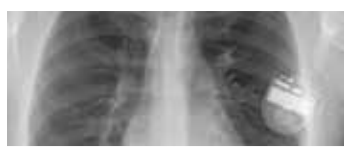


**Vancouver**  
The pulse on heart valve replacement



**Innovation**  
Getting to the heart of cardiac research

**MEDIA PLANET**

October 2011

# CARDIOVASCULAR HEALTH

## HOW HEART HEALTHY ARE YOU?

Learn how **Bill Clinton** changed his lifestyle before it was too late

PHOTO: CLINTON FOUNDATION



**Sarah thanks you, and so do we.**

Thank you to all British Columbians who support our integrated heart + lung research and innovation as financial donors and as research partners, contributing time, energy, ideas, information and specimens.



Learn more about Sarah's experience at [www.heartandlung.ca](http://www.heartandlung.ca)

# CHALLENGES



Within two years the global deaths from heart and stroke are equivalent to removing all people from Canada. Heart disease and stroke, along with other chronic non-communicable diseases are the drivers for health care expenditures, and grief, **in almost all societies on the planet.**

## Beating the global oppression

**M**ummies from ancient Egypt have been shown to harbor arteries in their hearts with a continued and worldwide burden - hardening of the arteries. The diseased blood vessels limit blood flow to vital organs like the heart and brain, and cause "limb attacks" and "bowel attacks" that are similar to heart attacks and strokes. Tissue dies, and crucial functions are lost. The personal, medical, and economic costs of such pervasive ailments are astronomical, and climbing in importance.

What are termed "chronic non-communicable diseases" (NCDs), that cluster of conditions that include hardening of the arteries, contributing to heart disease, stroke, vascular dementia, and leg amputations, along with chronic obstructive lung disease, diabetes, obesity, and cancers, are the drivers for health care expenditures, and grief, in almost all societies on the planet. Indeed, the NCDs have emerged as THE profound spectre of the 21st century. The enormity of the situation is reflected in the "declaration of war" by the United Nations against NCDs tabled on September 19th this year. When nearly 17 million people die of cardiovascular disease annually at the present time, and the numbers are projected to rise steadily over the coming decades, it is worth paying attention to the issue. For simple perspective, within two years the global deaths from heart and stroke are equivalent to removing all people from Canada.

Adding in the burdens of the other major chronic NCD's, the UN declaration estimates a global cost for these conditions of \$47 trillion over the coming 20 years!

### Early life determinants

Another reality that is finally sinking in relates to the contribution of pre-natal, peri-natal, and early post-natal determinants of later chronic diseases. This understanding has been burgeoning rather quietly since the 1980's, propelled by the brilliant work of Dr. David Barker and a growing army of researchers, health care professionals, and policy makers now galvanized in a global organization, Developmental Origins of Health and Disease (DOHAD). The contribution of the early life determinants of later chronic diseases is estimated in economic terms to be greater than the contribution of well-known later-life risk factors like tobacco use, poor dietary choices, and inactivity. The most important message is that later overweight, blood lipid abnormalities, high blood pressure, and diabetes are traceable from the time of the maternal-fetal unit and then are relentlessly accrued throughout life, depending on lifestyle and environmental influences. Genetic contributions to individual risks and expression of heart and blood vessel diseases interplay with the choices people make and the socioeconomic adversities present to yield a now-urgent global scene.

Given the challenges and the size of the task in grappling with risks for and realities of heart disease, we should be greatly encouraged by the extraordinary work



**Dr. Bruce McManus**  
Co-Director, Institute for Heart + Lung Health

being debated and presented this week at the annual Canadian Cardiovascular Congress held in Vancouver. The Congress brings together all professionals committed to preventing, better managing and treating, and more cohesively addressing the many faces of heart disease and stroke. The meeting is a melting pot of initiatives that run from communities, to clinics, to research institutes, to governmental policy units. Leaders from Canada are joined by notable international experts to push insights as far as possible. Canada's well-deserved reputation for leadership in the cardiovascular sciences is reflected in the program and the five full days of meetings.

