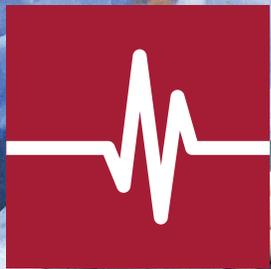


# NBHC Heart Beat



**NEW CARDIAC PROCEDURES**  
at the *New Brunswick Heart Centre*

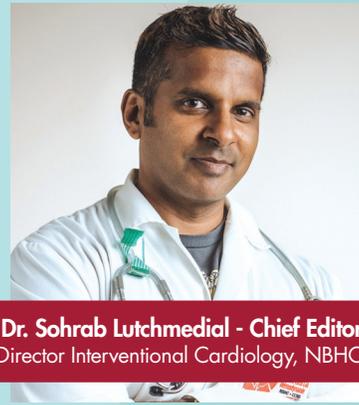


**Dr. Jennifer Cloutier**  
Cardiac Anesthesiologist

Cardiovascular news presented by the  
**New Brunswick Heart Centre** - Summer 2018

**CARDIAC**  
**ADVANCEMENTS**

## Welcome to the 2018 edition of the **NBHC HeartBeat**



**Dr. Sohrab Lutchmedial - Chief Editor**  
Director Interventional Cardiology, NBHC



**Janine Doucet**  
Administrative Director, NBHC

Welcome to the 2018 issue of the Heartbeat - our ongoing effort to keep our colleagues, partners and stakeholders informed as to the developments at the New Brunswick Heart Centre.

This past year has flown by, with changes occurring on every level of our team. Perhaps the first thing you may notice is that we are now partnering with the SJRH Foundation to produce our newsletter. This should not only help us create better looking and more easily digestible content, but will enable us to better reach out the province at large.

Earlier this year we welcomed Dr. Brent McGrath, our newest Cardiac Interventionalist to the team. He will get to work with the fully renovated Swing Cath/EP lab that has just finished construction this past month. The new lab replaces the critically out of date Imaging chain built in 2006. The new lab will help us deliver our cardiac procedures with less radiation, better clarity and increased functionality. One of the new procedures that we will be delivering in the new 'Lab 3' is the Mitraclip device, highlighted in this issue.

Elsewhere in this issue we highlight the innovative cardiac research happening with our colleagues at DMNB, as well as recap the exciting Dragons' Den event that will help revolutionize the capacity of the winning IMPART research team to peer into the cellular activities of the cardiovascular system.

If you have any comments, questions or suggestions for our Heartbeat team, please contact us at [nbhc@horizonnb.ca](mailto:nbhc@horizonnb.ca)

HOPE  
heartbeat  
research  
CARE  
CARDIAC SURGERY



SAINT REGIONAL FOUNDATION  
JOHN HOSPITAL  
FONDATION DE L'HÔPITAL SAINT  
RÉGIONAL JOHN

## Message from the Foundation

Throughout this issue of Heart Beat, we celebrate the result of when we combine innovation with human skill and expertise - that is, better patient care and outcomes.

The New Brunswick Heart Centre is home to world-class physicians and clinicians who, when given the best technological resources, are supported in delivering exemplary patient care to the more than 24,000 patients every year. It is for these reasons that we will be purchasing high-resolution Intracardiac Echocardiography (ICE) imaging equipment to benefit the NBHC's electrophysiology and interventional cardiology programs.

The NBHC holds a tremendously critical role for cardiac care patients across New Brunswick and PEI, and so with that understanding, we are expanding our fundraising efforts accordingly. Doing so successfully, however, we must have a strong relationship with you - the cardiac community - in referring grateful patients and sharing healthcare stories from your practice. By welcoming new donors to the Foundation, we can invest more into your programs. It is through the philanthropic support of our community that our medical teams will be provided with the best resources to advance patient care.

Please contact us if you have a story you wish to share or a clinical need you would like to discuss. We are committed to keeping our doctors and clinical staff on the cutting edge of advances in medicine so they can focus on what matters most: patients.



