January 2006, Volume 1, Issue 1

THE BEAT

A COMPENDIUM OF INFORMATION ABOUT THE UNIVERSITY OF OTTAWA HEART INSTITUTE

HIGHLIGHTS

"We will continue encouraging research and innovation in Ontario's hospitals because this work can lead to more groundbreaking discoveries and knowledge that will benefit our people, and improve both health care services and the health care system for Ontarians."

– Dalton McGuinty, Premier of Ontario and Minister of Research and Innovation, who met recently with Dr. Robert Roberts.

A total of 11 Endowed Research Fellowships are planned as part of an ambitious $100 million fund-raising program by the Heart Institute Foundation, which has amassed significant endowment funding at UOHI.

"Increasingly, new surgical techniques at the Institute are relying on less-invasive practices to solve medical problems associated with Coronary Artery Disease."

– Dr. Mesana, who has led significant changes at UOHI's Division of Cardiac Surgery.

"*FrancoForme* is the only service of its type anywhere in the country that offers primary prevention and it is available at no cost to the patient."

– Dr. Michele de Margerie, UOHI

IN THIS ISSUE

The Beat is published 9 times a year by the University of Ottawa Heart Institute (UOHI). Comments or questions about *The Beat* should be directed to Jacques Guerette, Vice President, Communications at (613) 761-4850 or jguerette@ottawaheart.ca. For more information about UOHI, please visit www.ottawaheart.ca

University of Ottawa Heart Institute
Institut de cardiologie de l'Université d'Ottawa

Premier McGuinty and Dr. Roberts review UOHI's innovative approach to identifying genes responsible for coronary artery disease.

McGuinty Stresses Link Between Medical Innovation and Provincial Prosperity

UOHI recently played host to Dalton McGuinty, Premier of Ontario, who was here for a private meeting with Dr. Robert Roberts, UOHI's President and CEO, and a review of some of our recent developments. In addition to leading the province as Premier, Mr. McGuinty also holds the post of Minister of Research and Innovation. The Beat had a chance to pose a few questions concerning the value of medical innovation to the province.

The Beat: How important is innovation in Ontario's hospitals? What are its benefits?

McGuinty: Our government created a new Ministry dedicated to research and innovation, and I am leading this ministry, to signal how important innovation is to Ontario's prosperity in the 21st century. Our goal is to create a culture of innovation in Ontario because when we support research and innovation, we help improve the quality of life for Ontarians.

Ontario has been home to some of the world's greatest discoveries. We gave the world insulin, a discovery that has saved countless lives. We developed the world's first pacemaker, improving the quality of life for millions of heart patients. And we're still making firsts in research labs throughout Ontario.

We will continue encouraging research and innovation in Ontario's hospitals because this work can lead to more groundbreaking discoveries and knowledge that will benefit our people, and improve both health care services and the health care system for Ontarians.

The Beat: What is the value to Ontario of being home to "world leaders" in medicine and other disciplines?

McGuinty: In the new knowledge-based economy, our government is investing in innovation so we can attract the best and the brightest researchers and research projects from around the world.

We know that the countries and jurisdictions that invest in innovation, that tap

(continued on page 2)

Innovation and Research Fuel New Directions in Cardiac Surgery

Last fall, cardiac surgeons at UOHI performed the first minimally invasive thoracoscopic surgical procedure in Canada to correct an irregular heartbeat using a bipolar electrical device. The procedure essentially reset the patient's heartbeat to remedy an atrial fibrillation after inserting a miniature fiber-optic camera through a small incision to monitor the inside of his chest cavity.

Atrial fibrillation (AF) is the most common form of irregular heart beat particularly in older patients, and chronic AF is associated with heart failure, blood clots and increased risk of stroke.

The intricate surgical technique was performed to short-circuit the troublesome nerve endings responsible for abnormalities in the heart's electrical impulses. The thoracoscope transmitted a picture of the heart onto a video monitor during the procedure, eliminating the need to carve open the breastbone to get a better view inside the chest cavity. With the thoracoscope in the small incision, the surgeon could see his way to the pericardial sac surrounding the heart rather than fully opening the chest to view the heart.

The procedure takes only a few hours and offers significant benefits. Patients who have thoracoscopic surgery generally experience less pain and scarring afterwards and have a quicker recovery than with traditional open-heart surgery. The procedure also lowers the potential for serious infection from a larger open wound.

"It is very efficient and is effective in 90 to 95 percent of cases," says Dr. Thierry Mesana, Chief of Cardiac Surgery at UOHI. "The patient's heart rhythm was fully restored in all three cases done so far."

