SP AND SEEMA LOHIA CARDIOVASCULAR CLINICAL INSTITUTE

DR. SAMIN K. SHARMA FAMILY FOUNDATION

Cardiac Catheterization Laboratory

2024 Clinical Outcomes and Innovations Report

Mount Sinai Fuster Heart Hospital

From Samin K. Sharma, MD, and Annapoorna S. Kini, MD

Samin K. Sharma, MD, FACC, MSCAI

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Senior Vice President, Operations and Quality, Mount Sinai Fuster Heart Hospital

Director, Interventional Cardiology, Mount Sinai Health System

President, Mount Sinai Fuster Heart Hospital Network

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Director, Cardiac Catheterization Laboratory

Interventional Director, Structural Heart Disease, Mount Sinai Health System

Director, Interventional Cardiology Fellowship Program

Interventional cardiology is experiencing an exciting evolution, driven by continuous innovation and our dedication to exceptional patient care. We are pleased to introduce the *2024 Clinical Outcomes and Innovations Report*, showcasing comprehensive data on our procedural volumes and clinical outcomes. This transparency allows meaningful comparisons with top institutions both regionally and nationwide.

At The Mount Sinai Hospital, our Cardiac Catheterization Laboratory consistently sets industry benchmarks, thanks to several distinguishing factors:

- **A Remarkable Team:** Our skilled interventionalists and dedicated support staff collaborate closely, fostering a culture of mutual respect, teamwork, and excellence.
- **Commitment to Clinical Excellence:** We rigorously implement updated evidence-based protocols and standards, ensuring outstanding patient results.
- **Pioneering Innovations:** As leaders in adopting groundbreaking technologies and techniques, our participation in pivotal clinical trials gives patients access to groundbreaking first-in-human devices frequently implanted in our laboratory.
- **Comprehensive Heart Team Approach:** Collaborative decision-making with specialists in clinical cardiology and cardiac surgery guarantees personalized and optimal care pathways for complex cases.
- **Patient-Centered Compassion:** We provide thoughtful, compassionate care, supporting patients' overall health and emotional well-being before, during, and long after treatment.

Our consistently exceptional outcomes clearly demonstrate our expertise, especially in managing high-risk PCI cases. Patients often come to us when other options are exhausted, and leave empowered by improved health, enhanced quality of life, and renewed hope.

In this year's report, you'll hear directly from patients who overcame significant clinical challenges, highlighting their inspiring journeys and the exceptional care they received. Looking forward, we remain dedicated to pioneering further advancements, setting new standards for excellence and innovation. By continuously evaluating and refining our outcomes, we strive to elevate the quality of care for our patients throughout 2025 and beyond.

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For more information, visit **www.mountsinai.org/interventional-cardiology-cath-lab**

Valentin Fuster, MD, PhD, MACC

Physician-in-Chief,
The Mount Sinai Hospital
President, Mount Sinai Fuster Heart Hospital

In 2025, the Mount Sinai Cardiac Catheterization Laboratory remains dedicated to providing exceptional care to patients from diverse backgrounds. Our commitment to tackling complex cases, even those deemed too high risk elsewhere, is unwavering. Our team of interventionalists and support staff is at the forefront of applying the latest advancements in cardiovascular medicine, ensuring that we address even the most challenging conditions, from advanced heart failure to congenital defects.

I am continually inspired by the leadership of Samin K. Sharma, MD, and Annapoorna S. Kini, MD, at Mount Sinai Fuster Heart Hospital. Their team is not only leading the way in cutting-edge research and innovative solutions but also exemplifies creativity, care, and compassion in every aspect of patient care. As our center continues to expand, I am pleased to share that our success rate remains more than 99 percent, and our vision to help patients enjoy many more healthy years remains steadfast.

We are excited to present the *2024 Clinical Outcomes and Innovations Report*, which highlights our team's remarkable research and achievements. Additionally, it includes the heartfelt testimonials of grateful patients whose lives and futures have been positively impacted by our care.

Thank you for your continued support and partnership.

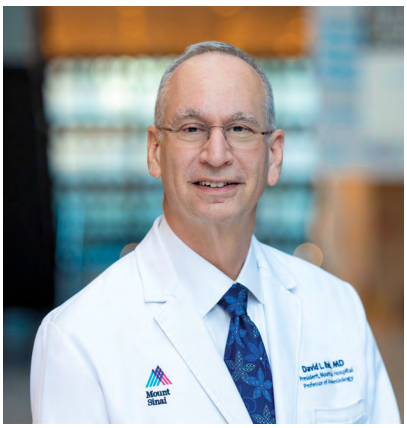
Deepak L. Bhatt, MD, MPH, MBA

Director of Mount Sinai Fuster Heart Hospital
Dr. Valentin Fuster Professor of
Cardiovascular Medicine

I am thrilled to celebrate the ongoing achievements of our Cardiac Catheterization Laboratory at The Mount Sinai Hospital in Manhattan. From the moment I joined as Director of the Mount Sinai Fuster Heart Hospital, I have been captivated by the exceptional dedication and expertise of our team. Drs. Sharma and Kini have truly assembled a stellar group of cardiologists, interventionalists, advanced care providers, nurses, and support staff.

Their unwavering commitment to delivering the highest quality care to our patients is not only commendable but also sets the benchmark for our entire health system. This past year has been marked by extraordinary procedural success and outstanding patient outcomes, a testament to their tireless efforts and passion for excellence in interventional cardiology.

Looking ahead, our focus remains on procedural excellence, patient satisfaction, and innovation. We are eager to explore new techniques and technologies that enhance care and broaden the possibilities in cardiovascular medicine. With such a talented and driven team, I am confident that the Mount Sinai Fuster Heart Hospital will continue to lead the way in setting new standards for cardiovascular care.



David L. Reich, MD

President, The Mount Sinai Hospital
Chief Clinical Officer, The Mount Sinai Heath System

"Within these pages, you will see how our specialists combine expertise with forward-thinking approaches, leveraging science to elevate patient outcomes and redefine standards in cardiac intervention."

President and Chief Clinical Officer, The Mount Sinai Hospital

Excellence in health care is more than just the sum of daily procedures and appointments—it's a commitment to pushing boundaries, innovating, and improving lives. At the Mount Sinai Fuster Heart Hospital at The Mount Sinai Hospital, we are driven by a singular mission: to redefine what's possible in cardiac care. This dedication is why we are honored to be ranked No. 4 in the nation for Cardiology, Heart & Vascular Surgery by *U.S. News & World Report*® for 2024-25.

What sets us apart is not just our expertise, but the relentless pursuit of progress. How do we sustain and elevate our high standards of care?

It starts with discovery. Across our hospital, researchers and physicians are not just following medical trends—they are creating them. By pioneering new treatments and technologies, we challenge existing limitations and seek transformative breakthroughs in heart health.

It thrives through knowledge-sharing. Our legacy of innovation is not meant to be kept within our walls. We are committed to training the next generation of leaders in cardiology, ensuring that cutting-edge advancements reach practitioners and patients around the world.

It is rooted in a culture of compassion. Great medicine is more than science—it's about people. Every member of our team shares a passion for treating patients with dignity, empathy, and a level of care that extends beyond the procedure room.

The Cardiac Catheterization Laboratory at The Mount Sinai Hospital embodies these principles. Within these pages, you will see how our specialists combine expertise with forward-thinking approaches, leveraging science to elevate patient outcomes and redefine standards in cardiac intervention.

This annual report reflects our unwavering dedication to education and collaboration. Dr. Sharma, Dr. Kini, and the entire Cardiac Catheterization Laboratory team continue to mentor and share their knowledge with peers and fellows from across the globe. You'll also find the heartfelt stories of patients whose lives have been transformed by our expertise and compassionate care.

Looking ahead, our mission remains clear: to lead, to innovate, and to provide unparalleled cardiac care. We invite you to explore this report and witness the future of heart health in action.

The Cardiac Catheterization Laboratory at The Mount Sinai Hospital

An Overview of Services and Outcomes

From Left: Roxana Mehran, MD, Sahil Khera, MD, Raman Sharma, MD, Gregory Serrao, MD, George Dangas, MD, PhD, Annapoorna S. Kini, MD, Jeffrey Bander, MD, Samin Sharma, MD, Vishal Kapur, MD, Prakash Krishnan, MD, Joseph M. Sweeny, MD, Pedro Moreno, MD, Parasuram Melarcode Krishnamoorthy, MD, Amit Hooda, MD, Isha Ranadive, MD, and David D. Song, MD

“Our greatest glory is not in never falling, but rising higher, every time we fall.”

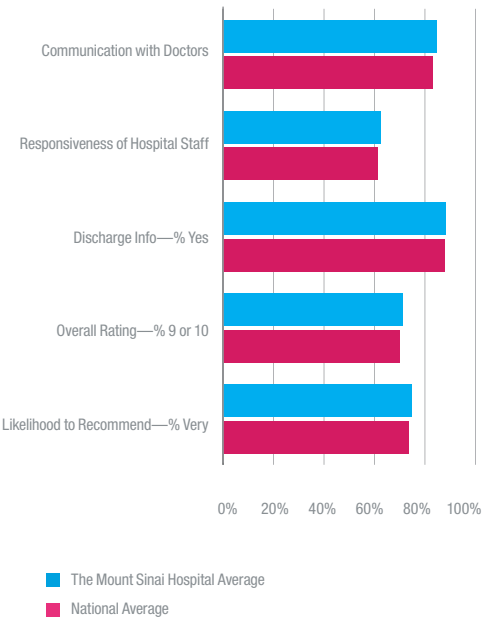
— **NELSON MANDELA**
SOUTH AFRICAN LEADER AND HUMAN RIGHTS ACTIVIST

The Cardiac Catheterization Laboratory at The Mount Sinai Hospital is among the highest-volume centers, yet also among the safest interventional catheterization laboratories in the United States. Each staff member of the Cardiac Catheterization Laboratory has a strong work ethic and takes pride in his or her contribution to the principal goal: delivery of appropriate, efficient, and safe care to patients in need. As a result, the Cardiac Catheterization Laboratory consistently reports a high level of patient satisfaction; 58 percent of patients are discharged on the same day after their successful interventional procedure.

The system of established standard protocols, rigorous attention to details, and a strong sense of teamwork have helped us achieve the best interventional outcomes in the country. Overall angiographic success of non-CTO lesions remains over 99 percent in our Cardiac Catheterization Laboratory.

We continue to improve our outcomes every year, maintaining low procedural complications in 2024. This remarkably low complication rate has been achieved despite high complexity and comorbid medical conditions of patients treated in the Cardiac Catheterization Laboratory.

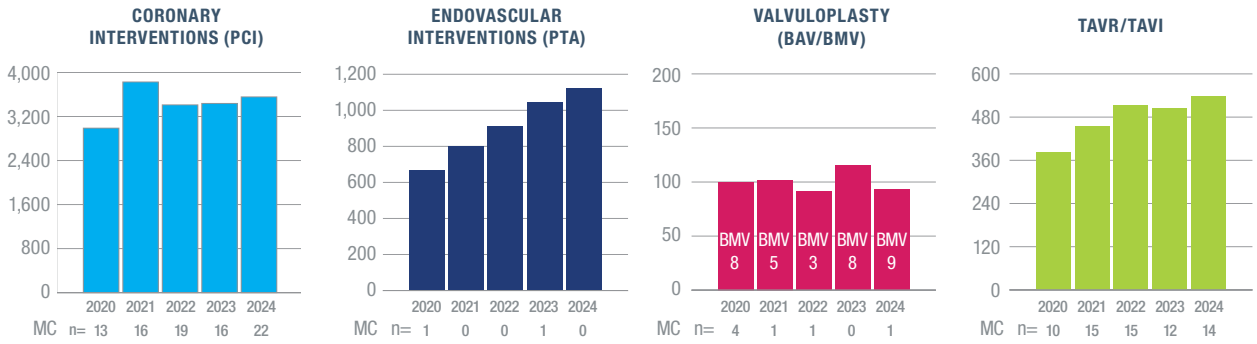
PATIENT SATISFACTION: 2024 HCAHPS SURVEY



58 Percent

OF OUR ELECTIVE INTERVENTIONAL PATIENTS ARE DISCHARGED ON THE SAME DAY OF THE PROCEDURE

INTERVENTIONAL VOLUME AND MAJOR COMPLICATIONS (MC) 2020–2024



MC = Major Complications

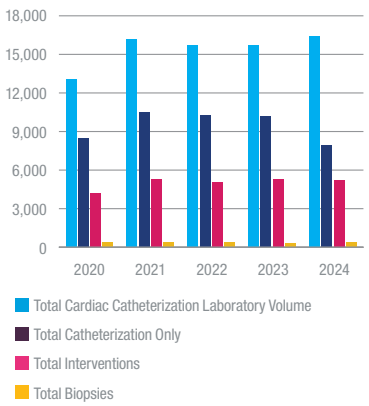
2024

Septal Ablation = 12 | TMVR = 5 | TTVR = 16 | LAAO = 6

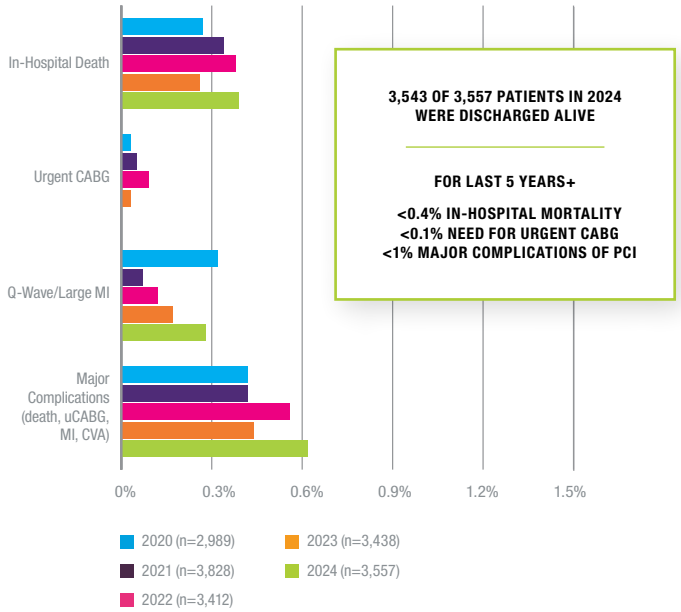
TEER = 96 | TriClip = 43 | PFO/ASD Closure = 31

CARDIAC CATHETERIZATION LABORATORY VOLUME AT THE MOUNT SINAI HOSPITAL

PROCEDURES OVER THE LAST FIVE YEARS



SAFETY OF PCI: TEMPORAL TRENDS IN COMPLICATIONS AT THE MOUNT SINAI HOSPITAL



3,543 OF 3,557 PATIENTS IN 2024 WERE DISCHARGED ALIVE

FOR LAST 5 YEARS+

<0.4% IN-HOSPITAL MORTALITY
<0.1% NEED FOR URGENT CABG
<1% MAJOR COMPLICATIONS OF PCI

38 Percent

OF PCIs AND 48 PERCENT OF DIAGNOSTIC CATHS WERE DONE VIA **RADIAL ACCESS**

Comparison of The Mount Sinai Hospital Interventional Outcomes with New York State Data: 2019–2024

Our Cardiac Catheterization Laboratory continues to serve the full range of cases, from simple to the most complex cases with high clinical comorbidities and complex angiographic characteristics. Despite any added complexity, the majority of percutaneous coronary intervention (PCI) complications at The Mount Sinai Hospital have been one-third to one-half of the rate of New York State hospitals.

Reports of 30-day risk-adjusted mortality rates (RAMR) for PCI have consistently placed The Mount Sinai Hospital Cardiac Catheterization Laboratory (or its interventionalists) among the lowest for in-hospital and 30-day risk-adjusted mortality, earning them the double star denoting statistically significantly lower RAMR than the statewide average consistently over the last 24 years of New York State Department of Health (NYSDOH) PCI reporting.

The last-published NYSDOH reports from 2017–2019 showed that 30-day risk adjusted readmission rate post-PCI has been statistically lower than the statewide average, earning the double star notation for the last six consecutive reports.

16,000+ Cases Per Year

LED BY FIVE SENIOR FULL-TIME INTERVENTIONALISTS, WHO TOGETHER PERFORM MORE THAN 9,500 CASES PER YEAR.

37 Percent of 3,557

CASES HAD A PLAQUE MODIFICATION STRATEGY BEFORE STENT IMPLANTATION DUE TO LESION COMPLEXITY

NYS-DOH REPORT OF PCI 2017-19
DATA ON THE TOP 10 VOLUME CENTERS IN NY STATE 30-DAY RAMR

PCI Statistics 2017-19	# Cases	All Cases	Non-Emergency Cases	Emergency Cases
1. The Mount Sinai Hospital	10,347	0.85**	0.50**	3.06
2. Saint Francis Hospital	8,750	0.93**	0.60	2.48
3. North Shore University Hospital	7,214	1.16	0.72	3.23
4. NYU Hospitals Center	6,634	0.97	0.57	3.25
5. Columbia Presbyterian Hospital	6,478	1.56*	1.03*	3.97
6. Saint Joseph's Hospital	6,151	1.17	0.76	3.14
7. Lenox Hill Hospital	5,557	0.61**	0.37**	1.73
8. Mount Sinai Beth Israel	4,416	1.00	0.55	3.46
9. Buffalo General Medical Center	4,350	1.18	0.59	3.54
10. Stony Brook University Hospital	4,247	1.44	0.90	4.01
NYS Total	157,140	1.22	0.79	3.24

www.nyhealth.gov

**Risk-Adjusted Mortality Rate (RAMR) significantly lower than NY statewide rate

*Risk-Adjusted Mortality Rate (RAMR) significantly lower than NY statewide rate

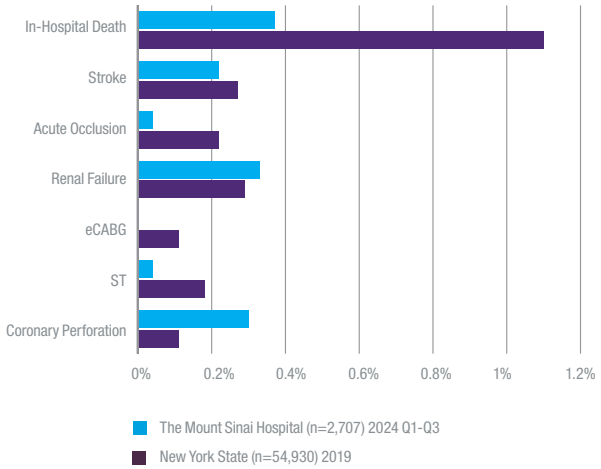
MSH VS NY STATE PCI CASES, 30-DAY RISK-ADJUSTED READMISSION RATES (RARR) TO 2019

Hospital	# Cases	30-Day Readmission	All Cases RARR% Cases	95% CI for RARR
The Mount Sinai Hospital	2,873	179	6.69**	(5.75, 7.75)
NYS Total	48,417	4,274	8.83	

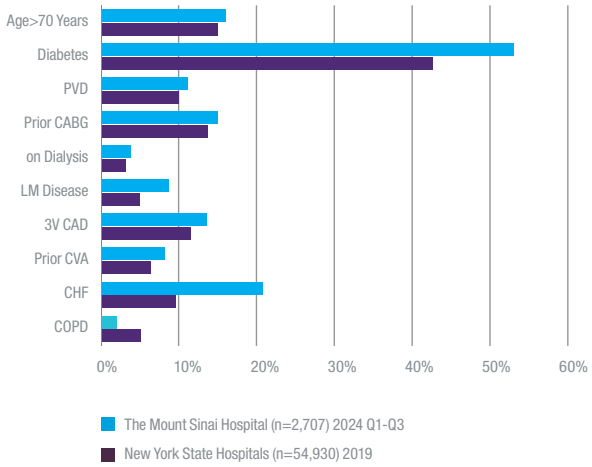
www.nyhealth.gov

**Risk-adjusted readmission rate significantly lower than NY statewide rate

NYS-REPORTED MAJOR PCI COMPLICATIONS



IMPORTANT BASELINE CLINICAL AND LESION CHARACTERISTICS OF PCI:
NY STATE HOSPITAL DATA 2019–2024



24 Consecutive Years

THE MOUNT SINAI CARDIAC CATHETERIZATION LABORATORY RECEIVES PRESTIGIOUS TWO-STAR RATING FOR PCI IN **NY STATE.**

Annapoorna S. Kini, MD, with the 2024–25 fellows.

COMPARISON OF THE MOUNT SINAI HOSPITAL INTERVENTIONAL OUTCOMES WITH OTHER U.S. HOSPITALS: 2023 R4 Q2 ACC-NCDR REPORTS

The American College of Cardiology-National Cardiovascular Data Registry (ACC-NCDR) reports the characteristics and in-hospital outcomes after PCI of more than 1,400 hospitals in the United States, providing data of more than 1 million patients annually.

On the next page are the important baseline and procedure characteristics of The Mount Sinai Hospital (MSH) versus ACC-NCDR hospitals. These graphs show superior outcomes despite higher complexities for PCI patients at The Mount Sinai Hospital in comparison to other U.S. hospitals in the ACC-NCDR report for 2023 R4 Q2.

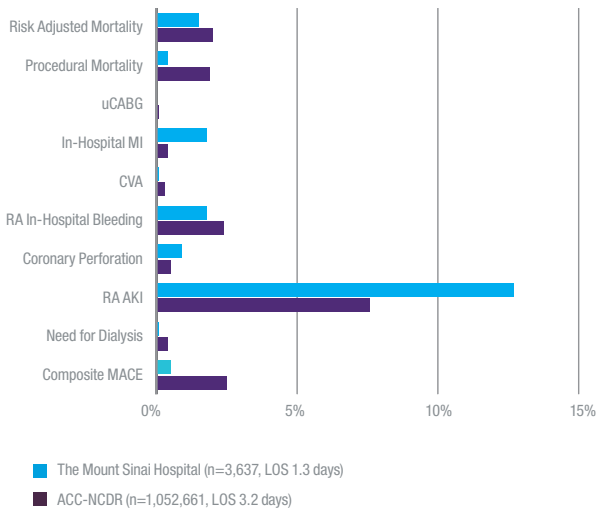
At Mount Sinai, we have established evidence-based protocols for proper evaluation of CAD patients before scheduling catheterization and possible intervention. We follow a rigorous application of the appropriate use criteria (AUC) of the American College of Cardiology and fractional flow reserve (FFR/iFR) guiding the decision-making for appropriately indicated PCI.

TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING THE DOUBLE MINI CRUSH TECHNIQUE, SCAN THE CODE

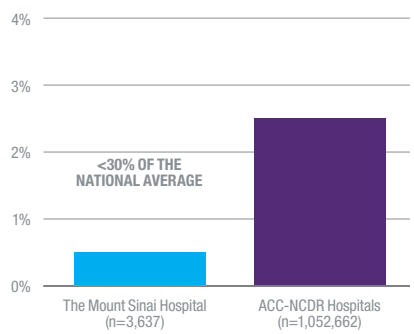
Established Protocols

AT MOUNT SINAI, WE HAVE ESTABLISHED EVIDENCE-BASED PROTOCOLS FOR PROPER EVALUATION OF CAD PATIENTS **BEFORE SCHEDULING CATHETERIZATION AND POSSIBLE INTERVENTION**.

PCI OUTCOMES MSH VS ACC-NCDR HOSPITALS: 2024 Q3
ACC-NCDR DATA FOR 2024 Q3



NATIONAL PCI OUTCOME METRICS; MAJOR COMPLICATIONS:
COMPOSITE: PROPORTION OF PCI PATIENTS WITH DEATH, eCABG, STROKE OR eTVR; MSH VS. ACC-NCDR (N=1,600 HOSPITALS) FOR 2024 R4 Q3



Complex High-Risk Percutaneous Coronary Interventions (PCI)

SAMIN K. SHARMA, MD, AMIT HOODA, MD, AND ANNAPOORNA S. KINI, MD

Earlier randomized clinical trials have suggested the benefits of coronary artery bypass graft (CABG) surgery in higher angiographic-complexity cases over percutaneous coronary intervention (PCI). Based on data evidence, there is an increasing tendency at The Mount Sinai Hospital to recommend CABG for patients with more complex coronary artery disease (CAD). Ultimately, the decision to have either CABG or PCI lies with the patient and his or her family, after consultation with the Heart Team, which includes a cardiologist, cardiothoracic surgeon, and a cardiac interventionalist. Approximately half of all patients with complex CAD choose revascularization with PCI, due to lower short-term complications and relative ease of recovery compared to surgery.

As far as the left main (LM) CAD is concerned, a recent pooled-analysis of four randomized clinical trials comparing PCI to CABG showed that PCI and CABG have similar rates of all-cause death over five and 10 years but higher rates of myocardial infarction (MI) and repeat procedure after PCI compared to CABG.

The recent FAME-3 trial comparing FFR-guided PCI with CABG in three-vessel coronary artery disease found PCI to be inferior in the composite of death, myocardial infarction, or stroke at three-year follow-up compared with CABG, but with better outcomes in low SYNTAX Score patients.

Based on the current data and practice guidelines, the following patient groups will benefit more from CABG than PCI:

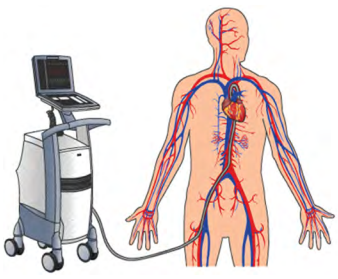
- Three-vessel CAD and SYNTAX Score >32
- Diabetics with three-vessel CAD or complex two-vessel CAD with prox-mid LAD lesion
- Left main ± additional vessel CAD with SYNTAX Score >32

Based on the evidence from the data, there is a set protocol at The Mount Sinai Hospital to recommend CABG for patients with more complex CAD. In addition to expertise in interventional treatment of complex CAD, our Cardiac Catheterization Laboratory serves as a tertiary center for complex coronary intervention (bifurcation, calcified, left main, CTO, and/or vein graft lesions) and patients with low ejection fraction (LVEF <35 percent).

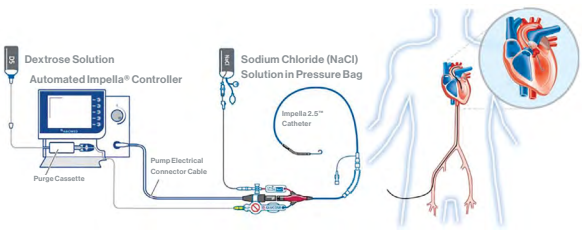
Our Cardiac Catheterization Laboratory serves as a tertiary center for complex coronary intervention.

