

MORE TIME  
CHILDREN  
COURAGE  
RECOVERY  
MORE HOPE  
SURVIVORS  
**IMAGINE**

FAMILY  
FULLER LIVES  
MOTHERS  
**THE DIFFERENCE  
YOU COULD MAKE**

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FATHERS  
MORE JOY  
SISTERS  
BROTHERS  
SONS  
DAUGHTERS  
FRIENDS

2011 INSPIRING STORIES OF DONORS AND THE RESEARCH THEY ENABLE.

MORE MEMORIES

MORE LIVING



HEART &  
STROKE  
FOUNDATION  
OF ONTARIO

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“More time is what we want to give. More years for you and your loved ones – and more life experiences to live for.”

– Tom McAllister



# WE CAN'T SAVE LIVES WITHOUT YOU.

This issue of *Imagine* is a tribute to Heart and Stroke Foundation (HSF) donors and researchers who are passionate about saving lives and enhancing the lives of people living with heart disease and stroke. These inspiring donors and world-class researchers have a personal connection to the diseases that take 1 in 3 Canadians before their time.

More time is what we want to give. More years for you and your loved ones – and more life experiences to live for. But despite historic advances in research and treatment, heart disease and stroke are still pervasive health concerns for Canadians and the #1 killer of women. In fact, someone's life is cut short by heart disease or stroke every seven minutes in Canada.

HSF researchers in Ontario rank among the finest in the world. Their reputation for excellence is founded on our deep commitment to funding innovative approaches that improve healthcare providers' ability to treat and prevent heart disease and stroke.

The impact donor support has on research is tremendous. I have seen with my own eyes how research funded by the HSF has resulted in fewer Canadians suffering and dying because of heart disease and stroke. But there is so much more we need to do to realize our vision of a future that is free from heart disease and stroke.

Working together, we can create the next generation of breakthrough research. Imagine that!

A handwritten signature in black ink that reads "Tom McAllister". The signature is fluid and cursive.

Tom McAllister  
Chief Operating Officer  
Heart and Stroke Foundation of Ontario

# MOTHER AND SON REMEMBER A COURAGEOUS HUSBAND AND FATHER.

Mrs. Beverley Bernick  
& Dr. Paul Bernick



Irwin Bernick immigrated to Canada from Poland as a young child in the late 1930s. He grew up on an Ontario farm, then moved to Toronto to attend university. Irwin later married and had four sons. He worked hard both nights and weekends to support his family while funding his own education. After a successful career as a real estate entrepreneur, Irwin passed away at the age of 63 from a lengthy illness that was complicated by multiple transient ischemic attacks.

Many years prior to the creation of the Irwin Bernick Summer Medical Student Scholarship, Irwin's son Paul received a similar scholarship from the HSF. In fact, the first operation he ever witnessed was open heart surgery. Paul was inspired by his father's hard work, kindness and imagination. And it was those traits in his father that spurred him on to become the surgeon he is today.

Beverley, Paul and nephew Howard Bernick decided to establish this medical student scholarship to honour Irwin and the life he led. It enabled them to pay forward the generosity Paul received from donors and to fund research to help people suffering from heart disease and stroke.

**“We wanted to remember him in a way that was associated with the illness he bravely fought, including multiple mini-strokes.”**

– Mrs. Beverley Bernick

# THE IRWIN BERNICK SUMMER MEDICAL STUDENT SCHOLARSHIP

This year's scholarship was awarded to two very deserving recipients, both from the University of Toronto's Faculty of Medicine.

Timothy partnered with Dr. Andrea Kassner, one of the HSF's top researchers, to expand the use of a clot-busting drug called tPA. It can virtually erase the effects of a stroke – the 3rd leading cause of death in Canada and the leading cause of adult neurological disability. However, tPA is currently only used within a narrow window of time because using it too late can cause severe bleeding.

So, working with Dr. Kassner and other team members, Timothy investigated the effects of tPA at a cellular level using a technology called "multiplex proteomics." Looking forward, he can imagine a future where patients make a full recovery even if they arrive late at the hospital.



