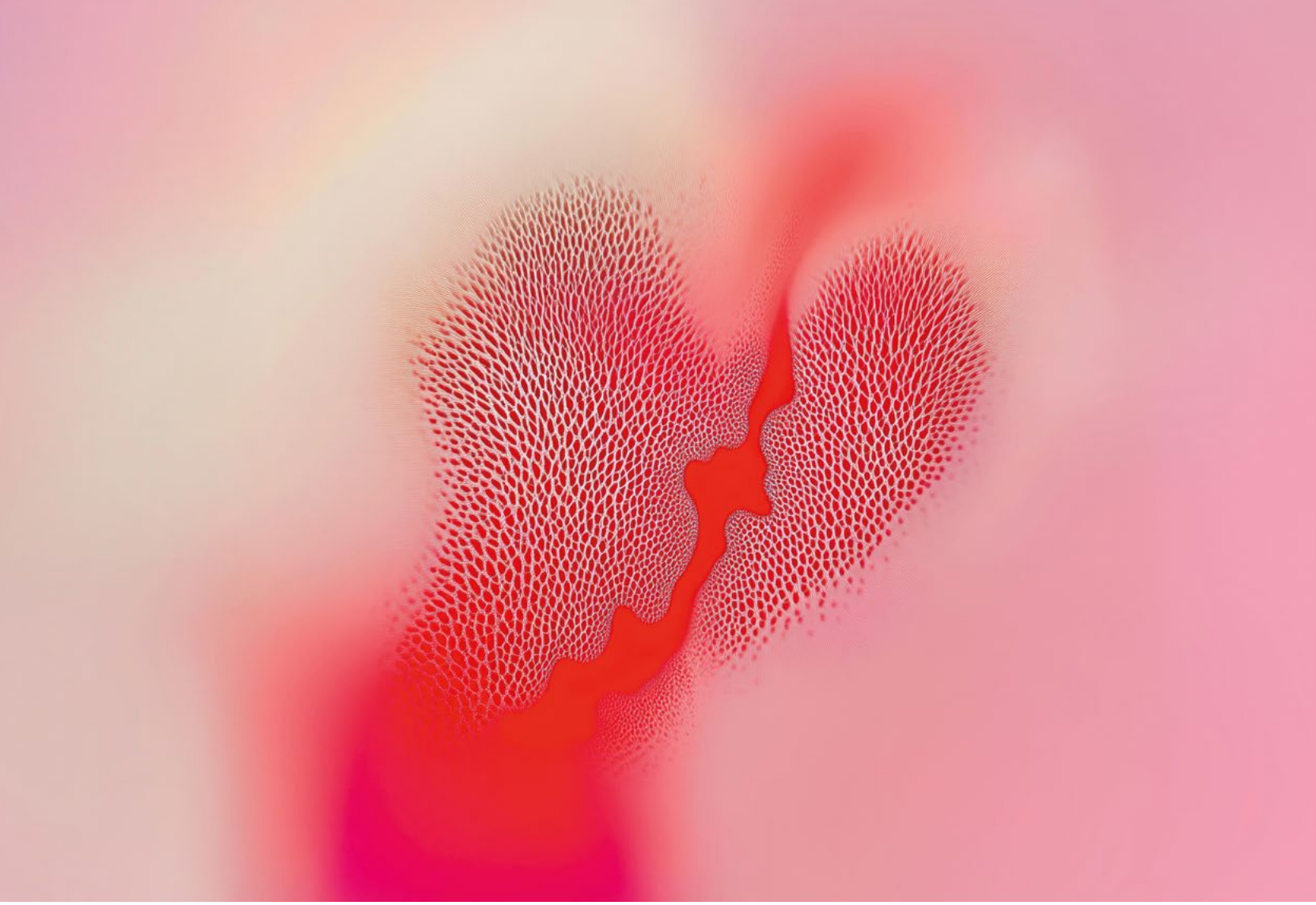

The Montreal Heart Institute
Foundation Magazine

Vol. 5 — 2025

MHI ♥ Foundation

Vol. 5 — 2025

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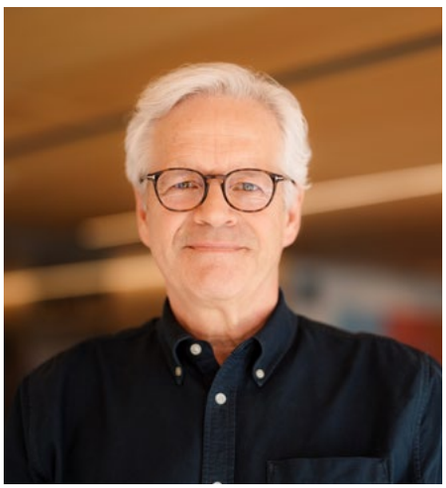
Driving innovation, together

"Genetic screening, artificial intelligence, new valve therapies, women's cardiovascular health: these are just some of the projects that are transforming our approach to heart disease and allowing us to outpace it."



Alain Gignac
Chief Executive Officer
Montreal Heart Institute Foundation

Innovation is to medicine as the heart is to the body: a vital pump that fuel our every action

In a world where our environment, living standards, and technology are in a state of perpetual change, medical advances enable us to pick up the pace of progress to ensure every member of society can benefit from a healthy future.
Building on its tradition of innovation, the Montreal Heart Institute continues to focus its work in a way that is aligned with this philosophy—a philosophy synonymous with major medical breakthroughs and cutting-edge care.

Coordinated, targeted efforts at critical moments

The guidelines established by the directors who have headed our research centre reflect a common goal of redefining what's possible. Over the years, the MHI's continuous success in areas pertaining to prevention, basic and clinical research, and precision medicine, combined with exceptional breakthroughs at key junctures, have allowed the Institute to position itself as a leader in progress.
In 2025, the profound legacy of these key figures is more alive than ever. The synergy between basic and clinical research, prevention, care, and teaching —all complementary assets—is what propels innovation.

Accelerating the pace of progress

The Foundation has and continues to be a genuine catalyst for change. It is a driving force behind innovative projects that transform cardiovascular health.
It implements myriad pioneering initiatives for the benefit of current and future generations such as the digital hospital (digitization of our emergency services to dispense care more efficiently), the development of minimally invasive practices (treatments that avoid surgery), and the creation of algorithms to analyze genetic and clinical data (improving diagnosis and prevention).

The 2025 edition of our magazine offers you a glimpse of the wealth of projects spearheaded by the MHI

The pages that follow contain inspiring stories of patients, donors, and experts. These stories reveal the major innovations that have the potential to have a huge impact on cardiovascular medicine. Genetic screening, artificial intelligence, new valve therapies, women's cardiovascular health: these are just some of the projects that are transforming our approach to heart disease and allowing us to outpace it.
Your dedication to a healthier tomorrow fuels the muscle that is vital to progress. By moving forward as one, we are able to look to the future with confidence.

Thank you for remaining by our side and supporting innovations that benefit every member of our society. Happy reading!

Vol. 5 — 2025

Legacy

The whole is greater than the sum of its parts

The history upon which we are building the future is a rich one. It inspires and elevates us.

