



2010-2011 Annual Report Summary
of the Montreal Heart Institute

EXPERTS FOR YOU



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A BIG THANK YOU TO

Dr. Gernot Schram, Electrophysiology Fellow, Clinician and Researcher

Ms. Valérie Plé, Nurse, Recruitment Campaign Ambassador

Dr. Paul Khairy, Cardiologist, Researcher and winner of three major awards this year

Ms. Valérie Guilbeault, Kinesiologist and Coordinator of the Kilo-Actif Program at the MHI's ÉPIC Centre

The Montreal Heart Institute at a Glance



More than 2,000 employees

HIGHLY SPECIALIZED CARE

A world-renowned research centre

THE LARGEST CENTRE FOR PREVENTIVE MEDICINE IN QUEBEC

MISSION AND VALUES

Founded in 1954 by Dr. Paul David, the Montreal Heart Institute (MHI) is an ultraspecialized cardiology hospital dedicated to care, research, teaching, prevention, rehabilitation and the assessment of new technologies in cardiology. The Institute is affiliated with Université de Montréal.

Our core values are based on the respect and well-being of patients and their families, staff development and recognition, the constant search for excellence and innovation, the protection of public health, involvement in the community and the health network as well as strong management, best ethical practices based on transparency, and the informed consent of patients.

The Montreal Heart Institute is:

- More than **2,000** employees, including **520** nurses and **75** regular researchers
- **226** physicians, including **45** cardiologists, **8** cardiac surgeons and **12** anesthesiologists
- More than **702** students, interns, residents and fellows in various fields related to cardiology
- **153** beds, including **21** in coronary care, **21** in medical intensive care and **24** in surgical intensive care
- Highly specialized care
- The largest centre for preventive medicine in Quebec
- The leading teaching hospital for cardiovascular disease in Quebec
- A world-renowned research centre

Annual Activities

- **1,865** surgical procedures (coronary bypasses, valvular surgeries and cardiac transplants)
- **6,300** procedures in interventional cardiology
- **2,100** procedures in electrophysiology
- **7,100** hospitalizations
- **16,700** visits to emergency
- **43,000** visits to the anticoagulant clinic
- **45,000** visits to outpatient and specialized clinics

Message from the Chair of the Board of Directors and the Executive Director

The MHI's reputation as a model of excellence locally, nationally and internationally in terms of care, research, teaching, prevention and technology assessment and development in cardiology is due to these experts, who surpass themselves day after day.

📍 **Robert Busilacchi**, Executive Director



MESSAGE FROM THE CHAIR OF THE BOARD OF DIRECTORS AND THE EXECUTIVE DIRECTOR

The theme of our 2010-2011 annual report—Experts for You—reflects the many accomplishments of the larger MHI family, which continues to innovate and excel to meet the highest standards in personalized care, prevention, teaching, research and technology assessment.

The MHI community, including its physicians, employees, researchers and professors, are all motivated by the same goal: improve the health of the public and particularly of people who suffer from a cardiovascular problem. The MHI's reputation as a model of excellence locally, nationally and internationally in terms of care, research, teaching, prevention and technology assessment and development in cardiology is due to these experts, who surpass themselves day after day.

The year 2010-2011 was remarkable in many ways. Of note was major investment in research (including the on-going expansion of the Research Centre), the publication of over 300 scientific articles, training for 600 cardiology students, ultraspecialized training for more than 30 international fellows, not to mention a major increase in heart surgeries and electrophysiology procedures thanks to the deployment of a large-scale plan to meet evolving needs and improve accessibility.

The year was also marked by concrete steps in a number of major projects for Phase I of our vast development plan, Investing in Excellence, which involved significant investment in medical technologies, the inauguration of the new operating room and central sterilization centre (one of the most sophisticated in North America), and the addition of a third electrophysiology room.

Despite major budgetary constraints in the health care network and a difficult economic climate, we are continuing to maintain strict and effective management practices at the Institute. We have continued to promote the exceptional nature of our Institute with the Agence de la santé et des services sociaux de Montréal and the Ministère de la Santé et des Services sociaux to ensure that we obtain the funding we need to pursue our mission of excellence.

Throughout its history, the Montreal Heart Institute has always been able to meet the challenges laid in its path and has used each one to scale new heights. We intend to continue in this long and successful tradition of excellence, which will spur the advances we make in the years to come.

