

THE

Dalhousie Medical Research Foundation Newsletter Fall 2015

PHILANTHROPIST



A LUCKY DIAGNOSIS
AND EFFECTIVE TREATMENT
FOR CARDIAC ARRHYTHMIA
**LET BRITTANY LAWRENCE
LIVE LIFE TO THE FULLEST**

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MEDICAL RESEARCH
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Cover Photo: Michael, Jordyn and Brittany Lawrence celebrating at their wedding, August 2015.
(Photo: Lynnette Mason, Mason Photography, courtesy Lawrence Family)

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Jyl A. MacKinnon
DMRF Executive Director

Photo: Johanna Matthews



Executive Director's Message

Once again, it is my pleasure to bring you warm greetings on behalf of the Board of Directors and the entire DMRF team.

First of all, I'd like to welcome our new Dean of Medicine, Dr. David Anderson. Dean Anderson is also our newest DMRF Board Member. (Please see facing page). We look forward to working with him to increase research capacity at the Medical School.

This issue of the Philanthropist debuts our new Dalhousie Medical Research Foundation logo. It's modern and crisp while staying true to our core focus, medical research. Thank you to all of you who participated in our research surveys and focus groups. It takes a village!

With beautiful fall days, comes the annual Molly Appeal. This year's campaign supports cardiovascular research. Several of my loved ones have experienced heart disease at a young age. One particularly special member of our family died of heart failure last year at the age of 50.

I am passionate about cardiovascular research and better patient outcomes for your family and mine.

I hope you enjoy learning more about the incredible cardiovascular researchers at

Dalhousie Medicine New Brunswick and in Nova Scotia. Their work is inspirational.

In 2001, a transformational \$12.5 million bequest to DMRF from Mrs. Beatrice Hunter was the catalyst for forming what is now a virtual institute in her honour. The Beatrice Hunter Cancer Research Institute brings together a diverse community of cancer researchers in pursuit of a common goal: to save lives and ease the burden of cancer on individuals, families and society. Please see BHCRI update on page 16.

In the centre spread you will find our annual report section with financials, message from Frank Sobey, our Board Chair and our donor list. Without your support, the research simply would not happen. Thank you for funding research that impacts patient care!

Sincerely,



Jyl A. MacKinnon



Photo: Danny Abriel

Left to right: Kaye Folland, Jane Greenlaw, Christena Copeland, Joanne Bath, Jyl MacKinnon, Laurel Purcell and Dina Teixeira



Photo: Alicia Hamilton, fellow dancer

Brittany Lawrence in her dance class with student Laurel Walker in Hampton, NB

A lucky diagnosis and effective treatment for cardiac arrhythmia let **Brittany Lawrence live life to the fullest**

By **Melanie Jollymore**

By age 15, Brittany Lawrence was passionately dedicated to competitive dance, from contemporary and jazz to hip hop and tap. Then, a bout of mono brought an unexpected finding. While listening to her heart, Brittany's doctor noticed what he thought might be a murmur. An EKG (electrocardiogram) soon revealed the tracings of Wolff Parkinson-White (WPW) syndrome, a congenital defect of the heart's electrical pathways that causes an irregular heartbeat and, sometimes, sudden death.

"Even though my heart would sometimes race and I would have heart palpitations when dancing, I hadn't realized this was anything unusual," Brittany recalls. "I'd had these feelings all my life, to me it was normal."

When her doctor and cardiologist told her she had to stop dancing, Brittany was devastated. "Dancing was my life, I couldn't imagine how I could just stop," she says. After a few months of watching from the sidelines, she couldn't resist cautiously working her way back into her dance numbers.

Fortunately for Brittany, she danced throughout her teens without serious consequence. However, there was always the risk that her heart could

go into supraventricular tachycardia, or SVT. This intensely rapid beating of the heart's upper chambers can happen spontaneously or in response to physical or emotional stress in WPW. Over time, the arrhythmia can damage the heart, leading to heart failure. Or, it can make the heart simply stop.

Three years after her diagnosis, Brittany received the procedure that gave her back her freedom to dance without fear—a catheter ablation to block the irregular electrical activity in her heart. This procedure involves threading a fine wire (catheter) into the femoral artery in the leg and up into the heart, to first locate the short circuit and then deliver a surge of energy to cauterize the tissues. While this procedure is often effective, it is not without risk.

"It took two tries, but I've been symptom free since, with normal EKGs at every checkup," says Brittany. She was so inspired by the success of the ablation and so interested in the workings of the heart that, after completing her training at University of New Brunswick and Saint John School of Radiological Technology, she took a position as a radiology technologist at the New Brunswick Heart Centre, working in the same catheter lab where she was treated.

Continued on page 24...



Photo: Dalhousie University

Warm welcome to **Dean Dr. David Anderson**

Dr. David Anderson became Dalhousie's 13th dean of medicine on July 1.

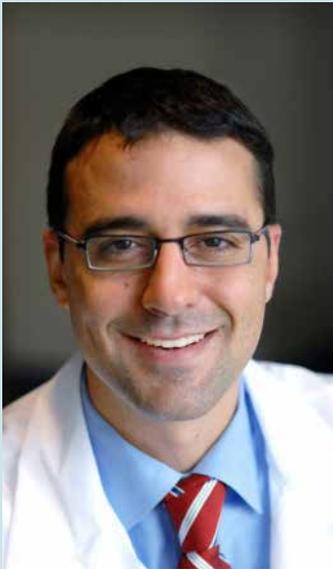
Immediately before taking on the deanship, Dr. Anderson was head and district chief of the shared Dalhousie/Nova Scotia Health Authority Department of Medicine.

An accomplished teacher and mentor, Dr. Anderson has published in over 150 peer-reviewed publications and is a co-founder of the VECTOR Research Group, a multi-centre Canadian collaborative team focused on thromboembolic research that, to date, has received more than \$50 million in research funding.

In addition to his responsibilities as dean, Dr. Anderson maintains his clinical practice at the QEII HSC.

Dr. Anderson graduated from Dalhousie Medical School in 1983.

A competitive tennis player and a family man, he is married to Michelle Karis. Together, they have three children: Phillip, Deanne and Emmett.



Insidious scarring:
Dr. Jean-François Légaré explores blood-pressure related heart failure

Dr. Jean-François Légaré is exploring how high blood pressure leads to heart failure. “The high blood pressure must trigger the heart to release a distress signal,” explains Dr. Légaré, director of research in Dalhousie Medical School’s Division of Cardiac Surgery. “This signal recruits immune cells to the heart. While these cells normally play an important role in healing, in the heart they keep dividing and promote the formation of scar tissue.” This scarring reduces the heart’s blood-pumping efficiency and leads to heart failure, one of the most common forms of heart disease in Canada.

Dr. Légaré and his research team want to identify the signals that attract immune cells to the heart and keep them proliferating there. They’re measuring levels of immune cells in heart tissue samples from patients undergoing heart surgery and searching the patients’ blood for signals that could be responsible. They hope to find a signal that can be blocked or altered to prevent cardiac scarring in people with uncontrolled high blood pressure.



Safer surgery for heart-disease patients:
Dr. Ansar Hassan tests pre- and post-op approaches to minimizing surgery risks

Cardiac surgeon Dr. Ansar Hassan and his research team working throughout the Maritimes want to ensure the best possible heart-surgery outcomes for patients at risk of complications.

“We’re developing more accurate ways to predict a patient’s risk of complications before surgery, so we can choose the safest surgical approach,” says Dr. Hassan, an associate professor in the Division of Cardiac Surgery at Dalhousie Medicine New Brunswick. “It is our responsibility to help elderly, frail or obese patients understand their risks and to provide them with top-quality personalized care that supports their health and quality of life.”

At the same time, Dr. Hassan and his colleagues at the New Brunswick Heart Centre are testing a more rigorous approach to post-surgery follow-up for patients who required two or more days in the intensive care unit. The researchers will follow these patients for a year, providing multi-disciplinary support to help them recover and function better.



Frail or fit for surgery:
Dr. Greg Hirsch paves the way to better decisions and outcomes of cardiac surgery

Cardiac surgeon Dr. Greg Hirsch knows age doesn’t tell the tale when it comes to someone’s fitness for heart surgery. “Degree of frailty tells us a lot more than age about how someone will fare after surgery,” says Dr. Hirsch, head of the Division of Cardiac Surgery at Dalhousie Medical School. “Frail people face a much higher risk of delirium, pneumonia, extended stays in ICU, and being discharged to a nursing home.”

Dr. Hirsch and his research teammates are gathering and analyzing health and frailty information about cardiac patients, before and up to six months after surgery. This includes collecting and storing blood and tissue samples to examine for markers of frailty. “We’re creating more precise ways to predict how well a person is likely to do after heart surgery,” he says. “This predictive information, combined with the decision-making tools we’re developing, will help patients understand their health status and surgery risks, so they can make decisions that reflect their wishes and goals.”

