# Libin Life

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2010 ISSUE 2

## DR. TODD ANDERSON: STRENGTH IN LEADERSHIP, CLARITY IN VISION

### Libin Life speaks to the Institute's new Director

Dr. Todd Anderson is the new Director of the Libin Cardiovascular Institute of Alberta. A graduate of the University of Calgary Medical School's Cardiology fellowship and Interventional sub-specialty programs, Dr. Anderson, or Todd as he likes to be addressed, also completed a research fellowship at Harvard Medical School in Boston. Chair of the Scientific Review Committee of the Heart and Stroke Foundation of Canada as well as a Senior Scholar of the Alberta Heritage Foundation for Medical Research (AHFMR), he is an established expert in the assessment and treatment of endothelial dysfunction as well as cardiovascular risk factors. Among several current research projects, Todd is co-lead of a major AHFMR province-wide team grant for the study of diastolic heart failure.

*LL: Todd, let's start by you telling us a little bit about yourself and what inspired you along the way.*

**TA:** I graduated from medical school at the University of Calgary in 1985, and have lived here most of my life. After training in internal medicine and cardiology, I was fortunate enough through mentorship with Cardiologists in Calgary, Dr. Eldon Smith and Dr. George Wyse, to get some research funding from Heritage in 1991, and then went to a research fellowship in Boston. I had done some Interventional Cardiology training here with Dr. Merril Knudtson that I then finished in Boston, but then got interested in Vascular Biology in Humans. I received funding from Heritage in 1994, came back to Calgary and have been funded by Heritage ever since.

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*New Director of the Libin Cardiovascular Institute of Alberta, Dr. Todd J. Anderson.*

## PEDIATRIC CARDIAC ELECTROPHYSIOLOGIST'S UNIQUE SKILL-SET A WELCOME ADDITION TO CALGARY

### Profiling Dr. Robin Clegg

Walking through the bright cheerful hallways of the Alberta Children's Hospital it is not hard to understand why a young physician would aspire to go into pediatrics. Dr. Robin Clegg, one of the newest recruits to the Libin Institute, demonstrates incredible excitement and enthusiasm for her unique craft.

Having completed a three year Pediatric Residency at Alberta Children's Hospital at the University of Calgary, followed by a fellowship in Pediatric Cardiology at the Hospital for Sick Children, University of Toronto and a fellowship in Pediatric Electrophysiology which was split between the University of Toronto and Boston's Children's' Hospital at Harvard University, Dr. Clegg has settled in the city of Calgary where she joined the Libin Institute in the summer of 2008.

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*Alberta Children's Hospital in Calgary, Alberta*

## BEYOND BONE AND STONE:

### The centrality of calcium from conception to death

Mentions of calcium oft results in thoughts of bones, teeth, milk and even perhaps limestone, but the true centrality of calcium to our bodies is generally not comprehended. Indeed, fertilization itself is brought about by the activation of calcium ion channels, resulting in a Ca2+ wave integral to the process. It is required right from the first cell division and its impact is seen even after the passing of life, as the movement of Ca2+ into muscle cells en masse result in rigor mortis. This latter example provides a hint as to the importance of calcium to the cardiovascular system, as it is the movement and resulting gradient of calcium at the molecular level that triggers muscle contraction and relaxation, including those of the heart.

Research on calcium pumps, exchangers and channels is an area of basic science strength at the Libin Cardiovascular Institute of Alberta. Dr. Jonathan Lytton, Canadian Research Chair in Molecular Cardiovascular Biology, Alberta Heritage Foundation for Medical Research Scientist and Department Head for Biochemistry and Molecular Biology at the University of Calgary's Faculty of Medicine, is an expert on specific sodium-calcium exchangers that express themselves in the heart and brain. As opposed to channels that allow ion movement from areas of high concentration to low, exchangers work to move ions against the concentration gradient across a membrane. One particular sodium-calcium exchanger, NCX1, plays a critical role in modulating many aspects of normal heart pump function. Understanding details of how the NCX1 protein works is thus key to understanding the working of a healthy heart, and an important research project in the Lytton laboratory.

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# TAMING THE VASCULAR DISEASE EPIDEMIC – FROM GLOBAL TO LOCAL

## Institute to host conference on practical implementation where the rubber hits the road

In 2009, reports of the Canadian Heart Health Strategy and Action Plan (CHHS-AP) reiterated that vascular diseases are Canada's number one public health threat. They are responsible for more Canadian deaths than any other illness and cost the country over $22 billion annually in health care and lost productivity[1]. What has also become all the more clear over the last decades is that there is no solution without prevention. In fact, up to 80% of premature cardiovascular diseases are preventable[2]. Furthermore, we already know the key risk factors that the individual can influence: lack of physical activity, smoking, obesity, hypertension, and consumption of fruit and vegetables.

Building on the frame set out by the CHHS-AP reports, on October 21, 2010 the Libin Cardiovascular Institute of Alberta will be hosting 'Taming the Vascular Disease Epidemic', a conference on vascular health promotion and disease prevention. The conference will follow on from an Institute sponsored meeting in Calgary being jointly convened by the World Health Organization and the Government of Canada on sodium consumption[3]. With presentations and discussions featuring international experts, national leaders and local champions, the concept of the vascular disease conference is to go from global to local. Along the way, the intent is to share best practices and insights on what is actually possible in the precious few minutes we are often limited to with our patients.

The day will start with presentations and a panel discussion on the World Health Organization (Geneva), National Institute for Health and Clinical Excellence (UK) and CHHS-AP platforms on vascular diseases. From there, we will move to a number of presentations and interactive sessions on guidelines and strategies, focusing specifically on what can be implemented in a practical way at the family doctor, pharmacist or nurse level. In addition, technical presentations will also be delivered geared towards the specialist community.

We would encourage all who are embattled in the fight against the vascular disease epidemic, to join us on October 21, 2010. Information, including on speakers, topics and logistics, can be found at the conference web-site:

www.vascularconf.ca

We would also like to extend a thank-you to the conference gold level sponsors, AstraZeneca and Merck Frosst, as well as our conference partners at Alberta Health Services Department of Family Medicine (Calgary zone), the Primary Care Networks in our region, the Hotchkiss Brain Institute and the Alberta Hypertension Initiative.