MANY THANKS

The MHI is lucky and privileged to count on a remarkable team made up of passionate, energetic and skilled men and women who strive to improve patient care and public health. To our employees, physicians, professors, researchers, managers, students, administrators and volunteers: Thank you!

We are also proud of our association, affiliation and partnership with Université de Montréal, which actively helps us maintain our position as a leader in research and teaching.

Finally, the unwavering and substantial support from the MHI Foundation has breathed life into a number of major development projects, and this in turn has contributed to the excellence and leadership of our institution. Through its commitment to the Division of Prevention and the ÉPIC Centre, the ÉPIC Foundation has also played a highly appreciated role.

Thank you to the administrators, staff and volunteers of these two foundations.

Pierre Anctil
Chair of the Board of Directors

Robert Busilacchi
Executive Director

Experts in Care

My relationship with the Montreal Heart Institute has been a long love affair. I left my native Germany to pursue studies in electrophysiology here at the MHI. With the support of the medical and research teams, I quickly felt like a member of the Institute's big family. From research to clinical care, the facilities here are outstanding!

✔ **Gernot Shram**, Electrophysiology Fellow



OFFICIAL INAUGURATION OF THE NEW OPERATING ROOM

On January 14, 2011, Dr. Yves Bolduc, Minister of Health and Social Services, officially inaugurated the MHI's new operating room, one of the most modern in North America. In the presence of the MHI's Chair of the Board of Directors, Mr. Pierre Ancil, and the President and Executive Director of the Agence de la santé et des services sociaux de Montréal, Mr. David Levine, more than 100 people took part in this event, which included a tour of the new surgery rooms and the completely refurbished central sterilization centre.

Started in September 2006, the construction work on the new MHI operating room consisted of replacing the four existing surgery rooms with seven new rooms equipped with leading-edge technology with the goal of meeting the growing demand for heart surgery not only in Montreal but throughout Quebec. The expansion and redevelopment of the operating room and the sterilization centre called for an investment of \$31.5 million, including \$10.7 million for specialized equipment.

CREATION OF A THIRD ELECTROPHYSIOLOGY ROOM

Thanks to an investment of \$2.3 million from the Ministère de la Santé et des Services sociaux, \$85,000 from the MHI, and \$50,000 from its Foundation, the MHI was able to create a third room dedicated to cardiac electrophysiology. Operational since February 21, 2011, this new facility has made the MHI the best equipped centre for complex ablations in Canada.

Increasing the total number of ablations, decreasing wait times for these procedures, reducing (or even eliminating) wait times for cardiac stimulator and defibrillator implantations, improving service to inpatients and reducing their lengths of stay were the main goals for adding this third room.

OACIS: A STEP TOWARD ELECTRONIC RECORDS

The idea of bringing paper records into the digital age is not new. In 2010-2011, great effort was devoted to making this dream a reality. Given the MHI's tradition of staying on the cutting edge, the move to electronic patient records was a natural and expected evolution. This project is one of the major priorities of the MHI's 2010-2015 strategic plan.

At the MHI, the electronic health record project, called OACIS, will use a single information system to combine patients' main clinical test results (lab, radiology, pharmacy, etc.) with a scanned copy of their current paper records. Giving multiple users simultaneous access to the same patient record will help us more effectively carry out our mission in terms of both care and research.

ALTERNATIVE TO HEART SURGERY

During the year, the interventional cardiology team at the MHI conducted Canada's first clinical procedure with a MitraClip system, which is designed to treat patients suffering from mitral valve failure. This innovative procedure is minimally invasive and has become an alternative to heart surgery.

Mitral valve failure is a common type of heart defect: according to specialists, it affects one out of five people to various extents starting at the age of 55. Until now, treatment consisted of medication support or open-heart surgery depending on the severity of the condition. The MitraClip system used at the MHI is designed for inoperable or high-risk surgical patients. With the aid of a catheter, a clip is guided through the femoral vein to the heart, where it holds both flaps of the mitral valve together. This new type of procedure represents a long-lasting treatment for acute mitral regurgitation, has a lower risk for complications compared to traditional surgery, and lets patients leave the hospital within 48 hours.

Experts in Research

The first word that comes to mind when I think about research at the Institute is 'passion.' Passion is what pushes us every day to surpass the boundaries of the unknown to ensure the MHI Research Centre is at the forefront of the latest scientific advances. I am proud to be associated with a research centre that wants its students to succeed.

