WMC Health

Valvular Heart Disease Program

Heart & Vascular Institute

Westchester Medical Center Health Network

Valvular Heart Disease Program

Expert, Trustworthy Care, Conveniently Close to Home

Fall 2018

Julio A. Panza, MD

Over the last few decades, the presentation, diagnosis and treatment of valvular heart disease have seen a significant evolution. Gone are the days when valvular heart disease was primarily a consequence of rheumatic fever and mitral stenosis was a relatively frequent presentation. The days when mitral balloon valvuloplasty was the only beneficial transcatheter intervention for adult patients are also part of the past. The advances that led to the development of interventions meant to relief symptoms and improve prognosis in patients with aortic stenosis and high surgical risk opened the door for a completely different approach to the diagnosis and treatment of patients with all forms of valvular heart disease.

Accordingly, the WMCHealth Heart and Vascular Institute pioneered the efforts to bring these advances to patients in the Hudson Valley. With the opening of the hybrid operating room in 2013, Westchester Medical Center became the first institution in the region to perform a transcatheter aortic valve replacement (TAVR). The trend for innovation has continued for the last five years and has led to the development of our new Valvular Heart Disease Program, bringing together the expertise of imaging experts, outstanding interventional cardiologists and accomplished cardiothoracic surgeons. The Program is designed to provide patients with a continuum of care, from early detection, advanced treatment when needed and continued follow-up. Our commitment is to provide the best care using cutting-edge knowledge and technology to benefit all our patients.

Julio A. Panza, MD
Chief of Cardiology
Westchester Medical Center Health Network (WMCHealth)

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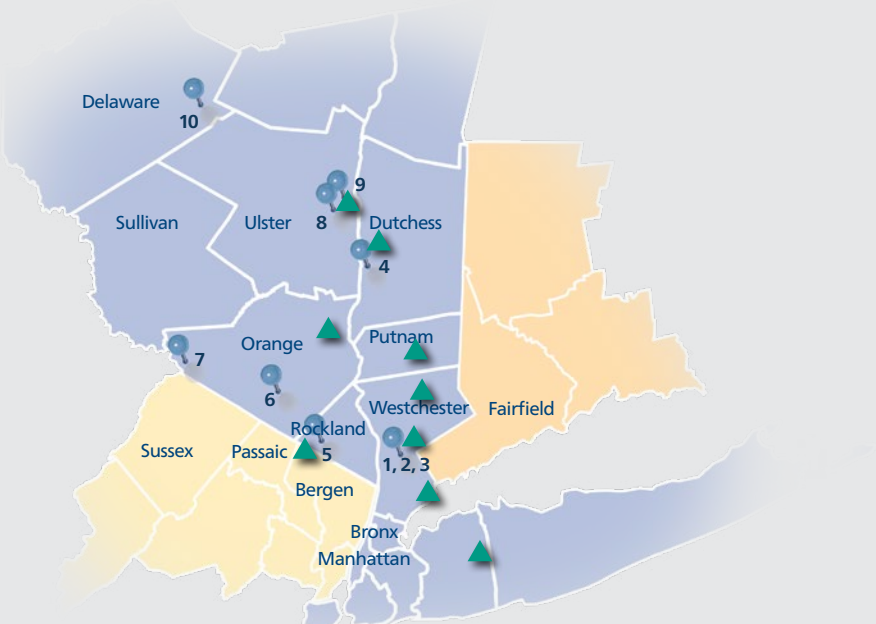


WMCHealth Heart and Vascular Institute Locations

	WMCHealth Network Hospitals
1	Westchester Medical Center
2	Maria Fareri Children's Hospital
3	Behavioral Health Center
4	MidHudson Regional Hospital
5	Good Samaritan Hospital
6	St. Anthony Community Hospital
7	Bon Secours Community Hospital
8	HealthAlliance: Broadway Campus
9	HealthAlliance: Mary's Avenue Campus
10	Margaretville Hospital

Office Locations

Hawthorne
19 Bradhurst Avenue
Suite 3850S
Hawthorne, NY 10532
914.909.6900

Kingston
HealthAlliance Hospital
368 Broadway
Medical Arts Building
Suite 101
Kingston, NY 12401
845.210.5600

Long Island
877 Stewart Avenue
Suite 12
Garden City, NY 11530
914.598.7651

Mamaroneck
689 Mamaroneck Avenue
Mamaroneck, NY 10543
914.253.1100

New Windsor
575 Hudson Valley Avenue
Suite 200
New Windsor, NY 12553
845.561.2773

Poughkeepsie
MidHudson Regional Hospital Practice
1 Webster Avenue
Suite 202
Poughkeepsie, NY 12601
845.483.5720

Suffern
Bon Secours Charity Hospital Medical Group
257 Lafayette Avenue
Suite 330
Suffern, NY 10901
845.368.8803

Mount Kisco
103 South Bedford Road
Suite 207
Mount Kisco, NY 10549
914.241.3204

Carmel
672 Stoneleigh Avenue
Suite C-118
Carmel, NY 10512
845.278.9670

The WMCHealth Valvular Heart Disease Program: Leading-Edge Diagnostics and Therapies

The comprehensive WMCHealth Valvular Heart Disease Program offers precise, cutting-edge diagnosis, treatment and aftercare for patients with conditions ranging from mild valvular pathology to those with critical disease requiring intervention.

