We will maximize regional and interdisciplinary research to solve major health problems in cardiovascular disease prevention and treatment to accelerate our global leadership in cardiovascular innovation.
The Heart Institute, together with our regional partners, is building on a solid foundation following the implementation of the 2013-17 Ottawa Region for Advanced Cardiovascular Research Excellence (ORACLE) strategic plan. With the ORACLE 2.0 strategy, we will maximize regional and interdisciplinary research to solve major health problems in cardiovascular disease prevention and treatment to accelerate our global leadership in cardiovascular innovation.

In disease areas with the greatest patient burden, we will create and support unique Innovation Hubs of interdisciplinary research teams, who will work with our clinical care Heart Teams in addressing clinical care gaps as identified by our physicians. In connection with the goals of our Canadian Women’s Heart Health Centre, we will facilitate sex and gender considerations in our research studies. We will engage our connected patient population in identifying patient relevant outcomes while supporting research that matters to the patient. We will partner equally with our regional research Institutes and faculties at the University of Ottawa, make the most of our regional state-of-the-art research facilities, and collaborate with the private and the government sector. Finally and most importantly, we will invest in talented people and their best ideas, recruiting and retaining the highest caliber investigators and we will train the next generation.

All the while we will strengthen our translational research, supported by our unique Institute model, which promotes physician and scientist interaction to stimulate bench-to-bedside, and bedside-to-bench research. We will improve our clinical research infrastructure and impact, with a critical step being our recently inaugurated state-of-the-art facility to deliver outstanding cardiovascular care.

This strategy is the result of an extensive consultation and environmental scanning process, together with specific recommendations from an International Scientific Review. We are sincerely grateful for all that contributed to defining the strategy, including our researchers, regional partners, our Board of Directors, patients, trainees and research office staff. We look forward to working with all stakeholders in the implementation of this forward-looking strategy.

Peter Liu, MD  
Chief Scientific Officer and VP Research  
University of Ottawa Heart Institute

Thierry Mesana, MD, PhD  
President and CEO  
University of Ottawa Heart Institute
ORACLE 2.0 has evolved naturally from previous iterations of the University of Ottawa Heart Institute research strategic plans. At the core of the new ORACLE strategic plan is interdisciplinary research. This is particularly fitting since the key to maintaining research excellence and fostering discovery in an increasingly borderless world is collaboration among researchers from multiple disciplines.

The University of Ottawa is proud of its tradition of excellence in cardiovascular research and of its historically strong ties with the Heart Institute. Cardiovascular disease is a priority in the health sector, one of the University’s four strategic areas of development in research. An integrated approach, involving researchers from various faculties and affiliated hospital research institutes, has been vital to scientific advances in health care. The University’s Brain and Mind Research Institute and the Centre for Neuromuscular Disease are but a few examples that illustrate the benefits of partnership.

Looking forward, three new centres in the faculties of Medicine and Health Sciences — the Centre for Infection, Immunity and Inflammation, the Joint Research Centre on Systems and Personalized Pharmacology and the LIFE Research Institute — hold promise for future collaborations with the Heart Institute. The Faculty of Engineering’s rapidly developing expertise in artificial intelligence and medical devices could also greatly enhance research into preventing and treating heart disease.

Working together to maximize expertise and resources is essential as the Heart Institute continues to build an internationally recognized centre for cardiovascular research. ORACLE 2.0 and its plan to create hubs of interdisciplinary expertise will offer a novel means of fulfilling the Heart Institute’s ambitious vision while being mindful of its ultimate goal: to improve the lives of patients, one discovery at a time.

Sylvain Charbonneau, PhD
Vice-President, Research
University of Ottawa
STRATEGIC GOALS

GOAL ONE
Catalyze impactful research by creating and supporting unique Innovation Hubs of interdisciplinary research teams

GOAL TWO
Support and enhance our fundamental and translational research enterprise

GOAL THREE
Catalyse innovation and excellence in clinical research

GOAL FOUR
Build cross-cutting initiatives to facilitate research

SCIENTIFIC PRIORITY THEMES

Discovery to Translational Innovations
Precision Medicine
Big Data & Artificial Intelligence
Healthy Diverse Populations
GOAL ONE
Catalyze impactful research by creating and supporting unique Innovation Hubs of interdisciplinary research teams

INNOVATION HUBS

- Atherosclerosis and Cardiometabolic Diseases
- Arrhythmias
- Heart Failure
- Brain and Heart
- Valvular Heart Disease
- Interdisciplinary Research
- Regional Partnership
- Sex and Gender
- Patient Engagement
- Industry Engagement
- Intersection with Heart Institute Heart Teams
GOAL ONE

