

STRATEGIC RESEARCH PLAN 2009

Preamble:

London Health Sciences Centre has been in the forefront of medicine in Canada for over 130 years and offers the broadest range of specialized clinical services in Ontario. Building on the traditions of its founding hospitals to provide compassionate care in an academic teaching setting, London Health Sciences Centre is home to South Street Hospital, University Hospital, Victoria Hospital and Children's Hospital, two family medical centres, and Lawson Health Research Institute - a joint research initiative with St Joseph's Health Care, London. As a leader in medical discovery and health research, London Health Sciences Centre has a history of over 30 international and national firsts and attracts top clinicians and researchers from around the world. As a regional referral centre, London Health Sciences Centre cares for the most medically complex patients including critically injured adults and children in Southwestern Ontario and beyond. The hospital's 10,000 staff, physicians, students and volunteers provide care for more than one million patient visits a year. For more information visit www.lhsc.on.ca.

St. Joseph's Health Care, London is a major patient care, teaching and research centre with a distinguished legacy of service to London, Southwestern Ontario and the veterans of Canada, dating back more than 130 years. St. Joseph's five key role areas include acute/ambulatory care, complex care and veterans care, long-term care, rehabilitation and specialized geriatrics and specialized mental health care. Facilities and services including St. Joseph's Hospital, Parkwood Hospital, Mount Hope Centre for Long Term Care and Regional Mental Health Care London and St. Thomas are part of the St. Joseph's family. Our research arm, the Lawson Health Research Institute, continues to direct their research to the development of new knowledge that is continually being applied directly to patient care. More than 400,000 patients annually receive care from close to 6,000 physicians and staff at St. Joseph's. St. Joseph's is affiliated with The University of Western Ontario. For more information visit www.sjhc.london.on.ca.

Lawson houses 97 PhD scientists and over 400 clinician scientists and scholars covering biological, clinical, health services, and population health research. Approximately 120 investigators have research time commitments of 75% or greater. Our researchers include nurses and other allied health professionals, and research space is allocated according to the size of program of the individual researcher and changes with demand. In 2007 Lawson scientists published over 900 peer-reviewed original publications and attracted over \$60 million in external grants and contracts. Lawson has an affiliation agreement with The University of Western Ontario (Western) and all investigators hold an appointment within the Schulich School of Medicine & Dentistry or other Faculties at Western, often in both clinical and basic science

departments. The Lawson institutional research plan is an extension of, and is complimentary to that of the Schulich School of Medicine & Dentistry.

Mission:

At Lawson, our mission is to understand the basis of wellness and the dysfunctions of the body and mind that result in disease. We test and deliver health care innovations for the benefit of Canada and beyond.

We provide ongoing knowledge and education for our trainees, health care professionals and society.

It is important that we maximize the contribution of research within the defined mission and vision of London Health Sciences Centre (LHSC) and St. Joseph's Health Care, London (St. Joseph's) and in collaboration with The University of Western Ontario (Western) and other research organizations.

Vision:

Lawson will be pivotal in preventing the onset and reducing the burden of disease through the acquisition, evaluation and translation of new scientific knowledge.

Research Themes:

Following an external review in 2005, Lawson focused research around themes that mirror the strategic priorities for academic medicine within the London hospitals.

- Children's Health Research Institute
- Surgical Innovation
- Vascular Health and Chronic Disease
- Critical Illness
- Transplantation
- Imaging
- Cancer
- Aging, Rehabilitation & Geriatric Research
- Mental Health
- Neurological Disorders
- Clinical Investigation & Therapeutics

Core support units:

(i) Genomics, Proteomics and Informatics Cores, jointly funded and managed with WESTERN and the Robarts Research Institute. (ii) The London Innovarium, funded in 2002 by CFI and the Ontario Innovation Trust, and jointly managed and operated with WESTERN and partners. This includes a core transgenic and gene knockout facility housed by Lawson at LHSC Victoria Hospital. (iii) Health Informatics is an integrated discipline that draws from information science, health sciences, and management sciences. It involves the application of information technology to facilitate the creation and use of health related data, information and knowledge. The purpose of Health Informatics is to enable and support all aspects of safe, efficient and effective health services. (iv) Clinical Research services provide dedicated space and staff to facilitate investigator-lead clinical trials, including phase 1 and 2 studies. (v) Research Grants and Contracts. Lawson is engaged in many private sector partnerships, particularly industry-sponsored clinical trials of which over 1,800 are presently active. The office assists with contract negotiation, financial tracking, identification and remuneration for the use of hospital resources, and coordination with the research ethics board. London has a single human research ethics board administered through WESTERN and all Lawson investigators are obliged to submit their clinical research protocols through this body before commencement of studies. (vi) The Business Development Office provides for the development of business plans, intellectual property, licensing arrangements, and contractual projects. There are eight spin-off companies. One company, FRALEX Therapeutics, was sold to private ownership in 2005 and now trades on the TSX. Lawson's ability to transfer technology from the laboratory into the commercial world has been demonstrated with some 110 patents held and over 80% generating revenue. Income to the Institute from business development in 2006 was approximately \$2 million. The Business Development Office has recently joined with Western and Robarts to create World Discoveries, a new city-wide technology transfer consortium.