As we follow in the footsteps of those who came before us—embodying their hard work and passionate commitment—we remain driving forces of change. We strive to harness our ambition to transform our exceptional heritage into something new.

The here and now, including the challenges we face and the resources at our disposal, provides us with the avenues for self-expression. And the enduring values and resolute convictions we have forged over time empower us with the resilience and motivation to persevere.

Cardiologists at the MHI: carrying on a family legacy

Two different careers, one shared passion: curiosity

When faced with forks in our professional career paths, our values and beliefs often provide guidance for the choices we make. What are the odds that a father and daughter, each shaped by different medical eras, would end up working as cardiologists in the same hospital?

Read on to find out more about Dr. Ihor Dyrda, a distinguished hemodynamics specialist, and Dr. Katia Dyrda, an electrophysiologist—two cardiologists who have excelled in two distinct fields, but both driven by a common desire: to help others.

An era of discoveries and exploration

When a young Ihor Dyrda decided to become a clinical researcher, he wanted to do so in the field of neurology. "It was complete happenstance that I became involved in cardiology. It wasn't planned at all. There was a lot to do in this discipline, and I am someone who is extremely curious. I believe that when you put your whole heart into something, and you keep an open mind, everything—and I mean everything—becomes fascinating," he said.

He joined the Montreal Heart Institute in 1968 at a time when there was still much to do. "There wasn't a lot going on in the field of cardiology in the 60s. Heart surgery was in its infancy, bypass surgery didn't even exist, and valve surgery was very risky, with a mortality rate of about 23%. Today, it's about 2% to 6%. That decade saw huge advances in hemodynamics. With the advent of coronary surgery, we experienced a genuine paradigm shift: we suddenly had the ability to act, intervene, and change lives," he said. The Montreal Heart Institute, a highly specialized medical centre that was just beginning to establish itself, played an important role in this progress.

Making history by boldly embracing pioneering practices

Even though Dr. Ihor Dyrda was just beginning his career, he had a hand in major breakthroughs that marked the history and evolution of cardiology, both here in Quebec and abroad. In May 1968, he took part in the country's first successful heart transplant, a groundbreaking event led by Dr. Pierre Grondin at the MHI.

He then became part of a small team of pioneers in cardiovascular medicine. "For a long time, I was one of the only people to perform myocardial biopsies to detect the early signs of a heart transplant rejection. No one liked doing them. It frightened them!" said the cardiologist who became renowned among his peers for his humility and sense of humour.

Dr. Ihor Dyrda's list of achievements at the MHI is a long one. He was the head of the cardiology department, the head of the emergency medical services and outpatient clinics, the chair of the medical practice evaluation committee, and the chair of the teaching and professional development committee that, under his guidance, was praised by the entire medical profession for the quality of its programs and the excellence of its scientific organization. His work has been recognized by the Association des cardiologues du Québec and, in 2002, the Canadian Cardiovascular Society bestowed the Distinguished Teacher/Mentor Award on him in recognition of his dedication and his significant contributions to education in cardiology.

A passing of the torch in the age of electrophysiology

After studying engineering, Dr. Katia Dyrda joined the MHI in 2012. She began her career as a cardiologist just as her father was ending his. Even though they were professional colleagues for only a short amount of time, it quickly became apparent that the apple did not fall very far from the tree.

Dr. Katia Dyrda exhibits the same curiosity and resolute enthusiasm as her father. Even at a young age, she felt driven by the same passion. "My father worked hard, which to me meant he was doing something interesting. I didn't view work as an obligation, but as something you were passionate about, something that made you feel fulfilled. I really had no intention of following in his footsteps. Then again, his path wasn't one he deliberately chose either. Picking a career was actually quite difficult because I loved everything—I found everything interesting! My father encouraged me to discover lots of different fields such as engineering and physics. I was captivated by aerospace, but I needed people. I needed to be surrounded by people and to help them. Cardiology was the perfect choice for me because it allowed me the freedom to explore, to discover, and to blend engineering with medicine," she said.

More skillsets, more possibilities

Just like her father, Dr. Katia Dyrda began practising in cardiovascular medicine at a pivotal time, during an era marked by major advances in electrophysiology, the discipline in which she chose to specialize. "We both nurtured our sense of curiosity in distinct fields in the time we practised together. I think that what unites us is our ability to follow the flow, to feed it, to not be afraid of being bold. It's a key asset that allows us to keep up with change," she said.

As a cardiologist-electrophysiologist—and someone who also trained as an engineer—she is able to bring an analytical perspective to her practice. "I strive to understand how things work. There is so much uncertainty in medicine; it's an environment that is constantly changing. My vision allows me not only to have a certain control

If Katia's ❤ could speak, here's what it would say:

My biggest fear is settling for a routine. Thankfully, I work in a field that is constantly making discoveries, a field where there is so much to learn and where change is a necessity. The status quo doesn't exist here—that's what I love.

over situations but also to innovate, create, and push boundaries. The people at the MHI are go-getters. The teams are dynamic. It was only natural for me to commit myself in a discipline where everything is always new and constantly changing," she said.

Women in medicine: finding a balance

We asked Dr. Ihor Dyrda how he reacted when he found out his daughter's choice of career. It was the father, rather than the cardiologist, who answered. "She chose something she loved, and she followed her own path to feel fulfilled in what she does. Children may watch what we do, but they ultimately choose what they want. Of course, there was the issue of work–life balance, and I was a bit worried because success takes sacrifice," he said.

Dr. Katia Dyrda is a mother to three pre-teen boys. She says she has been successful in finding this balance in her personal and professional life. "Women are fully accepted at the MHI. It's an environment where we can find ways that allow us to be there for our kids while pursuing our work. I think women will always have to juggle more things, but it is changing. I found a caring environment at the MHI that enabled me to start a family. I work very hard, and my kids are involved in this life I've chosen. For instance, they sometimes bike to the hospital with me or do their homework while I work. Not to mention all the precious moments we've had together when they travel with me for conferences." Despite how intense her day-to-day work may seem, Dr. Katia Dyrda is a cardiologist and mother who has found balance in movement. It is safe to say that this balance is aligned with her personality and values.

A Dr. Dyrda has been part of the MHI for over half a century. Both father and daughter have been at the forefront of the changes made to implement sustainable practices and make advances in cardiovascular medicine. Each of them has been spurred by a desire to excel and push boundaries. "Neither my father nor I would ever accept hearing that we can't do something. The best way to get us involved is to say, 'No, you can't do that!' That means we will definitely want to!" she said.

"I think that what unites us is our ability to follow the flow, to feed it, to not be afraid of being bold. It's a key asset that allows us to keep up with change."

Dr. Katia Dyrda

PREVIOUS LEFT PAGE — Dr. DYRDA, FATHER AND DAUGHTER
PREVIOUS RIGHT PAGE — Dr. IHOR DYRDA
LEFT — Dr. KATIA DYRDA

Cirque du Soleil and the Foundation

25 years of creativity

The 25th edition of the Bal des Grands Cœurs will be held on September 4, 2025, at Bonsecours Market. The event will also mark a quarter century of partnership between the artists at Cirque du Soleil and the experts at the Montreal Heart Institute.

