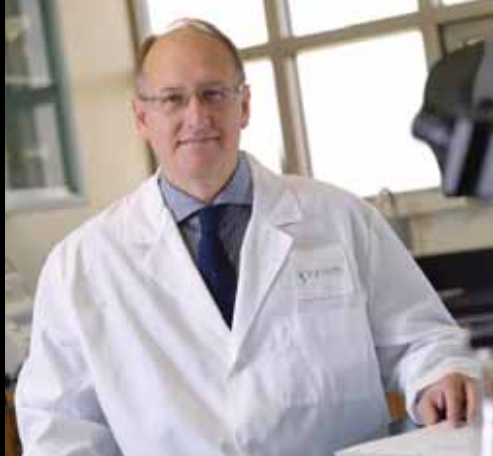


LAWSON
HEALTH RESEARCH INSTITUTE

STRATEGIC PLAN
2014-2018

Building a Strong Foundation



FOR MORE THAN 25 YEARS, LAWSON HEALTH RESEARCH INSTITUTE HAS BEEN DRIVING INNOVATION AND HELPING TRANSFORM HEALTH CARE.

As one of the ten largest hospital-based research institutes in Canada, Lawson has grown by 33 per cent over the last six years.

Our present five year strategic plan was crafted by Lawson's scientific leaders and refined with input from all Lawson investigators, and is aligned with the strategic priorities of our university partner, Western University, and our two sponsoring London hospitals, London Health Sciences Centre (LHSC) and St. Joseph's Health Care London (St. Joseph's). The research directions articulated in the plan emphasize our strategic capacity and capabilities built on a strong foundation of translatable health science. The overall objective is to deliver disruptive innovation with the potential to positively impact the health of individuals globally.

For the full version of Lawson's Strategic Plan, visit lawsonresearch.com

I welcome your questions and comments.

David Hill
Scientific Director, Lawson Health Research Institute
Integrated Vice-President of Research,
London Health Sciences Centre and
St. Joseph's Health Care London



Lawson has grown by 33 per cent over the last six years

KEY DIRECTIONS AND CHANGES

RESULTING FROM THE INSTITUTE'S EXTERNAL REVIEW OF 2012

EVERY 5-6 YEARS, LAWSON HOSTS AN EXTERNAL REVIEW. THE REVIEW IS DESIGNED TO PROVIDE GUIDANCE ON HOW THE MAJOR RESEARCH STRENGTHS WITHIN OUR LONDON HOSPITALS CAN BE SUSTAINED AND GROWN, AND TO HELP US DECIDE ON PRIORITY AREAS FOR INVESTMENT. FOUR MAJOR RECOMMENDATIONS CAME FORWARD:

- Ensure that the research missions of LHSC and St. Joseph's are prominent and contribute to the future vision of each hospital.
- Recognition of the need for stable core funding with support from the hospitals and foundations.
- Aggressive internal and external communication from the hospitals around the importance of the research mission.
- Develop a new strategic plan to align with the hospitals' and Western University's Schulich School of Medicine & Dentistry's plans with a research focus within each program.

SCIENTIFIC STRATEGIC PLAN 2014-18

OVER THE NEXT FIVE YEARS, LAWSON WILL BUILD ON ITS AREAS OF RESEARCH STRENGTH TO REACH AN OVERALL INSTITUTE FOCUS: RESEARCH THAT CREATES HEALTH SOLUTIONS FOR THE INDIVIDUAL.

Two research sub themes have been identified:

- 1) Origins of Disease, Optimization of Health and Quality of Life.
- 2) Tissue Survival and Repair.

Lawson-hosted research will focus on attaining this goal, and Lawson internal investment will be preferentially allocated to the success of this research direction. We will ensure that substantial progress is made towards this goal from each research program perspective within the five year period.

OVER THE NEXT FIVE YEARS, LAWSON WILL BUILD ON ITS AREAS OF RESEARCH STRENGTH



SCIENTIFIC
STRATEGIC PLAN 2014-18 (continued)

1) ORIGINS OF DISEASE, OPTIMIZATION
OF HEALTH AND QUALITY OF LIFE:

Environment and Health: Conduct research led from Children's Health Research Institute that will identify social, environmental and epigenetic mechanisms underlying diseases in children, or leading to an increased risk of disease in adulthood.

Microbiome Discoveries and Therapeutic Translation: Increase understanding of how the microbiome is able to promote and maintain health by interaction with the human genome through the immune system and translate these findings to the prevention of infection and disease.

Innovations in Mental Health Care: Develop and evaluate smart technology systems to address shortcomings within the current mental health system.

Functional and Metabolic Mapping of the Brain: Develop a core technology centre that will allow for in depth determination of the mechanisms underlying neurological disorders and create strategies for prevention.

Centre for Cognitive Vitality and Brain Health: Construct a centre that will improve the quality of life for those living with cognitive diseases by testing novel and early indicators of brain health, and strategies to slow progression of disease and maximize rehabilitation.

Quantitative Hybrid Molecular Imaging and PET Probes: Combine the strengths of MRI or CT with PET probes to target specific biomarkers of health and disease, making it possible to formulate personalized treatment plans for individuals, in addition to the creation of new biomarkers for clinical and pre-clinical evaluation.

2) TISSUE SURVIVAL AND REPAIR:

Prevention and treatment of pathogen-induced sepsis and associated organ failure, and maximizing quality of life for survivors: Focus on the role of MRSA toxins in sepsis with an emphasis on vascular dysfunction and sepsis-associated encephalopathy.

Ex vivo organ transplant protection and repair, and the prevention of rejection – from cells to patients: Novel conditions will be tested to store transplant organs without damage, and to inhibit the biochemistry of cell death following transplantation. As well, research will focus on mechanisms of targeted regeneration of tissues, including pancreatic beta-cells and the non-invasive imaging of the islets of Langerhans.