Patients' local physicians have access to state-of-the-art diagnostic imaging and hemodynamic evaluation, and diagnostic tests and results are shared seamlessly using a highly secured Cloud-based environment. Both ensure patients receive the highest level of timely, compassionate care primarily within their own communities.

The WMCHealth Valvular Heart Disease Program is part of the WMCHealth Heart and Vascular Institute, a member of the Westchester Medical Center Health Network (WMCHealth), with 10 hospitals on eight campuses spanning 6,200 square miles of the Hudson Valley.

The WMCHealth Heart and Vascular Institute, the region's leading source of trusted cardiovascular care, is boldly investing in the very best cardiovascular care for the Hudson River Valley – and through innovation and growth, is transforming local healthcare. The Institute seamlessly blends exceptional medical expertise, state-of-the art technology and a trusted, steadfast commitment to patient-centered care.

The WMCHealth Valvular Heart Disease Program is committed to providing state-of-the-art, compassionate treatment and healing. Its exceptional team is close by, trustworthy and accessible to all, with the latest therapies for treating valvular disease.

The Valvular Heart Disease Program Team. From left, Steven Lansman, MD, PhD; Joshua Goldberg, MD; Martin Cohen, MD; Joanne Bennett, NP; Hasan Ahmad, MD; Daniel Spevack, MD; scheduler Reina Manea and Cenup Undemir, MD.

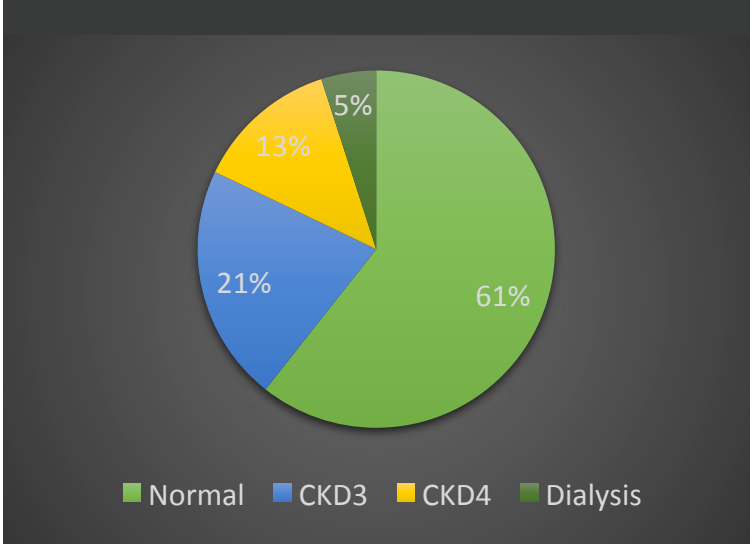
Expert, Experienced Team

The WMCHealth Valvular Heart Disease Program is led by noninvasive cardiologist **Daniel Spevack, MD** (Director), Director of Cardiothoracic Surgery **Steven Lansman, MD**, **PhD**, cardiac surgeon **Joshua Goldberg, MD**, and interventional cardiologists **Martin Cohen**, **MD**, and **Hasan Ahmad, MD**.

A team-based approach to valvular heart disease management ensures that patients receive exceptional, dignified care most appropriate to their valve pathology and specific needs. The WMCHealth Valvular Heart Disease Program offers the most experienced physicians, and handles the most cases, in the Hudson Valley.

Patients' comfort and experiences are a top priority of the WMCHealth Valvular Heart Disease Program. Full-time coordinator **Joanne Bennett** and full-time scheduler **Reina Manea** ensure reliable access to program services for referring physicians and patients.

Appointments, Referrals, Information
914.493.6540
HeartValve@WMCHealth.org
WestchesterMedicalCenter.com/heart-valve-disease



Pre TAVR Kidney Function: *Use of low-contrast techniques allows the WMCHealth Valvular Heart Disease Program team to evaluate patients and perform transcatheter aortic valve replacement (TAVR) even in patients with kidney disease. The pie chart shows that nearly 40 percent of our TAVR patients have pre-existing kidney disease prior to TAVR.*

The TAVR Team. Left to right, Daniel Spevack, MD; Martin Cohen, MD; Joshua Goldberg, MD; Steven Lansman, MD, PhD; Hasan Ahmad, MD; Cenup Undemir, MD; and Joanne Bennett, NP.

Transcatheter Aortic Valve Replacement (TAVR) Program

Westchester Medical Center was the first Hudson Valley hospital to perform life-saving transcatheter aortic valve replacement (TAVR), and continues to be the leading heart center in the region.

This minimally invasive technique, during which a diseased aortic valve is replaced without open-heart surgery, was approved by the United States Food and Drug Administration in 2011. It quickly has become the procedure of choice for intermediate and high-risk patients who require valve replacement due to aortic stenosis.