♥ **Chimène Charbel**, Doctoral Student



OUR RESEARCH CENTRE CONTINUES TO THRIVE ON THE CUTTING EDGE

Last year, the Board of Directors approved the MHI Research Centre's 2010-2015 strategic plan. The central goal of this plan—to make major discoveries in cardiovascular medicine that will ultimately lead to improved patient care and public health—underscores the patient-centred approach of the Centre's scientific endeavours. The strategic choices of this five-year plan will solidify the MHI's position as a leader in cardiovascular medicine that is recognized as a true pioneer of the medicine of tomorrow not only in Canada but around the world.

The year 2010-2011 marked a turning point in the Research Centre's history, as it coincided with the launch of international scale research platforms and infrastructure developed through competitions of the Canada Foundation for Innovation. With these scientific platforms, the Montreal Heart Institute is positioned more than ever as a cutting-edge research facility. This high-tech infrastructure provides researchers with exceptional tools to hone their research and make discoveries that will have an impact on the health of thousands of people.

EXCEPTIONAL RESEARCH INFRASTRUCTURE

Canadian Atherosclerosis Imaging Network (CAIN)

The CAIN project, a major strategic network, truly gained momentum in 2010-2011. This national network is led by the Montreal Heart Institute and develops leading-edge medical imaging for the study of atherosclerosis.

Biomarkers and theranostic approaches

This other major infrastructure focuses specifically on the discovery, development and validation of biomarkers (using techniques such as integrative biology, metabolomics and molecular imaging) and theranostic approaches.

Infrastructure for the study of arrhythmias in adults living with congenital cardiopathy

This infrastructure consists mainly of a magnetic navigation and magnetic resonance system. The goal of the research and procedures that will be

conducted with this technology is to increase the life expectancy and quality of life for adults living with congenital cardiopathy.

The Montreal Heart Institute Coordinating Centre

Better known as the MHICC, the Montreal Heart Institute Coordinating Centre is now part of the vanguard of international organizations conducting clinical research in an academic setting. Since 2001, and with a budget of over \$150 million, it has carried out and coordinated more than 50 multicentre trials involving nearly 1,500 clinical centres in 20 countries and more than 40,000 patients.

The Biobank

The MHI is currently working to build the largest hospital cohort in the world for generic research, which will eventually include 30,000 patients. To date, 14,000 active patients have joined the Biobank to help advance research in cardiovascular disease.

The Beaulieu-Saucier Pharmacogenomics Centre

Inaugurated in spring 2009, the Beaulieu-Saucier Pharmacogenomics Centre of Université de Montréal, located at the MHI, is home to researchers and students working on major research themes in genomic sciences that hold particular promise for medical applications and the advancement of knowledge.

The Centre of Excellence in Personalized Medicine (CEPMed)

CEPMed is devoted to the promotion and commercialization of high added-value products and services through the MHI's three technology platforms: the Biobank, the Pharmacogenomics Centre and the MHICC.

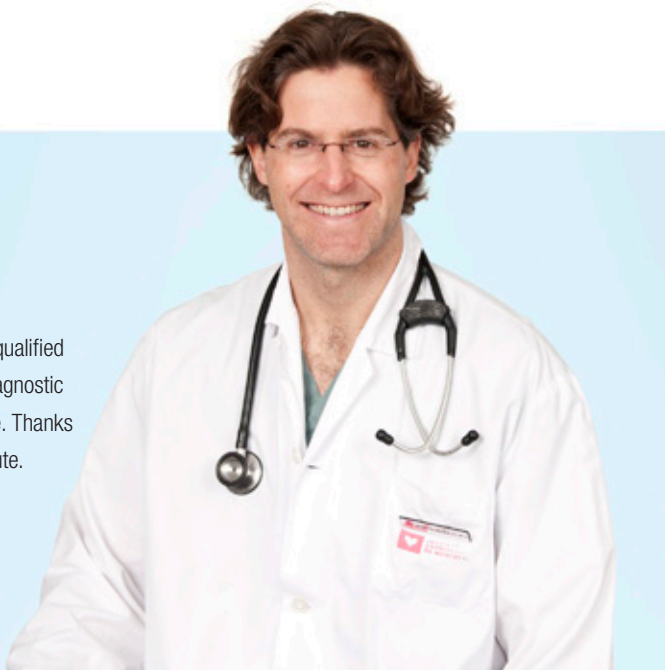
RATING OF "EXCEPTIONAL" FROM THE FRSQ

Following its latest assessment, the FRSQ evaluation committee awarded the MHI Research Centre with an overall rating of "exceptional". This assessment is wonderful recognition for all of the MHI Research Centre's past achievements and future successes.