Patient-specific orthopaedic implants and devices: Used advanced MRI and CT imaging sequences to model individual anatomy, fabricate implants, and test individualized joint replacements.

Novel therapies for cancer through Translational Cancer Research Teams: Recruit new faculty to provide capacity in bioinformatic expertise, high throughput functional screening and validation of new molecular targets, as well as increase the capacity of our researchers to move discovery into clinical applications. Prostate and breast cancers will be priority target areas.

Image guided cardiac interventions: Establish a trans-disciplinary centre in image-guided interventions. Research within the centre will focus on the creation of a novel platform for enhancing the performance of catheter-based cardiovascular intervention for arrhythmia, coronary artery disease, heart failure and valvular disease.

“The overall objective is to deliver disruptive innovation with the potential to positively impact the health of individuals globally.”

Dr. David Hill

PROPOSED INNOVATIVE RESEARCH CORE PLATFORMS

Western University Biomedical Devices Institute: In partnership with Western University, create a centre which will focus on the design and testing of medical devices, smart technologies and innovative software. The Centre will provide an interface with the manufacturing industry and fill a biomedical devices “innovation gap” to advance patient care.

Centre for Clinical Investigations & Therapeutics: Establish London as a recognized centre of excellence in translational clinical research. In-house clinical research activities will focus on investigator initiated clinical research, comprehensive Phase I and II trials, and specialized research capability relating to clinical pharmacology, pharmacogenomics, and personalized medicine. Focus areas will be the development of personalized therapeutics for diabetes, cardiology, cancer and mental health.

Biorepository and ICES Western: Using expanded biorepositories and the ICES Western satellite integrate diverse sources of health information that inform individual and population health initiatives, and better facilitate primary and secondary prevention of disease.

CORE TECHNOLOGY DEPENDENCIES

Four key areas have been identified where continued development is essential for success. Development of these areas and the addition of new investigators with appropriate skills will require a city-wide approach and partnerships between Lawson, Western University's Schulich School of Medicine & Dentistry, and other Western University faculties.

- 1) **Imaging:** To ensure the development of biomarkers does not become rate limiting to the progress of projects, additional radiochemistry expertise will be provided.
- 2) **Medical Devices:** The concept of medical device creation and testing must be extended to a range of mechanical and electronic devices and associated software.
- 3) **Health Informatics:** In conjunction with the Schulich School of Medicine & Dentistry, London needs to upgrade its ability to mine and merge a variety of different data sources, especially those derived from genomic, epigenetic, biome and metabolic screens.
- 4) **Personalized Therapeutics:** Equipment upgrades will be periodically required whilst translation of research through experimental clinics will be expanded.



SCIENTIFIC
STRATEGIC PLAN 2014-18 (continued)

IMPLEMENTATION

- 1) **Targeted core facilities:** To support these research projects, Lawson, together with its academic partners, will sustain existing and develop new research support platforms to maximize the success of multi-disciplinary teams of investigators and facilitate convergence of technologies.
- 2) **Realign support to major research groups:** Moving forward, financial and administrative support will have a priority focus around the primary research goals.
- 3) **Seed Innovation:** Lawson's current Innovation Prize concept will be expanded to create a pool of seed capital of approximately \$500K per year. This will be invested in those projects that show the most rapid progress, and have the multi-disciplinary teams necessary for success. A goal will be to increase the size of the fund by 10% per year with the assistance of our external partners.

RESEARCH PLAN SUCCESS INDICATORS

Research outcomes will be measured using hard indicators relevant to patient and resident care and to economic benefit.

Together with LHSC and St. Joseph's, emphasis will be placed on the translation of new research knowledge into improved care in London and region.

UNDERGRADUATE AND GRADUATE TRAINING

Lawson is a major training site for approximately 200 graduate students from Western University and approximately 100 postdoctoral basic science and clinical research fellows. Lawson also provides a first exposure to health research to undergraduate students in their final honours year at Western and to co-op students from various universities. Lawson's ability to increase graduate student numbers is directly linked to strategies for continued success in external funding.

Within the next 5 years, Lawson will increase the number of trainees whose research topics cross boundaries between pre-clinical, clinical, health services or population health research.

Lawson will explore new sources of international research funding in partnership with Western University and others to provide unique opportunities for trainees, grow the impact of Lawson as a global player, and to translate its research to the lives of people with the greatest need.



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ENABLING
STRATEGIC GOALS 2014-2018

Six Administrative goals have been developed to help Lawson react quickly to external opportunities and better serve our investigators' needs.

- 1) **Improve representation of the research mission** before both hospitals' Board of Directors.
- 2) **Create a simplified model of core financial support** that is sustainable and responsive to the strategic plan.
- 3) **Strengthen core support for grants development, contract negotiation and project management** to ensure grants submitted by Lawson investigators are of the highest standard and contracts are negotiated swiftly and meet required standards.
- 4) **Increase number of investigator-lead clinical studies, and sustain and grow industry-sponsored clinical trial volumes** by increasing support for investigators using Lawson's core clinical trial facilities.
- 5) **Improve investigator career security and succession planning** by creating career advancement milestones for investigators, creating additional research Chair positions for research group leaders, and term Chairs for mid-career scientists.
- 6) **Strengthen the Lawson brand** through improved communications internally and externally.

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Enabling goals have been developed to help Lawson react quickly to external opportunities





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As the research institute of London Health Sciences Centre and St. Joseph's Health Care London, and working in partnership with Western University, Lawson Health Research Institute is committed to furthering scientific knowledge to advance health care around the world.

Lawson is supported by three hospital foundations – London Health Sciences Foundation, St. Joseph's Health Care Foundation and Children's Health Foundation.