

state
of the
heart





Table of Contents

2	A Message from Our Leaders
3	Programs
17	Research
21	Continuous Quality Improvement
25	Education
27	University Hospital Foundation

This Annual Report was made possible thanks to generous funding provided by the University Hospital Foundation.

Many of the photos courtesy of the University Hospital Foundation.

“I suffered a heart attack and very fortunately was transported to the Mazankowski by ambulance. From the moment I arrived the attention and care provided to me was exceptional. The prompt medical care I was afforded undoubtedly saved me from serious harm or death. Most importantly, the effective and timely communication between the various health care professionals involved was obvious and provided my wife and I with a sense of calm throughout the ordeal. From intake to the day of discharge I was left feeling as though I was in the presence of professionals.”

Gerry Gunn, patient





2016-2017 was another exciting year at the Mazankowski Alberta Heart Institute. Our 2nd annual report, State of the (He)art, highlights our programs, recent successes and the impact we have on patients each and every day!



A Message From Our Leaders

Over the course of the last year, the team at the Mazankowski Alberta Heart Institute (Maz) has continued to strive to be a leader in patient care. This year, we have taken steps to strengthen our already successful team through the recruitment of highly skilled clinicians with new skill sets and expertise. As a result, the care we deliver to patients continues to be leading edge.

Innovation remains at the forefront. With the support of the University Hospital Foundation, we successfully organized the 1st Jim Pattison Cardiac Rehabilitation Symposium, attended by leaders in the field from across the nation. This symposium resulted in a special publication by the Canadian Journal of Cardiology, which highlighted several Maz researchers and their exciting work. The Maz has also been well represented at many local and national conferences. This year alone, members of the Maz team were recognized in nearly 90 presentations, workshops, abstracts, posters, and symposiums that were presented at the Canadian Cardiovascular Congress.

We remain committed to educating our current team members and those individuals who are the future of the Maz. We have top residency programs for both Cardiology and Cardiac Surgery as well as supportive preceptor programs for all disciplines. This makes the Maz a premier destination for students from around the world. Staff at the Maz have opportunities for education in many forums - from the unit level to attending national conferences - helping to ensure our teams have the knowledge required to provide the very best care to our patients, and their families.

Despite these achievements, we have faced challenges. The fiscal environment has continued to push us to think of new ways to deliver care, support innovation, and improve the experience of our patients within an environment of cost containment. These challenges further highlight the need for a strong team as we look to one another for support.

We would like to thank the Maz team for their exceptional work over the past year. Together we are looking forward to exploring new opportunities to collaborate and learn from one another; to continuing to build on our efforts to improve our patient's journey each and every day.

Mishaela Houle
Executive Director
Cardiac Sciences, Edmonton Zone

Dr. Robert Welsh
Zone Clinical Department Head
Cardiac Sciences, Edmonton Zone

Committed to Health Programs



1,595

CVICU Admissions

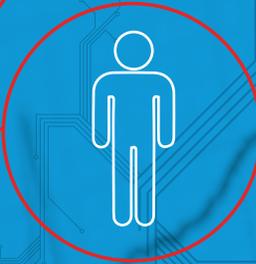


1,788

CV Surgery Inpatient
Ward Admissions

98

Adult Transplants
[29 Heart, 2 Heart
& Lung, 67 Lung]

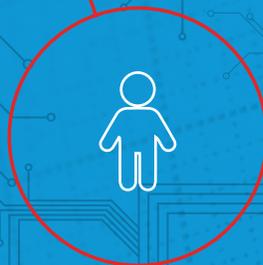


1,493

Adult Open Heart Surgeries

370

Pediatric Open Heart
Surgeries



5

Pediatric
Transplants

Cardiac Surgery Program

The Maz is a referral center for some of the most complex adult and pediatric cardiac surgery cases in Alberta and beyond. There are currently 11 cardiac surgeons, three of which support pediatric surgical activity. Our surgeons are part of a multidisciplinary team that cares for the patient through their surgical journey.

Maz Cardiac Operative Services

The Maz has six operating rooms including the Hybrid Operating room. Patients receive the highest quality of care within a highly-specialized environment. Our surgical teams perform up to 35 scheduled adult open heart cases and up to 10 pediatric open heart cases weekly and are available 24/7 for emergency cases including heart, heart/lung and lung transplants.

Cardiovascular Intensive Care Unit (CVICU)

The CVICU cares for some of the most complex patients at the Maz. There are several unique patient populations, including those requiring advanced cardiac and respiratory mechanical circulatory support (MCS), ventricular assist devices (VAD), and heart, lung and heart-lung transplants.

In 2016-2017, the CVICU was extremely focused on aligning to the Alberta Health Services Patient First strategy. Patient Satisfaction Surveys were implemented following patient discharge from the unit to further understand the patient experience. Patient satisfaction levels have exceeded 90% since the implementation of this survey. Additionally, efforts continue to be made to ensure a patient's loved ones have timely access to visit with the patient following surgery. CVICU's average access time for family is 25 minutes (the provincial benchmark set by the Critical Care Strategic Care Network is 30 minutes).

Cardiovascular (CV) Surgery Inpatient Ward

The CV Surgery Inpatient Ward cares for all open heart, heart transplant and VAD patients, in addition to lung transplant patients requiring cardiac monitoring following transfer from the CVICU through the transition to home. The ward is also the sole inpatient unit caring for VAD patients requiring cardiac or non-cardiac admissions in the Edmonton Zone.

