

THE HEART
OF INNOVATION



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Many of the pictures in this Annual Report have been provided by the University Hospital Foundation.

All data included in this Annual Report is reflective of the 2015-2016 fiscal year unless otherwise stated.

The Mazankowski Alberta Heart Institute in Edmonton is a world leader in complex cardiac care.

Our team of highly skilled cardiologists, cardiovascular surgeons, cardiac care professionals, researchers and educators, are advancing the prevention, detection, treatment and study of cardiovascular health.

The Maz has the largest Heart-Lung Transplant Program in Western Canada – serving an area over 65 million km².

Located on the Walter C. Mackenzie Health Sciences Centre Campus.

We are the advanced cardiac care centre for Edmonton, Northern and North-Central Alberta, Northern BC, Saskatchewan, Manitoba, Yukon and Northwest Territories.

Adult and pediatric patients.

The Mazankowski Alberta Heart Institute is physically integrated with the University of Alberta and Stollery Children's Hospitals, making it one of the very few heart institutes to accommodate both adult and pediatric patients.

The Maz is the only centre in Northern Alberta to provide care to patients requiring advanced treatment for cardiac and respiratory failure.

Patients at the Maz consistently report a satisfaction rate of 95% or higher.

A MESSAGE FROM OUR LEADERS

Since we opened our doors in 2009, the Mazankowski Alberta Heart Institute (Maz) has been establishing a reputation as one of North America's leading multidisciplinary cardiac care institutions. We are pleased to share this, our first published annual report. We hope the stats, the stories and the summaries within help shed light on a truly remarkable team and facility that are achieving incredible results in the advancement of cardiac care.

The Maz provides cardiac care to Albertans in the Edmonton Zone, North Zone and as well parts of the Central Zone. We also serve patients from Northern British Columbia, Saskatchewan, Manitoba, Yukon and Northwest Territories. Consistent with our vision statement, 'Inspiring innovation and knowledge – Leaders in patient care', we focus on providing excellent clinical care, novel cardiovascular research and education to all disciplines that support the healthcare sector.

Patient care is our highest priority and continues to be our greatest success. The teams within the Maz work to provide a seamless patient journey along the entire spectrum of cardiac care: from initial referral to rehabilitation. Through a collaborative multidisciplinary approach, we ensure each patient is provided access to the right care, at the right time.

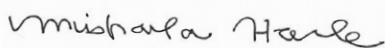
Innovation is key to everything we do. Our commitment to advancing cardiac care is evident in the 235+ Cardiology and Cardiac Surgery publications our team members contributed in 2015-2016 – many of which appeared in top medical journals and will change patient management in the future. The countless hours and expertise our research teams have put into their work has helped put the Maz on the map.

An important part of our vision is to provide an environment conducive to teaching and learning for all disciplines. Many Maz staff attended, presented at and organized local, national and international events, such as the *Annual Cardiology Congress in the Rockies*, *Maz Cardiology Update*, and *Canadian Cardiovascular Congress*. In addition, we have robust residency programs and welcome preceptor students throughout the year.

Cardiac Sciences face unique challenges as we continually strive to introduce advanced technology within an environment of fiscal restraint. As we address these challenges, delivering top-quality patient care that meets or exceeds our patients expectations will remain our utmost priority.

To close, we want to sincerely thank the staff and physicians who come to work at the Maz each day. They are the heart and soul of our entire program.

Thank you,



Mishaela Houle
Executive Director
Cardiac Sciences, Edmonton Zone



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



Dr. Paolo Raggi
Academic Director
Cardiac Sciences, Edmonton Zone

THE HEART OF EXCELLENCE OUR PROGRAMS

The Mazankowski Alberta Institute has established one of the leading heart programs in North America, providing care to medical and surgical patients.

CARDIAC SURGERY AT THE MAZ

The Maz has earned a reputation as a centre of excellence in Cardiac Surgery. We are the **largest Heart-Lung Transplant Program in Western Canada** – servicing a land mass greater than 65 million km². Of the 10 centres that performed the most procedures in North America, the Maz has the highest survival for the pediatric cardiac surgeries that are associated with the highest risk of death.

Cardiac Surgery encompasses the *Maz Cardiac Operative Services, the Cardiovascular Intensive Care Unit (CVICU) and the Cardiovascular (CV) Surgery Inpatient Ward*. There are 11 surgeons that currently support the program; seven of which are practicing adult cardiac surgery, three pediatric cardiac surgery and one providing care for both adult and pediatric patients.

From a clinical perspective the Cardiac Surgery program continues to grow in the number and complexity of surgeries performed. In 2015-2016 we performed 1478 adult cardiac surgeries, 336 pediatric cardiac surgeries, 88 adult and pediatric transplants, and 59 adult and pediatric ventricular assist device (VAD) insertions.

The multidisciplinary team is committed to working together to deliver patient care of the highest quality throughout the cardiac surgery journey.

Maz Cardiac Operative Services

The Mazankowski Alberta Heart Institute has six full-service operating rooms, including a state of the art Hybrid operating room. We are committed to equipping our teams with leading edge technology to deliver the highest level of patient care, within a safe, environment.

