

With the new building, the overall UOHI square footage will increase by **147,000 sq. ft.**

WE WILL SEE THE ADDITION OF:

- ⊕ 2 ORs, for a total of 6 (one hybrid OR and one shelled in for the future)
- ⊕ 2 EP labs, for a total of 4 (one shelled in for the future)
- ⊕ 1 catheterization lab, for a total of 5
- ⊕ 7 surgical ICU beds, for a total of 27
- ⊕ 6 non-surgical intensive CCU beds, for a total of 22

All ORs, catheterization labs and EP labs will be much larger than the current ones, accommodating more equipment and **offering a better work environment**, to optimize staff satisfaction and morale, and most importantly, creating ideal platforms for research and innovation. For critical care beds, private patient rooms will be properly sized with access to natural light and **equipped to provide the very best care and better conditions for clinical research.**

STRATEGIC DIRECTION NO. 2

WE WILL REDISTRIBUTE SPACE FOR AN IMPROVED ENVIRONMENT

As a “domino effect,” after the new addition is completed in 2017-2018, all imaging modalities will be relocated to the S level in one large area allowing for **greater efficiencies in managing work load**. The renovation of the existing building (totaling 59,000 sq. ft.) will accommodate more space for clinical services, research and education on the first and second floors and more space for prevention services on the S level.

In addition, a new front entrance to the building will expand a cramped lobby and provide for **better patient flow** with a central registration and direct access to Cardiac Imaging. The new front entrance will also provide a new look, with a wider and more attractive space for patients, families and visitors.

WE WILL CARRY OUT THE MEDICAL TECHNOLOGY PLAN

The equipment for the new building has been identified by room and program in the Capital and Equipment Plan. Some equipment will be new and some will undergo staged replacement.

Major items, such as imaging for the hybrid OR, CT, catheterization labs and EP labs, have been tendered and contracts issued to fix the cost. New items to be purchased over the next two to three years will be aligned with this plan.

A five-year plan for infrastructure and equipment renewal will be developed in 2015, which will include not only equipment needs but **medical technology requirements**.

PHASE 2: PLAN FOR FUTURE GROWTH

Phase 2 addresses remaining infrastructure limitations, in particular the lack of space for clinics and offices for physicians and staff.

Rethinking our models of care through Heart Teams will be critical to **improving our efficiencies, optimizing our bed capacity and reducing our costs**. For instance, the critical care team will have a major impact on overall clinical operations since **one third of our total capacity will be critical care beds**. The Heart Failure Team will also have a major impact on inpatient and outpatient care, **shortening lengths of stay while avoiding readmissions**. All Teams will require a strong focus on **transition of care** from one unit to the other. Developing less invasive procedures will **reduce the length of stays** only if followed by excellent coordination of care so that we can take full advantage of these innovations and new procedures. This will be of particular importance

for our growing population of elderly and very sick patients. Research space and allocation will be articulated in a synergistic way to support the development of research clusters as identified in the ORACLE (Ottawa Region for Advanced Cardiovascular Research Excellence) Plan and accommodate the various needs of new recruits by **pooling research equipment and personnel in designated research areas**.

Although our current outpatients clinic space is restricted and imperfectly designed, its utilization will be optimized. We will perform regular full reviews of clinic and office space allocation and evaluate ways to **maximize space utilization**, such as extending clinic hours to evenings and weekends. We will also consider new partnerships on **satellite clinics outside our walls**.





GROWING OUR **INSTITUTE MODEL**

STRATEGIC GOALS

- Leverage Board support and engagement
- Invest in people
- Achieve financial stability and sustainability
- Measure and evaluate quality and outcomes
- Redefine information technology, putting patients first
- Share our story

The UOHI is often cited as an **ideal model and organization** to provide **excellence in patient care, research and education**. The main features of our model are:

1. Powerful **esprit de corps** among a very skilled staff, working in the same building towards common goals;
2. **Control of our resources** and ability to raise funds;
3. Well-structured and **efficient governance**; and
4. **Large patient referral** and large volume of complex cardiac procedures.

Indeed, the UOHI has garnered an **enviable reputation** and **strong support in the community** and is a very successful cardiac program for the Champlain Local Health Integration Network. The Heart Institute is a separate organization, publicly and ultimately funded by the Ministry of Health and Long Term Care. It is at the same time strongly liaised with The Ottawa Hospital. As an academic institution, the UOHI also has strong ties with the University of Ottawa for research and education. Our research output is remarkable for an organization of our size, as demonstrated by the 2014 SCIMAGO international rankings.

While working in a **spirit of collaboration and synergy** with our partners, we face, at times, challenges. However, these challenges may also create opportunities in the process of achieving new heights that benefit both our organization and our partners. The UOHI will enhance its model and organization while adjusting to the healthcare funding reform and a changing research funding environment.

LEVERAGE BOARD SUPPORT AND ENGAGEMENT

The UOHI governance is unique and provides solid ground to promote organizational development. The main board of the Institute will have an **important role in this strategic agenda**, through its support of the implementation of care into Heart Teams, its commitment to the measurement of outcomes, and its constant engagement in our pursuit of excellence across all areas of the UOHI. The Ottawa Heart Institute Research Corporation (OHIRC) board will continue its **critical role in assessment of research development and alignment to the strategic plan**, already being well familiar with the ORACLE plan. Both the CEO and the CSO will be accountable to OHIRC for achieving our research goals.

Under our Foundation Board, all opportunities will be seized to **promote philanthropy aligned with the UOHI goals** for the next five years. The ongoing campaign contains a major focus on the Life Support Facility and Cardiac Imaging expansion, with a local share of \$55 million. At the same time, the effort to support research and the ORACLE Plan must be sustained. Constant coordination and alignment of the medical leadership with the Foundation's fundraising goals, rather than individual goals, will be critical. **Novel financial models** may need to be considered and eventually supported by the UOHI Boards in conjunction with our campaign.

STRATEGIC DIRECTION **NO. 3**



Perpetuate our culture through upcoming generations.

INVEST IN PEOPLE

The Heart Institute staff is **our most important resource**. We will invest in our people by offering them the best training, tools, resources and sustainable funding. We want to promote staff inspiration, engagement and a shared sense of purpose so that each member of our staff feels engaged and inspired by the Heart Institute's mission and vision. This is the only way to strengthen and **perpetuate our culture through upcoming generations**. We need to build a work environment to retain our staff, promote leadership, inspire the best and the brightest and facilitate their recruitment. We will **enhance health education opportunities** for health care providers of today and of tomorrow. We want to improve **leadership training and mentoring** and increase the number of skilled physicians and clinical and basic scientists engaged in our institution to generate new knowledge. These individuals will be **tomorrow's leaders**.

ACHIEVE FINANCIAL STABILITY AND SUSTAINABILITY

We must anticipate new trends in the cardiac health of our patient population, track the emergence of relevant technology, and adjust constantly to the workforce environment. We must build on our Institute model and foster key collaborations with our partner institutions while we develop our governance and management structures to deliver on our vision, mission, and strategic plan. **We believe in a lean structure in order to stay agile**, coordinated and efficient, while avoiding dilution of responsibilities, eliminating redundancies, and keeping a **clear and seamless chain of command**. We will use external consulting appropriately and cautiously. We want to improve effectiveness in outcomes and safety, reduce costs in our clinical operations and explore **business opportunities**. To do so, we must **take advantage of our model** to enhance it and use our reputation to **create value-added corporate alliances** and **global value partnership**.