The CV Surgery Inpatient Ward has a strong commitment to continuous quality improvement. Over the past year the multidisciplinary team has developed and implemented a standardized care pathway for patients following their surgery, the Surgical Care Pathway. The goal of the Pathway is to improve communication between healthcare professionals, patients and their families ensuring a successful patient journey. Evaluation of the new pathway is ongoing with plans to include a staff survey.



CVICU's average access
of families able to see
loved ones within 25 min.
[5 min below provincial average]

41 Adult Patients
Supported With ECLS

10 Patients
Supported with Veno-Venous
ECLS (Respiratory Support)

31 Patients
Supported with Veno-Arterial
ECLS (Cardiac Support)

36
Adult VADs implanted

18
Pediatric VADs implanted



CARDIOHELP

With the generous support of the University Hospital Foundation, the Maz's ECLS Program purchased four CARDIOHELP devices to support patients who require extracorporeal life support.

CARDIOHELP is the smallest portable heart-lung support system available for ECLS. Weighing only 10 kg, this compact device is ideal for patient transport within and outside the hospital; the system can be placed on the patient's bed, or on a compact cart. For instances that require patient transport such as diagnostic investigations, patient safety is uncompromised.

In addition to the small design, CARDIOHELP makes it easier for staff to mobilize patients so they can participate in rehabilitation. It also has a sophisticated alarm management system, reducing the risk for adverse patient events and enhancing patient safety. The CARDIOHELP circuit also has integrated sensors to allow for advanced monitoring, which provides staff with immediate clinical information for patient assessment and management.



Mechanical Circulatory Support (MCS) Program, Adult and Pediatric

Ventricular Assist Device (VAD) Program

Our VAD program treats patients with advanced heart failure. Treatment goals include bridge to transplant, bridge to candidacy, and destination therapy. The program continues to expand, serving a growing number of adult and pediatric patients. Over the 2016-2017 fiscal year a total of 36 adult and 18 pediatric VAD pumps were implanted.

In 2016-2017 the Maz was selected as a training center for a VAD education program. This two-day training course was provided to healthcare professionals from across Canada and Latin America [Brazil, Mexico & Costa Rica] by the team at the Maz. The course was extremely well received, eliciting a satisfaction rating of 3.7 out of 4.

Additionally, the Maz implemented Adult VAD Improvement Rounds. Surgeons, VAD physicians, CVICU nurses, intensivists, MCS coordinators, and cardiologists gather to review and discuss VAD patient outcomes in an effort to learn from their collective experiences.

Adult Extracorporeal Life Support (ECLS) Program

The Adult ECLS is a consultative multidisciplinary program that offers advanced cardiac and respiratory life support for selected patients with reversible heart and lung failure, including heart and lung transplant patients. Consultation requests for ECLS continue to increase, primarily in the patient population requiring ECMO for cardiac support and success of the program has resulted in the ECLS program's busiest year to date.

With the support of Perfusion Services, the ECLS program has successfully evolved their model of care for patients to a collaborative nursing and respiratory model. This has promoted professional growth amongst these disciplines and has helped to sustain the program's expanding operational requirements.

A Patient's Story

Marie Lefrancois experienced a heart attack in the spring of 2015. Although she initially recovered and was discharged home, she was readmitted and referred to the VAD team in the fall of 2015 after being diagnosed with end stage heart failure. Marie's symptoms were no longer manageable due to her impaired left ventricular function and a leaking tricuspid valve. It was all taking a toll on her health. Unfortunately, due to her age at the time [74 years] and pulmonary hypertension [high blood pressure in the lung arteries], Marie was not a heart transplant candidate. After consultation with her healthcare team, Marie and her family decided to proceed with a VAD implant under the umbrella of destination therapy [which means the VAD will support her indefinitely moving forward].

Marie received her VAD, a Heartmate II, on October 9, 2015. After a fairly smooth recovery, she was discharged home six weeks after the implant. Marie's strong, independent, "never-quit" attitude carried her through the implant and recovery process. Helping her every step of the way were her loving husband of 55 years, Guy, along with their family and friends.

Now a year-and-a-half later, Marie has returned to enjoying the activities she loves, including gardening, volunteering and travel [she and Guy are planning to spend much of the winter relaxing in the California sunshine].



Cardiology at the Maz

Cardiology at the Maz provides comprehensive care for patients who have experienced a cardiac event.

There are currently 34 cardiologists (many with subspecialties), four Doctors of Pharmacy, and two PhD clinicians who provide care at the Maz. These individuals are supported by a multidisciplinary team committed to providing the highest level of care to each and every patient.

Cardiology is supported by the:

- Coronary Intensive Care Unit
- Inpatient Cardiology Wards; and
- Cardiac Catheterization Lab

Coronary Intensive Care Unit (CICU)

The CICU treats various critical conditions and illnesses including acute coronary syndromes, life threatening arrhythmias, advanced heart failure, hemodynamic instability, and cardiac arrest. Advanced therapies can be provided within the CICU such as ventilation, therapeutic induced hypothermia post-cardiac arrest, intra-aortic balloon pump, temporary pacing, hemodialysis, renal replacement therapy and advanced hemodynamic monitoring. The CICU is also integral in providing care to patients recovering following a percutaneous coronary intervention, electrophysiology study or device implant.

Cardiology Inpatient Ward

The Cardiology Inpatient Ward manages all cardiac conditions including acute coronary syndrome, heart failure, pre- and post-transplant, complex arrhythmias, as well as pre-cardiac surgery.