*1 Smith ER. Canadian Heart Health Strategy and Action Plan. Can J Cardiol. 2009 Aug;25(8):451-2*
*2 Public Health Agency of Canada, 2009; Yusuf et al., 2004*
*3 http://www.who.int/dietphysicalactivity/reducingsalt/en/index.html*

— Dr. Todd Anderson


# WORLD HEALTH ORGANIZATION MEETING A FIRST FOR CALGARY

High blood pressure is the leading risk for death in the world. As blood pressure increases damage to blood vessels around the body occurs. This commonly results in strokes, dementia, heart attacks, heart failure, aortic aneurisms, kidney damage and failure as people get older. Notably increases in blood pressure do not occur in societies that eat unprocessed foods, and are physically active and lean. It is estimated that over 90% of Canadians will develop hypertension within their life span. Globally one in four adults have hypertension and in Canada approximately one in five adults have hypertension.

As part of the implementation of the Global Strategy on Diet, Physical Activity and Health (DPAS) and the Noncommunicable Diseases Action Plan, the World Health Organization (WHO) has indicated that lowering dietary salt is one of the most cost effective means to prevent disease. In its effort to assist countries around the world develop programs to reduce dietary salt, the WHO is hosting three **Population Salt Reduction Strategy Platforms.** The platforms are to develop tools and resources to aid national programs to reduce salt intake.

The Government of Canada and the WHO will host the second WHO Platform in Calgary, October 19th and 20th, 2010 on how to evaluate and monitor dietary salt intake. The meeting will be preceded by a one-day Information Exchange Forum sponsored by Canada in which non-government organizations and industry will be invited. The two meetings together will examine how to best **monitor and evaluate** national programs to reduce salt intake. In addition to the Canadian Government, the Libin Cardiovascular Institute of Alberta, The Heart and Stroke Foundation of Canada, Hypertension Canada, the Canadian Stroke Network and the Canadian Institute for Health research as well as the CIHR Canada Chair in Hypertension Prevention and Control have provided financial sponsorship for the WHO-Canada meeting. In conjunction with the meeting, the Libin Cardiovascular Institute of Alberta will also host a one-day meeting on Cardiovascular Health Promotion and Disease Prevention.

Currently in Canada, the average adult consumes approximately 3,500 mgs of sodium per day while the Canadian government recommends a middle aged adult to consume 1,500 mgs per day. It is estimated that the high consumption of sodium causes approximately 30% of hypertension and over 10% of cardiovascular disease in Canada costing over 1 billion dollars in direct health care expenses.

Dr. Norm Campbell, a member of the Libin Cardiovascular Institute of Alberta chairs the PAHO/WHO Regional Expert Group on Cardiovascular Disease Prevention through Dietary Salt Reduction. In his position as Chair of the PAHO expert group, Dr. Campbell also co-chairs the organizing committee for the Canada WHO expert meeting.

# BEYOND BONE AND STONE

Continued from pg.1

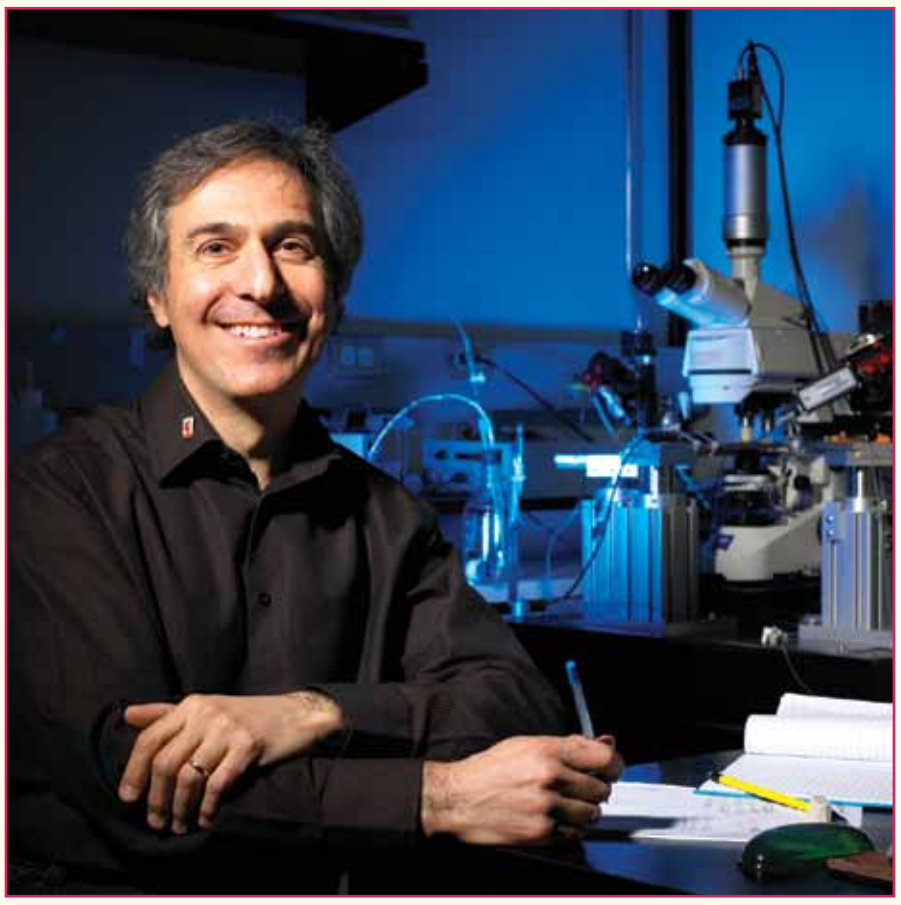
"The exchanger balances the flow of calcium both into the heart at the peak of a contraction, and importantly back out during relaxation," says Dr. Lytton. "Both these functions are regulated on a beat-to-beat basis to allow the heart to respond to changing demand. When this connected regulation goes wrong or there is too much or too little exchanger - changes that occur in different kinds of disease - bad things happen to the heart."