MEASURE AND EVALUATE QUALITY AND OUTCOMES

The Heart Teams will **fully engage in our patients' cycle of care**, encompassing inpatient and outpatient, cardiac rehabilitation and other services. The Heart Teams will also be responsible for patient education, engagement and follow-up, which is important to successful transitions of care and the effective management of chronic conditions. The **measurement of quality** is an important focus of this strategic plan. Through the heart teams, we will build a strategy for measurement for long term outcomes. The Heart Teams will measure outcomes and assess processes and results to optimize strategies and propose continuous quality improvement plans. We will engage in benchmarking our surgical outcomes against the best US centres through systematic surgical patient enrollment into large international registries such as the STS database, the largest cardiac surgery database in the world.

Finally, few clinicians have a working knowledge of the cost of patient care. We have a plan to increase awareness and engagement around financial and fiscal responsibility during the full cycle of care. When the complex care that is often required for cardiac patients is provided and coordinated through a Heart Team model, savings could be achieved without compromising quality.

REDEFINE INFORMATION TECHNOLOGY, PUTTING PATIENTS FIRST

Redefining information technology (IT) will be a major enabler of **our core value of putting patients first**. Integrated information systems will allow our Heart Teams to be centred on following patients across services through the full cycle of care, including hospitalization, outpatient visit and follow up. Redevelopment of our electronic medical record (EMR), in collaboration with TOH, and harmonization of our multiple internal clinical databases are key aspects of our IT strategy. The medical information will be accessible to all involved in a patient's care, including physicians within and outside our walls and patients themselves.

We will develop a **new culture of patient-physician relationship around patient portal technology**. Each patient will have access to her/his relevant medical information through myottawaheart.ca. Such access will make it easy to survey patients for information relevant to their care and recovery giving patients the ability to report back on outcomes of their care and medication compliance. This interactivity will promote a culture of quality, transparency and accountability and have a dramatic impact on **patient engagement** and **ownership of their care once** they return home. This approach aligns with the provincial quality agenda and will help us to **champion the patient experience**.

SHARE OUR STORY

The world of communications has dramatically changed our way of living and the fundamentals of our society. Today, information is accessible any time, in real time, and anywhere for virtually everyone, including an elderly population who access internet themselves or through their relatives or friends. With such a profound and rapid cultural shift, the way the UOHI communicates internally and externally needs to evolve.

Critical to our five-year plan is the complete rethinking of **how we tell and share our story**. To do so we will redevelop our website and maximize the use of social media. In the years to come, we will continue to have a **vibrant line of communication** internally with our staff and our community, informing and recognizing them. At the same time, we will build on our lines of communication to extend our **global reach and achieve greater impact**.

We will use all available web based communication platforms to promote and disseminate in a fast and powerful way our research successes and further cultivate our reputation of excellence in clinical care and education. We will develop new modes of communicating with our patients through innovative telemedicine programs and move away from paper towards e-learning.



STRATEGIC DIRECTION **NO. 4**

ENHANCING OUR **GLOBAL RESEARCH IMPACT**

STRATEGIC GOALS

- Invest in and grow our innovation clusters in alignment with the Heart Teams
- Internationalize our research enterprise
- Collaborate with private sector to maximize knowledge and impact
- Engage patients in our research

Today's research is tomorrow's treatment. Our model is built for optimal integration of basic science and clinical research with advanced clinical care. Our priorities reside naturally in translational research, a reflection of the natural flow of knowledge from bench to bedside to community, from scientific discovery to new forms of treatment to practice-changing policies. The large volumes of cardiac patients concentrated at UOHI provide unique opportunities for fruitful clinical outcomes research and population health research. The close proximity of basic scientists, clinical researchers and care teams makes UOHI an ideal milieu for translational research. Discoveries can be made in the molecular and genetic laboratories, the cardiac imaging facilities, the ORs and procedure rooms, at the patient bedside and in populations around the Champlain region and worldwide.

COMMITMENT TO THE ORACLE PLAN

The implementation of our research enterprise's strategic plan, entitled ORACLE (Ottawa Region for Advanced Cardiovascular Research Excellence) will systematically achieve our ambition of significant, **sustainable global impact**. It will extend our high levels of excellence in research, expand our international outreach by increasing collaborations, and augment our output in high impact journals and our presence at the most prestigious international meetings. An important component of the ORACLE plan is the **Innovation Clusters**. They are designed to enhance collaboration and knowledge sharing among investigators in different disciplines and provide the **research framework for the clinical Heart Teams**. The most successful clusters will become specialized Centres of Excellence, **leading innovations nationally and internationally**.

THE ORIGINAL ORACLE PLAN FOCUSED ON THE FOLLOWING THEMES:

1. Developing new tailored, patient-centered approaches to diagnostic and therapeutic strategies; (Valve Disease, Coronary Revascularization, Atrial Fibrillation, Critical Care)
2. Unlocking novel causes of cardiovascular diseases; (Cardiac Arrhythmias, Heart Failure, Biomarkers and Genetics)
3. Optimizing the technology and human interface in heart and vessel conditions (Cardiovascular Imaging, Minimally Invasive Surgery and Robotics)
4. Fostering community interventions, health systems and health policy innovations in cardiovascular health. (Clinical Outcomes Research, Prevention, Women's Heart Health)

TAKING UP NEW CHALLENGES THROUGH ORACLE 1.5

Building on the momentum and achievements of the original ORACLE Plan, our research community will achieve the next level of excellence through ORACLE Plan version 1.5, with its focus on international collaboration, building world-class infrastructure, recruiting the best international trainees and partnering with the private sector.

We will continue to invest and grow our innovation clusters in support of the Heart Teams with a new cluster competition which will be held in 2015-2016.

On the internalization front, we will be "partners without borders" with the best private sector leaders for translation and commercialization.

Collaboration with the private sector and partners in innovation will maximize translation and impact.

