

IMPACT REPORT Winter 2025



Live cases and presentations from the CT for PCI Course.

Bringing CT for PCI to the United States MHIF's Center for Coronary Artery Disease hosted the CT for PCI Course 2.0

In partnership with the Allina Health Minneapolis Heart Institute® and the Society for Cardiovascular Angiography & Interventions® (SCAI), the MHIF hosted the CT for PCI Course 2.0 on October 24-25, 2024. This conference was a physician led educational event focused on the use of coronary computed tomography angiography, a non-invasive imaging modality, to guide percutaneous coronary interventions (PCI), with the ultimate goal of improving patient outcomes.

The course was hosted by MHIF's Center for Coronary Artery Disease and led by course directors Drs. Yader Sandoval, Emmanouil Brilakis, João Cavalcante, and Carlos Collet. Attendees included international and national key opinion leaders (KOL), including interventional cardiologists, cardiac imagers, radiologists, trainees, researchers and industry partners who came to learn about this modern PCI approach. It was a full day and a half filled with lectures, debates and vibrant discussions, along with hands-on training with different planning software for pre-procedural planning, and four interactive live cases broadcasted from Abbott Northwestern Hospital.

CT-guided PCI uses coronary computed tomography (CT) imaging to provide detailed views of coronary arteries, including non-invasive assessments of plaque composition and physiology to allow for pre-procedural planning.

A gift from John and Mary Packard to MHIF's Valve Science Center funded a named professional education project called the Packard Project, including securing equipment to produce and broadcast live case educational courses. This technology has transformed physician education, bringing the cath lab into other forums like national and international conferences.

CT-guided PCI is a procedure leveraging novel CT imaging to guide the intervention in treating coronary artery disease.

HOPE
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Research Data Reveal Trends in Cardiovascular Risk Factors and Preventive Medication Use Prior to Heart Attacks

The Minneapolis Heart Institute Foundation® (MHIF) presented leading research focused on trends in ST-elevation myocardial infarction (STEMI), the most severe form of a heart attack, at the American College of Cardiology's meeting Annual Scientific Session (ACC.24). In an analysis of nearly 8,000 STEMI patients over 20 years, the study found that the majority of STEMI occur in individuals without prior cardiovascular disease, and this prevalence is unchanged over time. Additionally, the study found that the risk factor profiles of patients presenting with STEMI is largely unchanged over time and the use of preventive medications has remained low.

Key results from the research study:

- 70% of STEMI still occur in people without known CVD
- Hyperlipidemia/high cholesterol (~60% of STEMI patients) and hypertension/high blood pressure (~60% of STEMI patients) remain the dominant CVD risk factors in STEMI
- Average age at STEMI remains relatively young (early 60's)
- Use of preventive medications remains infrequent with the majority of individuals not on cholesterol medications, blood pressure medications, or aspirin prior to STEMI

"While we know that the rate of STEMI has been declining in the US for decades, it was somewhat surprising to see that those presenting with STEMI look very similar to what we saw 20 years ago," said Michael Miedema, MD, MPH, director of the

Nolan Family Center for Cardiovascular Health at MHIF and senior author of the research. "I think most people think of obesity and being out of shape as the primary cause of heart attacks, but we clearly have shown that high cholesterol and blood pressure, which are often heavily influenced by genetics, are the primary risk factors."

"We found that the majority of STEMI's continue to occur in the absence of preventive medications, not despite taking them. We have a lot of patients who are hesitant to start a cholesterol or blood pressure medication, but it can be the difference between having or not having a big heart attack," stated lead author Felipe Martignoni, who is completing a fellowship in cardiovascular prevention at the Nolan Family Center for Cardiovascular Health.



Dr. Michael Miedema
who is completing a fellowship in cardiovascular prevention at the Nolan Family Center for Cardiovascular Health.

STEMI is a severe manifestation of potentially preventable cardiovascular disease (CVD). In addition, common treatments including cholesterol medications, blood pressure medications, and antiplatelet agents have been shown to reduce the risk for cardiovascular events, such as STEMI. This research assessed the prevalence of CVD risk factors and the use of preventative CVD medications over the past 20+ years in a large Midwest STEMI system. Data included in the study were from 2003 through 2022 in 7,854 first-time STEMI patients.