We use a variety of adjunct interventional techniques in these complex coronary cases, such as atherectomy (29 percent of lesions) and thrombectomy/distal protection devices (two percent for thrombotic and vein graft lesions). In a small number of complex lesion patients (approximately five percent of PCI), many have reduced ejection fraction (LVEF <35 percent) so we use LV assist devices such as IABP, Impella, or ECMO CardioHelp to safely and dependably perform these high-risk PCIs (protected PCI).

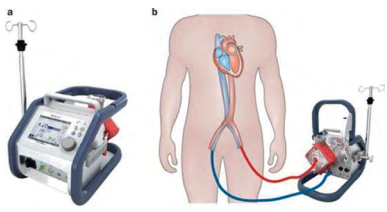
IABP SYSTEM



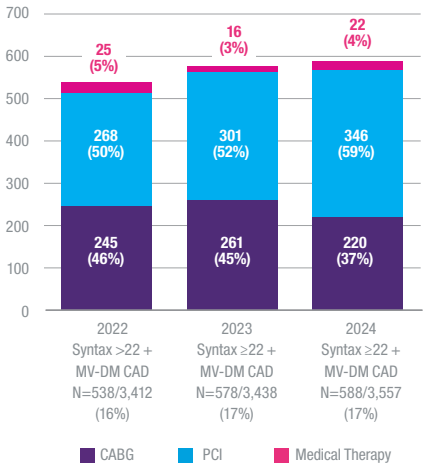
IMPELLA SYSTEM



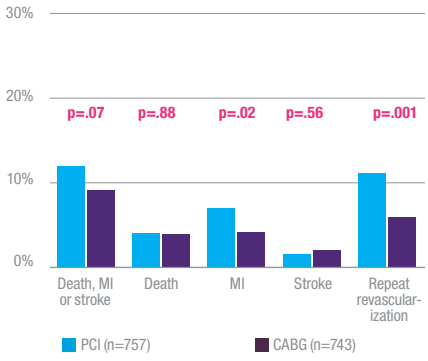
ECMO CARDIOHELP SYSTEM

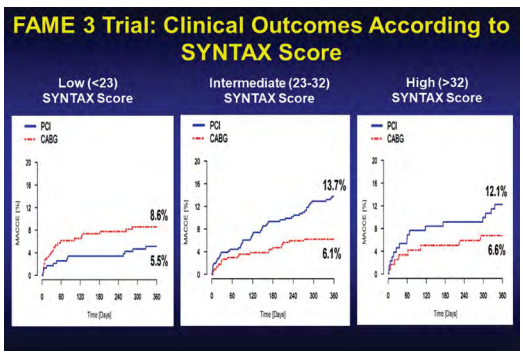


REVASCULARIZATION CHOICES FOR COMPLEX CAD(HIGH SYNTAX SCORE IN MV DIABETES): MSH DATA 2022–2024



FAME 3 TRIAL: CLINICAL OUTCOMES AT 3-YEAR FOLLOW-UP





Ashley Amey

Diagnosis: Cardiogenic shock

Treatment: Use of ECMO

"I'm back to traveling and running three times a week. Thanks to Mount Sinai, I'm living fully again."

"Knowing your body—and understanding your personal baseline—is critical when it comes to recognizing the warning signs of a heart attack. For four or five days before my most recent heart event, I had shortness of breath with exertion, which seemed unusual because I'm an active person who runs three times a week. I also had radiating pain down my left arm.

"As a registered nurse, I shared my symptoms with colleagues, who encouraged me to see a physician. I initially brushed it off, thinking maybe I had pulled a muscle. But by Monday morning, I knew things had progressed—and that I was truly in the midst of a heart attack.

"Once I realized it was my heart, there was only one place I wanted to be: Mount Sinai.

"When I arrived, I was placed on extracorporeal membrane oxygenation (ECMO), an Impella heart pump, and life support. It became clear I would need a transplant, and I was placed on the transplant list. Just seven days later, while I was still in the ICU, I learned they had found a heart for me.

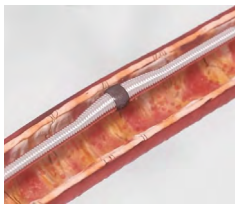
"After the transplant, I needed several blood transfusions. But I made it through, and today I'm here—and I'm incredibly grateful. I'm still on transplant medication, but I've gone from 30 daily medications down to just four.

"The team at Mount Sinai was amazing. As a nurse myself, I felt a strong sense of camaraderie. They treated me like a patient—but also like part of the team. One of the nurses on my care team had also experienced heart problems, which made me feel seen and understood.

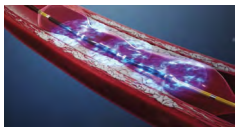
"Dr. Serrao and the entire care team were exceptional. I now work in a cardiac ICU myself, caring for patients in situations I've lived through. And a year after transplant, I'm back to traveling and running three times a week. Thanks to Mount Sinai, I'm living fully again."

ROTAPRO ROTATIONAL ATHERECTOMY SYSTEM (RA)

EXCIMER LASER ATHERECTOMY SYSTEM (ELCA)

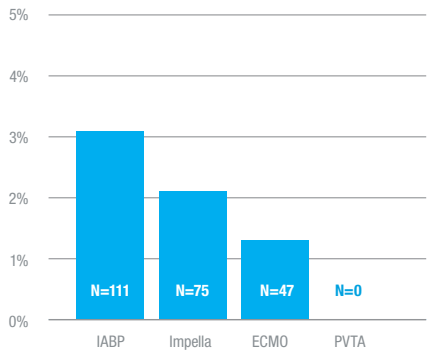


DIAMONDBACK 360 ORBITAL ATHERECTOMY SYSTEM (OA)

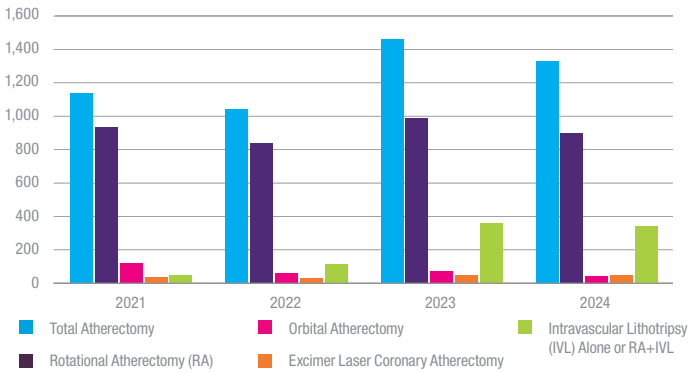


SHOCKWAVE INTRAVASCULAR LITHOTRIPSY (IVL)

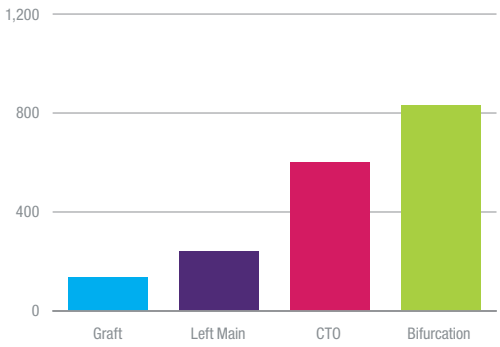
HIGH RISK PCI WITH LV SUPPORT IN 2024 AT THE MOUNT SINAI HOSPITAL: (N=3,557)



ATHERECTOMY VOLUME AT MSH:
LAST FOUR YEARS



COMPLEX CORONARY INTERVENTIONS IN 2024
(N=3,557)



TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING THE ANTEGRADE/RETROGRADE TECHNIQUE, SCAN THE CODE

References

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Life Saving Rescue in the Cardiac Catheterization Laboratory: ECMO

GREGORY SERRAO, MD

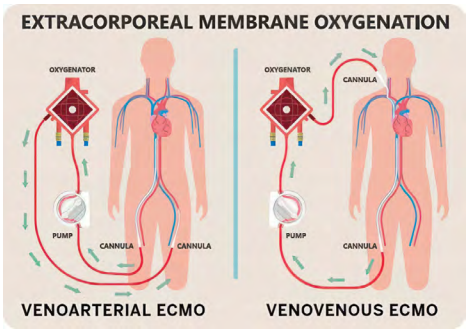
Extracorporeal Membrane Oxygenation (ECMO) is an advanced form of mechanical circulatory support. It uses large tubes to drain blood out of the body where the machine can then remove carbon dioxide, add oxygen and pressurize the blood, and insert it back into the body using another large tube. This can be deployed percutaneously using the femoral or neck vessels to provide support to both the heart and lungs when medical management and other invasive therapies have proven unsuccessful.

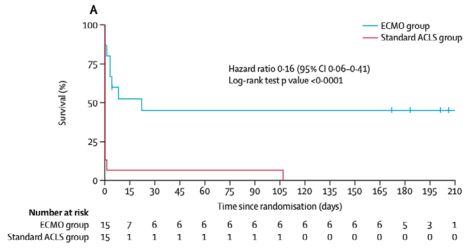
Access to this technology significantly increases safety in catheterization laboratories performing high-risk cardiac interventions as it serves as a backup in the event of an intraprocedural complication. It can also facilitate cardiac catheterization on patients who would have classically been considered too unstable to benefit from percutaneous intervention.

The most studied use of ECMO is for the management of refractory cardiac arrest. The recently published "advanced reperfusion strategies for patients with out-of-hospital cardiac arrest and refractory ventricular fibrillation (ARREST)" trial showed over a six-times chance of survival when ECMO was used to resuscitate cardiac arrest as opposed to standard medical strategies. Similar results were shown in another trial out of Prague comparing out-of-hospital cardiac arrest trial results with the combined data from the ARREST trial showing a nearly three-fold increase in survival in those with ventricular fibrillation for which electrical shocks were unable to restore a normal cardiac rhythm.

The Cardiac Catheterization Laboratory at Mount Sinai Fuster Heart Hospital has access to ECMO 24 hours a day, seven days a week. There is also access to the many specialists who are required to safely use this technology including cardiac critical care, advanced heart failure, and cardiothoracic surgery. This team also has the ability to rapidly mobilize when contacted by referring centers in order to place a patient on ECMO at another hospital so that they can be safely transported to The Mount Sinai Hospital, where catheter-based or surgical interventions can be offered as a life-saving therapy.

The Cardiac Catheterization Laboratory at Mount Sinai Fuster Heart Hospital has access to ECMO 24 hours a day, seven days a week.





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In-Stent Restenosis (ISR) and Advances in Treatment

SAMIN K. SHARMA, MD, AND ANNAPOORNA S. KINI, MD

Understanding ISR

In-stent restenosis (ISR) is a condition where the previously stented segment of a blood vessel gradually narrows again due to scar tissue formation. This typically occurs nine to 12 months after stent placement. Despite significant advancements in drug-eluting stent (DES) technology, ISR and the need for repeat revascularization still occur in two to 10 percent of cases within the first year and at a rate of one to two percent per year thereafter.

Most patients with ISR experience recurrent chest pain, but in some cases, it can present as an acute myocardial infarction. The management of ISR has evolved considerably, focusing on technological innovations, targeted drug delivery, and personalized patient care. Mount Sinai has achieved a high rate of procedural success with low complication rates and lower ISR recurrence, even in complex patient cases.

Drug-Coated Balloon (DCB) Technology: A Breakthrough in ISR Treatment

The treatment of ISR has advanced significantly with the introduction of drug-coated balloons (DCB), a newly FDA-approved technology that represents a major shift in ISR management.

DCBs are coated with drugs such as paclitaxel, sirolimus, or everolimus, which are released during balloon angioplasty. This targeted drug delivery system helps prevent excessive cell proliferation and reduces the risk of recurrent ISR while minimizing systemic drug exposure. As a result, DCBs lower the need for additional stents and subsequent restenosis, offering a less invasive and more precise treatment approach.

As research continues, the integration of DCB technology into clinical practice is expected to become more widespread, further improving long-term outcomes in ISR management.

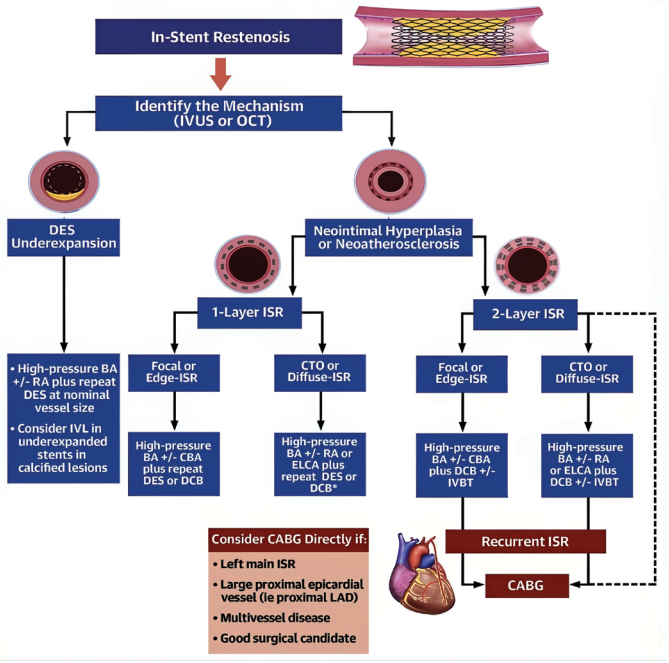
As research continues, the integration of DCB technology into clinical practice is expected to become more widespread.

Mount Sinai's Leadership in ISR Research

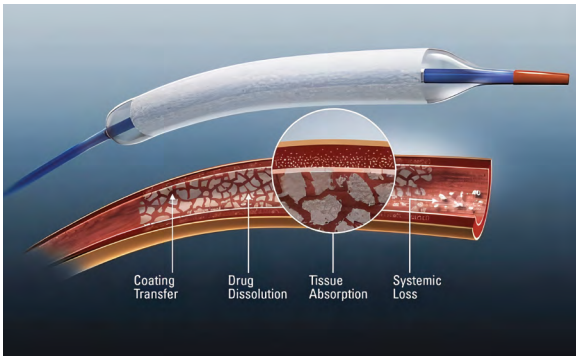
Mount Sinai is actively participating in the Sirolimus-Coated Balloon Trial, which evaluates the safety and effectiveness of the SELUTION SLR™ ISR Drug-Eluting Balloon for ISR treatment. Notably, The Mount Sinai Hospital is the top-enrolling site for the trial, with 52 patients enrolled.

These ongoing advancements position Mount Sinai at the forefront of ISR treatment, continually enhancing patient care through cutting-edge research and innovation.

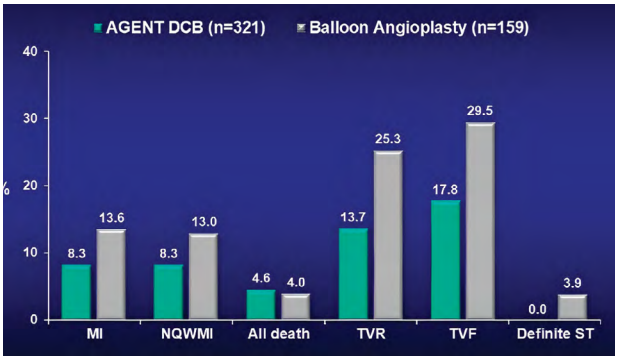
A PROPOSED TREATMENT ALGORITHM FOR IN-STENT RESTENOSIS



DRUG-COATED BALLOONS

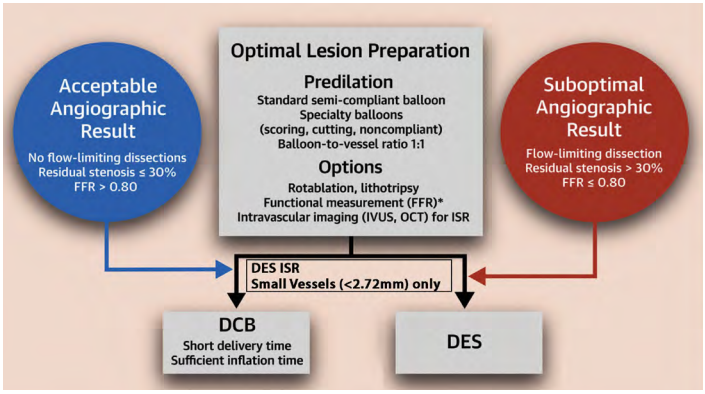


AGENT IDE TRIAL: ADDITIONAL ENDPOINTS AT 1 YEAR



THIRD REPORT OF THE INTERNATIONAL DCB CONSENSUS GROUP 2022

DCB-ONLY STRATEGY FOR PCI IN CORONARY ARTERY DISEASE



Anthony Mercaldo

Diagnosis: Two-vessel coronary artery disease (LAD, LCx)

Treatment: PCI with DES in LAD and LCx

"After two blockages were found in my heart, every doctor I saw recommended open heart surgery. I wasn't comfortable with that option, so I started researching alternatives.

"Several people mentioned Mount Sinai, citing its strong reputation. I looked into it and spoke with my doctor, who had also heard of Samin K. Sharma, MD, at Mount Sinai Fuster Heart Hospital. He encouraged me to schedule an appointment.

"From my first visit, I felt reassured. Just one week later, Dr. Sharma placed two stents to treat the blockages—no open heart surgery required. I was discharged the next day, I thought that was so great.

"Before the procedure, I had been struggling with shortness of breath. Interestingly, I never experienced chest pain, but even everyday activities—like walking or climbing stairs—had become increasingly difficult. The morning after my procedure, I could breathe normally again. I even walked from my hospital room to the parking garage with ease—something that would have been exhausting for me just days earlier.

"I'm back to my usual routine: boxing, lifting weights, riding my exercise bike, and playing tennis when the weather is nice. Staying active has always been important to me, and I believe it helped my recovery.

"My care team believes the blockages developed gradually until my body could no longer compensate. Dr. Sharma and his staff were incredible; from the administration to the nurses to Dr. Sharma, they all inspire you with confidence. I knew I was going to be well again the moment I met the man. Thanks to Dr. Sharma and the entire team at Mount Sinai, I avoided major surgery and got back to living my life."

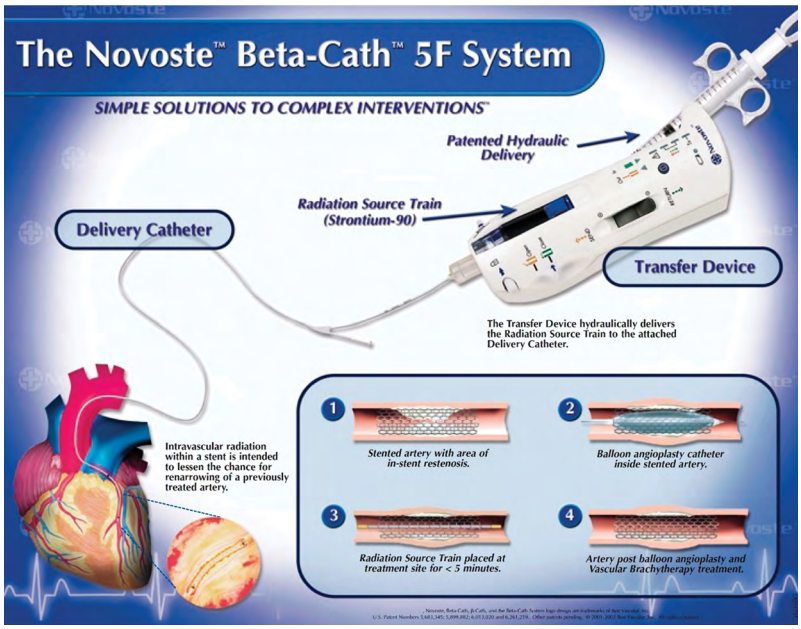
"I'm back to my usual routine: boxing, lifting weights, riding my exercise bike, and playing tennis when the weather is nice."

TO LEARN ABOUT MR. MERCALDO'S EXPERIENCE IN HIS OWN WORDS, SCAN THE CODE

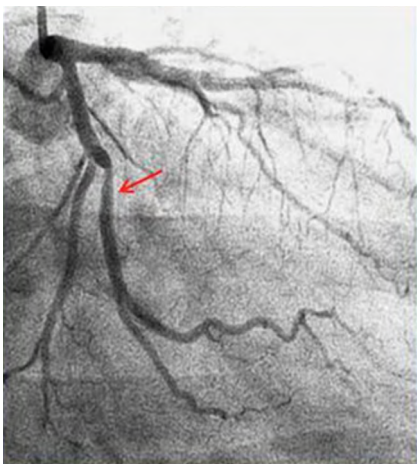
Long-Term (three years +) Outcomes of Intravascular Brachytherapy (IVBT) for Multi-Layered DES In-Stent Restenosis (ISR)

Treating multilayer ISR remains a challenge, with risks of recurrent ISR and poor long-term outcomes after multiple stent layers. Intravascular brachytherapy (IVBT) has seen growing interest as a treatment for multilayer ISR (≥2). Our compared outcomes of IVBT using the Novoste Beta-Cath 3.5F system vs. non-IVBT PCI for multilayer ISR at three-year follow-up showed the sustained benefit of IVBT in those complex cases without added complications; sustained 25% reduction in target lesion revascularization (TLR) in at three years.

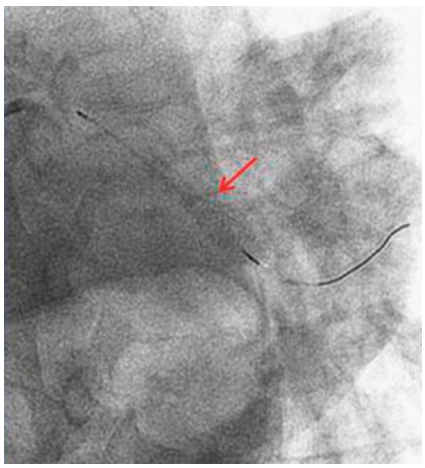
NOVOSTE™ BETA-CATH™ 3.5F SYSTEM



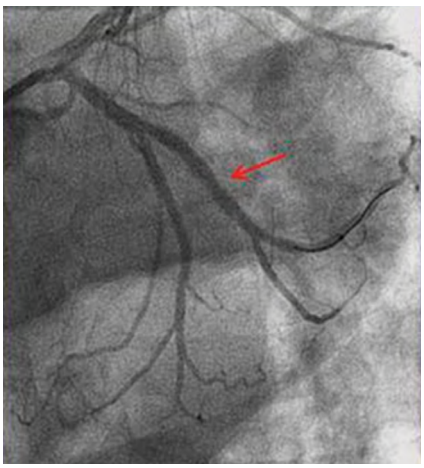
INTRAVASCULAR BRACHYTHERAPY TREATMENT



Pre-IVBT

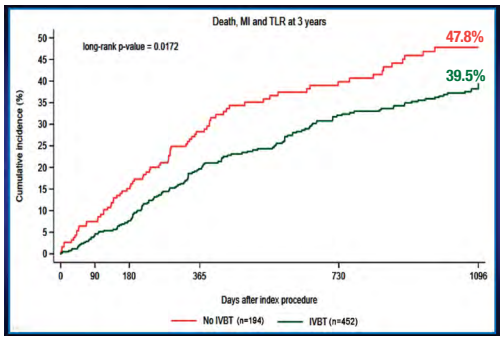


IVBT in place



Post-IVBT

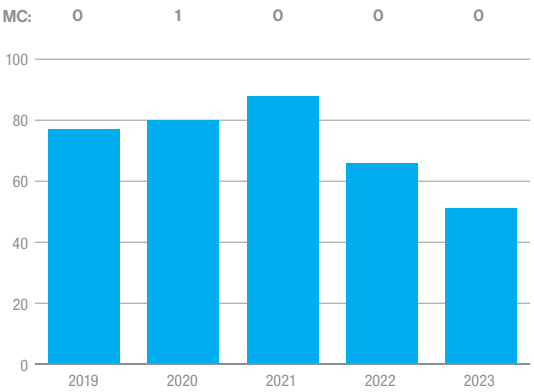
MACE AT THREE YEARS AFTER IVBT + PCI IN CURRENT MULTILAYER DES-ISR: MSH EXPERIENCE



No IVBT (n=194)

IVBT (n=452)

IVBT VOLUME AT THE MOUNT SINAI HOSPITAL



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Edward Cohen

Diagnosis: Three-vessel coronary artery disease

Treatment: DES and atherotomy of LAD, RCA and LCx in two stages

"I've even returned to swimming every day, something I've done for 20 years."

"When I first had an angiogram, my cardiologist found a blockage in my left anterior descending artery—what's sometimes called the 'widowmaker'—as well as a blockage in one of its branches. Due to the complexity of the blockages, I was told I would need open heart surgery. I sought opinions from three additional doctors, each of whom repeated the angiogram and gave me the same recommendation.

"I was hoping to avoid open heart surgery if possible. So, at my cardiologist's suggestion, I went to see Samin K. Sharma, MD, for one more opinion before making a final decision.

"Dr. Sharma reviewed all my previous angiograms and felt confident that he could treat the blockages without additional testing. He explained the risks clearly and told me the location was challenging—but said he could do it. Just three days later, I had the procedure. It was a success.

"Thanks to Dr. Sharma, I didn't need open heart surgery. He also found a third blockage during my evaluation and treated it in a second procedure about a month later.

"Before seeing Dr. Sharma, I struggled to walk even a city block without stopping to catch my breath. Now I can walk comfortably for long distances—and I've even returned to swimming every day, something I've done for 20 years.

"I feel better than ever. Dr. Sharma gave me back my quality of life. I truly believe that Mount Sinai is a top-tier hospital. Everyone I encountered there was compassionate, knowledgeable, and committed to helping me get better.

"I'm incredibly grateful for the care I received. I'm back to doing the things I love, without limitations."

Expanding the Indications of Transcatheter Aortic Valve Replacement (TAVR)

SAMIN K. SHARMA, MD, ANNAPOORNA S. KINI, MD, AND SAHIL KHERA, MD

Multiple trials of transcatheter aortic valve replacement (TAVR) in patients with varying levels of surgical risk (based on the Society of Thoracic Surgeons [STS] Score) have shown TAVR as a viable therapeutic option for patients who have severe, symptomatic calcific aortic stenosis (AS) at all levels of surgical risk.

