

HIGHLIGHTS

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– Heather Sherrard, UOHI Vice-President of Clinical Services (from UOHI Checklist Fills the GAP, pages 1, 4)

“Patients want to age at home. They don't want to go elsewhere.”

– Christine Struthers, the Advance Practice Nurse who manages cardiac telehealth at UOHI (from Is There a Doctor in the House?, page 2)

People who had a history of depression were four times more likely to suffer a heart attack.

(from Are Genes Responsible for Depression and Heart Disease?, page 5)

The Ottawa Model is an exceptionally effective smoking cessation program that results in more than 44% of participants remaining smoke-free for 6 months or more.

(from Exceptional Quit-Smoking Program Offers New Hope for Canadians, page 6)

“It's difficult being a smoker in this culture today. We don't judge. Smokers simply need help.”

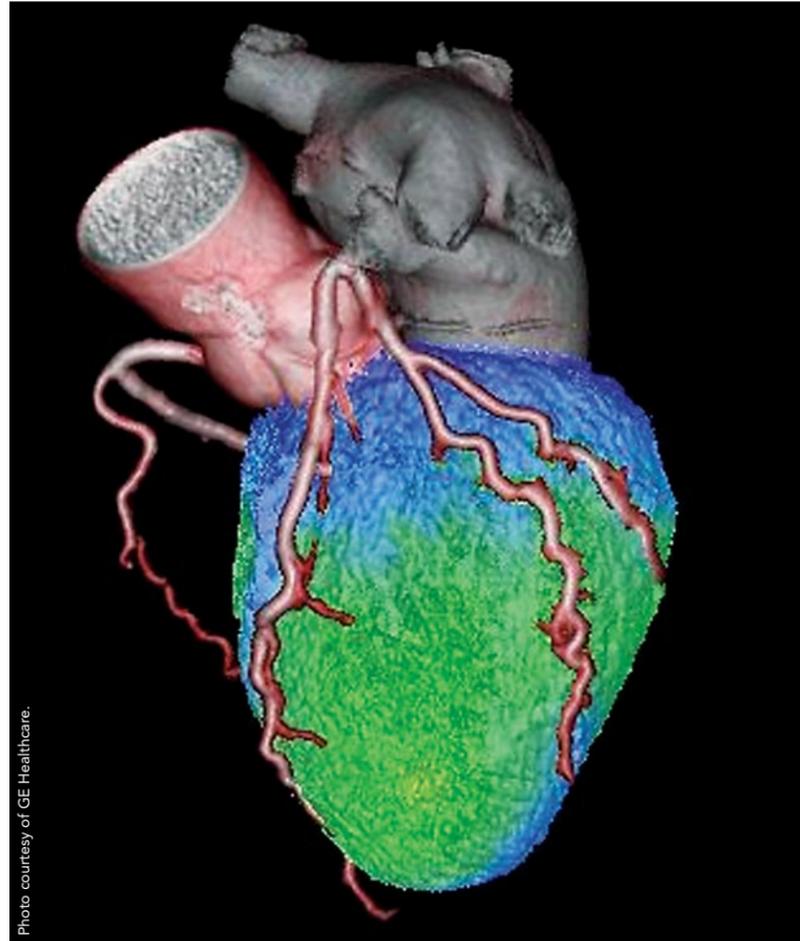
– Bonnie Quinlan, Tobacco Treatment Specialist at UOHI's Smoking Cessation program (from Reaching Out to End the Addiction, page 7)

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The University of Ottawa Heart Institute National Cardiac PET (Positron Emission Tomography) Centre is one of two national Heart Institute centres to recently receive significant research funding from the Canada Foundation for Innovation (CFI).

The PET Centre will use the funding to apply new technology to help detect heart ailments. The technology combines imaging from different sources, such as PET and CT. PET/CT fusion imaging provides a complete picture of coronary artery anatomy as well as blood perfusion (blue-green overlay) to the heart muscle.

For the full story on CFI funding, please see p. 8.

UOHI Checklist Fills the GAP

“The tool provides standardized education on diet, based on guidelines, and provides them with an exercise prescription.”

– Heather Sherrard, UOHI Vice-President of Clinical Services

Safety-critical industries such as the airline sector have successfully employed checklist systems to ensure safety and quality of services. The University of Ottawa Heart Institute has adopted the same approach but with a checklist geared to heart attack patients. These patients are sent home with a complete discharge checklist that includes appropriate prescriptions for medications such as ACE inhibitors and beta blockers. It also includes referrals and education for smoking cessation, nutrition and exercise programs. Items on the checklist include Aspirin and other necessary drugs and procedures.

The checklist is a Heart Institute model adapted from the American Heart Association's Guidelines Applied in Practice (GAP). The goal in developing the discharge checklist was to fill the gap between best practice guidelines for care and treatment of heart patients, and what the patients actually get once they leave the Heart Institute.

“Essentially, it is a patient discharge tool,” says Heather Sherrard, UOHI Vice-President of Clinical Services. The checklist, written in lay terms easily understood by patients, has a series of questions such as:

- I understand that I need to be on Aspirin.
- I have been prescribed a beta blocker.

“There is also an automatic referral to a smoking cessation program (if the patient is a tobacco user) as well as our rehabilitation program. The tool provides

standardized education on diet, based on guidelines, and provides them with an exercise prescription.”

“When patients leave our building, we know for sure that everything has been done for them. We tear off the front copy, give it to the patient and say: ‘This is your plan. Please be sure to share this with your family physician. If someone changes it, and you need information, call us.’ And we give them a number to call.”