Joseph F. Novogratz Family Heart Rhythm Center Highlights

Recapping MHIF Atrial Fibrillation Education Community Event

On October 26, 2024, the Minneapolis Heart Institute Foundation hosted an event to raise awareness about atrial fibrillation at the Wilder Foundation in St. Paul, MN. Nearly 100 people came together to learn from experts at the Allina Health Minneapolis Heart Institute, including Drs. Jay Sengupta, Matt Olson, and John Zakaib. We were grateful to be joined by patient Betty Brandt who shared her story of navigating atrial fibrillation.

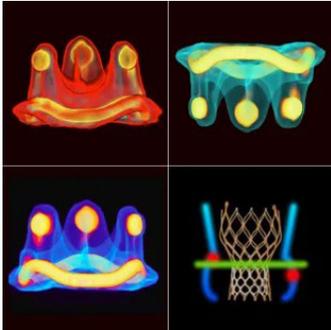
The event was supported with grants and exhibits from Abbott, Atricure, Biosense Webster, Boston Scientific, Medtronic, the Otto Bremer Trust and Allina Health Minneapolis Heart Institute. Our team is grateful to host this event filled with learning, sharing, and community spirit, leaving everyone with a better understanding of atrial fibrillation and how to manage it effectively.

To see the event recording and find more resources about heart rhythm disorders, please visit our website mplsheart.org/heart-rhythm.



Redo-TAV Digital App for Physicians Provides Advanced Clinical Insights in Heart Valve Disease Management

Apps made possible with support from the Fleischhacker Family Foundation



In 2024, MHIF announced the launch of Redo-TAV, the latest digital app for physicians providing an unbiased and systematic guide for TAV-in-TAV procedures.

Redo TAV is a complex and rapidly emerging procedure that implants a second

transcatheter aortic valve (TAV) for patients who outlive their first TAV. This is the fourth app in a library of Valve-in-Valve (ViV) apps created by Dr. Vinayak Bapat and his team of experts, which have become valuable resources and downloaded by more than 60,000 healthcare providers around the world. The apps have helped patients globally by providing guidance, standardizing the workflow and providing up-to-date information.

“With the advance of technology and various levels of real-world experience comes a responsibility for clinicians and heart teams to share learnings and clinical insights,” said Dr. Bapat, cardiac surgeon and researcher at MHIF, and chair of cardiothoracic surgery at Allina Health Minneapolis Heart Institute®. “The apps allow physicians to tap into extensive clinical knowledge and gain access to best practices and case

studies. This is a passion of mine to develop and share with global colleagues as we work together to improve care for all patients.”

MHIF is committed to lifesaving heart research and education, an example of which is the support of a library of digital applications created by passionate and renowned physicians. These apps share learnings from research with advanced technologies and techniques. The Joseph F. and Mary M. Fleischhacker Family Foundation provided funding that made the library of apps possible across heart valve and coronary artery disease.

In addition to Redo TAV, the MHIF app suite includes:

- Valve-in-Valve Aortic: focused on transcatheter aortic valve replacement (TAVR) in surgical aortic valve (SAVR) procedures
- Valve-in-Valve Mitral: designed specifically for mitral valve interventions, providing detailed guidance on transcatheter mitral valve replacement (TMVR) in valve and TMVR in ring procedures
- Patient Prosthesis Mismatch: focused on patient-prosthesis mismatch (PPM) in valve replacement, including resources for assessing the most appropriate valve size and type
- PCI App: developed by Dr. Emmanouil Brilakis and designed to assist physicians with percutaneous coronary intervention procedures, including clinical insights, step-by-step guidance and case studies

All the apps are available for download now on both iOS and Android platforms. For more information, please visit mplsheart.org/apps.