Daniel Lamarre is the former President and CEO of Cirque du Soleil and is currently Executive Vice Chair of the board of the Cirque du Soleil Entertainment Group. He is also Chair of the board of the MHI Foundation. He spoke to us about the inherent connection between artistic and scientific creativity.

Read on as we shine a spotlight on an inspiring partnership rooted in the same desire: to always venture off the beaten path.

Behind the Bal des Grands Cœurs: a flair for the artistic

When Daniel joined Cirque du Soleil in 2001, he had already been a member of the MHI Foundation's board of directors for seven years. The commitment was a natural fit for him. "Many of my relatives have had heart disease: my mom, my dad, my son, some uncles and aunts. When something affects you personally, you feel compelled to volunteer and raise money for the cause. There's an extra motivation there. An unwavering resolve that never fades," he said.

When he started his career at Cirque du Soleil, he also happened to be head of the MHI Foundation's marketing committee, which was working on the idea of organizing a grand ball. "France Chrétien Desmarais, Gaétan Frigon, and I decided it would be a good idea to stage a public event that would bring together donors and healthcare staff. We also wanted a way to raise the profile of the Foundation. We hoped to make the Bal des Grands Cœurs the kickoff event of Montreal's fall season. That meant we had to create something really special and unique. We achieved this by adding a standout performance that infused the event with artistic flair and made it distinctly vibrant," he said.

Circus arts: a vehicle to convey emotions

Circus arts, and their playful, dreamlike, and immersive expressivity, have the power to transcend the intense

emotions associated with something like this. We asked Daniel to tell us how the entertainment provided by the Cirque has impacted the event's philanthropic efforts and goal of raising awareness about cardiovascular disease. "It's all about emotionality. The emotional response associated with this cause is tremendous. And the artistic facet is designed to convey these emotions in an appropriately powerful way that surpasses words. That's why I believe there's an intrinsic connection between the two," he added.

Daniel also believes that the partnership has grown stronger in the past 25 years. "In the beginning, the Foundation would simply ask the Cirque to put on a show, and they would. But over the years, the team at the Cirque has become more emotionally invested. Today, they feel a deep sense of commitment to the MHI. It fuels their artistic spirit. There has been a progressively greater alignment between their performance and the event itself."

Isabelle Rousseau is Director of Events at the Foundation and has been involved in organizing the Bal for the past 18 years. She believes the fruitful collaboration between the Cirque and the Institute is the result of a one-of-a-kind partnership. "For the past three years, there has been a major shift in the relationship between our creative teams. Previous performances were taken from the Cirque's existing shows. Today, they are completely unique. From the get-go, we work to showcase our cause, the very core of our mission, to create this pivotal, highly anticipated moment in a way that reflects what we do at the MHI. When the performance begins, everyone falls silent. It's a highly emotional experience that will later lead to some meaningful interactions and conversations. Circus arts are an exceptional vehicle and a powerful way to forge ties. We are incredibly lucky to have such a profoundly enriching partnership. It's very rare that this happens and we treasure it," she said.

If Isabelle's ❤ could speak, here's what it would say:

I am extremely proud to work for this world-renowned institution and organize events that reflect the creative vision of our teams. It's an honour to collaborate with devoted colleagues to change the future of cardiovascular medicine. I am continuously inspired by the passion and ambition of these exceptional people.

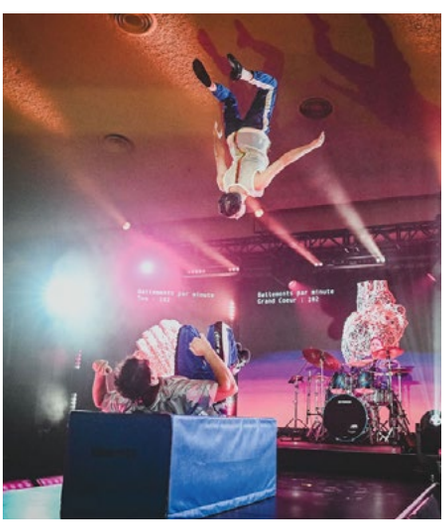
Artistic and scientific creation: a shared quest for novelty

At first glance, arts and sciences might seem as different as oil and water. But both are driven by a momentum to move forward in tandem. "Thanks to my work with the Foundation and my career, I'm able to appreciate the creative processes behind both artistic creation and scientific work," said Daniel. "In both fields, it all starts with a goal. For the Cirque, it's about creating an innovative performance that pushes boundaries. For the scientific research projects carried out at the MHI, it's about developing innovative ways to improve practices. I think research and exploration are at the heart of both. Even though they differ vastly, they share a constant, vital willingness to innovate. A desire to do more, to do better. To explore uncharted territory propelled by an insatiable curiosity."

In that same vein, Isabelle believes that both modes of expression—artistic and scientific—draw their energy from the same source. "It boils down to the same thing: it's a shared stance, a perspective, a desire to push the limits and find ways to succeed. Because we are focused on innovation, the MHI appeals to organizations that, like the Cirque, are motivated by the desire to change lives either through art or science. We are naturally connected because we strive toward the same ideals," she said. The boundless power of innovation Cirque du Soleil, a beloved institution in Quebec, shines brightly on the international stage thanks to its unique innovative force. Daniel believes the same is true for the MHI. "Over the years, the Institute has built an outstanding global reputation for excellence. It has become a leader and an example in its field thanks to its ability to break new ground and make advances in cardiovascular medicine. I recently visited the Mayo Clinic in Minnesota, a teaching hospital that was named the world's best hospital by Newsweek in 2024. During the tour, every time we stopped at a new department, the physician who was taking me around would tell me, 'We're the best in this field.' But when we got to cardiology, he said, 'I'm going to be honest and tell you that everything here was invented by the Montreal Heart Institute. That's the creative hub in cardiology.' I believe that's undeniable proof of the unique spot the MHI occupies in the global community," he said.

But what about his collaboration with the Bal des Grands Cœurs? What fills him with the most pride? His response, like the arts that are his passion, is both moving and surprising: "Physicians are often quite modest and won't say what I'm about to say. When I visited the MHI for the first time in 1997, I was struck by an emotion that was both simple and profound. It was the knowledge that this was a place that saved lives. When I see someone discharged from the MHI, someone who is on the road to recovery, someone who now has a better quality of life, I'm extremely proud. That's what the healthcare staff at the MHI do every day."

Through his words, conveyed with sensitivity and an ability to express the full depth of reality, a gift reserved for the true artists of this world, Daniel has shone a spotlight on the immense and vital work that occurs day in, day out at the MHI. Renewed proof that the collaboration between the Cirque and the Foundation is greater than the sum of its parts.



"When I visited the MHI for the first time in 1997, I was struck by an emotion that was both simple and profound. It was the knowledge that this was a place that saved lives."

Daniel Lamarre

PREVIOUS RIGHT PAGE — DANIEL LAMARRE

Vision

Following the right path

Innovation always starts with a vision. Moving forward and implementing sustainable change requires meticulous planning and careful consideration to determine the right course of action.

While various avenues may seem promising, the right path will always become clear by aligning know-how with insight.