Best practice guidelines have proven to be a challenge in the battle to provide the best possible medical care to patients. Best practices are based on standards of best treatment and care for patients that are considered routine in hospitals and among physicians. Making sure these are applied in every single case without fail by each health care provider is tricky enough. Ensuring that patients actually receive and then actually follow these guidelines is another matter altogether. The Heart Institute's modified GAP tool

sends a heart attack patient out the door with specific directives for the prescriptions, tests and counselling they may need to live longer and healthier after leaving UOHI. Research shows that up to 20 percent of patients do not follow such guidelines as taking medication prescribed by their physicians.

The Heart Institute took the adapted GAP tool a step further by incorporating the information from the patient's discharge into the national Discharge Abstract Database (DAD). The DAD contains data on hospital discharges in most provinces and territories. Data, which include demographic, administrative and clinical information, are sent directly to the Canadian Institute for Health Information (CIHI). The DAD provides a valuable data collection tool to report the hospital's performance.

UOHI's modified discharge checklist, which now employs CIHI methodology, enables information to be quickly added

(continued on page 4)

Is There a Doctor in the House?

New surgical techniques and treatments have dramatically cut the length of time heart patients must remain in hospital. But nursing care and medical supervision don't stop the day a patient walks out the door with discharge papers in hand. Since 1998, the University of Ottawa Heart Institute has employed home monitoring systems for selected heart patients to ensure they remain healthy and continue to follow after-care instructions. The result has been a significant drop in readmission figures together with greater personal comfort and security for heart patients on the mend at home.

This is personalized telemedicine – electronic medicine with a unique touch of personal care at the Heart Institute. Canada is a pioneer in telemedicine, a necessary adjunct to the health care system in a country so vast that a trip to a nearby hospital from some remote areas in the Far North takes a full day of flying time. The University of Ottawa Heart Institute started home monitoring patients in 1998 as part of a pilot project that ended in 2003. Study results then involving heart failure and angina patients showed a significant difference in readmission and emergent care in the home monitored group. The goal is to provide acute intervention, says

Christine Struthers, the Advance Practice Nurse who manages cardiac telehealth at the Heart Institute. “We are really trying to impact on that 30-day admission rate, which is high for patients with congestive heart failure and who suffer angina.” Acute intervention focuses on treating a specific disease to combat a life-threatening medical situation.

The Heart Institute home monitor project was so successful that a full program was launched with newer and more portable home monitoring equipment. “Patients want to age at home,” says Struthers. “This is very clear and this is especially true for the upcoming baby boomer generation. They don't want to go elsewhere. Our program provides a connection to the Heart Institute for an extended period of time after discharge. Patients are able to stay at home. They are able to participate in their own care and this provides them with added control of their own lives to a large extent. They can see the results of their care by looking at the data on the monitor.”

Patients are tutored on how to install and operate the home monitoring system for up to three months after discharge. The monitors are programmed for eight languages including French. “The moni-

toring period is anywhere from one month to three months. It's not just for in-patients here,” adds Struthers. “We get referrals from patients who are seen in a clinic here and patients who are seen in other centres in Eastern Ontario.” These include Pembroke and Hawkesbury, about 100 kilometres to the west and to the east of Ottawa respectively. A total of 162 patients have participated in the program.

Patients perform the monitoring function daily at a prearranged time and the information is transmitted through the telephone line to the Central Monitoring Station at the Heart Institute. They step on the scale, measure their weight, answer the questions, and that entire data package is sent to the Central Station at the Heart Institute.

“I call patients when they have readings outside the normal range. I have medical directives that allow me to change their medications so I have a series of ‘interventions’ I can implement based on these medical directives. I also use this program – because it provides a nice little summary in the form of an electronic health record – to update their physicians and anyone involved in their care.”

The Central Station monitors vital signs transmissions: weight, electrocardiograms, blood pressure, pulse and heart beat. Blood work, medication and any other necessary monitoring such as irregular heart beat (arrhythmia) are closely monitored. So too are basic guidelines involving diet, smoking, exercise and cholesterol management.

“This program was targeted at patients with chronic congestive heart failure and chronic angina, but we're now getting away from specific diagnoses. It's really for any patient who requires daily monitoring of their ‘status trends.’”

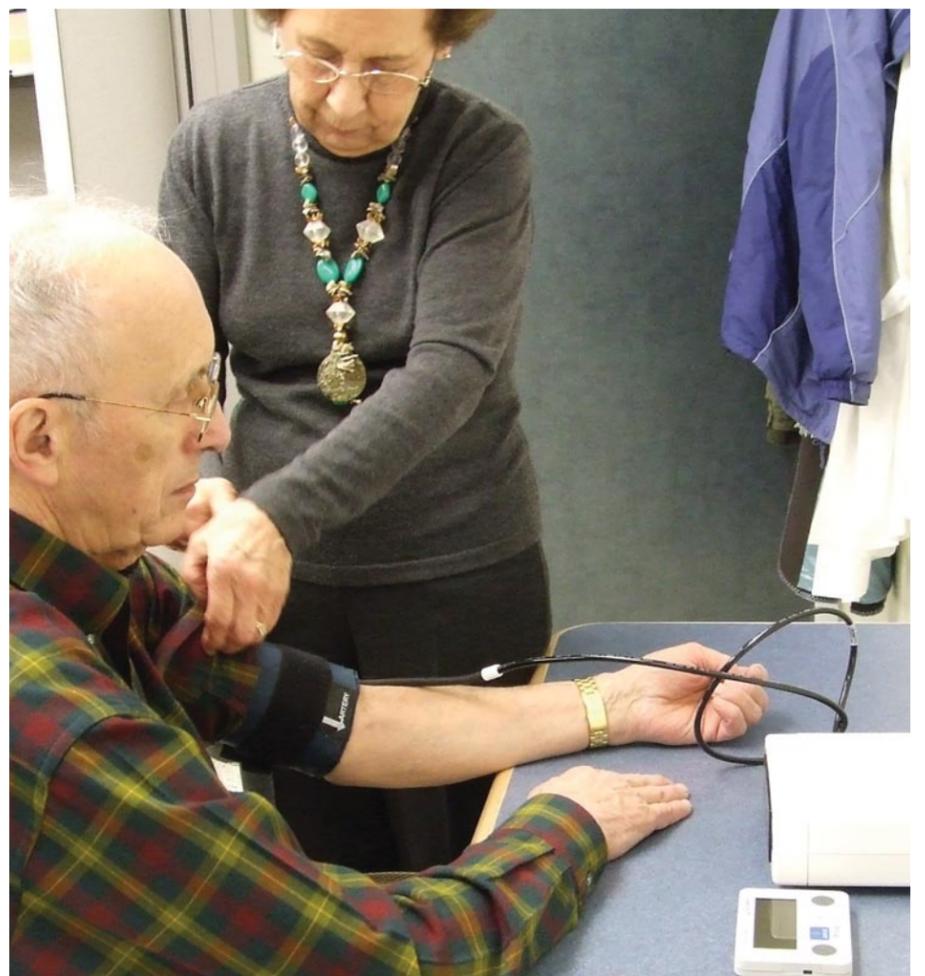
The Heart Institute is now in the process of developing a regional cardiac telehome monitoring program. A research program is currently underway with the Cornwall Community Health Centre, which is equipped with five monitors. Data from patients in Cornwall, Ontario, about 60 kilometres southeast of Ottawa, are sent to the Heart Institute's Central Station. Other regional centres preparing to participate will be coached, offered training and provided the equipment for cardiac patients. These patients will be able to avoid long-distance travel to Ottawa, which is never an easy prospect during the winter months. ❄️