Center for Coronary Artery Disease Highlights

Minneapolis Heart Institute Foundation® (MHIF) First in U.S. to Accelerate Innovation Through Research & Education using Advanced Cardiovascular Imaging

MHIF announced the first enrollments in the Precise Procedural and PCI Plan (P4) Research Trial evaluating the potential for advanced cardiovascular imaging to enhance patient care. The first U.S. patients enrolled underwent computed tomography (CT) imaging with state-of-the-art 3D modeling provided by the trial as part of pre-procedure planning to guide the percutaneous coronary intervention (PCI) used to open a blockage in the heart. The P4 research trial is a global, multicenter, randomized trial comparing clinical outcomes between two imaging strategies to guide PCI: novel CT-guided PCI and standard intravascular ultrasound (IVUS)-guided PCI.

“We are pleased to complete the first enrollments in this study as we gather data on the potential for CT-guided PCIs to advance care and outcomes for patients undergoing these procedures,” said Dr. Yader Sandoval, co-chairman for MHIF’s Center for Coronary Artery Disease and P4 site principal investigator. “Our team of researchers has a depth of expertise in advanced cardiovascular imaging and we’re proud to be the first center in the United States with the capability and technology to evaluate the potential for this to continue to advance patient care.”

The first U.S. CT-guided PCI procedure for the P4 trial was performed by interventional cardiologists, Drs. Yader Sandoval & Emmanouil Brilakis, in collaboration with imaging cardiologists, Drs. John Lesser and João Cavalcante, all study

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investigators at MHIF. The study is sponsored by CoreAalst BV in Belgium under the leadership of Dr. Carlos Collet Bortone, P4 principal investigator.



Left: Drs. Cavalcante, Sandoval and Brilakis, right: Dr. Brilakis

CT-guided PCI is a procedure leveraging CT imaging to guide the intervention in treating coronary artery disease. In this procedure, CT scans are done prior to the procedure, providing detailed images of the coronary arteries and a clear understanding of the individual patient anatomy, extent and location of plaque and characteristics of the lesions. The use of advanced imaging informs the interventional procedure more precisely, likely optimizing stent or balloon placement and leading to enhanced long-term results for patients. Traditional PCI typically involves the use of X-ray imaging (fluoroscopy) to visualize the coronary arteries and guide the placement of stents or balloons to open narrowed or blocked arteries.

CT-guided PCI is especially helpful in complex cases where traditional imaging enhances 3D modeling detail, for example in patients with multiple or extensive plaque or calcification. This approach leverages the most advanced technologies and expertise that are not necessarily common or accessible in all centers today.

2024-2025 Frank J. and Eleanor Maslowski Charitable Trust CHIP-CTO Fellow at the MHIF Center for Coronary Artery Disease

Dr. Jalli joined from Largo MHIF welcomed Sandeep Jalli, DO as the Frank J. and Eleanor Maslowski Charitable Trust CHIP-CTO Fellow on July 1, 2024. This role is a one-year fellowship with the Center for Coronary Artery Disease to provide a robust experience in training in complex coronary interventions.



Dr. Sandeep Jalli

Medical Center in Largo, FL, where he completed his training in interventional cardiology. He obtained his medical degree from the Philadelphia College of Osteopathic Medicine and completed his Internal Medicine Residency at the Augusta

University/University of Georgia Medical Partnership and his Cardiology Fellowship at Samaritan Health Services in Corvallis, OR. During his training he was Chief Resident and Chief Interventional Cardiology Fellow, and was actively involved in research with peer reviewed publications and presentations at conferences. Dr. Jalli is also board certified in Internal Medicine, Echocardiography, Cardiac CT, and Cardiovascular Disease.

The Frank J. and Eleanor Maslowski Charitable Trust CHIP-CTO Fellowship Program is a 1-year hybrid clinical and research training program for Interventional Cardiologists focused on specialized training in complex and high-risk percutaneous coronary interventions, including patient selection, procedural planning, use of advanced interventional techniques, and prevention and management of complications.

The program includes a clinical research focus on complex percutaneous coronary interventions.