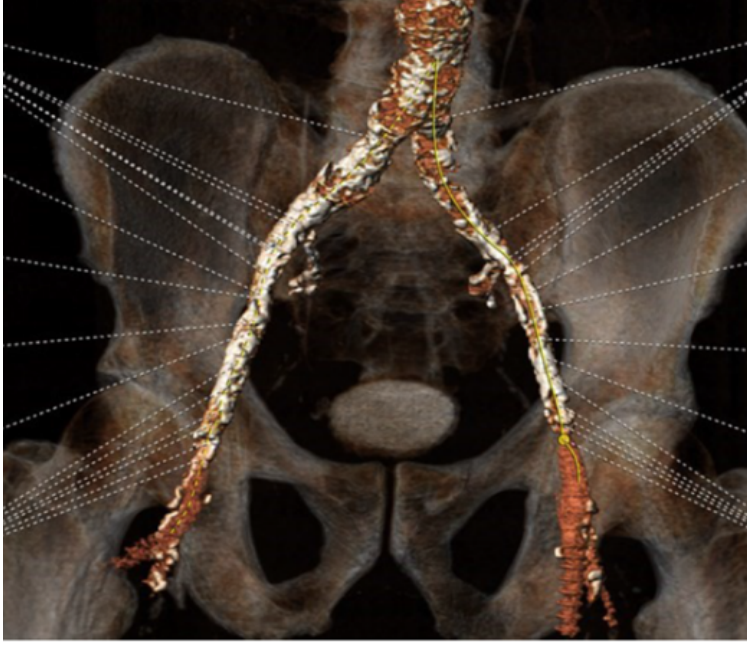
The TAVR valve is most often introduced via the femoral artery. These fully collapsible valves are either balloon-expandable or self-expandable. The valve is deployed within the native valve, pushing the native valve to the margins.

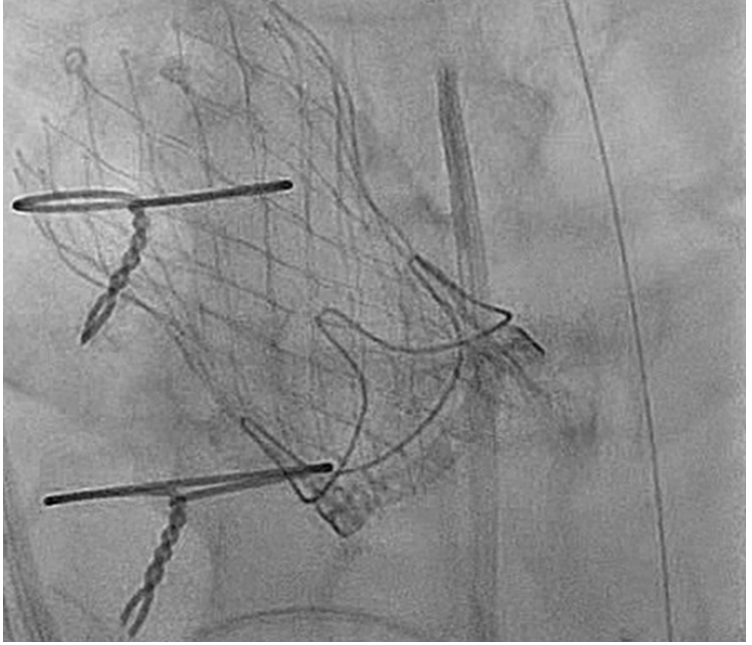
Westchester Medical Center's TAVR expertise is broad-based:

- It has the lowest in-hospital/30-day risk-adjusted mortality rate, 2.97 percent, in New York State, according to the New York State Department of Health. (Data, published in February 2018 in Percutaneous Coronary Interventions (PCI) in New York State, are for centers performing more than 50 procedures per year.)
- Over 500 TAVR procedures have been performed.
- The median length of stay is under 72 hours.
- Westchester Medical Center's novel low-contrast techniques enable care for patients with severe chronic kidney disease.
- The team has vast experience with patients with difficult vascular access.

TAVR procedures are performed in a state-of-the-art hybrid operating room. The 1,000-square-foot suite combines the traditional operating room with the advanced-imaging capabilities of a modern cardiac catheterization laboratory. This innovative environment provides precision and a comfortable, reassuring setting for patients.

To learn more, please visit
WestchesterMedicalCenter.com/transcatheter-valve-program.