The Cardiology Inpatient Ward is committed to fostering a culture of continuous quality improvement. Over the course of the last year, the *Care Hub* model has been implemented which supports enhanced communication, improved collaboration, and ensures each individual on the team works to their full scope of practice: ultimately benefitting patients and their families.

Hearts Memorial

Hearts Memorial is held annually in the Guru Nanak Dev Healing Garden located on the 4th Floor of the Maz. This event is for the families and friends of those who have passed away from heart disease. It is a non-denominational program where loved ones receive words of healing. Guests have the opportunity to light a memorial candle and write a personalized message to loved ones on a metal heart that is then placed on a memorial tree in the Healing Garden. Since its inception in 2010, Hearts Memorial has been warmly received by those who have attended. This past year 140 people honored their loved ones.

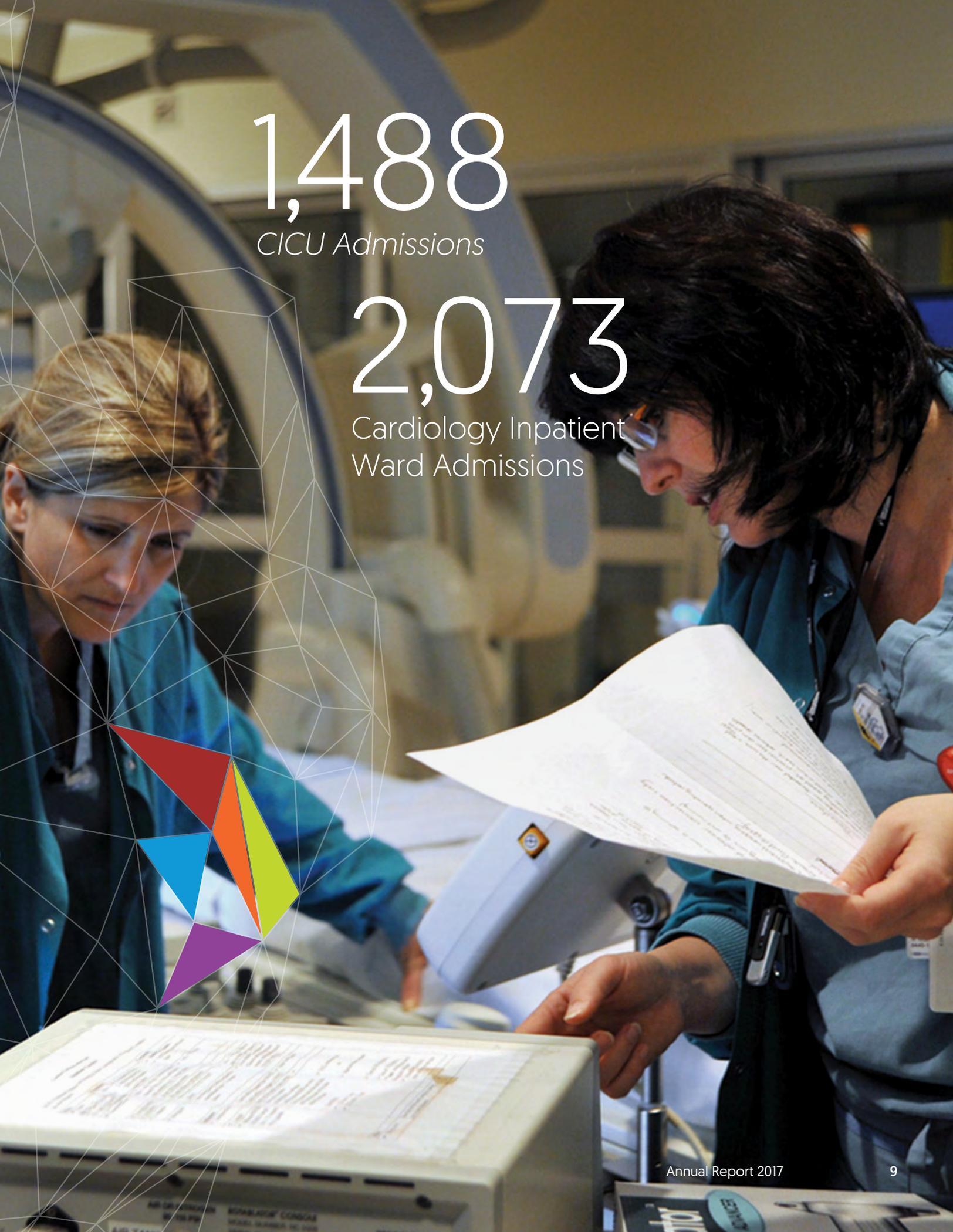


1,488

CICU Admissions

2,073

Cardiology Inpatient
Ward Admissions



Cardiac Catheterization Lab

The Cardiac Catheterization Lab provides 24/7 care to patients experiencing ST Elevation Myocardial Infarction (STEMI), high risk non ST Elevation Myocardial Infarction (NSTEMI), as well as adult and pediatric diagnostic angiograms and intervention.

Interventional care includes a broad range of procedures from routine angiogram through to minimally invasive procedures such as transcatheter aortic valve implantation (TAVI).

Our wait times are under national benchmark based on the Canadian Cardiovascular Society [CCS]. The adult patient wait time at the Maz for a scheduled catheterization is 29 days (the Canadian Cardiovascular Society [CCS] target: 42 days). The wait for urgent adult inpatients is on average one day [CCS target: three days].

Innovation Continues at the Maz

Chronic Total Occlusion Program

This past year the Maz welcomed interventional cardiologist Dr. Minh Vo. Dr. Vo is internationally recognized for his ground-breaking work in the field of high risk percutaneous coronary angioplasty for patients with chronic total occlusions [CTO].