The curriculum for the program consists of:

- Chronic total occlusion (CTO) interventions
- Advanced intravascular imaging and physiology
- Bifurcations, thrombus management, treatment of acute coronary syndromes
- Calcification and tortuosity
- Hemodynamic support and treatment of cardiogenic shock
- Complication prevention and management, radiation safety
- Research in complex percutaneous coronary interventions

Contributing to Advancing STEMI Heart Attack Care

The Society for Cardiovascular Angiography & Interventions (SCAI) released a new Expert Consensus Statement on the Management of Patients with STEMI Referred for Primary PCI. Published in the Journal of SCAI, the new Consensus Statement provides recommendations for healthcare professionals who manage patients with ST-Elevation Myocardial Infarction (STEMI), the most severe type of heart attack. The goal is to guide interventional cardiologists in standardizing the treatment of STEMI and improving patient outcomes around the world.



Dr. Yader Sandoval

The SCAI Consensus Statement was co-chaired by Dr. Yader Sandoval, Co-Chairman of the Minneapolis Heart Institute Foundation's (MHIF) Center for Coronary Artery Disease (CCAD) and interventional cardiologist at the Allina Health Minneapolis Heart Institute.

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“Our goal was to create a document that reflects the most current scientific evidence and offers practical advice for clinicians on the front lines of patient care, as well as offers input on frequently encountered clinical scenarios in STEMI patients such as microvascular obstruction, MINOCA, coronary microvascular dysfunction, including lesion subsets such as bifurcations or calcified lesions, and highlights areas with unmet needs where opportunities exist for additional research,” said Dr. Sandoval. “By providing these consensus key points, we are not only helping to ensure consistency in treatment approaches but also aiming to improve the overall quality of care for STEMI patients globally. The document will be a critical resource for improving STEMI outcomes worldwide.”

What is STEMI and Why Is It So Critical?

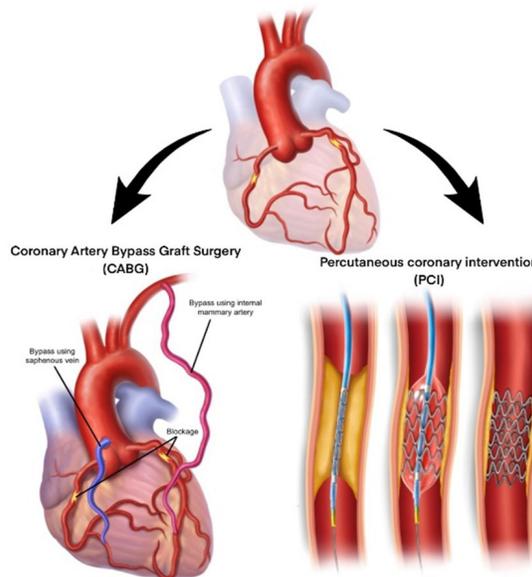
STEMI is one of the most severe forms of heart attack, marked by the complete blockage of a major artery in the heart. Immediate intervention is crucial to restore blood flow, prevent significant heart damage, and improve survival rates.

The project was chaired by Jacqueline Tamis-Holland, MD, FSCAI, interventional cardiologist and director for Acute Coronary Care at Cleveland Clinic. The Consensus Statement offers crucial insights on managing difficult cases, including complex coronary artery lesions. While primary PCI is an established treatment, various complexities arise when managing patients with STEMI.

Medical Animation and Illustration Intern

In 2024 the Center for Coronary Artery Disease hired a Medical Animation and Illustration intern. The internship provided the

opportunity for a recent graduate of a Master’s in Fine Arts in Medical Animation program to apply and develop their skills to support the research and educational efforts ongoing at MHIF. The intern’s role is to create illustrations for scientific publications and presentations, as well as to create animations and illustrations for patient education.



Illustrations that demonstrate two methods of treating coronary artery disease: coronary artery bypass graft surgery (CABG) and percutaneous coronary intervention (PCI).

Penny Anderson Women’s Cardiovascular Center Highlights

Evaluation of CardioObstetrics Program Published

The Penny Anderson Women’s Cardiovascular Center published original research focused on the role of a Cardio-Obstetrics program (CVOB), a collaboration between cardiologists at the Allina Health Minneapolis Heart Institute and Maternal Fetal Medicine specialists. The CVOB program, started in 2018, delivers specialized care for patients with a preexisting cardiovascular condition or those at high-risk for cardiovascular complications during and/or after pregnancy. A multidisciplinary care team provides preconception counseling, risk stratification, prenatal care, development of a collaborative individualized pregnancy and birth plan, and coordinated postpartum care.