## Happenstance and Innovation

At the molecular level, research is not always in relation to specific organs, and even when it seems to be, discoveries and breakthroughs often lead the best scientists in directions that could not have been planned. As it turns out, Dr. Lytton's work on calcium transporters hasn't always been in relation to the heart, although it did start there. As a post-doctoral fellow at the University of Toronto, he was involved in molecular studies on heart calcium pumps. That work resulted in discoveries of new molecules in blood vessels and the kidney. This new direction lead to Dr. Lytton's next role as a junior faculty member in the Renal Division at the Brigham and Women's Hospital in Boston Massachusetts. It was during this second stint in Boston (he earned his PhD at Harvard) that he first started work on sodium-calcium exchangers. This shift in focus lead to his current work on NCX1 in the heart, as well as to other new directions that are leading toward different aspects of brain function. Having always followed the interesting physiological roles of important calcium transport proteins, Dr. Lytton has a firm conviction of the critical importance of basic innovative discovery in moving modern medical research forward. Dr. Lytton says, "The Faculty of Medicine at the University of Calgary is a terrific place to do science because of the wonderful collegial atmosphere, and the shared view of the importance of basic innovative research".

Also an avid amateur rock climber, calcium played a pivotal part in Calgary being Dr. Lytton's city of choice, not only because of the critical mass of top researchers in his research field, but also because the Rocky Mountain natural playground is within easy reach of the city. It is not all about calcium, though we've learned that most of it certainly is!

— Al-Karim Walli



*Dr. Jonathan Lytton. Photo credit - Trudie Lee*

*Dr. Merril Knudtson being congratulated by Interim University President Dr. Warren Veale, as Honourary Degree recipient David O'Brien looks on. Photo credit - Dave Brown, U of C Imaging Services*

# DR. MERRIL KNUDTSON – 2010 INDUCTEE INTO THE ORDER OF THE UNIVERSITY OF CALGARY

In 1981, Dr. Merril Knudtson completed a three-year fellowship in cardiovascular medicine at Atlanta's Emory University with Dr. Andreas Gruentzig. He returned to Calgary to perform the first coronary angioplasty in Southern Alberta.

He is currently Professor of Medicine at the University of Calgary and was a student in the University's third medical class (1972 to 1975).

His career now spans more than three decades and his accomplishments have earned him praise and respect worldwide. Dr. Knudtson started southern Alberta's program for catheter-based treatment of structural heart diseases including an innovative program for more timely treatment of heart attack victims. Suddenly, thousands of patients were presented with new non-surgical treatment options.

## MEMORY LANE

*Members of the Cell Regulation Research Group in 1982. L to R: Dr. George Drummond (deceased, 1984), Dr. Jerry Wang, Dr. David Waisman, Dr. David Severson and Dr. Michael Walsh. Calgary cardiovascular history project archive.*

Thanks to Dr. Knudtson, Calgary was soon an international training centre, attracting trainees from around the globe and advancing angioplasty's scope of practice. More recently, he has been referred to as the 'Father of Interventional Cardiology in Canada'.

An innovator through his professional life, Dr. Knudtson has major research achievements particularly in the area of improving care through effective use of health information. The most noted is monitoring and tracking the health outcomes of more than 140,000 cardiac patients through the Alberta Provincial Project for Outcomes Assessment in Coronary Heart Disease (APPROACH). APPROACH is the largest database of its kind in the world.

In the many years Dr. Knudtson has spent at the U of C, he has always had the University's and the community's best interests at heart, promoting both in his extensive travels.

# UNIQUE SKILL-SET A WELCOME ADDITION TO CALGARY

**Continued from pg.1**

Dr. Clegg specializes in heart rhythm disorders in children and in heart rhythm disorders in adults with congenital heart disease. Specifically she treats patients who experience: tachycardia (racing heart), bradycardia (heart beating too slow), syncope (fainting), and electrical cardiomyopathies (inherited disease of heart muscle and electrical conduction system) as examples.

Dr. Clegg also performs a number of interventional procedures including insertion of cardiac devices such as pacemakers and implantable cardio-defibrillators as well as cardiac ablation. This is a medical procedure where part of the electrical conduction system of the heart, is ablated or removed using high frequency alternating current to treat a heart rhythm disorder.

Most notably Dr. Clegg performed the first pediatric ablation in the city of Calgary in May 2009. This may not have been possible had Dr. Clegg not joined the electrophysiology team, as prior to her recruitment these patients were required to travel to other centres across Canada for treatment. Since then, she has performed ablations on 19 children with heart rhythm disorders and on five adults with congenital heart disease who also would have been required to travel for treatment. Her colleague, Cardiologist, Dr. George Veenhyzen notes "Dr. Clegg has advanced training in catheter ablation of cardiac arrhythmias that arise in people with repaired congenital heart disease. The anatomy of these hearts is often bizarre and complex – not unlike working on a different species! These patients often do benefit from catheter ablation for their cardiac arrhythmias, and we really wouldn't be in a position to offer this treatment without Dr. Clegg and her expertise."

Pediatric Cardiology is a challenging and high acuity field which also includes chronic care and regular follow up with patients. Of this specialty Dr. Clegg notes that she is fascinated by the breadth of the field and of the dynamic on-going developments specifically in EP. "I am constantly learning and engaged - it also doesn't hurt that I enjoy working with kids."

Dr. Clegg credits her move to Calgary in part to the significant experience and reputation of both the team of pediatric cardiologists at the Alberta Children's Hospital as well as the strong adult electrophysiology group at the Libin Cardiovascular Institute of Alberta - noting that "there is great opportunity to develop a strong pediatric and adult congenital heart disease electrophysiology/ heart rhythm disorder service here."

Of Dr. Clegg's contribution to the electrophysiology group, Cardiologist and Electrophysiologist, Dr. Russell Quinn states "The EP lab is a place where it is always good to have a breadth of experience to draw on when facing a difficult or unusual case, and we've really benefited from the knowledge, expertise and skills Robin brings. She has been a great addition to the EP group and she's added a new facet to what we can offer to patients with arrhythmias in the setting of complex cardiac abnormalities. We've been given new insights into ways to manage some of our patients. We're glad to have her here in Calgary."