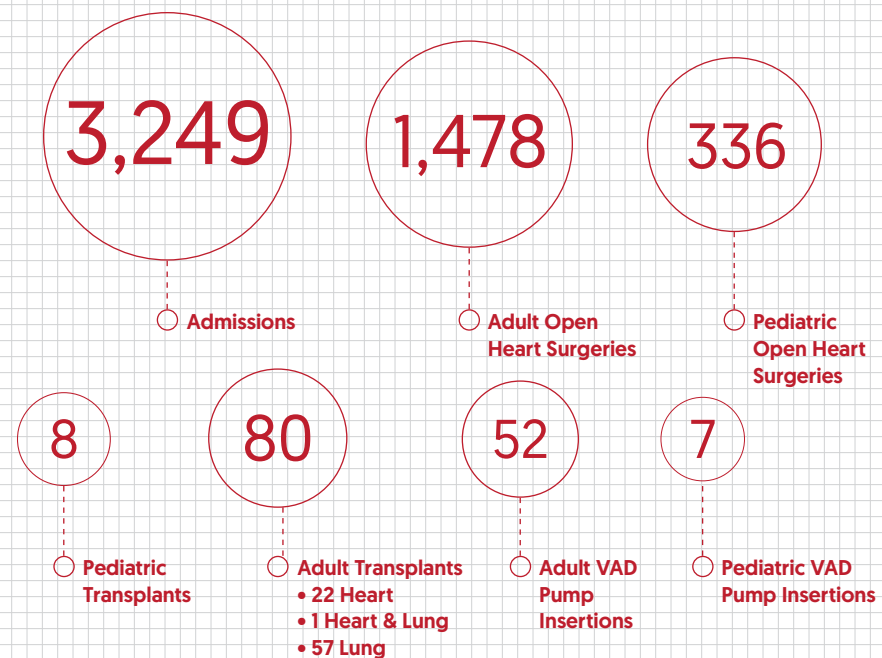
Cardiovascular Intensive Care Unit

The CVICU is a highly specialized environment that provides care to patients and families. It serves a diverse range of patient populations, including those requiring advanced cardiac and respiratory mechanical circulatory support, ventricular assist devices, cardiac surgery and transplants that include heart, lung and heart-lung.

Cardiovascular Surgery Inpatient Ward

The CV Surgery Inpatient Ward cares for all open heart, heart transplant and VAD patients – as well as lung transplant patients requiring cardiac monitoring during the post-operative period through the transition to home. The CV Surgery Inpatient Ward is also the sole inpatient unit caring for VAD patients for any cardiac or non-cardiac admission in the Edmonton Zone.

The CV Surgery Inpatient Ward is supported by a multidisciplinary team where patient and family focused care is a cornerstone of the inpatient experience. Several initiatives have been implemented to support this culture, including Patient Satisfaction Surveys, Patient Orientation folders, and Patient Whiteboards at each bedside.



Mechanical Circulatory Support Program

The Mazankowski Alberta Heart Institute has one of the largest Heart Failure and Transplant programs in North America and is the only center in Northern Alberta to provide care to patients requiring advanced treatment for cardiac and respiratory failure.

Adult Extracorporeal Life Support (ECLS) Program

Adult ECLS is a consultative interdisciplinary program that offers advanced cardiac and respiratory life support for selected patients with reversible heart and lung failure, as well as heart and lung transplant patients.

A total of 37 patients were supported with ECLS over the last year. The ECLS program has experienced tremendous growth with VV-ECMO hours more than doubling from the year previous.

The Maz ECLS outcomes are favourable, rivaling or surpassing international benchmarks. The Maz VV-ECMO survival rate is 60% since 2009 (The Extracorporeal Life Support Organization benchmark is 46-52% survival for VV-ECMO).

Highlights also include a Hantavirus case and the first reported ECLS supported case of Leptospirosis in North America.

Adult Ventricular Assist Device

Our VAD program, which treats patients with advanced heart failure, continues to expand. Over the 2015-2016 fiscal year, 52 adult and seven pediatric VADs were implanted. There were 36 long term devices implanted for treatment of advanced heart failure. The therapy goals include: bridge to transplant, bridge to candidacy and destination therapy. In patients with cardiogenic shock or postcardiotomy, we implanted 23 short term devices.

We currently have 39 adult and two pediatric patients living with long-term VAD therapy as outpatients in Alberta, Saskatoon, Manitoba or Newfoundland. These patients have reported living a more productive and active life at six months to one year post VAD implantation, compared to living with severe heart failure. **Within the VAD outpatient population, four patients have entered their 5th year of ongoing VAD therapy and two patients their 7th year of ongoing VAD therapy.**

**OF THE 10 CENTRES
THAT PERFORMED
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NORTH AMERICA,
THE MAZ HAS
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PEDIATRIC CARDIAC
SURGERIES THAT ARE
ASSOCIATED WITH
THE HIGHEST RISK
OF DEATH.**

CARDIOLOGY AT THE MAZ

Cardiology at the Maz is built on exemplary leadership and excellence in patient care. A dedicated team of experts, specializing in a number of subspecialties, continues to advance the care that we provide at the Maz. With the introduction of new technologies and innovations and a commitment to continuous improvement, we continue to push the boundaries in cardiology.

Cardiology services at the Maz include the *Cardiac Intensive Care Unit (CICU)*, *Cardiology Inpatient Wards*, and *Cardiac Catheterization Lab*. There are 34 cardiologists who have a number of subspecialties, four Doctors of Pharmacy and two PhD clinicians.

Cardiac Intensive Care Unit

The CICU at the Maz, a Tier 1 ICU, treats various critical conditions and illnesses ranging from acute coronary syndromes, life threatening arrhythmias, advanced heart failure, hemodynamic instability, cardiac arrest, and patients waiting urgent cardiac surgery. Advanced therapies can be provided within the CICU and include: ventilation, therapeutic induced hypothermia post cardiac arrest, intra-aortic balloon pump, temporary pacing, hemodialysis, renal replacement therapy and advanced hemodynamic monitoring.

Cardiology Inpatient Ward

The Cardiology Inpatient Ward manages all cardiac conditions including angina, post myocardial infarction (MI), heart failure, pre and post-transplant, arrhythmia, patients awaiting CV surgery, as well as post CV surgery as required.