Strategic Priorities:

Lawson is focused on a number of ongoing strategic research projects involving multi-disciplinary research teams. For projects to become strategic they must have the potential to significantly improve health care delivery and utilize expertise at partnering institutions. Lawson provides seed-funding to ensure that these projects continue to meet milestones, within a specified timeline. Ultimately, external funding would expedite discoveries.

- 1) The Lifecycle Research Network (LRN): A joint venture between Lawson, WESTERN, and the Universities of Windsor, Waterloo and Guelph. This project represents a region-wide chronic diseases management research initiative, including an innovative health informatics core facility. Lawson and its partners have actively started to fundraise for this project for equipping the new centre. The research behind LRN includes evaluation of new models of prevention and intervention in diabetes, cardiovascular disease, cancer, neurological disorders and mental health, with a focus on community health care delivery. The Institute funded a first

- generation diabetes research electronic management system and is now developing an integrated, regional electronic registry platform.
- 2) Non-invasive Molecular Imaging: Diagnosis of diseased and abnormal tissue has been extended close to the resolution of present invasive pathology, and hybrid imaging platforms are used to explore and develop molecular-level imaging using PET/CT, SPECT/CT and PET/MRI for new imaging applications in the areas of cardiology, neurology, mental health, metabolic disease, and cancer. A recent award of \$27 million from CFI and the ORF has additionally provided a cyclotron and radio-pharmacy laboratory.
 - 3) Translational Cancer Research Program: The program seeks to identify new diagnostic markers and strategies to prevent metastasis, to utilize non-invasive molecular imaging to identify the genetic basis of individual cancers, to identify genetic polymorphisms that convey risk for particular forms of cancer to the individual, and to prevent neoplastic growth through the innovative use of siRNA to silence key genes controlling cell cycle progression. Three basic and one clinical scientist were additionally recruited in 2006/7 and 10,000 sq. ft. of new translational cancer research space is planned to open in 2009 at the Victoria Hospital of LHSC.
 - 4) Centre for Clinical Investigation and Therapeutics: The focus is to establish a national clinical investigation unit for clinical trials to examine new drug therapies for the management of chronic diseases, including degenerative neural and neuromuscular disorders. The centre will study undesired and adverse effects of drugs and chemicals, and the interaction of individual genetic traits with drug action and interaction.

Institutional Commitment to Vision:

The Institute operates over 250,000 sq ft of laboratory and clinical research space on seven hospital sites, and clinical research space. Recent investments have included the Victoria Research Laboratories with 40,000 sq. ft. of wet laboratory space, and the Legacy Research Pavilion with 16,000 sq. ft. including a core clinical investigation unit. In 2006 a new Centre for Aging, Rehabilitation and Geriatric Research was opened with 15,000 sq.ft.

Over the next three to five years the Institute and partners will establish the London centre of the Lifecycle Research Network with almost 100,000 sq. ft. of additional clinical trials and research space, including a health informatics centre, educational facilities, and a networking hub to link research project management throughout Southwest Ontario, including family medicine centres and long-term care establishments.

Internal salary awards are presently provided to approximately 15 clinical investigators at Lawson to maximize research commitment. This past year, Lawson launched a new funding opportunity for its scientists who primarily undertake their research within the London hospital environment or their community outreach programs. It is intended to facilitate solutions to 'big' health research questions and would typically involve a multi-skilled and multi-disciplinary



approach that builds on existing or planned infrastructure, equipment or human resource investments by Lawson.

Planning and approval process:

The Institute has a separately incorporated Board of Directors with membership from the Hospital Boards and from the broader community. The VP Research, WESTERN and Dean of the Schulich School of Medicine & Dentistry sit on a scientific advisory committee. Planning for infrastructure is undertaken jointly with the advisory committee, hospital planning departments and approved through the Hospitals Boards. Strategic development of health research in London is undertaken with the direction of the London Academic Health Sciences Centre, with representation from the Institute, the London hospitals, WESTERN and the Robarts Research Institute.

More information:

www.lawsonresearch.com