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WHEN WE CAN HAVE
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PATIENT STORY



Susan Hauer and Dr. Jean-François Légaré in the Tupper Link

Photo: Nick Pearce

By Melanie Jollymore

An active lifestyle helps Susan J. Hauer recover quickly from open-heart surgery to replace defective valve

Susan Hauer has long known she had a distinctive heart murmur, but the technology didn't always exist to tell her why. Tests eventually revealed a bicuspid aortic valve—in other words, the valve that keeps blood from flowing back into the ventricle from the aorta had only two flaps instead of three, so it wouldn't work as efficiently to maintain the one-way flow of blood out of her heart. It wasn't giving her any problems, however, so she strove to live a healthy life.

"We've always been active—walking, biking, gardening, woods work, rowing—and I swim in the ocean," says Susan, who helped her husband, Bill Zimmerman, and a friend build an off-grid home on Great Island, Medway Harbour, N.S., in the 1970s. "We've always grown some of our own food, eating fresh, local and organic as much as we can."

In the fall of 2014, at the age of 68, Susan began feeling short of breath, even walking downhill in her now-hometown of Wolfville. Having

been healthy for many years, she didn't have a family doctor, so she went to her husband's family physician. He sent her for echo- and electrocardiograms which found her bicuspid aortic valve had hardened up. Known as stenosis, this condition dramatically compromises the heart's ability to pump efficiently.

"The walls of my heart had thickened, too, because my heart had been overworking, so I was on my way to eventual heart failure without treatment," says Susan. Without surgery, she also ran the risk of developing atrial fibrillation, a potentially heart-stopping arrhythmia that can develop when changes to the heart's mechanics affect its electrical system.

On July 30, 2015, Dalhousie Medical School's Dr. Jean-François Légaré performed open-heart surgery to replace Susan's heart valve. "I felt well-prepared," Susan recalls. "The QEII did an extensive pre-op consultation which included exercise programs to follow before and after surgery. It was especially important

to train my core strength, as I would not be able to use my arms to get up from a chair, toilet or bed for two months after surgery."

Susan is recovering well, thanks to her excellent overall health going into surgery and preparation beforehand. Medications are helping her heart regain its normal rhythm, while regular walks are restoring her strength. She's honoured to be involved in Dalhousie Medical Research Foundation's 2015 Molly Appeal, which is raising funds for heart research in the Maritimes. This will include studies of how best to prepare patients for surgery and care for them afterward; the links between genetics, lifestyle and heart disease; and the impact of electrical and mechanical changes on development of heart failure.

"I may be living proof of the importance of genetics in heart disease," notes Susan. "I have no other risk factors—my blood pressure is low, my arteries are clear—but my father also had valve-replacement surgery and research

Continued on page 6...



Susan Hauer in the lab with Dr. Jean-François Légaré and Dr. Rob Rose, who along with Dr. Ansar Hassan of Dalhousie Medicine New Brunswick are co-investigators leading collaborative research teams in NS and NB to find better diagnostics and improve treatments for heart disease.

Photo: Nick Pearce

Continued from page 5...

may one day make a genetic link between our conditions. On the other hand, Bill and I have been eating the same healthy foods and living the same active lifestyle together since the late 1960s, and he had to have bypass surgery at the age of 45. In this case, researchers may discover differences in our genetic makeup that can provide early intervention or preventive measures.”

Susan says their son Ned wants to be examined, because it’s now known that a person can have a defective valve without a heart murmur like the ones she and her father had. “There’s a lot we can control and a lot we can’t,” she says. “It’s important to be as active and eat as well as we can, but we also need timely diagnostics and treatments to ensure problems are identified and resolved early on, when we can have the greatest impact on quality of life.”

For Susan, a retired educator and librarian, that means being physically active and being engaged in community. She’s a founding member of the Fundy Film Society and the co-op that created Wolfville’s Al Whittle Theatre, and she sings with the Balkan Orkestra ORO. She’s happy to support the research of Dr. Légaré and his colleagues at Dalhousie, which will lead to better care and better quality of life for people of all ages, with all kinds of heart disease. 🌱



Susan Hauer & Dr. Rob Rose in Dr. Rose’s lab

Photo: Nick Pearce



Hands-on help for heart disease:

Dr. Keith Brunt develops practical solutions to heart disease

Translational scientist Dr. Keith Brunt develops and tests practical solutions to pressing problems in cardiovascular disease. He is particularly involved in creating and adapting technologies to improve patient outcomes, including nanotechnologies.

“In one project, we’re using a microscopic molecule to deliver good cholesterol directly to the heart and blood vessels,” explains Dr. Brunt. “We want to see if this will heal lesions on the inside of blood vessels that eventually lead to heart attacks and compromised heart function”

Dr. Brunt is leading efforts in New Brunswick to boost cardiac patients’ access to medical advice and intervention with technology. He and his colleagues are developing a system that uses home blood pressure machines and a mobile app to help patients and their physicians monitor and maintain blood-pressure control. “I call this social medicine,” says Dr. Brunt. “The technology is there, it just needs to be adapted to medical uses and tested in a perfect living lab like we have here in the Maritimes.”



On the trail of a culprit gene:

Dr. Karen Bedard hunts for the genes behind a deadly disease of the heart

Arrhythmogenic right ventricular cardiomyopathy (ARVC) is one of the most common causes of cardiovascular death in young people aged 14 to 35. There is currently no reliable way to diagnose the disease, which turns heart muscle cells into fat and fibrous tissue, so most people are unaware they’re at risk until their heart stops.

“Diagnostic tools will make the difference between life and death for people with this cardiomyopathy, because they can receive an implanted cardioverter device that will restart their heart if it stops,” says Dr. Karen Bedard, an associate professor in the Department of Pathology at Dalhousie Medical School. “That’s why we’re trying to identify genetic mutations and changes in gene expression associated with the disease.”

Although ARVC is widely considered to be an inherited disease, only about half of all cases are caused by known genetic mutations (13 have been found). The rest of the mutations have yet to be identified. Dr. Bedard and her colleagues are working with a Nova Scotia family to find more of the genes behind this mysterious disease.



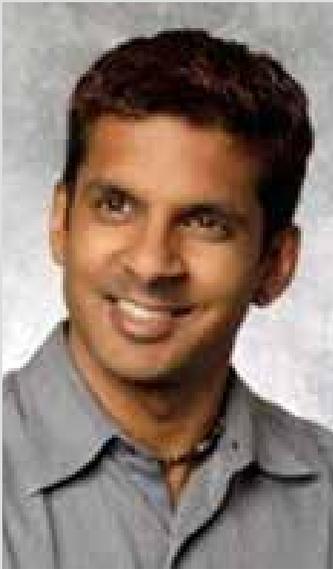
Mending Broken Hearts:

Dr. Kishore Pasumarthi Explores New Territory in Cardiac Regeneration

Popular wisdom says you can’t mend a broken heart—but Dr. Kishore Pasumarthi is determined to try. He and his research team are exploring groundbreaking new technologies to see if they can improve the function of hearts that have been damaged by heart attack or compromised by frailty.

“We’re isolating the specific stem/progenitor cells that give rise to heart cells and transplanting them into damaged hearts to see if they develop into functional heart muscle cells,” says Dr. Pasumarthi, a professor in the Department of Pharmacology at Dalhousie Medical School. “We’re also working with colleagues to see if these transplants can improve heart function in experimental models of frailty.”

Dr. Pasumarthi is using gene therapy to reactivate cell division in adult heart muscle tissue. Cell division in the heart stops in early childhood, which is why heart muscle cells that die in heart attacks are replaced by scar tissue instead of new cells. Dr. Pasumarthi believes his approach could heal heart-attack damage with minimal scarring, to prevent arrhythmias and heart failure.



Proactive medicine:
Dr. Sohrab Lutchmedial seeks to reduce cardiovascular risk factors in youth

Interventional cardiologist Dr. Sohrab Lutchmedial is seeing a shift toward younger and younger people having heart disease. “We now see people in their 30s and 40s with heart attacks,” says Dr. Lutchmedial, an associate professor in the Division of Cardiology at Horizon Health Network and Dalhousie Medicine New Brunswick. “It’s a trend driven by unhealthy diet, lack of exercise and genetic factors.”

Dr. Lutchmedial and his colleagues have launched a research project with grade ten students in Saint John to see if they can cut heart-disease risk in the next generation. “A significant number of kids have risk factors for heart disease, like elevated blood pressure, body mass index and bad cholesterol,” he says. “We suggest these students follow up with their family doctor and invite them to take part in a six-month education and exercise program at school.”

If the project can measurably reduce participants’ risk, the researchers hope to obtain provincial funding to roll it out as a school-based cardiac risk-reduction program across New Brunswick.



Toxic fat overload:
Dr. Petra Kienesberger sheds light on fat-driven weakening of heart-muscle cells

Lipid scientist Dr. Petra Kienesberger is investigating how obesity sets the stage for heart disease, heart failure and frailty—at a molecular level.

“Fat tissue is metabolically active and produces signals that influence our overall metabolism and the function of our cells and organs,” explains Dr. Kienesberger, an assistant professor in the Department of Biochemistry & Molecular Biology at Dalhousie Medicine New Brunswick. “In obesity, high levels of pro-inflammatory signals from the fat tissues literally weaken the heart muscle cells.”

Dr. Kienesberger and her co-workers are studying human blood and tissue samples collected from cardiac surgery patients in the Maritimes, to shed light on the molecular mechanisms that lead to heart disease and frailty over time. “There’s more to it than body weight,” she says. “There are genetic factors, lifestyle factors, and molecular factors we are just beginning to understand. We want to know if there are signals we can interrupt to halt the progress of disease.”