The EARLY TAVR trial looked into performing TAVR early before symptoms develop, to assess whether it could benefit patients with AS. The study groups were randomly assigned to Early TAVR Group (these patients got the valve replacement right away) or Watch-and-Wait Group (these patients were monitored, and they only got the valve replacement if they developed symptoms). After a five-year study, the EARLY TAVR trial demonstrates that performing TAVR before symptoms develop in patients with severe AS can lead to better outcomes, including lower rates of death, stroke, and unplanned hospitalizations.

The study TAVR UNLOAD focused on whether TAVR could help patients who have heart failure and moderate AS. This procedure replaces the damaged aortic valve to improve heart function. The study found that, after one year, TAVR did improve quality of life significantly. Patients reported feeling less shortness of breath and had better overall well-being associated with clinically meaningful quality of life improvements.

At Mount Sinai, the SENTINEL™ device is now used in about 40–50 percent of TAVR cases. The Mount Sinai Hospital was the first center in the United States to deploy the CoreValve™, in December 2010. Since then, our TAVR volume and outcomes have improved significantly compared with other centers in the Transcatheter Valve Therapy Registry (TVT).

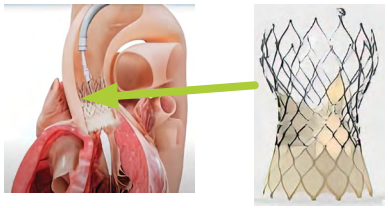
There are some AS patients who have had a higher incidence of complications after implanting TAVR. These patients should preferably be referred to open surgical aortic valve replacement (SAVR); currently 20 percent of AS patients undergo SAVR at The Mount Sinai Hospital.

SAVR will be indicated in the following scenarios of severe AS:

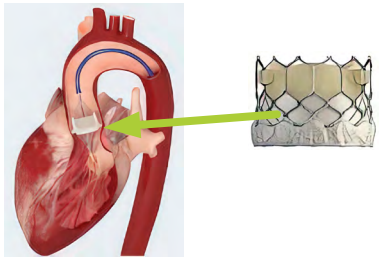
- Age <65 years old
- Low to intermediate STS risk and extensive/complex coronary artery disease (CAD)
- Bicuspid aortic valve (BAV) with low STS risk
- Concomitant aortic root/aorta dilatation (>4.6cm)
- Heavy left ventricular outflow tract (LVOT) calcification (high chance of annular rupture)
- Low–intermediate STS risk bio-prosthetic dysfunction
- Adverse anatomy (low coronary height, too small or large annulus)
- Concomitant significant mitral valve (MV) disease with low surgical risk.

TRANSCATHETER AORTIC VALVES
FDA-APPROVED DEVICES

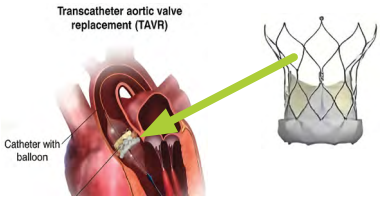
EVOLUT™ FX



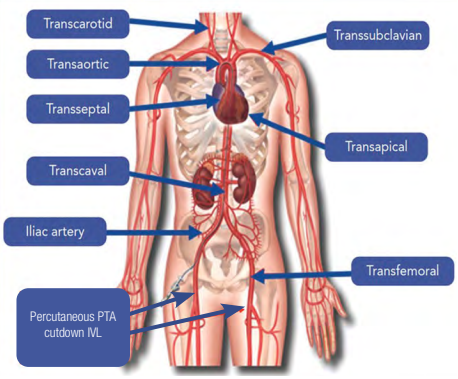
SAPIEN-3 Ultra RESILIA

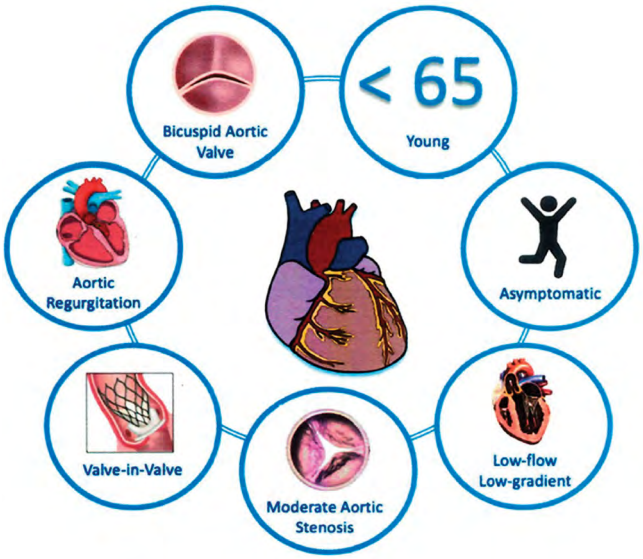


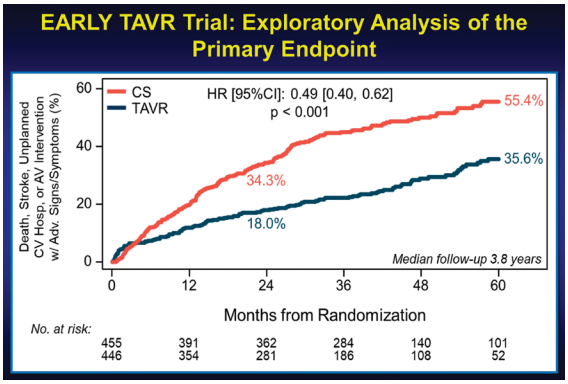
Navitor™

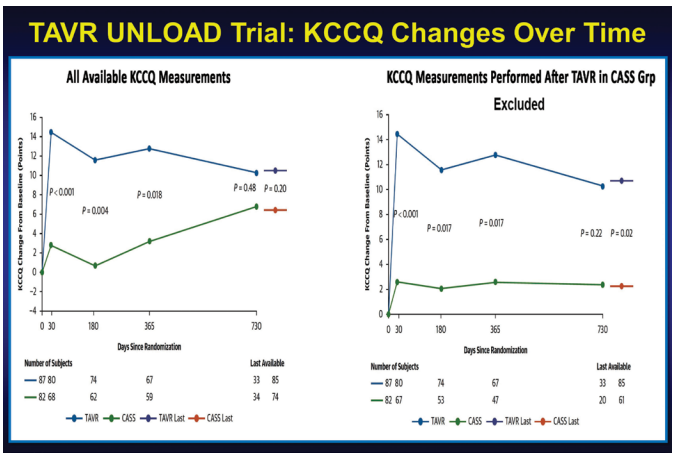


OVERVIEW OF APPROACHES FOR TAVR

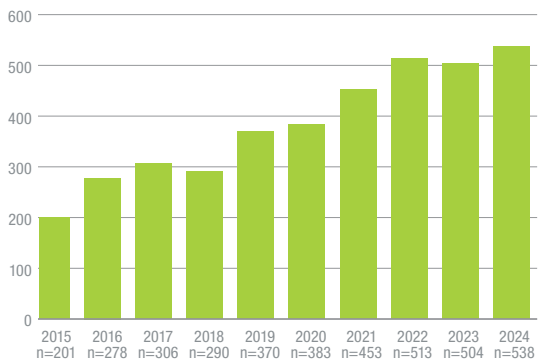








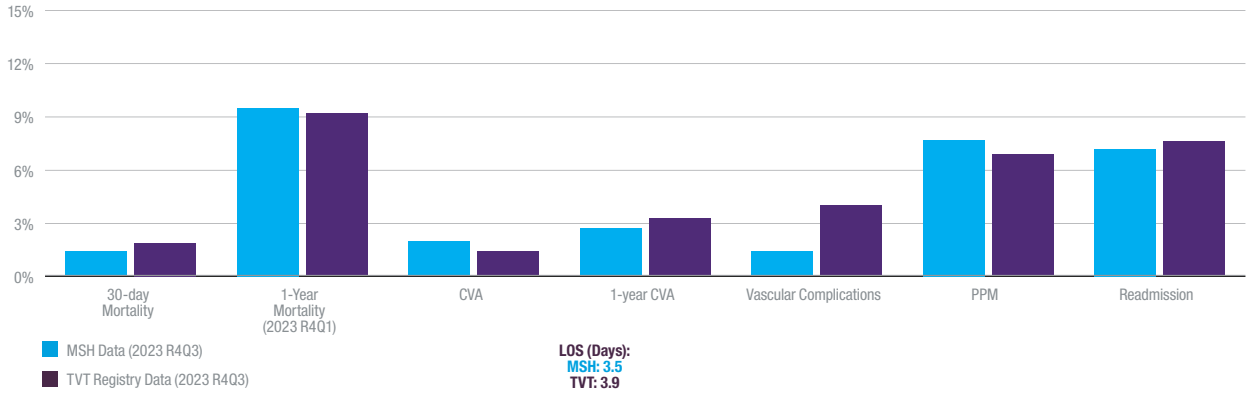
GROWING STRUCTURAL TRANSCATHETER HEART INTERVENTIONS TAVR PROCEDURES AT MSH: 2015 TO 2024



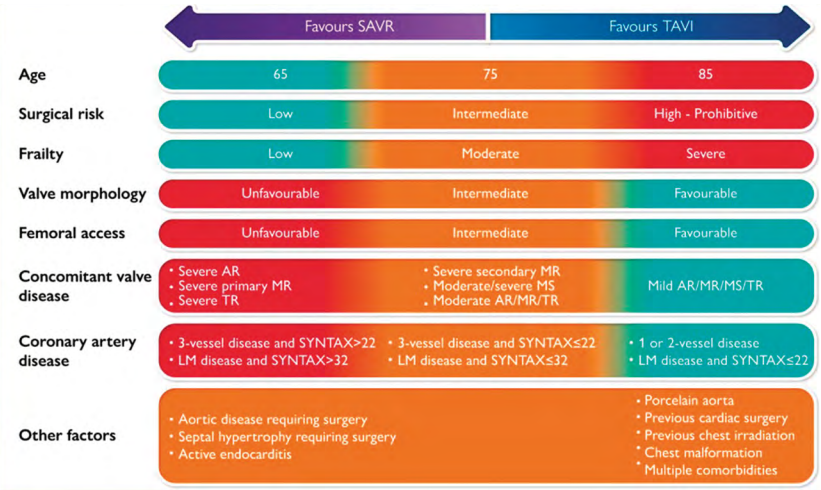
TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING HALT USING EVOLUT FX+ VALVE, SCAN THE CODE

EXCELLENT TAVR OUTCOMES 2024

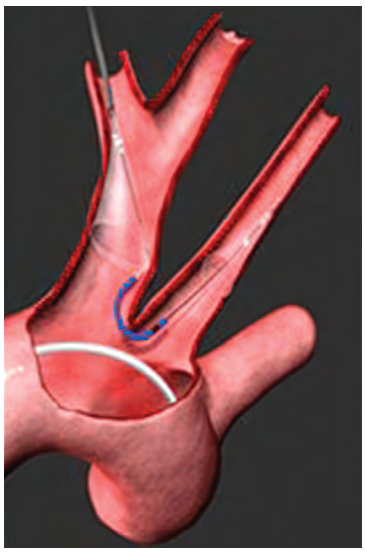
- N=538 (58% SAPIEN-3, 31% EVOLUT-R/FX COREVALVE, 11% NAVITOR)
- 85.3% MAC; 14.7% GA. 36% SENTINEL
- 99.4% PERCUTANEOUS FEMORAL; 7.1% CUTDOWN FEMORAL; 0.6% TRANSCAROTID. 7.3% VIV (N=39; 15 TAV-IN-SAV, 24 TAV-IN-TAV))
- 99.4% TF TAVR AT MSH IN 2024



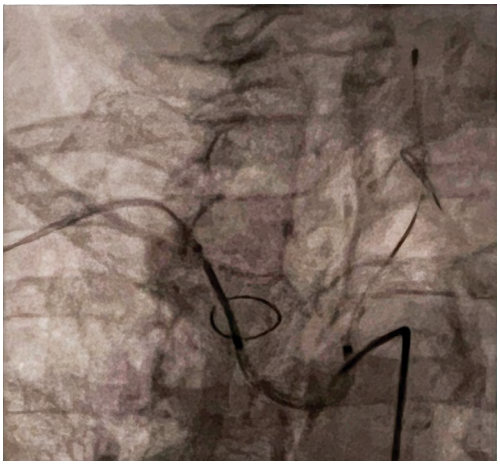
DECISION-MAKING PROCESS BETWEEN TAVR AND SAVR



Approximately 99 percent of TAVR procedures at The Mount Sinai Hospital are done via a femoral approach



TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING VIV TAVR WITH A 26MM EVOLUT FX VALVE, SCAN THE CODE



Sentinel Device

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Frank Guzzo

Diagnosis: Two-Vessel Coronary Artery Disease (LAD;LCx)

Treatment: Successful DES PCI of LAD and OM2

"I went in for the procedure just two days after that phone call. When I walked out, I felt like a new man."

"My experience at Mount Sinai was fantastic. About 20 years ago, I had my second heart attack—just a year and a half after the first. I went to a local hospital, where they performed a catheterization but couldn't find the cause. My cardiologist couldn't explain it either. He suggested I do a stress test on a treadmill, but something didn't sit right with me. You don't have a heart attack without a reason.

"Before going ahead with the stress test, I decided to get a second opinion. A doctor in Manhattan reviewed my records and brought them to Samin K. Sharma, MD. After looking at everything, Dr. Sharma told me I needed to come to New York right away. He had found a blockage that others had missed—and I needed a stent.

"I went in for the procedure just two days after that phone call. When I walked out, I felt like a new man.

"I've told people for years: Dr. Sharma saved my life. The improvement in my quality of life was immediate. I could go up and down stairs without shortness of breath. I had energy again. And I truly believe that if I had gone ahead with that treadmill test instead of seeing Dr. Sharma, I might not be here today.

"What he did changed everything for me. I'm grateful not only for his skill, but also for his urgency, clarity, and compassion. Mount Sinai gave me answers—and gave me back my life."

Growing Mitral Transcatheter Edge-to-Edge Repair (TEER) Procedures Using MitraClip and PASCAL Devices

ANNAPOORNA S. KINI, MD, AND PARASURAM MELARCODE KRISHNAMOORTHY, MD

Among all valvular heart diseases, mitral regurgitation (MR) is the most common valvular abnormality, affecting 10 percent of individuals over the age of 75. MR can be classified into primary or secondary functional MR. Structural abnormalities of the mitral valve lead to primary MR. Mitral regurgitation due to primary pathology in the left ventricle is called secondary or functional MR. When a mitral valve is determined to have a severe backflow of blood across the valve, the patient's cardiologist will refer them to a structural heart program, where they will have a consult with the structural heart team and several noninvasive studies to determine procedure eligibility and formulate a patient-specific plan.

Candidacy for the MitraClip™ procedure is determined by multi-disciplinary heart team evaluation and based on a number of factors and tests performed at Mount Sinai. The tests required are transthoracic echocardiogram (TTE) and transesophageal echocardiogram (TEE), plus consultations with an interventional cardiologist, a cardiothoracic surgeon, and a heart failure specialist. Surgical repair would typically restore the mitral valve function and minimize the mitral regurgitation. Transcatheter edge-to-edge repair (M-TEER) by MitraClip is currently indicated in patients with primary MR who are at high risk for mitral valve surgery, and symptomatic patients with secondary MR despite optimal guideline directed medical therapy (GDMT).

The MitraClip works by bringing the two leaflets of mitral valve together, which allows the valve to close more effectively and reduce the amount of blood that flows backward.

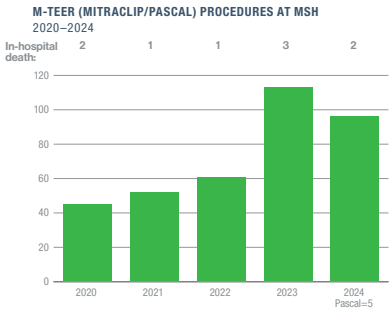
The MitraClip device is a small metal alloy clip covered with a polyester fabric that is implanted on the mitral valve. The MitraClip works by bringing the two leaflets of mitral valve together, which allows the valve to close more effectively and reduce the amount of blood that flows backward. With the patient under general anesthesia, the TEE device is implanted using a catheter inserted through the leg vein to the heart.

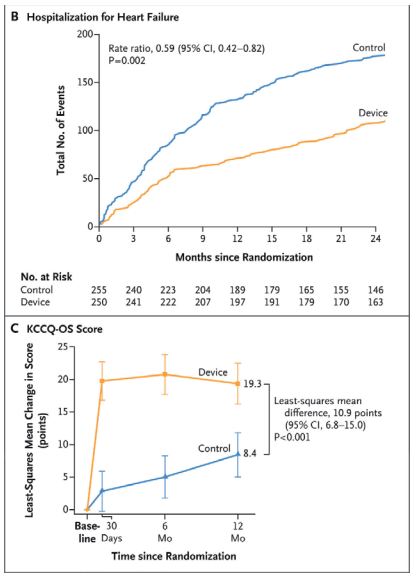
The MitraClip procedure takes about two hours. Usually one to two clips are implanted in the mitral valve during the procedure, until a favorable result is obtained. MitraClip is an extremely safe procedure, but there is a very small (less than1 percent) risk of death, stroke, heart attack, bleeding, vascular injury, clip detachment, and infection. Usually two to three days of hospital stay is required. Patients should begin to feel relief of their symptoms within a few weeks after their procedure.

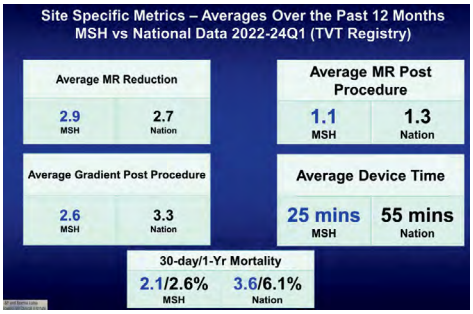
MitraClip, in addition to the current medical therapy, will help improve the management of patients with heart failure. In the COAPT trial, MitraClip has been shown to improve the survival of patients with heart failure with reduced ejection fraction (HFrEF) and reduce their hospitalization due to heart failure.

Another recent trial (RESHAPE HF-Trial) comparing M-TEER with GDMT in HF patients due to moderate to severe functional MR, revealed the benefit of MitraClip in all three end points of CV death, HF hospitalizations and quality of life scores.

The Mount Sinai Hospital experience with the MitraClip TEER procedure from January 2020 to December 2024 is shown in the Figure 1, along with a very low complication rate compared to the national average. Strict adherence to our highly effective and cautious protocol, appropriately complemented by post procedure management, has helped us in optimizing our outcomes. Figure 2 shows site specific metrics at The Mount Sinai Hospital and in comparison to the national metrics. We are also utilizing the Edwards Lifesciences PASCAL Precision Transcatheter Mitral Valve Repair System for appropriate patients.







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Jungmi Ryo

Diagnosis: Two vessel coronary artery disease

Treatment: Atherotomy and DES of LAD and LCx

"Dr. Kini is someone I trust completely. I'm grateful to be in her care—and thankful I followed my instincts and chose Mount Sinai."

"I wasn't in pain and had no symptoms—until one day, while sweeping, I felt a strange numbness between my chin and chest. It lasted about 10 minutes and went away, so I didn't give it much thought.

"A few days later, I mentioned the experience to my acupuncturist. She was concerned and encouraged me to get it checked out. She specifically recommended Mount Sinai and Dr. Annapoorna Kini. A close friend who's a nurse at Mount Sinai also spoke highly of Dr. Kini and supported the idea of making an appointment.

"At the time, I was feeling healthy. I had been working out several times a week with a personal trainer and had no other issues. Still, I decided to listen to the people I trusted—and I'm incredibly thankful I did.

"After my evaluation at Mount Sinai, I was shocked to learn I had a blockage in my coronary artery and would need three procedures. My trainer and primary care doctor were just as surprised. No one expected this, especially given how active I was. I feel fortunate that it was caught before something more serious happened.

"Dr. Kini performed all three of my procedures, which included a cardiac catheterization and placement of multiple stents. For each one, I only had to stay in the hospital overnight. I recovered well and was back to exercising two to three times a week not long afterward.

"Dr. Kini and her staff are perfect. Everyone I encountered was kind, attentive, and genuinely caring. I was checked on often and always felt safe and supported.

"Dr. Kini is someone I trust completely. I'm grateful to be in her care—and thankful I followed my instincts and chose Mount Sinai."

TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING TRANSCATHETER MITRAL VALVE-IN-VALVE REPLACEMENT, SCAN THE CODE

Approved Transcatheter Tricuspid Valve Repair (T-TEER)

GILBERT TANG, MD, PARASURAM MELARCODE KRISHNAMOORTHY, MD, AND STAMATIOS LERAKIS, MD, PHD

Transcatheter tricuspid valve repair has progressed rapidly over the past few years to treat symptomatic severe tricuspid regurgitation (TR). Currently, the only FDA-approved device for tricuspid transcatheter edge-to-edge repair (T-TEER) is the Abbott TriClip G4 system (Figure 1), with TriClip G5 system scheduled to launch in 2025.

The TRILUMINATE Pivotal trial, which randomized patients to optimal medical therapy versus TriClip G4 system repair, was completed in 2023, and Mount Sinai was one of the leading sites in the New York area. The findings of the study (Figure 2) were published in both the *New England Journal of Medicine* and most recently in *The Journal of American College of Cardiology*. Overall results found T-TEER was superior to medical therapy alone, with more patients achieving ≥15 points on the quality-of-life KCCQ overall summary score and improvement in the six-minute walk distance test, and a win-ratio of 1.84 favoring TriClip. Reduction in TR was maintained at one year with 88 percent of patients moderate or less with the TriClip procedure. The Edwards PASCAL T-TEER system is undergoing its pivotal trial as well. T-TEER with the TriClip G4 system is now a standard procedure, and Mount Sinai has one of the most efficient procedural performances in the New York area using multimodality imaging.

Role of Advanced Echo Imaging

Three-dimensional (3D) multiplanar reconstruction (MPR) on transesophageal echo (TEE) and 3D intracardiac echo (ICE) improve the ability to image the tricuspid valve during the procedure to optimize safety, efficacy, and efficiency. Mount Sinai is one of the leading centers in the country to routinely use 3D ICE in conjunction with TEE to guide transcatheter tricuspid interventions. Figure 3 shows a 3D MPR of the tricuspid valve and severe regurgitation. Figures 4 and 5 are echocardiographic representations of a patient who underwent successful T-TEER with the TriClip G4 system under TEE and ICE guidance, showing torrential TR before and mild TR after implantation of one TriClip.

Role of Multimodality Imaging of the Impact of Tricuspid Regurgitation on Cardiac Remodeling

The TRILUMINATE Pivotal imaging substudy was recently published in *The Journal of the American College of Cardiology*.[3] Mount Sinai Heart was one of the leading contributors to the substudy, in which Cardiac MRI and Cardiac CT, in addition to Echo, were used to show the impact of the severity of TR on right heart size and function and the beneficial effect of TR reduction by the TriClip on cardiac remodeling.

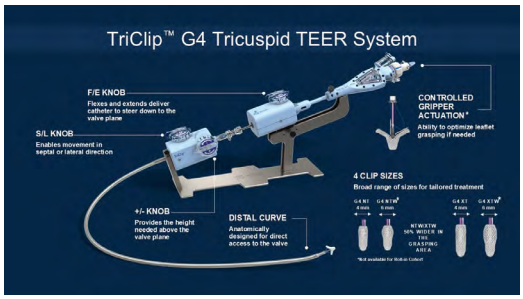

Figure 1: TriClip G4 Tricuspid Transcatheter Edge-to-Edge Repair (T-TEER) System

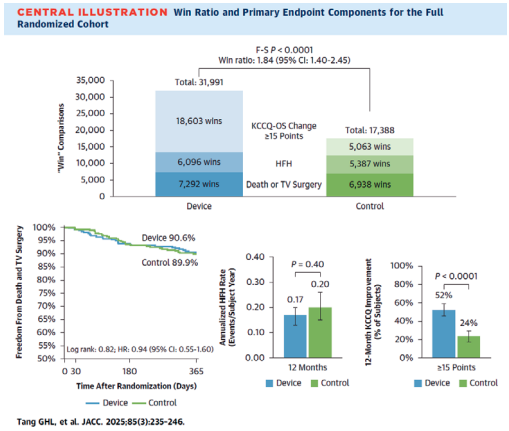

Figure 2: Schematic representation of the one-year TRILUMINATE Pivotal trial results

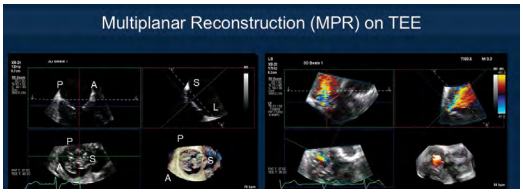

Figure 3: 3D multiplanar reconstruction (MPR) on TEE showing four simultaneous views of the tricuspid valve, its anatomy, and associated severe tricuspid regurgitation

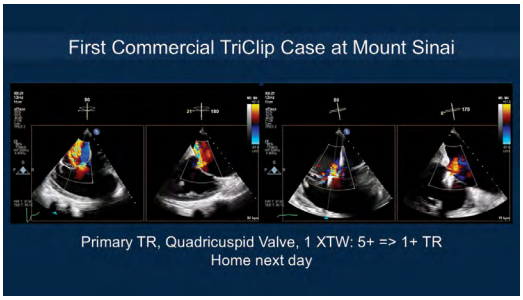

Figure 4: TEE showing torrential TR prior and mild TR post implantation of one TriClip XTW

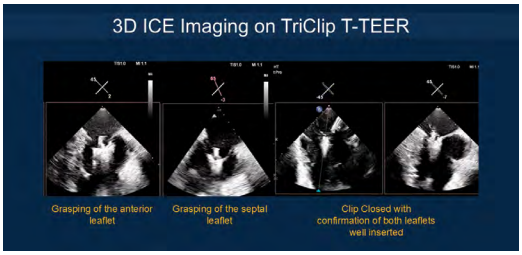

Figure 5: 3D Intracardiac Echo (ICE) showing grasping of the tricuspid leaflets with TriClip G4 system

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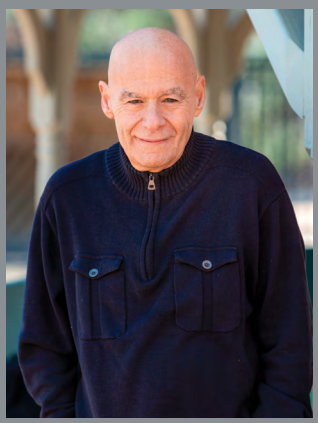
Jerry Arthur Kahn

Diagnosis: Severe tricuspid regurgitation (TR)

Treatment: Successful transcatheter tricuspid valve replacement using EVOQUE valve



"I've been in many hospitals throughout my life, and none compare to Mount Sinai."