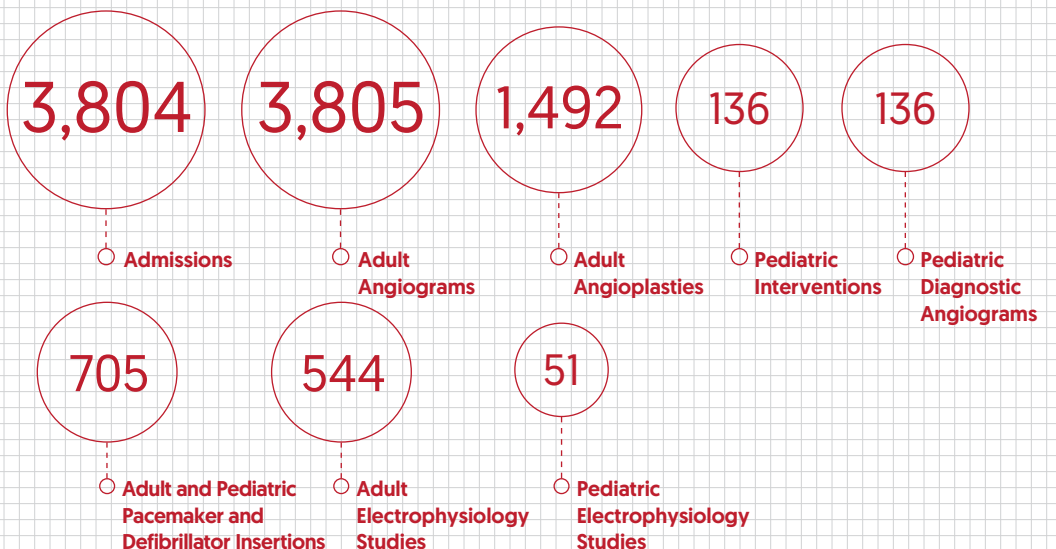
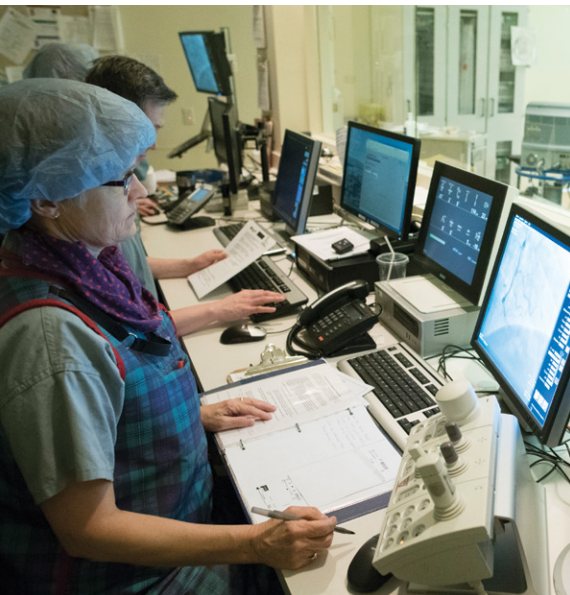
The interdisciplinary team works collaboratively to support the three pillars of the Cardiac Sciences vision; innovation, knowledge and leadership in patient care.

The Cardiology Inpatient Ward is dedicated to the promotion of a continuous quality improvement culture. A number of frontline driven quality improvement initiatives through the efforts and collaboration of the multidisciplinary unit quality council have been successfully implemented, including, daily round process improvement, optimization of rapid rounds and rapid rounds board, and an initiative aimed at reducing peripheral intravenous infections.

Cardiac Catheterization and Percutaneous Coronary Angioplasty

The Maz has three cardiac catheterization labs that provide 24/7 service to patients with emergency ST Elevation Myocardial Infarction (STEMI) and high risk Non ST Elevation Myocardial Infarction (NSTEMI). These labs provide adult, adult congenital and pediatric diagnostic angiograms and intervention. The Maz houses world experts in the minimally invasive management of chronically blocked coronary arteries.

Interventional care includes coronary artery stent placement, atrial septal defect closure, patent ductus arteriosus closure, patent foramen ovale closure, coarctation stenting, arterial and valvular balloon dilations, pulmonary valve and aortic valve implantation.



PILLAR PROGRAMS

The following programs serve both the Cardiac Surgery and Cardiology programs, and reflect the integrated, collaborative approach that is the hallmark of patient care at the Mazankowski Alberta Heart Institute.

Minimally Invasive Cardiac Care

Cardiology and Cardiac Surgery work collaboratively with colleagues from many clinical programs to ensure the highest level of patient care, resulting in the advancement of minimally invasive approaches to cardiac care. These approaches enhance the patient experience, improve clinical outcomes, shorten hospital stays, and decrease pain that often occurs with conventional surgical intervention.

Examples of the Maz's leading edge minimally invasive approaches include the *Northern Alberta Thoracic Aortic Program*. Recently, the first Thoraflex hybrid graft in Alberta was successfully implanted at the Maz. This program will continue to be an area of focused growth as the management of aortic dissection in the thoracoabdominal aorta continues to evolve along a paradigm shift. As well, the *Laser Lead Extraction Program* reflects true collaboration between cardiology and CV surgery. This program removes pacemaker leads through a minimally invasive approach. **There were 15 extractions performed this fiscal year with a success rate of 100%.**

As we continue to realize our vision of expanding minimally invasive approaches to care, the Hybrid Operating suite (opened in 2014) has become an essential component at the Maz. This state of the art facility is utilized to treat many cardiac conditions and supports a collaborative approach to cardiac care. The Hybrid Operating Room supported 126 cases this past fiscal year. Overall numbers continue to increase in proportions with observed population growth in Alberta.