**Jeff McAloon**  
President & CEO, SJRH Foundation



**Stephanie Fox**  
Vice President, SJRH Foundation

## TABLE OF CONTENTS

4	The Approach - Database
5	MitraClip™ Procedure
6	Medical Dragons' Den
7	Cardiovascular Research: IMPART
8	Physician Feature: Meet Dr. Samuel Wang
9	Electrophysiology/ Catheterization Lab Upgrade
10	Modern Management of Complex Aortic Disease

### EDITORIAL BOARD

**Dr. Sohrab Lutchmedial - Chief Editor**  
Director Interventional Cardiology, NBHC

**Janine Doucet**  
Administrative Director, NBHC

**Christianna Williston**  
Communications, Horizon Health Network

### DESIGN & LAYOUT

**Vanessa Kincade (SJRHF)**  
Marketing & Communications Officer

### TRANSLATOR

Translation Department  
of Horizon

## The APPROACH Database

*Providing the appropriate 21st century care mapping and monitoring, outcomes evaluation and enable long term assessment of our therapeutic pathways.*

The New Brunswick Heart Centre (NBHC) is required to collect, analyze and report performance measurement data to internal and external stakeholders. In order to produce some of the information that is reported, the program relied on several separate standalone databases. Duplication of data entry occurred and despite the multitude of databases, significant data gaps existed. Furthermore, the program did not have the capability to produce valid outcome reports for its interventional cardiology patient population. Cardiovascular surgery services had an outcomes database that was beyond end of life and required replacement. The program required a solution to address all data collection needs and eliminate the many silos that existed.

A review of database options was performed in search of one that would consolidate all NBHC datasets along the continuum of care, from referral through to discharge, including 30 day follow-up for cardiac surgery cases. The APPROACH (The Alberta Provincial Project for Outcome Assessment in Coronary Artery Disease) database was the product that met all mandatory criteria and included the ability to have a pan Atlantic comparison for research purposes.

In June 2017, following three years of effort with various stakeholders from Horizon Health Network, Service NB and APPROACH, the database was implemented. In an effort to ensure that the data that was being collected was in alignment with the cells in the new database, an updated referral form was developed and implemented.

One of the most welcomed features of APPROACH is the CARAT report that enables the Interventional Cardiologists to produce a more representative heart diagram as opposed to the generic hand drawn pictures of the past. These images are attached electronically to the interventional cardiology report available through IMPAX, which is made available to all NB stakeholders through the provincial health portal. Efforts are ongoing to have this report linked electronically to the local health record.

Currently, APPROACH is being populated with a significant volume of data sets including comprehensive referral and



**Janine Doucet**  
Administrative Director, NBHC

demographic information, risk factors, past medical history, presenting history, ECG findings and findings from other non-invasive cardiology tests, pertinent medication history, and relevant bloodwork. The interventional cardiology module captures all hemodynamic findings which are populated directly into APPROACH from the hemodynamic monitoring system in the cardiac catheterization laboratory (CCL). The CARAT diagram is populated in real time by the physician and the diagnostic imaging technologist in the CCL. Post procedure and discharge information including select laboratory findings are also captured. When the cardiac episode extends to cardiac surgery, the same foundation data is populated into that module and updated as needed. A Frailty score and EuroSCORE are completed for every cardiac surgery patient and entered. The CARAT diagram completed for Interventional Cardiology can be used as a baseline for including the bypass grafting. Perfusion medicine and cardiac anaesthesiology specifics are also added. Pertinent post-operative and discharge data are included as well as the findings from a 30 day follow-up conducted by cardiac telehealth personnel. Should a patient require further tertiary cardiology interventions at any point in the future, the updates are added to the same patient profile creating a comprehensive cardiovascular patient profile throughout time.

**The data captured through APPROACH will provide us with additional information to ensure that we are providing the right treatments for the right patients at the right time. To promote data integrity, a significant effort was invested in ensuring that documents were available with clear definitions for all data sets. As the database continues to be populated over time, we will be in a better position to entertain additional research questions that would be impossible to pursue today due to the degree of data fragmentation. Finally, we sincerely appreciate the support from all of our partners in providing us with comprehensive patient referral information so that we can appropriately populate all the fields in APPROACH.**

## LIFESAVING Innovations

### MitraClip™ Procedure

In early March, Dr. Sohrab Lutchmedial, Director of Interventional Cardiology at the New Brunswick Heart Centre, and the heart team performed the first two successful MitraClip procedures on patients in Atlantic Canada.

The **MitraClip** procedure is a less invasive, non-surgical treatment option for patients with mitral regurgitation, a serious condition in which blood leaks backwards inside the heart. Prior to now, the only treatment option was open-heart surgery, but thanks to the tremendous support of donors, patients with this serious heart condition now have another lifesaving option.