"In 2017, I had open heart surgery—a quadruple bypass. During that same procedure, a clip was also placed on my mitral valve to address a flutter I had been experiencing over the years. Even after the surgery, I continued to have heart issues, which led to more procedures over time.

"In July 2024, I had a pacemaker implanted to help regulate my heartbeat. And more recently, I underwent an EVOQUE valve replacement procedure for my tricuspid valve. I was one of the first three patients to have this procedure at Mount Sinai, and one of the first 11 people in the entire country. That speaks to how advanced and forward-thinking Mount Sinai is when it comes to cardiac care.

"Following the EVOQUE procedure, I stayed at Mount Sinai for about 10 days so they could closely monitor my blood levels. My recovery experience was excellent. From the orderlies to the nurses to the physicians, every person I encountered was professional, kind, and compassionate. That level of care and attention made a big difference during my stay.

"Today, I go to Mount Sinai for everything, including primary care visits. The quality of care I receive across the board is outstanding. I've been in many hospitals throughout my life, and none compare to Mount Sinai. I always say: choose quality over quantity—and Mount Sinai exemplifies that.

"I recommend Mount Sinai to everyone I know, especially when it comes to heart care. The team is efficient and responsive; I always get seen right away and leave feeling confident in the care I've received. I even consider my cardiologist a friend at this point. The relationships and trust I've built here mean a great deal to me.

"Thanks to Dr. Parasuram, I'm able to enjoy every day. They've given me my life back."

CardyFit: Cardiovascular Disease Prevention Through Holistic Coverage of Wellness

ANNAPOORNA S.KINI, MD, MARIGLEN JAHAJ, BS, AND ANDRIY VENGRENYUK, MS

Cardiovascular disease remains one of the leading causes of morbidity and mortality worldwide. Heart disease is a widespread issue that can often be prevented through proactive lifestyle choices, reducing the need for hospital intervention in the first place. Recognizing this issue, the cardiac catheterization laboratory at the Mount Sinai Fuster Heart Hospital has introduced CardyFit, a comprehensive roadmap designed by cardiologists to support cardiovascular health through holistic wellness. CardyFit is an accessible online platform offering credible content on nutrition, fitness, yoga, breathing, and meditation. This initiative empowers individuals with the knowledge and tools necessary to take control of their heart health and well-being.

CardyFit is a user-friendly website providing credible resources to promote cardiovascular health. The website is designed with accessibility in mind, so individuals can easily navigate and find credible information. With a wealth of content on nutrition, exercise, yoga, and mindfulness practices, CardyFit empowers individuals with information on lifestyle modifications to prevent and manage heart disease. Additionally, it offers insights into managing conditions such as diabetes, high blood pressure, and peripheral artery disease, which are key risk factors for cardiovascular complications. CardyFit also raises awareness about heart disease in women, highlighting the gender-specific differences in how heart disease manifests and affects women compared to men. By providing a portal with credible information, CardyFit enables cardiologists to extend their support beyond the cardiac catheterization laboratory, helping individuals make informed lifestyle choices for better heart health.

A well-balanced diet is fundamental to cardiovascular disease prevention. CardyFit provides nutritional information covering diet composition, types, and principles. Users can access insights on heart-friendly foods, including lean proteins, whole grains, healthy fats, and antioxidant-rich fruits and vegetables. Additionally, CardyFit educates individuals on reducing harmful dietary elements such as trans fats, excessive sodium, and added sugars, which are factors contributing to high blood pressure and arterial plaque buildup. By offering easy-to-find and credible nutrition information, the website helps individuals make informed dietary choices.

A well-balanced diet is fundamental to cardiovascular disease prevention.

Regular physical activity is crucial for cardiovascular wellness. CardyFit emphasizes the benefits of walking as part of a heart-healthy lifestyle. The platform also features video tutorials on stretching and advanced exercises, including strength training with weights and bodyweight exercises such as push-ups, designed to improve flexibility, endurance, and overall heart function. By incorporating these exercises into daily routines, individuals can enhance cardiovascular function, reduce stress, and improve overall quality of life.

Beyond conventional fitness routines, CardyFit emphasizes mindfulness through yoga, breathing exercises, and meditation. These practices have been proven to lower stress and improve overall well-being. The platform offers guided yoga sessions to enhance flexibility, circulation, and relaxation. Additionally, video tutorials on deep breathing techniques and meditation help individuals manage stress, reducing the risk of heart disease caused by chronic stress and anxiety. By integrating these holistic wellness practices, CardyFit addresses the mind-body connection essential for long-term heart health.

CardyFit serves as a powerful

tool for cardiovascular disease prevention, extending cardiologists' expertise beyond hospital settings and into individuals' everyday lives. Through its accessible and credible content, the platform empowers individuals to make informed decisions about their heart health. Whether through dietary modifications, exercise routines, or mindfulness practices, CardyFit provides a holistic approach to preventing cardiovascular disease. As heart health remains a global concern, initiatives like CardyFit play a crucial role in individuals making healthier lifestyle choices and reducing the burden of cardiovascular disease.

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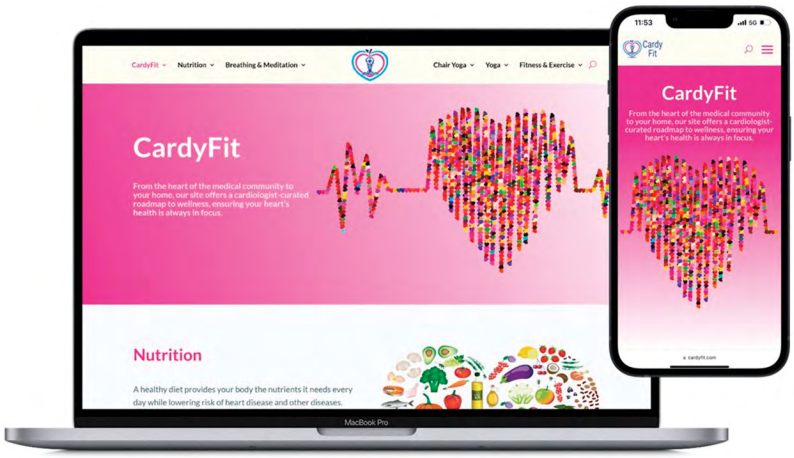
To learn more about the program, visit Cardyfit.com or scan the code



Simplifying Renal Denervation (RDN) for Refractory Hypertension

PRAKASH KRISHNAN, MD, AND RAMAN SHARMA, MD

Hypertension remains one of the most significant global health concerns, affecting nearly 1.3 billion people worldwide. While lifestyle modifications and pharmacological therapy effectively control blood pressure (BP) in many patients, a subset of individuals with refractory hypertension—defined as blood pressure that remains uncontrolled despite the use of at least three antihypertensive agents, including a diuretic—face an increased risk of cardiovascular events such as stroke, myocardial infarction, and renal failure.

Renal denervation (RDN) has emerged as a promising intervention for these patients, particularly those with sympathetic overactivity contributing to their resistant hypertension. This minimally invasive, catheter-based procedure targets the renal sympathetic nerves, disrupting the sympathetic drive and subsequently reducing blood pressure.

The Mechanism of Renal Denervation

The sympathetic nervous system plays a crucial role in BP regulation by modulating vascular tone, sodium retention, and renin release. In patients with refractory hypertension, heightened sympathetic activity leads to persistent vasoconstriction, increased cardiac output, and fluid retention, exacerbating hypertension.

RDN involves the ablation of renal sympathetic nerves via radiofrequency or ultrasound energy delivered through a catheter inserted into the renal arteries. This reduces sympathetic activity, leading to a sustained decrease in blood pressure. Unlike pharmacological treatments, which primarily focus on specific receptors or pathways, RDN provides a broader autonomic reset, offering long-term BP control.

Clinical Evidence Supporting Renal Denervation

Several major clinical trials have investigated the efficacy and safety of RDN in patients with resistant hypertension.

SYMPLICITY HTN-3 (2014)

One of the first large-scale randomized controlled trials (RCT) to evaluate RDN, SYMPLICITY HTN-3, initially reported no significant difference in office or ambulatory BP between the RDN and sham procedure groups. However, subsequent analyses suggested that incomplete denervation, operator variability, and patient selection criteria may have influenced the results.

SPYRAL HTN-OFF MED AND SPYRAL HTN-ON MED (2017–2021)

The SPYRAL HTN trials addressed the limitations of SYMPLICITY HTN-3 by refining patient selection and procedural techniques. Key findings include:

- SPYRAL HTN-OFF MED (2018): In patients with mild-to-moderate hypertension not on antihypertensive medications, RDN led to a significant reduction in 24-hour systolic BP (-5 mmHg) and diastolic BP (-4 mmHg) compared to the sham group.
- SPYRAL HTN-ON MED (2020-2021): Among patients already on antihypertensive medications, RDN resulted in an additional BP reduction of 9 mmHg systolic and 5 mmHg diastolic at six months, reinforcing its role as a complementary therapy.

Since its Food and Drug Administration (FDA) approval in the United States in March 2015, more than 100,000 patients have undergone LAAO with the Watchman device

RADIANCE-HTN SOLO AND TRIO (2021)

- RADIANCE-HTN SOLO: Studied patients with mild-to-moderate hypertension who were either medication-naïve or had been weaned off antihypertensive drugs before the procedure. The trial demonstrated a greater reduction in daytime ambulatory BP (-8.5 mmHg systolic) in the RDN group compared to the sham group (-2.2 mmHg).
- RADIANCE-HTN TRIO: This trial focused on patients with resistant hypertension who remained hypertensive despite a standardized triple-drug regimen. RDN led to an additional BP reduction of -8.0 mmHg systolic and -4.5 mmHg diastolic, confirming its benefit in refractory cases.

Long-Term Outcomes and Safety

RDN has demonstrated sustained blood pressure reduction for up to three years, suggesting that its effects are durable. Unlike some pharmacological therapies, RDN is not associated with significant adverse events such as electrolyte disturbances, orthostatic hypotension, or kidney dysfunction.

A pooled meta-analysis of recent RDN trials confirmed a low complication rate (<2 percent), with most adverse events related to procedural access rather than the ablation itself. The long-term safety profile continues to be evaluated, but thus far, no evidence suggests an increased risk of renal artery stenosis or functional decline.

Future Directions and Considerations

While RDN represents a promising adjunct therapy for patients with refractory hypertension, several challenges remain:

- Patient selection: Not all hypertensive patients respond equally to RDN. Identifying biomarkers or clinical predictors of response could improve outcomes.
- Standardization of procedure: Variability in techniques and operator experience has influenced trial results. Improved procedural standardization may enhance efficacy.
- Combination therapies: RDN may be most effective when used in conjunction with optimized pharmacologic treatment rather than as a standalone intervention.

Ongoing studies, such as the SPYRAL HTN-EXTEND and RADIANCE II trials, aim to further clarify the long-term efficacy and ideal patient population for RDN.

Renal denervation has re-emerged as a viable and effective treatment for refractory hypertension, particularly in patients with high sympathetic drive. With strong clinical evidence supporting its role in blood pressure reduction, RDN offers hope for patients who fail to achieve adequate control with medications alone. As procedural refinements and patient selection criteria continue to evolve, RDN may become a key component in the comprehensive management of resistant hypertension.

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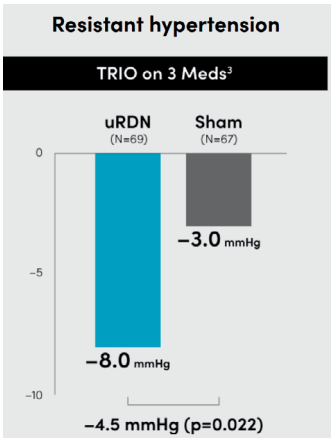


Figure 1: 18 MMHG mean reduction in office SBP at three years in patients treated with the Symplicity Spyral catheter.

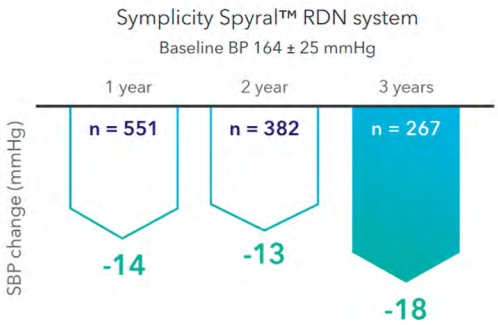
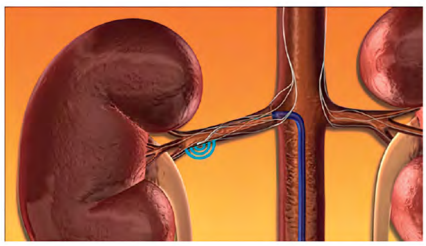


Figure 2: 8MM MEAN reduction in office SBP at two months in patients treated with paradise ultrasound RDN system

Symplicity Spyral™ renal denervation system

Recor Paradise™ renal denervation system



Renal denervation system

EVOQUE Transcatheter Tricuspid Valve Replacement

SAHIL KHERA, MD, GILBERT TANG, MD, LUCY SAFI, DO, AND ANNAPOORNA S. KINI, MD

Symptomatic tricuspid regurgitation (TR) remains one of the most challenging valvular heart diseases. This is primarily driven by the complex nature of the valve anatomy, etiology of TR (10 percent primary, 80 percent functional, 10 percent lead-related), interplay of right ventricular hemodynamics, and appropriate timing of therapy. In addition, treatment can be delayed or ignored due to widespread belief that aortic and mitral valvular disease management often leads to resolution of TR. The incidence and prevalence of moderate to severe TR increases with age and is associated with morbidities and poor survival.

The commercial approval of EVOQUE transcatheter tricuspid valve replacement (TTVR) based on the results of the TRISCEND II trial represents a groundbreaking advancement in the non-surgical treatment of symptomatic severe TR, in that it can eliminate it. In the trial, TTVR was superior to medical therapy alone for the primary composite outcome, driven primarily by improvements in symptoms and quality of life.

The EVOQUE TTVR is a self-expanding, bovine pericardial valve mounted on a nitinol frame. It is available in four sizes (44mm, 48mm, 52mm, and 56 mm) to fit most tricuspid anatomies. The unique design and atraumatic anchors allow it to conform to the native tricuspid anatomy, ensuring a secure fit and minimizing the risk of paravalvular leak (Figure 1). The valve is delivered via a catheter through the femoral or jugular vein. Under fluoroscopic and echocardiographic guidance—3D transesophageal echo (TEE) and/or 3D intracardiac echo (ICE)—the catheter is advanced into the right ventricle. Once in place, the EVOQUE valve is carefully deployed into the native tricuspid annulus. The self-expanding nature of the valve ensures it adapts to anatomic variations, including challenging anatomies like prior tricuspid transcatheter edge-to-edge repair (T-TEER) or preexisting cardiac implantable electronic device (CIED) leads, providing a secure seal and restoring normal valve function. Most patients are admitted two days prior to the procedure for medical optimization and stay in the hospital for two days after the procedure for recovery. Patients are discharged on long-term anticoagulation and optimal guideline-directed medical therapy.

The Mount Sinai Structural Heart Program has been at the forefront of percutaneous management of symptomatic severe TR. From being a pivotal site for the TRILUMINATE TriClip T-TEER pivotal trial to an early commercial adopter of TTVR, our program employs a multidisciplinary approach where we collaborate with our advanced imagers, interventional cardiologists, cardiac surgeons, and electrophysiologists to identify the best management approach for our patients. As clinical experience grows and technology advances, the EVOQUE TTVR system is poised to become a cornerstone in the treatment of tricuspid valve disease, improving outcomes and quality of life for our patients.

As clinical experience grows and technology advances, the EVOQUE TTVR system is poised to become a cornerstone in the treatment of tricuspid valve disease, improving outcomes and quality of life for our patients

References

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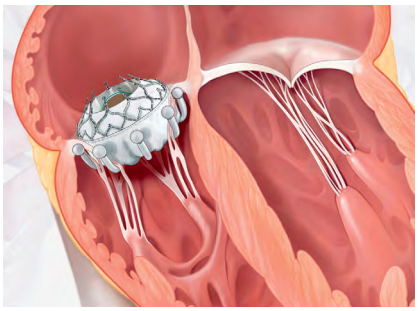

Figure 1: EVOQUE TTVR: valve design and anchors

Figure 2: EVOQUE TTVR in a patient with prior pacemaker leads

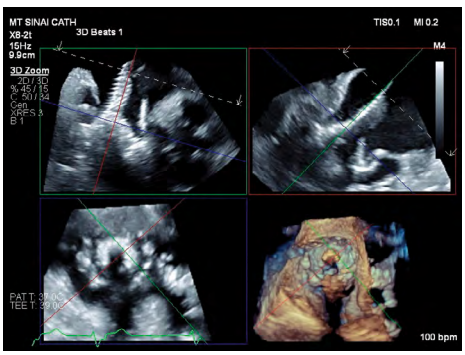

Figure 3: 3D-transesophageal echocardiogram image of an EVOQUE TTVR being deployed using multiplanar reconstruction

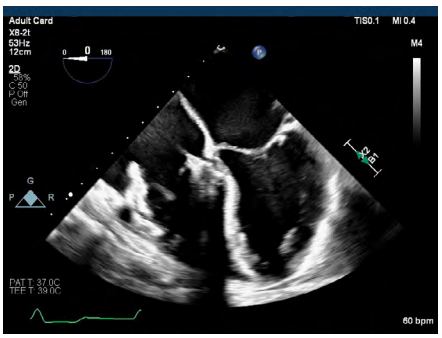

Figure 4: Transthoracic echocardiogram image of an EVOQUE TTVR

Golda Silvera

Diagnosis: Severe tricuspid regurgitation (TR)

Treatment: Successful tricuspid valve replacement via TAVR using EVOQUE device

"If you're struggling like I was, don't give up. Ask questions. Have faith."

"In 2017, when I was just 45, I had a major heart attack that nearly ended my life. My heart went into shock, and I needed two open heart surgeries—one to bypass clogged arteries and another to support my heart with a temporary device. I also had diabetes, struggled with my weight, and smoked heavily. After that heart attack, I quit smoking cold turkey. It wasn't easy, but I knew I had to change.

"Even with treatment, I couldn't walk two blocks without feeling out of breath. My heart was only working at 23 percent. The biggest issue was my tricuspid valve, which wasn't closing properly. I was constantly tired, my legs were swollen, and my kidneys were starting to fail.

"I asked my doctors to send me to a specialist, and that's how I ended up at Mount Sinai Fuster Heart Hospital. James Youssef, MD, helped stabilize my heart, but the valve still leaked. I wasn't a candidate for more open heart surgery. I didn't think I had any options left.

"Then, in 2024, the U.S. Food and Drug Administration approved a new tricuspid valve replacement that didn't require open heart surgery. Sahil Khera, MD, and Dr. Gilbert Tang, MD, implanted the new valve through a small incision in my leg. The procedure took just 45 minutes.

"Right away, I could feel the difference.

"I love Mount Sinai. The doctors and staff were kind, patient, and professional. Today, I can walk four or five blocks, my legs aren't swollen anymore, and I've lost more weight. I even exercise now.

"If you're struggling like I was, don't give up. Ask questions. Have faith. This device—and the team at Mount Sinai—gave me back my life. And I'm forever grateful."

Metal Free Drug-Eluting Resorbable Scaffold to Treat PAD

PRAKASH KRISHNAN, MD, AND DAVID SONG, MD

Treating infrapopliteal peripheral arterial disease (PAD) in chronic limb-threatening ischemia (CLTI) presents significant challenges due to the complexity of the vascular anatomy and the limited durability of treatment options. Specific challenges in below-the-knee (BTK) interventions of tibial vessels, such as extensive medial calcinosis, small caliber long lesion lengths, and acute lesion recoil and flow-limiting dissections after angioplasty, make revascularization technically demanding, with a high risk of restenosis or reocclusion. Furthermore, many patients with infrapopliteal PAD have multiple comorbidities, such as diabetes and chronic kidney disease, which exacerbate disease progression, impair wound healing, and increase the risk of amputation.

Various methods have not shown efficacy with respect to the maintenance of long-term patency and the reduction of undesirable long-term clinical events, such as reintervention and amputation. Therefore, long-term patency may require both the mechanical properties of a stent and an antiproliferative coating. Though not indicated in the United States for use in this anatomy, coronary drug-eluting stents (DES) with sirolimus analogues used in BTK interventions have emerged as a potential strategy to maintain primary patency. Limited data of coronary DES use in tibial vessels suggest improved patency rates and limb salvage benefits compared to bare-metal stents or balloon angioplasty alone. But concerns remain regarding their long-term efficacy, fracture risk, and suitability for the unique mechanical stresses of the lower extremities. Moreover, the permanent nature of coronary DES has made some clinicians wary of their routine use.

The evolution of a mechanical drug-eluting scaffolding that resorbs over time may help avoid these limitations while sustaining primary patency. A single-blind, randomized, controlled trial, LIFE-BTK was completed to evaluate the safety and efficacy of an everolimus-eluting resorbable scaffold (Abbott Esprit™ BTK System) (Figure 1) compared to balloon angioplasty for the treatment of infrapopliteal artery disease in patients with CLTI. Among patients with CLTI due to infrapopliteal artery disease, treatment with the Esprit™ BTK System was superior to balloon angioplasty in reducing reintervention and maintaining patency at one year in the LIFE-BTK IDE Trial. The primary efficacy endpoint was freedom from the following events at one year: amputation above the ankle of the target limb, total occlusion of the target vessel, clinically driven revascularization of the target lesion, and binary restenosis of the target lesion. The primary efficacy endpoint was found to be superior, with a 30 percent absolute risk difference (ARD) and a number needed to treat (NNT) of 4 (Figure 2). In addition, the use of the scaffold was noninferior to angioplasty with respect to the primary safety endpoint of freedom from major adverse limb events at six months and from perioperative death (97 percent vs. 100 percent; p=0.0019). The Esprit™ BTK System is currently approved by the U.S. Food and Drug Administration for the treatment of infrapopliteal disease. This technology provides an advanced and exciting option in infrapopliteal interventions with additional durability. This is likely to translate to improved clinical outcomes with fewer reinterventions. Thus, mechanical drug-eluting scaffolding that resorbs over time may help avoid these limitations.

This technology provides an advanced and exciting option in infrapopliteal interventions with additional durability. This is likely to translate to improved clinical outcomes with fewer reinterventions.

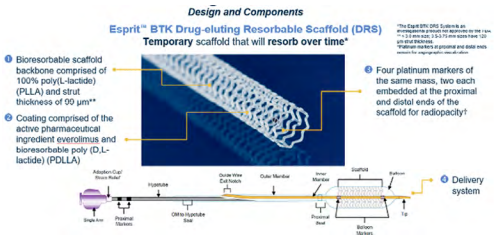

Figure 1

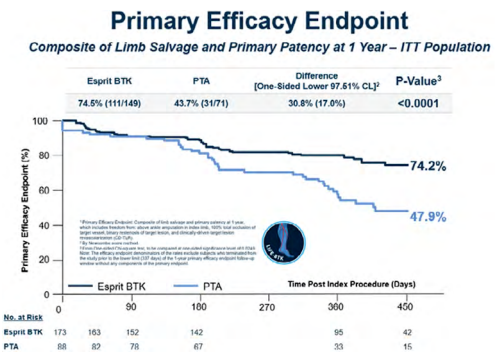

Figure 2

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Patrick Curran

Diagnosis: Peripheral arterial disease

Treatment: Successful stent of tibial arteries

"Thanks to Mount Sinai, I still have my leg—and my hope."

"I live with Charcot foot, a rare condition that affects the bones, joints, and tissues in my feet. It's caused by neuropathy, which means I don't always feel when a bone breaks. Over time, walking on broken bones can lead to pressure sores, wounds that don't heal properly, and in some cases, amputation. Unfortunately, I was getting close to that point.

"For years, I had been seeing a podiatrist and a vascular specialist to manage an open wound on my foot. My vascular doctor performed several procedures to open a blocked artery in my leg to help the wound heal. But eventually, he couldn't clear the blockage anymore. That's when I was referred to Dr. Krishnan at Mount Sinai.

"Dr. Krishnan met with me and his team and reviewed my scans. I asked if he could open the artery, and he told me he would try. I also asked if there was something more permanent—like a stent—so I wouldn't need to keep having surgeries on the same leg. That's when he mentioned a new type of stent the hospital had just been cleared to use. He said using this approach could potentially save my leg.

"The procedure went well. It's now been a year since the operation, and I've received a total of ten stents in my leg. They've significantly improved blood flow to my feet, which has helped my wounds heal and my bones recover. I now see a wound care specialist, but the stents have made a big difference.

"Dr. Krishnan has become like family to me. I see him and his team often, and they always make time for my concerns. I'm on a first-name basis with many of the staff, and I can't say enough about the care I've received. Thanks to Mount Sinai, I still have my leg—and my hope."

TO VIEW A RECORDED INTERVENTIONAL CASE FEATURING CALCIFIED OSTIAL COMMON ILIAC ARTERY INTERVENTION, SCAN THE CODE

Emerging Treatments to Reduce Cardiac Events After Interventional Heart Procedures

GEORGE DANGAS, MD, PHD

Patients undergoing percutaneous coronary intervention (PCI) face an elevated risk of cardiovascular events, both in the short- and long-term. Antiplatelet therapy is the cornerstone treatment for preventing complications related to both stented and non-stented coronary arteries. Alongside antiplatelet medication, the use of statins, antihypertensives, and the adoption of healthy lifestyle practices have been shown to further reduce the risk of coronary events. Furthermore, emerging medical treatments aimed at minimizing the risk of adverse events are crucial for improving cardiovascular care (Figure 1).

Innovative therapies are now focusing on key pathways that drive the progression of coronary artery disease (CAD). Effective lipid management plays a crucial role in the secondary prevention of cardiovascular events following PCI. In addition to statins, proprotein-convertase subtilisin/kexin type 9 (PCSK9) inhibitors have emerged as powerful agents that significantly lower low-density lipoprotein (LDL) cholesterol levels. These agents enhance the liver's ability to clear LDL from the bloodstream, demonstrating substantial potential in reducing cardiovascular events in patients after PCI.