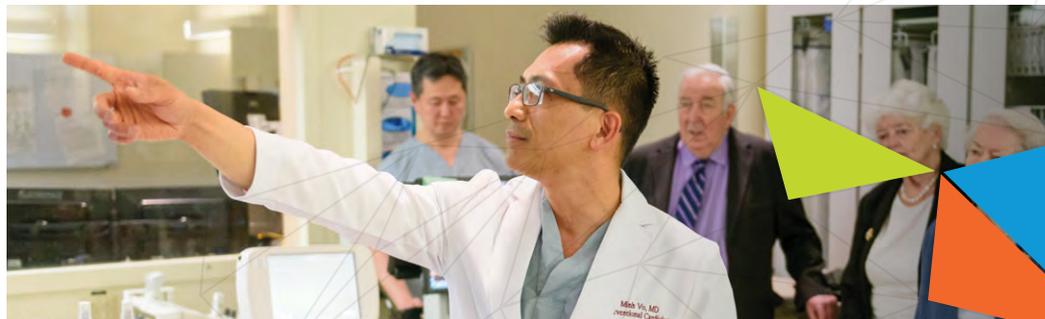
Dr. Vo has been performing an innovative procedure called antegrade dissection re-entry. This minimally-invasive technique for bypassing blocked arteries is a game-changing approach that helps to reduce the need for open heart surgery among those with coronary artery disease.

Since his arrival, Dr. Vo has worked with members from the Cardiac Sciences team to set up a successful program including frontline nursing, diagnostic imaging, physician colleagues and administration. Several measures have been put in place to ensure the program gets off to a strong start – including a standardized referral process, a peer review forum, and collection of evaluation data. From its inception the CTO Program has successfully treated 50 patients, including patients from other parts of Alberta, British Columbia and Saskatchewan. This total includes successful treatment of a subset of patients that have had a previous failed procedure at another center further supporting the early success of the program.

According to Dr. Vo, the success of this program is the result of a true team effort. “Without the support of all team members, we would not have been able to get this program off the ground,” says Dr. Vo.

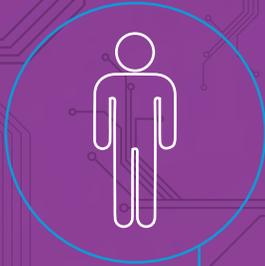
Plans are underway to teach this advanced technique to colleagues and students at the Maz as well as those across Canada, the U.S., and Asia through broadcasts from the Maz’s Hybrid Operating Room.

Here Dr. Vo provides an overview of the CTO technology that he utilizes to a group visiting the Maz.



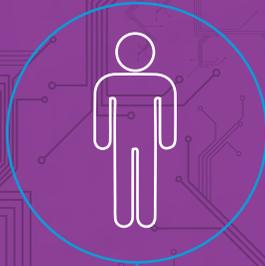
Adult
Angiograms

3,408



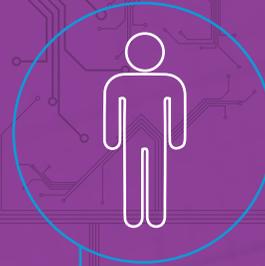
Adult
Angioplasties

1,555



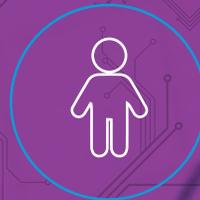
Adult Congenital
Interventions

68



Pediatric
Diagnostic
Angiograms

34



Pediatric
Interventions

135

42 Days

CCS Target Wait
Time, Scheduled
Adult Patient

vs.

29 Days

Average Scheduled
Adult Wait Time at the
Maz Cardiac
Cath Lab

Pillar Programs

Our pillar programs support both the Cardiac Surgery and Cardiology programs. This collaborative and integrated approach provides patients with the most advanced cardiac care from our team of experts.

Ambulatory Care Clinics & Cardiac Diagnostics

Our Ambulatory Care Clinics provide access to specialized cardiac care within many multi-disciplinary clinics and physician-only clinics.

Multidisciplinary Ambulatory Care Clinics include:

Cardiac EASE & Chest Pain

The Cardiac EASE Program is a central intake model that provides complete assessment, diagnosis and treatment for a variety of cardiac diagnoses. It also acts as a rapid access clinic for undiagnosed chest pain that provides expedited assessment, risk stratification, and treatment for patients from on-site and local emergency departments.

Heart Function Clinic

The Heart Function Clinic provides patients and families with the knowledge and tools to live well with heart failure. The multidisciplinary Heart Function team provides ongoing assessment of therapies related to heart failure, help in self-care, teachings of diet, lifestyle, exercise, medications and other advanced therapies.

Heart Rhythm Device

The Heart Rhythm Device Clinic provides follow-up care for both adult and pediatric patients with cardiac devices. Remote monitoring has become common practice within the Heart Rhythm Device Clinic which decreases travel for patients, while still providing access to specialized device care.



1,470

Remote Monitoring Visits saving patients travel time and the cost of traveling to Edmonton*

*Adult and Pediatric

Digital Messaging

Digital Messaging is an exciting communication tool that has been recently implemented in the Ambulatory Care Clinics and Jim Pattison Center for Heart Health. The messages will reflect current and relevant to the patient and will include patient education, upcoming health events, and visit information.