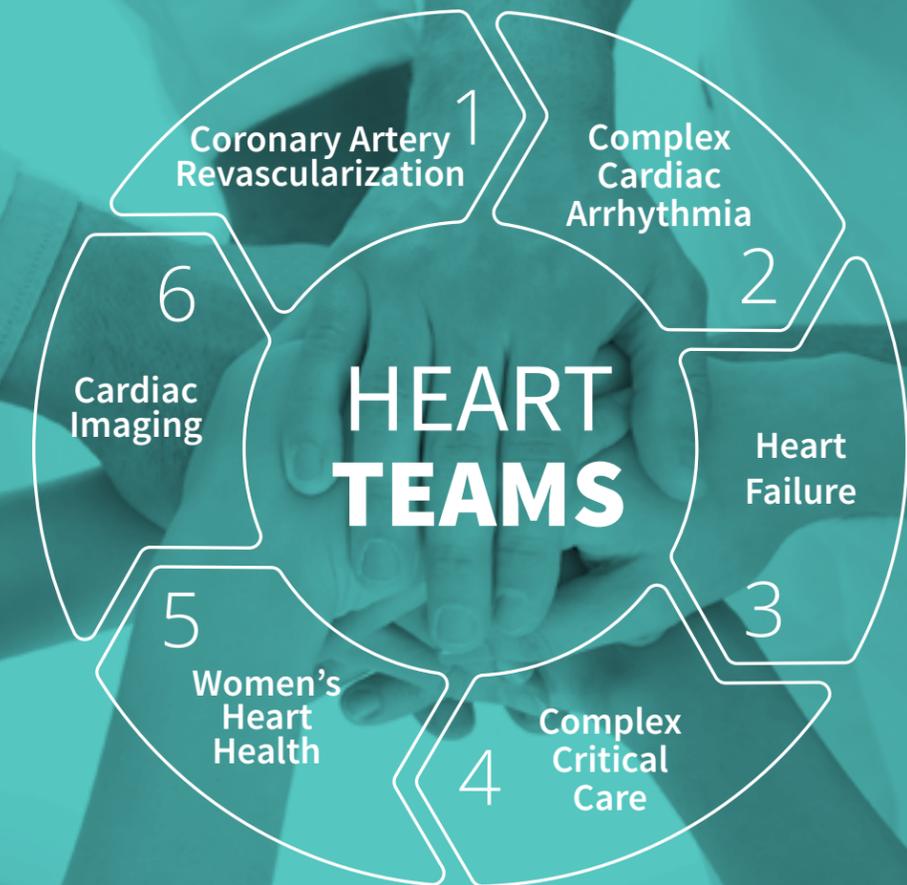
A key component of research impact is the translation of new ideas into tools and products that can tangibly make a difference for patients and health systems. However, this is not possible without critical partnerships with the knowledge user and private sector. UOHI has already had an excellent track record for engaging private sector partners for product development and commercialization. This will be further built in ORACLE 1.5, with proof of concept programs and active engagement and networking with innovation/private sector partners.

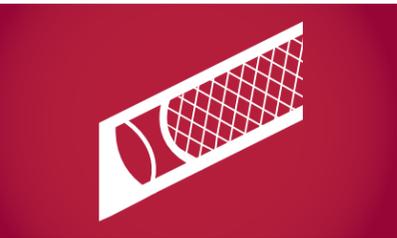
Finally, ORACLE 1.5 identifies the importance of engaging our patient community to assist in research directions, such as in providing input on major clinical gaps and relevancy of research end points.

Starting in 2015, we will be working closely with patient groups, researchers and clinical leaders at UOHI to foster this innovative approach to have patients as partners of research and innovation.

ANNEX 1

The Heart Team model provides totally integrated, patient-oriented solutions. We will expand our existing valve disease Heart Teams (TAVI and MitraClip), and we will extend the model to six additional domains.





CORONARY REVASCULARIZATION **TEAM**

Coronary revascularization by means of coronary bypass surgery (CABG) or percutaneous coronary intervention (PCI) remains the most common cardiac procedure performed at the Institute. Since both techniques have undergone continued advances, coronary revascularization has evolved tremendously.

PCI and CABG should no longer be seen as competing technologies. Instead, the best possible revascularization approach for a specific patient presenting with coronary artery disease (CAD) requires **optimal interaction between cardiologists and cardiac surgeons**, referring physicians and other specialties as needed, following **national and international guidelines**. Those guidelines actually recommend **discussion by a heart team** for a certain subgroup of patients presenting with multi-vessel disease where **coronary revascularization strategy may have several options**. With increasing patient comorbidities and complexity, the optimal form of revascularization is difficult to ascertain as there is an important interaction between the patient's clinical condition and their coronary anatomy. More patients require a more detailed team approach to apply our resources appropriately.

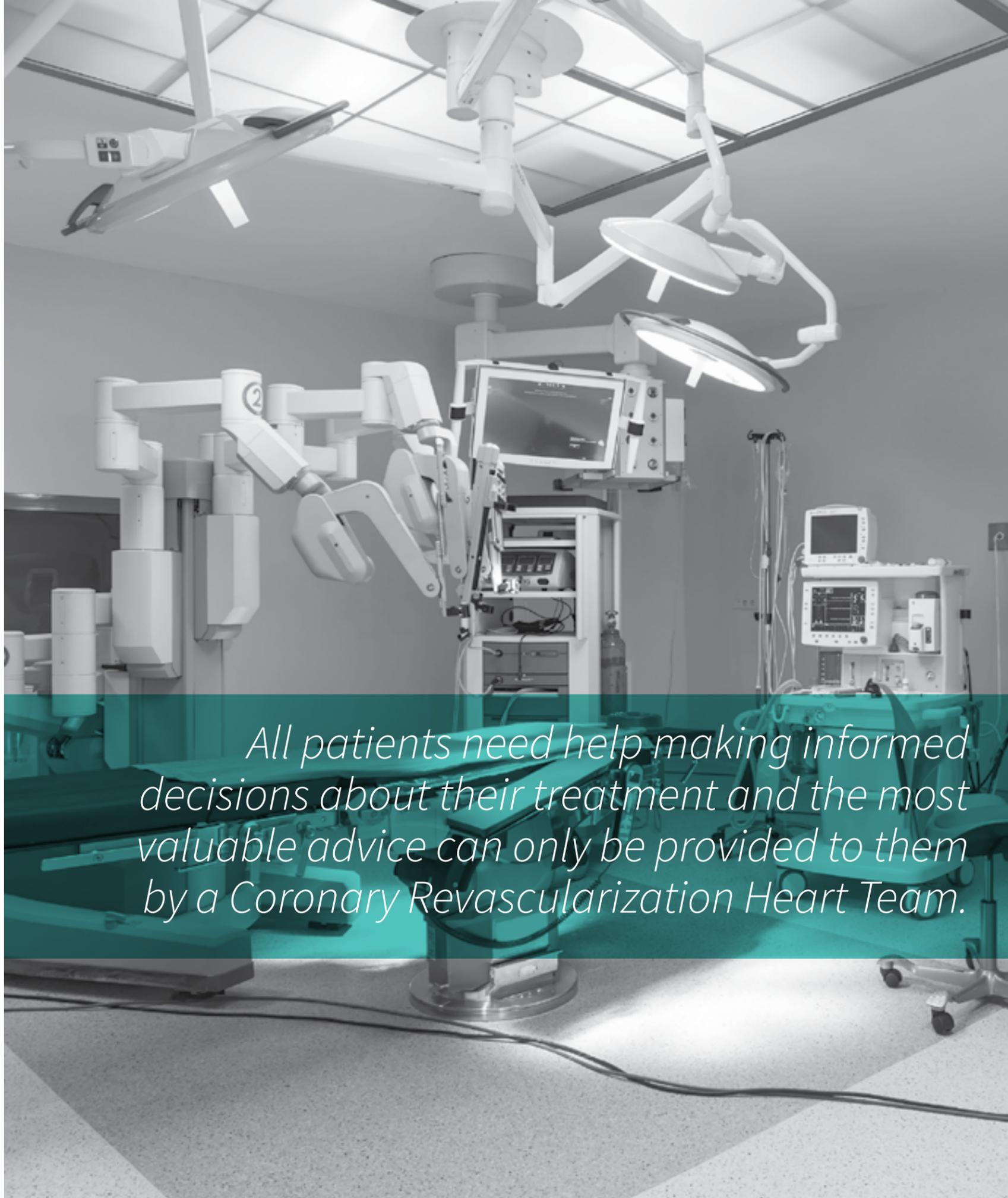
In fact, all patients need help making informed decisions about their treatment and the most valuable advice can only be provided to them by a **Coronary Revascularization Heart Team** explaining pros and cons and looking at **tailored solutions for complex situations**. Such Teams will focus on developing novel approaches such as **hybrid coronary revascularization**. Ideally, a hybrid coronary revascularization should be a planned intervention combining minimally invasive CABG of the main coronary artery with PCI of other coronary arteries. Hybrid procedures should be performed in a **hybrid operating room** such as

the one under development in the new addition, combining advanced surgical technology such as **robotic instrumentation, PCI technology** and imaging capabilities to assist surgeons and cardiologists.