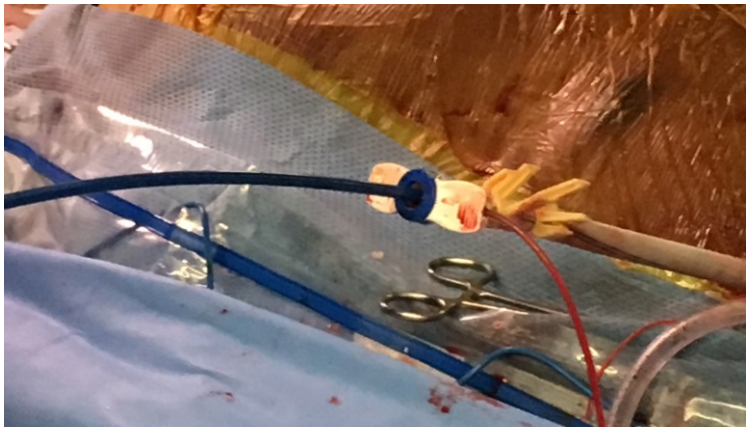




Patient Recovers After Unique TAVR Procedure

Patient MB had already undergone coronary artery bypass surgery and aortic valve replacement at age 60. Just nine years later, he began having recurrent angina and shortness of breath due to prosthetic valve degeneration and stenosis. Because he had reduced left ventricular function, advanced kidney disease and was on dialysis, he was considered a very high risk for repeat surgical-valve replacement. Risk calculators estimated his surgical mortality to be between 15 percent and 30 percent. While TAVR was considered the most appropriate procedure to replace his prosthetic valve, he had already undergone femoral-tibial bypass surgery on both legs due to near-total atherosclerotic stenosis. Other hospital centers would not consider him for TAVR because there would be no means to introduce the TAVR valve.

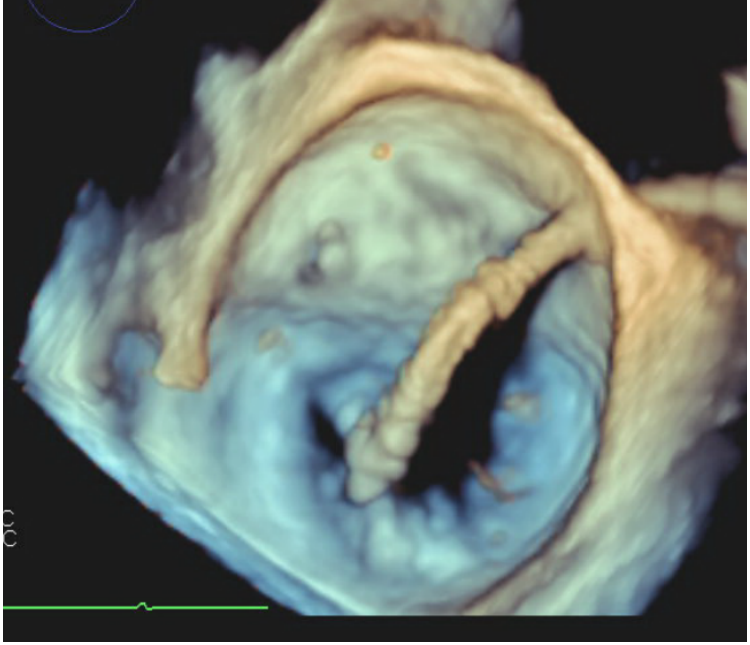
After careful consideration and meticulous planning, the Westchester Medical Center valve team accessed the subclavian artery. The TAVR valve was introduced into the vessel through a Dacron graft. This approach proved to be safe and effective. This procedure was nearly two years ago; MB maintains his independence without chest pain or shortness of breath.

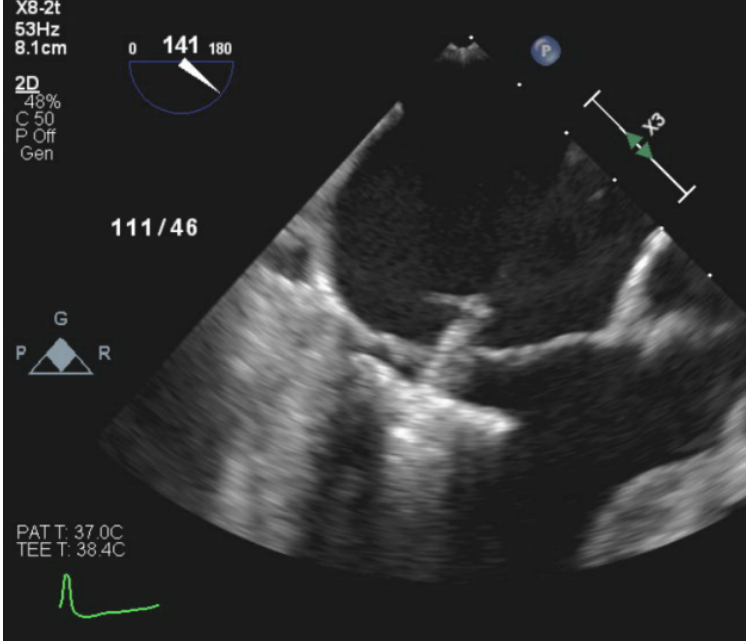


Top left: *A CT angiogram shows severe atherosclerotic disease in the femoral arteries with circumferential calcifications of the vessels and femoral-popliteal bypass grafts.*

Top right: *The TAVR valve successfully deployed within the surgical bioprosthetic valve.*

Bottom: *The TAVR valve was introduced through a Dacron graft sewn into the subclavian artery. This was a highly innovative solution for introducing a TAVR valve in a patient with very severe vascular disease in his legs*





WMCHealth: A Leader in Mitral Valve Clip Repair

Westchester Medical Center remains at the forefront of advanced cardiac technology in the region, performing the innovative transcatheter mitral valve repair and transcatheter tricuspid valve repair using the MitraClip device. This device is used to treat patients with primary regurgitation due to degenerative disease who are at high risk for surgical repair or replacement.