Outpatient Clinic Visits

22,421

Northern Alberta Adult Congenital Heart (NAACH)

The NAACH Program provides long term follow up for adults with congenital heart disease as they progress from childhood. This specialized team follows approximately 120 patients per year within the clinic.

Pulmonary Hypertension Clinic

The Pulmonary Hypertension Clinic offers patients with primary and secondary pulmonary hypertension a comprehensive approach to care not otherwise available. The goal of the clinic is to provide timely access to experienced medical specialists and health professionals as well as cutting-edge diagnostic techniques and innovative treatments to manage pulmonary hypertension.

Cardiac Diagnostics

The Maz has a number of cardiac diagnostics on site, including echocardiography (echo), exercise stress tests, electrocardiograms (ECG), Holter monitoring and V0₂ testing. Cardiac CT and MRI are also provided. Various practitioners access onsite diagnostics, which decreases the need for patients to travel off-site for diagnostic testing. Additionally, the Maz and WMC campus access these services to support inpatient care.

The Maz has one of the most technologically advanced Echo Labs in the world providing leading-edge imaging techniques such as 3D, contrast, myocardial perfusion, speckle tracking and interventional echo.

Minimally Invasive Cardiac Care

Minimally invasive cardiac care brings together teams from Cardiology and Cardiac Surgery to provide the most advanced care to our patients. Minimally invasive approaches enhance the patient experience through improved clinical outcomes, shortened hospital stays, and decreased pain that can accompany conventional surgical interventions.

Our ability to provide this service to patients is greatly enhanced by a fully functioning Hybrid Operating Room at the Maz. Many forms of cardiac disease are treated in this state of the art operating room through a team-based approach to cardiac care. This includes minimally invasive approaches to valvular heart disease, coronary artery disease, septal defects, and many other forms of heart disease.

68

Transcatheter Aortic Valve
Implantations (TAVI)

135 Hybrid OR Cases

13 Laser Lead Extractions

Zone Programs

The Maz is part of the Alberta Health Services' Edmonton Zone and supports several zone-wide cardiac programs. Zone collaboration enhances the patient experience and leverages the strengths of the sites across the zone that provide cardiac services.

Arrhythmia and Device Program

The Arrhythmia and Device multi-site zone program treats and follows adult and pediatric patients with the most complex cardiac arrhythmias. Services provided include both electrophysiology and device implant procedures.

The Maz has three labs to serve this patient population. There are two additional sites within the Edmonton Zone that have device implant capabilities. All sites work in collaboration under the direction of the Arrhythmia Services Zone Governance Committee.

580 **84**
Adult Electrophysiology Cases
Pediatric Electrophysiology Cases

303 **220** ICD Implants*
Pacemaker Implants*

Edmonton Zone Cardiac Rehabilitation (EZCR)

Cardiac Rehabilitation is a fundamental component of the cardiac care continuum and supports patients as they look to make positive and sustainable lifestyle changes through secondary prevention.

Serving patients from Alberta's Edmonton, Central and North Zones, Northern British Columbia, Saskatchewan, Yukon, Northwest Territories and Nunavut, EZCR operates out of three sites: *the Jim Pattison Centre for Heart Health (JPCHH) located in the Maz, the Glenrose Rehabilitation Hospital (GRH), and the Clareview Recreation Centre (in collaboration with the City of Edmonton).*

The JPCHH focuses their collaborative expertise on addressing the needs of high risk and more deconditioned patients. Patients include those with a ventricular assist device, congenital heart disease, complex arrhythmias, TAVI and heart failure. Both the GRH and Clareview Recreation Centre focus on the lower risk and less complex patient populations. This collaborative multi-site approach ensures that each patient receives access to the right level of care as they move through their rehabilitation journey.

*Adult and Pediatric

Telehealth Services

Telehealth videoconferencing technology is used to connect patients in Alberta and beyond with their care team no matter where they live. Healthcare providers are able to consult patients from afar for new consults, discharge and transition planning, and follow-up visits. Telehealth also plays a key role in education, supporting events across sites, programs and the province.

In 2016-2017, new telehealth software, *Polycom Real Presence Desktop* was successfully launched within the Cardiac Surgery program. This novel technology allows the surgeons to provide remote care to surgical patients. Patients avoid visits to the hospital and surgeons can provide care from technology within their offices.

“Telehealth allows physicians to continue to deliver care to patients despite being in a remote location. In many cases a Telehealth visit is less than 15 minutes. The convenience of not having to drive for hours [or spend a few days travelling] to the patient is immense.”