Only by boldly assessing the challenges we currently face can we perceive our way forward with absolute clarity.

Women and cardiovascular health

Finding the right rhythm

+50%

No matter how groundbreaking, scientific discoveries always leave lingering questions. While life-changing medical advances have been made over time, our understanding of some areas of science is still incomplete.

For instance, why is heart disease often perceived as something that only affects men? And why, after decades of medical progress, has the cardiovascular health of women remained a topic that is misunderstood and understudied?

Cardiovascular health has always been approached with a universal lens, one that has often ignored the biological characteristics of women. And yet, heart disease remains the world's leading cause of death in women over the age of 35.

Why? Because women are often unaware of the warning signs of heart disease, since these tend to be less pronounced than in men. In fact, atypical symptoms make heart issues difficult to diagnose in women. Even standard medical checkups sometimes fail to identify these problems. Moreover, many treatments tend to be developed for male patients and often fail to take into account the specificities of women's health.

Getting back on track

At the Institute, we know that a woman's heart is unique and complex, and deserves our full attention. We are pursuing research projects that not only address this shortfall but also create pathways to developing more precise treatments and prevention strategies tailored to women.

Heart attack symptoms go unrecognized in over 50% of women.

Women and cardiovascular health

Finding the right rhythm

PREVENTION RESEARCH

Dr. Claudine Gauthier

-50%

Less than 50% of Canadians are aware that risk factors for heart disease in women differ from those in men.

Menopause: understanding the impact of declining hormones on a woman's brain and heart

Did you know that, before menopause, women have a natural protection against heart disease? But once menopause occurs, the body decreases its production of hormones and this protection quickly disappears, thereby significantly increasing the risk of vascular problems.

Dr. Claudine Gauthier has a PhD in physiology and is a researcher in magnetic resonance imaging. She has been exploring the effects of hormones on the development of heart disease and cognitive impairment in women.

"The same recommendations are often issued to everyone, but women need their biology to be taken into account if we want to find solutions adapted to them. The symptoms of menopause—fatigue, depression, anemia, weight gain, and so forth—can be difficult to deal with. Currently, hormone therapy is prescribed only to alleviate these symptoms. But if hormone therapy could also prevent vascular disease, it might become more utilized."

Dr. Gauthier is conducting a study of women aged 30 to 60 that aims to demonstrate that hormone therapy could prevent heart problems and cognitive impairment caused by hormonal changes. Her research, which combines advanced imaging and preventive medicine, provides a new perspective that will increase our understanding of vascular aging and optimize prevention strategies for women's health.

Dr. Simon de Denus

-30%

For years, less than 30% of participants in phase I studies were women, leading to knowledge gaps in terms of dosages.

Precision medicine: tailoring dosages to women

Cardiovascular drug prescriptions are still largely based on a one-size-fits-all approach. However, women report more adverse effects than men to several categories of drugs, such as anticoagulants, antihypertensives, and antiarrhythmics. For example, anticoagulants used to reduce the risk of embolism lead to a higher incidence of bleeding in women because dosages are generally based on studies in which men were overrepresented—studies that did not take into account the physiological, metabolic, and genetic differences that impact a person's response to medication.

Dr. Simon de Denus is currently conducting a pharmacogenomics study on an unprecedented scale and analyzing the concentrations and effects of nearly 50 drugs, mostly cardiovascular, in 10,000 people who are part of the Institute's Biobank. His objective is to identify the clinical, physiological, and genetic determinants that explain why women are more susceptible to adverse effects, and to determine whether these differences persist after adjusting for factors such as weight or kidney function. The question is ultimately whether dosages should be adjusted according to a person's weight, genetic profile, sex, and other individual characteristics.

"We need to move from a standardized approach to precision medicine if we want every patient, especially every woman, to benefit from care tailored to their unique profile."

By taking a closer look at the concentrations of cardiovascular drugs, this project could transform the way treatments are prescribed. It could reduce the occurrence of adverse effects and improve the quality of life of women and men alike.

Women and cardiovascular health

Finding the right rhythm

CLINICAL RESEARCH

Dr. Guillaume Marquis-Gravel

x2

Women are twice as likely to die of a heart attack than men.

Women and heart attacks: searching for safer treatments

Every decision counts after a heart attack. Standard treatments involve angioplasty (a procedure that widens the arteries), followed by dual antiplatelet therapy, which often combines ticagrelor and aspirin to prevent further heart attacks. However, nearly one-third of patients—mostly women with atypical symptoms—are not eligible for an angioplasty because they have a greater number of risk factors that could lead to bleeding. These can include kidney failure, age, anemia, or cancer. Furthermore, this population is largely under-represented in clinical studies. As a result, optimal antiplatelet treatment strategies are still poorly understood.

Dr. Guillaume Marquis-Gravel and his team are leading PANTHEON, a major study that could revolutionize the quality of care these patients receive. They hypothesize that the use of ticagrelor on its own, without aspirin, could considerably reduce the risk of bleeding while providing effective protection against recurrent heart attacks.

"It's vital that we rethink our approaches to better protect women after a heart attack. Our objective is to adapt treatments to reduce unnecessary risks and provide them with safe, efficient care."

Thanks to a meticulous approach and a large cohort of patients who are monitored for a year, this project could fill a huge knowledge gap in cardiology and lead to new recommendations that are more suitable for women. By rethinking post–heart attack treatments, the PANTHEON study paves the way for safer approaches that reduce the risk of complications, thereby offering therapeutic solutions that would mark a turning point in cardiovascular medicine.

Dr. Céline Fiset

+50%

During pregnancy, the heart works 50% harder.

Arrhythmia and pregnancy: when research becomes vital

A pregnant woman's heart is certainly put to the test: her resting heart rate increases, and so does the risk of arrhythmia. When irregular heart rhythms occur too frequently, they can put the health of the mother and fetus at risk. But the mechanisms responsible for these changes remain largely unexplored.

Dr. Céline Fiset, who has a PhD in pharmacy and is a researcher in cardiac electrophysiology, has focused her work on these unseen yet significant changes. Her goal is to understand how and why pregnancy affects the heart's electrical activities and to identify the molecular and cellular mechanisms underlying these variations.

"Today, more women are becoming pregnant later in life and present risk factors such as high blood pressure or obesity that can exacerbate arrhythmia. Improving the scientific community's understanding of these mechanisms could help expectant mothers experience safer, less stressful pregnancies."

Using innovative approaches, Dr. Fiset has been studying the electrical properties of cells, that is to say the expression of genes and proteins that regulate cardiac function. In other words, she is shining a spotlight on the processes responsible for an increase in heart rate and the risk of arrhythmia. By revealing how complex a pregnant woman's heart is, she is paving the way for the development of appropriate treatments and preventive strategies intended to protect both the mother and her unborn child.

The Durocher bequest

A transformative legacy gift

Since it was created in 1977, the MHI Foundation has relied on the generosity of a community of passionate individuals who help us transform our vision of philanthropy. Paul Durocher's bequest was a transformative action that greatly stood out in 2024. Upon his death in March 2023, Mr. Durocher bequeathed an exceptionally large sum to the Foundation.

Read on to find out more about a donation that has redefined philanthropy in Quebec and highlighted the transformative power of testamentary donations.