A great deal of collaboration between cardiologists and surgeons will be necessary, with a patient-centered instead of procedure-centered approach. In addition, 40 per cent of patients with valve disease have concomitant CAD and some may also benefit from a hybrid approach with a combination of less invasive robotic valve repair and PCI. By offering such solutions, the **Institute will be a pioneer** in this new field of hybrid coronary revascularization potentially establishing a **new gold standard of care followed by others around the world**.

The Coronary Heart Team will develop processes for optimal patient selection and the implementation and delivery of the best solution for each patient. Eventually, the team will implement a hybrid strategy, with appropriate **outcomes measurement and a personalized follow-up plan**. All the data will be captured to allow for further analysis and longitudinal follow-up, including systematic post-revascularization clinic visits where all patients are seen at regular intervals for medical optimization as well as rehabilitation and risk factor modification. Imaging follow-up will be required to ensure that the revascularization strategy was, in fact, successful. Data garnered from this dedicated **longitudinal follow-up** regime would naturally serve as fertile ground for extensive research. Nested randomized clinical trials could easily be performed within this framework.

By applying this more thoughtful and tailored approach to these patients, there is an **opportunity to reduce resource consumption and increase cost effectiveness**.

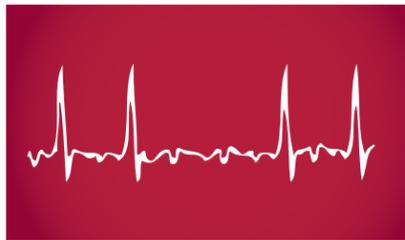


All patients need help making informed decisions about their treatment and the most valuable advice can only be provided to them by a Coronary Revascularization Heart Team.



The new Life Support Facility will offer more EP laboratory capacity and the possibility of a hybrid EP room.

COMPLEX CARDIAC ARRHYTHMIAS **TEAM**



Electrophysiology (EP) is a fast-expanding sub-specialty of cardiology that is concerned with all forms of cardiac rhythm disorders. The **EP clinical workload is increasing** with a growing number of clinical services including inpatient and out-patient clinics and invasive procedures such as implantable pacemakers and cardiac resynchronization devices, implantable defibrillators, and ablation procedures for ventricular tachycardia (VT) or atrial fibrillation (AF).

AF is the most common cardiac arrhythmia, a major cause of stroke and an independent risk factor for mortality. **Catheter ablation** procedures have considerably expanded in patients who fail AF medical therapy or as a first line therapy in highly selected patients with symptomatic paroxysmal AF. Catheter AF ablation is less efficient in patients presenting with long-standing permanent AF or in patients with other conditions including left ventricular dysfunction or valve disease. Minimally invasive surgical AF ablation is currently offered to some of these patients.

The new Life Support Facility will offer more EP laboratory capacity and the possibility of a **hybrid EP room**. The **hybrid EP concept** is new and expanding in centres of excellence with **AF heart teams**. These teams include expert cardiologists in electrophysiology and heart failure, cardiac surgeons expert in stand-alone EP ablation, and dedicated nurses for very specific follow-up.

The UOHI will establish a multidisciplinary dedicated Cardiac Arrhythmia Heart Team which will develop novel strategies and processes

for patient screening, triaging to appropriate treatment, and implementation of optimal patient follow-up. This specialized Heart Team will explore novel approaches, opportunities for **collaborative research**, and possible hybrid approaches using trans-catheter technology along with **minimally invasive surgery** in a dedicated hybrid EP room. The team will develop the **right strategy for each patient**, the decision being made between EP cardiologists, cardiac surgeons, heart failure specialists and others.

This team will develop collaborative approaches around the **UOHI Regional AF program**, and the **COAST AF Program, part of the ORACLE Plan**. The focus of the team will be to comprehensively genotype/phenotype patients with long lasting persistent AF along with specific MRI and PET analysis of the left atrium. The ultimate aim is to **better understand patient-specific AF disease so that treatment can be individualized**. One can imagine that certain patients would be best treated with medical therapy while others might be better suited to percutaneous and/or surgical ablation, following a well-planned and comprehensive hybrid strategy. The team will also address collaboratively specific issues regarding pacemaker lead laser extraction and ventricular tachycardia ablation in critically ill patients requiring a temporary ventricular support device.

Through the Cardiac Arrhythmia Heart Team, the Institute will develop a defragmented and regional model of care and personalized medicine for cardiac arrhythmias that **does not exist anywhere in Canada**, and is only at an early stage of inception in other parts of the world.



HEART FAILURE TEAM

Patients with advanced heart disease leading to heart failure (HF) should only be treated by a **dedicated HF Heart Team**. Such a team was first implemented many years ago at the Institute primarily to support the Heart Transplant and Artificial Heart Program. It was then expanded to the Heart Failure and Pulmonary Hypertension Clinics. HF patients have the most complex disease requiring highly specialized experts in diagnosis, management, risk assessment, and advanced therapeutic modalities for cardiac and non-cardiac problems.

HF patients impose a high burden of care for any hospital, and few hospitals, including very large ones, are equipped for complex HF management. The journey of these patients can be extremely stressful and involves a high level of coordination with multidisciplinary assessment from cardiology, cardiac surgery, cardiac anesthesia and cardiac rehabilitation. Our HF Team currently manages high-volume outpatient clinics and large numbers of inpatient admissions for decompensate HF, screening them towards complex procedures as needed.

The Heart Failure Team will be responsible for optimizing and stabilizing HF in-patients prior to surgery and improving post-operative recovery time for those who have an extended ICU stay due to pump failure. Harmonizing care and working in **close collaboration with critical care facilities** will reduce

the length of stay, minimize procedural risk, and facilitate **transitional care and long-term care outside UOHI facilities**. The HF Team will optimize acute inpatient service to grow our **capacity for novel heart failure strategies**, such as implantable ventricular assist devices (VADs). In addition to HF cardiologists and transplant/VAD surgeons, the team will require increasing interaction with critical care specialists, interventional cardiologists with expertise in complex percutaneous intervention for advanced heart failure, and the EP group with expertise in arrhythmia devices and ablations. HF patients will also benefit from **tailored cardiac rehabilitation** to improve their functional capacity before they go home and their quality of life afterwards.

A significant proportion of HF patients may not be eligible for these advanced therapeutic options available only at UOHI. Based on our success with the GAP tool, looking at best practices across the region in HF patients, we will develop our **HF hub-and-spoke model of care** and expand into regional **UOHI HF satellite clinics**, providing HF consultation with **UOHI experts outside our walls**. This will support standardization of care for HF patients and adherence to HF therapeutic guidelines across the region, and it will demonstrate our **capacity for influencing care beyond our walls**.