*“The New Brunswick Heart Centre has become a national leader in TAVI (Trans Aortic Valve Implantation) due to our “heart team” approach with excellent cooperation between CV surgery, Anaesthesia, Interventional Radiology and Interventional Cardiology,” says Dr. Lutchmedial. “We saw the opportunity to mirror that same successful team based approach with the MitraClip procedure, a non surgical method of repairing leaking mitral heart valves.”*

Phyllis Green is from Summerside, Prince Edward Island and was the very first patient to have the MitraClip procedure done at the Regional. At 86 years old, Phyllis was not a candidate for traditional open heart surgery and had no other options available to treat her condition, until now. “Without this procedure I wouldn’t have made it much longer,” says Phyllis, “I was so short of breath, tired all the time and I just seemed to be getting worse very quickly.” As soon as she woke up from her surgery, Phyllis felt an immediate difference – she has been getting a little bit stronger every day since. “I can’t thank the doctors and nurses enough, from the bottom of my heart, thank you!” Phyllis continues, “I feel like it’s a miracle, everything became available just when I needed it.”

**MitraClip therapy is the world’s first transcatheter mitral valve repair that delivers a therapeutic option when no other option exists. Used in over 50,000 patients worldwide, MitraClip is a well-established therapy with a growing body of clinical and real-world experience. The MitraClip® NT Clip Delivery System is indicated for the percutaneous reduction of significant symptomatic mitral regurgitation (MR ≥ 3+) due to primary abnormality of the mitral apparatus [degenerative MR] in patients who have been determined to be at prohibitive risk for mitral valve surgery by a heart team, which includes a cardiac surgeon experienced in mitral valve surgery and a cardiologist experienced in mitral valve disease, and in whom existing comorbidities would not preclude the expected benefit from reduction of the mitral regurgitation.**

We hope to provide an option for these patients across the Atlantic provinces. At present, the NBHC is the only centre embarking on Mitraclip procedures east of Quebec City.

## HEALING HEARTS & SAVING LIVES

- The NBHC is the primary referral centre for cardiac care in New Brunswick and Prince Edward Island.
- The NBHC has been healing hearts for 27 years.
- Every year they care for over 24,000 patients.

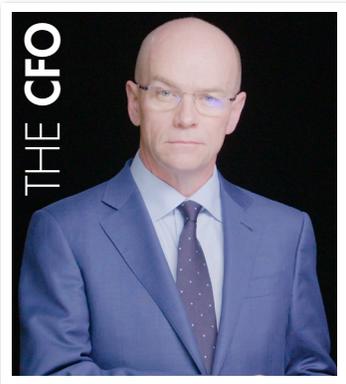


Dr. Sohrab Lutchmedial - Chief Editor  
Director Interventional Cardiology, NBHC

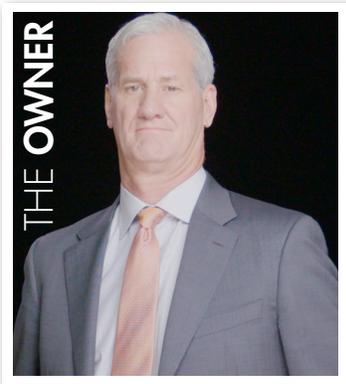
# MEDICAL DRAGONS' DEN



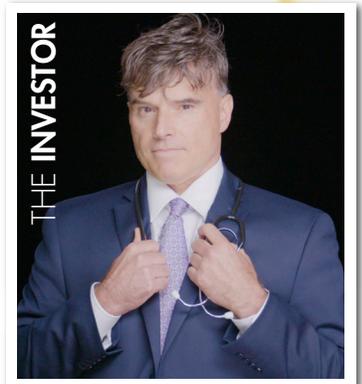
THE CHANCELLOR



THE CFO



THE OWNER



THE INVESTOR

In front of a **SOLD-OUT** audience on April 7th, 2018 we welcomed our 4 Dragons and 3 clinician teams onto the stage at Imperial Theatre for Medical Dragons' Den, a first-of-its-kind-event in Canada. Our Dragon investors consisted of 4 world renowned business leaders - Steve Douglas, Hon. Anne McLellan, Dr. David Elias and Scott McCain. They each brought their 'A' game to ensure they chose the most innovated and impactful project to win the \$500,000 grand prize. Each of our presenting clinician teams put their best foot forward to make their pitch stand out from the rest.