Increasingly, new surgical techniques at the Institute are relying on less-invasive practices to solve medical problems associated with Coronary Artery Disease (CAD), says Dr. Mesana, who has led significant changes at UOHI's Division of Cardiac Surgery since his appointment in 2001. The complexity and necessary skill

(continued on page 3)

(McGuinty Stresses Link Between Medical Innovation and Provincial Prosperity continued)

and stoke the creativity of their people, that market their ideas most effectively will be home to the most rewarding jobs, the strongest economies and the best quality of life.

By becoming a "world leader" in medicine and R&D, Ontario will lead the way when it comes to driving science and the economy by connecting ideas to industry. I often say Ontario's greatest asset is our people. By building a creative, well-educated and highly skilled workforce and promoting ideas and innovation in Ontario, we will help ensure Ontario remains the place to be for years to come.

The Beat: Does your government support these "world leaders" in any special way?

McGuinty: Here in Ontario, we have some of the brightest, most creative minds on the planet. I look at the work being done in research labs in our hospitals and universities, and I see the incredible opportunity we have in Ontario when it comes to making innovation a priority.

To support innovation, our government created the new Ministry of Research and Innovation — because we believe in the creative potential of all Ontarians. I chose to lead that Ministry because I believe that unlocking that potential is essential to our province's future.

Part of creating a culture of innovation in Ontario is supporting researchers. In Ontario, we support world research leaders through programs such as the Ontario Research Fund (ORF), the Ontario Research and Development Challenge Fund and the Ontario Innovation Trust. Just a few weeks ago, we announced the recipients of the latest round of ORF infrastructure grants. In fact, our government has committed over $100 million from the ORF to more than 350 infrastructure projects in communities across Ontario. In total, we've committed $1.8 billion to research and commercialization over four years.

Our government will also be establishing the Ontario Research and Innovation Council (ORIC) — so we can get the best possible advice from a panel of experts on how to promote Ontario's strengths and develop strategies for mobilizing all sectors of the economy to support our innovation agenda.

"I believe that this remarkable facility can continue to help us create a culture of innovation in Ontario."

– Dalton McGuinty, Premier of Ontario and Minister of Research and Innovation

The Beat: How can organizations like the University of Ottawa Heart Institute help the province to achieve its innovation goals?

McGuinty: Ottawa is my hometown and I'm very proud of the work being done to improve health care and support innovation in the region.

Institutes like the University of Ottawa Heart Institute (UOHI) are already helping Ontario achieve its innovation goals. For nearly 30 years, the UOHI has been an international leader in diagnosing, treating and preventing heart disease through patient care, research and education.

I believe that this remarkable facility can continue to help us create a culture of innovation in Ontario by continuing to nurture, support and reward a culture of creativity within its own organization, enhancing innovation partnerships and working with innovation support organizations like Ontario's Regional Innovation Networks and the Sector Innovation Networks.

The Beat: Is there anything in particular you'd like to say to UOHI's family of administrators, doctors, nurses, allied health professional staff and others?

McGuinty: I understand that the dedicated staff at the UOHI treats over 80,000 heart patients every year. I want to take this opportunity to thank everyone at this remarkable facility for the work you do every day, for the sacrifices you make and for your commitment to improving the lives of Ontarians.

I also want to tell you that our government is doing its part, too. We are committed to improving the level of care for Ontarians — and I know that if we continue to work together, we can and will provide an even higher level of care for the people we serve.

Overcoming Distance and Language to Better Serve Patients

New outreach programs from UOHI are ensuring that a key francophone population in Ontario has better access to health care and health information.

A 2005 statistical profile from the province's Office of Francophone Affairs shows that Eastern Ontario is home to more than 40 percent of the province's francophone population and it has grown twice as fast as other franco-Ontarian communities. Francophones make up about 15 percent of the population in Eastern Ontario, or about one in seven people, and a significant number live in rural areas. As well, francophones are under-represented in health sector occupations in the province.

A new study published in December 2005 – The Second Report on the Health of Francophones in Ontario – notes there is no significant difference between francophones and the general Ontario population with regard to chronic diseases (such as high blood pressure) and serious injuries. However it also notes that francophones have a higher rate of heart disease due principally to differences in health behaviours between francophones and other sociolingustic groups.

A greater number of francophones smoke, and suffer from obesity and heart disease than non-francophones. In general, they do not seek medical attention from community physicians or health providers. Consequently, they tend to present late and often in crisis to emergency facilities.