$42M

A visionary act that embodies our commitment to pushing boundaries.

Paul Durocher, a compassionate entrepreneur and philanthropist

As someone who cared a great deal about the Montreal Heart Institute, Mr. Durocher was resolute in his commitment to advancing its fight against heart disease. With the help of two long-time friends, Adrien and Vittorio, he organized a variety of fundraising events that rallied an entire community of donors around the Foundation—a community that is still active today.

Mr. Durocher was a creative, tenacious, and bold entrepreneur who came from a modest background and wore his heart on his sleeve. Throughout his time in the hospitality industry, he was always involved in his community. He was also profoundly humble and shied away from the spotlight. He had a desire to leave a tangible mark on Quebec and wanted to ensure the sustainability of hospital and social services. Unbeknownst to anyone, he had made plans to posthumously donate a significant portion of his assets to four Montreal institutions that were dear to him.

He had a personal connection to the MHI—he and his wife had been monitored by its healthcare teams for many years. He even wanted to spend his final days at the Institute, a testament to how important it was for him and a sign of his desire to help sustain efforts aimed at providing the highest-quality care.

A donation by will: one single act, myriad benefits

Laurent Fréchette is a notary emeritus who volunteers for the major and planned gifts committee. He believes that Mr. Durocher's gesture marks a new chapter in philanthropy and notes that there has been increased awareness of the profound benefits associated with testamentary gifts.

"For the past decade or so, we've seen a change in the mindset of people who now have a better understanding of how wealth transfer works. Thirty years ago, donations by will were not a topic notaries ever discussed. Over the last 10 years, as the baby boomer generation has gotten older, wealth transfers have become more common. We are also more familiar with the tax implications of these gifts. And younger people, the heirs, have a greater social awareness. They see their own values mirrored in their parents' social activism, and they support the philosophy behind these gestures. We now have a better understanding of the tax burden upon death and know that donations

reduce tax liabilities while greatly benefiting charities. It's an act that really is advantageous. People are also more open to discussing these important matters with their family members than they used to be," he said.

Every donation counts: joining a movement that makes a difference

Mr. Fréchette is convinced that bequests, no matter how modest, can have a real impact on scientific progress and medical care. "Mr. Durocher's bequest is obviously an exceptional gift, but everyone needs to understand that you don't have to be wealthy to make a difference. There is no such thing as a small donation. When a lot of people each give a little, the snowball effect comes to life. We might not all have the same financial standing, but our actions all carry the same weight."

Several resources are available to anyone who wants to turn their desire to contribute into concrete action or find out more about the benefits of bequests. "In terms of planning for the future with a notary, the tax tools at our disposal show that a bequest is not very costly. Ultimately, it proves to be a practical, beneficial, and highly advantageous act. You can have a huge impact while still leaving the majority of your assets to your loved ones. When you decide to move forward, you need to evaluate how much the gift could represent and discuss the terms. Keep in mind that this kind of support is readily available at the Foundation. The Planned Gifts team supports donors in this process. They are specialists who can also aid notaries with bequest planning," said Mr. Fréchette.

When a movement's impact becomes tangible

As the name implies, planned giving allows the organizations that will benefit from these contributions to make financial forecasts and lay the groundwork for future projects. Whether it's to promote prevention, research, care, or education, "this information enables us to plan, optimize resource allocation, and increase efficiency. Mr. Durocher's donation has had tremendous repercussions by allowing various projects to get off the ground. In simple terms, it means we can accelerate the pace of change to help more people," said Mr. Fréchette.

The MHI will use Mr. Durocher's posthumous gift to implement a major project that represents an immense breakthrough in modern cardiology. By using minimally invasive techniques to treat heart valve disease, this initiative will revolutionize the MHI's medical practices.

Straight to the heart: a Foundation where every donation is used

The MHI's credibility and reputation for excellence have enabled the Foundation to call upon skilled experts such as Mr. Fréchette who help make the best use of the donations received. "The major and planned gifts committee can count on professionals with expertise in finance and specialists who volunteer their time and share their knowledge to ensure that every dollar fully benefits the Foundation. The administrative overhead is incredibly low; the money goes toward the actual cause. We are very careful to make the most of these funds, with activities that are carried out in a way that is aligned with this intent," said Mr. Fréchette.

"Leaving something behind after your death is a profoundly altruistic act. I've noticed that donors are grateful to the organizations that have helped them and changed their lives. They are driven by a desire to give to others, to give back to their community. And there is a domino effect, since these kinds of gifts then inspire the organization to ensure that the bequest has the greatest possible impact."

"Mr. Durocher’s donation has had tremendous repercussions by allowing various projects to get off the ground. In simple terms, it means we can accelerate the pace of change to help more people."

Laurent Fréchette

PREVIOUS RIGHT PAGE — PAUL DUROCHER
LEFT — LAURENT FRÉCHETTE

Innovation

Bringing something entirely new into existence

Innovation is a state of mind. It enables us to question accepted beliefs, push boundaries, and upend the established order.

It arises from an enthusiastic pursuit of the unknown, an invitation to test the limits of what is possible. Innovation tirelessly blazes trails where none existed and turns what once seemed impossible into achievable outcomes.

It fosters a balance between observation and action, a delicate dance where forward movement depends on the equilibrium of two forces: patience and audacity.

To innovate means to venture into the unknown while maintaining an unwavering optimism for the future.

The future is now

Rethinking the ways of treating heart failure with new valve devices and procedures

Dr. Walid Ben Ali is a heart surgeon and distinguished researcher who performs percutaneous heart valve replacements using minimally invasive treatments that have the potential to provide accessible solutions to a wide population. At the MHI, Dr. Ben Ali dispenses care, and studies, observes, and imagines innovative ways of treating heart valve disease and improving the quality of life of people with heart failure.

Read on to find out more about an ambitious, passionate physician who is committed to developing technologies that will revolutionize specialized care.

Necessity is the mother of invention

Why do we invent? This question, asked out of the blue, seemed to stir Dr. Ben Ali's creativity and sense of pragmatism. "We invent because there is an unmet need. When you're a clinician and you aren't able to treat someone who is ill, you feel a deep sense of frustration. You ask yourself what's missing, what could be done to achieve your goal. You need to get out of your comfort zone if you want to come up with a solution and tackle the problem."

For Dr. Ben Ali, the resulting inventive mindset brings with it a sense of mental clarity. "Developing technologies and devices is a real breath of fresh air for me. It's something I even toy with during my time off—I'll be on the beach and sketching ideas on napkins. I literally carry my ideas around in my luggage!" he said.

Heart failure: directing action to areas of need

As we get older, our heart valves naturally degenerate. They stiffen and become less effective. In an aging population, the incidence of valve disease is rising and becoming a growing public health challenge. People with this condition may experience shortness of breath, severe heart failure, and an increased risk of fainting and dying. Fortunately, minimally invasive techniques have been used in the past two decades to replace malfunctioning valves.

But, contrary to popular belief, only a very low percentage of people with heart valve disease can benefit from these kinds of treatments. "In the U.S., 200,000 people are diagnosed with severe mitral regurgitation every year.