Dr. Clegg's enthusiasm for collaboration is evident in many facets; she participates in the Western Canadian Children's Heart Network which includes clinicians from pediatric cardiology from Vancouver, Edmonton, Calgary, Saskatoon and Winnipeg whose goals are to share clinical knowledge and expertise to improve care for children with heart disease, and to provide support for these children and their families.

Dr. Clegg is also an active participant in PaceWest – which is a team of pediatric electrophysiologists across western Canada whose mandate is a three pronged focus of on-going collaboration in clinical care delivery, education, and research.

Given all that she is currently involved in, one might wonder what is next for Dr. Clegg who humbly notes "the pediatric electrophysiology program is still in its infancy." Dr. Clegg goes on to explain:

**"the field of congenital heart disease and arrhythmia is growing exponentially; I look forward to ensuring Southern Alberta and Western Canada, stays in the forefront of this dynamic field."**

— Shauna Wilkinson

*Heart Failure Fellow Dr. Hamid Habibi (r) with Dr. Jonathan Howlett*

# ASTRAZENECA SUPPORTS UNIQUE APPROACH TO HEART FAILURE

Dr. Hamid Habibi is well on a path to becoming one of Canada's few cardiovascular specialists with a sub-specialty in heart failure. The inaugural recipient of the Libin Institute Fellowship in Heart Failure Quality Care, Dr. Habibi is fully aware of the unique opportunity this position grants him.

"As an interventional cardiologist I am very familiar with the approaches used to extend the life of someone with heart failure, which is what the focus is of the majority of fellowships in heart failure," states Dr. Habibi. "However, the intent of this fellowship is to give insight into all the different modalities used to treat heart failure, not just the intervention methods. This approach provides a greater understanding of all the pathways of diseases that lead to heart failure, and as such help to better determine the best course of treatment for each particular patient."

The Fellowship was created thanks to the generosity of AstraZeneca, long-time industry partners with the University of Calgary and the Libin Institute.

"AstraZeneca is always on the lookout for ways patients can receive the best care," says John Savoie, Western Regional Business Director, AstraZeneca. "We saw the creation of the Fellowship as an opportunity to invest in education that in the long run will have tremendous benefit to heart failure patients."

Heart failure is a chronic condition and one of the major final stages of cardiovascular disease. It can occur in a matter of minutes, as with a heart attack, or slowly over the course of time due to any number of diseases, such as hypertension, diabetes, kidney disease, and others.

Dr. Israel Belenkie, Immediate Past Director of the Heart Failure Program at the Libin Institute, was instrumental in establishing this new fellowship. The current Director of the program is Dr. Jonathan Howlett. According to Dr. Howlett, a majority of heart failure patients admitted to hospitals are over the age of 65. With an aging population living longer, the strain on hospitals and the health care system overall will continue to grow.

"What is important is that we start providing better care, rather than just interventions that extend a patient's life. Better quality of care means providing a team approach. Each expert contributes his / her specialty knowledge which helps determine the best course of treatment for each patient," explains Dr. Howlett.

This state-of-the-art care has already demonstrated positive outcomes with heart failure patients requiring less frequent and shorter hospital stays.

The creation of this new fellowship is the first of many steps that builds on the existing expertise within the Libin Institute. Through Dr. Habibi, and future heart failure fellows, the Libin Institute is well positioned to become the international leader in treating heart failure through quality care.

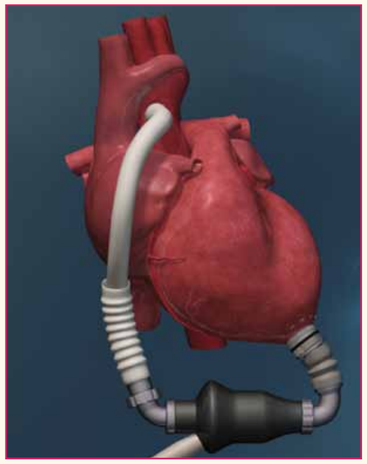
— Lois Epp

**"We saw the creation of the Fellowship as an opportunity to invest in education that in the long run will have tremendous benefit to heart failure patients."**

# CALGARIANS GAIN ACCESS TO NEXT GENERATION OF SURGICAL TECHNOLOGY FOR HEART FAILURE

**Did you know ...**

**Former United States Vice President Dick Cheney was the recipient of a HeartMate II implant in July of 2010.**



*The HeartMate II Ventricular Assist Device. Reprinted with permission from Thoratec Corporation*

Ventricular Assist Devices (so-called VADs), have been in use since the 1990's. They are of benefit for patients in severe congestive heart failure (CHF) to allow a better quality of life while waiting for a heart transplant.

Originally VADs were large, noisy devices that were effective but had a limited durability, usually less than one year. Complications were common including bleeding, stroke and infection. Also, many of the patients could not leave the hospital and if they could were limited in mobility and quality of life.

In 2006, Thoratec Company started marketing a device called HeartMate II. Previous devices used large, pulsatile sacs and valves to augment the heart function. HeartMate II uses a continuous, rotary flow technology with a small submerged rotary turbine motor powered by electricity. This revolutionary change allows for a smaller (less than 400 grams) quiet assist device with a single drive line (power cord) exiting the skin just above the belt line. HeartMate II is implanted using standard open heart surgery technique and the small motor is placed under the left rib cage in a position not seen or felt by the patient.

Earlier this year, Drs. Jehangir Appoo, Paul Fedak and Bill Kidd, Cardiac Surgeons from the Foothills Medical Centre, were trained to conduct the procedure. We are excited to report that Dr. Fedak implanted the first HeartMate II in Calgary on June 29, 2010.

Experience so far has shown these patients to have a much lower complication rate including infection, stroke, and bleeding. This allows for a shorter hospital stay and lower readmission rates. Additionally, this technology allows patients to survive for years as opposed to months with the older generation of VADs, without a heart transplant.