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Reach and effectiveness of a non-university cardio-obstetrics program

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ABSTRACT
Background: Current guidelines recommend multidisciplinary cardiovascular obstetric programs (CVOB) to manage complex pregnant patients with cardiovascular disease. Minimal evaluation of these programs exists, with most of these programs offered at university-based centers.
Methods: A cohort of 113 patients managed by a CVOB team at a non-university health system (2018–2019) were compared to 338 patients seen by cardiology prior to the program (2016–2017). CVOB patients were matched with comparison patients (controls) on modified World Health Organization (mWHO) category classification, yielding a cohort of 102 CVOB and 102 controls.
Results: CVOB patients were more ethnically diverse and cardiovascular risk was higher compared to controls based on mWHO≥II-III (57% vs 17%) and. After matching, CVOB patients had more cardiology tests during pregnancy (median of 8 tests vs 5, $p<.001$) and were more likely to receive telemetry care (32% vs 19%, $p=.025$). The median number of perinatology visits was significantly higher in the CVOB group (8 vs 2, $p<.001$). Length of stay was a half day longer for vaginal delivery patients in the CVOB group (median 2.66 vs 2.13, $p=.006$).
Conclusion: Implementation of a CVOB program resulted in a more diverse patient population than previously referred to cardiology. The CVOB program participants also experienced a higher level of care in terms of increased cardiovascular testing, monitoring, care from specialists, and appropriate use of medications during pregnancy.

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Heart Failure Research Highlights

First Enrollment in Research to Evaluate Evidence with SuperSaturated Oxygen (SSO2) Therapy in Reducing Heart Failure and Mortality

MHIF enrolled the first patient in the SuperSaturated oxygen Comprehensive Observational REgistry (SSCORE) Research Registry. This registry is part of a prospective study designed to provide further evidence of the efficacy of SuperSaturated Oxygen (SSO2) Therapy, manufactured by Zoll, to reduce heart failure and mortality in patients suffering from left anterior descending ST-elevation myocardial infarction (LAD STEMI) heart attacks, the most serious type of heart attack. LAD STEMI heart attacks are often referred to as “widow makers” due to the high mortality rate associated with this condition.

“These patients with LAD occlusion are at significant risk,” said M. Nicolas Burke, MD, interventional cardiologist and researcher at the Minneapolis Heart Institute Foundation, and director of Cardiovascular Emergency Services at Allina Health Minneapolis Heart Institute® at Abbott Northwestern Hospital who treated the first patient enrolled in SSCORE nationwide. “Opening the artery is the first step but using SSO2 to further decrease infarct size is vital. This patient had an acute proximal LAD occlusion and I wanted to give him the best chance of preserving his heart function.”

Patients with LAD STEMI heart attacks have higher mortality rates than those with other types of heart attacks. SSO2

Therapy is the first and only FDA-approved treatment that has been clinically proven to significantly reduce damage to cardiac muscle in heart attack patients after coronary angioplasty with stenting.

“The focus on reducing infarct size and improving microvascular function with SSO2 in the cath lab versus palliation of disease is a logical strategy that has been long awaited in this field,” said Jay Traverse, MD, principal investigator and researcher at the Minneapolis Heart Institute Foundation, and interventional cardiologist at Allina Health Minneapolis Heart Institute®. “Persistently high readmission rates for these patients, who often develop heart failure following standard-of-care stenting of the LAD, have been an ongoing challenge for over two decades. SuperSaturated Oxygen Therapy has shown great promise to alleviate this problem, which improves the quality of life for the patient while relieving the financial burden on the healthcare system as a whole. We are excited to participate in this trial and look forward to seeing positive outcomes.”

SSO2 Therapy is indicated as an adjunct for patients who suffer LAD STEMI and are treated with traditional stenting within six hours of chest pain onset. The therapy delivers high levels of dissolved oxygen (7–10 times the amount normally found in the bloodstream) directly to the damaged heart muscle immediately after the coronary artery has been successfully opened via angioplasty and stenting.