“This program was targeted at patients with chronic congestive heart failure and chronic angina, but we're now getting away from specific diagnoses.”

– Christine Struthers, Advance Practice Nurse



Home monitoring equipment includes a blood pressure collar, weight scale, pocket ECG and a data unit that collects and transmits information to the Heart Institute.



Patients are tutored on how to install and operate the home monitoring system, which may remain in the home for up to 3 months after discharge.

The Numbers Are In

The Cardiac Telehome Monitoring Program has created a technology safety net for patients of the University of Ottawa Heart Institute. Officially launched in April 2005, the program's goals include:

- Supporting physicians, especially in under-served areas
- Reducing hospital readmissions in cardiac patients
- Improving patient quality of life and helping to reduce symptoms.

In the first year, 50 patients completed a three-month telehome monitoring process. Because the information is tracked and analyzed, the Heart Institute can collect valid patient data. Some of the results and milestones include the following figures:

- 353:** The number of calls made to patients to review health status, intervene as needed, and provide medication and self-care education.
- 10:** The number of readmissions.
- 56:** The number of diuretic dosages that required adjustment.
- 34:** The number of heart failure medications that required adjustment according to best practice guidelines.
- 70.4:** The average age of patients, whose ages ranged from 33 to 89.
- 50:** The number of patients who were successful at connecting the monitor in their homes and have not required a home visit.
- 1:** The number of nurses in the staffing ratio for 30 to 40 patients at this level of intervention and care. ☺

Leadership Fuelled by Technology and Distance

Canada's leadership in telemedicine is largely a result of sophisticated communications technology developed by Canadian scientists to provide medical help with patients in remote locations.

The University of Ottawa Heart Institute has pioneered the use of long-distance medical services, teaching and training. Today the Heart Institute also provides local and regional telemedicine services for heart patients who don't have to leave their homes for regular medical assessment and monitoring.

Over the years, UOHI has demonstrated several world-first projects. In the 1990s, the Heart Institute tested what was then advanced communications and video systems. One of the first involved German specialists who were located in Brussels. They monitored the vital signs of an artificial heart located some 5,700 kilometres away at the Heart Institute in Ottawa. It was a high-profile event, staged at the G7 Ministerial Conference on the Information Society held in Brussels. (G8 – formerly know as

the G7 – represents the eight major industrial countries that essentially set policy in the international financial system.) Doctors from the Berlin Heart Institute, who were in Brussels, remotely monitored a prototype artificial heart developed by UOHI. Telecommunications engineers in Canada and Germany overcame numerous technical issues to make the synchronous connections needed for the Brussels telemedicine experiment – a medical first.

In 1998, another dramatic demonstration involving UOHI used High Definition Television (HDTV) technology to aid diagnostic examinations from remote locations. The event was a collaboration between the University of Ottawa Heart Institute, Tokai University of Tokyo, the Communication Research Laboratory (CRL) of Japan and Communications Research Centre in Ottawa. It was the first two-way HDTV telemedicine workshop. The technology provided high-quality images showing the fine details of heart surgery from a Heart Institute operating room. ☺



(UOHI Checklist Fills the GAP, continued)

to the DAD with more detail. “Now I can just go into the data and see how many patients went home with Aspirin or the percentage who went home with beta blockers,” says Sherrard.

UOHI also applies the GAP tool checklist and results to the Heart Institute’s unique Integrated Voice Response (IVR) system, which helps transition patients safely into their home environment.

The electronic system is set up to call patients at regular intervals (one, three, six, nine and 12 months) and ask questions about whether or not they are adhering to medications. An RN reviews

the patient’s response on the system and assists in returning them to the guidelines.

“Not only do we get to check with the patients using the guidelines, we can now intervene and call them. The Heart Institute’s modified GAP tool is being distributed to 21 other hospitals. UOHI will coach and provide training on the use of the system. Most of these hospitals are in the surrounding Ottawa region. Personnel will be trained to apply the tool with patients, how to program the data, input results to the DAD and learn how the data can be used to ensure best practice guidelines.”

Who’s Your DAD?