As a minority, francophones suffer from a lack of social support and a decreased social network. Francophones living in rural areas are also at risk of social isolation. The need to access services in French as well as remaining within their community which typically supports their linguistic needs must be considered an important feature in health care delivery.

To address these requirements, UOHI is undertaking two significant projects that represent important steps in improving health care delivery for Ontario's francophones.

The first project, started in September 2005, involves two technology initiatives. The first uses home technology to forge linkages between the patient, primary health care providers and specialized cardiac services. This initiative offers heart failure patients living in rural areas the opportunity to transmit by phone line and special home monitoring equipment their weight and vital signs for a three-month period. The approach is building an important medical network that enables the local general physician (GP) to access specialized care and treatment resources while encouraging patients to be more involved in their recovery.

"This project represents a big step in chronic disease management," said Dr. Renee Arnold, a family doctor at the Hawkesbury District General Hospital that serves the largest percentage of francophones living in Eastern Ontario. "Patients are active participants, GP's are linked electronically and it can be adapted for other chronic illnesses. As well, it helps keep patients out of the hospital."

The second initiative uses interactive voice response technology that automatically calls francophone surgical patients at home on the third and tenth day after discharge to query their condition. This interval spans the period of highest post-surgical complications and the system ensures prompt attention to issues or problems that develop.

"Our overall goal for these initiatives is to improve access and coordination of care," said Heather Sherrard, UOHI's VP of Clinical Services. "In this first phase of the program we will be assessing the impact on readmission, patient and provider satisfaction and quality-of-life to help influence the development of a phase-2 program."

UOHI's second project is a joint undertaking between the Institute's Prevention and Rehabilitation Centre and the Eastern Ontario Health Unit called *FrancoForme*. It has recently been launched and has more than 15 patients that have signed up. Building on UOHI's successful experience with case-managed individuals undergoing a home-based cardiac rehab program, *FrancoForme* has been designed for hard-to-reach patients. It offers the rural francophone community primary and secondary prevention in the form of one-on-one counseling. Available by phone and in-person for a period of 6 months, the patient receives weekly coaching and support on a wide variety of health factors such as obesity, nutrition and diet, smoking cessation, exercise and stress management.

"We know from experience that home-based rehab programs managed by telephone contact are as successful as on-site rehabilitation," says UOHI's Dr. Michele de Margerie. "*FrancoForme* is the only service of its type anywhere in the country that offers primary prevention and it is available at no cost to the patient."

Together, these programs represent important steps in improving the quality of health care for Ontario's francophone minority and underscore UOHI's commitment to deliver top-notch cardiac services that are available for everyone.

Eastern Ontario is home to more than 40 percent of the province's Francophone population. It has grown twice as fast as other Franco-Ontarian communities.

(Innovation and Research Fuel New Directions in Cardiac Surgery continued)

levels required for innovative surgical practices, he adds, are compounded by a growing population of older patients, who tend to suffer multiple illnesses ranging from diabetes with its accompanying vascular problems to lung and kidney diseases in addition to CAD. "The mean age of our patients has been rising," he says. "Frequently we operate on octogenarians — patients who are more than 80 years old. We have performed surgery on a 92-year-old. Some 90-year-olds are in good health other than a heart problem, which has to be repaired. And we can repair them."

As a result of the changing patient profile, Dr. Mesana says the UOHI is adopting the newest approaches to minimize the use of the heart-lung machine, which for now remains the standard during open-heart surgery. Recent advances in cardiac surgery and medical devices have enabled less invasive options, such as beating-heart or 'off-pump' procedures. These options, Dr. Mesana says, are considered for patients facing complex medical conditions such as diabetes, a history of stroke or in poor physical health, and who are considered at risk if a heart-lung machine is employed. The heart-lung machine, referred to as a 'pump,' mechanically pumps oxygen and nutrients to the body during surgery while the heart is stopped. "There may be more risk with blood issues," he says. "These include coagulation problems, strokes and heart attacks — even if the operation was successful."

Through research and by adopting innovative techniques, Dr. Mesana says UOHI's team is building on its expertise in reconstructive cardiac valve surgery, applying less-invasive approaches to Coronary Artery Bypass Grafting (CABG), and exploring the potential for regenerative growth in the heart through molecular research.

"It is very efficient and is effective in 90 to 95 percent of cases. The patient's heart rhythm was fully restored in all three cases done so far."