The HF Team will optimize acute inpatient service and grow our capacity for novel heart failure strategies influencing care beyond our walls.



ICUs, after our expansion, will account for one third of all Institute beds. They are a critical part of acute cardiac care and a very important area of focus for quality of care and patient safety.

COMPLEX CRITICAL CARE HEART TEAM



Intensive care units (ICUs) are a critical part of acute cardiac care and a very important area of focus for quality of care and patient safety. The new UOHI Life Support Facility will be completed in 2017-2018 with 27 Cardiac Surgical ICU beds (CSICU) and 22 Cardiology Intensive Care Unit beds (CICU) for a total of 49 beds representing roughly one third of our total beds. This is a unique situation, reflecting an **extremely high level of patient acuity**, currently one of the highest in the province. In the CSICU on any given day, 54 per cent of patients are on a ventilator for life support and 20 per cent have a prolonged stay beyond 48 hours and represent 80 per cent of ICU resources. When we combine all current critical care beds, about 700 patients per year have a high severity of illness that consumes 6,500 days.

Clearly, critical care is evolving and patients are **more complex in both surgical and non-surgical** worlds, particularly with an increasing number of **HF patients** and patients resuscitated from **out-of-hospital cardiac arrest**.

The CSICU has been functioning as a world-class closed unit since 1995 when, at the request of the UOHI executive committee, the unit was placed under the responsibility of the Cardiac Anesthesiology Division. New specialists were recruited based on criteria such as critical care medicine specialty (cardiac intensivist). The CICU still operates under the full responsibility of Cardiology with consultation from CSICU upon request. Guidelines recognize that within the CICU all cardiologists are well trained for primary diagnosis of acute coronary syndrome, heart failure, and arrhythmia but do not have critical care expertise to manage the multisystem organ failure that may occur with prolonged ICU stays. Most cardiologists do not have formal critical care training.

In the next five years, the Institute will harmonize patient care between CSICU and CICU. This will be achieved by the formation of a UOHI Critical Care Heart Team, involving Cardiac Anesthesia, Cardiac Surgery and Cardiology, which will look at gradual harmonization of care for the most critically ill **patients requiring the most complex and prolonged ICU stays**.

The Critical Care Heart Team will organize integrated rounds for the most challenging patients in CICU and CSICU and establish an operational committee to understand SOPs and specific care pathways in both units and evaluate quality of critical care service for patients requiring the most complex critical care, i.e., post-operative cardiac surgery, post-TAVI or Mitraclip, or hybrid procedure, most critical post-STEMI, acute HF, post-cardiac arrest, and complex arrhythmia.

This will create a **uniform cross-functional model of critical care, not yet existing anywhere else**. This model will favour education for cardiologists, cardiac anesthesiologists and cardiac surgeons through integrated rounds and meetings, exposing all residents to post-operative surgical care and encouraging trainees to obtain training in critical care. This Heart Team will focus on **outcomes research**, establishing a **long-term follow up of most critically ill patients surviving a long ICU stay**. To this effect, the Heart Team will be responsible for a comprehensive critical care database measuring CSICU and CICU outcomes.



CARDIAC IMAGING TEAM

Cardiovascular imaging and image-guided procedures have experienced amazing developments over the last 20 years. With the recent expansion at the UOHI of 3-D echocardiography, nuclear cardiology, CT and cardiac MR, we need to focus on appropriate-use criteria (AUC) for imaging, physician training in various modalities, and the elimination of overlapping applications. All of this is essential to the quality of care. The 2015-2019 strategic plan includes the development of the **UOHI Centre of Excellence for Cardiac Imaging (E-MAGIN)** regrouping in a single location all non-invasive cardiac imaging modalities, including 2-D and 3-D echocardiography, cardiac CT angiography, cardiac MRI, PET imaging and nuclear cardiology.

The E-MAGIN Centre will reside in the S-Level of the current UOHI building, following relocation of Life Support Facilities, and be operated by the Cardiac Imaging Team, which includes imaging experts and clinicians from the divisions of cardiology, radiology and nuclear medicine.

The Heart Team concept applied to cardiac imaging would best serve the patient flow by **reducing wait times, improving in hospital efficiencies** and offering increased research data sharing and follow-up services. By ensuring that patients receive the most accurate tests, we will minimize unnecessary downstream testing and **minimize cost and wait times**. In addition, the Cardiac Imaging Team will collaboratively review the most advanced technology to make sure that imaging capital equipment remains state-of-the-art and continues to feed the intense research in cardiac imaging which has been extremely successful in the past at UOHI.

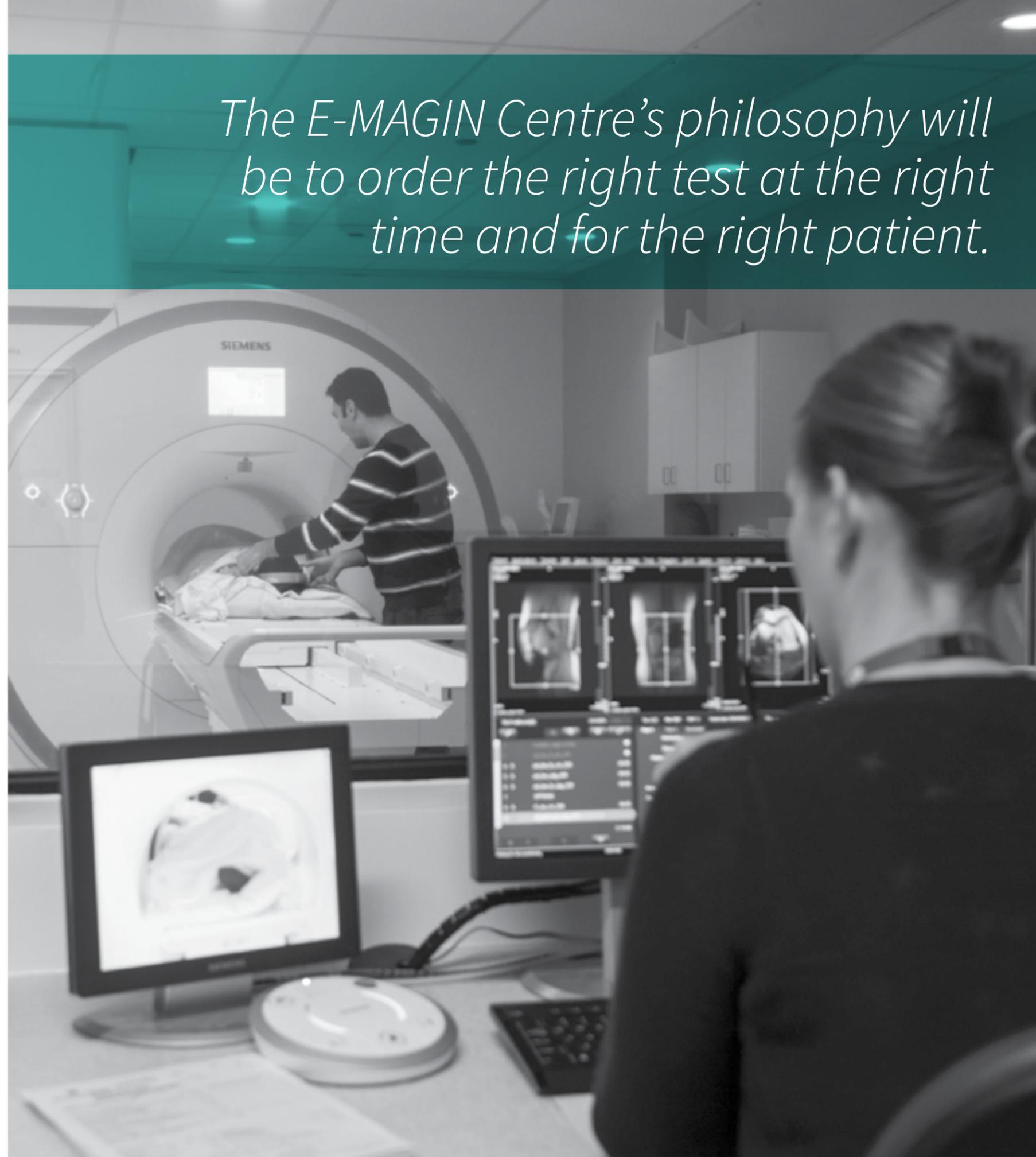
The Cardiac Imaging Team will promote multi-modality imaging integration with other UOHI Heart Teams and **facilitate decision making on evidence-based medicine**. For instance, the coronary revascularization team will include dedicated non-invasive cardiac imaging specialists to guide and evaluate hybrid strategies.