The Discharge Abstract Database (DAD) contains data on hospital discharges across Canada. The Canadian Institute for Health Information receives data from participating hospitals – virtually all hospitals – in every province and territory except Quebec. The database contains information about hospital discharges and day surgeries. The DAD serves many purposes, including a provincial and national comparative summary and analysis. The DAD also supports development and use of analytical tools, such as case grouping methods, length-of-stay analysis and resource utilization analysis.



Heather Sherrard

“A lot of our programs are targeted to helping people get better/cope well enough to let them go home – the bridging of the home care. These are innovative programs for an acute care facility.”

- Vice-President, Clinical Services, UOHI
- Holds two academic appointments, University of Ottawa: School of Nursing and Masters in Health Administration
- Member, editorial board *Canadian Journal of Cardiovascular Nursing*
- Special Interests: consulting services to provinces regarding cardiac health services, research into cardiovascular staffing issues, using technology to enable care, and best practice guideline utilization

Research Project Aims to Improve Cardiovascular Ties to Franco-Ontarians

Francophone heart failure patients in Ontario are being recruited for a new Heart Institute study to ensure they follow prescribed treatment and that their family physician remains the centre of care after release from hospital. The project involves a unique Interactive Voice Response (IVR) system developed in 2003 to follow all heart surgery patients on discharge. Using a computer-based interactive telephone system, the IVR delivers a sophisticated recorded message with questions, instructions, reminders and basic information. Cardiac patients recuperating at home are contacted after discharge and the system enables nursing after-care for these patients, who are quickly screened based on their responses. Patients who may need help are immediately contacted by an advanced nurse practitioner. Emerging health problems and symptoms are spotted early.

The research project is supported by federal funds set aside for francophone patients in Ontario who suffer heart

disease, including heart failure. The goal is to improve ties between francophone patients, their physicians and cardiac specialists. The latest *Report on the Health of Francophones in Ontario*, published in December 2005¹, shows a higher rate of heart disease among French-speaking people in the province. Health behaviours differ among the francophone population compared with English-speaking groups. The report suggested a greater number of daily smokers, a slightly higher alcohol use and a lower consumption of fruits and vegetables. The results also varied according to region.

Francophone patients in the new Heart Institute project are being drawn from everywhere in the province. “It’s just a phone call away for us,” says Christine Struthers, the Advance Practice Nurse who manages cardiac telehealth at the Heart Institute. “It doesn’t matter where they live.” The Heart Institute began recruiting patients in January 2007. Cardiac telehealth researchers will collect as many patients as they can, beginning

with Ottawa and moving outwards towards Hawkesbury and still further if necessary.

For francophones, another issue is the number who live beyond large municipal areas, with less access to specialty hospitals. In Eastern Ontario, however, the Heart Institute has set up a home monitoring system for discharged heart patients. The Hawkesbury District and General Hospital, for example, has joined the program, enabling heart patients who go home to connect daily to the Heart Institute for monitoring. The Town of Hawkesbury, which has a strong francophone population, is about 65 kilometres northeast of Ottawa.

The Heart Institute IVR project also addresses several recommendations made in the 2005 health report on francophones. The report called for measures to both follow the progression of and take steps to improve the health of Franco-Ontarians. The Heart Institute’s IVR is geared to closely assess and analyze

the after-care of discharged patients in several ways. This includes:

- Ensuring patient compliance with prescribed medications and other health-care prescriptions such as diet, exercise and smoking cessation;
- Evaluating a patient’s ability for self-care;
- Providing specific information to each patient about his/her disease and medication on a long-term basis;
- Providing detailed hospital data on heart patients;
- Ensuring up-to-date records on the patient, which will have restricted access by the family physician, the patient’s cardiologist and other health care providers.

The effectiveness of the program will be evaluated at the end of three months and then at the end of six months. This will include adverse events involving medication, hospital readmission and patient satisfaction with the after-care IVR system.

Are Genes Responsible for Depression and Heart Disease?

Is there a common genetic vulnerability between depression and heart disease? For now, the possibility lies only in theory as scientists strive to uncover the reasons why heart disease and depression remain such close companions.

The University of Ottawa Heart Institute has been screening and treating cardiac patients suffering depression for more than 15 years. The clinic is part of the Institute's Prevention and Rehabilitation Centre, where psychiatrist Dr. Robert Swenson has served as consultant. Dr. Swenson is Acting Head of Psychiatry and Director of Outpatient and Community Psychiatry at The Ottawa Hospital. He points to a study several years ago at the Heart Institute, where 15 percent of patients who suffered unstable angina or acute myocardial infarction – known as a heart attack – showed symptoms of a severe type of depression.

heart disease may have the same genetic tendency to develop depression. There are also a number of other different theories, but not one has been proven.”

Research over the past 20 years has shown that depression and heart disease are closely related. The U.S. National Heart, Lung and Blood Institute (NHLBI) Working Group on the Assessment and Treatment of Depression in Patients with Cardiovascular Disease notes that depression is an important risk factor for heart disease, along with high blood cholesterol and high blood pressure¹. Further, the NHLBI cites research showing that people who had a history of depression were four times more likely to suffer a heart attack. Canadian researchers in Montreal have also found that heart patients who were suffering depression were at greater risk of dying².

“It was a very careful study,” said Dr. Swenson. “We made sure the therapists were all very experienced. Their sessions were audited to make sure they were delivering the proper type of therapy. Yet, overall, the therapy was not any more effective in some cases than just seeing the patient, being supportive and administering antidepressant medication.”

Analysis of data involving 284 patients in nine academic centres across Canada, including the University of Ottawa Heart Institute, found that participants benefitted by using an antidepressant medication called citalopram. The four-year project, conducted between May 2002 and March 2006, is considered the first study to examine the combined impact of an antidepressant medication and a psychotherapy treatment in relieving depressive symptoms in patients with coronary artery disease and to

Disease) trial, showed that cognitive-behavioural therapy was effective for treating depression but had no impact on cardiovascular disease or mortality.