Ambulatory Care Clinics & Cardiac Diagnostics

Our Ambulatory Clinics provide outpatient service and access to specialized cardiac care through many multidisciplinary clinics, and physician-only clinics. All services are offered on a referral basis. In 2015-2016 there were 18,676 outpatient visits (not including diagnostics) at the Maz.

The Maz's Ambulatory Care Clinics include:

- Cardiac EASE Program
- Chest Pain Program
- Heart Function Clinic
- Device Clinic
- Northern Alberta Adult Congenital Heart Program
- Pulmonary Hypertension Clinic
- Cardiac Transplant Clinic
- Cardiology Clinics
- Cardiovascular Surgery Clinics

All clinics strive to actively participate in ongoing research that impacts evidence-based practice and positive patient outcomes.

The Ambulatory Clinic area also provides specialized diagnostic imaging and non-invasive diagnostic testing to inpatient and outpatient patient populations during the patient care journey. These include echocardiography, exercise stress tests, electrocardiograms, holter monitoring and VO₂ testing.

Echocardiography: The Maz Echocardiography Department has been at the forefront supporting 3D sonography since 2007. We have one of the most technologically advanced labs in the world, providing advanced imaging techniques including 3D, contrast, myocardial perfusion, speckle tracking and interventional echo. **The echo lab at the Maz is the only site in Canada designated as a luminary site by Philips Healthcare, and offers 3D echo courses up to three times a year for North American physicians.**

The team strives for quality and accuracy of images and recently received full accreditation from the College of Physicians and Surgeons July 2, 2015. The Echocardiography team performed 12,064 echos this fiscal year.

18,676

○ Outpatient
Visits to
Ambulatory
Care Clinic

12,064

○ Echo Procedures
Performed

126

○ Hybrid Room
Procedures

ZONE PROGRAMS

The Maz is part of Alberta Health Services' Edmonton Zone. In addition to the programs specific to the Mazankowski Alberta Heart Institute, we also support several Zone-initiated cardiac programs in conjunction with our Zone partners. This partnership allows us to deliver a complementary, collaborative and comprehensive approach to patient care. **The Edmonton Zone's integrated Heart Attack Treatment model is a shared success story, resulting in one of the lowest mortality rates in Canada.**

Transcatheter Aortic Valve Implantation (TAVI) Program

The TAVI program continues to grow and deliver exceptional outcomes. During the 2015-2016 fiscal year, 57 TAVI cases were performed (51 transfemoral, six transapical). **The Edmonton Zone has an overall crude mortality rate of 8.3%, comparing favorably to the national average of 11.9%.**

Vital Heart Response (VHR) Program

Edmonton's VHR program continues to be North America's largest and most extensive heart attack program that supports front line practitioners with diagnosis, triage and expedited treatment of STEMI patients. In STEMI, early reperfusion of the occluded coronary artery is essential for promoting the best possible outcomes for patients with this Acute Coronary Syndrome. **In 2015-2016, the Edmonton Zone 30 day in hospital mortality rate was extremely low at only 5.5% (Provincial average 5.9%).**

This successful program has been expanded across Central and Northern Alberta and utilizes direct support from Interventional Cardiology services in the Edmonton Zone 24 hours a day, seven 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 through a coordinated effort with RAAPID North (Referral, Access, Advance, Placement, Information, and Destination).

29,829

○ Visits to Edmonton Zone Cardiac Rehabilitation

795

○ Telehealth Visits

Telehealth Services

Videoconferencing technology is used to connect patients in Alberta and beyond with the best possible health care, no matter where they live. Telehealth services are available for various clinical settings within the Edmonton Zone, including: new consult/assessment, discharge and transition planning, follow-up visits, peer monitoring, patient and healthcare professional education, and family visits. **Nearly 800 telehealth virtual visits occurred at the Maz in 2015-2016, with 223 patients connected from outside the province of AB.**

Edmonton Zone Cardiac Rehabilitation (EZCR)

Cardiac Rehabilitation is a fundamental component of the cardiac care continuum and is vital to creating positive and sustainable health outcomes for individuals with heart disease through secondary prevention.

The EZCR serves patients from Alberta's Central Zone and North Zone, Northern British Columbia, Saskatchewan, Yukon, Northwest Territories and Nunavut. The program functions out of two main sites; the Glenrose Rehabilitation Hospital and the Jim Pattison Centre for Heart Health located in the Mazankowski Alberta Heart Institute. Both locations offer access to a variety of multidisciplinary team members. Each team member assists the patient and family in leading an active and healthy lifestyle through focusing on diet, supervised exercise sessions, and other cardiovascular risk reduction activities, such as smoking cessation and stress management.

Cardiac-rehab patient Doug Hunter shares a smile with his AHS exercise specialists David Buijs, left, and Kylie Morrison. Hunter is taking part in the new Cardiac Community Rehabilitation Program, a partnership between AHS and the City of Edmonton, at Clareview Community Recreation Centre.

Photo by Amber Bracken



We are proud to be a part of several new and exciting programs, including: the *Community Integration, Pre-habilitation* and *Cardio-oncology* programs.

Arrhythmia and Device Program

This multi-site zone program treats and monitors adult and pediatric patients with the most complex cardiac arrhythmias.