Experts in Teaching

For me, teaching at the Montreal Heart Institute means highly qualified and passionate medical and paramedical staff, ultramodern diagnostic and therapeutic equipment, and extraordinary clinical exposure. Thanks to everyone for the eight fantastic months I spent at your Institute.

📍 **Martin Michaud**, Senior Anesthesiology Resident



MORE AND MORE RESIDENTS CHOOSE THE MHI FOR THEIR CARDIOLOGY INTERNSHIPS

This year, the MHI hosted 164 residents and fellows. Most residents are from the cardiology, cardiac surgery, radiology, anesthesiology, emergency medicine, nuclear medicine and family medicine programs at Université de Montréal. We would also like to point out the major increase in the number of junior residents (PGY 1 to 3) who choose the MHI for their cardiology internships. For example, the number of junior residents taking an internship at the Department of Medicine doubled this year from 22 to 44.

CARE UNITS OFFER INTERDISCIPLINARY ACTIVITIES IN ADVANCED CPR SIMULATION

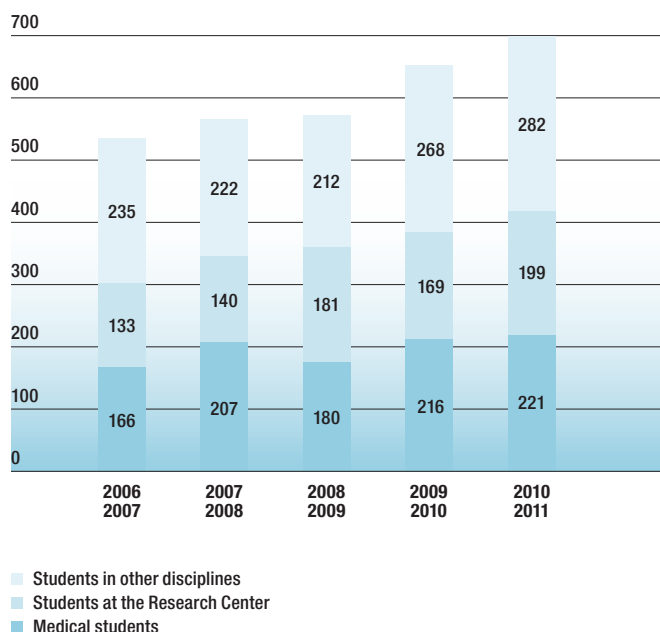
As part of a continuum of activities to help staff efficiently manage emergency situations, the Resuscitation Committee developed a program that simulates cardiac arrests in the care units. The first simulations were held at the beginning of March 2011 in the surgical and medical intensive care units. The goal of these simulations is to help everyone understand how to efficiently manage the first ten minutes of a cardiac emergency, to improve team work, and to facilitate open communication among the different members of the Resuscitation Team. Simulations will also be planned for other care units.

ECHOCARDIOGRAPHY SIMULATIONS

This year, the Division of Teaching and the Department of Medicine acquired a transthoracic and transesophageal echocardiography simulator. The training programs for new technologists and for residents and fellows who are starting out in echocardiography were revised to include initial simulation training. Two technologists have been trained with this program. Four cardiology residents and fellows as well as an anesthesiologist have also benefited from this learning experience.

More than 700 students took internships at the MHI this year

The total number of internship students hit a record number this year at more than 700. The number of interns has been steadily increasing in recent years; as a comparison, the MHI welcomed just under 400 students in 2003-2004.



Experts in Prevention

Getting exercise is like making a date with yourself to feel good.

I always say the same thing to the people I meet at the ÉPIC Centre:

Get out there and have fun!

♥ Valérie Guilbault, Kinesiologist



RESEARCH AT THE ÉPIC CENTRE: GETS YOUR PULSE GOING!