### Beating back heart and stroke

Locally in Vancouver and British Columbia, innovation is afoot to help beat back heart and stroke. In this special section, just the tip of the iceberg of exceptional efforts being ma-

de are highlighted - the work of heart surgeons and cardiologists in bringing care to those who otherwise would not have access, the leadership of teams in drawing a bead on the heart health issues that particularly face women, and the commitment to better sharing of knowledge and the mobilization of communities and organizations in the realizable goal of prevention of cardiovascular diseases.

In this province we are making progress in our address of heart and lung diseases, fostered most recently by the creation of a community-wide enabling, inclusive vehicle to push higher through partnership in research, discovery, mentoring and education, and clinical and community innovation. This vehicle, the Institute for Heart + Lung Health ([heartandlung.ca](http://heartandlung.ca)), is a natural development based on a belief that all talents and tools are essential to more efficiently slow the impact of NCD's.

Canada has shown leadership in the prevention and intervention upon heart and stroke. But the beast is large, unruly, and persistent, and will require new seamless energy and action to take it down.

*Dr. Bruce McManus is co-director of the Institute for Heart + Lung Health, director of the UBC James Hogg Research Centre and PROOF Centre of Excellence for Commercialization and Research.*

**DR. BRUCE MCMANUS**  
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## Women's heart health: Things you should know

**Dr. Margaret Blackwell, staff cardiologist at Royal Columbian Hospital (RCH), provides a few facts and tips that women should know about heart disease.**

It may surprise many readers that in Canada women are more likely to die of heart disease than men. In fact, one in two women will develop heart disease.

The reasons why women are adversely affected by heart health are numerous and complex. Women often fulfill the traditional role of nurturer and they tend to put their own needs aside in favour of their families. Lower incomes or single parent homes have a direct impact on health. Women have to sometimes choose between paying for child care options or costly medicines. As life becomes busier, fast food is an easy fall back. The focus in the media is on outward beauty, image and acceptance and less on health. Women have higher drop-out rates from cardiac programs

than men as they are needed at home and lack sufficient support to balance their own needs.

A further problem is that it is often difficult to adopt a healthy heart lifestyle. Here are some tips as to how women can actively engage in change.

- Set a date to start your new "healthy heart plan" that includes both exercise and food choices.
- Write out your goals and sign a contract with yourself.
- Talk to the people closest to you about your plans. Your friends and family are less likely to help you if they don't know your plans, so engage them. You can't do it all alone.
- Set realistic goals.
- It is daunting to set-up an exercise program so take the time to plan.
- Exercise for at least 50 minutes five days a week.
- Take time for yourself. Have a bubble bath, go for a walk or read a book.
- Stop smoking! Even one and 1/2 ciga-



**DR. MARGARET BLACKWELL**, Royal Columbian Hospital Cardiologist, performs a cardiocentesis on a patient at RCH.  
PHOTO: ROYAL COLUMBIA HOSPITAL

rettes a day increases a woman's risk of heart or stroke disease 2.5 times.

Women are often slow to respond to the signs that they are having a heart attack. Here are some symptoms that you should be aware of:

- Squeezing discomfort in the chest.
- Jaw or neck ache.
- Pain between the shoulder blades.
- Sweating and nausea.
- Continuous pain that lasts for at least 20 minutes.
- Shortness of breath and light-headedness.

What do you do if you experience the above symptoms and they persist for 20 minutes? Call 911! You don't have to be your own doctor, let someone else do that job and take care of you.

*Dr. Margaret Blackwell is a staff cardiologist at Royal Columbian Hospital (RCH), co-director of the Heart Function Clinic at RCH and member of the Provincial Women's Heart Panel.*



### WE RECOMMEND



**Dr. Margaret Blackwell**, staff cardiologist at Royal Columbian Hospital, provides a few facts and tips that women should know about heart disease.

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# MEDIA PLANET

CARDIOVASCULAR HEALTH  
2ND EDITION, OCTOBER 2011

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**Photo Credit:** All images are from iStock.com unless otherwise accredited.

**Distributed within:**

Vancouver Sun, October 2011  
This section was created by Mediaplanet and did not involve The Vancouver Sun or its Editorial Departments.



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**New research program investigates leading cause of death for women in BC**

Providence Health Care and the University of British Columbia (UBC) announced last week the establishment of the first research program in B.C. to focus on the impact of gender-based differences on cardiovascular disease.