Robert Reid, UOHI's Senior Health Promotion Consultant and Senior Research Associate at the Prevention and Rehabilitation Centre, noted that a psychiatrist and a psychologist have long been involved with the Heart Institute's program. Reid is also Associate Professor in the Faculty of Medicine at the University of Ottawa.

UOHI psychology researcher Heather Tulloch has been analyzing data collected from patients who have visited the Heart Institute's rehabilitation centre. A preliminary analysis of 2,695 patients has examined numerous quality of life factors that include depression and anxiety, and physical activity. The



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– Dr. Swenson, Acting Head of Psychiatry and Director of Outpatient and Community Psychiatry at The Ottawa Hospital

“Among cardiologists, it is becoming increasingly recognized that depression is an important risk factor that needs to be addressed,” said Dr. Swenson. “There are many world leaders in cardiology who are looking at this.”

Depression seems to have some unexplained interaction with the heart, he said. “We don't know the mechanism. There is a theory of a common genetic link between depression and heart disease, so a person with a genetic tendency to develop

Canadian researchers have continued to study heart disease and depression. Dr. Swenson co-authored results of the latest Canadian research into depression and heart disease, published in the *Journal of the American Medical Association* (JAMA) in late January. Findings of the research suggest interpersonal psychotherapy failed to provide additional benefit over weekly clinical management of depression in cardiac patients. Authors of the study were surprised that psychotherapy did not offer added benefit to patients.

compare these treatments to a placebo or a control condition. Results were published in the January 24 issue of JAMA (Vol. 297 No. 4, pp. 337-430).

Dr. Swenson and the Heart Institute also contributed to a landmark investigation known as SADHART (Sertraline AntiDepressant Heart Attack Trial). SADHART demonstrated the antidepressant was safe and effective in depressed patients with ischemic heart disease. Another study, known as the ENRICHED (ENhancing Recovery in Coronary Heart

research is also examining a large number of variables: age, gender, weight (including measurements associated with obesity), marital status, education, those who live with spouses and children, tobacco use, medication, employment status and ethno-cultural background. The quality of life factors are assessed upon admission to the Prevention and Rehabilitation Centre and at successive intervals afterwards. Tulloch said the results are in the preliminary stages and cannot offer any major conclusions. 🌸

Exceptional Quit-Smoking Program Offers New Hope for Canadians

An exceptionally effective smoking cessation program that results in more than 44% of participants remaining smoke-free for 6 months or more is being hailed as a new national model for use across the country. Developed by the University of Ottawa Heart Institute (UOHI) and supported in part by the Government of Canada, the so-called Ottawa Model will be implemented in two major health districts in the country.

The Ottawa Model is a hospital-based program involving a unique combination of consult and intervention, information, follow-up and feedback. At UOHI, about 1,500 in-patient smokers are identified annually and more than 98% participate in the Heart Institute's program.

"As one of the largest health authorities in New Brunswick, this project will provide us with an ability to institutionalize smoking cessation as part of our standard of care," said Anne Marie Atkinson, Health Promotion and Wellness Consultant, River Valley Health. "The Ottawa Model will contribute to our targets of further reducing our regional smoking rate, reducing hospitalizations and deaths from chronic diseases associated with tobacco use, and promoting a more healthy lifestyle."

VCH provides a full range of health care services – from hospital treatment to community-based residential, home health, mental health and public health services. VCH provides services to 25% of

The Ottawa Model

The success of the Ottawa Model is based on the systematic identification of smokers and an offer of assistance to help them quit. To accomplish this:

- All new medical residents and nurses are provided with one-on-one training in how to manage tobacco dependency.
- All smokers admitted to a hospital are identified and treated with support from a designated nurse counsellor and stop-smoking aids. Smoking status is documented in the patient's record.
- The attending physician or nurse advises all smokers to quit. An order for nicotine replacement therapy is provided by the attending physician.
- A quit plan is developed with smoking patients who are ready to quit. Nurse counsellors are trained in all aspects of nicotine dependence and smoking cessation.
- At discharge, patients are provided with guidance on a smoking withdrawal program and with assorted materials, including nicotine replacement, if necessary.
- Recommendations to support smoking cessation are written into the patient's discharge letter and sent to the family physician.
- Patients are contacted at home at three, 14 and 30 day intervals every month for six months after discharge by a unique call system. This is a sophisticated integrated voice response technology that tracks the patient's progress using a detailed series of questions. If any response suggests the patient is having trouble remaining smoke-free or if he/she started smoking again, a nurse counsellor will call to talk about options and help get the patient back on track. This includes a reference to the Heart Institute's outpatient smoking cessation clinic.
- Patients are assessed six months after discharge. 🌀

At UOHI, about 1,500 in-patient smokers are identified annually and more than 98% participate in the Heart Institute's program. Between 30% and 50% each year remain smoke-free for six months or longer.

Between 30% and 50% each year remain smoke-free for six months or longer. The program is now being replicated in 12 hospitals in the Champlain region of Ontario and is being used to assist all smoking patients, not just those with heart disease.

"The Ottawa Model leads to a significant increase in long term cessation rates," said Dr. Andrew Pipe, Director, Prevention & Rehabilitation, UOHI. "Health is improved, more lives are saved, and demands on the health care system are reduced. By assisting other regions to use this proven approach, we hope to help more smokers quit and enhance both their health and the quality of their lives."