Unfortunately, only 2% will be able to be treated. Some 30% of those who are not treated will die within the year following their diagnosis, and 50% in the three years after that. This is mainly due to the fact that for most people with this condition, no real solution exists. For anatomical reasons, devices cannot be safely implanted," said Dr. Ben Ali.

Searching for solutions: creating a device that can benefit everyone

Making the most of difficult situations: that's Dr. Ben Ali's personal philosophy. "Invention is fundamentally about addressing a need, and that's where its appeal comes from. At the MHI Research Centre, we recently developed a percutaneous device for cutting aortic, mitral, and tricuspid valve leaflets. This makes it easier to treat people who could otherwise not be treated in a safe and reproducible manner. This revolutionary device will change the outcome for thousands of people. My stubborn resolve in making this happen was shaped by a deeply personal story. A friend's father died due to complications during heart surgery. So I felt an extreme sense of urgency to come up with a new device that would facilitate percutaneous replacements, something that would work for everyone. We worked in tandem with engineers at the MHI and, a few months later, the device was complete. We obtained the patent."

AI and 3-D printing: a new era of safe testing

AI simulations now allow new procedures and valve devices to be tested on ex vivo hearts created using modelling tools. "We test all our techniques and tools on high-resolution, 3-D printed silicone models," said Dr. Ben Ali. "This allows us to model hearts that we were previously unable to treat to find out how to proceed. We can explore ways of redoing a procedure and understanding what didn't work. With AI tools, we can segment the heart to create extremely realistic pulsatile models that accurately mirror the anatomy we want to treat. We can test the new device and finalize its development. We can find the optimal implantation route to ensure the procedure is as safe and effective as possible. The great news is that AI will democratize healthcare because it is an inexpensive technology that does not require a lot of resources or staff to operate. What AI offers is the possibility of providing solutions that can benefit all of humanity."

65%

of patients are discharged the day after a percutaneous aortic, mitral, or tricuspid valve procedure, with most of them resuming their normal activities after one week.

The relationship between medicine and engineering

What does it take to get a project off the ground? For Dr. Ben Ali, one invaluable asset that is a guarantor of success is the collaboration between physicians and engineers. "Engineers are involved in all our research projects. Our teams include medical students as well as students from Polytechnique Montréal because they have the ability to turn our vision of technology into practical applications. Physicians face problems that are clinical and anatomical in nature. Engineers know how to handle constraints. We therefore need to work closely together, and we need to ensure we all speak the same language so we can balance these needs and constraints to make the project a success," added Dr. Ben Ali.

On the cusp of major changes with multi-benefit treatments

The percutaneous procedures carried out by Dr. Ben Ali and his colleagues are indicative of a paradigm shift in ways of thinking in the medical field. "For patients, that means treatment times are shortened significantly. It also means less pain, fewer medications, and fewer adverse effects. Recovery is quicker, and their quality of life is improved nearly instantly."

This streamlined hospital process yields substantial socio-economic advantages, especially in a context where an aging population is increasingly straining the healthcare system. Less invasive therapies represent a modern solution because they significantly cut the costs of hospitalizations, reduce waiting lists, and allow more people to be treated.

Heart valve therapies: combining forces to go further

In the face of new challenges, the MHI decided to establish a unit to bring together specialists in percutaneous valve procedures. Its goal is an ambitious one: to become a North American leader by 2028. "It's a way for us to consolidate our resources, combine the strengths of structural and percutaneous treatments, and provide patients with optimal options adapted to their anatomical needs. We also want to carry out all our research in a single location to develop treatments that will shorten hospital stays even more, promote recovery, and help patients return to their daily activities quicker. That requires a solid support structure. The ultimate goal is to ensure people can benefit from it as much as possible," said Dr. Ben Ali.

When we asked him about any final thoughts he wished to convey, Dr. Ben Ali was emphatic in his response. "The future is now. Even if it seems far off, it's really already here. So we need to give ourselves the means to take on the future today. We have to drive innovation. The MHI needs to be at the forefront of the field, just like it always has been. With human life expectancy increasing, degenerative valve disease is already a very real problem—it is the leading cause of heart failure. If we don't want this reality to become a burden for society, we have to come up with technologies aligned with these needs. And we have to do so with courage and determination," he said.

PREVIOUS RIGHT PAGE — Dr WALID BEN ALI

A targeted donation to expand the frontiers of AI research

Prioritizing the development of new healthcare technologies

Our relationship to AI has profoundly changed over the past decade. The emergence of a plethora of tech tools has radically altered what we consider to be possible. In the healthcare sector, AI has the potential to accelerate the pace of discoveries and transform our understanding of diseases. Making research in AI a priority will enable our society to become leaders in innovation and elevate the quality of care dispensed.

However, health sciences must study the potential impact of AI with rigour and moral integrity. How can we develop cardiovascular health tools in an ethical and responsible way? What types of solutions will these tools offer?

Thanks to a major donation from Étienne Veilleux and his spouse, Maria Lorenzo, the MHI is mobilizing researchers who are propelled by a bold, innovative vision to implement a one-of-a-kind project: the AI Research Chair. Read on to find out more about these two donors whose targeted donation will enable researcher Dr. Julie Hussin and her team to implement bioinformatics systems designed to better understand cardiovascular health.

"I was fascinated by the technology, how 3-D imaging was used and the role of research. The experts at the MHI have an exceptional scientific vision and an outstanding ability to innovate."

Étienne Veilleux

Harnessing convictions to champion clear objectives

As an entrepreneur and investor who has made his mark on the international stage, Étienne is fascinated by the potential of new technologies. In fact, he recently launched a wealth management company that uses AI to empower financial advisors. Moreover, he and Maria are very involved in philanthropic causes related to youth, healthcare, and social justice.

Several members of Étienne's family (his grandparents, his father, and his brother) have had to deal with cardiovascular health issues over the past few years. It was a visit to the MHI that sparked in him a strong desire to become involved. "I was fascinated by the technology, how 3-D imaging was used and the role of research. The experts at the MHI have an exceptional scientific vision and an outstanding ability to innovate. It often seems that research centres are the last to embrace new technologies. But at the MHI, there is a genuine willingness to be at the forefront and to become a pioneer in the field. They have the courage to envision ways of utilizing AI to improve care. I was struck by their philosophy because it's one that I also share," he said.

The AI Research Chair: a universal framework for a human-centric, personalized approach to care

Dr. Julie Hussin has a PhD in bioinformatics and has been an associate professor in the department of Medicine at the Université de Montréal since 2016. She is slated to lead the AI Research Chair that will provide funding for researchers specializing in

If Julie’s ❤ could speak, here’s what it would say:

There is a unique connection between innovation and being human. Behind every algorithm is a profound desire to understand and treat vulnerable hearts. To strengthen the ties between technology and life to ensure that each patient can access efficient, equitable care.

bioinformatics and personalized medicine. Dr. Hussin’s lab uses biological data and computational methods to study the basic processes that influence cardiovascular health.