"The 1st HMII implant in Calgary went very well," said Dr. Fedak. "The next day, the patient shook my hand and thanked me. He had a big smile on his face and said that he hadn't felt his body feel warm (from normal blood circulation) in years! This is a remarkable innovation that will help many Albertans. This is the kind of operation you dreamed about in medical school and now its a reality."

The implant and ongoing care of these patients takes a truly multidisciplinary team of many people , however , it is becoming obvious that the complexity is at a much lower level than previously and that future devices will make the mechanical assist device resemble the simplicity of a pacemaker.

**Did you know ...**

**People who have had a HeartMate II implanted don't have a pulse. This is because the submerged rotary turbine mechanism provides a continuous flow of blood throughout the body!**

# THE HEART FAILURE SCORECARD

## A Proposal for a Canadian Heart Failure Benchmarking Initiative

Heart failure (HF), a condition characterized by a damaged and poorly functioning heart, accounts for an enormous health care burden. As an example, this diagnosis accounts for over 3,500 hospital admissions and 37,000 bed-days in the Metropolitan Calgary Area alone each year. In Alberta, recent data suggests there are upwards of 80,000 individuals with a diagnosis of HF, a number estimated to grow by up to 10,000 per year.

Fortunately, HF is one condition for which standardized health care performance indicators are known. Standards of care for HF have been articulated by the Canadian Cardiovascular Society. Despite this, adverse outcomes for HF care, including hospitalization and resource use, vary widely and we know events such as repeat hospitalization, can be prevented. It is estimated that by implementation of best practices, hospitalisation for HF could be reduced by up to 20% and Emergency Room visits by 10%. However, in Alberta, there is no mechanism or entity capable of collection, analysis or reporting of current care practices for HF.

The Heart Failure Scorecard Alberta program focuses primarily upon the hospitalized and transition phases of HF care. Gains in quality of care have been demonstrated in programs which combine quality reporting according to established scientifically valid benchmarks with published tools/ aids in achieving desired care standards. This is coupled with audit and feedback to focus patients, providers and administrators on locally-relevant areas for improvement.

Due to Alberta's relatively advanced HF measurement infrastructure, the National HF leaders at the Libin Cardiovascular Institute in partnership with the Mazankowski Heart Institute and Alberta Health and Wellness are already taking steps to launch an HF performance measurement system.

Once a system has been tested, refined and fully implemented in Alberta, the vision would be to expand across Canada in response to the recommendation in the CHHS. CCS national opinion leaders in HF have extensive collaborative ties across Canada and could serve to leverage the work begun in Alberta. The stage is set for a launch of this initiative, beginning in Alberta and evolving into a true national program.

Through a performance measurement system, health services will be able to demonstrate real improvements in health care for HF patients and serve as a template for quality improvement across Canada.

— Dr. Jonathan Howlett

*Dr. Jonathan Howlett is the provincial and Calgary lead for the Alberta Health Services Heart Failure Scorecard project. He is a Clinical Professor of Medicine at the University of Calgary and a Member of the Libin Cardiovascular Institute of Alberta. His expertise includes acute chronic heart failure, evaluation of health care delivery and outcomes and Knowledge Translation. He is currently Principal Investigator for A Strategy of Telehomecare for the Treatment of Heart Failure (STARTEL) and serves on several Steering and Executive Committees for international clinical trials. He is Chair of the Canadian Cardiovascular Society Consensus Conference Primary Panel for the Diagnosis and Management of Heart Failure, co-Chair of the CCS Heart Failure Workshop Initiative and a member of the recent Canadian Heart Health Strategy initiative.*

**"In Alberta, recent data suggests there are upwards of 80,000 individuals with a diagnosis of HF, a number estimated to grow by up to 10,000 per year."**

*Dr. Todd J. Anderson.*

# DIASTOLIC HEART FAILURE:

## Provincial Team Grant links Libin and Maz

A team of researchers and physicians from across Alberta is launching a new research program focused on better diagnosis and treatment of heart failure. Heart failure occurs when the heart cannot pump enough blood to meet the body's needs. In Alberta, there are 80,000 people who have been diagnosed with heart failure.

Alberta HEART, supported by Alberta Innovates – Health Solutions (funded by the Alberta Heritage Foundation for Medical Research Endowment Fund), is inviting Albertans with heart failure to participate in clinical research that seeks to better understand diastolic heart failure – a condition in which the heart fails to relax properly between heartbeats.

"This team was born when we gathered Alberta's best heart specialists and scientists together and asked them what patient population could most benefit from additional research efforts. We quickly realized that scientific advances in our understanding of diastolic heart failure would have a significant impact on the quality of life for people suffering from heart failure," says Jason Dyck, PhD, Alberta HEART co-leader, and professor of pediatrics, Faculty of Medicine & Dentistry, University of Alberta. "We aren't just asking for research subjects – we are asking people with heart failure to be our partners in this research project."

"Heart failure is the leading cause of admission to hospital in Canada," says Dr. Todd Anderson, Alberta HEART co-leader, and Professor of Medicine, Faculty of Medicine, University of Calgary. "As cardiologists, we are good at diagnosing and treating heart failure when it's caused by abnormal contraction of the heart. We aren't as familiar with heart failure caused by the impaired relaxation of the heart – something we need to rectify because half of the people we treat for heart failure have diastolic heart failure."

Alberta HEART is looking to enroll 1,000 Albertans in the research program – 500 in Calgary and 500 in Edmonton. Some participants will take part in focus groups to help the team design its research; others will have exercise tests, cardiac MRI, echo tests, and vascular tests. Alberta HEART's clinical researchers will compare the results of people with systolic heart failure (when the heart's squeezing action is compromised) with results of people with diastolic heart failure.

"Maybe I wouldn't be here if they hadn't done research 50 years ago," says Murray Copot, an 86 year old Calgarian with diastolic heart failure. "I am volunteering because it will help other people down the road. I am proud to be on this heart research team."