Timothy Bowes

**"This scholarship put me one step closer to attaining my dream of making a big difference in people's lives."**

– Jieun Kim

Jieun Kim

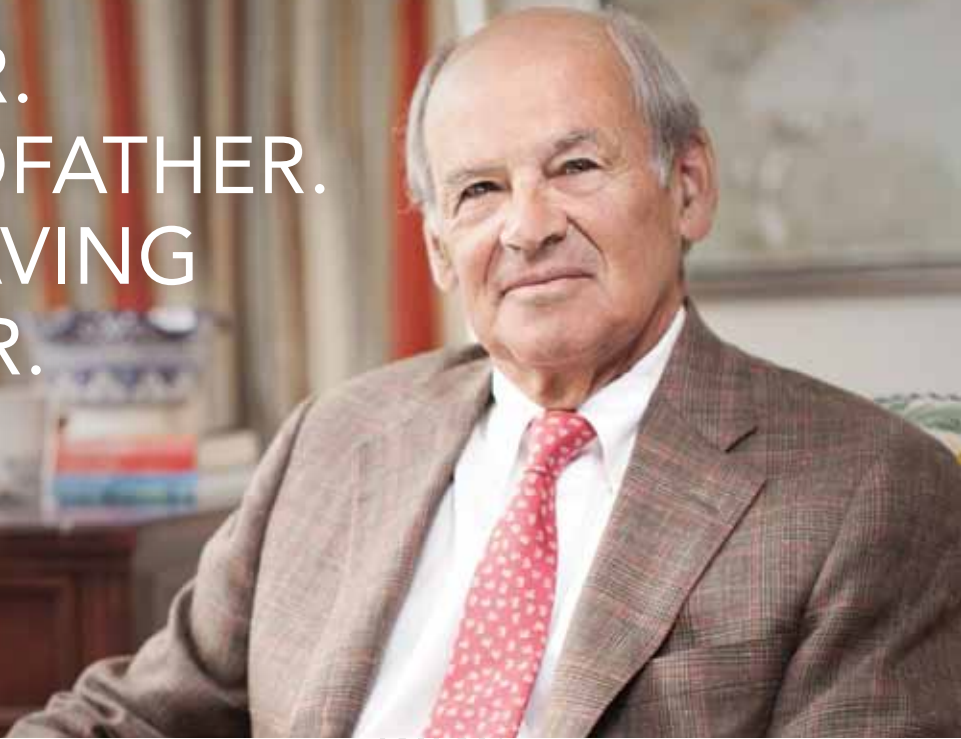


Heart attacks are a leading cause of congestive heart failure and death. They damage heart cells and reduce their ability to conduct the electricity our hearts need to pump blood. Because of this, people who have had a heart attack are more prone to developing congestive heart failure and dying prematurely.

Over the course of the summer, Jieun worked with Biomaterials and Biomedical Engineering Professor, Dr. Peter Zandstra, on a project to develop a genetic strategy for treating and rehabilitating heart attack patients. This completely new approach could prove to be a very efficient and safe alternative to engineering new heart tissue from stem cells.

# FATHER. GRANDFATHER. LIFE-SAVING DONOR.

Barry Cracower



Barry is the proud father of three children and a grandfather of six. His family inspired him to donate to the HSF, and his wish is that kids and their parents will, one day, no longer have to endure the pain of heart disease.

The more Barry got to know the HSF, the more he realized that so many families are suffering. In fact, 1 in almost every 100 Canadian children is born with some form of congenital heart defect.

The pioneering work of the HSF, including funding research that led to the very first in-utero corrective surgery for congenital heart defects, kids gives a fighting chance at life. But so much work needs to be done, and it needs the support of donors who can imagine a world where heart disease in children is eradicated.

**“Children can fulfill their dreams because of Dr. Mital’s work and that of other researchers.”** – Barry Cracower

KIDS  
GRANDKIDS  
FIGHTING  
CHANCE  
OUR FUTURE  
HEALTHIER  
LIVES  
STRONG  
HEARTS  
BABIES  
NEW MEDICINE  
LIVE-SAVING  
SURGERY  
LONG-TERM  
SUCCESS



# PEDIATRIC CARDIOLOGIST DEVOTED TO OUR KIDS AND GRANDKIDS.

Dr. Seema Mital



Dr. Mital's research at The Hospital for Sick Children, Toronto, was spurred on by the lack of knowledge surrounding the causes of congenital heart defects – one of the most common birth defects. Dr. Mital is trying to find the “bad” genes responsible and the “good” genes that influence the long-term success of surgery for these defects.