Fuel-efficiency and the heart:

Dr. Thomas Pulinilkunnil explores role of nutrients in cardiac health and diabetic heart disease

Dr. Thomas Pulinilkunnil is learning how an excessive or imbalanced intake of nutrients alters metabolism, leading to metabolic disorders, diabetes, and heart disease. At the same time, he’s exploring how age and frailty contribute to these disorders.

In his Saint John lab, Dr. Pulinilkunnil examines how amino acids interact with sugar and fat to drive weight gain, insulin resistance and accumulation of fat in and around the heart. “Insulin resistance—a precursor to diabetes which increases with age, overeating and lack of exercise—interferes with the ability of heart-muscle cells to generate energy and rid themselves of waste,” he says. “This weakens the heart.”

Dr. Pulinilkunnil and his team are developing a zebrafish model of overfeeding. “We will use this model to study the metabolic mechanisms of weight gain and screen therapeutic agents,” says Dr. Pulinilkunnil, who’s also working with Dr. Petra Kienesberger and Dr. Ansar Hassan to study metabolism in human heart tissues obtained from cardiac surgery patients taking part in Molly Appeal-funded studies in the Maritimes.

RANDOLPH SPECULATES THAT THE CHANGE IN LIFESTYLE AND CLIMATE THAT COMES WITH MOVING TO A NORTHERN NATION IS THE REASON SO MANY SOUTH ASIANS DEVELOP HEART DISEASE AFTER LIVING IN CANADA FOR SOME TIME.

Randolph Da Costa

Photo: Courtesy of Randolph DaCosta



By Melanie Jollymore

Daily movement, healthy diet help Randolph Da Costa manage coronary artery disease

While growing up in central India, Randolph Da Costa walked for miles every day in the sweltering heat. Now, at age 69 and living in the Maritimes, Randolph is not able to walk as much, so he manages his coronary artery disease primarily with a whole foods diet and yoga, tai chi and regular movement.

“You have to keep moving, that’s the most important thing,” says Randolph, who came to Toronto in the 1980s to work as a systems analyst. “It can be very hard in Canada, with such long, cold winters, but you have to find ways to stay active, you can’t sit around all day.”

Randolph had no inkling he had any problem at all with his heart until the 1990s, when he had a minor heart attack. His medical team discovered multiple blockages in his arteries and gave him triple bypass surgery and medications to manage his high cholesterol. “I was fine for years after that,” he recalls. “I moved to Moncton in 2001 and,

in 2005, I started having chest pain.”

Dr. Sohrab Lutchmedial, an interventional cardiologist and faculty member at Dalhousie Medicine New Brunswick (DMNB), treated Randolph at the New Brunswick Heart Centre, inserting two stents in Randolph’s coronary arteries to keep the blood flowing and prevent potentially deadly blockages. Randolph still feels occasional chest pain, but rest and nitroglycerin eases the discomfort. Staying calm and strong through yoga and tai chi also helps him manage stress that might otherwise trigger chest pains.

Like many people of South Asian descent, Randolph has elevated cholesterol and blood sugar, even though he is active and fit. When he’s taking the statin drugs he needs to keep his cholesterol in check, his blood glucose rises to the level of type 2 diabetes. Randolph speculates that the change in lifestyle and climate that comes

with moving to a northern nation is the reason so many South Asians develop heart disease after living in Canada for some time.

“We are adapted to a very active lifestyle, out of doors many hours a day in very high temperatures,” he notes. “Living in a place where the cold keeps you indoors and less active has a major effect on cardiovascular health.”

Dr. Thomas Pulinilkunnil—a basic scientist, researcher and member of the DMNB faculty who works with Dr. Lutchmedial and other heart researchers at Dalhousie Medical School in New Brunswick and Nova Scotia—shares Randolph’s South Asian heritage. He also has a strong family history of diabetes and heart disease. His research explores how metabolic changes in insulin resistance and diabetes contribute to the weakening of muscle cells in the heart, and how these changes occur in people with different genetic profiles. 📌

Health research is critical to the development of cures, the improvement of treatment, and the prevention of disease. The research supported through philanthropic gifts to DMRF transforms the lives of the people in our community and around the world. Behind every great discovery, there are many people who have worked tirelessly, dedicated to breaking through existing boundaries and acquiring knowledge that will change the world. This work is possible in large part through the generosity of our donors.

I know all too well that when a loved one suffers we want to help them heal. We are often left to feel helpless in the face of horrible diseases. Supporting medical research provides us a way to take control and help many. At 44 my father suffered a stroke and at 65, a heart attack. Without medical research I would not have him in my life today.

I am very proud to have worked with the MacQuarries to start this fund for Neuroscience research in Mr. MacQuarrie's honour. I am deeply moved by their endeavor to help many people in his good name. Health Research really does matter.

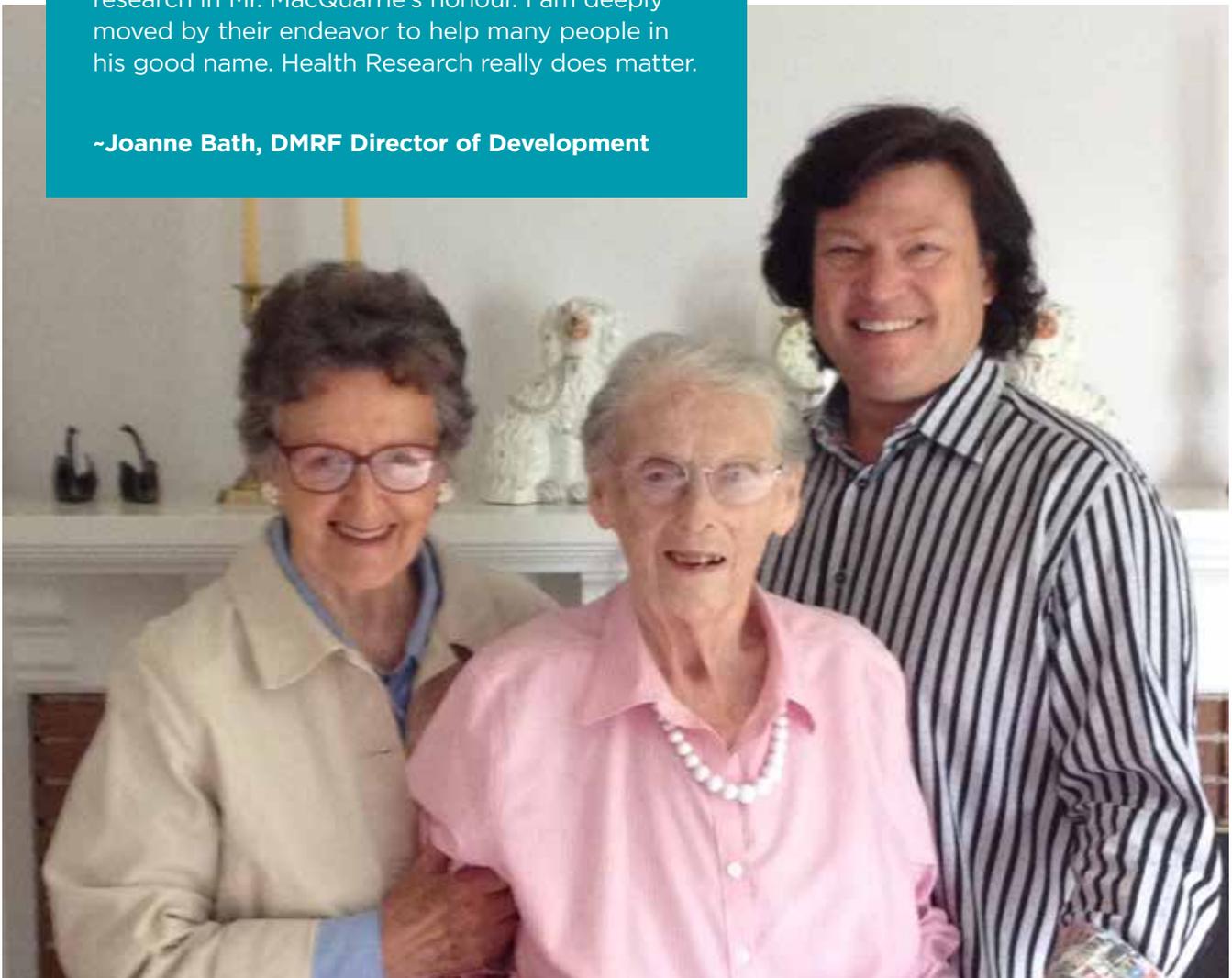
~Joanne Bath, DMRF Director of Development

Transformational **Giving**

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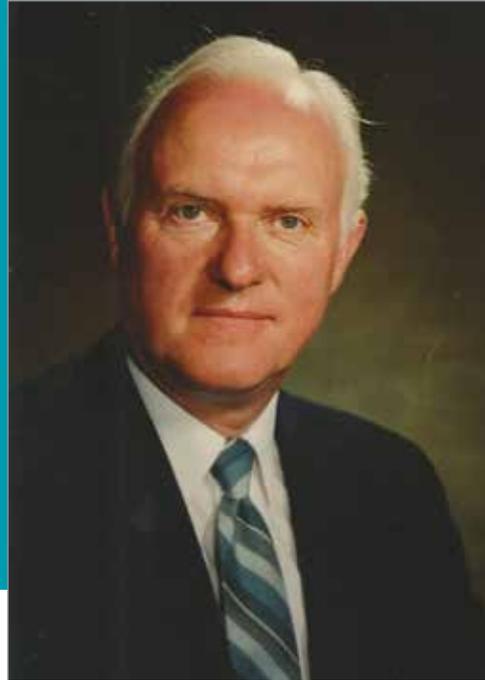
Story continued on page 11...