The Cardiac Imaging 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 include the use of imaging as a surrogate for the evaluation of novel drug development.

The E-MAGIN Centre will be a centre of excellence, **enabling in a single site the education** of technologists, nurses, support staff and physicians, ensuring diagnostic accuracy and quality. It will function as a **hub-and-spoke model** in the region so other hospitals utilizing similar technology can benefit from the Centre's cardiac focus and expertise, and common protocols, designed and adopted collaboratively, will reduce the need for patients to undergo repeat tests. Cardiac imaging requisitions will be centralized to ensure that volumes are distributed across centres to accommodate patient needs. The Cardiac Imaging Team will review requisitions, ensure appropriateness in referrals and minimize inappropriate use of resources.

The Centre's philosophy will be to order **the right test at the right time and for the right patient**.

The E-MAGIN Centre's philosophy will be to order the right test at the right time and for the right patient.





WOMEN'S HEART HEALTH TEAM

The UOHI Cardiac Prevention and Rehabilitation Division has grown considerably in size and influence over the years as a very successful program recognized nationally. Our work in developing innovative approaches to cardiovascular primary prevention keeps growing. Our Prevention team continuously partners with referring hospitals to establish off-site programs across the region and across the country, i.e., the very successful Ottawa Model for Smoking Cessation established in 2007. In 2014, the UOHI launched with great success **the first Canadian Women's Heart Health Centre**.

A dedicated Heart Team will be assembled to work in close collaboration across divisions around the fundamental pillars of research, clinical services and education/awareness. We will create a self-sustaining model where each pillar successfully feeds the other two, enabling significant research, growth of clinical activities and enhanced education of the lay public and healthcare professionals about cardiovascular health and diseases in women.

EDUCATION AND AWARENESS FOR WOMEN'S HEART HEALTH

Educational plans that **raise awareness of specific cardiovascular problems in women** and fill the existing knowledge gaps will be a major step towards improving cardiovascular health in women. The UOHI



Prevention and Rehabilitation Division has already done significant work on this area, performing nationwide surveys of awareness of cardiovascular issues in women among healthcare providers and the lay public. Several knowledge gaps have been identified which will serve as the base for the educational programs. To reach

the community, educational programs will be further developed, with a strong social media presence about specific cardiovascular issues in women. To further reach out to healthcare providers, we will cultivate a strong presence in international and key national conferences and will participate in the development of Guidelines for Cardiovascular Diseases in Women. This will emulate population health and epidemiology research. New research will generate new knowledge, which links back to the education pillar through knowledge translation. With education and awareness initiatives, the clinical needs will increase since greater knowledge about specific cardiovascular problems in women will generate referrals from healthcare providers and self-referrals from patients.

CLINICAL SERVICES SPECIFIC TO WOMEN

One of the major issues women and their healthcare providers face is the large knowledge gap pertaining to clinical management of their cardiovascular issues. For this reason, it will be important to develop a Heart Team with a **core group of clinicians having interest and expertise in cardiovascular diseases in women**. This team will be able to see patients referred for expert UOHI consultation and recommend a sound investigative and treatment plan. The Institute is in a prime position to offer such services given the **high expertise in cardiology, cardiovascular surgery,**

cardiovascular risk management, prevention and rehabilitation already available. In addition, our Cardiac Imaging Heart Team will facilitate the application of novel imaging modalities in the management of the complex cardiovascular issues this population will present. Specific cardiovascular issues in women will be



Raising awareness of specific cardiovascular problems in women will be a major step towards improving their health.

addressed, such as cardiovascular risk assessment and management, heart failure with preserved ejection fraction, hypertensive complications of pregnancy, postpartum and stress-induced cardiomyopathy, spontaneous coronary artery dissection, and more.

WOMEN'S CARDIOVASCULAR HEALTH RESEARCH

Greater disease awareness and increased specific patient referrals will generate cutting-edge research that will **further enhance UOHI research impact**. Clinical patients are potential research subjects, and **management of specific clinical problems will promote novel research ideas**.

We will develop research themes around cardiovascular diseases that are unique to or more common in women and cardiovascular diseases that have a worse prognosis in women (such as coronary artery disease, cerebrovascular disease, valve disease and aortic aneurysms).

We will create a new **ORACLE Cluster in Women's Cardiovascular Health** that will bring key scientists together, from UOHI and University partners. Initially, we will focus on implementing disease-specific registries, bio-banking, risk assessment and risk modification, and developing cohorts for epidemiology and population health studies.