Announcing Recipients of MHIF Physician Leadership and Distinguished Service Awards

MHIF celebrated two physicians who received prominent awards created to recognize leadership and service. The awards were established to honor the legacy of two incredible leaders and individuals.

Dr. Emmanouil Brilakis was awarded the 2024 Ray Bentsdahl Distinguished Service Award for his commitment to leading the work of the MHIF Center for Coronary Artery Disease – advancing care and outcomes for patients, especially in the treatment of chronic total occlusions (CTOs). This award recognizes an individual’s contributions to the Foundation and accomplishments as an outstanding leader, mentor, philanthropist, educator, or researcher and honors the legacy of Ray Bentsdahl, a business leader who understood the value of community investment – going back to his early friendship with MHI Founder Dr. Robert Van Tassel and the beginning of MHIF.

Dr. Michael Miedema was awarded the 2024 Robert G. Hauser Leadership Award for his leadership of the MHIF Nolan Family Center for Cardiovascular Health – driving innovation in preventive cardiology research and education. This award recognizes an individual who demonstrates visionary leadership and honors the legacy of Dr. Hauser, a physician leader and founder who contributed to innovative research, advancing clinical practice and developing MHIF into a world-class research organization.

These awards are a significant honor, showing appreciation for the tireless dedication, exceptional skills, and profound impact these physicians have on their patients, colleagues, and communities – and an encouragement to continue their exemplary work. The recognition of these awards often extends beyond the individual recipient to their teams, mentors, and support networks, highlighting the collaborative nature of world-class cardiovascular research and education.



MHIF International Scholar Highlights

Since 2017, the MHIF International Scholar program has brought practicing physicians from countries around the world for a one- or two-year period to work directly with Minneapolis Heart Institute® physicians and advance MHIF physician-initiated cardiovascular research.

Research scholars bring a wealth of diversity and knowledge to our team. They help design and conduct clinical studies of all types under the supervision of a physician serving as the primary investigator. Research scholars also assist MHIF research teams in disseminating important research findings by publishing articles in peer-reviewed journals and submitting abstracts and challenging cases for publication and/or presentation at scientific conferences, bringing global exposure to MHIF's research. To date, the International Scholar program has welcomed scholars from China, Japan, Brazil, Hungary, Turkey and Greece.

A spotlight on a few of the current scholars:

Mariam Tarek Desouki, MD

graduated from Alexandria University of Medicine, Egypt in October 2022, with Honours. Dr. Desouki has been working in the research field for more than two years as a remote cardiology research fellow. She presented multiple abstracts at international conferences including ESC 2023, and ACC 2024, under the mentorship of the Director of the Vascular and Intravascular Cardiac Imaging Core Lab, at Brigham and Women's Hospital, and the National Cardiology Research leader in Egypt. She is passionate about teaching research to young medical students, both on the national and international levels. In her free time, she enjoys reading English poetry and Agatha Christie novels. She's also an avid traveler who enjoys exploring different cultures.



Dr. Desouki will be under the mentorship of Dr. Jay Sengupta and supporting projects by Dr. JoEllyn Moore, as well as the other HRSC physicians:

1. Prediction of Adverse Outcomes in Patients with Excessive Trabeculation (LVNC)
2. Safety and Efficacy of Antiarrhythmic Drug Uses for Maternal Arrhythmias During Pregnancy
3. Outcomes of Watchman implantation in patients with history of Major bleeding.
4. Effect of using guideline directed heart failure medications in patients with non-ischemic cardiomyopathy (ACM-DCM-LVNC).

Takahiro Nishihara, MD, PhD, joined the MHIF Cardiovascular Imaging Research Center working as a Research Scholar. Dr. Nishihara comes to MHIF from Okayama University Hospital, Okayama, Japan, where he completed his medical training and has served as medical staff and a research fellow.



Dr. Nishihara brings a unique expertise and skill set. He is an interventional cardiologist with extensive training and expertise in cardiac CT, MRI and echocardiography. He is already an accomplished researcher in the fields of structural heart disease and cardiomyopathy. He will be working with the MHIF Cardiovascular Imaging Research Center.