*Charlotte MacQuarrie, Dorothy Harrity, Charles MacQuarrie
Photo: DMRF Christena Copeland*



THE DMRF MALCOLM MACQUARRIE ENDOWED FUND FOR NEUROSCIENCE, CREATED IN LOVING MEMORY OF MALCOLM MACQUARRIE; BROTHER, HUSBAND, FATHER, AND REVERED MEMBER OF THE COMMUNITY.

Continued from page 10...



Malcolm MacQuarrie

By Christena Copeland

The love and kinship that develops from a deep family connection is beautifully seen when you meet the MacQuarries. For decades, this family has lived in their beloved community of Truro Nova Scotia, nurturing and growing a business that has flourished throughout the province. On this day, several members of the MacQuarrie family gathered to discuss their commitment to our Foundation, as well as the DMRF Malcolm MacQuarrie Endowed Fund for Neuroscience, created in loving memory of Malcolm MacQuarrie; brother, husband, father, and revered member of the community. In May of 2014, Malcolm passed away after living gently and bravely with dementia for several years.

Malcolm's son Charles, a Dalhousie University alumni and member of the Dalhousie Medical Research Foundation Board, passionately believes in the importance of medical research. He spoke proudly of the fund created in his father's honour saying, "Having experienced the change in my dad with his dementia and knowing there was neuroscience research happening right here in our community made it an easy decision to create a fund in his honour. Research adds value to the community and the future health of all of us". Already, the MacQuarrie family has pledged over \$200,000 to the fund.

The connections to health and wellness run deep for the MacQuarrie family. Malcolm himself graduated from Dalhousie University in 1951 with a degree in Pharmacology. He proudly operated the family's drug store business, growing it into a multi-store group across Nova Scotia. In 1987 he helped to found Pharmasave in Atlantic Canada. To this day, the family is a solid force in their community, caring deeply for their friends and neighbours.

Malcolm's sister Dorothy Harry had a close and loving relationship with her brother, one she cherishes vividly to this day. Having worked in neurology in the past, she was all too familiar with the challenges those suffering from dementia and their loved ones must face. In her mind, it only made sense that the family create a fund that would help find treatments and eventually a cure for this condition that affects over 17,000 Nova Scotians.

"Malcolm was my one and only brother," says Dorothy. "So that's the world. He was a good citizen, a good business person, and just a kind man who was thoughtful and interested in people." While it was difficult to watch her brother experience dementia, Dorothy was comforted by the support they received from

their community, as well as the dedication shown by Malcolm's wife of sixty-one years, Charlotte.

"For the first while Malcolm was able to go out and enjoy a variety of activities with the family and outside in the community," recalls Charlotte. "However, for the last two years he deteriorated to the point where he withdrew from going out. It was a gradual change, so we were able to adapt along with him. Up until the end, Malcolm was so gentle and easy to look after, but eventually he lost his ability to speak and care for himself". All too commonly, like Malcolm, those living with dementia face a loss of memory, cognition, and independence.

It is expected that by 2038, rates of dementia will double in Nova Scotia. If new preventative measures or treatments are not found, by 2030, over 47.5 million people worldwide are expected to suffer from some form of this disease - a number larger than the entire population of Canada. Thanks to the compassionate generosity of people like the MacQuarrie family, whose love for Malcolm and their community is a constant, we are that much closer to helping researchers find answers to debilitating neurological disorders like dementia. 🏠

If you would like to contribute to this fund or support some other area of medical research please contact Joanne Bath at 902-471-7032.

PERSONAL REFLECTIONS ON THE IMPORTANCE OF FUNDING MEDICAL RESEARCH

DMRF Board Chair's Message



*Frank C. Sobey,
DMRF Board Chair*

**AS A DONOR CENTRIC
FOUNDATION WE
WORK HARD TO
ENSURE THE FUNDS
WE RECEIVE FROM
OUR DONORS ARE PUT
TO THEIR BEST USE.**

As Chair of DMRF it is always my hope that you find the information we present in the Philanthropist to be meaningful and our stories inspiring.

As a donor centric foundation we work hard to ensure the funds we receive from our donors are put to their best use. This is precisely why we focus on a combination of annual giving, planned giving, and endowments.

From its inception in 1979, DMRF has understood that to maximize the likelihood of success for talented researchers at the Dalhousie Medical School, it is imperative we provide them with a combination of annual grants and multiyear commitments. Through your generosity, we can provide for their day to day support as well as give them confidence their funding needs will be secure for years to come.

We believe this approach offers our donors the flexibility they deserve, the researchers with predictable funding, and enhances our goal of improving the quality of life for those in the Maritimes, Canada, and across the globe. 🌍

A handwritten signature in blue ink, appearing to read 'Frank C. Sobey', written in a cursive style.

Frank C. Sobey, DMRF Board Chair

Partners

Dalhousie Medical Research Foundation sincerely appreciates the continued support of the following companies for participating in the Partners in Medical Research Program.

We extend our sincere thanks to their many employees who regularly contribute gifts through automatic payroll deduction to support local medical research.

THANK YOU!

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BHCRI: Determined to Stop Cancer



Who we are:

The Beatrice Hunter Cancer Research Institute is a virtual institute that brings together and supports all facets of cancer research in Atlantic Canada. Our researchers are all working together toward the same goal: to save lives and ease the burden of cancer on individuals, families and society. Our funding comes from many sources, but all of it stays in Atlantic Canada to support cancer research taking place in our own region.

Specifically, we:

- bring together and support cancer researchers from all four Atlantic Provinces.
- support collaborative research among researchers from all disciplines, including fundamental lab-based, clinical, behavioural, population, policy and psycho-social.
- use a virtual institute format to create robust multidisciplinary team efforts to discover the causes and means of preventing cancer, more effective ways of detecting, diagnosing and treating cancer, and better ways of taking care of cancer patients.
- receive and leverage funding from many sources, and all funds stay in Atlantic Canada to support cancer research that is vital to our region.
- commit to increasing the capacity of cancer research in Atlantic Canada by supporting, promoting and training the next generation of cancer researchers.
- are committed to building a collaborative community of cancer researchers who will save lives and ease the burden of cancer locally, nationally and globally.

Donations in support of the Cancer Research Training Program (CRTP) can be made through the Dalhousie Medical Research Foundation (DMRF).

**For further information please contact:
Jyl MacKinnon DMRF Executive Director & BHCRI Board member**

**902-494-2356
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www.dmr.ca**



For Dr. Paola Marcato, being thoroughly engaged in her work is a way of life.

"The cancer research I do is like a puzzle that constantly drives me; there is always another layer to discover," says Paola, an assistant professor of the Department of Pathology at Dalhousie University in Halifax, and one of the many Atlantic Canadian researchers whose work is funded in part by the Beatrice Hunter Cancer Research Institute (BHCRI).

"Working to have the biggest impact"

Paola's work focuses on understanding the key molecular signaling pathways that contribute to the growth and spread of breast cancer. It is vitally important work, because through it, we can learn what makes some breast tumours treatable with certain drugs and others resistant to them. In particular, it could be life-saving to women suffering from what are referred to as triple-negative breast cancers, as they normally have the worst outcomes.

Paola and her students Krysta Coyle and Dejan Vidovic, and her collaborators, including Dr. Carman Giacomantonio and Dr. Lucy Helyer, are particularly focused on the retinoic acid signaling pathway and the role it plays in the growth of the difficult-to-treat triple-negative tumours. These tumours tend to be more aggressive and do not express estrogen receptors, making their treatment with estrogen receptor antagonists impossible. "We hope that our work on the retinoic acid signaling pathway will lead to a novel treatment for triple-negative breast cancers," Paola says.

"I attribute a major part of our success to donors in Atlantic Canada who continue to support research in a large way," she adds. Paola's support comes from many sources, including BHCRI, The Breast Cancer Society of Canada and The QEII Health Sciences Foundation. Paola was able to start a lab, which she shares with Dr. Giacomantonio, with the additional help of two anonymous donors who made large donations via the QEII Foundation and the Dalhousie Medical Research Foundation's Adopt-A-Researcher Program.

Paola also supports the BHCRI's Cancer Research Training Program (CRTP), which, she states, was critical in her development as a cancer researcher. "When I was a new postdoctoral fellow, before becoming a professor, I was awarded a CRTP traineeship. It supported me financially while I pursued cancer research, exposed me to the various facets of cancer research and helped shape my future research program. Now that I have my own laboratory, my trainees are awardees of CRTP traineeships and are benefiting from the holistic approach CRTP takes towards training the next generation of cancer researchers."