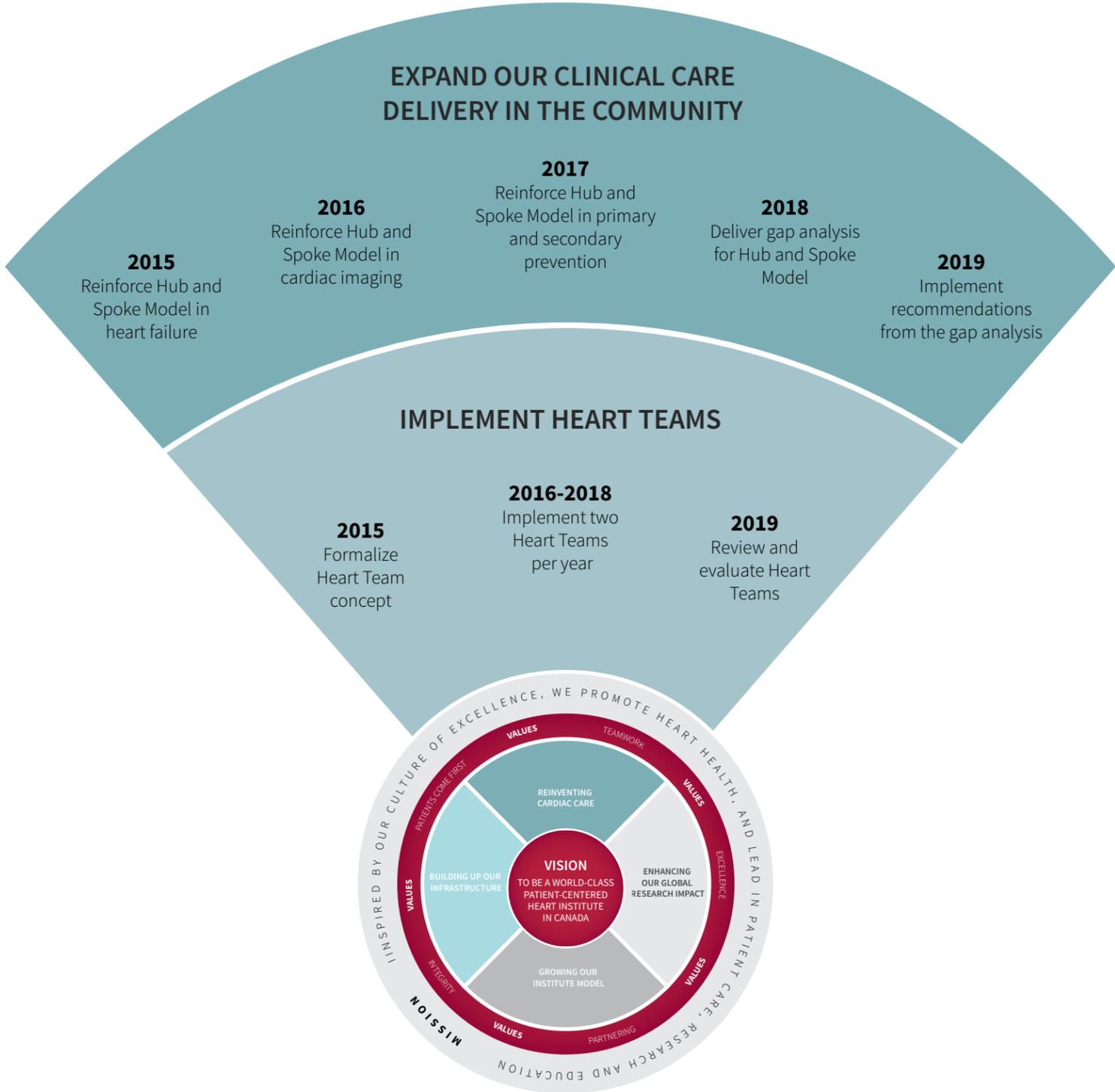
This will be a critical step in developing a **strong foundation for long-term outcome studies**. Within five years, we will have robust outcome data and could make an **impact nationally and internationally**. This research will lead to important discoveries, while enabling scientists to obtain grants, all of which will set the UOHI apart as a **world leader in women's cardiovascular research in Canada**. Furthermore, a strong international reputation in women's cardiovascular research may help capture donations, further supporting the program.