With federal government funding, two regions – River Valley Health (RVH) in New Brunswick and Vancouver Coastal Health (VCH) in British Columbia – will be the first to adopt and implement the Ottawa Model. In the RVH region, some 23% of the population smoke. In the VCH service area about 16% of the people are smokers. For comparison, about 20% of patients, or some 24,000, admitted to the 12 regional hospitals currently served by the Ottawa Model are smokers.

RVH is the largest geographic health region in New Brunswick, delivering bilingual care and services to close to 170,000 people, including five First Nation communities, in over 20 locations in a geographic area exceeding 23,000 square kilometres. Services are provided through acute care facilities, community health centres, a collaborative health clinic, specialty units, and a wide range of community and home care services.

British Columbia's population, with 17 regional districts and 15 First Nation communities. VCH delivers care over a geographic span of 54,000 square kilometres through 14 acute care facilities, 24,500 qualified staff and two diagnostic and treatment centres.

Christina Tonella, Leader, Tobacco Reduction Strategy, Vancouver Coastal Health, said: "In British Columbia, the results of this kind of program will benefit patients and the health care centres in our region. Many patients want to quit smoking when they are hospitalized and welcome specific assistance to help them quit."

Among its many advantages, the Ottawa Model provides a means of establishing comparable standards and practices across the country, encouraging medical units to collaborate more closely to further cut smoking among Canadians. As well, smoke-free facilities and grounds have made it more important for hospitals to have sensitive, responsive and successful programs to assist smokers.

"The Heart Institute has more than 10 years experience in developing and implementing smoking cessation programs for patients," said Dr. Pipe. "As the leading cardiovascular care centre in the country, we're willing to contribute our experience and share our knowledge with anyone, anywhere, especially when addressing this important preventive health practice." 🌀

Reaching Out to End the Addiction

Bonnie Quinlan works with addiction – with what many consider is probably the most difficult to quit. Last year, Quinlan completed her master's level in tobacco addiction counselling at the University of Massachusetts. She is one of only a handful of Canadian graduates from this program, earning her the title of Tobacco Treatment Specialist at UOHI's Smoking Cessation program.

Quinlan has helped the Heart Institute set the standard in this field, developing a systematic approach to identifying and treating hospital patients who smoke. She came to UOHI's Prevention and Rehabilitation Centre to work with its Medical Director Dr. Andrew Pipe to help create a comprehensive smoking cessation program. Her strong clinical background in both cardiology and cardiac surgery, combined with her interest in prevention, served as a solid foundation for the project ahead.

"We are one of the very first to systematize the process," says Quinlan. "Everyone now has come to accept it as best practice. The foundation of this model is based on the unambiguous, non-judgmental approach in the delivery of smoking intervention."

As well, the Heart Institute has developed standing orders for nicotine replacement. "Physicians began to see the change in their patients because they were prescribing nicotine replacement properly and the effect snowballed."

Quinlan was among the many nurses who saw how hard it was for patients to quit

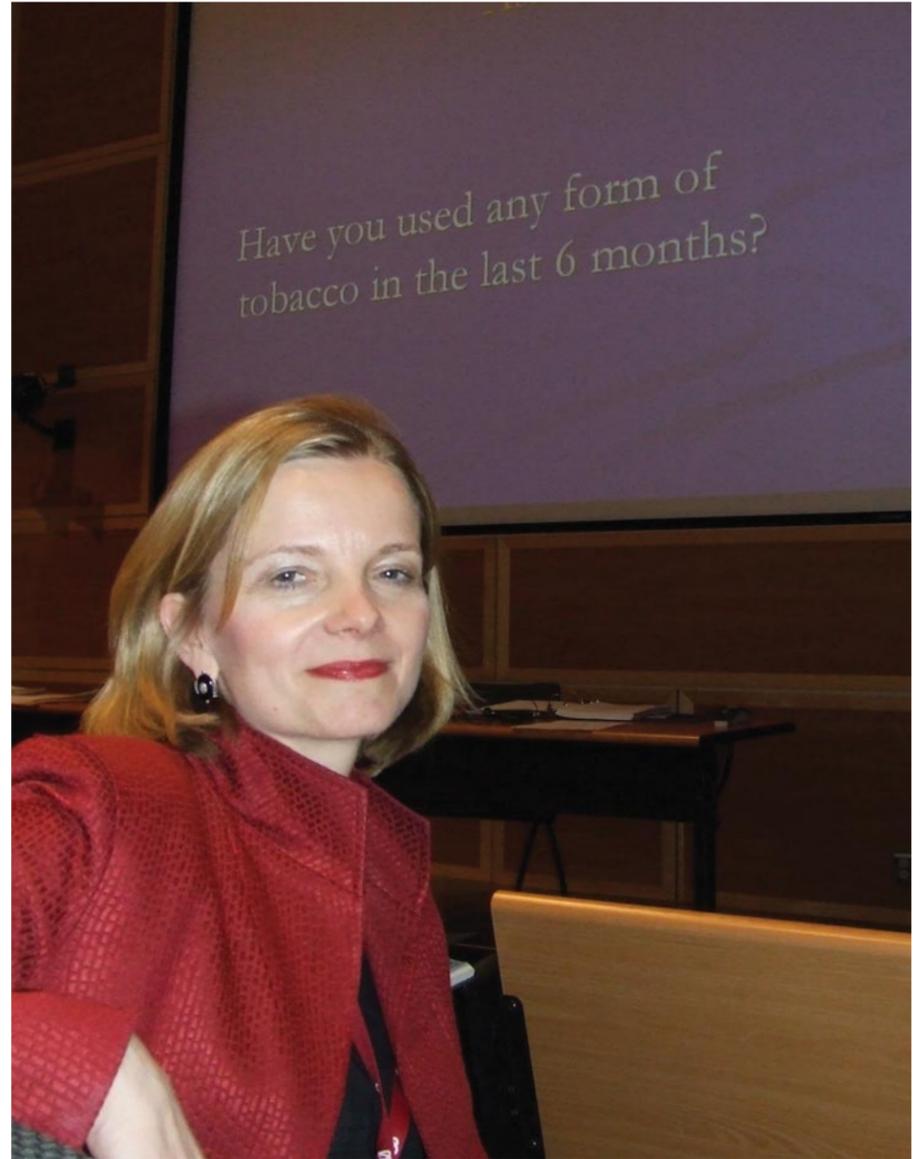
while they were in hospital. "And I wanted to see if there was something I could do to make a difference."