HSF donors, like Mr. Cracower, help fund Dr. Mital's research and assist her in studying a condition called tetralogy of Fallot. It is the most common cause of “blue baby syndrome,” a condition in which babies are born blue due to lack of oxygen. Life-saving open heart surgery in the first year of life can fix this defect. But despite surgery, the heart can grow weak with time and require valve replacements during childhood or into adulthood. Dr. Mital's research will use genetic knowledge to predict which children will develop this problem before significant injury has occurred. This, in turn, will help to improve the timing of surgery in high-risk patients and will play a role in the creation of new heart medications.

# THE GIFT OF RECOVERY FOR HER BROTHER KEVIN AND OTHER STROKE SURVIVORS.

Colleen & Brian Johnston



In 2004, Colleen Johnston's brother Kevin Duffy suffered a stroke in the prime of his life and worked courageously to regain his ability to speak and move independently. While Kevin's incredible story of fierce determination and recovery is overwhelmingly positive, there are far too many Canadians who don't experience the same success.

Kevin's struggle inspired Colleen and her husband Brian to make a significant personal donation to the Heart and Stroke Foundation Centre for Stroke Recovery. This gift established the Kevin Duffy Rehabilitation Scientist Award, which funds research into new treatments that will speed up the pace of rehabilitation in memory recovery and walking for generations of stroke survivors.



Colleen with brother Kevin Duffy at the 2010 Beel Heart&Stroke Ride for Heart.

**"This gift will help us get closer to a future where stroke leaves no lasting mark."**

– Colleen Johnston

# THE KEVIN DUFFY REHABILITATION SCIENTIST AWARD

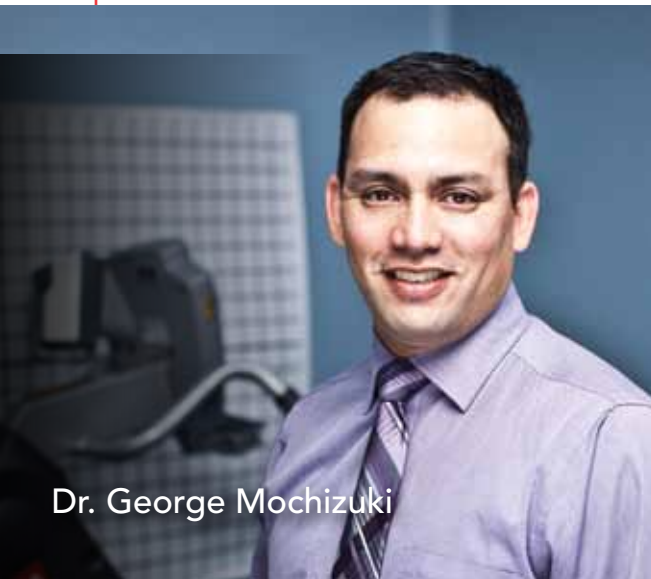
The winners of this year's award are stroke researchers in neurolinguistics and neurophysiology.

Dr. Meltzer is a Heart and Stroke Foundation Centre for Stroke Recovery neurolinguist working out of Baycrest, an academic health sciences centre in Toronto.

Communication disorders following a stroke are a major obstacle to a patient's return to independence. Dr. Meltzer researches the mechanisms of language processing in the brain and seeks to translate his findings into effective treatments for acquired language disorders. He uses a technique called Magnetoencephalography (MEG), which measures brain activity over short periods of time, and is developing new ways of illustrating how stroke survivors' brains change as they regain their ability to speak.



Dr. Jed Meltzer



Dr. George Mochizuki

Dr. Mochizuki works with the Heart and Stroke Foundation Centre for Stroke Recovery as a neurophysiologist in the Brain Sciences Research Program at the Sunnybrook Research Institute. Currently, he is studying excessive muscle stiffness (spasticity) which affects approximately 40% of survivors in the first year following a stroke.