**"As cardiologists, we are good at diagnosing and treating heart failure when it's caused by abnormal contraction of the heart. We aren't as familiar with heart failure caused by the impaired relaxation of the heart – something we need to rectify because half of the people we treat for heart failure have diastolic heart failure."**

# A DIFFERENT APPROACH TO SUPPORT CARDIAC PATIENTS IN THEIR JOURNEY TO SMOKING CESSATION

*Cardiac patient's smoking cessation – Calgary implementation team.*

Cigarette smoking contributes the greatest risk burden amongst modifiable risk factors in the ST elevation myocardial infarction (STEMI) population, carrying a 10-15 fold increase in the risk for future coronary artery disease related events. Every effort must be made to assist cigarette smokers with their difficult task of smoking cessation. At the Foothills Hospital, a formalized approach to treating cardiac patients with nicotine addiction does not currently exist. Treatment depends on physician comfort and knowledge of pharmacotherapy. There are few programs that exist in the community and they focus mainly on specific disease process such as cancer or chronic respiratory diseases. Many products are now on the market and have been successful at supporting patients through nicotine withdrawal but rarely are they initiated on admission to a cardiac unit.

In 2008, a collaborative cardiac access model was developed between the Department of Cardiac Sciences and the Cardiac Wellness Institute of Calgary developed a clinic model that provides early access to cardiac rehabilitation (CR) in the low risk STEMI population that received early reperfusion therapy. Although this model resulted in significant improvements in the rates of CR participation, overall smoking cessation rates among the 45% of STEMI patients with a recent history of cigarette smoking at time of event remain suboptimal (20%) among both Early Cardiac Access Clinics (ECAC) and non-ECAC model participants. From this pilot model we explored smoking cessation programs that addressed the cardiac patient population .

The Ottawa Heart Institute Smoking Cessation Model stood at the forefront of being the most successful program to date in Canada. This program standardizes the approach to smoking cessation and reports smoking cessation rates between 43-53% among an acute coronary syndrome (ACS) population. Across Canada, fifty hospitals are now using this standardized model to support smoking cessation programming for their patients. The program is based on five key components: Identification, documentation, counseling, harmacotherapy and long-term follow-up. With support from Libin and Cardiac Sciences a smoking cessation pilot project based on this model was initiated on Units 103, 81 and 82 in April 26, 2010.

Previous to the roll-out, a sustainable, formalized, systematic approach to treating cardiac patients with nicotine addiction was developed. Training on the appropriate approach to nicotine addiction was provided to the staff led by the educators of the cardiac units and the Ottawa Heart Smoking Cessation program personnel. Dr. Robert Reid, an Associate Professor in the Faculty of Medicine at the University of Ottawa and Associate Director of the Prevention and Rehabilitation Centre at the University of Ottawa Heart Institute, also presented cardiology rounds the morning of April 19th to kick off the pilot project and support the physician group. Greater than 120 staff (nurses, pharmacists, and social workers) were trained in identifying, documenting, counseling and initiating pharmacotherapy assessment at time of patient admission. The Smoking cessation pharmacy order sets were rewritten to support easy order entry and nicotine replacement therapy is now ward stock on the cardiac units for prompt therapy initiation.

With the access to an early cardiac follow-up clinic, the project can be monitored in the community for smoking cessation rates. The "Early Cardiac Access Clinic" will monitor smoking cessation rates at three months and one year in the STEMI population. The project has identified other community and web based smoking cessation programs and resources for patients that do not follow through to the Cardiac Wellness program. We will evaluate the success and impact of the project in one year's time but we feel confident that just having a formalized process that integrates smoking cessation therapy as part of cardiac care is the success.

— Debra Lundberg

# DR. TODD ANDERSON: STRENGTH IN LEADERSHIP, CLARITY IN VISION

Continued from pg.1

My focus has been on trying to understand risk factors and their impact on the way the vasculature worked and methodologies to measure its effectiveness, as well as looking at different interventions to try and help the function of the endothelium. My Clinical work is basically general Cardiology with a focus on Interventional Cardiology where I do coronary angioplasty with the interventional group here. Earlier in my career I was heavily involved teaching at the undergraduate level and enjoyed that aspect of things very much as well, and then more recently have been doing more administrative things as the division chief for the last three years.

*LL: Noting your prior experience as an instructor at Harvard and your string of teaching awards at University of Calgary, what can you say about what makes a great teacher?*

**TA:** I think that to be a good teacher there are a few elements required. The first is preparation. If you put time into what you're going to teach, then you come across as a credible educator. Second, you have to be interested in the careers of the students and you have to be committed to them getting a good learning opportunity. The third thing is the enthusiasm. If you are enthusiastic about what you are teaching, then the students are going to be enthusiastic to learn. Teaching is something that I enjoyed very much, and at all levels. We've been fortunate to have had great cardiology trainees and angioplasty fellows to work with on a daily basis. They ask inquisitive questions that really keep you guessing and keep you current. Unfortunately I have less time to teach these days, but it's still one of the things I enjoy the most.

*LL: You're the new Director of the Institute. A huge task ahead of you no doubt. Somewhat reminds me of those restaurants that advertise a 120oz steak for free ... if you can eat it and stay standing. What's your strategy going to be?*

**TA:** I am very fortunate to be given the opportunity to play a leadership role at the Libin Cardiovascular Institute, which is a transition from role as Division Head for Cardiology. There has been excellent leadership over the last number of years with Dr. Brent Mitchell at the helm. Mitch is an inspirational leader and really leads by example. He leaves really big shoes for me to try and fill.

Going forward, the early plan will be to really try and understand what the priorities are. What we'll want to do is not completely revolutionize what we are doing, but expand the work that has been done before us. At the same time, we are at an important crossroads with a number of new developments that allow us to reflect and to pause and take stock in terms of where we are going. This includes the development of Alberta Health Services and the ability to think provincially as well as nationally. The funding challenges that exist with the University and Faculty, and the disbanding of the Heritage foundation, allow us to really focus our efforts in things that we think we can do well. So I think for the first few months, the focus will be to establish and pare down our priorities such as to decide where to invest our very precious resources.