Dr. Mike Moon, Cardiovascular Surgeon

1,000
Clinical Telehealth
sessions

27% of telehealth visits
with patients
from outside of the
province

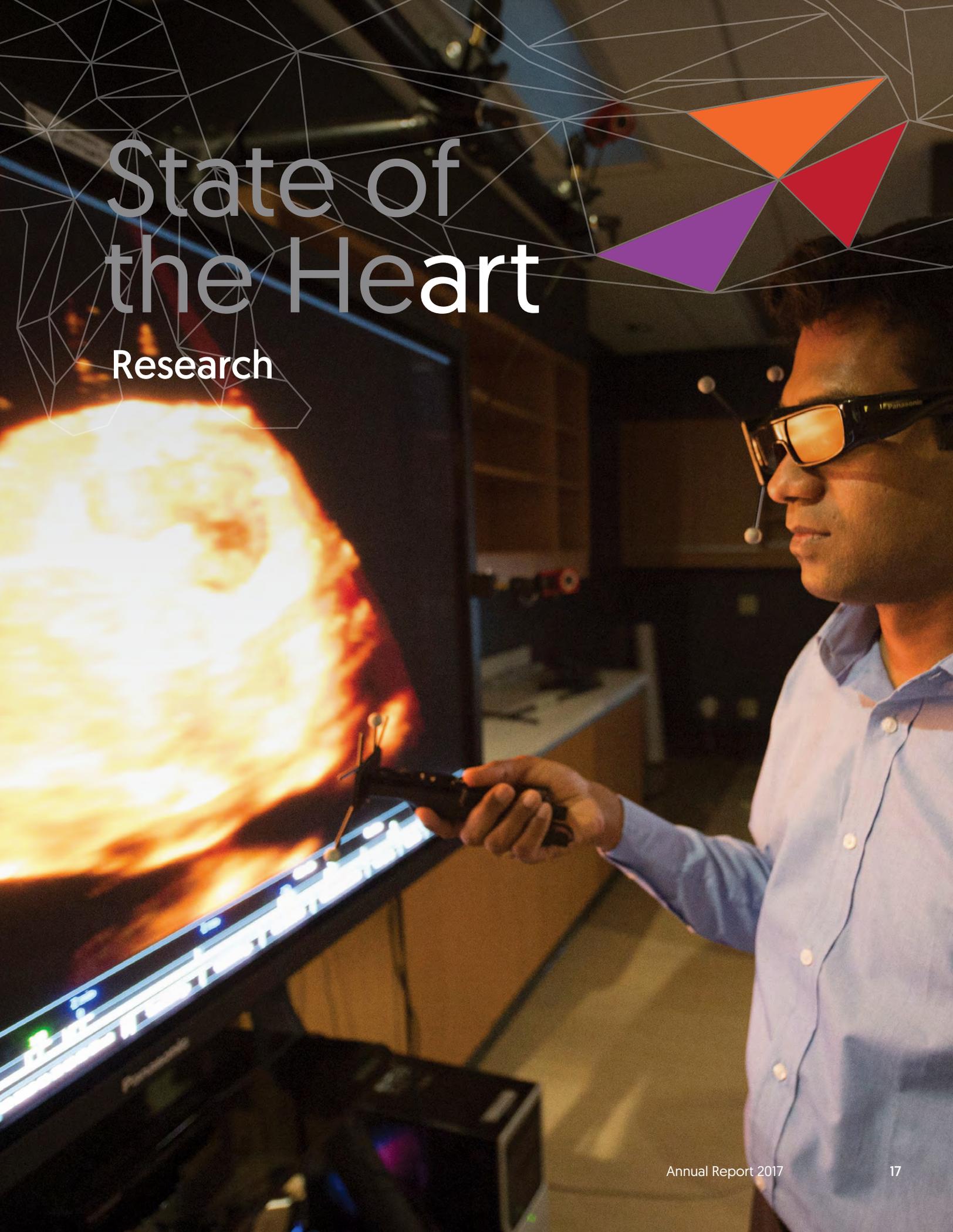
Vital Heart Response Program (VHR)

VHR continues to be North America's largest and most extensive heart attack program supporting front line practitioners with diagnosis, triage and expedited treatment of ST Segment Elevated Myocardial Infarction (STEMI) patients.

The program has been built around the core principles outlined below:

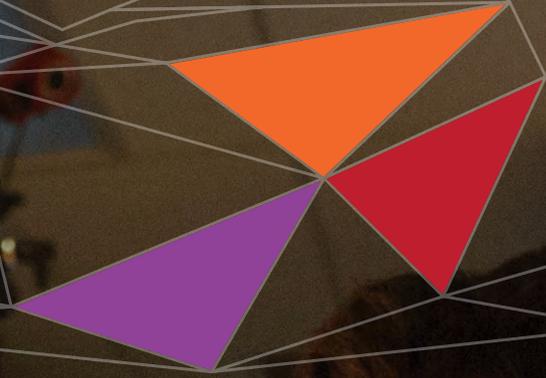
1. The efficient introduction and use of best evidence-based therapies tailored to fit the needs of the individual STEMI patient according to the patient's presentation and distance to tertiary care centers.
2. The first point of medical contact is where treatment decisions are made and carried out.

The VHR program, first established in the Edmonton Zone, has expanded across parts of the Central Zone and Northern Alberta. It utilizes direct support from Interventional Cardiology services in the Edmonton Zone 24 hours a day, 7 days a week. The program is available to advanced life support Emergency Medical Services (EMS), Urgent Care Centres, remote northern industrial medical clinics, and any emergency department. In the 2016-2017 fiscal year, the 30 Day In-Hospital Mortality Rate following STEMI was 4.6% in the Edmonton Zone (Provincial Average of 5.7%).



State of the Heart

Research



A Spotlight on Research: Servier Virtual Cardiac Centre

Canada's 1st Virtual Heart Centre

The Servier Virtual Cardiac Centre (SVCC) is a leading-edge research and technology lab located in the Maz. It is not only the first of its kind in Alberta but in all of Canada. SVCC provides a collaborative multi-disciplinary environment that allows cardiac surgeons, cardiologists, radiologists, engineers, computing scientists and mathematicians to make enhanced medical decisions using ground-breaking technology.

Utilizing images gathered from echocardiography (echo), three dimensional images are formed to provide a novel way to visualize the heart and associated blood vessels on large screens. The creation of these images allows specialists to examine all areas of the heart, both inside and out, in stunningly accurate detail.

"Because it's more like a view of what sits in your body, you can hone in on it the way you would as a surgeon," explains Dr. Michelle Noga, Medical Director at the SVCC. "You aren't limited by being on one plane, so you can better deal with complexities."