In 2013, the mitral valve clip was approved by the U.S. Food and Drug Administration as a tool to repair the mitral valve. The clip is introduced through femoral venous access and moved to the left atrium via a trans-septal puncture. The clip is placed on the mitral valve, attaching the anterior and posterior leaflets to each other at a site of poor coaptation. In September 2018, results of a COAPT trial showed that all-cause mortality was reduced by nearly 40 percent for patients with secondary regurgitation due to heart failure.

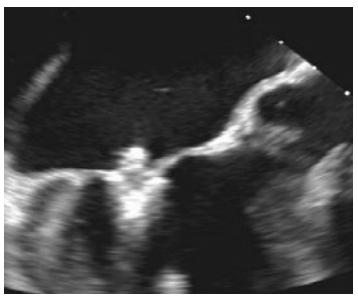
At Westchester Medical Center, 40 percent of patients are discharged the day after the procedure. In addition, 30 days after the procedure, patients have 85 percent freedom from moderate to severe mitral regurgitation.

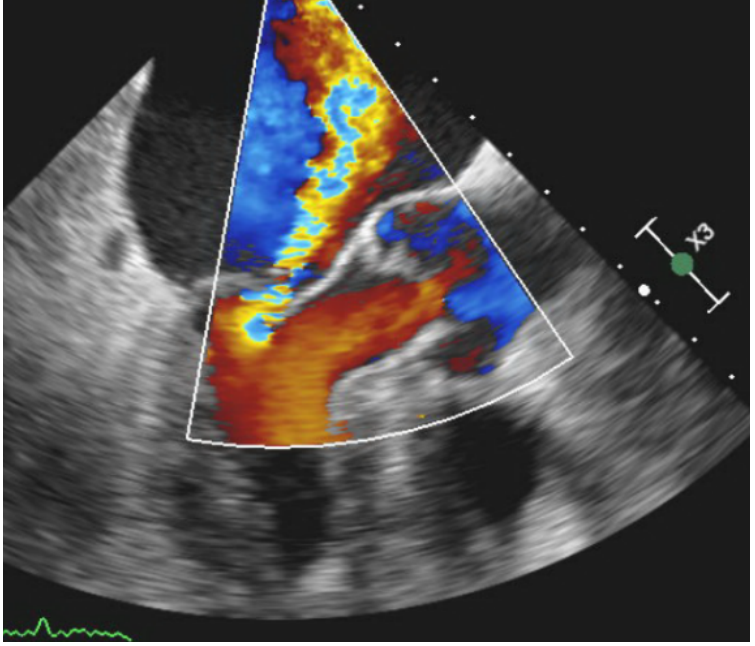
To learn more, please visit *WestchesterMedicalCenter.com/TMVR.*

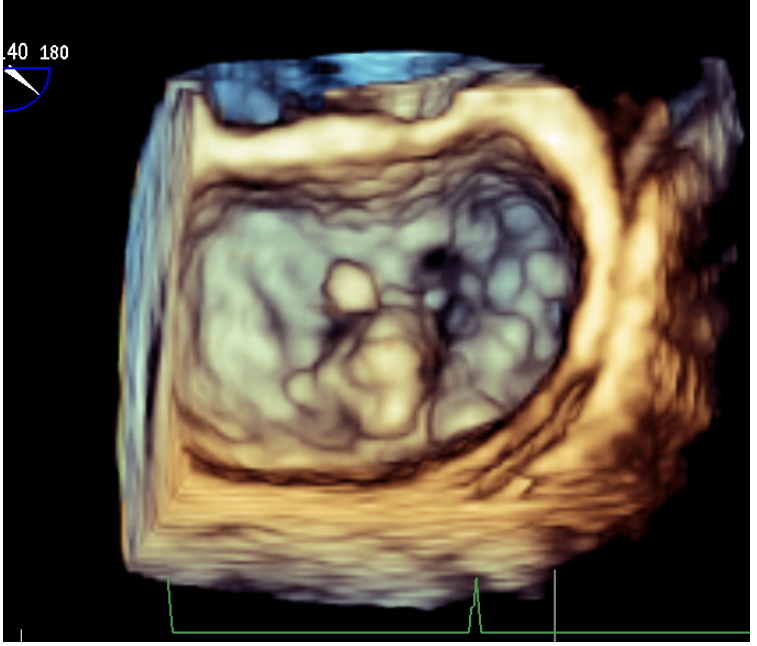
Top left: *A three-dimensional transesophageal echocardiogram used to guide placement of the mitral valve clip. The image shows the guide catheter crossing from the right atrium into the left atrium. The steerable delivery system allows the team to orient and position the clip to the exact location where the valve leak originates.*