We are thrilled to announce that our Dragons' chose to award the \$500,000 grand prize to team **Impart - The Comorbidity Crisis**, presented by **Dr. Sohrab Lutchmedial, Dr Keith Brunt and Dr. Jean-François Légaré**. With their project fully funded, these physicians will purchase a Nobel Prize winning super-resolution microscope, which will enable them to study and better treat patients in New Brunswick who suffer with multiple health concerns.

Following the Dragons' choice award we announced the Audience Choice Award, generously sponsored by Arthur, Sandra and Sarah Irving with \$100,000! Together with the wonderful audience donations, the audience awarded a grand total of \$169,338 (and counting) to **Minimally Invasive Sinus Surgery**, presented by **Dr. Morgan Langille**

**and Dr. Chris Chin.** If you would like to help Drs. Langille and Chin make The Saint John Regional Hospital the Sinus Centre in New Brunswick, please visit [thegive.ca/medical-dragons-den](http://thegive.ca/medical-dragons-den) to make your donation today!

Though they didn't take home one of the top 2 prizes, **Operating Room Simulation presented by Gina Coffin, Monica Fowler and Dr. Jean-François Légaré** were awarded \$25,000.



\$500,000 WINNERS

## IMPART - THE COMORBIDITY CRISIS

Dr. Sohrab Lutchmedial, Dr Keith Brunt and Dr. Jean-François Légaré



\$169,338 WINNERS

## MINIMALLY INVASIVE SINUS SURGERY

Dr. Morgan Langille and Dr. Chris Chin

# IMPART: Are you ready to be a part of IMPART?

## Approaching the Future

It can seem that there is a never-ending number of new challenges facing the medical field. In general, we see many patients living longer (which is great), but we are all a bit wider around the waist than we should be (not so great). As we strive to ensure those extra years are of the highest quality, we also focus our research efforts and train student physicians to keep quality of life a top priority. A trip to the hospital is not high on anyone's to do list. The faster we return home, the better we all feel as care providers and patients. Changes are coming in healthcare to meet these new patient demographics. Some of these changes will seem a bit unusual but are exciting. This will include more treatment options at your community pharmacy, online doctor visits from your home, and technology enhanced home hospital support for seniors. We see the importance of leading these new strategies and piloting such changes using best-in-class technology, great people and the best evidence here in New Brunswick. Thanks to the Saint John Regional Hospital Foundation, we will have some Dragons helping us out with a super-resolution microscope that can see inside living cells.

This past year we celebrated our first birthday of IMPART investigator team Canada, co-founded by members of Dalhousie Medicine New Brunswick and the New Brunswick Heart Centre (<https://impart.team/>). This national "Olympic Brain Team" is dedicated to understanding the cause and potential solutions to inflammation, metabolism, physical ability and research translation to convert knowledge to clinical practice. Our IMPART team knows that there are special patient groups that have unique problems to overcome, some that are specific to women and indigenous patients, a growing obesity issue and chronic stress (both inside and outside our bodies). The IMPART team grew our membership this past year, adding 7 new scientists/physicians and over 20 local community groups, along with partnering with the Government of New Brunswick, Department of Social Development and three National Centers of Excellence: Canadian Glycomics Network (<http://canadianglycomics.ca/>), AGE WELL Canada (<http://agewell-nce.ca/>) and Canadian Frailty Network (<http://www.cfn-nce.ca/>). These ongoing partnerships will help the New Brunswick Heart Centre take on the challenges we see before us to pilot new solutions that explore how to live longer, higher-quality lives together. Social media programs for patients will be rolling out soon, be sure to like and follow us, @impartteam (on Facebook, Twitter, LinkedIn or Instagram).