Moreover, innovative therapies are targeting lipoprotein(a), a lesser known but vital lipoprotein, initially sequenced at Mount Sinai. Elevated levels of lipoprotein(a) have been independently linked to a heightened risk of atherosclerotic diseases; thus, reducing these levels could pave the way for preventing coronary events, especially in individuals with a genetic predisposition to atherosclerotic disease.

Inflammation plays a critical role in developing atherosclerotic CAD, which has generated substantial interest in investigating anti-inflammatory agents that can effectively inhibit the inflammatory pathways associated with plaque formation and instability. The success of canakinumab, an innovative agent that targets interleukin-1ß—a key pro-inflammatory cytokine involved in atherosclerotic inflammation—has opened the door for exploring newer agents aimed at other components of the inflammatory response. The less costly colchicine has been a useful drug in chronic treatment of CAD. These promising medications have the potential to greatly benefit patients who continue to have residual cardiovascular risk, even when their other risk factors are optimally managed.

Drugs such as glucagon-like peptide-1 (GLP-1) receptor agonists, originally developed for diabetes, have shown promising results in reducing weight and improving cardiovascular risk.

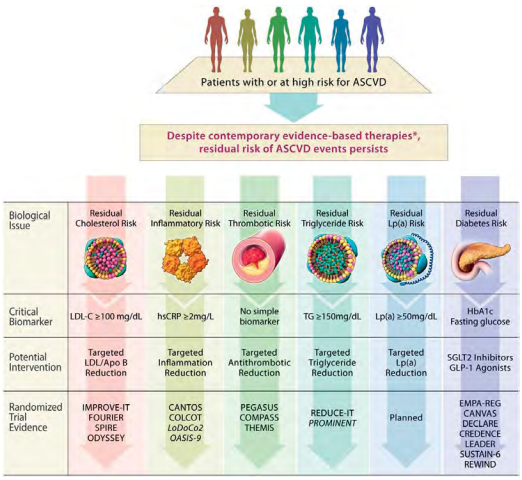

Figure 1: Potential targets to mitigate the risk of cardiovascular events after percutaneous coronary intervention.

Recently, weight loss medications have emerged as an effective treatment at the crossroads of metabolic and cardiovascular health. Drugs such as glucagon-like peptide-1 (GLP-1) receptor agonists, originally developed for diabetes, have shown promising results in reducing weight and improving cardiovascular risk. Early imaging studies indicate enhancements in both regional and global left ventricular function in patients who undergo PCI following acute myocardial infarction. In the landmark SELECT trial, GLP-1 receptor agonists significantly lowered the incidence of death from cardiovascular causes, non-fatal myocardial infarction, or nonfatal stroke compared to placebo in patients with existing cardiovascular disease who are overweight or obese but do not have diabetes. The results of this trial apply to a large segment of patients undergoing PCI.

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James Grossman

Diagnosis: Severe aortic stenosis

Treatment: Successful transcatheter valve replacement (TAVR)

"Dr. Dangas is widely respected for his expertise in cardiovascular care around the world."

"I've been a patient of George Dangas, MD, for more than 20 years. I originally met him while working in public relations for the Cardiovascular Research Foundation, where he was involved. Over time, our professional connection grew into a trusted patient-doctor relationship—and even a friendship.

"When I needed a transcatheter aortic valve replacement (TAVR), I knew I was in excellent hands. The procedure required a hospital stay of about three or four days, and throughout that time, every member of the Mount Sinai team—from the nurses to the physicians—was friendly, attentive, and professional. I felt genuinely cared for.

"Dr. Dangas is not only a remarkable physician, but he is also widely respected for his expertise in cardiovascular care around the world. That international reputation is backed up by the personal experience I've had under his care. He explains everything clearly, listens carefully, and always makes me feel confident in the decisions we make together about my health.

"Over the years, our relationship has grown beyond the typical physician-patient connection. He's become a friend of the family. We've even gone to a baseball game together. His wife, also a cardiologist, is now my wife's doctor. That level of trust and continuity means a great deal to us."

I'm grateful every day that I met Dr. Dangas all those years ago. I truly don't know what I would do without him."

Diagnosing Coronary Microvascular Dysfunction as Cause of Chest Pain

JOSEPH SWEENY, MD

Chest pain with non-obstructive coronary artery disease (NOCAD) continues to challenge cardiovascular clinicians from both a diagnostic and therapeutic perspective. Up to 50 percent of patients undergoing invasive coronary angiography for angina symptoms have no significant coronary artery disease (CAD) defined by coronary artery stenosis greater than or equal to 50 percent. A substantial number of these patients without obstructive CAD have coronary microvascular dysfunction (CMD) and are at a higher risk of adverse clinical outcomes compared to the general population without CAD.

The coronary microcirculation contributes significantly to the total coronary vascular resistance and through complex mechanisms contributes to the regulation of coronary blood flow and exchange of oxygen and metabolites to the myocardium during stress or demand. Dysfunction of this regulation can contribute to anginal symptoms as well as other cardiovascular disease states (ANOCA, MINOCA, and HFpEF). The availability and safety of an invasive assessment of microvascular function, known as the Index of Microvascular Resistance (IMR) and other aberrations of coronary function such as coronary vasospasm or myocardial bridging, has advanced our ability to accurately assess and diagnosis these patients at the time of invasive coronary angiography.

We use a unique protocol called Coronary Function Testing that is specifically designed to provide a comprehensive evaluation of microvascular function, coronary vasospasm, coronary flow reserve, and identification of myocardial bridging when evaluating a patient with chest pain with NOCAD in the Cardiac Catheterization Lab. In doing so, we are able to identify specific etiologies of chest pain (endotypes) that go beyond just blocked arteries and, more importantly, prescribe tailored pharmacological therapy to help treat the symptoms.

The ongoing IMAGING-CMD study developed by Mount Sinai is currently investigating the clinical utility of a comprehensive non-invasive imaging evaluation—including cardiac PET (Figure 1), treadmill stress, and coronary CT angiography—and validating this against invasive Coronary Function Testing (Figure 2) in diagnosing CMD. The goal of this study is to refine the diagnostic accuracy and guide therapeutic decision-making for patients who present with signs and symptoms of ischemic heart disease but without significant epicardial stenosis.

The ongoing IMAGING-CMD study developed by Mount Sinai is currently investigating the clinical utility of a comprehensive non-invasive imaging evaluation.

While a comprehensive invasive coronary functional assessment requires time and dedication, it is important and frequently used at The Mount Sinai Hospital's Cardiac Catheterization Laboratory as part of the work up for patients with chest pain without obstructive coronary artery disease, which translates into better therapeutic options for our patients.

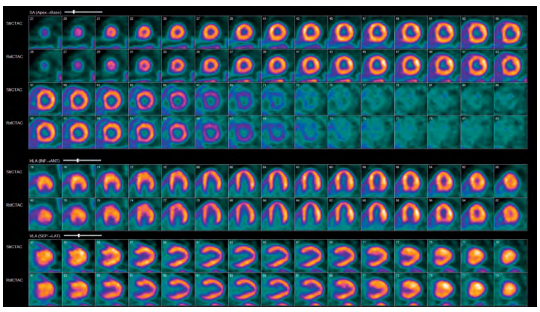

Figure 1: Cardiac PET of patient with exertional angina showing normal coronary flow but diffusely reduced Coronary Flow Reserve.

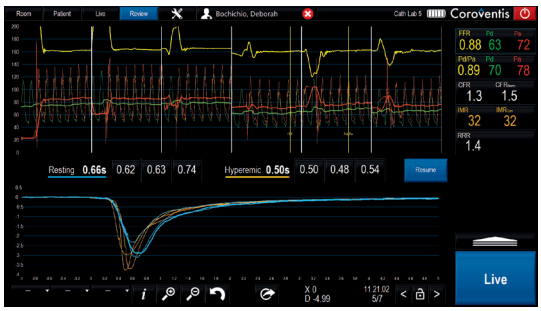

Figure 2: Corresponding Coronary Function Testing (CFT) with reduced Coronary Flow Reserve (CFR) and elevated Index of Microvascular Resistance (IMR) as the cause of anginal chest pains.

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Joseph Buhagiar

Diagnosis: Two-vessel coronary artery disease

Treatment: Successful DES of LAD and ramus

"Now, I can spend hours in my garden without getting tired. It's like I've got my life back."

"My wife and I both have heart issues, and she started getting care at Mount Sinai because our son recommended it. I went with her a few times, and I saw how well she was doing—she seemed like herself again. That's when I decided it was time to look into my own health. My doctor had told me I had some blocked arteries, so I figured Mount Sinai was the right place to get a second opinion.

"From the first visit, I felt like I was in good hands. Joseph Sweeny, MD, who took care of me, is one of the best doctors I've ever had. He's not just knowledgeable—he talks to you like a person, not just a patient. I really appreciated that. He ended up putting in two stents for me, one on each visit. Both times, I was in and out in a single day, which made things easier on me and my family.

"Before the procedures, I was constantly short of breath. I've always been an active person—I like to stay busy—but I could barely do anything without needing a break. I'd mow the lawn or work in the garden for half an hour, and then I'd have to sit down to catch my breath.

"Now, it's a different story. After the procedures, I can keep going for hours. I take care of my garden, I watch the birds, and I even cut the grass myself—without needing to stop every few minutes. I still rest when I need to, but I can do so much more now. It feels good to have my energy back.

"I'm grateful to Mount Sinai and especially to Dr. Sweeny. They've made a real difference in my life."

TO VIEW A RECORDED MICROVASCULAR CASE, SCAN THE CODE

Therapy for Vulnerable Plaques: Are We Getting There?

PEDRO MORENO, MD

Despite impressive advances in pharmacologic and percutaneous therapy, the mortality of coronary artery disease (CAD) in the last five years is increasing, as shown in Figure 1. Why is this happening? This is the main question. Maybe we are missing an obscure enemy, and complex research is needed. Or maybe, understanding this perplexing problem warrants a simpler approach.

Primarily, CAD is either obstructive or non-obstructive. This basic dichotomy is also applied to therapy. CAD can be treated conservatively or aggressively. The conservative approach is also known as guideline-directed medical therapy (GDMT). The aggressive approach uses the combination of percutaneous coronary intervention (PCI) and GDMT.

Evidence Supporting Therapy for Obstructive CAD

Current aggressive therapy for CAD is exclusively focused on flow-limiting lesions responsible for ischemia. For decades, investigators tried to prove superiority for the aggressive approach. However, when compared to conservative-GDMT, PCI of obstructive lesions improved symptoms and quality of life, but did not improve freedom from death or myocardial infarction. Therefore, independent of the therapy used, the answer to the main question may not be exclusively related to therapy of obstructive CAD.

Evidence Supporting Conservative-GDMT for Non-Obstructive CAD

Advances in invasive imaging techniques have helped to identify the morphologic characteristics of non-obstructive plaques that may be precursors for acute coronary syndromes (ACS). Optical coherence tomography has the resolution to quantify the thickness of the fibrous cap, as shown in Figure 2. Multiple pathologic studies have identified the thin-cap fibroatheroma (TCFA) as the predecessor responsible for the majority of ACS, including cardiac death and myocardial infarction. Plaque erosion and calcific nodes are also involved in these events. Conservative-GDMT can stabilize TCFA, thickening the fibrous cap, and reducing lipid and macrophage content. In fact, the great majority of patients with clinically documented CAD are under conservative-GDMT. In addition, high-risk diabetic and hypercholesterolemic patients are also under medical therapy, even before they are diagnosed with CAD. Nevertheless, some lesions are resistant to optimal GDMT. Preliminary data from the Yellow III trial confirmed this statement. Therefore, the answer to the main question may not be exclusively related to conservative-GDMT of non-obstructive CAD.

This is definitively a step forward in the understanding of non-obstructive TCFA.

Evidence Supporting Aggressive PCI Therapy for Non-Obstructive CAD

Evidence suggests that TCFA evolving to atherothrombosis may be predominately non-obstructive. Therefore, stenting non-obstructive TCFA may reduce major adverse cardiovascular events when compared to conservative-GDMT. This hypothesis was tested in the PREVENT Trial. A total of 1,606 patients were equally randomized to aggressive (PCI and GDMT) vs. conservative GDMT alone. Thin cap fibroatheroma was identified by intravascular imaging. All

lesions were non-obstructive using fractional flow reserve. The primary outcome was a composite of death, target vessel myocardial infarction, ischemia-driven target vessel revascularization, or hospitalization for progressive angina. At two years, the primary outcome occurred in three (0.4 percent) patients in the aggressive arm vs. 27 (3.4 percent) in the conservative arm (P<0.0003). At seven years, this difference was maintained with 6.5 percent vs 9.4 percent in the aggressive vs. conservative arms, respectively (p=0.0097). However, death and myocardial infarction were similar in both groups.

Aggressive therapy with coronary stenting in non-obstructive TCFA reduces major adverse cardiovascular events (MACE). This is definitively a step forward in the understanding of non-obstructive TCFA. However, this therapy has not yet demonstrated that it reduces the incidence of death or myocardial infarction.

Going back to the main question, the field still lacks a clear understanding why cardiovascular mortality is increasing within the last five years, and further studies are needed to bring greater clarity to this puzzling data.

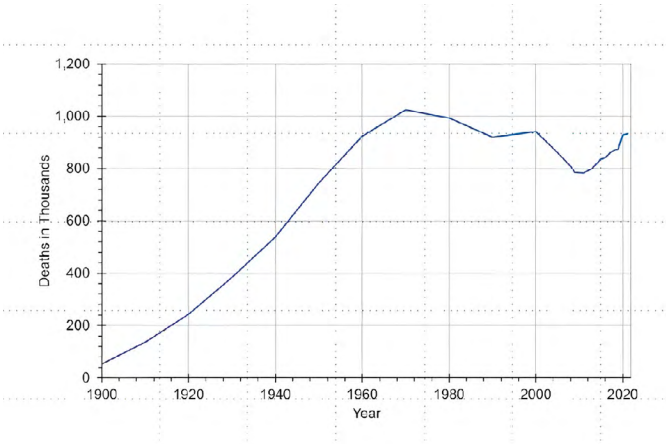

Figure 1: Mortality of cardiovascular disease from 1900 to 2020. Adapted from Seth S. Martin. *Circulation*. 2024 Heart Disease and Stroke Statistics: A Report of US and Global Data From the American Heart Association, Volume: 149, Issue: 8, Pages: e347-e913, DOI: (10.1161/CIR.0000000000001209).

Figure 1. Optical Coherence Tomography

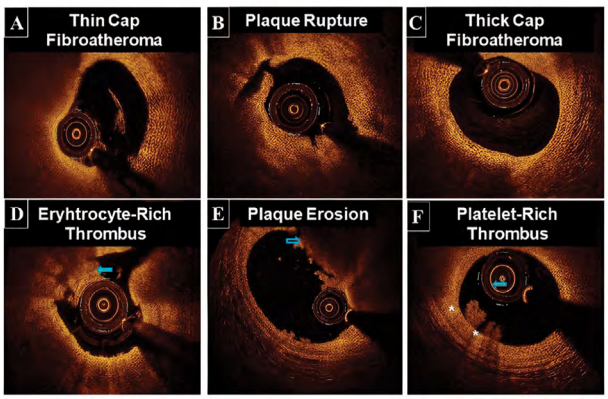

Figure 2: Coronary plaque characterization by Optical Coherence Tomography. A. Thin-Cap Fibroatheroma defined as a fibrous cap < 65 microns in thickness. B. Plaque Rupture defined as a clear discontinuation of the fibrous cap, in this case at the shoulder. C. Thick-Cap Fibroatheroma defined as a fibrous cap >65 microns in thickness. D. Plaque Erosion defined as a large thrombus without plaque rupture. E. Platelet-Rich Thrombus defined as a thrombus without red blood cells, that allows visualization of the vessel wall.

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A Dedicated Center for Women for Comprehensive Cardiovascular Care

ROXANA MEHRAN, MD

Cardiovascular disease (CVD) remains the leading cause of death among women worldwide, yet sex- and gender-specific aspects of CVD have long been under-recognized, under-treated, and under-studied. To address these disparities, the Women's Heart and Vascular Center was established at the Mount Sinai Fuster Heart Hospital under the leadership of Roxana Mehran, MD, Professor of Medicine (Cardiology), and Population Health Science and Policy at the Icahn School of Medicine at Mount Sinai. This pioneering initiative integrates cutting-edge research with patient-centered care tailored to the unique cardiovascular needs of women.

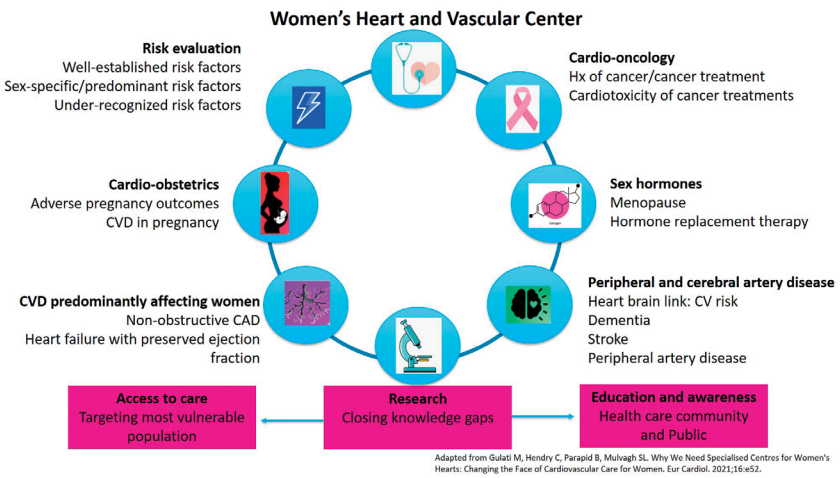
The center provides comprehensive cardiovascular evaluation using advanced diagnostics, personalized lifestyle counseling, and referrals to experts for specific needs, as well as social services or mental health support when necessary, acknowledging the critical link between physical and mental health. Care is based on the latest guidelines, with a focus on conditions that disproportionately affect women, including unique sex-specific risk factors such as history of adverse pregnancy outcomes, post-cancer treatments, and more.

A key focus of the center is its commitment to advancing care and research on sex- and gender-specific differences in cardiovascular disease. Ongoing studies explore the impact of adverse pregnancy outcomes and the interplay of social determinants of health on cardiovascular risk. These research efforts aim to close knowledge gaps, improve outcomes, and shape evidence-based treatment recommendations tailored to women's cardiovascular health. The center works closely with multiple expert physicians from different departments within Mount Sinai to ensure that women are cared for and treated expeditiously, as needed.

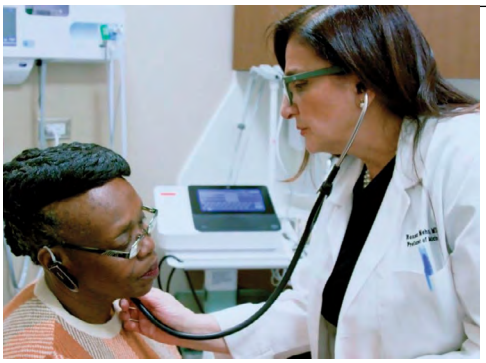
This pioneering initiative integrates cutting-edge research with patient-centered care tailored to the unique cardiovascular needs of women.

Notably, the center uses a multidisciplinary approach, fostering strategic collaborations such as the partnership with Amy Teirsten, MD, at the Dubin Breast Center. As part of this collaboration, women with a history of breast cancer treatment who face an increased risk of CVD are referred to the Women's Heart and Vascular Center for comprehensive cardiovascular risk assessment and preventive care to minimize future adverse cardiovascular events.

A cornerstone of the center's mission is serving all communities. Recognizing that racial and ethnic



Adapted from Gulati M, Hendry C, Parapid B, Mulvagh SL. Why We Need Specialised Centres for Women's Hearts: Changing the Face of Cardiovascular Care for Women. Eur Cardiol. 2021;16:e52.



minority populations face disproportionate burdens of CVD and barriers to care, the center has planned community outreach programs in partnership with local community stakeholders. These initiatives focus on improving education, access to care, and preventive strategies to enhance women's cardiovascular health in underserved communities across New York City.

As the lead of the Lancet Women and Cardiovascular Disease Commission, Dr. Roxana Mehran has been instrumental in raising global awareness of sex- and gender-related disparities in cardiovascular care. The commission report published in 2021 provided the first-ever global recommendations for reducing the burden of CVD in women. Building on these findings, the Women's Heart and Vascular Center at Mount Sinai continues to set new standards for research, clinical care, and equity in women's cardiovascular health.

For any questions or to refer a patient, please call 212-241-8000 or send an email to womensheartandvascularcenter@mountsinai.org.

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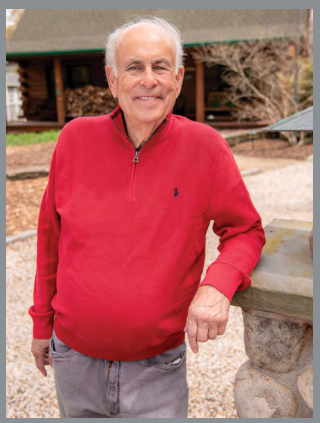
Robert T. Mohr

Diagnosis: Severe mitral regurgitation (MR)

Treatment: Successful mitral valve transcatheter edge-to-edge repair (M-TEER)



"While I was happy to go home, I actually enjoyed my stay—everyone I met was excellent."

"I've had different heart issues over the past 10 years. More recently, I developed a leaking heart valve, and my doctors referred me to Mount Sinai to see if I was a candidate for a valve repair using clips.

"I actually felt pretty good going into it—better than most, from what I've heard—but after the procedure, I felt amazing. The difference was noticeable right away.

"My evaluation took place in early December. The team at Mount Sinai ran all the necessary tests to determine if the procedure would be right for me. From the moment I walked in, I was met with kindness and professionalism. That really helped put me at ease.

"A few days later, they called to say I was a candidate. We scheduled the procedure, and everything moved forward quickly.

"On the day of surgery, I was lying in a hospital bed and thought I was still waiting in pre-op. I asked the nurse how much longer it would be—and she told me I was already in post-op. I couldn't believe it was already over.

"The entire experience was so positive. I stayed in the hospital for just two days. While I was happy to go home, I actually enjoyed my stay—everyone I met was excellent.

"My doctor, Annapoorna S. Kini, MD, was phenomenal. She explained everything clearly and had a great ability to connect with me as a patient. She's professional and knowledgeable, with a sense of humor that I appreciated. That kind of bedside manner really matters.

"I've been treated at five different hospitals for heart-related issues, and I can honestly say Mount Sinai was the best by far. I'm grateful to Dr. Kini and the entire team."

Artificial Intelligence in Heart Attack Procedures

JEFFREY BANDER, MD

The Future of AI in Percutaneous Coronary Interventions: Advancing Cardiac Catheterization Laboratory Capabilities

The integration of artificial intelligence (AI) in percutaneous coronary intervention (PCI) is redefining the catheterization laboratory by enhancing intravascular imaging, optimizing procedural strategies, and minimizing operator exposure to ionizing radiation. AI-powered quantitative coronary angiography (AI-QCA) has demonstrated non-inferiority to optical coherence tomography (OCT) in guiding PCI, refining lesion assessment, and improving stent deployment precision while concurrently reducing contrast volume and fluoroscopy duration. The integration of Dynamic Coronary Roadmap (DCR) technology further enhances procedural navigation by providing a real-time overlay of coronary vasculature, improving wire and device positioning accuracy.

Robotic-Assisted PCI and Remote Interventions

The adoption of robotic-assisted PCI with platforms such as CorPath GRX has enhanced precision in guidewire manipulation, balloon angioplasty, and stent deployment while mitigating radiation exposure for interventionalists. Robotic systems facilitate controlled, millimeter-scale adjustments, improving accuracy in complex coronary anatomy. Clinical studies have demonstrated comparable outcomes between robotic and manual PCI, with the added advantage of improved operator ergonomics and reduced orthopedic strain. Furthermore, remote PCI has been successfully performed in live cases, with procedures conducted over 35 km away using robotic assistance, signaling a future in which AI-driven remote interventions could democratize access to expert interventional cardiology care.

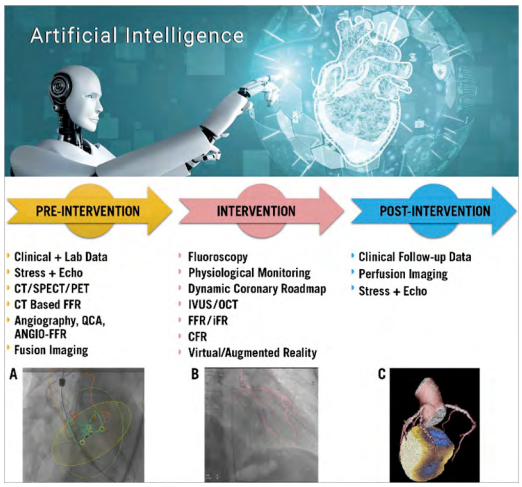
AI-Driven Risk Stratification and Radiation Optimization

Machine learning algorithms are redefining patient risk stratification by integrating angiographic, hemodynamic, and biomarker data to predict adverse post-PCI events such as in-stent restenosis, stent thrombosis, and acute kidney injury. AI-enhanced predictive models have demonstrated superior accuracy compared to traditional risk calculators, facilitating early identification of high-risk patients and enabling personalized therapeutic strategies. Concurrently, AI-based radiation reduction strategies, including real-time eye-tracking collimation and automated fluoroscopy optimization, have reduced radiation exposure by up to 75 percent without compromising image quality, thereby improving procedural safety for both patients and operators.

The future of interventional cardiology is poised for further AI integration, encompassing real-time decision support, fully autonomous robotic PCI, and remote AI-guided interventions.

The Next Evolution in AI-Driven Cardiac Catheterization Laboratories

The future of interventional cardiology is poised for further AI integration, encompassing real-time decision support, fully autonomous robotic PCI, and remote AI-guided interventions. AI-powered wearable and implantable biosensors will facilitate continuous post-PCI hemodynamic monitoring, enabling early detection of adverse events and reducing unplanned readmissions. As these technologies continue to evolve, the AI-driven cardiac catheterization laboratory will enhance procedural efficiency, standardize operator performance, and expand access to advanced coronary interventions worldwide, setting the stage for a new era in precision cardiology.