His goal is to measure and characterize the physiological changes that occur as the result of a stroke, as well as the relationship between the brain and affected muscles during the recovery process. Knowing more about this physiology could help identify patients who are likely to be responsive to spasticity interventions.

# DAUGHTER PAYS FORWARD A TRADITION OF GENEROSITY.

Mrs. Gertrude Rellinger



When Mrs. Rellinger was a child, her father Eugene owned a small bakery in Kitchener. Although he didn't have much, even in the toughest times, Eugene always gave away bread to nearby orphanages.

Years later, Eugene suffered a debilitating stroke and there were few resources available at the time to help patients like him. But today, thanks to the generosity of caring donors, the Heart and Stroke Foundation Centre for Stroke Recovery is finding new ways to treat and rehabilitate stroke survivors.

To honour her father and create a brighter future for stroke survivors, Mrs. Rellinger, along with her late husband LeRoy, made a very generous gift to fund stroke research.

Their incredible generosity was recognized this year when the HSF's Toronto office re-named its reception area after the Rellingers. Today, it stands as an inspirational hub for welcoming visitors.

BRIGHTER FUTURE  
INSPIRATION  
BRAIN RESEARCH  
PREVENTION  
MORE TIME  
FAMILIES  
THE BEST CARE  
EMPOWERMENT  
FATHERS  
DAUGHTERS  
MOTHERS  
SONS  
NEW TREATMENTS  
MORE RESOURCES  
MORE HOPE



# RESEARCHERS' DISCOVERIES MADE POSSIBLE BY DONORS.

Dr. David Pelz (left) and Dr. Stephen Lownie (right)

**“Mrs. Rellinger and her family experienced a tragedy that is all too common.”** – Dr. Stephen Lownie

For every hour lost in stroke treatment, the brain loses neurons – the equivalent of almost four years of normal aging.

Neurosurgeon, Dr. Lownie, and neuroradiologist, Dr. Pelz, are studying selective brain cooling at the London Health Science Centre. Rather than trying to cool the entire brain after a stroke, Dr. Lownie and Dr. Pelz believe that cooling select areas of the brain may delay a permanent stroke. This innovative technique would allow more time for other treatments to be performed and could ultimately prevent stroke damage in thousands of Canadians.

We begin as the Ontario Heart Foundation and immediately start providing funding for cardiovascular research in Ontario.

1952

Dr. Wilfred Bigelow performs first successful open heart surgery on a patient in Canada at Toronto General Hospital using a surgical technique developed through a Foundation research grant.

1954

The Foundation is established nationally as the Canadian Heart Foundation and creates the nation's first three Cardiovascular Investigation Units.

1956

Dr. William Mustard develops surgical procedure to correct "blue baby syndrome," a previously lethal congenital heart defect. The Foundation also establishes a Summer Medical Student Scholarship program to attract the brightest young minds to cardiovascular research and ensure sustainability of progress in treating heart disease and stroke.

1963

The Foundation establishes Nursing Fellowships for Critical Care Unit training. To this day, the Foundation is Canada's leader in translating cutting-edge cardiovascular science into professional education resources for health professionals.

1972

Foundation researchers pioneer the use of drug tPA for heart attacks and develop a new surgical technique for treating irregular heart beats.

1987

## HEART AND STROKE FOUNDATION TRACK RECORD OF SUCCESS

1953

Canadian life insurance companies report over 50% of deaths are caused by heart disease alone.

1955

Canadian surgeons Dr. Gordon Murray and Dr. Raymond Heimbecker perform world's first heart-valve transplant.

1962

First Coronary Care Unit established at Toronto General Hospital with Foundation funding. To this day, CCUs remain the gold standard for treating acute cardiovascular illness worldwide.

1968

First successful heart transplant surgery is performed in Ontario.

1976

Dr. Henry Barnett conducts first clinical trial for using Aspirin to prevent strokes. Negotiations begin with Dr. Barnett to greatly increase focus on funding stroke research. In the same year, due to the efforts of Dr. Anthony F. Graham, the Foundation introduces CPR to Canada.