Noga thought of the idea through her work as a cardiac radiologist. She initially focused on 3D printing but found the technology didn't accurately represent all the data and information a cardiac specialist would need therefore turning her focus on 3D imaging. "Printed 3D models don't feel like the real heart. They don't pump. It's just basically plastic. I saw virtual display happening in other areas and thought that would be a more ideal option."

A View to Simplify Complex Cases

The intent is to use the technology in more complicated cases involving complex procedures, which require precise measurements and comprehensive examination. This allows the medical team to create a plan before they operate, allowing for greater efficiency and better decision making in the operating room. Patients benefit as physicians can reduce operating time.

Spin-a-thon 2017

Spin-a-thon

Organized by the Maz staff, the Spin-a-thon is an annual fundraising event supporting high priority patient needs. Over the span of 12 hours, teams of cyclists spin on stationary bikes in support of patient care at the Maz. This event is great for bringing together teams, raising funds, and raising heart rates! The 2016 event raised over \$20,000.



Promoting Patient Partnership Through Technology

Patients today are more involved in their diagnosis and the technology at the SVCC could allow them to sit in a room with their surgeon, gain a better understanding of their disease, and discuss surgical options. This approach will greatly improve the medical team's ability to communicate with the patient and family members.

Donations Drive Discovery

This groundbreaking facility opened its doors in the summer of 2014, thanks to a \$1 million donation from the University Hospital Foundation's Caring Campaign, generously gifted from Sevier Canada. The Maz provided a space for Dr. Michelle Noga and her team, which included Dr. Kumaradevan Punithakumar (Dr. Kumar) who is the center's Operational and Computational Director.

The Servier Lab creates an environment of collaboration between practicing physicians and the research team which allows for continuous evolution of the technology. "There are enormous possibilities. We can create simulations and predict what would happen if we do the procedure this way; we can (even) simulate how the blood would flow if we put an implant in this position," says Dr. Kumar.

Noga and her team are also looking to create a virtual surgical experience that simulates the sensation of holding the heart and can even mimic a scalpel cut. Surgical, pathology and radiology residents could learn and study anatomy in an electronic environment. "There's a huge advantage to this," explains Dr. Noga. "In real life you can only cut things apart once."

The partnership between the SVCC and Servier Canada is also of a distinct nature. "The model of research grant funding is a bit harder for us to do because a lot of medically-related research funding relies on you already having results. When you're developing something that's completely different and unique as we are it's much harder to show results because you're in the process of building it," Dr. Noga says. She credits Servier Canada for their support during the development process. "They've been very patient and very supportive of us."

The Heart Function Clinic team members celebrate Wear Red Day

Heart Month

This annual event is aimed at raising awareness about heart health. Activities including educational sessions, and blood pressure clinics are planned throughout the month of February for staff, patients and members of the public.

Wear Red Day is one of the most popular events. All staff at the Maz are encouraged to proudly wear red in support of heart health.



Maz hosts inaugural Jim Pattison Cardiac Rehabilitation Symposium

Thanks to the generosity of the University Hospital Foundation and the Jim Pattison Foundation the 1st Jim Pattison Cardiac Rehabilitation Symposium was held on April 8th & 9th, 2016 in Banff, Alberta. The first of its kind in western Canada, the symposium brought together world-renowned cardiac rehabilitation experts from Canada and the United States to discuss innovative research in the field of cardiac rehabilitation and future opportunities within the field. As a result of this symposium, a Canadian Journal of Cardiology supplement was developed and published which was circulated at the Canadian Cardiovascular Congress in 2016.



Nearly **90**

presentations, workshops, abstracts, posters and symposiums presented by the Maz team at the Canadian Cardiovascular Congress



185+

Cardiology Publications
[2016 calendar year]

\$14,000,000

in awarded Peer-Reviewed Research Funding



Cardiac Surgery

36+ Peer Reviewed Manuscripts

15 Unique Clinical Trials

\$1,203,974 Awarded Grants
[2016]



Heart

Continuous Quality Improvement



Our Vision:

“Inspiring Innovation
and Knowledge;
Leaders in
Patient Care”



Patient
Satisfaction
96%

The Maz is Driven to be a Leader in Patient Care

Creating a culture of continuous improvement supports us in achieving excellence in patient care and is a top priority.

Multidisciplinary Quality Councils have been established in all program areas and are a direct link to improving the care that we provide. Each Quality Council provides a safe place to practice our values and nurture the mindset of an improvement culture by:

- Empowering team members to engage in problem solving;
- Facilitating the development of skills, capabilities, confidence and creativity in our people – through a cumulative process of education, coaching and participation; and
- Inspiring individuals to continually find new ways to improve the work that they do.

Our collective efforts are yielding results. In 2016-2017, patients receiving care from the Maz reported an overall Patient Satisfaction Rate of 96%. This reflects a team effort and serves as a true example of the impact that our teams have on patients each and every day.

A Spotlight on Recruitment

After winning the most prestigious honour in the world for cardiac residences (the C Walton Lillehei, PhD MD Young Investigators Award), Dr. Jeevan Nagendran was a hot commodity as a surgeon and as a researcher. His clinical area of expertise, minimally invasive cardiac surgery, made him a perfect fit for the Mazankowski Alberta Heart Institute. The challenge was how to get him here.

“Recruitment is a very competitive process,” says Dr. Roderick MacArthur, Medical Director of the Division of Cardiac Surgery. “Without the support of the University Hospital Foundation it would be even more challenging.”