The new UBC Heart and Stroke Foundation Professorship in Women's Cardiovascular Health will research gender-based differences in cardiovascular disease and improve outcomes. "For decades, cardiovascular disease was considered a man's disease, but the reality is that more women are dying of heart disease than men" explains Dr. Karin Humphries, the inaugural holder of the Professorship.

The Professorship will be based out of St. Paul's Hospital, which is known around the world for its work in the prevention of heart disease and for the care, treatment and support of people living with heart conditions.

UBC AND PROVIDENCE HEALTH CARE

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NEWS

**Question:** What are the alternatives for high risk patients who cannot undergo open-heart surgery?

**Answer:** A minimally invasive procedure pioneered by St. Paul's world-renowned interventional cardiologist, Dr. John Webb.

# Pioneering an innovative method to give hope

**There is hope for patients with heart valve problems who are deemed to be too high risk to undergo open-heart surgery – and that hope started in Vancouver. Transcatheter aortic valve replacement or TAVR is a minimally invasive procedure that is being practiced in hospitals around the world, although Vancouver is considered a leader in the field.**

The operation is for people who suffer from severe symptomatic valve narrowing, a condition that affects the aortic valve, which leads out from the heart to the rest of the body. When the valve becomes calcified and degenerated, it restricts the flow of blood and oxygen to the body, resulting in chest pain, shortness of breath, fainting, and death.

According to Dr. David Wood, a structural and interventional cardiologist at the University of British Columbia, people who suf-

fer from this condition have half the chance of surviving past a year if they do not receive treatment. Less than a decade ago, these patients were deemed too frail or sick to be considered for open-heart surgery. They were left with few other options.

Which is why there is renewed hope, now that TAVR is proving to change lives.

Unlike open-heart surgery, the procedure is minimally invasive. A small incision is made in the patient's leg, where a collapsed heart valve is inserted into the leg artery. The valve is guided through the artery along with a deflated balloon. Once the balloon is inflated, the valve expands.

The procedure takes about 45 minutes, followed by a remarkably short recovery time. In contrast, open-heart surgery in high risk patients typically takes several hours and recovery time in hospital is often seven to 14 days.

"They're going home in two to four days and



**John G. Webb, MD, FRCP, FACC**

**Director, Interventional Cardiology and Cardiac Catheterization, St. Paul's Hospital**

are immediately able to do all the things they were doing before without being limited by shortness of breath or chest pain," said Wood.

Dr. John Webb, who is the McLeod Professor of Heart Valve Interventions at St. Paul's Hospital, pioneered the procedure in 2005. The hospital has since completed over 500 cases, which is the largest single centre experience in North America.

Since 2005, the Vancouver Regional Structural Heart Program, which started at St. Paul's, has expanded to Vancouver General Hospital. Within a few years, it's expected to grow to all the major hospitals in British Columbia.

Although many patients are referred to the program, only one third are accepted. In order to be eligible, patients must be screened by a surgeon, a cardiologist and a nurse and in some cases, a geriatric specialist, before being accepted for the procedure.

Once accepted, they are put on a waiting

list, which takes about four to six months. At any one time, there are 90 patients on an accepted waiting list for TAVR.

"It's only for patients we feel will actually derive benefit," said Wood. "People who have a reasonable three to five year prognosis from all of their other medical conditions."

The government of British Columbia is stepping up funding for TAVR. Currently, the program performs three to five cases a week at St. Paul's and Vancouver General Hospital.

As for the future of TAVR, Wood and his colleagues predict it will eventually become a commonplace procedure that will change the face of cardiology.

"We started with inoperable patients, we've moved into high risk patients and next will be moderate and low risk patients," said Wood.

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## A new option for your aortic stenosis patients who cannot undergo surgery

In Cohort B of the landmark clinical study - The PARTNER Trial - patients receiving an Edwards SAPIEN balloon-expandable transcatheter aortic valve demonstrated a 20% absolute reduction in all-cause mortality compared to the standard medical therapy control group at one year.<sup>1</sup> For more information, please visit [edwards.com/eu/products/transcathetervalves](http://edwards.com/eu/products/transcathetervalves).



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**20%**  
REDUCTION IN ALL-CAUSE MORTALITY AT ONE YEAR<sup>1</sup>

BALLOON-EXPANDABLE TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI)

\*Patients in control arm received best medical management which frequently (78.2%) included balloon aortic valvuloplasty.