Three Electrophysiology (EP)/Device Implant Labs at the Maz and two additional sites with device implant capabilities service this patient population. Education and research that supports continuing advancement in Arrhythmia Services is a cornerstone of the program. There were 544 adult and 51 pediatric electrophysiology studies completed; and 705 adult and pediatric devices implanted in the last fiscal year at the Maz. **This program is a great example of multi-site collaboration to benefit patient care.**

**THE EDMONTON
ZONE'S INTEGRATED
HEART ATTACK
TREATMENT MODEL
IS A SHARED
SUCCESS STORY,
RESULTING IN ONE
OF THE LOWEST
MORTALITY RATES
IN CANADA.**

RETHINKING REHABILITATION

THE CARDIAC REHABILITATION COMMUNITY INTEGRATION PROGRAM

After two heart attacks and triple-bypass surgery, Doug Hunter is now turning his hospital-based cardiac rehabilitation into a lifelong exercise habit at his community recreation centre. It is all thanks to a new Alberta Health Services (AHS) pilot program that helps heart patients to shed workout anxiety and gain confidence during their recovery.

Operated in partnership with the City of Edmonton at Clareview Community Recreation Centre, this 8-week program allows patients who have experienced a cardiac event to enjoy medically supervised rehabilitation including exercise and education in an environment that's more comfortable, convenient and often closer to home. The goal is to encourage patients to continue with a fitness regimen after their rehabilitation sessions conclude.

"This program is absolutely tailor-made for someone like me, who's never been a gym rat," Hunter says with a laugh.

"To have it close and available with the same therapist I had at the hospital is absolutely wonderful. I've been on my own now for more than a month, going three times a week — and now I'm creating my own benchmarks."

THE HEART OF DEDICATION OUR PEOPLE

The image is a composite of two scenes. The upper portion shows a surgical team in an operating room, with two surgeons in green scrubs and masks focused on a patient lying on a table. The room is filled with medical equipment, including monitors and surgical lights. The lower portion shows a person from behind, sitting at a desk with multiple computer monitors displaying data and charts, suggesting a control room or a monitoring station. The overall theme is medical care and dedication.

“This is essentially a one stop shop for any heart patient. The staff go above and beyond and as a patient I know I am getting the best care.”

Trevor Neufeld, cardiac patient

ATTRACTING TOP TALENT

At the heart of the Maz are the people who work here each and every day. The exceptional care provided to patients can be found in all corners of the building as multidisciplinary teams work diligently to provide the highest quality patient care.

Their dedication and commitment to patients is demonstrated by our exemplary patient satisfaction rates. **The staff at the Mazankowski Alberta Heart Institute are consistently achieving a patient satisfaction rate of 95% or higher.**

The Maz is a top destination for cardiac and cardiology specialists, residents, fellows and heart health professionals seeking to be a part of an internationally recognized team and institution. As a result of the reputation that the Maz

has established we have successfully recruited clinicians who are leading edge in their fields. These recruits will help us to continue to advance the care that we provide and keep us on the forefront.

The Heart of Kindness

Volunteers. They are the friendly faces who help make life a little better for our patients and their families. Acting as Welcome Liaisons and Patient Ambassadors, volunteers facilitate services such as pet visitations; Artists on the Wards; Heart to Heart Gift Shop; wayfinding; and delivery of flowers, newspapers and gift shop items. All share a sense of selflessness and compassion that serve as a continual source of inspiration.

1 The Cardiac Rehabilitation team and patient, Robert Preston. Preston participated in the new Cardiac Pre-hab Program.

2 Celebrating Heart Month, staff and physicians at the Maz participate in Wear Red Day in an effort to raise awareness about heart disease.

3

4



The Mazankowski Alberta Heart Institute provides a strong foundation for a comprehensive, fully integrated research program. From the beginning, the team at the Maz has contributed fundamental discoveries and developments that have advanced the global agenda of preventing and treating cardiac disease.

THE HEART OF DISCOVERY RESEARCH

RESEARCH AT THE MAZ: BENCH TO BEDSIDE

Basic Science

The Maz continues to contribute to fundamental discoveries and developments that advance the agenda to prevent and treat cardiovascular disease. A strong partnership between the Maz and the University of Alberta provide a collaborative clinical and research environment moving both agendas forward at local, provincial, national and international levels.

Clinical Research

Our researchers are involved in numerous research trials across the entire spectrum of cardiovascular care including acute coronary syndrome, heart failure, cardiovascular imaging, and congenital heart disease to name a few.

The Maz is a proud host to the Alberta Cardiovascular and Stroke Research Center (ABACUS). This is a molecule to population translational research facility. Patients taking part in clinical trials undergo a variety of imaging and functional studies in this state of the art research facility.

Collaborative Approach

Provincially, the Maz is an active participant in the Cardiovascular Heart and Stroke Strategic Clinical Network. At this table we come together to address initiatives that advance cardiac care, research and education at a provincial level.

Servier Virtual Cardiac Center

The Servier Virtual Cardiac Centre is an advanced visualization lab for cardiac imaging, using high performance computers and advanced technology to depict the heart in 3D.

This multidisciplinary research lab is dedicated to improving:

- The reconstruction of imaging of the heart
- The viewing of 3D images of the heart
- The understanding that doctors and patients gain from imaging the heart
- The medical decision making process for diseases of the heart by using advanced technology to predict surgical and interventional outcomes

INNOVATION AT THE MAZ

The following are the 2015-2016 research highlights from our Cardiac Surgery and Cardiology Programs.

Cardiac Surgery Program

The Cardiac Surgery Program continues to actively collaborate in a variety of research areas including thoracic transplantation, myocardial preservation, and neurodevelopment outcomes following cardiac surgery. Most cardiac surgeons are involved with clinical outcome research including national and international collaborative prospective randomized trials.

Drs. Nagendran and Freed are actively developing an Ex-Vivo hybrid lung perfusion program. This “made at the Maz” technology promises to greatly increase the number of donor organs that can be used for transplantation. Ex-Vivo is a ground-breaking technology that allows organs to be optimized prior to transplantation. This will significantly impact the number of viable organs and increase the number of transplants.