Our team members have made significant strides to tackle challenges on behalf of all Canadians, right here in New Brunswick. We are proud to report that one of our Olympians, Dr. Petra Kienesberger, rose like a super star this past year, and broke the proverbial glass ceiling. Not only was she recognized by the Faculty of Medicine for outstanding contributions to mentorship and training, she also happened to publish two

excellent scientific articles linking inflammation with obesity. That would be a good year for anyone, but the celebrations started to get a bit crazy when Dr. Kienesberger was named the first member of DMNB to secure a 5-year Canadian Institutes of Health Research (CIHR) grant. But wait, there is more, thanks to patients who literally gave a piece of themselves to the Saint John Regional Hospital Foundation Tissue BioBank, Dr. Kienesberger was able to pinpoint an important metabolite called LPA with a drug target called autotaxin in human tissues to discover a link between cardiac inflammation, obesity and diabetes! Now she is working with other scientists around the world, including a few companies to develop diagnostics and therapeutics to treat patients using this new biology. Though it is still early days, the Heart and Stroke Foundations of Canada & New Brunswick also recognized how important her research could be and provided Dr. Kienesberger with a new investigator scholar award to help train new scientists and further translate her findings to patients. The combined investments in Dr. Kienesberger with her new CIHR research grant and Heart & Stroke Foundation Investigator Award were over \$1 Million dollars!!!

These returns on investment to New Brunswick's scientists help grow the health research enterprise and are expected to continue to make healthcare an asset, not a liability. These types of investments could not have happened without the efforts of our provincial and hospital research foundations, hospital care providers, patients and community backers. If you are reading this, I mean you—so, from all the members of the Heart Centre investigator team. THANK-YOU very much for your help, generosity and faith.



**Dr. Petra Kienesberger**  
Assistant Professor, DMNB

“ Being able to reassure them that we can help and doing everything possible to improve their quality of life, so that they can get back to living their lives, is really rewarding. ”

~ Dr. Samuel Wang



Dr. Samuel Wang - MD FRCPC  
Cardiac Electrophysiologist, NBHC

## Meet Dr. Samuel Wang

### Our newest Cardiac Electrophysiologist

~ An interview with Dr. Samuel Wang, MD FRCPC

#### Could you tell us a little bit about yourself and your role at the hospital?

I've been with the New Brunswick Heart Centre since August 2017 and prior to that I did the majority of my training at the University of Calgary. In simple terms, my role as a Clinical Cardiac Electrophysiologist is to treat patients with heart problems by performing procedures like heart ablation or by implanting pacemakers or internal defibrillators.

#### What is a typical day like for you?

Typically, Dr. Toal (another Clinical Cardiac Electrophysiologist) and myself see patients one day a week and we are in surgery the other days. On our clinic day, we generally see about 5 or 6 new heart patients for consultations in the morning and 4 or 5 patients for follow up in the afternoon.

On surgery days, our surgical team usually performs about 3 to 4 procedures. Some surgeries (like pacemakers and defibrillators) are less complicated and don't take as much time, while more complicated procedures (like implanting a Cardiac Resynchronization Therapy (CRT) device) can take up to 5 hours. We also perform heart ablations, which is where we modify the rhythm of the heart by burning away the tissue that is causing problems. It's also a more complicated surgery, using sophisticated 3D mapping of the heart, kind of like a GPS for surgery.

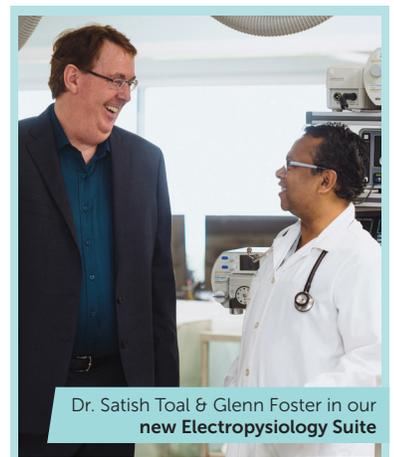
#### What do you find to be the most rewarding part of your job?

Most of the patients who come to us are very anxious and afraid that they could die suddenly. Many have had a heart attack and they live in fear that they could have another bad episode, which they might not survive. Being able to reassure them that we can help and doing everything possible to

improve their quality of life, so that they can get back to living their lives, is really rewarding.

#### Are there any patients that really stand out in your mind?

One of our patients is a former coastguard from PEI, who used to dive out of helicopters to save people in the ocean. He has significant heart failure and there aren't a lot of options for him. He came to us, because we are his last hope to improve his symptoms and to get him better again. He's quite sick in the hospital currently, but we're planning on performing a complicated CRT device surgery on him in the near future. This patient has been turned down from others, so being able to offer him some kind of hope, really means a lot to him and his family.