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3. BMJ Innovations (https://innovations.bmj.com/content/7/3/564?): AI predicting post-PCI complications

Rubi Hochland

Diagnosis: Severe aortic stenosis

Treatment: Successful transcatheter aortic valve replacement (TAVR)

"From start to finish, I felt confident that I was in good hands."

"I was referred to Samin K. Sharma, MD, by my cardiologist after a CT scan revealed I needed an aortic valve replacement. I had gone in because I was having trouble breathing when I walked more than a couple of blocks. The shortness of breath felt different from what I had experienced before with other conditions.

"The improvement after the procedure was immediate. The breathlessness I had been living with seemed to disappear overnight. I felt great the very next day.

"The recovery process was a little uncomfortable—mainly because I had to stay in bed for a day, which made me restless—but it wasn't because of the procedure itself. The care team made sure I understood everything beforehand, which really helped ease my mind.

"Because of my history of smoking, I wasn't a candidate for the standard approach, where the valve is inserted through the groin. Instead, Dr. Sharma used an alternative method through my shoulder. I was told this would be more complex, but he made it look routine.

"I was very impressed by Dr. Sharma and his entire team. They were professional, attentive, and clear in their communication. And to have a valve replacement and be discharged the next day—that speaks volumes about the quality of care at Mount Sinai.

"I'm truly grateful to Dr. Sharma and the staff at Mount Sinai. From start to finish, I felt confident that I was in good hands. The difference this has made in my daily life is remarkable."

Latest Advancement in Peripheral Arterial Disease Intervention

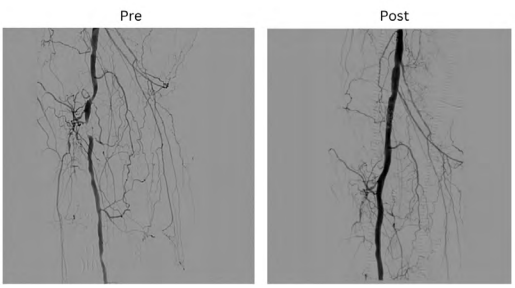
VISHAL KAPUR, MD

Peripheral artery disease (PAD) is an atherosclerotic disease characterized by the formation of atherosclerotic plaque that causes narrowing of the arteries and poor perfusion to the limbs which can progress to arterial occlusion. PAD is associated with impaired functional status, poor quality of life, and an increased rate of cardiovascular morbidity and mortality. Risk factors include smoking, diabetes, hypertension, and dyslipidemia.

There have been significant advancements in the management of PAD. The Mount Sinai Hospital has been at the forefront of the advancements of management of PAD. One of the most important advancements in the management of critical limb ischemia (CLI) was the successful development and use of everolimus-eluting resorbable scaffold (Abbott Esprit™ BTK System). Mount Sinai was one of the sites for LIFE-BTK study and the largest recruiter of patients in this trial. Mount Sinai's Vascular and Endovascular Surgery Division was the first in North America to use the newly approved device. LIFE-BTK was a multicenter, randomized, controlled trial; 261 patients with chronic limb-threatening ischemia (CLTI) and infrapopliteal artery disease (IPAD) were randomly assigned in a 2:1 ratio to receive treatment with an everolimus-eluting resorbable scaffold or angioplasty. The primary efficacy endpoint was freedom from the following events at one year: amputation above the ankle of the target limb; occlusion of the target vessel; clinically driven revascularization of the target lesion; and binary restenosis of the target lesion. The primary safety endpoint was freedom from major adverse limb events at six months and from perioperative death. Among patients with CLTI due to IPAD, the use of an everolimus-eluting resorbable scaffold was superior to angioplasty with respect to the primary efficacy endpoint. The advantage of these scaffolds is that they undergo resorption over time, which facilitates vessel remodeling and potentially reduces the late complications associated with permanent metal stents.

There have been significant advancements in the management of PAD.

In addition, there has been extensive research of using sirolimus drug-coated balloons (DCB) in both above and below the knee disease. In the SIRONA trial, presented at Transcatheter Cardiovascular Therapeutics 2024, (SIRONA; 19 Down), investigators put several paclitaxel DCBs and a sirolimus DCB (MagicTouch, Concept Medical) head-to-head and found little difference in primary patency and no differences



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2. SIRONA trial presented at TCT 2024.

in the composite of clinically driven target vessel revascularization, major target limb amputation, and device- or procedure-related death at one year. The trial will follow patients for five years and is expected to fill some knowledge gaps, including how sirolimus can best be utilized in BTK lesions and long-term safety differences in comparison with paclitaxel.

The field of endovascular intervention in the management of PAD is rapidly evolving with new advancements in treatment modalities such devices and technologies. Mount Sinai is at the forefront of the growing academic field and fully invested in the treatment of patients with PAD.

Sandra Sanchez

Diagnosis: Peripheral arterial disease

Treatment: Successful stenting of tibial artery of both legs

"At Mount Sinai, I never feel like just a number. I can send photos or questions by text and get a response right away."

"I first went to Mount Sinai in 2017 after I had a heart attack. I was transferred there for an emergency stent procedure, and from the moment I arrived, the care and service I received were unmatched. I honestly don't know why anyone would choose to go anywhere else.

"In January 2025, I returned to Mount Sinai for another procedure—this time for a blocked artery in my right leg. I had been experiencing pain while walking, and as someone living with diabetes, I knew I needed to get it checked out. Vishal Kapur, MD, performed the procedure, and he was absolutely wonderful. I only had to stay overnight, and my recovery was quick and smooth. Best of all, the pain in my right leg went away completely.

"Recently, I started having similar pain in my left leg and knew I'd need another artery cleared. I had an upcoming trip planned, and while I could have had the procedure done at another hospital sooner, I chose to wait until I returned—because I want Dr. Kapur to do it. That's how much I trust him and the team at Mount Sinai. There is simply nowhere else I'd rather go for my care.

"What also stands out to me is how easy and efficient the experience has been. I remember going with my mother to appointments years ago and sitting in waiting rooms for hours. At Mount Sinai, I never feel like just a number. I don't wait long to be seen, and I even have direct communication with my doctor. I can send photos or questions by text and get a response right away.

"To me, that level of care and connection makes all the difference. Mount Sinai truly sets the standard—and I wouldn't go anywhere else."

The Growing Need for Venous Interventions

RAMAN SHARMA, MD

Venous insufficiency is a progressively prevalent condition affecting millions worldwide. As sedentary lifestyles, obesity rates, and aging populations increase, so does the incidence of venous disorders. Chronic venous insufficiency (CVI) occurs when veins in the legs fail to efficiently return blood to the heart, leading to symptoms such as swelling, pain, varicose veins, and, in severe cases, venous ulcers. Advances in minimally invasive procedures—such as radiofrequency ablation (RFA), foam sclerotherapy, and iliac vein stenting—address the growing demand for effective, long-lasting treatment options.

Superficial venous insufficiency primarily affects the great saphenous and small saphenous veins, leading to varicose veins and venous reflux. Traditional surgical treatments, such as vein stripping, have largely been replaced by minimally invasive procedures like RFA and foam sclerotherapy.

RFA is a catheter-based technique that delivers thermal energy to the vein wall, causing it to collapse and eventually be reabsorbed by the body. This procedure is highly effective, with success rates exceeding 95 percent, minimal downtime, and reduced post-procedural complications compared to traditional surgery.

Foam sclerotherapy involves injecting a specialized foam sclerosant into the diseased vein, triggering an inflammatory response that closes the vein. This treatment is beneficial for smaller veins and residual varicose veins after RFA. Both techniques offer patients quicker recovery times and improved quality of life, making them the preferred treatment options for superficial venous insufficiency.

Iliac vein compression syndrome (also known as May-Thurner syndrome) occurs when the iliac artery compresses the iliac vein, restricting blood flow and increasing the risk of deep vein thrombosis (DVT) and chronic venous congestion. Many cases go undiagnosed, but with improved imaging techniques, there is a growing recognition of this condition, leading to increased demand for treatment. Iliac vein stenting is a minimally invasive solution in which a stent is placed within the compressed vein to restore proper blood flow. This intervention significantly reduces symptoms such as leg swelling, pain, and venous ulcers, offering long-term relief with high success rates.

Advances in minimally invasive procedures—such as radiofrequency ablation (RFA), foam sclerotherapy, and iliac vein stenting—address the growing demand for effective, long-lasting treatment options.

With an increasing number of patients living with venous insufficiency and iliac vein compression, these advanced treatments play a crucial role in modern vascular care, providing effective, safe, and lasting relief for those affected.

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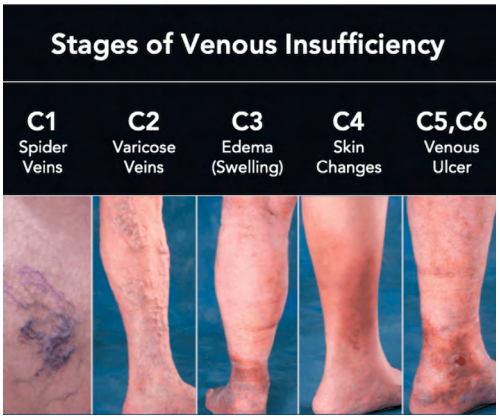

Figure 1: Stages of venous insufficiency.

Figure 2: Before and after of iliac vein stenting for iliac vein compression syndrome and RFA/foam sclerotherapy for superficial venous insufficiency.

Robert Huber

Diagnosis: Chronic superficial venous insufficiency

Treatment: Radiofrequency ablation and foam sclerotherapy

"I can walk more freely, rest more comfortably, and enjoy everyday life again."

"Heart disease runs in my family, so I've always tried to be mindful of my health. For more than two years, I had been dealing with painful varicose veins in my legs. The discomfort made it difficult to walk and interfered with my sleep. Some nights, I couldn't sleep at all. My wife became concerned—not just about the pain, but about the risk of blood clots. She encouraged me to get it looked at.

"At the beginning of this year, my cardiologist referred me to Mount Sinai and to Raman Sharma, MD. From my first appointment, Dr. Raman Sharma took the time to explain my condition and what the treatment would involve. He made sure I understood the process and answered all my questions, which helped ease my anxiety.

"Dr. Raman Sharma scheduled four outpatient procedures. I was awake for each one, which made me nervous at first, but he talked me through every step—before, during, and after. Each procedure lasted about 20 minutes. Because of how comfortable he made the first experience, I felt much more at ease for the remaining three.

"After every treatment, I was able to go home the same day. My pain afterward was mild—just a bit of soreness for a day or two. But I noticed a difference almost immediately. My legs felt lighter, and I could move more easily. The pain that had kept me up at night for years was gone. I was finally sleeping through the night again.

"I can't say enough about the care I received at Mount Sinai. Dr. Raman Sharma and his team were professional, attentive, and kind throughout the entire process. Thanks to them, I'm no longer limited by pain. I can walk more freely, rest more comfortably, and enjoy everyday life again."

Indications for Atrial Septal Defects and Patent Foramen Ovale Closure

SAHIL KHERA, MD, AND PARASURAM KRISHNAMOORTHY, MD

Atrial septal defects (ASD) are birth defects leading to a hole in the wall that separates the upper chambers of the heart. In the United States, 1 in 1,800 babies are born with an atrial septal defect. Genetic and environmental factors are often implicated. In many cases, these are not recognized until later in adult life when patients present with difficulty breathing, exertional shortness of breath, palpitations, swelling of legs, or stroke. ASDs may also lead to dilation of the right sided chambers of the heart without causing any symptoms. Some patients may also need cardiac CT scan or cardiac MRI for further evaluation of these defects. They can be managed either surgically or percutaneously using a transcatheter approach.

Patent Foramen Ovale (PFO) is a small tunnel-like opening between the upper chambers of the heart. PFO is a normal part of fetal circulation and closes soon after birth. However, it remains patent in 25-30 percent of the adult population. In some patients, PFOs can have abnormal blood flow and serve as conduits for blood clots. These clots travel from the right side to the left side of the heart. They can lead to strokes if lodged in the brain vasculature. Rarely, PFOs may be implicated in decompression sickness or bends in recreational and professional underwater divers. These defects can be percutaneously closed after careful evaluation of the presenting history and an echocardiogram.

Our structural heart program has extensive experience in managing patients with ASDs or PFOs. We currently offer two commercially available transcatheter closure devices: Gore Cardioform and Abbott Amplatzer. Once referred, our team will determine if any further testing (right heart catheterization, transesophageal echocardiography, cardiac CT, or cardiac MRI) is indicated. The procedure time is 15 minutes to one hour depending on the complexity of the case. The closure device is delivered through a tiny incision in the right groin vein and most of our patients go home within a few hours or the following morning. We routinely recommend dual antiplatelet therapy or oral anticoagulation for 3-6 months followed by low dose aspirin indefinitely. Patients can return to regular activity soon after the procedure.

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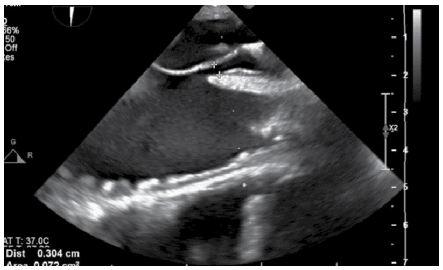

Figure 1: Patent Foramen Ovale in a young patient with recent stroke.

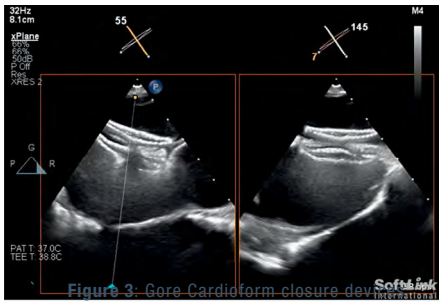

Figure 2: After transcatheter closure of the PFO.

Figure 3: Gore Cardioform closure devices.

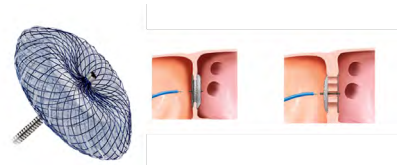

Figure 4: Abbott Amplatzer Talisman occluder.

Managing Intense Learning With Motivation, Relaxation, and Physical Fitness

TUSHAR MISHRA, MD, AND FRANK KALABA, MD

In the world of interventional cardiology, there is a perpetual pursuit of perfection. Each year, the Mount Sinai Cardiac Catheterization Laboratory—arguably one of the busiest in the world—welcomes a cohort of rigorously selected cardiologists, who enter a high-stake and intense environment. Fellows are guided by a curriculum and protocols that have been refined over decades. They absorb the latest advances in medical literature while benefiting from the vast experience of faculty mentors. It is a privilege to be part of such a well-oiled machine, where every team member—from administration to faculty, nurses, and technicians—embodies technical prowess and an unwavering commitment to excellence.

Motivation in this environment often comes from the people around us. Watching a robust team of seasoned faculty—led by Samin K. Sharma, MD, and Annapoorna S. Kini, MD—navigate challenging cases with calm precision inspires confidence. The outcomes we achieve for patients, especially those considered too high-risk elsewhere, are unparalleled and reinforce why we push ourselves daily. Training in this field is a gradual process, akin to the slow movement of an hour hand or the steady growth of a tree. Progress isn't always immediately visible, but with dedication and the reassurance of our mentors, we witness it happening.

With such rigorous training, both physical and mental challenges are expected. To help us navigate these demands, the program has incorporated a variety of wellness initiatives. Structured rotations provide balance, allowing for recovery and reflection. The fellows room is outfitted with exercise equipment, so we can utilize our free time effectively. The program provides a professional-grade massage chair, shown to reduce stress and prevent injury. We have regular mindfulness sessions—led by Monica Jain, PT, DPT, author of *Healing the Heart Mindfully*, who guides us through meditation and relaxation techniques. And, recognizing the importance of nutrition, the program ensures access to healthy food options, reinforcing the idea that we are, quite literally, made of the food we eat.

In an environment where both physical and mental endurance are tested daily, these measures make a world of difference.

One of the most rewarding aspects of fellowship is the camaraderie and lasting friendships we build. Weekends often lead to meetups. Small gestures, like birthday celebrations, remind us to stay grounded amid our demanding work schedules.

In an environment where both physical and mental endurance are tested daily, these measures make a world of difference. By prioritizing motivation, relaxation, and fitness, we are not just surviving our training—we are thriving.

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Research and Clinical Trials

Study Title	Study Details	Sponsor	Principal Investigator(s) at MSH	Target Enrollment and Study Sites	Current Status/ Enrollment at MSH
PROTECT-IV Trial	Impella®- Supported PCI in High-Risk Patients With Complex Coronary Artery Disease and Reduced Left Ventricular Function: The PROTECT IV Trial	Abiomed Inc.	S. Sharma	1,252 (Global) 120 centers	Ongoing/ 68 randomized and 18 in registry
PICANTE Trial	Pivotal Trial of the KARDION Cory P4 Mechanical Circulatory Support System	Kardion	S. Sharma	450 (USA) 42 centers	Ongoing/ 14 subjects enrolled
SELUTION 4 DeNovo	Randomized Single-Blind Multicenter Study to Assess the Safety and Effectiveness of the SELUTION DEB in De Novo Coronary Lesions in Small Vessels	Med Alliance	S. Sharma	470 (Global) 52 Centers	Ongoing/ 35 subjects enrolled
MAGICAL ISR	Randomized Clinical Trial: MagicTouch Sirolimus-Coated Balloon for Treatment of Coronary Artery Lesiosn wtih In-Stent Restenosis	Concept Medical	A. Kini	450 (USA) 48 Centers	Ongoing/ 1 subject enrolled
ENVISION IDE	Evaluation of the Navitor Transcatheter Heart Valve in Low and Intermediate Risk Severe, Symptomatic	Abbott	S. Khera	750 (Global) 70 Centers	Ongoing/ 2 subjects enrolled

Study Title	Study Details	Sponsor	Principal Investigator(s) at MSH	Target Enrollment and Study Sites	Current Status/ Enrollment at MSH
PROTEMBO IDE	Cerebral Protection in Transcatheter Aortic Valve Replacement: The PROTEMBO Trial	Protembis GmbH	S. Sharma	150 (USA) 46 Centers	Ongoing/ 5 subjects enrolled
Complete TAVR	The COMPLETE TAVR Study: A Randomized, Comparative Effectiveness Study of Staged Complete Revascularization with Percuatneous Coronary Intervention to Treat Coronary Artery Disease vs Medical Management Alone in Patients with Symptomatic Aortic Valve Stenosis undergoing Elective Transfemoral Transcatheter Aortic Valve Replacement	The University of British Columbia	S. Sharma	4,000 120 Centers	Ongoing/ 8 subjects enrolled
ACCESS MANTA Registry	Prospective Clinical Registry evaluating contemporary MANTA Outcomes	Teleflex	S. Khera	250 10 centers	Ongoing/ 13 subjects enrolled
Disrupt PAD BTK II	Prospective, multi-center, single-arm study of the Shockwave Medical Peripheral Intravascular Lithotripsy (IVL) System for Treatment of Calcified Peripheral ARterial Disease (PAD) in Below-the-Knee (BTK) Arteries	Shockwave Medical	P. Krishnan	225 patients 65 global centers	Ongoing/ 10 subjects enrolled
GORE VBX	A Comparison of the GORE VIABAHN VBX Balloon Expandable Endoprosthesis to Bare Metal Stenting for Patients with Complex Iliac Occlusive Disease	Gore VBX	P. Krishnan	450 (USA) 52 centers	Ongoing/ 9 subjects enrolled

Top Ten Major Publications of 2024

IMPACT FACTOR: 24

1. Drug-Coated Balloons for the Treatment of Coronary Artery Disease: A Review

Camaj A, Leone PP, Colombo A, Vinayak M, Stone GW, Mehran R, Dangas G, Kini A, Sharma SK. Drug-Coated Balloons for the Treatment of Coronary Artery Disease: A Review. *JAMA Cardiol.* 2024 Dec 23. doi: 10.1001/jamacardio.2024.4244. Epub ahead of print. PMID: 39714903.

The ability to effectively deliver antiproliferative agents to the coronary vessel wall in the absence of a permanent foreign body is appealing in many scenarios. The role of DCB angioplasty has been well established for the treatment of ISR and encouraging data are available for multiple additional scenarios within the PCI panorama including small vessels, long lesions, and bifurcations. DCB safety and efficacy profiles are device specific, and an appropriate lesion preparation strategy should regularly be implemented to optimize DCB outcomes. Ongoing RCTs will determine the optimal role of these novel devices as treatment alternatives for patients with CAD.

IMPACT FACTOR: 7.6

2. Rotational Atherectomy Combined with Cutting Balloon to Optimize Stent Expansion in Calcified Lesions: The ROTA-CUT Randomized Trial

Sharma SK, Mehran R, Vogel B, Hooda A, Sartori S, Hanstein R, Feng Y, Shlofmitz RA, Jeremias A, Spirito A, Cao D, Shlofmitz E, Ali ZA, Yasumura K, Minatoguchi S, Vengrenyuk Y, Kini A, Moses JW. Rotational atherectomy combined with cutting balloon to optimise stent expansion in calcified lesions: the ROTA-CUT randomised trial. *EuroIntervention.* 2024 Jan 1;20(1):75-84. doi: 10.4244/EIJ-D-23-00811. PMID: 38165112; PMCID: PMC10756220.

Rotational atherectomy combined with cutting balloon to optimize stent expansion in calcified lesions: the ROTA-CUT randomized trial. EuroIntervention, 20(1), 75–84. We aimed to investigate whether combining rotational atherectomy (RA) with cutting balloon angioplasty (RA+CBA) results in more optimal stent expansion compared with RA followed by non-compliant balloon angioplasty (RA+NCBA). Combining RA with CBA resulted in a similar minimum stent area compared with RA followed by NCBA in patients undergoing PCI of moderately or severely calcified lesions. RA followed by CBA was safe with rare procedural complications and few clinical adverse events at 30 days.

IMPACT FACTOR: 11.7

3. Predictors of Suboptimal Lumen Expansion Following Intravascular Lithotripsy for Coronary In-Stent Restenosis

Yasumura K, Koshy AN, Vengrenyuk Y, Minatoguchi S, Hooda A, Sharma R, Kapur V, Sweeny J, Sharma SK, Kini AS. Predictors of Suboptimal Lumen Expansion Following Intravascular Lithotripsy for Coronary In-Stent Restenosis. *JACC Cardiovasc Interv.* 2024 Jan 22;17(2):323-325. doi: 10.1016/j.jcin.2023.10.025. Epub 2023 Oct 23. PMID: 37902154.

In this study, we evaluated the impact of IVL on these ISR phenotypes using IVI and identified predictors of suboptimal luminal expansion (SLE). In conclusion, our findings enhance the understanding of appropriate IVL use for ISR lesions, and offer insights to optimize treatment strategies.

IMPACT FACTOR: 11.7

4. Systematic Proximal Optimization Technique During Bifurcation Stenting: Where Is the Evidence?

Giustino G, Sharma SK, Kini A. Systematic Proximal Optimization Technique During Bifurcation Stenting: Where Is the Evidence? *JACC Cardiovasc Interv.* 2024 Mar 25;17(6):801-806. doi: 10.1016/j.jcin.2024.01.071. PMID: 38538176.

We comprehensively review the procedural technique to perform POT, its effect in *in vitro* models, and clinical data, and we propose a practical treatment algorithm to guide its use in clinical practice. POT is a useful strategy to reduce proximal MV stent malapposition and facilitate optimal SB wiring. POT should be seen as complementary to KBI in order to achieve the optimal stent geometry based on the underlying coronary anatomy. Although bench data are helpful to understand the mechanistic components of poststenting optimization techniques, more data from *in vivo* RCTs are needed to evaluate the long-term outcomes of different combinations of optimization strategies during bifurcation stenting.

IMPACT FACTOR: 3.7

5. Stellarex Drug-Coated Balloon for the Treatment of Peripheral Artery Disease: Five-Year Results From the ILLUMENATE Pivotal Randomized Controlled Trial

Krishnan P, Faries P, Niazi K, Sachar R, Jain A, Brodmann M, Werner M, Holden A, Tarricone A, Tarra T, Lyden S. Stellarex Drug-Coated Balloon for the Treatment of Peripheral Artery Disease: Five-Year Results from the ILLUMENATE Pivotal Randomized Controlled Trial. *Am J Cardiol.* 2024 Sep 15;227:83-90. doi: 10.1016/j.amjcard.2024.06.027. Epub 2024 Jul 15. PMID: 39019203.

This study aimed to report the five-year outcomes from the ILLUMENATE Pivotal randomized controlled trial of the lower dose (2 µg/mm2) Stellarex drug-coated balloon (DCB) (Philips, formerly Spectranetics Corp, Colorado Springs, Colorado) compared with percutaneous

transluminal angioplasty (PTA) for the treatment of symptomatic peripheral arterial disease. In conclusion, there is a scarcity of data in the literature regarding the long-term safety and efficacy of DCBs, particularly those with a lower dose (2 µg/mm2) paclitaxel coating. To date, this is the longest report to examine the safety and effectiveness of a lower dose (2 µg/mm2) DCB for the treatment of symptomatic femoropopliteal PAD. At five years, there was no difference reported in CD-TLR between patients treated with the Stellarex DCB and PTA.

6. Outcomes for Patients With Chronic Limb-Threatening Ischemia After Direct and Indirect Endovascular and Surgical Revascularization: A Meta-Analysis and Systematic Review

Krishnan P, Faries P, Niazi K, Sachar R, Jain A, Brodmann M, Werner M, Holden A, Tarricone A, Tarra T, Lyden S. Stellarex Drug-Coated Balloon for the Treatment of Peripheral Artery Disease: Five-Year Results from the ILLUMENATE Pivotal Randomized Controlled Trial. *Am J Cardiol.* 2024 Sep 15;227:83-90. doi: 10.1016/j.amjcard.2024.06.027. Epub 2024 Jul 15. PMID: 39019203.

IMPACT FACTOR: 1.7

The purpose of this review and meta-analysis is to determine the clinical outcome differences between patients with chronic limb-threatening ischemia who underwent direct versus indirect angiosome revascularization using either the surgical or endovascular approach. Direct revascularization is associated with improved amputation-free survival, overall survival, and wound healing in chronic limb-threatening ischemic patients compared to the indirect approach.