The Heart Institute program captures, identifies and offers treatment to all smokers, regardless of whether they plan to quit. Quinlan is an educator, coach, cheerleader and all the other attributes that fall under the guise of a counsellor dealing with one of the most difficult addictions. The same courtesy and support is extended to all smokers, including those who have opted not to quit.

"We treat everyone with equal opportunity," says Quinlan. "If a patient doesn't want to quit smoking, we respect that fact. But we are going to offer them nicotine replacement to make sure they are comfortable and safe while they are in our care."

That single action is significant in treating patients who are smokers. The tendency in the past was not to bother with a patient who was an avowed smoker. Very little thought went into what would happen to a patient confined to a bed without the ability to have a cigarette or deal with withdrawal.

As a certified tobacco treatment counsellor, Quinlan can get into the mind – and into the cravings – of a smoker. She has counselled thousands of smokers in the past few years. The heart patients who have successfully quit have gone on to enjoy a better quality of life and that makes the job worthwhile, she says. "It's difficult being a smoker in this culture today. We don't judge. Smokers simply need help." ❄️



Bonnie Quinlan is one of only a handful of Canadians with a Master's degree in tobacco addiction counselling.

UOHI Helps Advance Northwestern Ontario's Cardiac Capabilities

The University of Ottawa Heart Institute will serve as mentor site to the Thunder Bay Regional Health Sciences Centre, which won provincial approval to set up a stand-alone angioplasty cardiac service for Northwestern Ontario.

Ron Nelson, chair of the Thunder Bay centre's board of directors, described the agreement with the Heart Institute as an exciting chapter in the regional health services centre's saga. Heather Sherrard, UOHI Vice-President of Clinical Services, said she expects training to begin in spring.

Establishing a stand-alone angioplasty service in Thunder Bay fulfils a key recommendation of the 2005 Integrated Service Plan for Northwestern Ontario, that of providing closer-to-home treatment for heart disease patients. Angioplasty is a medical procedure in which a balloon is inserted by catheter to open narrowed or blocked blood vessels of the heart.

As a mentor site, the Heart Institute's role revolves around ensuring a high quality service is installed for Northwestern Ontario, Sherrard said. The Heart Institute, under the direction of Dr. Marino Labinaz, Director of UOHI's Cardiac Catheterization Laboratory, will aid with physician recruitment and

The Heart Institute provides an intensive training process for cardiac care nurses.

training. Patient care programs fall under UOHI's Clinical Services Department. The Heart Institute provides an intensive training process for cardiac care nurses. Clinical Services has launched several pioneering programs that ensure after-care monitoring and treatment of heart patients convalescing at home after discharge from UOHI.

Heart Institute staff will travel to Thunder Bay to supervise early cases when the service becomes fully operational. Thunder Bay health care providers will also be in Ottawa for training. Establishing a new service also involves setting up mechanisms to monitor quality and ensure implementation of

best practice guidelines. The Heart Institute will also help screen and review cases during the first six months of the new service.

Through cardiac telemedicine, quality care by the Heart Institute continues for heart patients after discharge. Patients are discharged after clearing an extensive

checklist using a new Guidelines Applied in Practice (GAP) tool, which ensures they leave with appropriate information, prescriptions and appointments. This includes enrolment in heart health programs for nutrition, exercise, stress management and smoking cessation. Cardiac surgery and heart failure patients are equipped with home monitoring kits as part of the Heart Institute's cardiac telemedicine, so they can report daily with weight, blood pressure and other critical numbers. An Interactive Voice Response computerized telephone system also calls patients with questions, instructions and key reminders. Any patient with a problem is immediately called by an advance practice nurse.

The full complement of these programs, says Sherrard, distinguishes the Heart Institute from other cardiac centres in Ontario and in Canada. ❄️

CFI Funding Supports Landmark Research

Two national cardiac research centres at the University of Ottawa Heart Institute (UOHI) have been awarded a total of more than \$10 million by the Canada Foundation for Innovation (CFI) to identify and treat the causes of Coronary Artery Disease (CAD). Matching funding from the Province of Ontario, expected in a few months, coupled with other financial support will push the research investment to some \$20 million.

UOHI's Ruddy Canadian Cardiovascular Genetics Centre received CFI funding of \$4.7 million to support a significant program that employs advanced gene sequencing, DNA analysis and microchip technology to identify and map the genetic makeup of CAD. Another \$3.3 million went to the Heart Institute's National Cardiac PET Centre to develop a Molecular Imaging Program applying Positron Emission Tomography (PET) as a research tool for evaluating the function of cell and molecular processes in heart disease. Both research centres are the only such facilities in Canada dedicated to cardiovascular disease. An associated infrastructure operating award of some \$2.4 million brings the overall amount of CFI funding to more than \$10 million.

"The overall objective of our genetic work is to identify genes responsible for CAD," said Dr. Robert Roberts, President and CEO, UOHI. "This funding provides the ability to add new, more advanced research equipment. It also allows us to recruit people with expertise in genetics and genomics research. We estimate we will be recruiting at least 10 to 15 new investigators. Over the next five years, we plan to train at least 20 or 30 technicians

and our goal is to recruit more world-class researchers."