One of my first tasks will be getting around to meeting all the researchers, letting them know who I am and then planning in the fall retreats for both the clinical side and the research side. I would really like to see a ground swell in terms of trying to set priorities as opposed to a top down approach with the Institute and the Clinical and Academic Departments of Cardiac Sciences so that we have buy-in.

We have great resources in the Institute in terms of people, and I think we can utilize their energy, their enthusiasm, their expertise more than we have done in the past; engage people, and empower them to make things better in the priority areas that we set. We need to have a change in the organizational structure so that there's some increase in terms of leadership and empowering people to help because there's lots of great ideas out there.

*LL: The various University of Calgary Medicine Institutes have all followed different models with only the Libin truly incorporating care delivery (most are strictly research Institutes). What opportunities can this bring to research and/or care delivery?*

**TA:** The linking of research, training and clinical work under the single umbrella of the Institute is important for me. This is one of the advantages of our Institute; that we have a single leader for both the clinical delivery and research sides and if we can't take advantage of that then we have really failed to do what we need to do.

I think the real advantage that the Libin Institute has and the real opportunities are that with the right leadership structure together with the right individuals is that we can really have a unified direction in terms of where we are going. So the advantage would be taking an idea that's developed in the basic science laboratory that can be then translated into small mechanistic human studies then in a five to 10 year horizon could make it to the clinical world with clinical trials, where we have expertise all along that pathway. Having the clinicians understand where the ideas come from and having the basic scientists understand what the translatable properties are of the research is really a huge advantage. Additionally, the broad based renaissance education for our graduate students and our post doctoral fellows in terms of knowing what's happening is really important.

*LL: Upon being honoured as 'Top 40 under 40 in Canada' in 2001, you were interviewed by the Globe and Mail. In that interview you revealed owning a 1986 Honda Civic. What car do you drive now and why?*

**TA:** (Laughing) So I like to drive my bike when I can. My new car, which I have had for the last two years, is a 1994 Camry. It has 200,000 km on it, but it runs well. My view of a car is that it's something that gets me to work and something that gets me to the airport when I need to go out of town. I would rather spend my money on a new bicycle than a new car. My goal is to have the oldest car in the department. I don't know if I'm there yet, but that's the plan at least.

*LL: You did your first triathlon recently, what's your next challenge?*

**TA:** When I'm not working, which isn't that often these days, my interests really lie in outdoor activities, with my 11 year old son and my wife. In the winter we like to be outside skiing and cross country skiing, and in the summer, my passions include golfing when I can, and bike riding is what I really like to do. I'm a closet arm chair athlete. The triathlon was really just to have some goal to train towards. I dislike running passionately but of course it made me go out and do a bit of it and I survived. I really do enjoy excellence certainly as it comes to sport, and not particularly for me, but watching others compete at a high level is just kind of fun. If I can do it and survive, then I am happy to be involved.

# CORONARY CARE UNIT, CARDIOLOGY, AND CV LABS RELOCATE TO PETER LOUGHEED NEW EAST TOWER


In 2005, the Peter Lougheed Centre began construction on the first of a multi-phased site expansion project. The East Tower would be the new home for the Coronary Care Unit, Cardiology, and Cardiovascular Labs.

At the end of 2007, in preparation for this move, a major change occurred in the way Cardiac Sciences cared for its patients at the Peter Lougheed Centre. This was the separation of the Coronary Care Unit from the Intensive Care Unit and moving it to a temporary location embedded in Unit 44. This was the first step in preparing for a new, separate CCU in the East Wing expansion.

During the transition, a dedicated team came together with the goal of training the Unit 44 cardiology staff to work effectively in the Coronary Care environment. This involved not only knowledge acquisition but also the learning of new psychomotor skills. During this period of change, maintaining quality of care was of paramount importance. In the fall of 2009, this work came to fruition when CCU, Cardiology, and Cardiovascular Labs moved into the New East Tower, occupying the entire 4th floor.

Cardiology services for the PLC, now located in the East Tower, comprises a 32 bed Medical Cardiology unit, a 10 bed CCU, and a CV Lab area, including exercise treadmills and echocardiograms. CV Labs also provides cardiology outpatients services, including heart failure and congenital heart clinics.

The CCU cares for patients with a variety of cardiac conditions including NSTEMI, heart failure, and patients with rhythm disturbances. This care includes IV infusion of medication supported by the use of hemodynamic monitoring when necessary and the insertion of temporary transvenous pacemakers. The new CCU is a bright, functional place for staff to work in, with good sized patient rooms, modern cardiac monitors, and well considered accommodation for families. There are two rooms specifically designed with special overhead lifts for bariatric patients.

**“The positive aspects of our new non-embedded CCU are immense. One of the most significant benefits is that we have established our own identity, that of being Coronary Care Nurses. Our new building provides a better working environment with increased space and better equipment… The quality of patient care has improved.” — Nurse Clinician CCU**

Unit 49, at the other end of the fourth floor, is a 32 bed Medical Cardiology unit, with the ability to monitor 16 patients on telemetry. Central monitors are located at the front of the unit but also at the back making it easy for nurses to keep an eye on the patient’s heart rhythm. The unit is physically much larger than the old unit and most of the care is delivered in single rooms, allowing for both greater comfort for the patients and extra room for the families. These rooms were designed to current best practice standards and will support advanced infection prevention and control practices. Another of the great features are the isolation rooms; there are three on the unit with negative pressure and anterooms allowing staff to provide care with increased safety and with more efficiency. The wide corridors allow for easy movement of patients and give the unit an open and uncluttered feel. The use of pneumatic tubes throughout the new wing helps to expedite care through a direct connection to the hospital lab.

**“We just can’t thank you enough for the care you provide, my mother was cared for so well on this beautiful unit.” — Family member of patient on Unit 49**

The new CV Labs offer improved space for patients, staff and physicians. The department includes six well equipped clinic rooms, preparation and testing areas for Treadmill testing and Holter monitors, and four Echocardiogram rooms. The department also has an ECG workspace, Holter monitor reading room, an Echo reading room, and workspaces for staff and physicians. The location of CV Labs, adjacent to CCU and Unit 49, is beneficial for both cardiac inpatients and outpatients.