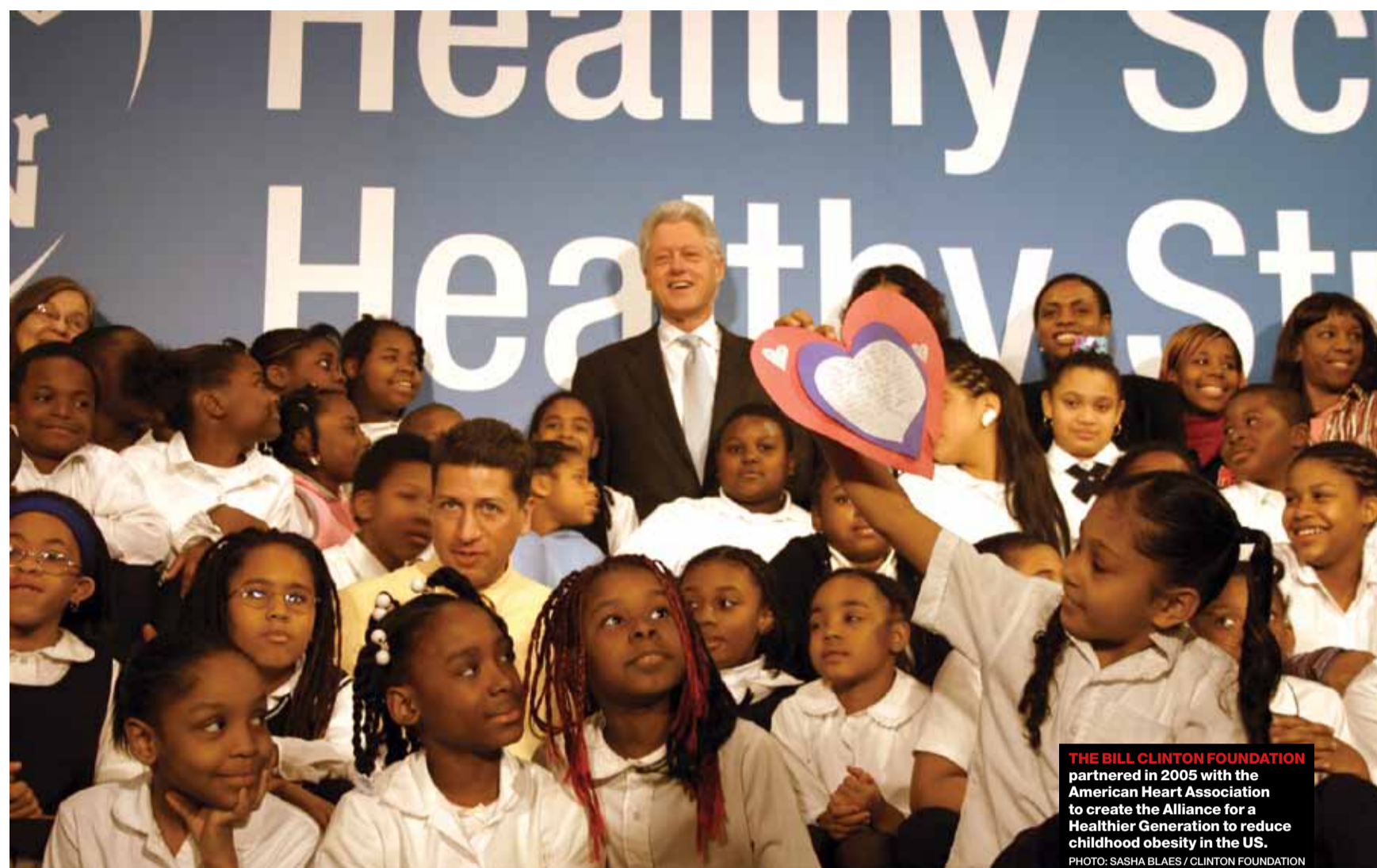
Reference: 1. Leon MB, Smith CR, Mack M, et al; PARTNER Trial Investigators. Transcatheter aortic-valve implantation for aortic stenosis in patients who cannot undergo surgery. *N Engl J Med.* 2010;363(17):1597-1607.