– Dr. Thierry Mesana, Chief of Cardiac Surgery at UOHI

More Modern Tools in the Future

"The cardiac surgeon of the future will be more skilled at reconstructing the heart using modern tools of medicine, such as molecular biology. He or she will be a basic scientist as well as a surgeon," says Dr. Mesana, who has initiated clinical development of heart repair and enhanced the Institute's beating-heart coronary bypass surgery program. Cardiac surgery will continue along these themes of less invasive and more innovative procedures with greater use of new medical tools that come from increased research efforts at UOHI, Dr. Mesana adds.

The bulk of adult cardiac surgery, says Dr. Mesana, involves CABG and valve surgery. UOHI has actively pursued a number of new techniques including Off-Pump Coronary Artery Bypass (OPCAB), which are performed routinely by only a limited number of surgeons in Canada.[1] UOHI is a national leader in mitral valve reconstruction, used to rebuild the injured heart valve that hampers blood flowing through the heart's chambers if it doesn't open or close properly.

Valve surgery has traditionally involved replacement. Mitral valve reconstruction offers a better long-term solution for the patient, says Dr. Mesana, and reduces the risk of recurrent problems. Mitral valve repair can be performed through smaller incisions but reconstruction requires larger incisions. UOHI performs about 120 reconstructions each year, one of the largest numbers in Canada, he says.

"For the first time in the history of the UOHI, the number of repairs has surpassed the number of replacements," says Dr. Mesana. "This represents a major change in surgical practice — repairing the valve rather than replacing it."

In addition, surgeons use the latest techniques to treat atrial fibrillation. These include the minimally invasive thoracoscopic procedure and surgical atrial fibrillation ablation, a procedure that prevents abnormal electrical impulses from beginning at all. UOHI performs about 200 cases annually of surgical atrial fibrillation ablation. Often atrial fibrillation ablation is performed simultaneously with mitral valve repairs or CABG. UOHI cardiologists also perform catheter-based ablation, in which a catheter is inserted through the groin to reach the heart. An energy source then ablates or destroys abnormal heart tissue responsible for the fibrillation or flutter. "This is for patients who have no valve disease or no chronic CAD but who have AF, which has caused problems such as heart failure or stroke," says Dr. Mesana. Surgical practice at UOHI now involves a combination of procedures, he says. At one time, surgeons generally treated problems related to the heart value or performed bypass operations. "For the past two years, we have been treating the valve, performing the bypass and also conducting surgical ablation."

New Hope with Less Risk

Traditional coronary artery bypass grafting remains the standard in cardiac surgery at UOHI, says Dr. Mesana. This traditional technique requires splitting open the sternum or breastbone and using the heart-lung machine. But UOHI surgeons have developed strong expertise with several procedures for selected patients, particularly those with complex medical problems who may have a less favourable outcome with the heart-lung machine, he says. These procedures require an extremely high level of skill and dexterity, he adds. The following approaches have become alternatives to the traditional coronary bypass graft:

- Off-Pump Coronary Bypass or Beating Heart Bypass is performed through the traditional sternotomy. The surgeon grafts the new arteries on a beating heart, as portions of the heart regions are immobilized briefly during the procedure.
- Multi-Vessel Small Thoracotomy (MVST) uses a small lateral incision at the site of the breast where miniature devices are inserted to position the beating heart for grafting. UOHI has demonstrated expertise and success in grafting two or three coronary arteries using this novel technique.

UOHI is leading other innovations in cardiac medicine that will grow out of research now under way. For instance, researchers are exploring the potential for stem cell therapy as a way to rebuild arteries in the heart. This area of research is in relative infancy. The goal is that someday, new cells with a capacity to quickly multiply and encourage regeneration of blood vessels to improve heart function.

Together the innovative approaches in surgery coupled with intensified research into the underlying causes of and discovery of new treatments for heart disease, UOHI is forging a new generation of leaders in cardiac surgery, says Dr. Mesana.

"Mine is the generation who will help move this forward into a new era. Our role now is to help propel the younger surgeons into new frontiers because this is what they will be doing for the last half of their careers."

"Cardiac surgery involves a constant evolution. The cardiac surgeon of the future will be more skilled at reconstructing the heart using modern tools of medicine such as molecular biology."