Learning to use technology to better understand health

Dr. Hussin has an impressive academic background in both computer science and biochemistry. "Every individual is unique," she said. "But our current healthcare system only considers one-size-fits-all preventive and therapeutic solutions. Faced with the limits of this approach, we are now aiming to develop solutions that are more targeted and more personalized—solutions that focus on precision medicine. AI allows us to benefit from technologies that, when applied to scientific fields, empower us to achieve greater precision in prevention, diagnoses, and treatments. In other words, we are attempting to build automated learning tools that could process data in a systematic way to guide us in the development of new solutions."

Developing new technologies in cardiology in a responsible way

Since the rise of AI, myriad fields have carried out research projects and experiments to explore ways of integrating this technology into their practices, be it in terms of communication sciences or robotics. According to Dr. Hussin, however, integrating AI into natural and medical sciences comes with its lot of challenges. "Employing AI in biology and the healthcare sector is not as easy as employing it in human-created

systems. Using AI to process texts or images is vastly different than using it for matters related to natural phenomena. If we want to incorporate AI into the healthcare sector, we need to mobilize researchers to build a comprehensive vision and approaches that address the intricacies of the human body."

To avoid biases and develop AI tools in an ethical and responsible way, Dr. Hussin and her team want to create methodologies inspired by current medical data to extract potential models. "We base our models on the data itself. This is very different from imposing a preconceived vision on the data or letting the data generate new hypotheses to explore. For instance, we came to the conclusion that a lot of our data comes from men of European descent and that we are lacking information about the cardiovascular health of women. With that in mind, we can develop computational methods to compensate for this bias in the algorithm by adjusting data representation. The data we have also demonstrates that genetic variations closely correlate with the ethnicity of subjects and plays a role in their risk of developing heart disease. Because ethnic minorities are also underrepresented in our data, we are attempting to restore a balance to develop solutions tailored to these groups," said Dr. Hussin.

Donors: essential to exploring new avenues

Étienne decided to provide the Foundation with the means necessary to create the AI Research Chair after a visit to the MHI. His objective is to support research and find solutions at a quicker pace. "I want to help accelerate research, propel it forward, make it more efficient, and help it enact concrete applications. New technologies will usher in many changes. That's a very motivating thought. Maria and I wanted to become involved with the cause because we profoundly believe it will benefit society as a whole. The more that high-net-worth individuals like us invest in our community, the more people's standard of living will improve. That's the ultimate goal," he said.

Dr. Hussin also believes in the importance of financial support for research. "The long-term future of our projects is often threatened. Because we operate in a publicly funded sector, we continuously depend on government funds. We often start projects that can't be completed due to a lack of funding. It's important to see things through to the end, and in projects as innovative as the ones involving AI—projects whose potential benefits are immense—maintaining momentum is the key."

Major philanthropists who support these kinds of advances provide researchers with the opportunity to develop a long-term vision. They also enable teams to establish solid infrastructure and recruit skilled, full-time employees. "This is precious, and it changes everything. This kind of support also means we can plan for the next several years, knowing we can innovate and venture off the beaten path without encountering short-term productivity challenges. Our work is a long-term process and entails trial and error. That's how we can move forward. The Chair will provide us with the opportunity to carefully assess the still-unknown and enormous potential of AI," said Ms. Hussin.

PREVIOUS RIGHT PAGE — É. VEILLEUX AND M. LORENZO

LEFT — JULIE HUSSIN

Commitment

Supporting and helping others: actions fuelled by a heartfelt desire

The efforts we deploy are a reflection of our profoundly held convictions.

Whether in an emergency room, a consultation room, or a lab, we are driven by the belief that, together, we can transform the lives of those who matter to us.

Given the major challenges that lie ahead, we know we are fortunate to be able to count on invaluable individuals who are always by our side, ready to lend a hand.

Because moving this cause forward requires more than time; it demands a devotion that comes from the heart.

When every second counts

The story of Julie Lacombe

There are certain moments that serve as reminders of how unpredictable life can be. In these jarring instances, the ability to work as a team and operate with synchronized precision makes all the difference. What recently happened to Julie Lacombe—whose life was saved after she experienced a cardiovascular incident as she was driving to Montreal—is a testament to the spirit of goodwill and cooperation that emerges in situations where everything can change in a heartbeat.

In the right place at the right time

Julie is a mother of three children, aged 12, 15, and 16. On July 22, 2024, she left her home in Saint-Constant, on her way to Montreal. "I remember leaving my house very early, around 6 a.m. But after that, nothing. I have no memories of that morning or what made me head to the Institute. Was I in pain? Was I not feeling well? All I know is that I got to the ER without calling my children or even understanding why I was there. It's as if my body was on autopilot. I think that day, the stars were aligned for me," she said.

Dr. Carmen Baltazar is an ER physician at the MHI. She remembers seeing Julie. "She took a seat in the waiting area after handing me her hospital card and telling me she didn't feel well. Then, she collapsed. The team reacted immediately. There was no time to waste. We had to get her to the resuscitation room to start CPR. Needless to say, events like that don't happen every day," said Dr. Baltazar.

Meanwhile, the team in the emergency department tried unsuccessfully to get in touch with someone at Julie's home. They finally reached her ex-spouse, and he was able to be there for their kids. They didn't go see her at the Institute right away, given all the unknowns and how frightening the situation was. But they were there two days later when Julie regained consciousness. "When I finally woke up, I immediately recognized my daughter through the mask I was wearing. She was very emotional. She kept telling me not to move, that she had met with the doctors and that everything was going to be all right. Then Dr. Bellemarre, the intensive care physician on call, asked me if I recognized him. I said no. He told me he had been part of the team that first saw me and that I'd suffered a cardiac arrest."

When everything falls into place

When Julie showed up at the MHI, the medical teams on the day shift had just come in to take over from the night shift, but rounds hadn't yet begun. That meant there were a lot of staff members on site. Dr. Pierre-Emmanuel Noly is a heart surgeon who was there that day. He explains what happened next. "The emergency physicians immediately sprang into action. We have an entire protocol in place for when a cardiac arrest occurs in the emergency room. She was lucky to be in the right place at the right time. It all happened in a highly specialized healthcare centre, surrounded by people who reacted immediately—they had the right training, the right skillsets, the right tools. Because many different specialists were available, in the span of a few minutes she was being cared for by orderlies, perfusionists, surgeons, anesthesiologists and lots of other specialists," said Dr. Noly.

The team quickly decided to put Julie on ventilatory support. "When someone is having a cardiac arrest, there is a very small window of time to act," said Dr. Noly. "Every minute counts. But interventions in this kind of situation present extremely complex technical challenges. For instance, connecting the patient to an extracorporeal blood pump to temporarily replace their heart and lung function requires specialists from different disciplines to work seamlessly together. Effective communication, especially between anesthesiologists and surgeons, can sometimes make all the difference." In that critical moment, it all came together. The healthcare teams administered CPR, were able to quickly and effectively relay information, and carried out a transesophageal echocardiography to get images of her heart in real time. In other words, they saved Julie's life.

If Julie’s ❤ could speak, here’s what it would say:

It would say how each one of its beats is a gift. I now embrace every moment with my kids and loved ones, knowing that we can’t take anything for granted. I’m here today because a whole team refused to give up. To everyone who took care of me, who put their knowledge and their whole heart into every action you took: thank you! Thank you for believing in me. Thank you for giving me a second chance at life.