**“The new space for the Cardiac Function Clinic includes large and well equipped exam rooms as well as close proximity to all cardiac testing. This increases timely access and ultimately is of great benefit to the patients and the quality of their care.” — Nurse Clinician CFC**

The East Wing has incorporated a number of LEED ™ (Leadership in Energy and Environmental Design) features into the design of the building. Therefore, the Cardiac Sciences staff and patients enjoy such innovation as natural lighting, flooring designed for maximum comfort, and windows that can open for the care and comfort of staff and patients alike. In the link between the old building and the new our staff, patients, and families can relax in café tables or couches and enjoy the view of a roof top garden.

**“At a time when health care delivery faces many constraints, it is wonderful to work in a facility so well designed for both patients and staff. Our new units consolidate many components; coronary care, cardiology ward care, cardiac diagnostics and outpatient clinics in a single location. The patient rooms are extremely well designed and allow care to be provided in a very comfortable fashion.**

**It is an excellent example of where designers listened to the people working ‘in the trenches’ and produced a top quality facility that we can be very proud of.” — Dr. Tim Prieur, cardiologist**

— Beth Harris and Brian McGuigan

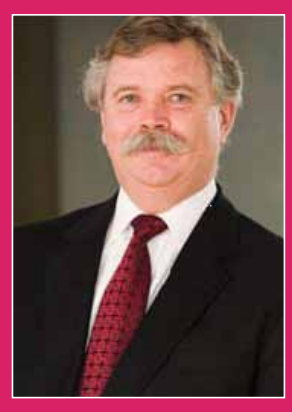
# NEW APPOINTEES TO THE INSTITUTE STRATEGIC ADVISORY BOARD

The Strategic Advisory Board is comprised of eleven voting members. They are appointed from Alberta Health Services, the University of Calgary and the Community. In addition to the Chair of the Advisory Board, one member serves as the Chair to the International Experts Advisory Committee and one serves as the Chair of the Community and Partners Advisory Committee. The Institute Director, Associate Director, Administrative Director, and the Office Manager serve on the board as the secretariat.

We have recently added three members to the board:

*Dr. Francois Belanger - Zone Medical Director, Calgary Zone*
*Photo credit - Dave Lowrey*

*Ms. Deb Gordon - Senior Vice President, Major Tertiary Hospitals*



*Mr. Charles Fischer - Retired President and Chief Executive Officer, Nexen Inc.*

http://www.ucalgary.ca/alumni/awards/top40#charlie_fischer

# 2010 CLINICAL TEACHING AWARD:

## Dr. Stuart Hutchison recognized by the Professional Association of Residents of Alberta

"Your heart is slightly bigger than the average human heart, but that's because you're a teacher." — Aaron Bacall

*Dr. Stuart Hutchison (centre with award) flanked by cardiology residents (l to r) Drs. Bryan Har, Stephanie Au, Tasnim Vira, Jillian Colbert, Sayeh Zielke, Michael Kanakos. Absent: Drs. Cindy Mason, Patrick Champagne, Anand Joshi, Anna Bizios*

# A DIVERSITY OF TRAINEES

**Being a thematic institute comprising the full breadth and depth of the cardiovascular sciences, the Libin Institute's body of trainees demonstrates a diversity of research and education pursuits. In this issue of Libin Life, we'd like to share a sampling.**

### Bryan Har

**Current Pursuit:** Residency in Core Cardiology

**Program Lead:** Dr Lisa Welikovitch (Program Director)

**Degrees/Institutions:** MD - University of Calgary; Internal Medicine - University of Western Ontario

I am in my final year of core cardiology training and am currently serving as the chief resident for our program. I enjoy teaching medical trainees and hope that medical education will be a central part of my career. When I was a medical student, I decided to pursue a career in cardiology while doing clinical and research work with Dr Derek Exner. I am interested in outcomes research, and hope to be able to apply this further during training in structural interventional cardiology.

An avid runner and cyclist, I have completed a number of half and full marathons, and enjoy friendly impromptu races with other cyclists. Swimming is a natural extension from running and cycling. Once I adapt to open water swimming, I hope to compete in triathlons and eventually the Ironman.

### Peter Jones

**Current Pursuit:** Fellowship in Physiology and Pharmacology

**Supervisor:** Dr Wayne Chen

**Degrees/Institutions:** Ph.D. Biochemistry, University of Leeds, UK; B.Sc. Biochemistry/Genetics, University of Leeds, UK

My principle research interest is in how calcium cycling is controlled in cardiac myocytes. In particular my focus is on the mechanisms by which calcium release from intra-cellular stores (sarcoplasmic reticulum, SR) is controlled by the cardiac ryanodine receptor (RyR2). The aim of my research is to characterize how the activity of RyR2 is altered both physiologically and in disease. I will soon be leaving Calgary to continue this research at the University of Otago, NZ.

I came to Calgary from England in Jan 2005. The research was the main draw but I would be lying if I said the proximity of the Rockies didn't factor into the decision as I am a keen skier.

### Cathy Eastwood

**Current Pursuit:** PhD in Nursing focusing on Health Service Research

**Co-supervisors:** Dr. Kathryn King and Dr. Hude Quan

**Degrees:** BN and MN from University of Calgary

I am a heart failure nurse specialist with experience in both outpatient and inpatient settings. My experience in Houston overseeing an outpatient HF clinic then leading teams to improve the inpatient quality and cost of HF admissions has lead me to pursue advanced research skills. I am interested in improving the safety and effectiveness of the transition from hospital to home and will focus on patients readmitted after hospitalized with heart failure symptoms. I hope to more clearly define the objective and subjective indicators of a quality patient experience while admitted with heart failure.

I am happy to be back in Calgary after experiencing life in the USA and Eastern Canada while in St. John's, Newfoundland (where I taught pharmacology to nurses at Memorial University). I look forward to skiing, hiking and lots of fun-filled family time amidst my studies.

Alberta Health Services

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