**902-494-4513
www.bhcric.ca**

Financials at a glance

The Foundation is pleased to present a summary of its financial results for the fiscal year ending March 31, 2015. Complete audited statements are available online at www.dmr.ca or by calling us at 902-494-3502 (local) or 1-888-866-6559 (toll free).

The excess of revenue over expenditures for the 2014/15 year was \$7.6 million, bringing the total fund balance at the end of the year to \$77 million.

Contributions for the year totaled \$4.3 million, of which \$3.14 million were gifts endowed by the donors. The Foundation is required to retain the capital of these gifts indefinitely, using the investment income generated to provide research funding. A further \$240,000 in donations were endowed by the Board of Directors. Contributions of \$920,000 were received and directed outright to research purposes, including \$300,000 in donations from annual fundraising programs, such as the Molly Appeal and In Memoriam.

The Foundation earned \$7.3 million in investment income during the year, \$2.2 million from interest and dividends and \$2.1 million from the sale of investments. The remaining \$3 million represents an increase in the market value of investments held by the Foundation at year end.

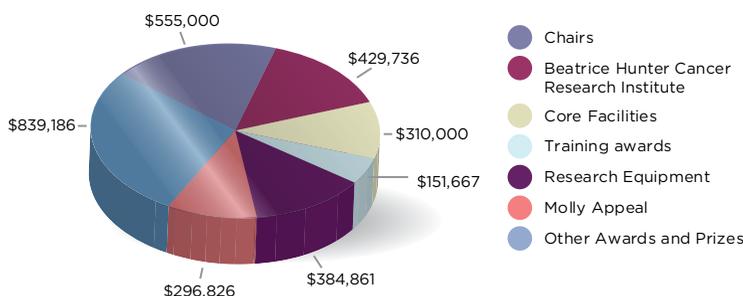
Total expenditures of \$3,991,557 were allocated 74% to research, 16% to fundraising and 10% to general operating. During the year, the Foundation paid out research grants of just under \$3 million to the Dalhousie University Faculty of Medicine. A detailed breakdown of grants awarded can be found on pages 18 - 19. General operating expenses, which include the costs of awarding and administering over 80 grants, were \$400,000. The Foundation spent \$650,000 on fundraising during the period.

Summary Statement of Operations & Changes in Fund Balances

Revenue	2015	2014
Investment Income	\$7,336,999	\$10,549,306
Donations	4,303,555	3,002,597
Total Revenue	11,640,554	13,551,903
Expenditures		
Research	2,967,276	3,093,540
Less: recoveries of prior years	(27,058)	(90,199)
Net research expenditures	2,940,218	3,003,341
General Operating and Fundraising	1,051,339	975,880
Total Expenditures	3,991,557	3,979,221
Excess of Revenue over Expenditures	\$7,648,997	\$9,572,682
Fund Balance, end of year	\$77,054,392	\$69,405,394

Complete audited financials are available on line at www.dmr.ca or by calling 888-866-6559.

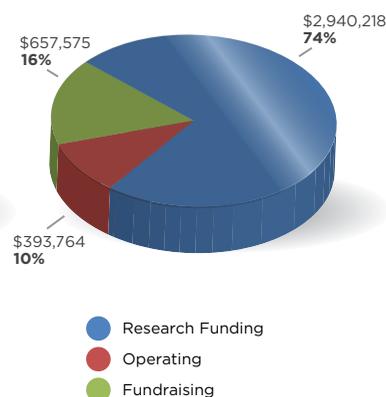
Research Funding 14/15 \$2,967,276



Total Donations 14/15 \$4,303,555



Total Expenditures 14/15 \$3,991,557



Dalhousie Medical Research Foundation Research Awards and Grants 2014/15

Researcher Awardees	Award	Award Amount (\$)	Research Area
Bal Chauhan	Adopt-a-Researcher	80,000.00	Ophthalmology
Christine Chambers	Grant	3,000.00	Pediatric Pain
Graham Dellaire	Adopt-a-Researcher	12,500.00	Breast Cancer Research
Sultan Darvesh	DMRF Irene MacDonald Sobey Chair in Curative Approaches to Alzheimer's Disease	92,500.00	Alzheimer's
Alan Fine	Adopt-a-Researcher	10,000.00	Neuroscience
Stan Kutcher	Grants	157,500.00	Adolescent Mental Health Initiative
Joanne Langley	Dalhousie CIHR GSK Endowed Chair in Vaccinology Research	12,500.00	Vaccinology
Richard Langley	DMRF Shaw Melanoma Research Fund	240,000.00	Melanoma
Adrian Levy	DMRF Soillse Fund	87,449.00	Prostate Cancer
Patrick Lee	DMRF Cameron Endowed Chair in basic cancer research (via BHCRI)	280,000.00	Cancer
Paola Marignani	Adopt-a-Researcher	28,551.66	Breast Cancer
Kishore Pasumarthi	Adopt-a-Researcher	10,110.66	Cardiology
Ken Rockwood	DMRF Kathryn A. Weldon Endowed Chair in Alzheimer's Research	125,000.00	Alzheimer's
Isabel Smith	DMRF Chair in Autism Research Fund	14,000.00	Autism
Phil Thibo	DMRF Lynn Bourinot Fund	10,000.00	Psychotic Disorders

Subtotal - Individual Researcher Awards

\$ 1,163,111.32

Capital Equipment Grants - Researcher Awardees	Award	Award Amount (\$)	Department
Jennifer Corcoran	DMRF Capital Equipment Grant	30,000.00	Microbiology & Immunology
Graham Dellaire	DMRF Capital Equipment Grant	30,000.00	Pathology
Roy Duncan	DMRF Capital Equipment Grant	24,923.00	Microbiology & Immunology
John Frampton	DMRF Capital Equipment Grant	30,000.00	School of Biomedical Engineering
Kerry Goralski	DMRF Capital Equipment Grant	25,006.00	Pharmacology
Neale Ridgway	DMRF Capital Equipment Grant	11,532.00	Pediatrics, Biochemistry & Pharmacology
Johan Van Limbergen	DMRF Capital Equipment Grant	18,400.00	Pediatrics
Adrienne Weeks	DMRF Capital Equipment Grant	15,000.00	Surgery

Subtotal - Capital Equipment Grants

\$ 184,861.00

Trainee Awardees	Award Name	Award Amount (\$)	Award Research Designation
Jonathan Toma	DMRF Sobey Fellowship Cardiology	60,000.00	Cardiology
Corey Smith	DMRF DeWolfe Graduate Studentship	10,000.00	Health related Field, Faculty of Medicine
Brandon Scott	DMRF Hazel L. MacDonald Graduate Studentship	10,000.00	Cardiovascular and Metabolic Research
Dept. of Ophthalmology	Christie/MacKeen/Hayman funds	6,667.00	Ophthalmology
Rebecca Jeffrey	DMRF Leo Alexander Research Studentship	5,000.00	Cardiology
Alison Spurr	DMRF Lalia B. Chase Studentship	5,000.00	General
Ciaran Lane	DMRF Lalia B. Chase Studentship	5,000.00	General

Continued on page 19..

Continued from page 18...