This innovative procedure was profiled during our 2016 Heart Pledge Day Radiothon, which raised \$170,000 for innovation and patient care at the Maz. Karen Hamilton shared her story. Born with Cystic Fibrosis, a genetic disease that affects the digestive system and lungs, the 30-year-old Taber mother of three-month-old twins already knew that at some point in her life she would likely need a lung transplant.

Doctors told her to expect up to a two-year wait for a donor-tissue match, and that she may not make it that long.

Fortunately, after just three months Hamilton received her double lung transplant. Prior to transplantation, the donor lungs were repaired by surgeon/researchers Dr. Darren Freed and Dr. Jayan Nagendran, as part of their University Hospital Foundation funded research program.

“Her transplanted lungs would not have been able to be used without Ex-Vivo,” says Dr. Freed. “It’s a great example of how this procedure is saving lives.”

Today, Karen says she feels much better — and now has the strength to be the mom she has always dreamed of being.

“I’m so thankful every day that I can do just simple things with them, like taking them for walks or going to the park... It’s a real big blessing for sure.”

Cardiology Program

The Cardiology Program has exceptionally strong and robust areas of clinical and scientific research. The success of our research program is reflected in numerous high profile publications, and in the significant funding generated by peer review grants, University Hospital Foundation awards and clinical trial funding. Our research has focused on (but has not been limited to) the following areas of excellence:

- Acute Coronary Syndromes
- Congestive Heart Failure
- Pulmonary Hypertension
- Atrial Fibrillation
- Multi-modality Imaging

Cardiology members participate as thought leaders locally, provincially, nationally and internationally. This includes; principle investigations, executive committees, steering committee memberships on practice changing studies. Additionally, translational medicine is an expanding success story.

HELP IS ON THE WAY

UNIQUE VITAL HEART RESPONSE SYSTEM SAVING LIVES EN ROUTE TO SPECIALTY CARE.

Debbie Robertson is living proof that damage to heart muscle can be prevented by injecting a clot-buster to halt a heart attack before it happens: ideally during a patient’s ambulance ride to hospital.

A new study of 2,235 patients – led by researchers at the Mazankowski Alberta Heart Institute, the CK Hui Heart Centre and the Faculty of Medicine & Dentistry at the University of Alberta – highlights the life-saving benefits of the Vital Heart Response system.

Unique in Canada, the Vital Heart Response system expedites diagnosis and treatment for patients en route to major cardiac facilities at the Mazankowski and the CK Hui at the Royal Alexandra Hospital (both in Edmonton).

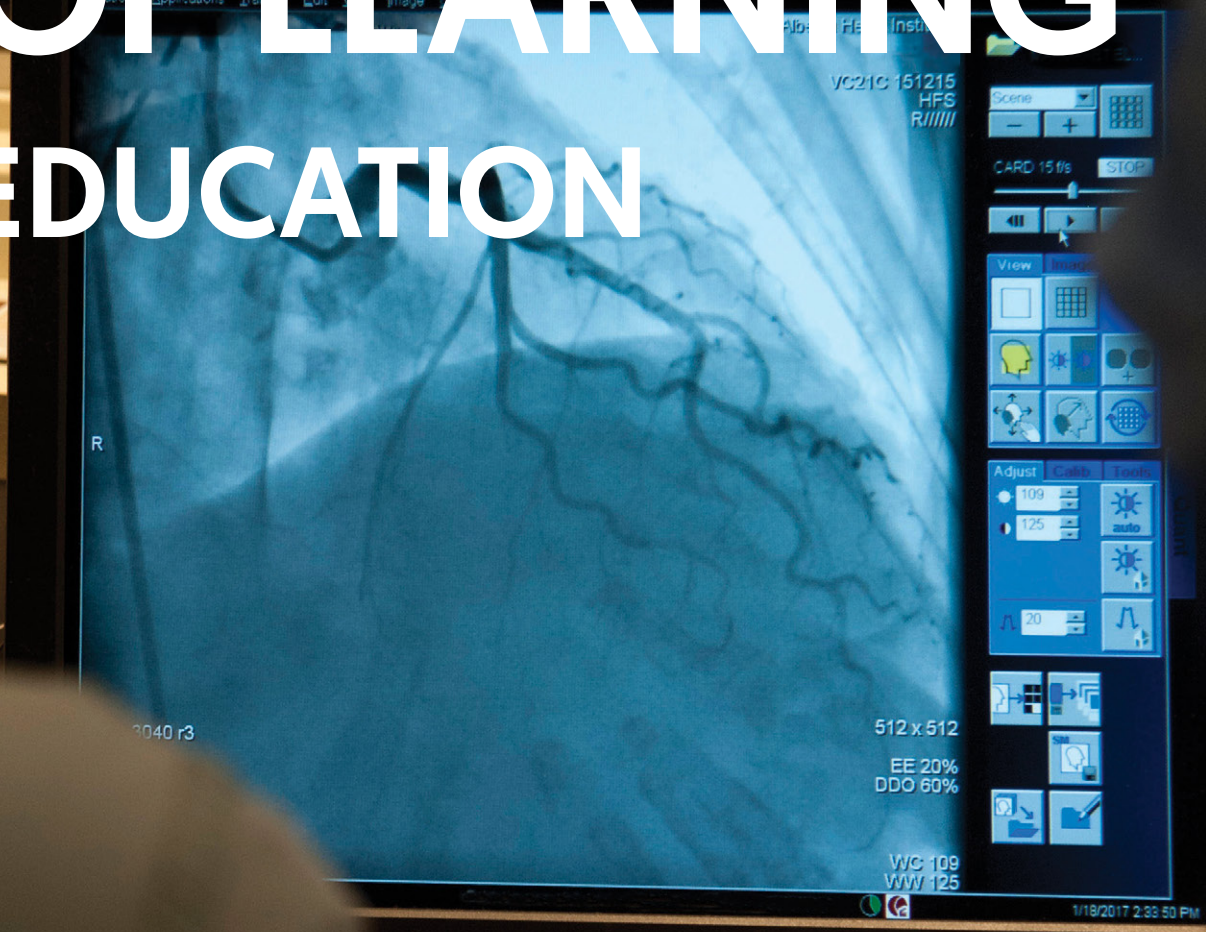
Heart specialists in Edmonton take calls from the ambulance and small