Combining skillsets to deliver optimized healthcare

An event like the one experienced by Julie—and the teams who treated her—is rare. "It really got to us. There was something incredibly satisfying for every professional who helped her that day. It really is a testament to the power of solid teamwork, where everyone comes together like a well-oiled machine. There wasn’t just one single thing that saved her life. It was a combination of everything that took place and the continuity in the care she received—from the moment she experienced a cardiac arrest to her discharge from the hospital. At the MHI, we work very hard to mobilize several key actors at the same time and make the right decisions because we know it’s vital that we do so. We know time is of the essence," added Dr. Noly.

When it comes to cardiovascular medicine, interdisciplinarity is crucial. Implementing this approach in an efficient way is a complex endeavour that constantly requires meticulousness, attention, and dedication. It is a fine balancing act that all the teams at the MHI are already good at and are committed to improving on an ongoing basis.

Creating new memories

After a three-week stay at the MHI, Julie was able to go back home. We asked her if anything had changed in her life since that fateful day in July 2024. Her answer is an emotional one. "It’s clear to me that I really have to enjoy life. I’ve gotten a second chance. I used to put things off all the time and postpone my plans. For instance, I promised my youngest that we’d go to New York when she turned 12, but we didn’t end up going. Once I’m completely recovered, we will make that happen, so we can create new memories together," she said, confident in the knowledge that the universe was indeed looking out for her that day.

"At the MHI, we work very hard to mobilize several key actors at the same time and make the right decisions because we know it’s vital that we do so. We know time is of the essence."

Dr. Pierre-Emmanuel Noly

PREVIOUS LEFT PAGE — JULIE LACOMBE

PREVIOUS RIGHT PAGE — JULIE AND HER CHILDREN

LEFT — DR NOLY, DR BELLEMARRE

How genetic screening can save entire families

The inspiring story of Marlène Freitas and her loved ones

When you're young and have your whole life ahead of you, you think you're invincible and can do anything. You confidently believe that the world belongs to you, that the future will always be bright. But sometimes, things turn out different.

What happens when an incurable disease suddenly throws your future in doubt? Thankfully, there are exceptional people, cutting-edge medication, and medical innovations that can help tackle what lies ahead. This is the story that unites Marlène Freitas, a patient with congenital heart disease, and cardiologist Dr. Philippe L.-L'Allier. One that demonstrates the transformative power of medical advances.

If Marlène's ❤ could speak, here's what it would say:

It would say that every challenge I've faced has only strengthened my resolve. I held on, knowing there was hope for a life that I never thought possible. But my greatest joy, the greatest gift I received, was having the strength necessary to carry a pregnancy to full term and welcome my little miracle into the world.

Learning to live with a heart condition at 20

Marlène was just 20 when her family physician told her she had a heart murmur. "My doctor had referred me to a cardiologist to undergo tests. When he was explaining the condition to me, I was incapable of processing what he was saying. It was a world that was completely unknown to me. He then told me that the severity of my condition meant I had to be monitored. I was referred to Dr. L.-L'Allier at the Montreal Heart Institute," she said.

After undergoing myriad tests, she was diagnosed with cardiomyopathy. The results came as a shock to someone whose life was so full of potential. "It really hit me hard because I'd always been physically active. Everything changed in an instant. Knowing that I had an uncurable genetic disease and that there was no possibility it would go away was a huge blow. But Dr. L.-L'Allier took time to reassure me and clearly explain everything so I could really understand what cardiomyopathy entails. My heart is a bit different from everyone else's. It needs to work harder to pump my blood. That's what's referred to as heart failure," said Marlène.

Innovations in genetics that saved an entire family

Heart failure made the most basic daily tasks overwhelming for Marlène. "Even sweeping the floor in a tiny room could take me up to 20 minutes. Fortunately, thanks to the care I received at the Institute, my effort capacity increased from 25% to 75%. Dr. L.-L'Allier and his team completely changed my life."

What is remarkable is that these scientific breakthroughs at the MHI have not only transformed Marlène's future, but they've also had an impact on her entire family. "My father, who had developed heart issues, was quickly diagnosed and treated. Because it's a genetic condition, all our relatives were screened for the disease. These advances have greatly benefited my family because when you have a better idea of what the future has in store, you're able to prepare," she said.

Avoiding worst-case scenarios through screening

Throughout his career, Dr. L.-L'Allier has witnessed the scientific progress in genetics that has transformed our relationship with heart disease. "Even a decade ago, there was no way to use genetic analysis to detect latent hereditary diseases. We've developed an expertise and technology that now allow us to establish the genetic profile of entire families, like the Freitases. Cardiomyopathy is one of the leading causes of sudden death in young people who are unaware they have this condition. We need to raise awareness of the fact that anyone can develop the disease. But when we know, we can do something about it," said Dr. L.-L'Allier.

Thanks to screening, Dr. L.-L'Allier and his team were able to identify dozens of people in the Freitas family who carried the gene. They are now monitored at the MHI. This revolutionary breakthrough, which few teams in Canada have access to, is an innovative tool that can save many lives.

"Cardiomyopathy is one of the leading causes of sudden death in young people who are unaware they have this condition. We need to raise awareness of the fact that anyone can develop the disease. But when we know, we can do something about it."

Dr. Philippe L.-L'Allier

A miracle amid the hardships

In 2014, Marlène was going through a difficult time and dealing with episodes of tachycardia. But there was a big surprise in store. "I thought I was still having arrhythmia. I felt nauseated, out of breath, and so forth. But it turned out I was pregnant. I told Dr. L.-L'Allier right away," she said.

We asked Dr. L.-L'Allier to tell us about the event that was so central to his patient's life. "Her heart failure limited her greatly. But with the right medication, she was able to regain the physical capacity of someone her age," he said. "These treatments allowed her to carry her pregnancy to term—something we didn't initially think was possible. Most young women with heart failure can't." Marlène's dream became a reality. "When I told him the news, Dr. L.-L'Allier alleviated my fears and told me that my heart would hold up, that it was okay, that I could have a child, that it was possible."

"We closely monitored her to make sure everything was all right. We supported her, and she now has a beautiful, healthy daughter," added Dr. L.-L'Allier.

Donations: at the heart of medical research and advances

The generosity of donors can positively transform the quality of life of people who, just like Marlène, are affected by heart disease. As a young mother, she experiences the effects of this generosity day in, day out. "I can live my life in a way that I didn't think possible. I can be there for my daughter as she grows up. And if anyone in my family who carries the gene experiences a problem, they'll be treated quickly. I am living proof that support from donors is essential."

PREVIOUS RIGHT PAGE — MARLÈNE FREITAS
LEFT — MARLÈNE'S DAUGHTER
RIGHT — DR PHILIPPE L.-L'ALLIER

GENE CHIPS, ALSO CALLED DNA MICROARRAYS, CAN ANALYZE MORE THAN 1.5 MILLION GENETIC VARIANTS IN A SINGLE INDIVIDUAL, THEREBY LEADING TO A DETAILED UNDERSTANDING OF THEIR GENETIC PROFILE.