Top right: *A transesophageal echocardiogram image of the open clip being positioned in the left ventricle just below the mitral valve leaflets. Once the leaflets are well inserted onto the clip arms, the arms are then closed to grab the mitral valve leaflets.*

Bottom (left)*: A transesophageal echocardiogram image of the mitral valve being grasped by the mitral valve clip. The leaflet grippers have been lowered to trap the valve leaflets against the clip arms. The clip will next be closed to firmly hold the leaflets together.* ***At right****, both valve leaflets are well inserted into the clip arms. The clip is closed and firmly holds the valve leaflets together.*

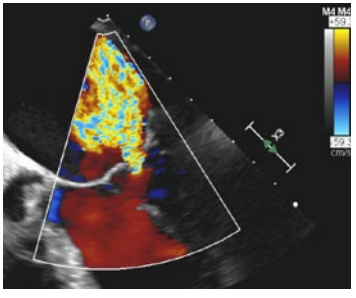


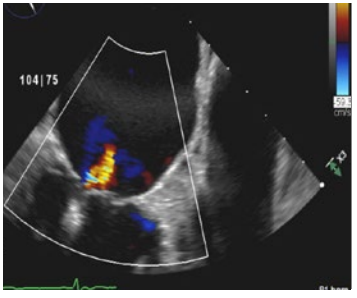




High-Risk Patient Recovers After Mitral Valve Clip Procedure

Patient LL is an 80-year-old former smoker who survived lung cancer. When she became increasingly short of breath, she feared her cancer had recurred. However, when her doctor heard a heart murmur, she ordered an echocardiogram that identified mitral valve prolapse. There were torn chordae tendinae and the posterior mitral leaflet was flail. She was initially referred to a hospital in Manhattan for surgical valve repair, but was turned down because of the high risk. At the advice of her nephew, a physician, she came to Westchester Medical Center for the mitral valve clip procedure. On the second morning after the procedure, she was safely sent home. Just a few weeks after the procedure, she reported being able to walk all the way from her home to a beauty parlor, and no longer feels winded doing her daily activities.





Top left: *A Transesophageal echocardiogram with color Doppler shows severe mitral valve regurgitation.*

Top right: *A three-dimensional transesophageal echocardiogram shows severe mitral prolapse with flail posterior mitral valve leaflet.*

Bottom images: *Transesophageal echocardiogram images show mitral regurgitation before and after a mitral valve clip procedure. In the first image, regurgitation is severe. Following the clip procedure, there is minimal residual regurgitation.*

Mitral Valve Repair

The first heart-valve surgery was performed in 1923 on a young woman with rheumatic mitral valve disease. Now nearly 100 years later, surgical-repair strategies and techniques continue to evolve. For many patients with mitral valve regurgitation, valve repair has become preferred over valve replacement. Unlike valve replacement, proper repair requires extensive understanding of the complex anatomy of the mitral valve.

Because valve degeneration can affect any or all portions of the valve leaflets, annulus or subvalvular apparatus, no two valve repairs are alike.

A surgeon must have great experience and sound judgment to properly strategize the many decisions about how to best realign the mitral leaflets. Director of Cardiothoracic Surgery Steven Lansman, MD, PhD, has been performing mitral valve repair for over 25 years and has an outstanding track record. He performs more than 100 valve procedures annually, and his 2.43 percent risk-adjusted mortality rate for valve surgery is among the lowest in New York State.

The valve team huddles prior to performing a mitral clip procedure.

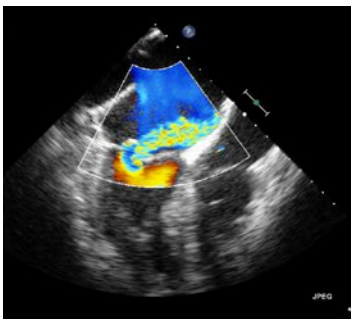
Dedicated Experts Team Up for Life-Saving Surgery

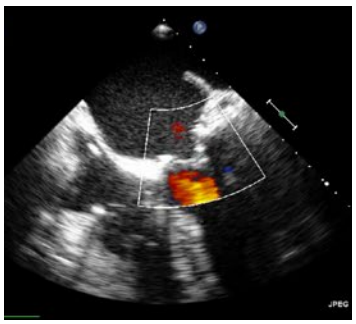
JS, a 57-year-old Blauvelt, NY, resident, was easily becoming winded at work and wondered if her conditioning needed improvement. Her doctor, however, heard a heart murmur and became concerned. JS was referred to a cardiologist; an echocardiogram revealed a tear in her mitral valve and severe leakage of blood. The valve had degenerated and was in need of repair. JS was referred to Westchester Medical Center, the flagship of the Westchester Medical Center Health Network (WMCHealth), for mitral valve surgery.

Because JS had an inherited blood-clotting disorder called Von Willebrand disease, the surgical team collaborated with the Hematology Department to ensure her body's clotting would adequately support post-surgery healing.