7. Risk Factors of Ischemic Stroke in Patients With Atrial Fibrillation After Transcatheter Aortic Valve Implantation From the Randomized ENVISAGE-TAVI AF Trial

Hengstenberg C, Unverdorben M, Möllmann H, Van Mieghem NM, Thiele H, Nordbeck P, Rassaf T, Moreno R, Mehran R, Jin J, Lang I, Veltkamp R, Dangas GD. Risk Factors of Ischemic Stroke in Patients With Atrial Fibrillation After Transcatheter Aortic Valve Implantation from the Randomized ENVISAGE-TAVI AF Trial. *Am J Cardiol.* 2024 Sep 15;227:98-104. doi: 10.1016/j.amjcard.2024.07.019. Epub 2024 Jul 18. PMID: 39032588.

IMPACT FACTOR: 3.7

Ischemic stroke incidence was low for patients with atrial fibrillation on edoxaban or vitamin K antagonist (VKA) after transcatheter aortic valve implantation (TAVI). Most ischemic stroke events occurred ≤180 days of TAVI (edoxaban: 58%; VKA: 68%). Prior systemic embolic events or pre-TAVI use of VKAs may lead to higher ischemic stroke risk after TAVI. Risk factors for ischemic stroke should be considered with anticoagulation after TAVI.

8. *In Vivo* Frame Geometry of the Navitor Intra-Annular Self-Expanding Valve: A First-in-Human CT Analysis

Tang, G, Kobari, Y, Vinayak, M. et al. *In Vivo* Frame Geometry of the Navitor Intra-Annular Self-Expanding Valve: A First-in-Human CT Analysis. *J Am Coll Cardiol Intv.* 2025 Jan, 18 (1) 138–140. https://doi.org/10.1016/j.jcin.2024.10.041

IMPACT FACTOR: 11.7

Our study suggests that the native annular dimensions may be used to model the index Navitor TAV on CT to predict redo TAVR feasibility. Of course, *in vivo* CT analysis remains critical to evaluate redo TAVR feasibility, as the final implant depth and expansion would likely be different from those in CT simulations. Our study is also limited by its relatively small sample size and the lack of CT core lab for analysis. Larger-scale post-Navitor CT studies would confirm our current study hypothesis.

9. Commissural vs Coronary Alignment to Avoid Coronary Overlap With THV-Commissure in TAVR: A CT-Simulation Study

Vinayak, M, Tang, G, Li, K. et al. Commissural vs Coronary Alignment to Avoid Coronary Overlap With THV-Commissure in TAVR: A CT-Simulation Study. *J Am Coll Cardiol Intv.* 2024 Mar, 17 (6) 715–726. https://doi.org/10.1016/j.jcin.2024.01.073

IMPACT FACTOR: 11.7

Using CT simulation, the incidence of coronary overlap with transcatheter heart valve-commissure is rare with commissural alignment. Coronary alignment reduced right coronary overlap, whereas commissural alignment had higher rates of no left coronary overlap. Coronary alignment should be reserved only when commissural alignment results in severe coronary overlap.

10. Self-Expanding or Balloon-Expandable TAVR in Patients With a Small Aortic Annulus

Herrmann HC, Mehran R, et. al; SMART Trial Investigators. Self-Expanding or Balloon-Expandable TAVR in Patients with a Small Aortic Annulus. *N Engl J Med.* 2024 Jun 6;390(21):1959-1971. doi: 10.1056/NEJMoa2312573. Epub 2024 Apr 7. PMID: 38587261.

IMPACT FACTOR: 96.2

Among patients with severe aortic stenosis and a small aortic annulus who underwent TAVR, a self-expanding supraannular valve was noninferior to a balloon-expandable valve with respect to clinical outcomes and was superior with respect to bioprosthetic-valve dysfunction through 12 months. (Funded by Medtronic; SMART ClinicalTrials.gov number, NCT04722250.)

Samin K. Sharma, MD, FACC, MSCAI

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Senior Vice President, Operations and Quality, Mount Sinai Fuster Heart Hospital
Director, Interventional Cardiology, Mount Sinai Health System
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Anandi Lal Sharma Professor of Medicine (Cardiology)

Clinical Interests:

Interventional Cardiology

Atherectomy

Valvular Intervention

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Samin K. Sharma, MD, is a renowned interventional cardiology expert well known for performing high-risk complex coronary interventions (more than 1,500 interventions per year) with an extremely high success rate (greater than 99 percent) while achieving an extremely low major complication rate (less than 0.2 percent). He has received the prestigious two-star designation (significantly lower than expected mortality) numerous times from the New York State Department of Health, and the Governor's Award of Excellence in Medicine in 1996. He served on New York State's Cardiac Advisory Board from 2004–2016.

Under Dr. Sharma's leadership, The Mount Sinai Hospital Cardiac Catheterization Laboratory has become one of the safest and busiest centers in New York, providing state-of-the-art cardiac and interventional care for all types of simple and complex heart patients. Dr. Sharma specializes in the nonsurgical treatment of mitral and aortic valve disease, including transcatheter aortic valve replacement (TAVR) and MitraClip™ procedures (TEER).

He has been dubbed "master of the Rotablator" and is regularly featured on national and local TV (recently on CBS, TV Asia), and in newspapers and magazines including *Newsday, Newsweek, The New York Times, The New York Post, Forbes, The Wall Street Journal, The New York Daily News, The Washington Post, New York Magazine, India Abroad,* and *India Today*. He has received numerous awards: 2024 Lifetime Achievement Award by Federation of Indians in America (FIA); Trailblazer Award by Indian-American Arts Council (IAAC); 2024 Distinguished Scientist Award; AAPI World Health Congress; 2023 Master Operator by India Live Conference, 2021-2022 Chief Guest; Times Square, Diwali Celebration; 2018 Chairman Board of Trustees, Association of Indians in America (AIA); 2015 Honorary Master of Science PhD degree by Rajasthan University Jaipur India; 2014 Distinguished Physician Scientist by AAPI-QLI for excellence in Medicine; 2011 Ellis Island Medal of Honor; 2011 American Heart Association Achievement in Cardiovascular Science & Medicine Award; 2011 American Association of Physicians of Indian Origin (AAPI) Physician of the Year; 2010 AIA for Excellence in Medicine; 2003–2007 and 2010–2024 Best Doctors by *New York Magazine*; 2008–2024 Super Doctors; 2007 Jacobi Medallion Award by The Mount Sinai Hospital; 2007 Physician of the Year by The Mount Sinai Hospital; and 2000 Simon Deck Award for Outstanding Teacher of the Year.

Under Dr. Sharma's leadership, The Mount Sinai Hospital Cardiac Catheterization Laboratory has become one of the safest and busiest centers in New York, providing state-of-the-art cardiac and interventional care for all types of simple and complex heart patients.

He has authored more than 410 papers and 16 book chapters in the field of coronary interventions, structural heart disease, and safety of percutaneous interventions. He is also a philanthropist, and The Mount Sinai Hospital Cardiac Catheterization Laboratory is named the Dr. Samin K. Sharma Family Foundation Cardiac Catheterization Laboratory. Dr. Sharma has built a 250-bed heart hospital, the Eternal Heart Care Center in his native Jaipur, India, to provide the best care to all patients irrespective of their financial and social status.

His live monthly webcast series, CCC Live Cases (www.ccclivecases.org), started in 2009, and has an audience of more than 25,000 viewers each month in 179 countries.

He also enjoys teaching other cardiologists and improving patient outcomes with his annual Complex Coronary Cases (CCC) Symposium and numerous other major scientific meetings, conferences, and live relays.

VIEW MOUNT SINAI PROFILE

Annapoorna S. Kini, MD, MRCP, FACC

Director, Cardiac Catheterization Laboratory
Interventional Director, Structural Heart Program, Mount Sinai Health System
Director, Interventional Cardiology Fellowship Program
Zena and Michael A. Weiner Professor of Medicine

Clinical Interests:

Intravascular Imaging

Interventional Cardiology: CTO

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Annapoorna S. Kini, MD, is internationally acclaimed for her special expertise in performing complex coronary interventions, especially in chronic total occlusion for patients with advanced coronary artery disease, high-risk interventional cases, and alcohol septal ablation for the treatment of obstructive hypertrophic cardiomyopathy. Dr. Kini has been the principal or co-investigator in numerous randomized clinical trials. She has extensive experience with mitral and aortic balloon valvuloplasty, and has been among the first few interventional cardiologists in the country to use the transcutaneous aortic valve implantation procedure in the treatment of inoperable patients with critical aortic stenosis. She has also made history by performing the first live case performed entirely by women during the CRT meeting on March 5, 2018.

Dr. Kini performs more than 1,000 coronary interventions annually, the highest number by a female interventionist in the United States, with an extremely low complication rate of less than 0.3 percent. An official report from The New York State Department of Health recognized Dr. Kini as the safest operator among 350 other physicians in the state of New York numerous times (2004–2016). She is the recipient of 2011 Dean's Award for Excellence in Clinical Medicine at The Mount Sinai Hospital. She also received the Physician of the Year award in 2014 from The Mount Sinai Hospital nurses. She received the Excellence in Medicine Award from the National Association of Physicians of India (AAPI) in July 2016. In May 2017, she received the prestigious Ellis Island Medal of Honor, the highest award given to any immigrant civilian, and in 2018 she received the American Heart Association's Heart of Gold Award. Dr. Kini is the recipient of the "Rock Star of Science" award from the American Heart Association. She is a member of the Royal College of Physicians of London, and Fellow of the American College of Cardiology.

Dr. Kini led the YELLOW I, II, and III studies, which employed imaging modalities and transcriptomies to understand the impact of aggressive lipid-lowering therapies on coronary plaque composition and stability. Her work has significantly advanced our understanding of atheroscrosis progression.

Dr. Kini is the highest volume female interventionist in the United States, with an extremely low complication rate of less than 0.3 percent.

In the digital field, Dr. Kini has led the development of 12 free educational applications. She has also created a mobile app-based chair yoga program for her recent SLYM II trial, and is developing a patient experience and education platform called TAVRbot for structural heart patients. Her recent STEMIcathAID piloted at Mount Sinai Queens has been working to reduce the device time to reprofusion on vulnerable heart attack patients since July 2021. Dr. Kini is an excellent teacher, and is dedicated to the teaching of both cardiology and interventional fellows. In fact, the 2012 batch of Mount Sinai interventional fellows created a teaching award in her name, "The Annapoorna S. Kini Fellows' Choice Award" for excellence in teaching. Her achievements are not limited to serving as the Director of the Annual Live Symposium of Complex Coronary Cases at The Mount Sinai Hospital, one of the most attended and respected meetings in the field of interventional cardiology in the country. She is also the director of a monthly webcast program, **CCC Live Cases** (www.ccclivecases.org), which started in 2009 and has an audience of more than 25,000 in 179 countries.

VIEW MOUNT SINAI PROFILE

Prakash Krishnan, MD, FACC

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Associate Professor of Radiology

Clinical Interests:

Interventional Cardiology

Endovascular Intervention

Carotid Stenting

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Prakash Krishnan, MD, is a world-renowned expert in peripheral vascular disease and is internationally recognized as a leader in the catheter-based treatment of peripheral arterial disease. Dr. Krishnan's expertise includes nonsurgical treatment of coronary and peripheral vascular diseases, including coronary stents, peripheral vascular angioplasty and stents, atherectomy, carotid stents, renal stents, renal denervation, and complex venous disease intervention. Dr. Krishnan is a patient advocate and an educator. He has built a robust community-based outreach program that serves a vast population of patients with complex coronary and peripheral arterial disease. He also serves as the Director of Endovascular Services for the Mount Sinai Health System. Dr. Krishnan has been educating interventionalists globally via live satellite transmissions at national and international meetings, and with his live monthly webcast program showcased on www.ccclivecases.org. He served as the co-primary investigator in the ILLUMENATE Trial and is a leading authority in the performance of nonsurgical interventions for peripheral arterial disease. He has received numerous awards and honors, including, in 2018, The Reverend Dr. Martin Luther King Legacy Award for Physician Services from Clergy With a Purpose. In 2022, he was also recognized for his contributions in community service and honored by the Association of Indian Americans (AIA) at their annual gala event in September 2022, and this year at the House of Commons, British Parliament in London, he will be receiving the Bharat Gaurav Award, given to people with extraordinary excellence in their fields.

He has also served as editor of numerous textbooks on endovascular interventions and has authored numerous peer-reviewed articles and book chapters. He is co-director of the annual NY Endovascular Summit (NYEVS) and The Mount Sinai Endovascular Fellows Course.

Dr. Krishnan is an internationally established leader in education. He has been both innovative and progressive, and recognized the opportunity to reach thousands of physicians to help advance the understanding of techniques in the interventional treatment of peripheral arterial disease.

Dr. Krishnan is currently working as the Program Director for the Women as One Foundation's Peripheral Vascular Disease Clinical Program.

In 2012, Dr. Krishnan began to broadcast monthly Peripheral Interventions Live via CCC Live Cases, which has more than 25,000 views per month in 179 countries.

As a master educator, Dr. Krishnan started the Endovascular Fellowship program at Mount Sinai Fuster Heart Hospital in 2013. He was recognized with the Distinguished Teaching Award by the Interventional Fellows in June 2017, providing incomparable education in the field of peripheral arterial disease. The following year, he received the Mentorship in Endovascular Interventions Award by the Mount Sinai Interventional Cardiology Fellows. In 2018, he was nationally recognized by being named Co-Director of the annual Endovascular Fellows Course by SCAI (Society of Angiography and Interventions). He is currently working as the Program Director for the Women as One Foundation's Peripheral Vascular Disease Clinical Program to promote, educate, and support young women cardiologists to become leaders in the field of vascular disease and endovascular intervention.

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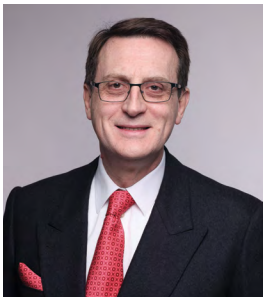
George D. Dangas, MD, PhD, MACC, MSCAI



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Professor of Medicine (Cardiology)

Professor of Surgery (Vascular)

Clinical Interests:

Interventional Cardiology

Valvular Heart Disease

Endovascular Intervention

George D. Dangas, MD, PhD, is Professor of Medicine (Cardiology), and Surgery at the Icahn School of Medicine at Mount Sinai; Director, Cardiovascular Innovation, at The Mount Sinai Hospital, and Chief of Cardiology at Mount Sinai Queens; Director of the Transcatheter Cardiovascular Therapeutics (TCT); Editor, *Interventional Cardiology: Principles and Practice* (Wiley Publishers, U.K.); and President of the Society for Cardiovascular Angiography & Interventions (SCAI) 2023–24. He is Immediate Past-Chair of the American Heart Association (AHA) Laennec Society and AHA Invasive Cardiology Committee.

Dr. Dangas is a leading authority in the performance of minimally invasive heart (coronary and valve disease) and vascular interventions, such as stent, angioplasty, atherectomy, and heart valve repair/replacement with both established and novel techniques.

After studies at National Kapodistrian University of Athens, he served as Medical Officer, Hellenic Navy (including Hyperbaric/Diving Medicine) and then trained in Internal Medicine at Brown University/Miriam Hospital; subsequently he was Fellow in Cardiology and Interventional Cardiology at Mount Sinai. Among the five founding physicians of the Cardiovascular Research Foundation in New York, he was key faculty at Lenox Hill Hospital and Columbia University Medical Center and led the establishment of Interventional Fellowship Programs in both. He is board certified in all the disciples he practices.

He is designated a Master of ACC and Master of SCAI, ACC Distinguished Fellow 2019, and ACC Distinguished Teacher 2017, and included in many Top/Super Doctors and WHO's WHO lists for more than 10 years.

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VIEW MOUNT SINAI PROFILE

Joseph M. Sweeny, MD, FACC

Medical Director, Ambulatory Cardiology Center

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Clinical Interests:

Coronary Microvascular Dysfunction

Fellows Education

Coronary Intervention

Joseph M. Sweeny, MD, performs both diagnostic cardiac catheterization and coronary interventions. He is the principal investigator of multiple national clinical trials and is actively involved in the Interventional Cardiology Fellowship Training Program as the Associate Program Director. In 2014, he became the Medical Director of the Lauder Ambulatory Cardiology Center, which provides comprehensive ambulatory care with all modalities of noninvasive cardiac testing in one central location.

With a special interest in treating post-heart transplant patients, Dr. Sweeny works closely with the Heart Transplant Team for coronary artery vasculopathy surveillance and endomyocardial biopsies in the Cardiac Catheterization Laboratory. In addition, he has a clinical interest in coronary microvascular disease and coronary physiology testing in the catheterization laboratory.

His research interests include coronary microvascular disease. Dr. Sweeny serves as an assistant editor/reviewer for the *Journal of the American College of Cardiology* and was the Site Principal Investigator for the NIH-sponsored Ischemia Trial. As the Associate Program Director for the Interventional Cardiology Fellowship program, he is actively involved in the selection, education, and mentoring of our interventional fellows.

Dr. Sweeny also serves as the Radiation Safety Officer for the Cardiac Catheterization Laboratory. In this role, he has developed protocols and processes for tracking and monitoring patient radiation dose during interventional procedures.

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VIEW MOUNT SINAI PROFILE

Pedro R. Moreno, MD, FACC

Director of Quality Assurance for Cardiology

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Professor of Medicine (Cardiology)

Clinical Interests:

Coronary Artery Disease

Interventional Cardiology

Plaque Imaging

Pedro R. Moreno, MD, is currently a Professor of Cardiology and Director of Quality Services at The Mount Sinai Hospital in New York. Dr. Moreno is Director for Academic Promotions in Cardiology for The Mount Sinai Hospital and Director of the Cardiology Fellowship Program at Brooklyn Hospital Center in New York.

Trained at Harvard Medical School (Massachusetts General Hospital and Brigham and Women's Hospital), Dr. Moreno is board certified in Cardiology, and Interventional Cardiology.

Dr. Moreno is a world-renowned expert in atherosclerosis and a pioneer in inflammation and acute coronary syndromes (ACS). Dr. Moreno described for the first time the role of macrophages in living patients with ACS. He also identified the role of macrophages and tissue factor, a membrane-bound protein responsible for the activation of coagulation *in vivo*, linking plaque rupture and coronary thrombosis. Dr. Moreno's pioneering work in near-infrared spectroscopy contributed to measuring lipids in plaques. His work in atherosclerotic animal modes of vulnerable plaques allowed for testing novel therapies as potential adjunctive treatment for vulnerable plaques.

Dr. Moreno received the prestigious double star award from the New York State Health Department for best interventionalist in the State of New York in 2012, 2019, and 2020. He is section editor of the *Journal of the American College of Cardiology*, and *Circulation: Cardiovascular Interventions,* two of the most prestigious journals in the world. Finally, he is an excellent teacher and a mentor of clinical and research fellows at the Mount Sinai Fuster Heart Hospital in New York City.

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VIEW MOUNT SINAI PROFILE

Roxana Mehran, MD, FACC, FESC, FAHA, MSCAI

Director, The Women's Heart and Vascular Center at Mount Sinai Fuster Heart Hospital

Director, Center for Interventional Cardiovascular Research and Clinical Trials

Endowed Mount Sinai Professor in Cardiovascular Clinical Research and Outcomes

Professor of Medicine (Cardiology) and Population Health Science and Policy

Clinical Interests:

Cardiovascular Disease in Women

Disparities in Care of Vulnerable Patients

Antithrombotic Therapy for Secondary Prevention

Roxana Mehran, MD, is an internationally renowned interventional cardiologist and clinical research expert in the field of cardiovascular disease. She has focused on personalized medicine and developed individual risk scores for bleeding and acute kidney injury, participates regularly in developing clinical guidelines, and has authored more than 1,800 peer-reviewed articles. Dr. Mehran currently serves as member and 2025–2026 Vice President on the Board of Trustees of The American College of Cardiology.

As a principal investigator for numerous global studies and a key member of clinical guidelines committees, Dr. Mehran's expertise is widely recognized. She founded the Cardiovascular Research Foundation and leads the Lancet Women and Cardiovascular Disease Commission, addressing research gaps in women's cardiovascular health. Dr. Mehran is Director of the Women's Heart and Vascular Center at Mount Sinai, where she pioneers interdisciplinary programs tailored to women's needs. Additionally, she established Women as One to empower women in medicine.

Dr. Mehran is a recipient of many awards including the Ellis Island Medal of Honor, the European Society of Cardiology Silver Medal, and Andreas Grüntzig Lecture plaque. In recent years, she received the Women in Cardiology Mentoring Award, and the Pulse-Setter Champion Award. In March 2024, she was honored with the Jacobi Medallion from Icahn School of Medicine at Mount Sinai.

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Vishal Kapur, MD, FACC, FSCAI, RPVI

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Assistant Director, Cardiac Catheterization Lab, The Mount Sinai Hospital

Associate Professor of Medicine (Cardiology)

Clinical Interests:

Coronary Interventions

Peripheral Interventions

Non-Invasive Vascular Medicine

Vishal Kapur, MD, is an interventional and endovascular cardiologist. He is board certified in the fields of cardiology, interventional cardiology, vascular medicine, and endovascular medicine, and has trained with world renowned experts in the field. He is an expert in catheter-based vascular therapy, specializing in endovascular management of acute and chronic arterial and venous disease. He is proficient in procedures such as coronary angioplasty, stenting, rotational atherectomy, angioplasty-stenting of carotid, renal, subclavian, mesenteric, Iliac, and lower extremities, IVC filter placement, thrombolysis, rheolysis thrombectomy in the management of acute limb ischemia, and deep vein thrombosis. He is also trained in performing venous ablation and sclerotherapy in the management of reticular and varicose veins. Dr Kapur has been at the forefront of the use of latest technologies such as renal denervation for resistant hypertension and use of below-the-knee bioresorbable scaffold in the management of patients with critical limb ischemia.

Dr. Kapur is an excellent teacher and educator with keen interest in complex coronary interventions and peripheral endovascular interventions. He has been an investigator in multiple trials and published numerous research articles in peer-reviewed renowned medical journals and written text book chapters. His research work has been presented at various national and international meetings, and he has been a co-investigator in various multi-center trials. Dr. Kapur remains committed to the field of cardiology and has an unrelenting dedication toward being an outstanding clinician, researcher, and teacher.

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Jeffrey Bander, MD, FACC

Chief of Cardiology, Mount Sinai West

Medical Director, Network Development, Mount Sinai Hospital Network

Associate Professor of Medicine (Cardiology)

Clinical Interests:

Clinical Cardiology

Cardiac Catheterization

Coronary Interventions

Jeffrey Bander, MD, is a prominent leader and innovator in health care and business, renowned for his expertise in building and scaling large health care projects and companies. Currently, he serves as Chief of Cardiology at Mount Sinai West and Medical Director of Network Development for the Mount Sinai Hospital Network, where he collaborates across departments to drive growth, streamline operations, and implement cutting-edge practices.

Dr. Bander's entrepreneurial acumen is evidenced by his founding of two successful health care companies, Providerloop and Referwell, both of which have continued to thrive. His experience spans numerous facets of health care, from clinical practice and department leadership to health care finance and information technology. Known for embracing transformative approaches, Dr. Bander also leads Mount Sinai's First Responders Hypertension Program, providing life-saving services to New York City firefighters and advancing cardiovascular prevention.

As a primary investigator on multiple clinical trials at Mount Sinai, Dr. Bander is at the forefront of integrating artificial intelligence, quantum sensing, and machine learning into cardiac care, aiming to redefine patient outcomes and enhance predictive diagnostics. His ability to bridge the gap between medical innovation and real-world application makes him a disruptive force in the health care landscape, continually seeking opportunities to improve patient care and streamline health care delivery.

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VIEW MOUNT SINAI PROFILE

Sahil Khera, MD, MPH, FACP, FACC, FSCAI

Interventional Director, Structural Heart Disease Program, The Mount Sinai Hospital

Physician Lead, ADS Cardiology Inpatient Service, MSH

Associate Professor of Medicine (Cardiology)

Clinical Interests:

Transcatheter Aortic Valve Replacement

Transcatheter Mitral Valve Repair/Replacement

Transcatheter Tricuspid Valve Repair

Left Atrial Appendage Occlusion (LAAO)

Sahil Khera, MD, joined Mount Sinai in 2019 after completing his fellowships in interventional cardiology at the Massachusetts General Hospital (Harvard Medical School, Boston) and structural heart disease interventions at New York Presbyterian Hospital (Columbia University Medical Center, New York).

He is actively involved in cardiovascular outcomes research, especially in the field of transcatheter valve therapies. Dr. Khera is a principal investigator or co-investigator in multiple coronary and structural heart clinical trials. He has authored or co-authored more than 150 peer reviewed manuscripts and frequently presents at various local, national, and international meetings. He has proctored globally in transcatheter aortic and mitral procedures and continues to train physicians in best transcatheter valve implantation techniques and building operational efficiency.

He has to his name a number of teaching and research awards, including the recent SCAI 30 in Their 30s and Mount Sinai Faculty Council award. His clinical focus includes an entire spectrum of transcatheter mitral and tricuspid valve therapies, transcatheter aortic valve replacement, ASD/PFO closure, paravalvular leak closure, and left atrial appendage closure, in addition to coronary interventions. He has performed more than 1,500 structural interventions to date.

His administrative focus is on cost-effectiveness of transcatheter therapies for heart diseases with a goal of optimizing efficiency and outcomes of a structural heart program with improved patient experience and satisfaction.

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VIEW MOUNT SINAI PROFILE

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Associate Director, Structural Heart Disease Program

Assistant Professor of Medicine (Cardiology)

Medical Director, Cardiac Catheterization Laboratory, Brooklyn Hospital Center

Associate Program Director, Mount Sinai Brooklyn Hospital Center Cardiology Fellowship

Clinical Interests:

Complex Coronary Interventions

Transcatheter Aortic Valve Replacement

Transcatheter Mitral and Tricuspid Valve Repair/Replacement

Paravalvular Leak Closure

ASD/PFO Closure

Parasuram Melarcode Krishnamoorthy, MD, is the Associate Director of Structural Heart Program at the Mount Sinai Fuster Heart Hospital and an Assistant Professor at the Icahn School of Medicine at Mount Sinai. He serves as the Medical Director of the Cardiac Catheterization Laboratory at the Brooklyn Hospital Center. He joined The Mount Sinai Hospital in 2018 for advanced training in interventional cardiology and structural heart interventions. He then continued to stay on as faculty. Dr. Krishnamoorthy is board certified in internal medicine, cardiovascular disease, interventional cardiology, comprehensive adult echocardiography, and nuclear cardiology.