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## INSPIRATION



**THE BILL CLINTON FOUNDATION** partnered in 2005 with the American Heart Association to create the Alliance for a Healthier Generation to reduce childhood obesity in the US.  
PHOTO: SASHA BLAES / CLINTON FOUNDATION



DON'T MISS!



**Dr. Derek Exner**, Cardiologist, Heart Rhythm Specialist, and Professor at the University of Calgary, leading an international research study on ICDs.

Canadian researchers to lead international study on implantable cardioverter defibrillators

**Every year, over 400,000 people in North America die as a result of sudden cardiac arrest. That's more deaths than lung cancer, breast cancer and HIV combined.**

The only procedure that's been shown to make a significant difference in those deemed high risk of sudden death, is the implantable cardioverter-defibrillator, or ICD.

The device, which is about half the size of a Smartphone, has evolved from a simple "shock box" to an advanced instrument that improves people's well-being, monitors how the heart is working and prevents death from serious heart rhythms.

"It works as if you'd called the paramedics, who come to your house, put the paddles on and deliver the shock, but instead of taking 20 minutes, it does it in a matter of seconds," said Dr. Derek Exner, a heart rhythm specialist at the University of Calgary.

Like a pacemaker, the ICD is implanted below the collarbone and monitors the heart for irregularities.

Dr. Exner is leading an international study that aims to better identify patients at risk for sudden death after a heart attack and tests whether ICDs can be used to save lives in a new population of patients. This study, will enroll 1,400 patients from sites throughout Canada, the United States, Europe and Japan.

The number of ICD implants per year in Canada is about 5,000.

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# Metabolic syndrome: A silent killer affecting one in five Canadians

**To monitor your heart health, there are a number of indicators that should be checked regularly before anything serious develops. It's like lining up the dots, before they're connected.**

The first step in prevention starts with a simple medical check-up where your family doctor can diagnose if you have metabolic syndrome. Metabolic syndrome is a grouping of health conditions which can lead to an increased risk of cardiovascular diseases and premature death.

Various measurements and blood tests can establish if you have three of the five markers that fall under metabolic syndrome. These risk factors include: high abdominal fat; high blood sugar; high blood pressure; reduced HDL cholesterol, or "good" cholesterol;

and high triglycerides, which are fats within the blood.

"In North America, it's believed that between 25 to 30 percent of people have (metabolic syndrome)," said Dr. Andrew Ignaszewski, head of the Division of Cardiology at St. Paul's Hospital.

The good news is that metabolic syndrome can often be prevented or reversed through simple steps such as adopting a healthy diet, getting regular physical activity and avoiding tobacco use. "Improving lifestyle, assuming the person doesn't have the best lifestyle to begin with, is probably the best way of managing," said Dr. Scott Lear, Simon Fraser University professor and Chair in Cardiovascular Prevention Research.

#### An unlikely veggie lover

President Bill Clinton has become the unofficial, and unexpected, posterboy for healthy eating, thanks to a serious

lifestyle change. After undergoing two separate heart procedures since leaving office more than 10 years ago, Clinton recently decided to drastically change his diet to improve his heart health cutting out red meat, dairy and eggs while reducing his oil intake. He now openly praises the benefits of his plant-based diet. However, he jokingly admitted during a recent CNN interview that he had a bite of turkey last Thanksgiving.

So when it comes to adopting a healthier lifestyle or diet, it simply comes down to the individual. Though support from the community can help tremendously. Dr. Ignaszewski sponsored a yet-to-be-released study that examined close to 1,000 people with metabolic syndrome over a three year period. Participants were given dietary tips, access to a fitness program and regular time with a psychologist. The preliminary results showed significant improvement

in their heart health. "Over the three year period we were able to reverse the metabolic syndrome in over 60 percent of people," said Dr. Ignaszewski.

The lessons that were learned in this \$1.5m study are now being incorporated into the community in British Columbia. The Happy Heart program, which is a stripped down version of the study, is now available at three community centres across the Lower Mainland. Participants are given access to a councillor, group education, nurses, a dietician, and exercise programs. Another study is currently being conducted by St. Paul's and UBC looking at the cost effectiveness of reversing metabolic syndrome on the healthcare system and society as a whole.

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