- Chief, Cardiac Surgery, UOHI; appointed 2001
- Chairman, Cardiac Surgery, Faculty of Medicine, University of Ottawa
- Chair, Transplant and Devices Committee, UOHI
- Chair, Cardiac Surgery, University of Pittsburgh
- Fellow, Royal College of Physicians and Surgeons of Canada
- Member, Society of Thoracic Surgeons; European Association of Cardiothoracic Surgery; International Society for Heart and Lung Transplantation, and Canadian Cardiovascular Society
- Former professor, Cardiac Surgery; Chairman, Thoracic and Vascular Surgery, Faculty of Medicine, University of Méditerranée, Marseilles, France; until 2001
- Special interests: adult cardiac surgery, heart valve disease, mitral valve repair, surgery of thoracic aorta and aortic dissection, surgery of heart failure, and ventricular assist devices

Beating Heart Surgery

Patients who are older and face additional medical problems such as diabetes now have surgical alternatives to the traditional coronary artery bypass graft. Cardiac surgeons at UOHI are performing more innovative and less invasive operations, which allow patients to recover more quickly and reduce the risk of other complications such as the potential for stroke. Both procedures require an extremely high level of skill and dexterity.

- Off-Pump Coronary Bypass or Beating Heart Bypass avoids the use of a heart-lung machine, which mechanically serve as the heart and lung while the heart is stopped during traditional bypass procedures.
- Multi-Vessel Small Thoracotomy (MVST) accesses the heart through a small incision. The breastbone is not carved open and the heart remains beating. The surgeon uses a suction tool to move the heart into position for grafting on each region. This technique is performed at only a few centres in North America.

[1] **Why is Off-Pump Coronary Surgery Uncommon in Canada? Results of a Population-Based Survey of Canadian Heart Surgeons**
Desai et al., Circulation 2004; 110:II-7 – II-12.

Foundation Work Underscores UOHI Research Thrusts

A new Endowed Research Fellowship in Cardiology has been created at UOHI with a $1 million fund for a leading researcher to investigate new techniques and treatments for disorders of the cardiovascular system.

A total of 11 Endowed Research Fellowships are planned as part of an ambitious $100 million fund-raising program by the Heart Institute Foundation, which has amassed significant endowment funding at UOHI. Recruitment now is under way to fill the Endowed Research Fellowship in Cardiology. And over the course of the next five years, the Foundation will help ensure research capability at UOHI expands to match the calibre of expertise that has ranked it among the top cardiac medicine facilities in North America.

Another objective is to grow and mentor a network of young leaders as next-generation philanthropic stewards for both UOHI and the Foundation.

A series of major private donations to the Foundation has already moved UOHI to the forefront of cardiovascular research. The Canadian Cardiovascular Genetics Centre™ opened in mid-2005 as the only facility of its kind in Canada and one of the few labs in the world dedicated to exploring the genetic makeup of coronary artery disease (CAD). With more than $2 million in state-of-the-art gene sequencing, DNA analysis and GeneChip™ technology, UOHI researchers have launched a pilot study involving 2,000 patients to investigate the root cause of CAD at the genetic level. The Centre was made possible by a $5 million gift from Ottawa business leader John Ruddy and his wife Jennifer. The fund was boosted by $500,000 donations from The Harold Crabtree Foundation, Herb and Dorothy Nadolny with Lyon and Dundi Sachs, and the Vered and Besner Families.

The Ottawa community has clearly embraced the importance of strong research efforts into innovative medical technologies and new more effective approaches in the prevention, diagnosis and treatment of heart disease. "These donors are very sophisticated in what they want to achieve with their donations," says Thomas Hewitt, President of the University of Ottawa Heart Institute Foundation. "There is a wider vision and appreciation of research as the critical investment that will have a significant and lasting impact on the future of UOHI. This has everything to do with patient care. Researchers attract the best physicians because they are always willing to push the envelope with cutting-edge diagnostics and treatment."

More than $10 million is being raised to create the Endowed Research Fellowships, which will include the following fields:

- Atherosclerosis
- Cardiac Imaging
- Cardiac Surgery
- Cardiovascular Genetics
- Cardiovascular Nursing
- Electrophysiology
- Heart Function
- Heart Health Research in Women
- Hypertension Research

"The UOHI will move to the next level by becoming a research juggernaut in the area of cardiac medicine," adds Hewitt. "We will continue to underscore the promise of cardiac research to our community to earn their support." Efforts to press forward with bold plans for a significant endowment sends a strong signal of UOHI's intention to attract renowned scientists and remain competitive in the prevention, rehabilitation, diagnosis and treatment of coronary artery disease.

The newly appointed Foundation Chair is Lawrence Soloway, a prominent Ottawa business lawyer who helped shepherd the Endowment Campaign from 2000 onward as campaign chair. Soloway was awarded the Queen's Golden Jubilee Medal in 2002 for his significant contribution to the community.