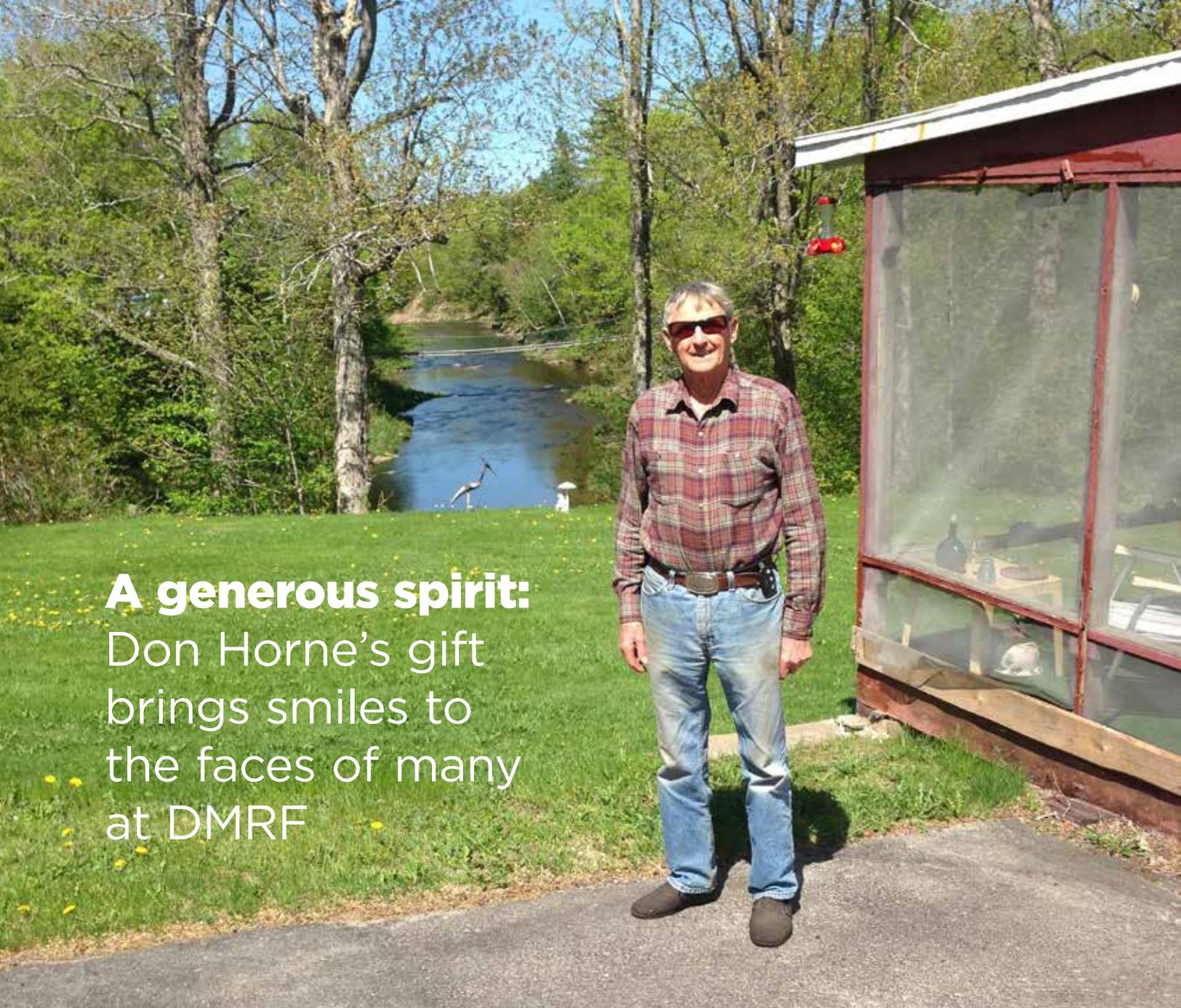
Trainee Awardees	Award Name	Award Amount (\$)	Award Research Designation
David Forner	DMRF Lalia B. Chase Studentship	5,000.00	General
Erin Maguire	DMRF Lalia B. Chase Studentship	5,000.00	General
Jonathan Howatt	DMRF Lalia B. Chase Studentship	5,000.00	General
Kayla Balderston	DMRF Lalia B. Chase Studentship	5,000.00	General
Sowmya Sharma	DMRF Lalia B. Chase Studentship	5,000.00	General
Russell Christie	DMRF Lalia B. Chase Studentship	5,000.00	General
Jeffrey Le	DMRF Dr. Harold W. Cook Research Studentship	5,000.00	General
Lauren Hanes	DMRF W. Alan Curry Research Studentship	5,000.00	Anatomy
Suzanne Clark	DMRF Dr. Thomas Coonan Studentship	5,000.00	Anesthesia, Pain Management & Perioperative Medicine
Deep Jaiswal	DMRF E.J. Gordon Studentship - General	5,000.00	General
Alwyn Gomez	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Jonathan Cottreau	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Kathryn Cull	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Matthew To	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Meghan MacDonald	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Morgan MacDonald	DMRF Barsham Music-in-Medicine Research Studentship	5,000.00	General
Jonathan Melong	DMRF Bergmann-Porter Research Studentship	5,000.00	General
Natasha MacInnis	DMRF Carl Tupper Research Studentship	5,000.00	Obstetrics & Gynaecology
Erin Slaunwhite	DMRF Watson Fund	5,000.00	Rheumatoid & Osteo arthritis
Ian MacDonald	DMRF Morris Kohler Studentship	5,000.00	Neuroscience
Arun Govindapillai	DMRF Hazel L. MacDonald Graduate Studentship	5,000.00	Cardiovascular and Metabolic Research
Thomas J. Marrie	DMRF Burpee Fund	5,000.00	Lupus Research
Alexandra Legge	DMRF Donald J. Hatcher	2,000.00	Research Prize
Claudia Cote	DMRF Katelyn Roberts Research Travel Award	1,200.00	General - travel
David Burnett	DMRF Dr. Richard Goldbloom Medal	1,000.00	Research Prize - Pediatrics

Subtotal - Individual trainee awards **\$ 215,867.00**

Program Support	Program Name	Grant Amount (\$)	Research Area
Beatrice Hunter Cancer Research Institute	Program Support	429,736.00	Cancer
Core Facilities	Infrastructure, Salary, Equipment	310,000.00	Various
Maritime Brain Tissue Bank	Molly Appeal for Neuroscience	286,826.00	Maritime Brain Tissue Bank
IGNITE	DMRF Dorothy Olwen Farrell Grant	100,000.00	Orphan Disease
DMNB	DMRF MacLachlan Fund	55,000.00	Program Infrastructure
Department of Ophthalmology	Adopt-a-Researcher	54,592.00	Eye Research
Atlantic Research Center	DMRF Oland/Boudreau funds	5,000.00	Brain Disorders
Program Support	DMRF Conference grants	15,000.00	General
Research Sponsorships	DMRF Research Sponsorships	10,000.00	General
DMRF grants	DMRF Misc. Grants	54,949.68	Various
CIP	DMRF Clinical Investigator Program	5,000.00	Research Training Medical Resident
Program Support	DMRF Kathryn Allen Weldon Fund	26,000.00	Adolescent Mental Health
Program Support	DMRF Gunn Family Research Fund	10,000.00	Alzheimer's - MBTB
Program Support	DMRF Weldon Travel awards	12,000.00	Conference Travel Graduate Students
Department of Ophthalmology	DMRF Christie/MacKeen/Hayman funds	29,333.00	Eye Research

Subtotal Program Support **\$ 1,403,436.68**

Total DMRF Research Funding 2014/15 **\$ 2,967,276.00**



A generous spirit: Don Horne's gift brings smiles to the faces of many at DMRF

Don Horne at home in Pictou County, NS

Photo: DMRF Jyl MacKinnon

By Christena Copeland, DMRF Manager, Planned Giving & Communications

Don Horne is a proud Pictou County native who has lived a full and robust ninety-one years enjoying a successful business career as well as traveling abroad with his beloved wife Kaye. Don, who has always embraced all that life has to offer, shows no signs of slowing down. After many years of giving to a variety of charities, Don met with his lawyer and decided to make several significant gifts to organizations near and dear to his heart. The Dalhousie Medical Research Foundation is proud to be among the group of charities that mean so much to Don.

With a smile larger than life, Don shares with us the story of how he came to give our Foundation a \$100,000 donation saying, "My lawyer said to me, 'Don, can you imagine the smiles on the faces of the people at those charities, when you hand them a donation that much bigger than the year before?' and that is what I did - I did it for the smiles". Originally a supporter of our Molly Appeal Campaign, Don is no stranger to the great work of our researchers.

There is another reason why Don chose DMRF; he wanted to support research that would

help those suffering from devastating diseases like cancer. In 2012, Don's lifelong companion, best friend, and wife, died after battling lung cancer for several years. This significant event, combined with a philanthropic heart, propelled Don to become a major donor to our organization. Don divided his gift into three to support cancer research for children, general cancer research within one of our large core facilities, as well as giving to bridge funding, which assures our researchers' work continues between grants. Thank you Don, for your support and generous spirit; we are grateful. 🙏

John Gamble going strong after four heart surgeries, a stroke, a rare infection, and an arrhythmia



John Gamble in Hilden, NS

Photo: courtesy of John Gamble & Family

By Melanie Jollymore

John Gamble is back to chopping wood, mowing his lawn and ploughing his garden in Hilden, N.S., now that he has safely recovered from his fourth open-heart surgery in 20 years. Unlike many men with heart trouble, John has never had a bypass—but he has had several valve-replacements.

“It all started in 1996, with a routine operation to replace a leaky aortic valve,” says John, now 66. “Three months after the surgery, I got out of bed on Father’s Day and fell on the floor... I’d had a stroke.”

John received clot-busting drugs in nearby Truro and recovered well enough from the stroke to return to work at Wilson Equipment a few months later. But, one year and a day after his stroke, he came down with a fever. “I worked a ten-hour day, came home, ate supper, and went out to plant the potatoes,” he recalls. “When I came in, I had the shakes and shivers so bad, my wife Gertie took me to the hospital in Truro, but they sent me on to Halifax by ambulance.”

In a midnight surgery, Dalhousie cardiac surgeon Dr. John Sullivan discovered that John’s aortic valve prosthesis was gone. It had been completely destroyed by an infection. Dr. Tom Marrie—just recently retired Dean of Dalhousie Medical School—was on the QEII’s infectious diseases team at the time. He identified the infection as Q-fever, most commonly spread to humans by animals.

“I never knew if I got Q-fever from cleaning an old barn shortly before I got sick, or if I was exposed 10 years earlier when 15 of my 32 co-workers came down with it,” says John. “I took antibiotics for three years to clear it.”

Once the infection and swelling were gone, Dr. Sullivan discovered there was a hole in John’s heart. “After that was fixed, I had 17 good years,” says John. “I felt great.”

Over time, accumulated damage to John’s heart triggered a common arrhythmia called atrial fibrillation. When medications failed to return his heart rhythm to normal, Dr. Sullivan attempted to restore the rhythm by stopping John’s heart with medications that are used to pause the heart during surgery, then re-starting it again. This helped but didn’t eliminate the arrhythmia.