In the Division of Prevention, a team of researchers from several specialties (cardiology, nutrition, exercise science and stress management) are working on different themes that focus on people without heart disease, people with several risk factors for heart disease (primary prevention), and people with heart disease (secondary prevention). Research activities delve into the impact of lifestyle (exercise, nutrition, etc.) and different medications in primary and secondary prevention.

THE POSITIVE IMPACT OF A HEALTHY DIET

Over the past year, a number of clinical studies either began or continued. Some studies are looking at, among other things, the cardiovascular and metabolic impact of different types of foods that make up the Mediterranean diet or the usefulness of omega-3 in people with cardiovascular risk factors and heart disease. The goal of one of these studies is to determine whether omega-3 fatty acids taken in capsule form are effective at preventing the onset of arrhythmia in people with atrial fibrillation. Another study aims to show that Mediterranean meals have a beneficial role in arterial and vascular function, whereas a meal rich in the bad fats (saturated and trans) generally found in fast food has a negative impact on arterial and vascular function.

THE BENEFITS OF EXERCISE

Other studies are examining the cardiovascular and metabolic impact of different types of exercise and physical fitness programs in people with cardiovascular risk factors, excess weight and heart disease. Several projects have shown the benefits of an intermittent high-intensity exercise program in coronary patients, people with heart failure, and patients who are obese.

RESEARCH: CONCRETE RESULTS

Research carried out at the ÉPIC Centre is leading to tangible results for patients, and the GOSPEC research project is a great example. In partnership with Stanford University in Palo Alto, California, an MHI research team looked at the issue of emergency room consultations and implemented a research project on the effectiveness of the GOSPEC program, which aims to optimize the management of post coronary care.

The goal of this study was to develop a more effective care system for patients after they are hospitalized for myocardial infarction or unstable angina (also known as “acute coronary events”). The main objective of this research project was to decrease the number of emergency room visits in the six months following patient discharge. The GOSPEC program consists of a telephone consultation service for MHI patients who have been admitted for acute coronary syndrome so that they can ask health-related questions. Under the supervision of a cardiologist, a nurse with on-line database access to the main information in patient records provides follow-up from 8:00 a.m. to 5:00 p.m., five days a week. The nurse responds to patient questions and refers patients to the appropriate resource (pharmacy, specialist, emergency room, etc.) depending on their condition. After only six months of operation, patient visits to emergency had decreased by 71%, a result that was well beyond the initial goal.

Experts in Quality of Care and Services

Every hospital has good cardiology services, but the care they provide here is the crème de la crème, believe me.

✔ **Yves Latour**, MHI Patient and Volunteer



QUALITY IMPROVEMENT GOES HAND IN HAND WITH INTERDISCIPLINARITY

In terms of quality and risk management, an emphasis was made this year on promoting and applying the integrated structure developed last year to ensure adherence to the law, systematic follow-up of each sentinel event (major accident), and tracking of the different required steps (reporting, analysis, action plan and disclosure) to make sure that adverse events do not reoccur and to safeguard the well-being of users.

Since February 2010, twelve quality improvement committees have been following up on Accreditation Canada's recommendations, making improvements to non-conforming criteria, and implementing projects related to quality and risk management at the Institute. All of these initiatives have been included in the MHI's 2010-2012 improvement plan.

The different committees, such as the QAC-Coordination, Risk Management Committee, Oversight Committee, working groups on recurring events, and sentinel event committees, have contributed greatly to interdisciplinarity and improved care and service quality. Many activities have improved integrated risk management: training, integration committees, sentinel event committees, the communication process, the creation of action plans, and the statistical data base.

Staff, physicians and managers are encouraged to take a proactive stance in terms of preventing, devising solutions, and reporting and disclosing any incidents and accidents involving equipment, materials, the building or patients that may occur in any sector of the institution.

All of these actions help create a true quality and risk management culture that ultimately benefits MHI patients.

COMPLAINT MANAGEMENT

The Local Service Quality and Complaints Commissioner reports to the MHI Board of Directors in relation to the protection of user rights and the diligent review of their complaints and dissatisfaction. The Commissioner's role consists of receiving requests from patients or their representatives, following up on these requests, conducting an investigation if deemed necessary and, if applicable, issuing recommendations that will help improve service quality at the MHI. The Commissioner processed 241 requests in 2010-2011, compared to 274 requests the year before. No complaints were lodged with the Québec Ombudsman.