1988

The Foundation publishes *The Light-Hearted Cookbook*, establishing our reputation as Canada's leading authority on heart-healthy eating.

Foundation researchers discover first genetic link to premature heart disease.

1990

The Foundation establishes the Heart and Stroke Foundation Richard Lewar Centre of Excellence in Cardiovascular Research.

1998

Foundation-funded project discovers that ACE inhibitors significantly reduce the risk of heart attacks and strokes.

2000

INTERHEART study discovers the existence of nine modifiable risk factors that account for over 90% of heart attacks worldwide. The Foundation immediately begins translating the findings into public health education programs aimed at preventing heart disease and stroke before they ever occur.

2004

Researchers identify important gender differences in the development of hypertension. The Foundation launches Spark Together for Healthy Kids™, an initiative aimed at improving children's heart health; and inaugurates its AED program to ensure the widespread availability of public-access defibrillators.

2006

Foundation-funded research enables first-ever in-utero surgery to correct congenital heart defects.

The Foundation introduces the Canadian Heart Health Strategy Action Plan.

2009



HEART &  
STROKE  
FOUNDATION

1997

Human genome mapped with Foundation funding, mapping out over 78,000 DNA sequences related to heart disease and stroke.

1999

tPA is approved for use to treat ischemic stroke. The Foundation launches the Health Check™ program and publishes the first Annual Report on Canadians' Health.

2002

The Heart and Stroke Foundation Centre for Stroke Recovery is established.

2005

Foundation researchers discover the gene responsible for heart arrhythmias.

2007

The Foundation implements its diversity policy and begins a Community Mission Specialist program to help protect communities and at-risk populations from heart disease and stroke.

2010

The Foundation's Health Check™ program influences 14 food companies to remove a total of 500,000 kg of sodium from their products to meet the Health Check criteria.

BREATHROUGH  
RESEARCH  
HEART DISEASE  
STROKE  
PIONEERING  
PARTNERSHIPS  
PASSION  
GENEROUS  
DONORS  
WORLD CLASS  
SCIENTISTS  
HEALTH  
EDUCATION  
ADVOCACY  
HOSPITALS  
UNIVERSITIES  
AWARDS  
GRANTS

# 2011 RESEARCH & INNOVATION

## **Donor investments at work.**

The HSF works tirelessly to fund major research and innovation projects so that Canadians can spend more time living life to its fullest – and less time losing ground to disease. We are committed to supporting long-term initiatives to yield the greatest possible results for people affected by, and at risk of developing, heart disease and stroke.

Close to 600 researchers across Ontario are supported by the HSF for terms of up to five years. And without the generosity of our donors, we would not be able to invest in life-giving research, health education and advocacy.



### GREATER TORONTO AREA

Centre for Addiction and Mental Health	\$165,300
Hospital for Sick Children	\$2,041,045
Mount Sinai Hospital	\$427,056
St. Michael's Hospital	\$1,740,862
Sunnybrook Health Sciences Centre	\$1,178,704
Toronto Rehabilitation Institute	\$90,682
University Health Network	\$2,890,088
University of Toronto	\$2,468,433
York University	\$439,191

### ONTARIO WEST

London Health Sciences Centre	\$1,022,465
Robarts Research Institute	\$973,514
University of Western Ontario	\$1,786,831
University of Windsor	\$124,400

### ONTARIO EAST

Children's Hospital of Eastern Ontario	\$140,546
Ottawa Hospital Research Institute	\$1,108,062
Queen's University	\$1,256,068
University of Ottawa	\$1,651,907
University of Ottawa Heart Institute	\$2,374,701

### ONTARIO CENTRAL

Brock University	\$100,221
McMaster University	\$3,133,758
University of Guelph	\$77,301
University of Waterloo	\$267,344
HSF Centre for Stroke Recovery	\$4,132,352
National Research Awards	\$5,503,456
Other Research Investments	\$2,982,971
F'12 Research Stabilization Fund	\$2,360,000

**Total research investment: \$40,437,257**

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