This spring, John’s aortic valve prosthesis failed once again. Dr. Jean-François Légaré performed the surgery to replace John’s worn-out valve. At the same time, he implanted a pacemaker defibrillator to prevent John’s heart from stopping in case of severe ventricular fibrillation.

“I plan to live to be 95,” says John, who bounced back rapidly from his fourth surgery. “I’m back to my yard and garden and camping with my family.” With a wife, son, daughter and three grandchildren nearby, John has lots to live for and lots of enthusiasm for life. “After this last surgery, I can go from daylight to dark and feel just great. I owe my life to Dr. Sullivan and Dr. Légaré and everybody at the QEII, they are amazing.”

John is pleased to support the Molly Appeal for heart research. Dalhousie Medical School cardiovascular researchers in Nova Scotia and New Brunswick are investigating how best to prepare patients for surgery and care for them afterward, which will lead to better treatment of heart disease for us all. 🇵🇸



Frailty, age, sex and hearts:
Dr. Susan Howlett seeks to keep men's and women's hearts strong as they age

Dr. Susan Howlett wants to know how frailty affects heart function and overall health in men and women as they age. "Frailty is the condition of vulnerability that develops as more and more health problems accumulate," explains Dr. Howlett, a world-renowned heart researcher. "Paradoxically, while women tend to have more health deficits than men at any given age, they live longer."

Dr. Howlett wants to know how women withstand their burden of health deficits for longer, and find strategies for helping both women and men stay stronger and healthier as they age. She and her team are shedding light on the biological mechanisms of frailty and testing potential ways of protecting the heart and overall health from frailty's detrimental effects.

"Vigorous physical activity is one of the most important ways to fend off frailty, but the fatigue that heart disease brings can get in the way," Dr. Howlett says. "We're investigating the ability of such agents as anti-oxidants, anti-inflammatories and hormone therapies to slow down the development of frailty."



Fixing short circuits:
Dr. John Sapp finetunes treatments for dangerous heart rhythms

Cardiac electrophysiologist Dr. John Sapp is leading long-term international studies to see if a procedure known as catheter ablation works better than aggressive drug therapy for treating ventricular tachycardia (VT). Caused by an electrical short circuit in the heart, this dangerous arrhythmia can trigger sudden death. While a defibrillator can help regulate the heartbeat, it can also give shocks strong enough to knock a person down.

"Catheter ablation is an invasive procedure that carries some risks, but the drugs don't always work and they can damage major organs," notes Dr. Sapp, a professor in Dalhousie Medical School's Division of Cardiology. "Our research will reveal which is the safest and most effective way to reduce shocks and prevent sudden death."

At the same time, Dr. Sapp is pioneering new ways to make catheter ablation safer and more effective. The procedure involves inserting a thin wire into the heart through a blood vessel, to deliver a surge of energy that repairs the electrical short circuit. He and his colleagues are pioneering a non-invasive technique called body-surface mapping, which uses electrodes on the skin to find the precise location of the short circuit. He is also working with a commercial partner to introduce a catheter he has co-invented that repairs short circuits so deep inside the heart muscle that standard technology cannot reach them.



Tapping into a feedback loop:
Dr. Alex Quinn seeks mechanical solutions to electrical problems in the heart

There are many different kinds of arrhythmias, irregular heartbeats that can lead to problems from dizziness and fatigue to heart failure and sudden death. Current treatments range from electrical devices like implantable pacemakers and defibrillators, to invasive procedures like catheter ablation and surgery. Dr. Alex Quinn wants to open the door to new therapeutic possibilities by targeting mechanical processes in the heart.

"Arrhythmias are caused by disturbances in the electrical activity of heart, but the underlying problem is often mechanical," notes Dr. Quinn, a biomedical engineer who joined Dalhousie Medical School from the University of Oxford and Imperial College in London, U.K., in 2013. "For example, if a person has high blood pressure, this can stretch the chambers of the heart and make it beat faster."

Learning how the heart's mechanics influence its electrical could lead the way to potential new drug strategies or a new generation of devices that target the heart's mechanical activity. "This is an area that has not been well-studied but offers a wealth of possibilities," Dr. Quinn says.

Joy in his son's sports keeps Marc Drisdelle moving in spite of multiple heart attacks and heart failure

By Melanie Jollymore

At 44, Marc Drisdelle has survived several heart attacks, heart spasms, pericarditis (inflammation of the membrane around the heart), and ventricular tachycardia (extremely rapid heartbeat). He has undergone triple bypass surgery and the placement of 17 stents and a pacemaker/defibrillator, as well as cardiac defibrillation and resuscitation on a few occasions.

"It can be very hard to handle, psychologically, but you have to keep going," says Marc, who lives a full and busy life managing a restaurant and his 12-year-old son's packed athletic schedule. "I'm a very positive person and I'm determined to help myself, not just for my own sake but for my son, Philippe. He keeps me going."

Marc grew up playing many sports, including hockey, soccer and golf, and continued playing hockey and golf, and going to the gym, into adulthood. But at 31 he had his first heart attack, followed by a second two years later and the slow-but-steady progression to heart failure. Now he channels his love of sports into his son, who plays lacrosse for Team NB and triple-A Peewee hockey, among other sports.

Heart failure makes physical activity a struggle against shortness of breath and chest pain, but Marc is committed to regular exercise through Moncton's Coeur en Santé program and his own daily walking regimen. His goal: to get his weight below 200 pounds, so he will qualify for a heart transplant or a mechanical heart. He limits his calories, speaks often to his nurse at the heart failure clinic, and sees the transplant team in Halifax a few times a year.

"I'm feeling more energetic and I'm losing weight," says Marc of his exercise program. "It's not easy and it's not comfortable, but I'm making myself do it." Nitroglycerin before and during exercise dilates his blood vessels to get enough oxygen to his muscles and relieve the chest pain, while a cocktail of other drugs helps him manage his genetically high cholesterol and triglycerides.

Researchers at Dalhousie Medical School in New Brunswick and Nova Scotia want to understand the genetic factors behind Marc's extraordinary history. His father died after a second heart attack and his grandmother had a stroke—the researchers and especially Marc hope the family tendency will not be passed on to Philippe. They are analyzing DNA samples from Marc and Philippe to identify what genes are involved in the family history of heart disease.

"My heart is already damaged and I will need a transplant or mechanical heart someday," says Marc. "But if they could intervene while Philippe is young, before any damage is done, then he will have a better quality of life and be able to keep doing the sports he loves." 🇨🇦



Photo: courtesy Drisdelle Family
Philippe Drisdelle sports the silver medal he won playing for Team NB at the national lacrosse championship in August 2015 with his Dad, Marc.



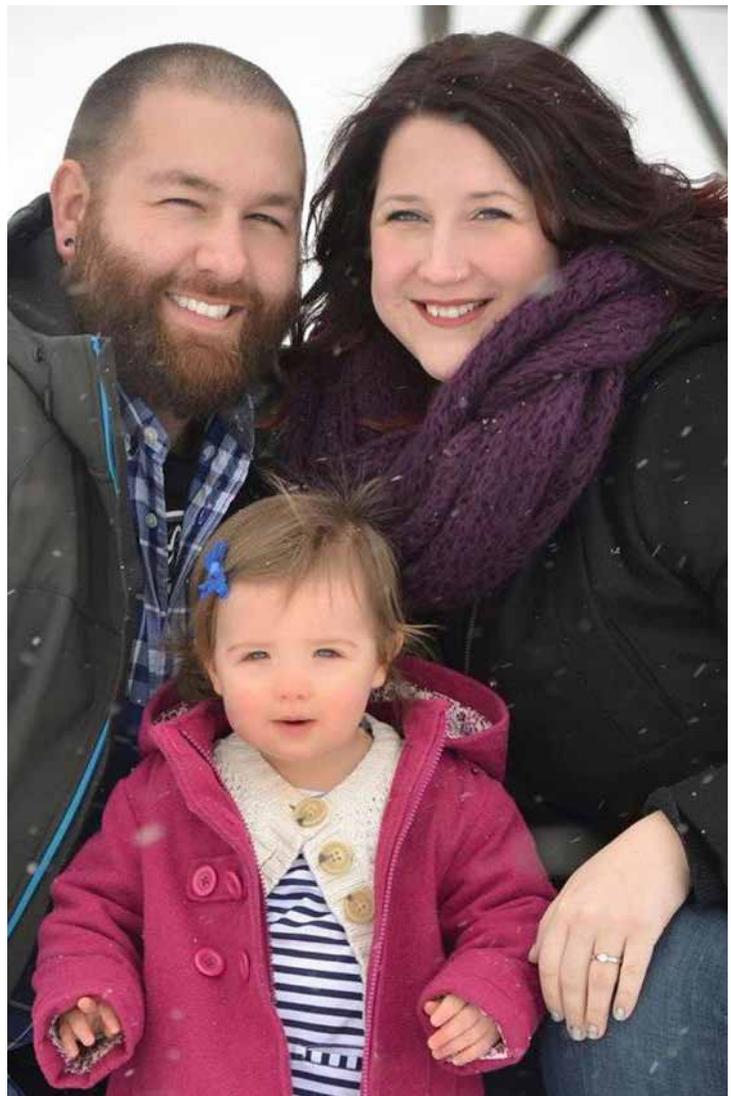
Keeping the beat: **Dr. Robert Rose** seeks to prevent age- and frailty- related arrhythmias

Dr. Robert Rose wants to harness the power of proteins produced naturally in the body to protect the heart from scar formation that leads to a slow or irregular heart rate as we age or become frail.