Surgeons Joshua Goldberg, MD, and Steven Lansman, MD, PhD, worked as a team to repair the valve and leak.

Just a few days after surgery, JS noticed improvements before she even left the hospital. When she returned home, her ability to exercise had substantially improved. Before the surgery, she had slowed down daily activities, such as climbing stairs and walking to her car. After surgery, she was amazed at how much she had modified her routines to compensate for the impact of the valve leak. The marked improvement in her health inspired her to get into shape. She has lost weight during the past two years and feels great.





In the first two images, a transesophageal echocardiogram prior to surgical mitral valve repair shows severe mitral prolapse with flail leaflet and severe regurgitation. The third image depicts complete resolution of regurgitation as a result of surgical mitral valve repair.

TeleCardiology Builds Bridges Across WMCHealth

The WMCHealth Valvular Heart Disease Program recognizes that many patients with valve disease are elderly or have several comorbid conditions that make travel difficult. The WMCHealth TeleCardiology Program, part of its expansive, cutting-edge eHealth Program, gives cardiologists anywhere across the network the ability to conduct virtual face-to-face consultations with subspecialty experts. This real-time connectivity helps to quickly refine diagnoses and provide patients with an optimal, inclusive care plan without requiring them to travel great distances.

Secure digital technology links healthcare providers at separate network locations. In addition to high-resolution video conferencing from desktop computers or mobile devices, high-fidelity tele-stethoscopes are used for patient examination. Patients who do need to travel to Westchester Medical Center for a valve procedure already will already have met the surgeon and cardiologist that will care for them. They can also receive much, if not all, of their follow-up care without having to leave their own communities. In addition, TeleCardiology enhances patient and family understanding of treatment, a substantially important factor during a complex health situation.

The noninvasive team: Left to right, Daniel Spevack, MD; Joseph Harburger, MD; Tanya Dutta, MD; Anthon Fuisz, MD; Mala Sharma, MD; Joshua Melcer, MD; and Diwakar Jain, MD.

Advanced Imaging: Highest-Quality Diagnostic Accuracy

High-quality imaging, providing precise diagnostics and patient follow-up, is an essential aspect of care for patients with valve disease. The WMCHealth Valvular Heart Disease Program strives to allow patients to undergo diagnostic imaging within their home communities. Patient diagnostics are shared seamlessly using highly secured software, allowing patients to receive expert evaluation remotely.

The Westchester Medical Center Echocardiography Lab is managed by **Tanya Dutta, MD**, and has four additional Level III trained full-time imagers: **Daniel Spevack, MD**, **Joshua Melcer, MD**, **Joseph Harburger, MD**, and **Mala Sharma, MD**. Their expertise is crucial in all phases of patient care, but is critical during peri-procedural evaluations.

In addition, cardiologist **Anthon Fuisz, MD**, and radiologists **Anna Rozenshtein MPH, FACR**, and **Anthony Gilet, MD**, are national experts in CT and MRI imaging. This group collectively has over 100 peer-reviewed publications in their specialty. Their expertise is routinely sought in the evaluation and follow-up of patients treated for heart valve pathology.

WMCHealth Heart & Vascular Institute

Comprehensive, Integrated Cardiac Care, Close to Home

Cardiovascular patients find that choosing the WMCHealth Heart and Vascular Institute makes doctors' visits, hospitalizations and follow-up appointments easier and less stressful – important factors that physicians recognize as key to patients' successful healing and recovery.

The WMCHealth Heart and Vascular Institute is a multi-specialty practice providing comprehensive, high-quality cardiac and vascular services. It brings together many of the nation's best physicians in cardiology, cardiovascular surgery, cardiothoracic surgery and pediatric cardiovascular services, practicing in state-of-the-art facilities.

Highly trained teams of specialists, nurses, physician assistants and allied health professionals provide a seamless continuum of care across WMCHealth's 10 hospitals on eight campuses. Whether it is preventive care at a cardiologist's office nearby, diagnostic screenings at a community hospital or more complex procedures at regional hospitals, patients will know they are receiving the best, most comprehensive care.

Through new technologies such as telemedicine, improved transport and electronic medical records, patients can receive the highest level of care without the stress of extended travel to large, urban hospital centers. The addition of Westchester Medical Center's new Ambulatory Care Pavilion means outpatients can receive advanced diagnostic testing as well as emergency angioplasty, device implants and other interventional procedures in state-of-the-art cardiac catheterization labs.

Referring cardiologists, physicians and patients can trust that the WMCHealth Heart and Vascular Institute is the Hudson Valley's premier medical choice for advanced, exceptional care.