community hospitals to co-ordinate care for patients who suffer life-threatening STEMI (ST Elevation Myocardial Infarction) heart attacks. These occur when a blood clot completely blocks the coronary artery, causing the heart muscle supplied by that artery to die.

The program is working! Northern Alberta enjoys the country’s lowest 30-day mortality rate from heart attacks, at 4.9% – well below the national average of 7%.*

* Source: From the Canadian Institute for Health Information, reflecting data at the time this story was originally published in January 2015.

THE HEART OF LEARNING EDUCATION



“We are proud to be an internationally recognized destination for students in all healthcare fields. The Maz is home to many specialists ready to share their knowledge and passion for cardiac care. It is our priority to create a learning environment that trains future generations of cardiovascular experts”

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

TOP DESTINATION FOR LEARNING

The Maz is an international leader in education. We are a top destination for students seeking to specialize in the cardiac field. Our students represent all disciplines, including Medicine, Allied Health, Nursing and Research.

Educational opportunities exist within all areas of the Maz. We have created an environment that supports and inspires staff and physicians at the local, national and international levels. In-Services, Journal Clubs, and Grand Rounds form a regular part of our dedicated teaching and learning opportunities.

The Maz organizes, supports and attends many conferences. Staff and physicians are encouraged to discover innovative happenings in the world of cardiac care and to share the exciting work that is being done at the Maz. In 2015 at the Canadian Cardiovascular Congress, there were nearly 30 posters, presentations, workshops, abstracts and symposiums presented by the Maz staff and physicians.

Other learning events we support include:

- Annual Cardiology Conference Rockies
- NP Forum
- Annual Cardiology Update
- Cardiovascular Congressional Conference
- Annual Scientific Session Heart Rhythm Society

The Shaw Auditorium provides a means for clinicians, researchers, students, and the entire multidisciplinary team to connect with the global community. This digital classroom is equipped with a large screen viewing system and interactive desktops. Participants are able to view real-time procedures such as open heart surgery and engage in live case discussions.

Cardiology

Cardiology has one of the largest Cardiology Training and Fellowships Programs in Canada. We offer Fellowship Programs in Advanced Heart Failure, Interventional Cardiology, Echocardiography, Adult Congenital Heart Disease, Electrophysiology, and Rehabilitation.

Cardiac Surgery

Cardiac Surgery's Fellowship Programs attract leading practitioners from around the globe. Over the past 20 years, we have accepted fellows and residents from over 17 different countries. Our internationally recognized programs provide advanced training in heart failure, adult and pediatric cardiac surgery. We are proud of our trainees' academic productivity, which has resulted in numerous publications, presentations, awards, and book chapters.

1 The multidisciplinary CICU team daily rounds provides valuable learning while delivering patient care.

2 The Shaw Auditorium.

3 A panel discussion of cardiac experts at the Dr. Arvind Koshal Advancement Fund Lecture.



THE HEART OF PROGRESS

QUALITY IMPROVEMENT

Our Vision:
“Inspiring Innovation and Knowledge;
Leaders in Patient Care”

A CULTURE OF CONTINUOUS IMPROVEMENT

The Cardiac Sciences' approach to improvement is based on key principles of continuous improvement and best evidence based practice. Through multidisciplinary Quality Councils we are able to examine our system utilizing a problem solving mindset similar to that of how we diagnose and treat patients.

Our strategic direction is aligned to the AHS key priorities and cascaded down to the unit level.

The key elements of our culture are:

- Take care of people.
- Look for better ways to take care of people.
- Teach the team how to look for better ways to take care of people.

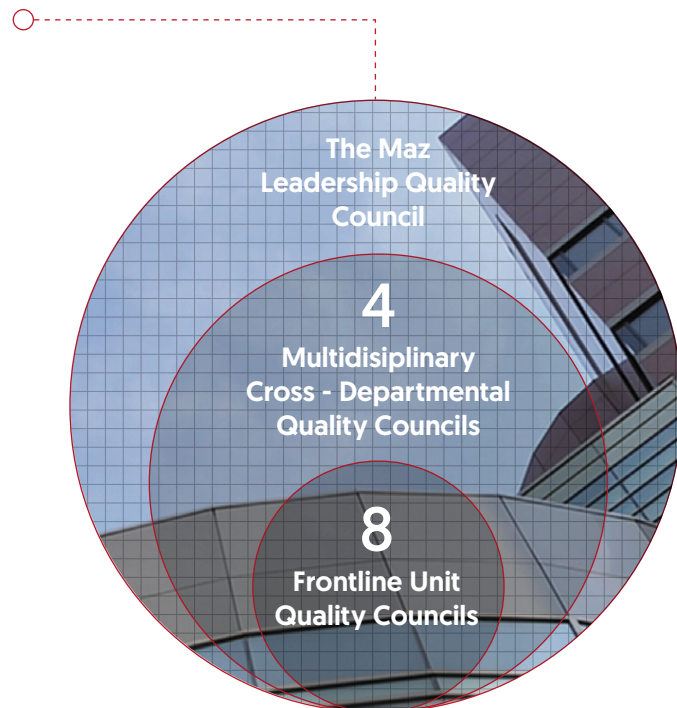
Key Strategies

Key strategies deployed to support an improvement culture within the Cardiac Sciences program included:

1. Development of a program vision.
2. Creation of a Cardiac Sciences strategic plan that aligned with the Edmonton Zone Quality Management Framework and AHS performance measures.
3. Development of an education platform and roll out of this platform to the entire Cardiac Science team on methodology and approach to improvement.
4. Creation of program dashboards and metric boards that reflect meaningful measures supporting all areas of the program.
5. Engagement from all levels of services providers in the process.