Catalyze impactful research by creating and supporting unique Innovation Hubs of interdisciplinary research teams

ATHEROSCLEROSIS AND CARDIOMETABOLIC DISEASES
- Understanding triggers of atherosclerosis and cardiometabolic diseases including diabetes
- Biomarkers for risk prediction and personalized pharmacogenomics
- Personalizing intervention strategies and innovative devices and tools (including imaging)

ARRHYTHMIAS
- Causes of atrial fibrillation and reversibility
- Early detection and proper classification
- Risk prediction rules/devices and personalizing treatment strategies e.g., 4D molecular imaging
- Prevention strategies including the impact of obesity and lifestyle interventions

HEART FAILURE
- Improved classification and understanding of major forms of heart failure (HF)
- Novel biomarkers and treatment targets
- Personalized medicine through innovative treatment strategies and molecular imaging
- Early detection and treatment of HF, including indigenous populations and new tools
- Cardiac transplant vasculopathy

VALVULAR HEART DISEASE
- How valvular diseases develop
- Screening for familial cases
- Personalized risk stratification for best disease management and outcomes
- Innovative surgical and transcatheter therapies

BRAIN AND HEART
- Impact of mental illness on CV Disease
- Brain and heart axis in drug use/abuse
- Microvascular disease in stroke, dementia and cognitive impairment
- Rhythm synchrony and dyssynchrony between brain and heart
- Psychological and behavioural interventions to improve mental and CV health
GOAL ONE
Catalyze impactful research by creating and supporting unique Innovation Hubs of interdisciplinary research teams

SCIENTIFIC PRIORITY THEMES

DISCOVERY TO TRANSLATIONAL INNOVATIONS
Fast track discovery and validation into applications at the bedside. Tools/activities will include:
- Innovative imaging ligands and ultra high-resolution molecular imaging
- Genome editing to interrogate impact of a gene target
- Reprogrammed human stem cells and 3D organoid models of human disease
- Biomaterials, nanobiofilms and smart delivery vehicles for novel diagnostics and therapeutics

PRECISION MEDICINE
Tailoring treatment to the patient’s specific disease pathway signatures. Tools/activities will include:
- Next generation 'omics' technologies to validate novel biomarkers
- Integrated datasets and tailored decision algorithms
- Imaging technology to improve patient outcomes
- Incorporation of precision medicine into existing frameworks of care

BIG DATA AND ARTIFICIAL INTELLIGENCE
Dataset linkage to probe disease profiles, patient subsets to enable precision based diagnosis and treatment strategies; clinical decision support tools for physicians and patients. Tools/activities will include:
- Linked clinical databases, through the UOHI CardioCore platform and electronic medical records
- Linkage to external administrative databases such as the Institute of Clinical Evaluative Sciences

HEALTHY DIVERSE POPULATIONS
Effects of sex and gender on CV health, indigenous heart health and other health disparities. Tools/activities will include:
- Incorporating sex- and gender effects in all research activities
- Incentivizing and promoting research on indigenous populations
GOAL ONE
Catalyze impactful research by creating and supporting unique Innovation Hubs of interdisciplinary research teams

LINKAGE OF INNOVATION HUBS AND SCIENTIFIC PRIORITY THEMES

- Atherosclerosis and Cardiometabolic Diseases
- Arrhythmias
- Heart Failure
- Brain and Heart
- Valvular Heart Disease
- Discovery to Translational Innovations
- Precision Medicine
- Healthy Diverse Populations
- Big Data and Artificial Intelligence

Healthy Diverse Populations
Precision Medicine
Discovery to Translational Innovations
GOAL TWO
Support and enhance our fundamental and translational research enterprise

- Increase Peer Reviewed Funding
- Sustain Equipment & Infrastructure
- Recruit High Caliber Trainees
- Maintain Fundamental Science Capacity
GOAL THREE
Catalyse innovation and excellence in Clinical Research

Recognition of the value of clinical research

Innovative research to address clinical problems

Enhance infrastructure to facilitate clinical research

Patient Engagement

Knowledge Content Experts

Methodology Scientists

Data Science, Biostats
Systematic Reviews

Consensus Guidelines
Real World Outcomes

Patient-relevant Outcomes Research
Investigator Initiated Clinical Trials

Pharmacogenomics
Industry Sponsored Trials
GOAL FOUR
Build cross-cutting initiatives to facilitate research

Regional Partnership
Grant Application Support
Research Promotion and Communications
Research Integrity
Recruit High Caliber Trainees
Industry Engagement
Patient Engagement
www.ottawaheart.ca/researchers