Follow-up

Various actions were taken following request reviews. In many cases, the Commissioner's role was limited to one of the following actions:

- General information
- Clarification
- Advocacy, liaison
- Conciliation
- Assistance in obtaining care or a service
- Advice or referral

Experts for our People

The Montreal Heart Institute has given me a lot of tools for success thanks to its openness to scientific research in nursing, its personalized support and its stimulating learning environment.

♥ **Tanya Mailhot**, Nurse and Doctoral Student



Throughout the year, innovative and targeted initiatives have been set up to attract new qualified employees who are experts in their respective fields. In fact, recruiting talented people is essential to maintaining the excellent level of care provided at the Montreal Heart Institute.

A FIRST CHOICE FOR INTERNSHIPS!

Since we need to start recruiting and building loyalty in the best candidates as of the first semesters of their studies, the Division of Human Resources rallied the entire MHI behind the idea of creating a specialized and dedicated internship coordination resource, with the goal of making the MHI a first choice for internships. Conducted in collaboration with high schools, colleges and universities, this initiative is part of the MHI's recruitment-retention-loyalty continuum and aims to promote the Institute's visibility and prominence among the network of educational institutions, to develop new internship opportunities in sectors that are particularly affected by labour shortages, to ensure that student interns have a positive and fulfilling experience during their stay, and to develop and implement a culture that builds student loyalty with a view of hiring these candidates at the end of their studies.

CREATING AN IMAGE AS AN EMPLOYER OF CHOICE

Standing out from the rest of the competition is now an essential and unavoidable task for any employer that wants to recruit the best talent. The MHI is no exception to this rule. The Division of Human Resources and the Division of Communications and Partnerships therefore joined forces to create a strategy that combines marketing with social media to promote the MHI's image as an employer of choice. Under the slogan "Trouve ton rythme," the Institute is now employing innovative recruitment tools, such as a brand-new and interactive microsite dedicated to recruitment, online videos featuring MHI employees, a Facebook page, and more.

ONGOING — AND LASTING — RECOGNITION!

Recognizing employee contributions is very important to the MHI. Each year, a trove of activities are organized to let physicians and employees from all job categories know how much they are appreciated and, above all, how important each person's role is in pursuing and achieving our mission of excellence and innovation. Recognition at the MHI begins with hiring: each month, an orientation day for new employees presents the Institute as a work place and helps them forge relationships. This year, the orientation day was completely revamped: a tour of the Institute, a presentation of its history, and various training sessions were all put on the agenda. During the year, recognition events such as the staff Christmas party, the Valentine's Day party, a fall show, a recognition day, and the Christmas Dinner are held to honour and thank employees for the incredible work they do.

Major Development Projects



EXPANSION OF THE RESEARCH CENTRE

During 2010-2011, major expansion work at the MHI Research Centre progressed on schedule. At a cost of \$33.6 million, this project received financial support of \$10,021,900 from the MHI Foundation and \$1,833,300 from the Agence de la santé et des services sociaux de Montréal. This expansion is the cornerstone in the development of the MHI's cutting-edge research activities and the advancement of its influence on an international scale.

More specifically, this construction project involves expanding the J.-Louis Lévesque Pavilion by 6,599 m² over three floors, adding three new basic research laboratories, partially reorganizing the existing first three floors of the Research Centre's south block and building a space for future catheterization activities for research and other purposes. The work is slated to finish in fall 2011.



ENERGY EFFICIENCY

The MHI is carrying out a major energy efficiency project to reduce its energy consumption by close to 40%, which represents almost 3,000 tonnes of CO₂ annually.

The key to this project's success lies in the installation of a large-scale geothermal system. In the past year, a veritable geothermal field, consisting of 45 vertical wells that are 6 inches wide and that each extend 600 feet underground, was built in the MHI employee parking lot. The geothermal energy collected will meet most of the Institute's heating and cooling needs.

Other energy efficiency measures put in place during the year aimed particularly at modernizing equipment and upgrading the many electromechanical systems, which involved such measures as replacing the boiler room system and changing existing light fixtures for energy efficient models. All of these actions will help reduce energy consumption.

At an estimated cost of \$6 million, and with completion scheduled for the end of 2011, this comprehensive sustainable development project promises great returns by substantially reducing energy consumption while ensuring long-term continuity in terms of heating reliability and the safety and comfort of patients, staff and physicians.



Credits



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