Kerollos Abdelsayed, MD

earned his MD in 2023 from South Valley University, Egypt, with a strong passion for cardiology. After completing the USMLE, he joined the Magdy Yacoub Heart Foundation, where he received a Paul Dudley White International Scholar Award from the AHA and a Travel Grant from the ESC-HFA while leading and coauthoring multiple peer-reviewed publications in the field. Besides his ongoing research, he enjoys mentoring USMLE students from diverse backgrounds and was an active member of the International Federation of Medical Students Association. Outside medicine, he is fond of chess as a formal professional player and directed multiple silent theatre shows. He finds joy in night walks and spending time with friends, family, and his two dogs.



Dr. Abdelsayed will be working with Drs. Jay Sengupta, and Matt Olson on the following research projects:

1. Tricuspid Valve Dysfunction with Leadless Pacemakers
2. Correlation of Genotype with Phenotype in Patients with ACM
3. Retrospective Analysis of Atrial Lead Outcomes: Septal 3830 versus 5076

Lights, Camera, Heart Attack: How Hollywood Gets It (Mostly) Wrong About Heart Attacks

In a blockbuster crossover between medicine and movies, Dr. Kirsten Shaw, MD, took a deep dive into Hollywood's portrayal of heart attacks. Lead study author, Dr. Kirsten Shaw, is a cardiology fellow at Allina Health Minneapolis Heart Institute and supports research through the Minneapolis Heart Institute Foundation.

Dr. Shaw's study, "Portrayal of Acute Myocardial Infarction in Popular Film: A Review of Gender, Race, and Ethnicity," published in the *Journal of the American Heart Association*, is like the ultimate director's cut—except instead of action sequences, the focus is on how gender, race, and ethnicity get cast in the role of acute myocardial infarctions (heart attacks). Spoiler alert: Hollywood could use a better script to improve public understanding of the reality of heart attacks.

Key Findings

- 1. Historical Focus on Men:** If you thought only men have heart attacks, based on movie portrayals, you're not alone. Dr. Shaw's study found that heart attacks are overwhelmingly portrayed in male characters, as if women don't experience them. News flash: heart attacks are an equal-opportunity villain, and women are more likely to die of a heart attack!
- 2. Where's the Diversity?:** In the Hollywood version of a heart attack, the leading man is typically white. The study pointed out that racial and ethnic minorities are often left out of the story, despite heart disease being a major plot twist for all demographics. If we're looking for accuracy in representing heart attacks, casting directors should reconsider a fair share of the screen time for the reality of heart attacks.
- 3. Drama Overload:** When it comes to showing a heart attack, movies tend to go for the Oscar moment—clutching the chest and dramatic collapses. In reality, heart attacks can be more of a slow burn, especially for women, who might feel queasy or unusually tired. The next time your favorite character dramatically keels over, remember real life is often less theatrical.

A key takeaway from this research – the more we understand the reality of heart attacks, the better equipped we'll be to save lives.



Dr. Kirsten Shaw

SPOILER ALERT: Hollywood could use a better script to improve public understanding of the reality of heart attacks.

It's important for all people to read the first sentence of Dr. Shaw's published article:

"Cardiovascular disease (CVD) remains the leading cause of death in women in the United States and disproportionately affects patients from racial and ethnic minority groups."

A few more interesting details about how the research was done, as shared in the publication:

"Using the filtered search tool, the term "heart attack" was used to identify films depicting acute myocardial infarction (AMI) in the Internet Movie Database. Movies were sorted from most to least popular per Internet Movie Database rating. To identify 100 AMI scenes in movies, 172 top- ranked movies were reviewed consecutively. Movies were excluded if they failed to show the actor experiencing AMI, or if they depicted a nonischemic cardiac arrest.

Cardiac arrest secondary to nonischemic causes was determined by cardiologist review of movie scenes and plots. Gender, race, and ethnicity data were acquired via movie plot descriptions or actor self-identification if the former was unavailable. This project used publicly available nonpatient data."