The Maz's nomination as a finalist for the AHS "Presidents Excellence Awards" underlines the success of our efforts.

Our staff demonstrates a commitment to sustaining a 'culture of improvement'. Training occurs with each new staff member given the education and voice to engage in problem solving on the work they do. We truly believe our frontline staff is the key to the Maz's ongoing success.



- 1 The Guru Nanak Dev Healing Garden is a peaceful setting of indoor waterfalls and lush foliage for patients, families and staff.



THE HEART OF POSSIBILITY

UNIVERSITY HOSPITAL FOUNDATION

The University of Alberta Hospital site – which includes the Mazankowski Alberta Heart Institute, the University of Alberta Hospital and the Kaye Edmonton Clinic – is one of the most important academic medical centres in Canada, providing specialized care that millions of patients cannot find anywhere else. The Site's reputation for excellence and the world class care it provides would not be possible without community support.

SUPPORTING INNOVATION AND EXCELLENCE

The University Hospital Foundation has contributed, in full or in large, to every major capital and technological investment at the Mazankowski Alberta Heart Institute, and is often the full funder of advanced medical technology and equipment.

This began when the concept of building a world leading heart institute in Edmonton was just an idea on paper. Individuals and business leaders who shared this vision added their voice of support, and raised \$58 million to help build a centre for excellence in cardiac care. One in four dollars that built the Maz came from the community, and that generosity has not stopped.

Through the gifts of thousands of donors, fundraising events, and the creation of partnerships with government and business leaders, the foundation funded Canada's first purpose-built hybrid OR, expanded the CVICU and funded the ground-breaking Servier virtual 3D heart.

As well as supporting patient care, the University Hospital Foundation raises funds to advance innovation and research that has a direct and tangible impact on patients. Foundation donors have contributed \$15.8 million towards the creation of new knowledge since 2004.

Cardiac Hybrid Operating Room

In fully funding the \$6.6 million Cardiac Hybrid operating room, donors to the University Hospital Foundation enabled what used to be impossible - cardiologists and surgeons working together, on the same patient, in the same room, at the same time. And by purchasing specialized surgical tools and helping to recruit some of the best doctors in the world, donor support has enabled the Maz to be a national leader in the field of minimally invasive surgery.

Ventricular Assist Device Program

End-stage heart failure means that someone's heart is so sick it's not able to pump enough blood to meet the demands of the rest of the body. A VAD is a mechanical pump that supplements and helps the patient's own heart to pump blood, enabling doctors to determine and provide next-therapy. Thanks to \$400,000 in donor support, the Maz is home to one of the best, and busiest, VAD programs in Canada, performing more than 30 VAD insertions annually.

Cardiovascular Intensive Care Unit

Donors to the University Hospital Foundation contributed \$1.4 million towards the expansion of the CVICU at the Maz, increasing capacity to allow 200 more surgeries to be performed every year, and more specialized patient care than ever before.

Extracorporeal Life Support

Foundation donors and events, including Heart Pledge Day, have supported the purchase of ECLS - portable life support equipment that is used by the cardiac teams at the Maz to support the movement of their sickest patients. The Maz is the only heart institute in Edmonton and northern Alberta that provides ECLS therapy, which is also being used as a bridge for support for patients awaiting heart or lung transplants.

1 Cardiology and Cardiac Surgery teams collaboratively working together in the Cardiac Hybrid Operating Room.

2 A patient being expertly cared for in the CVICU after open heart surgery.



APPEALS TO THE HEART EVENTS



Every year the Mazankowski Alberta Heart Institute benefits from events designed to raise funds for key programs at The Maz, by raising the site's profile and further developing relationships with the community. These fundraisers are organized by the University Hospital Foundation, in conjunction with the dedicated staff at The Maz.

PUTTING PASSION INTO ACTION

Edmonton Heartbeat Run

The Edmonton Heartbeat Run proudly supports the Mazankowski Alberta Heart Institute. Through the University Hospital Foundation, funds raised will help to ensure that patients from all over western Canada continue to benefit from the best talent, resources and passion to address all aspects of heart disease – from prevention to treatment and recovery. As a world leader in complex cardiac care, it is vital that the heart institute keep pace with rapidly changing technology and the latest knowledge and research discoveries. Community support makes this possible.

630 CHED Heart Pledge Day

Radio listeners called in more than \$170,000 in support of patient care, innovation and high priority needs at the Mazankowski Alberta Heart Institute during 630 CHED Heart Pledge Day, February 24, 2016. Coordinated by the University Hospital Foundation, this annual event has raised almost \$1.5M since its inception in 2004.

Mazankowski Alberta Heart Institute Spin-a-thon

Held in conjunction with Heart Month in February, this staff-led event raises funds for high priority patient needs at the Maz. Participants collect pledges to ride stationary bikes (or “spin cycles”) in teams. In 2015 the 2nd annual Spin-a-thon raised over \$15,000.

1

Karen Hamilton, lung transplant recipient, sharing her story during the 630 CHED Heart Pledge Day.

2

The AHS Executive team raising their heart rates at the annual Spin-a-thon.