Dr. Satish Toal & Glenn Foster in our new Electrophysiology Suite

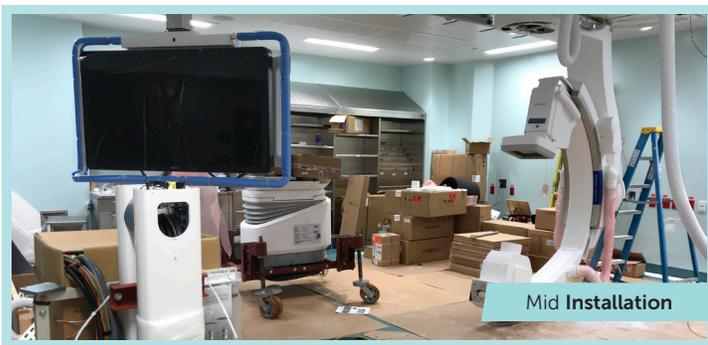
#### How does donor support make a difference?

There is such a large population of patients who are on the waiting list for cardiac procedures or who have had to go out of province. Donations make it possible to provide expert cardiac care, right here at home in New Brunswick and to help even more people.

## ELECTROPHYSIOLOGY/ CATHETERIZATION Lab Upgrade

The NBHC officially became able to offer Electrophysiology services in April, 2006 with the installation of the swing Cath/EP imaging lab. This Phillips diagnostic suite was state of the art technology at the time, but based on Moore’s Law we were clearly in need of upgrading the lab in 2018.

Funded by the DOH, the new imaging chain was installed over the past summer. In order to accommodate for the reduced capacity to perform EP and Cath procedures during the extended physical turnaround, the Cath and EP personnel took on some creative staffing and scheduling changes to meet the usual emergent clinical demands.



Mid Installation

The new EP/Catheterization suite has been upgraded to act as the optimal procedure room for structural heart disease procedures as well. With the continued success of the TAVI program for severe aortic stenosis, and the new Mitraclip procedure for inoperable mitral valve disease (see page 5) the need for an anesthesia and

perfusion – friendly room was recognized.

Next generation features such as the Azurion platform and Phillips Dynamic Coronary Roadmapping will result in immediate benefits to our patients including reduced radiation exposure and improved imaging processing software that can reduce iodine contrast use. Technology integrated in the new EP/ Catheterization suite also include hardwired IVUS (Intravascular Ultrasound), FFR (Fractional Flow Reserve) and OCT (Optical Coherence Tomography). Our referring specialists will now be able to see the results of these specialized imaging/physiological tests appended to the Cardiac Catheterization images available on IMPAX. The CARAT angiographic report is currently an image being attached to the cardiac angiography images within hours of test completion, so that immediate feedback/results are available for our colleagues across the province.

## BIO

## Meet Dr. Brent McGrath

Dr. Brent McGrath is a native of Saint John, NB. He joined the NBHC as an Interventional Cardiologist in 2018. Dr. McGrath obtained his undergraduate science degree at UNBSJ in 2001. He then left Saint John to continue his education, earning his Master of Science at McGill University in 2003 and PhD at the University of Alberta in 2006. He returned to the Maritimes to attend Medical School at Dalhousie University in Halifax, where he was granted his MD in 2010. He then returned home to Saint John where he completed his residency in Internal Medicine at the Saint John Regional Hospital.

Dr. McGrath went back to the University of Alberta to complete his specialty training in Cardiology and subspecialty training in Interventional Cardiology at the Mazankowski Alberta Heart Institute. He was certified as a Fellow of the Royal College of Physicians and Surgeons of Canada in Internal Medicine (2015) and Cardiology (2017). He is also a Fellow of the American College of Cardiology. Dr. McGrath’s clinical interests include complex coronary and adult structural heart interventions,

including transcatheter aortic valve implantation and percutaneous ASD/PFO closure.

As a native of New Brunswick, Brent grew up just outside Saint John, in Black River. He met his wife, Nathalie – who is originally from Bathurst – while studying at UNBSJ. While Brent was studying medicine, Nathalie earned her degree in Education and had taught up until the kids came along. They have two children, Claire (10 years old) and Finnley (7 years old). Claire loves music and loves to sing and play the piano. Finnley’s favourite things to do are building lego and playing video games. They are all excited to be back home in the Maritimes.