Appointments, Referrals, Information

WMCHealth Valvular Heart Disease Program

914.493.6540

HeartValve@WMCHealth.org

WestchesterMedicalCenter.com/heart-valve-disease

Patient Transfers or Emergencies

The Westchester Medical Center
Transfer Center

914.493.5555

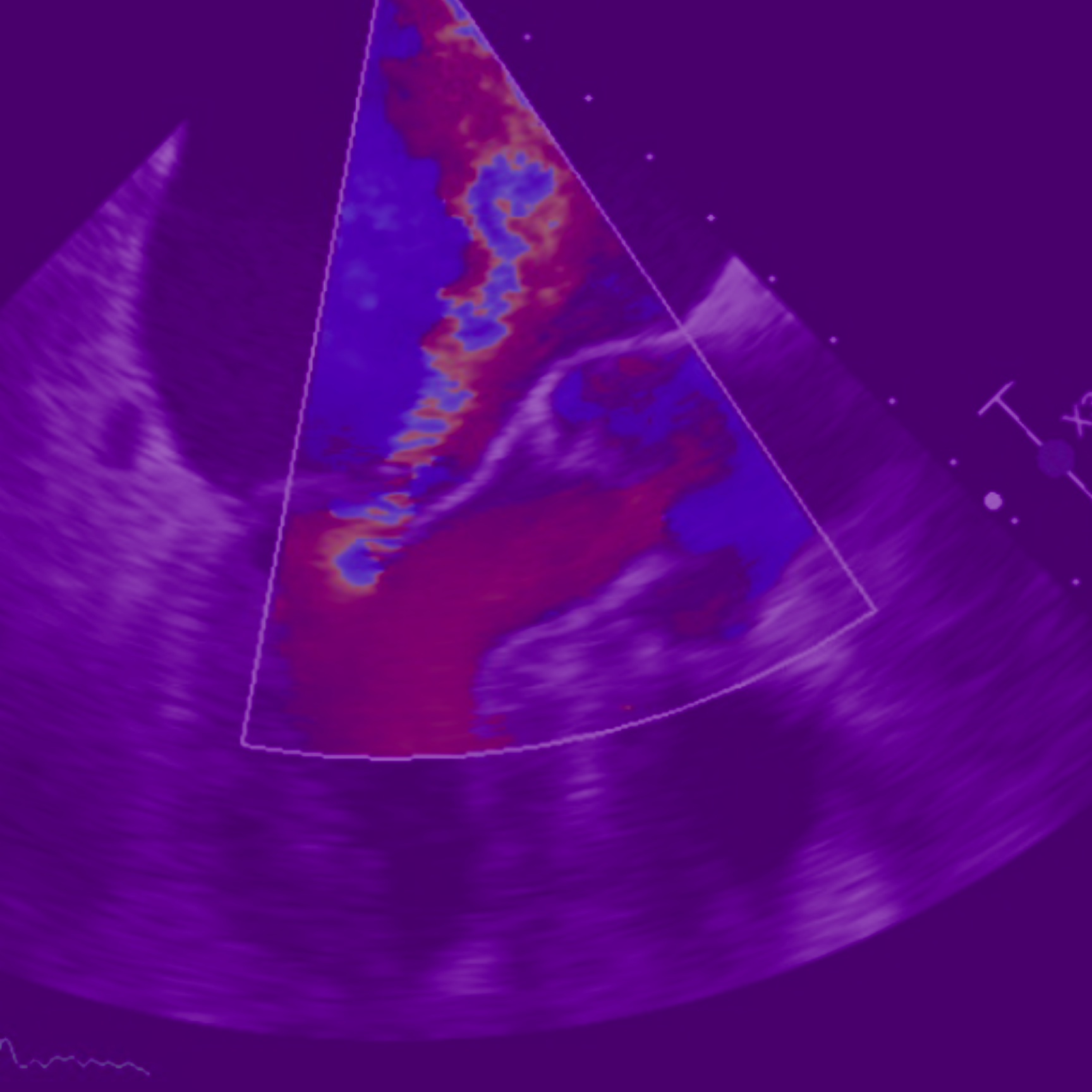
Assistance is available around the clock, seven days a week.

About Westchester Medical Center, flagship of the Westchester Medical Center Health Network

Westchester Medical Center is the premier provider of advanced medical care in New York's Hudson Valley. The flagship of the Westchester Medical Center Health Network, this 895-bed academic hospital in Valhalla, NY, provides acute-care services — Level I trauma and burn care, organ transplants and advanced neurovascular procedures and more — found nowhere else in the region. Westchester Medical Center is the primary referral facility for other Hudson Valley hospitals and serves as a lifeline for more than 3 million. Visit WestchesterMedicalCenter.com or follow Westchester Medical Center at Facebook.com/WestchesterMedicalCenter or Twitter.com/WestchesterMed

About the Westchester Medical Center Health Network

The Westchester Medical Center Health Network (WMCHealth) is a 1,700-bed healthcare system headquartered in Valhalla, NY, with 10 hospitals on eight campuses spanning 6,200 square miles of the Hudson Valley. WMCHealth employs more than 12,000 and has nearly 3,000 attending physicians. With Level 1, Level 2 and pediatric trauma centers, the region's only acute-care children's hospital, an academic medical center, several community hospitals, dozens of specialized institutes and centers, skilled nursing, assisted-living facilities, homecare services and one of the largest mental-health systems in New York State, WMCHealth is the pre-eminent provider of integrated healthcare in the Hudson Valley. Visit WMCHealth.org.



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