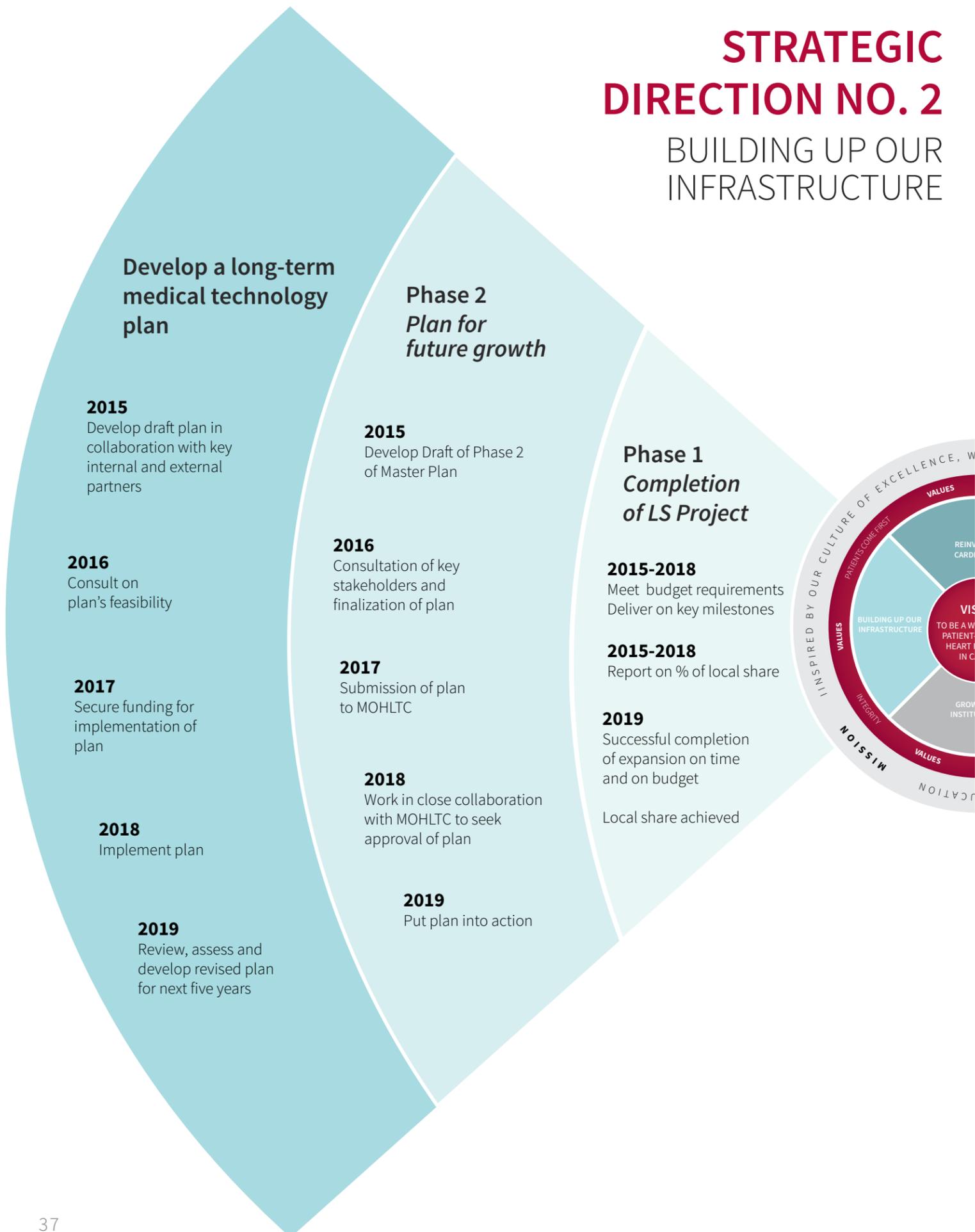
STRATEGIC DIRECTION NO. 1

REINVENTING CARDIAC CARE

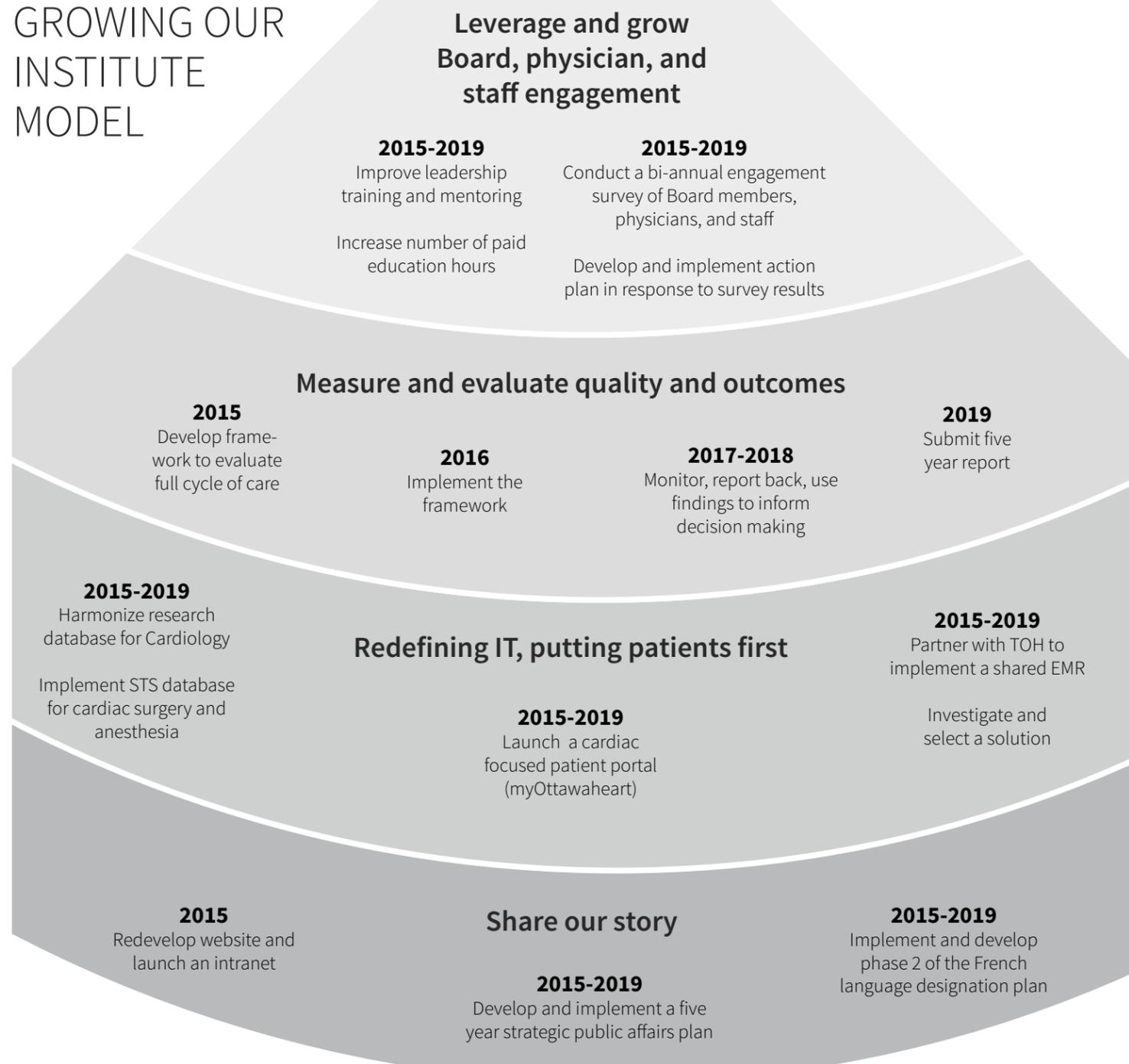
ANNEX 2

METRICS | DELIVERABLES



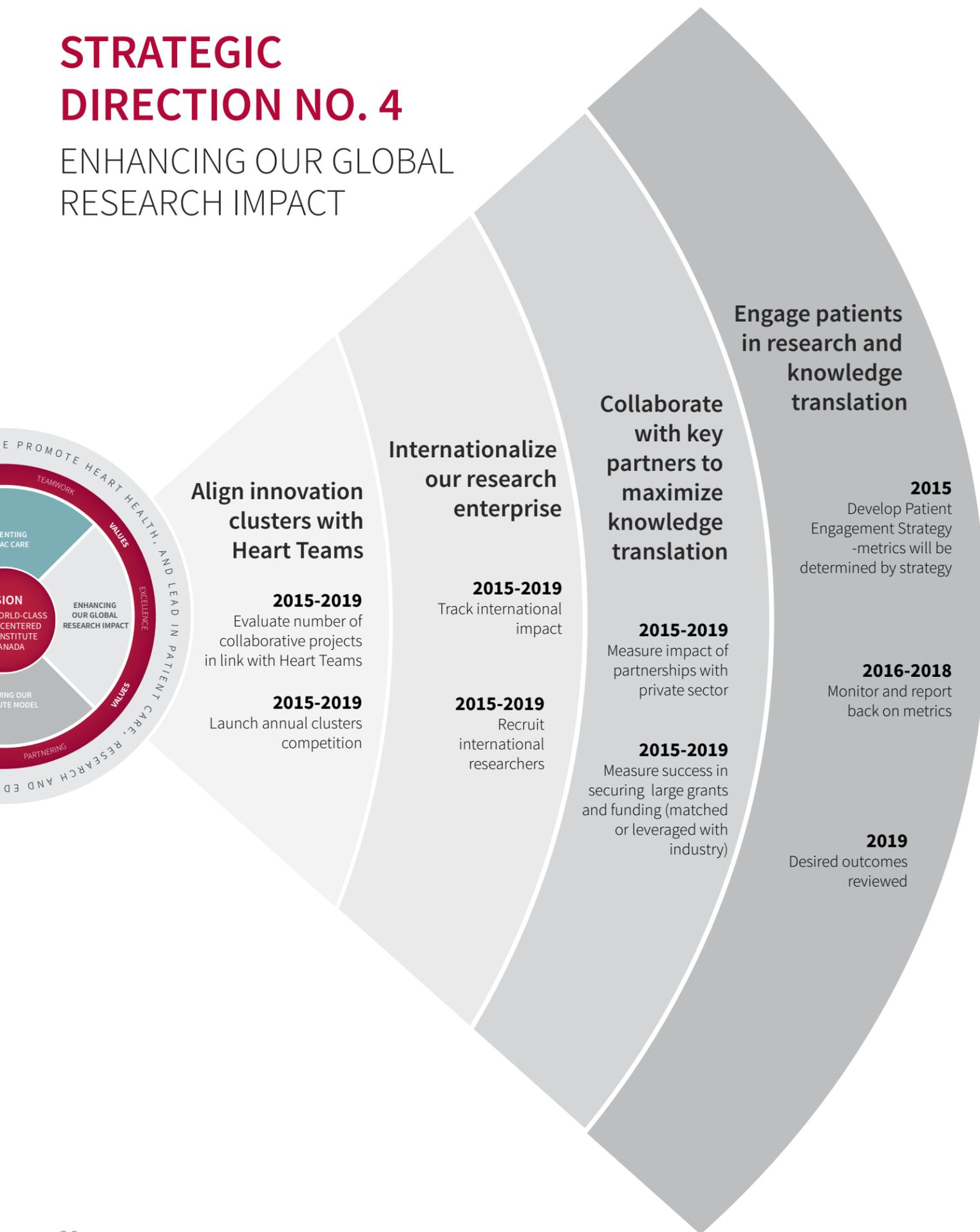


STRATEGIC DIRECTION NO. 3
GROWING OUR INSTITUTE MODEL



STRATEGIC DIRECTION NO. 4

ENHANCING OUR GLOBAL RESEARCH IMPACT





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