**Dr. Brent McGrath**  
Interventional Cardiologist, NBHC

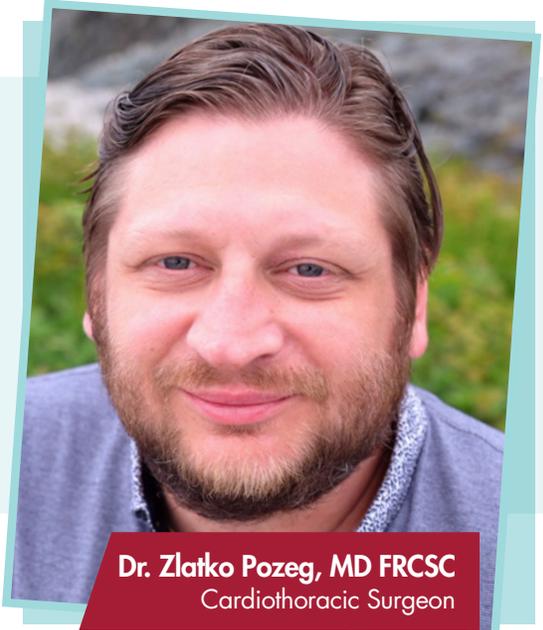
# MODERN MANAGEMENT OF COMPLEX AORTIC DISEASE

Management of aortic pathology has undergone a revolution in recent years. The trend toward less invasive endovascular approaches to complex aortic pathology such as enlarging aneurysms is changing the practice of vascular specialists, but more importantly, improving outcomes for our patients.

Today we are able to approach various forms of aortic disease involving the aortic arch, the descending thoracic and abdominal aorta through a very small incision at the top of the leg. This allows us to avoid a large incision in the chest which has a significant amount of risk associated with it. Mr. C had a large tear in his ascending aorta surgically repaired many years ago.

His remaining aorta continued to enlarge and we were able to manage his very complex pathology with a hybrid approach - firstly doing a smaller operation and then following it with an endovascular procedure (TEVAR). The TEVAR could be done with minimally invasive techniques, instead of a very large incision in the side of the chest. A combined team of CardioVascular surgery, Interventional Radiology and Vascular Surgery teamed up to successfully perform this complex procedure.

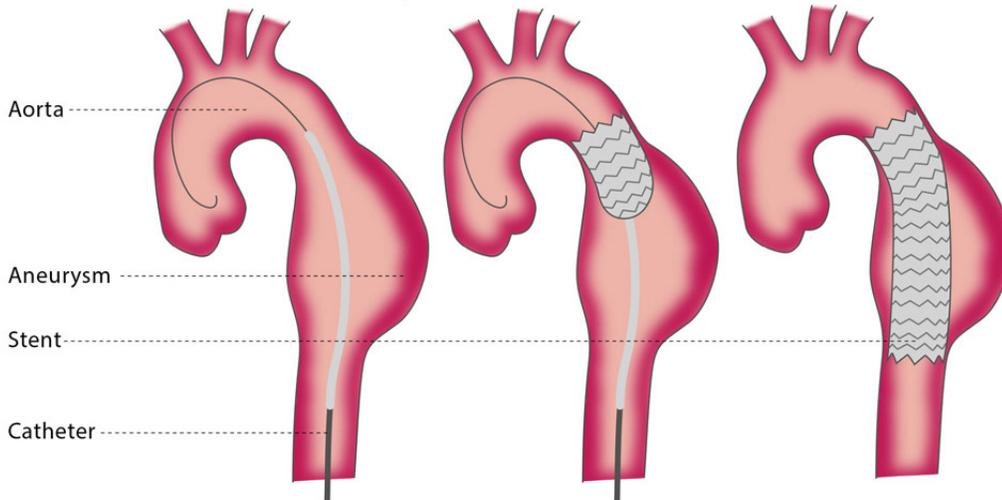
This lower risk procedure of TEVAR will also allow us to treat many individuals who would not be otherwise candidates for surgery because of other medical illnesses, increasing age or frailty.



Dr. Zlatko Pozeg, MD FRCS  
Cardiothoracic Surgeon

## ENDOASCULAR Aortic Repair

Thoracic endovascular aortic repair (TEVAR)



HOPE  
IMPROVED  
research  
CARE  
CARDIAC SURGERY





NBHC  
**HeartBeat**

**NEW CARDIAC PROCEDURES**  
at the *New Brunswick Heart Centre*