“Over time and as we develop more health problems, our heart rate slows down or becomes erratic,” explains Dr. Rose, an associate professor in the Department of Physiology & Biophysics. “This is due to the gradual build-up of scar tissue in the atria and sinus node in the upper chambers of the heart.”

The sinus node is like the heart’s internal pacemaker, generating electrical impulses that make the heart beat. Scar tissue in the sinus node impedes or distorts these impulses, leading to a sluggish heart rate or potentially deadly arrhythmias.

Dr. Rose and his team are studying how small protein molecules called natriuretic peptides protect the heart. “We can prevent scarring and reduce arrhythmias by flooding the heart with these proteins,” he says. “Natriuretic peptides could potentially be used to protect the sinus node, prevent arrhythmias, minimize heart-attack scars, and forestall heart failure.”



COVER STORY
CONTINUED FROM PAGE 3

Photo: Lynnette Mason, Mason Photography

Michael, Brittany & Jordyn

Researchers at Dalhousie Medical School, like Dr. Robert Rose, are studying the causes and mechanisms of cardiac arrhythmias. Dr. Rose is particularly interested in upper-chamber arrhythmias and how they could be treated with safe and effective drug strategies. Funds raised through this year’s Molly Appeal will help him and his colleagues learn more about arrhythmias and how these and other forms of heart disease can be better diagnosed, treated, prevented and reversed.

Brittany loves working in health care, but she is still deeply involved with her first love—dance. In addition to her job at the heart centre, she runs recreational and competitive dance programs for about 100 students in Hampton, New Brunswick. “As a dancer, you love what you do so much, you want to pass that passion along to the next generation,” she says. “It’s such a relief to have had my syndrome corrected. I can move on and live life now.”

And that’s exactly what Brittany is doing—in addition to her busy professional life, she recently married the love of her life, Michael. And, she has purchased tap shoes for their 21-month-old daughter, Jordyn, who will take her first dance lessons this fall. 🎶



Brittany at the Lighthouse River Centre, Town of Hampton, NB special thanks to Jennifer Duguay

Photo: John Sherlock

Cardiovascular research put Brittany's heart and soul back on the dance floor.

Brittany loved to dance, until a congenital defect of her heart's electrical pathways got in the way. Thanks to improved diagnostics and less-invasive treatments, she's back teaching dance and working as a radiology technologist at the New Brunswick Heart Centre. This year's **Molly Appeal** is funding collaborative **cardiovascular research** at Dalhousie Medical School in Nova Scotia and New Brunswick.

Now, that's what you call good dance partners!

DALHOUSIE MEDICAL RESEARCH FOUNDATION

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For more information or ways to give: 1.888.866.6559 mollyappeal.ca

A NEW BEGINNING: THE IMPACT OF RESEARCH ON MY LIFE

CHRISTENA'S CORNER



From the heart...

*Dr. Jean-François Légaré and
Christena Copeland*

Photo: Nick Pearce

Having worked with DMRF for over a year, I have witnessed the astonishing work of our researchers; it is selfless, tireless and profound. Each year, our Molly Appeal celebrates a specific area of research supported by our Foundation. Thanks to the generosity of our donors, we are able to financially boost the remarkable efforts of our researchers. I would like to personally thank you for your giving because I, too, have benefitted from the life-saving work of a DMRF researcher. In fact, this researcher, Dr. Jean-François Légaré, is one of the recipients of this year's Molly Appeal for cardiac research. Allow me to share my story with you.

In 2008 I was diagnosed with severe Mitral Valve Regurgitation, a condition that caused the mitral valve of my heart to leak. I experienced heart palpitations constantly and was tired from the simplest of activities. Sometimes, breathing was a challenge, and slowly but surely, I had to accept that my body didn't have the strength to do all the things I wanted. As a spirited and independent

woman, this was a disheartening and frustrating experience. By 2010, my cardiologist told me that surgery was going to be needed if I wanted to prevent inevitable heart failure. I was scared of what I thought I was about to face – open-heart surgery can be invasive with a long recovery time. Enter, Dr. Jean-François Légaré, Cardiac-researcher, surgeon, and DMRF team member. Dr. Légaré changed my life. Because Dr. Légaré had dedicated so many years of his life to research, he knew that my valve repair could be done in a minimally invasive manner. On August 16th, 2011, I underwent a seven-hour procedure called a right thoracotomy. Dr. Légaré, and his team were able to successfully fix this leaky valve via a small incision under my right breast, reducing blood-loss, pain, and recovery time. I am grateful. I am recovered. I am strong.

Four years later, I am honoured to be part of the DMRF team. The work we do here is making a significant difference in the lives of so many; I know because it has made such a difference to me. 🏠

Christena C. Copeland
DMRF Manager,
Planned Giving & Communications

A gift to the Dalhousie Medical Research Foundation is a gift of hope and possibility.



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- Call me to discuss my estate plans
 - RRIF/RRSP, annuities, etc.
- Call me to discuss a gift today
 - adopts, securities, etc.

- I have already remembered Dalhousie Medical Research Foundation in my will.

To find out more about estate planning, adopting a researcher, or other programs please feel free to contact me anytime by phone (902) 494-1856 or email christena.copeland@dal.ca

A postage-paid envelope is included for your convenience. Please clip and mail to:

Dalhousie Medical Research Foundation 1-A1 Sir Charles Tupper Medical Building, 5850 College Street, PO Box 15000, Halifax, Nova Scotia B3H 4R2

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- _____
- I want to be anonymous.
 I want the honouree notified.
Their Contact Info :
- _____
- _____

DMRF's 2015 Molly Appeal Picnic Launch



Dr. Sultan Darvesh accepts Molly Appeal for Neuroscience 2014/15 funds from Jyl MacKinnon DMRF Executive Director .

Photos: Danny Abriel



Dr. Rob Rose and Dr. Jean-François Légaré launching the 2015/16 Molly Appeal for Cardiovascular.

On September 16th, Thermo Fisher Scientific generously hosted the annual Molly Appeal lunch for members of Dalhousie's Faculty of Medicine to celebrate last year's success and launch the new campaign. A "heart-healthy picnic" was held for Cardiovascular Research.

But, before launching the new, DMRF's ED, Jyl MacKinnon, presented Dr. Sultan Darvesh, Director of the Maritime Brain Tissue Bank (MBTB) with 100% of gifts to last year's Molly Appeal for Neuroscience - \$296,826! These funds will expand the MBTB, which is vital to the study of Alzheimer's and other dementias, as well as ALS, epilepsy, multiple sclerosis, Parkinson's and spinal cord injuries.

Such support is only possible because of the generosity of

all of our Molly Appeal donors throughout the Maritimes and beyond - THANK YOU very much, ONE and ALL!

The Faculty of Medicine's new Dean and newest member of DMRF's Board, Dr. David Anderson, was on hand to help with the launch of the 2015 Molly Appeal. Dr. Robert Rose & Dr. Jean-François Légaré, along with Dr. Ansar Hassan of Dalhousie Medicine New Brunswick (DMNB), are leading teams of investigators in both NS and NB working collaboratively to improve diagnosis and treatment of heart disease throughout the Maritimes and beyond.

We hope you've enjoyed reading about the importance of their efforts and the many benefits for patients and for all of us and our families. We all have a story of the heart.

MOLLY'S GARDEN

Each year, Sobeys' annual Maritime-wide "Molly's Garden" floral campaign donates a dollar for every single rose bouquet purchased for Mother's Day in their Maritime stores. Their May 2015 campaign raised \$9,731 in support of cardiovascular research at Dalhousie Medical School, which will help researchers in New Brunswick and Nova Scotia improve the diagnosis, treatment and prevention of heart disease for families throughout the Maritimes. DMRF is extremely grateful for this loyal and generous support which is truly making a difference. THANK YOU.



Photo: Nick Pearce

Left to right: Jody Carey, Sobeys Store Manager Queen St., Halifax, Jyl MacKinnon, DMRF Executive Director and Semira Hodzic, Sobeys Floral Operator/Designer

YES! I want to put an ornament on the Holiday Tree.

Name: _____

Street Address: _____

Town: _____ Province: _____

Postal Code: _____ Phone: _____

E-mail: _____

See inside to complete the form

Each Holiday Tree donation of \$25.00 puts one ornament on the tree.

Purchase as many ornaments in honour of or in memory of as many folks as you want.

A tag will be placed with each ornament naming the honouree.



Dalhousie Medical Research Foundation

Holiday Tree

DMRF's Holiday Tree will be erected in the foyer of the Sir Charles Tupper Medical Building on Monday, November 30th, 2015.

For every Holiday Tree donation of \$25, we will place an ornament on the tree.

The ornament will be marked by a tag with the name of the honouree and of the donor (unless they wish to remain anonymous).

Our goal is to fill every inch of branch space on our tree! All proceeds will go directly to support this year's Molly Appeal campaign for Cardiovascular Research at Dalhousie Medical School in Nova Scotia and New Brunswick.