In Dr. Nagendran’s case, three years of full research funding, courtesy of community support, along with working in one of the most advanced heart institutes in North America was enough to attract him.

“Without the research funding it’s quite likely I would have gone somewhere else.” says Dr. Nagendran. “In my career, I may do 5,000 surgeries. That’s helping a lot of people. But my research may lead to saving millions of people. That’s why it’s so important.”

“Giving me what I needed to hit the ground running as soon as I got here made all the difference. I am so grateful for the community support that made it possible.”

Dr. Jeevan Nagendran, Cardiovascular Surgeon



Education

At the Maz we recognize students in all disciplines of health care are our future. The Maz strives to create a learning environment that supports and inspires student learners, staff, and physicians at local, national and international levels.

It is our commitment to support professional growth in our teams through activities such as in-services, journal clubs, and grand rounds. In addition, staff from the Maz organize, support, and attend many conferences related to cardiac care to share knowledge with the cardiovascular community around the world.

Below we highlight two of the conferences that are organized and supported by the Maz:

NP Forum for Nursing and Allied Health 2016

Planned by a multidisciplinary committee with members from the Maz and CK Hui Heart Center, this annual educational and networking event brings together a community of healthcare professionals interested in cardiovascular health.

Objectives of the NP Forum include:

1. Supporting the patient through the whole journey of cardiac care by sharing new knowledge about cardiac technologies, research, and treatments of specific cardiac conditions.
2. Supporting cardiac patients and their families with acute and chronic heart disease by understanding stress, diet, and other relevant factors.

The NP Forum is a go-to educational resource for information regarding improving cardiovascular health. In 2016 over 90% of attendees rated the NP Forum as highly satisfactory or satisfactory. Learn more at www.npforum.com

Mazankowski Cardiac Sciences Research Day

On June 10th, 2016 the 20th Mazankowski Cardiac Sciences Research Day was held with more than 60 abstracts presented and speakers participating from across Europe and North America.. This annual event showcases the best cardiovascular science at the Maz with abstracts and posters providing a broad representation of basic science, clinical science, and nursing research. Attendees from all health care disciplines are able to network with peers, gain a deeper understanding of the research occurring at the Maz, and listen to guest speakers sharing their expert knowledge.

Members of the Cardiology Inpatient Ward and Navigation Teams.



The Doerksen family is grateful to the staff at the Maz.
Pictured: Jolissa with daughters.



University Hospital Foundation

The Donor Difference

No group of people has had a greater impact on cardiac care at the Maz, or by extension on cardiac care in Western Canada, than donors to the University Hospital Foundation.

Since 2004, community support has helped build and equip the Maz with the most advanced technology and innovative operating theaters, and has assisted in the recruitment of some of the finest and most skilled cardiologists and cardiac surgeons in the world.

Examples of the impact of donor support can be found on virtually every floor of the Mazankowski Alberta Heart Institute, and throughout this report.

Extracorporeal Life Support

Thanks to generous sponsors and hundreds of call-in donors, the 2017 630 CHED Heart Pledge Day (an annual fundraising event in support of the Maz) raised over \$180,000 to help purchase two new extracorporeal membrane oxygenation (ECMO) machines.

For patients like Jolissa Doerksen, having access to ECMO and the expert staff at the Cardiovascular Intensive Care Unit (CVICU) meant the difference between life and death..

Jolissa's Story

Jolissa Doerksen, 24-years-old, was still adjusting to life as a new mom when she and her husband Jeremy decided to take their baby Jordana on her first camping trip in mid-May 2014.

The young family's trailer, parked outside their home in the community of Blumenort, Alberta near Fort Vermilion (660 kilometers northwest of Edmonton), needed a thorough cleaning after the long winter.

"Being in the country, we knew there was a chance that mice had gotten into our trailer," said Jolissa. "Sure enough, they had."

Within a week of cleaning the trailer, Jolissa began experiencing extreme fatigue, nausea and a loss of appetite. She had contracted Hantavirus Pulmonary Syndrome, a deadly respiratory condition acquired through contact with deer mice droppings. By the time she arrived at the Mazankowski Alberta Heart Institute she was close to death.

Doctors at the Maz immediately put Jolissa on Extracorporeal Life Support (ECLS). She spent the next two weeks in the CVICU before she could begin breathing on her own.

"Without ECLS, I wouldn't be here," says Jolissa. "Community support gave the doctors at the Maz the equipment they need to literally save lives-like my own."

Today, Jolissa is the happy and healthy mother of two beautiful girls.



It's Electrifying!

Grade 5 students pumped up after 'stimulating' field trip to Mazankowski Alberta Heart Institute

Twenty-four students from A. Blair McPherson School were shocked, quite literally, to learn just how electrifying the human heart can be thanks to a unique educational experience at the Mazankowski Alberta Heart Institute.

During their morning field trip, the students discovered much about the anatomy and physiology of the heart including how the cardiac conduction system's specialized cardiac muscle cells send signals to the heart muscle to cause it to contract.

To illustrate these nerve signals, students were given the opportunity to test the electrical activity of their hearts using an electrocardiogram. Students also experimented with nerves in their arms using a nerve stimulator.

The students then visited the Jim Pattison Centre for Heart Health where they learned about the importance of rehabilitation. Staff shared healthy heart habits including the importance of nutrition, exercise, and not smoking.

"The kids were a buzz of chatter on the way back to school, sharing their favourite parts and what they had learned. It will be a field visit they'll remember for a long time," says Tomi Brooks, teacher of the Grade 5 Class.