The Endowment Fund allows UOHI to continue to grow in prestige as a leader in medical care and research, Soloway says. "The Research Fellowships are all about people who can devote themselves exclusively to research. You get a clear sense of mission here and that is important for those of us who support the Institute."

While the Research Fellowships form the centrepiece of the Endowment campaign, other endowment opportunities in the form of Lectureships and Endowed Chairs have received substantial support. These provide permanent funds for prestigious visiting lecturers in cardiovascular medicine to sustain a stimulating and vibrant culture of research at UOHI.

A total of 11 Endowed Research Fellowships are planned as part of an ambitious $100 million fund-raising program by the Heart Institute Foundation.

Dr. Norbert Hübner of Berlin's Max Delbrück Center for Molecular Medicine visited in October as the 2005 Sheila and Don Bayne Cardiovascular Genetics Endowed Lectureship. Hübner's work involves genetic dissection in a rat model of underlying conditions, such as blood pressure control, related to heart disease.

Five fully funded Endowed Chairs have been established to support recruitment and retention of outstanding medical professionals to the UOHI. The Gordon Henderson Chair in Leadership is held by Dr. Robert Roberts, President, CEO and Chief Scientific Officer of UOHI. A renowned cardiologist, an active clinician and researcher, he is recognized for groundbreaking contributions to molecular biology, the genetics of heart disease and clinical work related to development of new therapies in heart disease.

Dr. Thierry Mesana holds the Michael Pitfield Chair in Cardiac Surgery. Mesana is Chief of Cardiac Surgery at UOHI, a Professor and Chairman of Cardiac Surgery at the University of Ottawa. A native of France, he was lured from Marseilles where Mesana was Chairman of Thoracic and Vascular Surgery at University of Méditerranée until his appointment in Ottawa in 2001. He has led significant changes in UOHI's Division of Cardiac Surgery, such as clinical development of mitral valve repair and enhancement of less-invasive techniques including beating heart coronary bypass surgery. Mesana also chairs the Transplant and Devices Committee at UOHI while maintaining direct involvement in research within the Division of Cardiac Surgery.

UOHI is now recruiting to fill the seat of the last of the five Chairs – the Merck Frosst Canada Chair in Atherosclerosis Research.

The very nature of the Foundation's work is forward looking in all its objectives. Securing a strong corps of young leaders to carry on future philanthropic and volunteer activities is no less crucial, says Hewitt. The Foundation has developed a program to foster a network of dynamic young business and community leaders to support next-generation growth at UOHI and to serve as ambassadors for the Institute. Through leadership mentoring and networking opportunities, the Foundation is essentially planning its own succession and grooming future directors of the boards of the Foundation as well as UOHI.

The City of Ottawa is a rich breeding ground for community and corporate leadership. The city supports a highly vibrant environment of innovation and research into human health and medical technology. Ottawa is home to two research-intensive universities and is headquarters for both Health Canada and the National Research Council, with its Institute of Biological Sciences. The University of Ottawa and Carleton University are equipped with Canada's first dedicated laboratories in biotechnology and biomedical engineering research. The region has long been a high-profile centre of research and development. Leading medical technology enterprises, such as Chicago-based Abbott Laboratories, are moving into the region. Abbott is opening a major R & D facility in the region for one of the world's largest medical technology products groups, Abbott Point-of-Care. Given the breadth of such resources in the region, the Foundation can continue to strive for success and help assure UOHI's position as a leader in prevention, rehabilitation, diagnosis and treatment of coronary artery disease.

Pacemaker Inventor Inducted into the Canadian Science and Engineering Hall of Fame

John A. Hopps (1919-1998) was recently inducted into the Hall of Fame at the Canada Science and Technology Museum. Hopps, an electrical engineer, is considered to be the "father" of biomedical engineering in Canada. He invented many devices to assist the blind and people with muscular disabilities. However, his most significant creation occurred in 1949, when he invented the world's first cardiac pacemaker.

Today, hundreds of thousands of pacemakers are inserted annually in North America. Here at UOHI, some 450 units are inserted every year.

Hopps' invention is responsible for maintaining his own life. In 1981, UOHI's Dr. Wilbert Keon replaced a valve in his heart and predicted he would require a pacemaker. The prediction came true in 1984 when Hopps received his first pacemaker. In 1997, UOHI's Dr. Paul Hendry replaced this unit with a more advanced model.