His clinical focus is in complex percutaneous coronary interventions and structural heart interventions, particularly transcatheter aortic (TAVR), mitral (TMVR, M-TEER), and tricuspid valve (TTVR, T-TEER) therapies and ASD/PFO closure. He is actively involved in clinical research and has published more than 125 peer-reviewed manuscripts, abstracts, and book chapters. He is passionate about teaching fellows, residents, and medical students. He has received several awards, including the Dr. Madhukar Deshmukh Young Investigator award by the American Association of Cardiologists of Indian Origin, SCAI 30 in Their 30s award, and CRT Young Leadership Award. He is a Fellow of the American College of Cardiology, and Fellow of the Society for Cardiovascular Angiography and Interventions.

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VIEW MOUNT SINAI PROFILE

Gregory Serrao, MD, MSE

Director, Mechanical Circulatory Support, Cardiac Catheterization Laboratory

Assistant Program Director, Cardiovascular Disease Academic Track

Clinical Interests:

Cardiogenic Shock

Mechanical Circulatory Support

Cardiac Catheterization

Gregory Serrao, MD, is an Assistant Professor of Medicine (Cardiology) and Interventional Cardiology at The Mount Sinai Fuster Heart Hospital. He serves as Director of Mechanical Circulatory Support for the cardiac catheterization laboratory.

Dr. Serrao earned a Bachelor's of Science in Engineering at The Cooper Union for Advancement in Science and Art and a Master's of Science in Biomedical Engineering at Columbia FU Foundation School of Engineering. He then completed medical school at Icahn School of Medicine at Mount Sinai where he graduated with Distinction in Research for his work in cardiac tissue engineering. He was elected to both the Alpha Omega Alpha and Gold Humanism honor societies. Dr. Serrao completed his internal medicine residency at Columbia University's New York Presbyterian Hospital. He then completed a cardiology fellowship and interventional cardiology fellowship at The Mount Sinai Hospital, where he served as chief fellow in both programs.

Dr . Serrao is an expert in the management of critically ill patients and specializes in the implantation and management of percutaneous mechanical support for cardiac arrest, cardiogenic shock, pulmonary embolism, and respiratory failure.

Dr. Serrao also has a passion for teaching and has won numerous awards for his work as an educator. He serves as Director of the Inpatient Cardiology Teaching Service and as an Associate Program Director for the cardiology fellowship (academic track).

917-756-6852 | gregory.serrao@mountsinai.org

VIEW MOUNT SINAI PROFILE

Gilbert Tang, MD, MBA, FRCSC, FACC, FSCAI

Surgical and Academic Director, Structural Heart Program, Mount Sinai Health System

Director, Transcatheter Mitral and Tricuspid Interventions, Mount Sinai Health System

Professor and Vice Chair of Innovation, Cardiovascular Surgery

Professor of Medicine (Cardiology)

Clinical Interests:

Transcatheter Aortic and Mitral Valve Therapy

Transcatheter Tricuspid Repair and Replacement

Gilbert Tang, MD, is an interventional surgeon who specializes in structural heart disease and has performed thousands of transcatheter aortic valve replacement (TAVR), transcatheter mitral and tricuspid valve repair (transcatheter edge-to-edge repair, TEER), and transcatheter mitral and tricuspid valve replacement procedures (TMVR, TTVR). His 24/7 "concierge" model of care has been well received and recognized in the New York area.

Dr. Tang has achieved many "first" successes and lectures regularly in national and international meetings. He pioneered the concept of commissural alignment to better orient a transcatheter heart valve during TAVR. He serves on multiple steering and screening committees of international clinical trials, is on the Program Planning Committee of Society of Thoracic Surgeons (STS), New York Valves and Transcatheter Cardiovascular Therapeutics annual meetings, and has led workshops on multivalve disease and redo-TAVR with the Heart Valve Collaboratory (HVC). He is an elected member of the American Association for Thoracic Surgery (AATS) and the first surgeon elected to SCAI (Society for Cardiovascular Angiography and Interventions). He is currently the Editor-in-Chief of the *Journal of American College of Cardiology (JACC)* Case Reports.

Dr. Tang received his bachelor's degree at Harvard University and completed his MD and cardiac surgery residency training at the University of Toronto. He earned a Master of Science in tissue engineering at the University of Toronto and an MBA at the Harvard Business School. He has a structural heart YouTube channel to promote education and training.

646-761-0391 | gilbert.tang@mountsinai.org

@GilbertTangMD

VIEW MOUNT SINAI PROFILE

Farah E. Atallah-Lajam, MD, FACC

Director, Mount Sinai Jackson Heights

Assistant Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Cardiac Catheterization, Nuclear Cardiology

866-Heart-01 (Morningside)
718-879-1600 (Jackson Heights) | falcardiology@gmail.com

Nitin Barman, MD

Director, Cardiac Catheterization Laboratory, Mount Sinai Morningside

Assistant Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Transradial Intervention, AMI Intervention, Complex Coronary Interventions

212-523-1094 | nitin.barman@mountsinai.org

Srinivas Duvvuri, MD, FACC

Clinical Associate Professor of Medicine (Cardiology)

Network Senior Medical Director, Staten Island

Director, Coronary Intervention at Richmond University Medical Center

Clinical interests: General Cardiology, Cardiac Catheterization, Interventional Cardiology, Trans-radial Intervention

718-981-2684 | srinivas.duvvuri@mountsinai.org

Lynne Glasser, MD

Director, Interventional Inpatient Service

Assistant Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Preventive Cardiology, Inpatient Cardiology

Since joining The Mount Sinai Hospital in November 2008, Dr. Glasser has been playing an important role in the treatment and management of interventional patients, before and after the procedure.

212-241-4521 | lynne.glasser@mountsinai.org

Sunny Goel, MD, FACC, FSCAI

Director, Structural Heart Disease

Mount Sinai South Nassau

Assistant Professor of Medicine (Cardiology)

Clinical interests: Complex Coronary Interventions, Transcatheter Aortic Valve Replacement, Transcatheter Mitral Valve Repair, ASD/PFO Closure

917-280-6832 | 516-632-3672 (Mount Sinai South Nassau)
sunny.goel@mountsinai.org | sunny.goel@snch.org

Yoav Niv Granot, MD

Assistant Professor of Medicine (Cardiology)

Clinical Interests: Cardiovascular Imaging (echocardiography), Imaging for Structural Heart Interventions

917-227-4197 | yoav.nivgranot@mountsinai.org

Amit Hooda, MD, FACC, FSCAI

Assistant Professor of Medicine (Cardiology)

Assistant Director, Interventional Cardiology Fellowship Program

Clinical interests: Complex Coronary Interventions, AMI Intervention, Intravsacular Imaging, Transcatheter Aortic Valve Replacement

212-241-4906 | amit.hooda@mountsinai.org

Lucy M. Safi, DO, FACC, FASE, FSCAI

Associate Professor of Medicine (Cardiology)

Imager for Structural Heart Interventions

Clinical interests: Structural Heart Disease, Imaging for Transcatheter Interventions, and AI in Echocardiography

212-241-6846 | lucy.safi@mountsinai.org

@LucySafi

Stamatios Lerakis, MD, PhD, FACC, FASE, FSCCT

Director, Noninvasive Cardiology

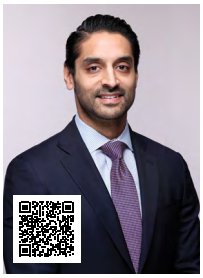
Director of Imaging for Structural and Valve Interventions, Mount Sinai Health System

Professor of Medicine (Cardiology)

Clinical interests: Cardiovascular Multimodality Imaging, Imaging for Structural Heart Interventions, Echocardiography, CMR, Cardiac CT, 4D ICE

212-241-1002 | stamatios.lerakis@mountsinai.org

Raman Sharma, MD, FACC, RPVI



Assistant Director, Endovascular Interventions Program

Assistant Professor of Medicine (Cardiology)

Clinical interests: Peripheral Arterial Disease, Endovascular Intervention, Complex Coronary Interventions, Venous Disease and Intervention, Carotid Artery Stenting

212-241-0932 | raman.sharma@mountsinai.org

Isha Ranadive, MD, MPH

Assistant Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Complex Coronary Interventions, Primary PCI

321-946-2464 | isha.ranadive@mountsinai.org

Joshua Shatzkes, MD, MS

Director of Ambulatory Care, Cardiovascular Institute at Mount Sinai West

Medical Director of Community Outreach, Mount Sinai Network

Associate Professor of Medicine (Cardiology)

Clinical interests: Cardiovascular Disease Prevention, Noninvasive Cardiovascular Imaging, Hypertension

212-241-9457 | joshua.shatzkes@mssm.edu

FULL-TIME ATTENDINGS

Michael Alan G. Sicat, MD

Assistant Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Echocardiography, Cardiac Catheterization

718-273-9080 | michael.sicat@mountsinai.org

David D. Song, MD

Assistant Professor of Medicine (Cardiology)

Clinical interests: Interventional Cardiology, Endovascular Intervention (Arterial and Venous), Renal Denervation, Carotid Artery Stenting

212-241-9802 | david.song@mountsinai.org

Javed Suleman, MD, FACC

Associate Clinical Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Coronary Intervention, Primary PCI

718-297-0440 | javed.suleman@mountsinai.org

VOLUNTARY ATTENDINGS

Karthik Gujja, MD, MPH

Director, Endovascular Services at Mount Sinai South Nassau

Assistant Professor of Medicine (Cardiology)

Clinical interests: Peripheral Artery Disease, Critical Limb Ischemia, Venous Insufficiency, Aortic Aneurysm, Carotid Artery Disease, Coronary Artery Disease

516-833-5505 | karthik.gujja@mountsinai.org

Choudhury M. Hasan, MD, FACC, FSCAI

Associate Clinical Professor of Medicine (Cardiology)

Clinical interests: Cardiac Catheterization, Coronary Interventions, Echocardiography

718-657-8001 | cmmhasan03@gmail.com

Jeffrey Le, DO

Assistant Clinical Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Coronary Artery Disease, Peripheral Arterial Disease

516-833-5505 | jeffrey.le@mountsinai.org

José Meller, MD

Clinical Professor of Medicine (Cardiology)

Clinical interests: Clinical Cardiology, Fellows Education, Cardiac Catheterization

212-988-3772 | josemeller44@gmail.com

Beth Oliver, DNP, RN, FAAN

Chief Nurse Executive
Senior Vice President, Cardiac Services
Mount Sinai Health System
Edgar M. Cullman, Sr., Chair Department of Nursing
Icahn School of Medicine Mount Sinai

Beth Oliver was recognized as one of *Modern Healthcare*'s 50 Most Influential Clinical Executives in 2024. She is a transformational health care leader with more than 30 years of experience. As Senior Vice President of Cardiac Services and Chief Nurse Executive for the Mount Sinai Health System, she advances evidence-based, patient-centered care and seamless health care transitions.

Dr. Oliver aligns nursing excellence with strategic goals to optimize clinical outcomes, enhance engagement, and elevate patient experience. A former President of the American Heart Association's New York City Board of Directors, she has expanded cardiovascular health initiatives citywide. Honored by *Becker's* and the American Academy of Nursing, she was appointed to the New York Academy of Medicine's Board of Trustees in 2023. A respected speaker and author, she continues to drive health care innovation, improving patient outcomes and strengthening the nursing profession.

212-241-0796
beth.oliver@mountsinai.org

Thomas Geramita, PA-C

Associate Director, Clinical Operations of Cardiac Catheterization Laboratory and Advanced Practice Providers

Thomas Geramita began his career at Mount Sinai Fuster Hospital as a Senior Physician Assistant (PA) in the Department of Electrophysiology in October 2019. During his time as a Senior PA, he began to develop process improvements and initiatives, which led to an interest in leadership and an eventual promotion as the Advanced Practice Provider (APP) supervisor at Mount Sinai Fuster Heart Hospital. As the APP supervisor, he led quality initiatives, standardized orientation, and initiated an APP focused cardiac educational lecture series which resulted in a promotion to an Associate Director. As Associate Director, he directs, oversees, and coordinates all administrative and clinical operations for the Cardiac Catheterization Laboratory and APPs of Mount Sinai Fuster Heart Hospital.

212-241-7114
thomas.geramita@mountsinai.org

Neethu James, MSN,RN

Clinical Nurse Manager, Catheterization Laboratory and Electrophysiology Laboratory

Neethu James joined The Mount Sinai Fuster Hospital Cardiac Catheterization Laboratory and EP Laboratory in September 2023 as Assistant Nurse Manager. She transitioned to Nurse Manager in January 2024. She continues to work as a nurse leader with dedication, resilience, and unwavering commitment to improve the unit and patient experience.

929-687-2871
neethu.james@mountsinai.org

NURSE PRACTITIONER TEAM

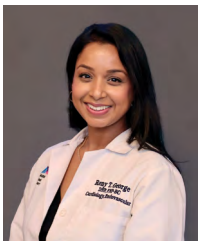
The Mount Sinai Hospital's dedicated staff of nurse practitioners and physician assistants work closely with the physicians in planning and implementing care from the time of intake to discharge, ensuring a quality experience at all points of the patient's visit.

Maryam Akhtar

Norwin Bunal

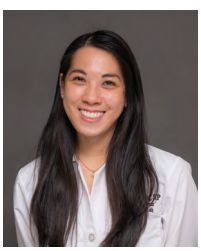
Melissa Chang

Marichu Edimallo



Reny George

Aira Fides Gonzales



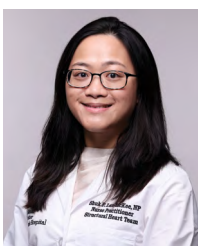
Michelle Hang

Kristina Hartig

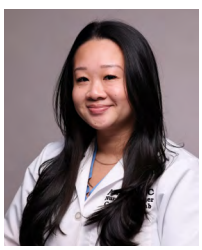
Leslie Joo

Hyo Jin Kang
Clinical Director, Structural Heart Program

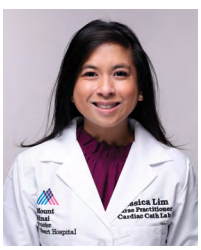
Rheoneil Lascano



Shuk Fan Lau-Mckee



Angela Li



Jessica Lim

Nelya Lozynska

Derek Pineda

Supawadee Pitakmongkolkul

Catherine Popik

Daneille Rhule

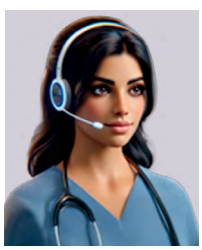
Indra Sinanan

Elizabeth Spears

Richard Ternemille

Shira Wender

Kevin Williams



Sofiya (AI Agent)

INTERVENTIONAL CARDIOLOGY FELLOWS

Mount Sinai Fuster Heart Hospital's Interventional Cardiology Fellowship Program is the largest in the country, educating the next generation of clinical cardiology and interventional cardiology specialists. This well-regarded program, which combines academic and hands-on experience, has graduated physicians who are serving as noted leaders in community and academic medical centers.

Marialena Drosou, MD
Interventional Fellow

Pratheesh M. George, MD
Interventional Fellow

Jason Kaplan, MD
Interventional Fellow

Tushar Mishra, MD
Aloke and Suchitra Lohia Interventional Fellow

Frank Kalaba, MD
Interventional Fellow

Takayuki Onishi, MD
Interventional Fellow

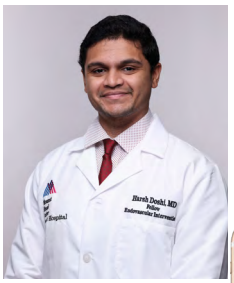
Jarmanjeet Singh, MD
Interventional Fellow

Swathi Rao, MD
Aloke and Suchitra Lohia Interventional Fellow

Krishna Santosh Vemuri, MD
Interventional Fellow

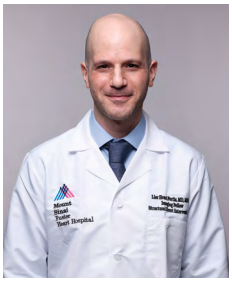
Akshat Khurana, MD
Structural Fellow

Bhavanadhar Penta, MD
Structural Fellow



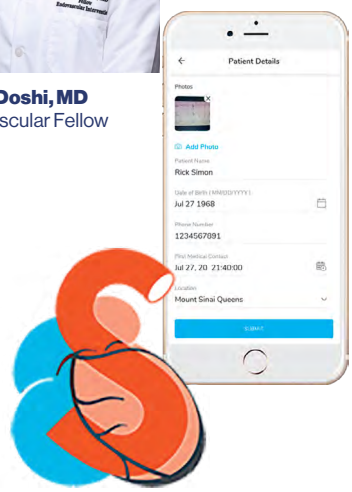
Harsh Doshi, MD
Endovascular Fellow

Shalini Mani, MD
Endovascular Fellow



Lior Henri Fortis, MD
Structural Heart Interventions Imaging Fellow

Manish Vinayak, MD
Advanced Hemodynamic Care and Complex High-Risk Interventions Fellow



Research Team

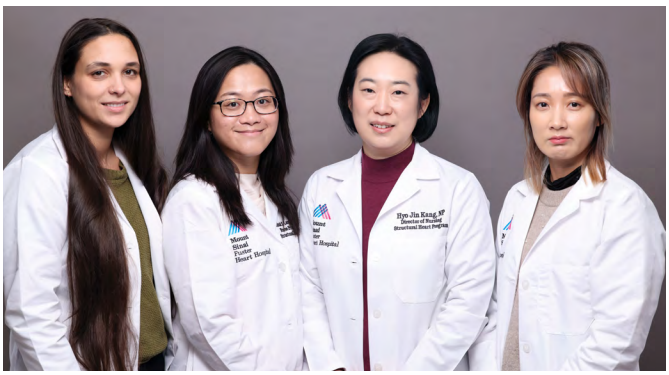
Left to right: Nicole Saint Vrestil, Harleen Kaur, Chivelle Mendoza, Andriy Vengrenyuk, Nimisha Baruah, Yuliya Vengrenyuk, Miguel Vasquez, Keisuke Yasumura, Isha Kohli, Mariglen Jahaj, Hideaki Suwa

Supporting Staff

Left to right: Jovic Cruz, Jasmin Jordan, Carol Henry, Andrew Emmanuel, Era Zuberko, Maria Directo, Celeste Caro, Irlene Gutierrez

Interventional Database Team

Left to right: Lakshmi SV Gujjarllamudi, Nikito Gurung, Roja Thapi, Pavan Gadhe, Pooja Vijay



Structural Heart Team

From Left: Maryam Akhtar, Shuk Fan Lau-Mckee, Hyo Jin Kang, Leslie Joo

CCC LIVE CASES

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Complex Coronary

Upcoming Case Topics :

- Bifurcation lesion intervention
- Chronic total occlusion lesion intervention
- Calcified diffuse CAD intervention
- Radial intervention

EVERY 3RD TUESDAY OF EVERY MONTH AT 8AM EDT

Peripheral

Upcoming Case Topics:

- Calcified Popliteal and Infrapopiteal CTO using Orbital Atherectomy and Supera Stenting
- Chronic Total Occlusion of Iliac Artery with Radial and Ipsilateral Groin Access

EVERY 4TH WEDNESDAY OF THE MONTH AT 8 AM EDT

Structural Heart

Upcoming Case Topics:

- TAVR
- M-TEER; MitraClip
- T-TEER
- TTVR
- Alcohol Septal Ablation

EVERY 2ND TUESDAY OF THE MONTH AT 9 AM EDT

Achievements

1 *New York* Castle Connolly Top Doctors

NEW YORK

CASTLE CONNOLLY 2024 TOP DOCTORS®

Samin K. Sharma, MD
(15 times in 19 years)

Annapoorna S. Kini, MD
(7 times in 8 years)

Prakash Krishnan, MD
(Fourth year in a row)

Pedro Moreno, MD
(Eighth year in a row)

Roxana Mehran, MD
(9 times in 11 years)

George Dangas, MD
(10 times in 11 years)

Joseph Sweeny, MD
(Fourth year in a row)

Jeffrey Bander, MD
(Second year in a row)

2 *New York Times* Super Doctors

SUPERDOCTORS®

Samin K. Sharma, MD
(17th year in a row)

Annapoorna S. Kini, MD
(15th year in a row)

George Dangas, MD, PhD
(Seventh year in a row)

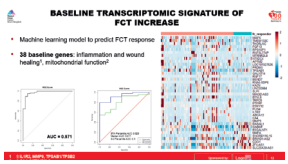
Srinivas Duvvuri, MD
(Fourth year in a row)

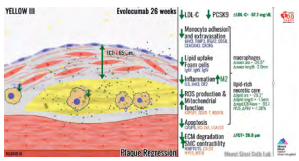
Nitin Barman, MD
(Second year in a row)

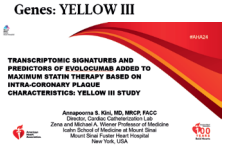
Vishal Kapur, MD
(First timer)

3 Roxana Mehran, MD, Awarded the 2024 Jacobi Medallion

4 YELLOW III Genetic Sub-study, AHA 2024 LBCT Annapoorna Kini, MD

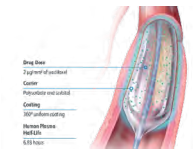






5 First-In-Man

- TriClip Procedures after FDA approval
- First case in USA using CoryP4 LVAD Pump PICANTE FIM Trial; National PI- Samin Sharma, MD
- Esprit BTK - First procedure in the United States utilizing an innovative drug-eluting below-the-knee resorbable scaffold.

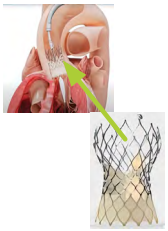


6 Vishal Kapur, MD, and Raman Sharma, MD

AIA-NY Award—"Excellence in Cardiology-Vascular and Endovascular Medicine"

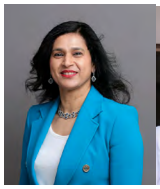
7 Sahil Khera, MD, Launched Medtronic FX Valve in India

Performed eight cases in five cities including the first case in India, First 34 FX and First Bicuspid anatomy.

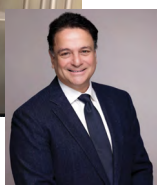


8 Samuel Fineman Cardiac Cath Annapoorna Kini, MD's Research Lab; Dedicated for her Cardiac Cath Lab AI Efforts

This was possible from generous donation of $1.5 million from our late Samuel Fineman to advance research, education, and teaching in the field of cardiology/cardiac catheterization laboratory by using artificial intelligence.



9 Prakash Krishnan, MD, Patient Story Featured on CBS News New York

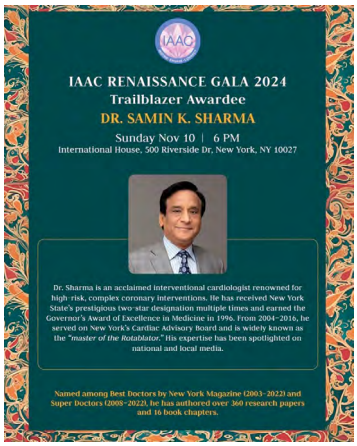


10 Samin K. Sharma, MD

Indo-American Arts Council Trailblazer Award

RANA Distiguished Achievers Award

Ramaiah Hospital long-term affiliation (1.2 million/year)



Cardiac Catheterization Laboratory Educational Events

The Mount Sinai Fuster Heart Hospital holds several important educational events throughout the year, focusing on complex coronary, peripheral, and structural heart interventions, cutting-edge research, emerging clinical evidence, and hands-on learning led by world-renowned experts in cardiovascular care.

.

SAVE THE DATE:

CCC 2025
COMPLEX CORONARY CASES

CCC: Complex Coronary Cases Symposium

Wednesday June 11–
Friday, June 13

The Mount Sinai Hospital and
New York Marriott Marquis

NYEVS
NEW YORK ENDOVASCULAR SUMMIT

NYEVS: NY Endovascular Summit and Fellows Course

Thursday, September 11 –
Saturday, September 13

New York Marriott
Marquis

TOP TEN TOPICS IN CLINICAL CARDIOLOGY
PATIENT FOCUSED, EVIDENCE-BASED APPROACH

Top Ten Topics in Clinical Cardiology Conference

Friday, October 17

The Mount Sinai Hospital:
Stern Auditorium

NYTVS
NEW YORK
TRANSCATHETER VALVES
SYMPOSIUM

NYTVS: NY Transcatheter Valves

Thursday, December 11

The Mount Sinai
Hospital: Stern
Auditorium

Mount Sinai Fuster Heart Hospital Directory

Area	Telephone
MS Heart Director	212-241-7911
Adult Congenital Heart Disease Center	212-241-1382
Cardiac Rehab Program	212-241-8597
Cardiology Administration	212-241-4030
Cardiology Appointments	212-427-1540
Cardiology Privileges	212-241-4029
Cardiothoracic Surgery	212-659-6800
Cardiovascular MRI and CT Imaging	855-MSHEART
Catheterization Laboratories	212-241-5881
Cardiac Catheterization Laboratory Assistance (any issues)	**212-241-0935**
Catheterization Laboratory Events	212-241-0592
Catheterization Laboratory Office	212-241-4021
Catheterization Laboratory Research	212-241-0229
Catheterization Laboratory Scheduling	212-241-5136
Coronary Care Unit	212-241-7222
Electrophysiology/Pacemakers	212-241-7272
Genetic Disorders	212-241-3303
Heart Failure/Transplantation	212-241-7300
Lipid Management	212-241-7651
MS Heart Information Technology	212-241-4026
Noninvasive Cardiology	855-MSHEART
Pediatric Cardiology	212-241-8662
Pulmonary Hypertension	212-241-7300
To Transfer a Patient	212-241-6467
Vascular Laboratory	212-241-6773

To refer a patient:
Phone: 212-241-5136

To make an appointment:
Phone: 212-241-0884 or scan the code

Publication of the *2024 Clinical Outcomes and Innovations Report* was made possible through generous gifts from the following people:
- SP and Seema Lohia
- SP Lohia Foundation
- Dr. Samin K. Sharma Family Foundation
- Corinne Stern Graber, in loving memory of her mother, Theresa Griffiths

Designed and Produced by:
Onward Publishing Inc.
631-757-8300
www.onwardpublishing.com

“A team is comprised of not only a group of people who work together, a team is a group of people who trust and respect each other.”

Cardiac Catheterization Laboratory Mission:

To improve outcomes and safety of interventional patients by delivering clinical innovations, unrivaled research, and the latest personalized interventional care as a team concept.

Mount Sinai
Fuster
Heart Hospital