Genetics research at the Heart Institute moved into high gear in June 2005 with the opening of the Ruddy Centre, the only one of its kind in Canada. Major studies are underway to explore the genetic clues in heart arrhythmia and the so-called thin-gene, which may play a role in regulating body weight. One major part of the project now is the investigation of the genetic differences between patients who suffer CAD and people who do not.

The genetics laboratory is equipped with a unique biorobot for processing DNA from blood samples. DNA micro array technology now permits identification of 500,000 genetic markers with the goal of determining patterns of activity in genes.

"This research requires dedicated advanced technology and a new approach in how we will go about detecting heart disease," said Dr. Roberts. "To continue this project over the long-term will require the analysis of billions of markers, something that would be impossible to do without the support of CFI and our other partners."

Funding of the National Cardiac PET Centre builds upon its acclaimed expertise in nuclear cardiology, where radio isotopes are used to gain insight into heart disease.

"We have the critical tools to evaluate tracers in animal models and humans," said Dr. Rob Beanlands, Chief of Cardiac Imaging and founding Director of the National Cardiac PET Centre. "UOHI's nuclear cardiology department sees about 6,000 patients each year. Half of them come from outside the Ottawa region and many are from other provinces.

by special cameras to reveal, for example, areas of the heart that are not getting enough blood. If serious blockage is found, results can help a cardiologist determine the most suitable treatment.

"The National Cardiac PET Centre has established itself as an international research leader during the last five years," said Dr. Beanlands. Several current – and significant – PET projects are evaluating men and women at risk for heart events such as heart attack. For example, studies involve men and women with sleep

"This funding provides the ability to add new, more advanced research equipment."

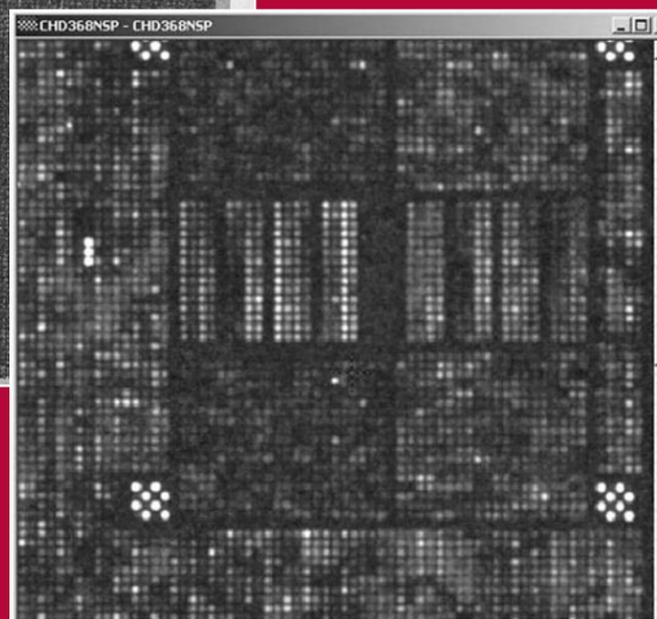
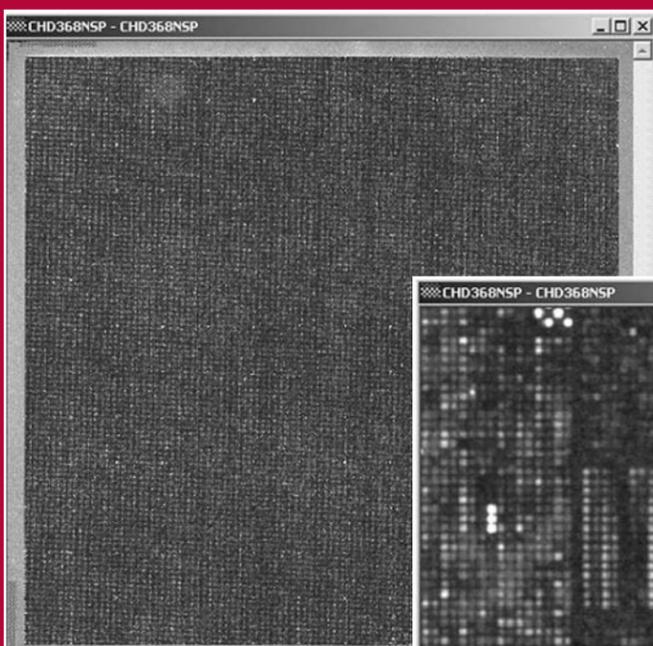
– Dr. Robert Roberts, President and CEO, UOHI

Innovative research at the Heart Institute will increase our understanding of the disease, point to novel therapies, and improve cardiac patient care in Canada and abroad."

Cardiac PET measures the metabolic activity of cells and can help detect heart ailments. The nuclear cardiology imaging technology is widely used as a diagnostic tool in both cancer and heart disease. As a cardiac diagnostic tool, PET assesses the viability and blood flow of the heart. A tiny amount of radioactive substance called a tracer is injected into the patient. The tracer releases energy that is 'traced'

apnea, an obstructive sleep disorder often associated with loud snoring, as well as an evaluation of the heart's function, its metabolism and its nerve function in patients who have heart failure.

Support from the CFI enables institutions to set their own research priorities in response to areas of importance to Canada. This allows researchers to compete with the best from around the world, and helps to position Canada in the global, knowledge-based economy. 



The Affymetrix GeneChip™ DNA microarray technology arranges thousands of gene sequences – long strings of encoded information – on microchips for processing. Scientists use microarray technology to try to explore the underlying genetic causes of heart disease. At the Heart Institute, researchers are comparing genetic differences between patients who have early coronary artery disease and those who do not.

The top photo shows a single array containing 500,000 gene sequences. The inset photo is a close-up view showing individual gene sequences illuminated by a laser. Every patient has a different signature of "spots".