Dear Colleagues:

In some cases, the first procedure is not always the final procedure for cardiac and vascular surgery patients. Reoperations require a team approach led by skilled staff with large experience in specialty areas.

In this issue of Cardiac Consult, our cover story details some of the areas of our practice where we document a high volume of reoperation cases. Our experience involves best practices, surgical advances and the use of leading-edge equipment to perform first, second, third and sometimes fourth operations.

Physicians are evidence-based decision-makers. That’s why, when Cleveland Clinic sought to reduce costs without compromising quality, we knew that involving our doctors would be key to success.

What we discovered is that physician-preference items were weighing heavily on our bottom line. Throughout our organization, we thought that if doctors knew what supplies and devices actually cost, then we as an institution could drive those costs down. But we would always balance this cost pressure with doing right by every patient.

To maximize savings across an enterprise as large as Cleveland Clinic, we streamline our expenditures beginning at our loading dock – within our supply chain. Since 2010, we’ve saved more than $150 million throughout our enterprise. In this issue, read more about how we maximize savings through systematic evaluation and negotiation, while maintaining our well-respected clinical outcomes.

You’ll also learn more in these pages about our leading-edge work on chronic total occlusions and how our staff in prevention and psychiatry have built a team to address patient mental health concerns to support the patient’s complete recovery.

From shaving costs to taking a holistic approach to care, Cleveland Clinic strives to put patients first.

Sincerely,

Christopher Bajzer, MD
Associate Director, Peripheral Intervention
Interventional Cardiology

Sean Lyden, MD
Staff Surgeon, Vascular Surgery
Medical Director, Supply Chain Management

A. Marc Gillinov, MD
Staff Surgeon, Thoracic and Cardiovascular Surgery
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Cardiac Consult offers updates on leading-edge diagnostic and management techniques from Cleveland Clinic heart and vascular specialists. Please direct correspondence to:

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clevelandclinic.org/heart offers information on new procedures and services, clinical trials, and upcoming CME symposia, as well as recent issues of Cardiac Consult.
The Sydell and Arnold Miller Family Heart & Vascular Institute, ranked No. 1 in the nation for cardiac care by U.S. News & World Report every year since 1995, accommodates nearly 300,000 patient visits each year in world-class facilities. Staff are committed to researching and applying state-of-the-art diagnostic and management techniques. Cleveland Clinic is a nonprofit, multispecialty academic medical center.
Cardiac Consult is written for physicians and should be relied on for medical education purposes only. It does not provide a complete overview of the topics covered and should not replace the independent judgment of a physician about the appropriateness or risks of a procedure for a given patient.

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Every Link in the Chain Makes It Stronger

In the current healthcare reimbursement environment, every dollar counts. Add to that imperative Cleveland Clinic’s uncompromising commitment to quality patient care and what results is a tension stemming from the need to simultaneously raise standards and lower costs.

It’s enough to make the weakest link in any chain succumb to those competing forces.

Fortunately, Cleveland Clinic began years ago to think of these two imperatives as working together and not as opposing forces.

Cleveland Clinic needed to move toward value-based purchasing - dividing outcomes by cost to arrive at the most appropriate supplies for every treatment and procedure. But attention also had to be paid to matching the right device with the needs of the individual patient, not the price tag.

The Challenge

In any practice area, many of the most expensive supplies are physician-preference items. These can be anything from complex ventricular assist devices to stents, endografts and sutures.

In the past, physicians would frequently order these items with little regard for or even knowledge of what those items might cost. This individual preference system also did not apply a methodical approach to evaluating new devices on the market or in development, nor did it address concerns about devices that had proved in practice to be problematic.

Ten Years in the Making

Over a decade, these tandem ideas of quality and savings fused to become the foundation for a new way of evaluating and procuring supplies and devices at Cleveland Clinic. Across the enterprise, teams were formed by Supply Chain Management, with physician champions and cross-functional committees, to evaluate and debate the purchasing decisions for every item used in the clinical setting.

In all areas, guidelines for a particular supply were implemented across Cleveland Clinic’s system of eight community hospitals and 16 family health centers, as well as its main campus.

Scoring and Evaluating

In Thoracic and Cardiovascular Surgery, Cardiology and Cardiac Electrophysiology, the team, working with Carrie Steele, Director of Clinical Sourcing for the Miller Family Heart & Vascular Institute, vetted vendors by carefully evaluating each and every device, categorizing and scoring its features, and noting prices. The team looked at clinical outcomes and indicators, distinguishing differences among vendors and products, reviewed proposals and decided what would be the best value proposition for Cleveland Clinic, and what would provide the best outcome for the patient. Despite some initial resistance, all the suppliers came around to the new purchasing arrangement at Cleveland Clinic.

Electrophysiology presented a particular challenge because of the multiplicity of devices available. Here, the team went to the peer-reviewed literature and compared research on each device, ranked the devices in tiers, and established purchasing guidelines based on cost and patient benefit.

Dr. Bruce Lindsay, Section Head in Cardiac Electrophysiology and Pacing, has been a participant in the supply chain work since he started at Cleveland Clinic in 2008.

“Our ranking system throughout the enterprise consists of three tiers, in which we attach values to certain features in the products we’re evaluating,” says Dr. Lindsay.

He explains that the tier system relies on the doctors assigning value to device features and then ranking the devices within the tier system. Criteria include subjective measures, such as what is game-changing about a particular device, added to information that doctors have gleaned from the literature in the field.

“A device company thinks that a feature is valuable, many times because they invested a lot of time and money into developing that feature,” Dr. Lindsay says. “We as doctors don’t see a device’s value through that same lens.”

The most expensive products are in tier 3, he says. Tier 2 products have the greatest utility in the enterprise, while products in tier 1 are used the least. Contracts with the appropriate vendors are then put into place, and are awarded for varying lengths. This system allows for flexibility.

continued on next page
“We can move the products among the tiers,” Dr. Lindsay says. “Sometimes, a patient has researched the devices that are appropriate for their procedure, and comes in with an idea of what they want. We are mindful of that consideration, but in no instance would we compromise patient safety.”

He adds that the partnership with supply chain started several years prior to his arrival at Cleveland Clinic, under the direction of Bruce Wilkoff, MD, Director of Cardiac Pacing and Tachyarrhythmia Devices.

An Ongoing Process

Discussion, communication and physician involvement are critical to every stage of this process. Physician preference is often driven by strong feelings, so participants needed to know that their concerns are being heard and addressed by the team.

Value-based purchasing presents other challenges as well. “Cost awareness needs to be an ongoing thing,” says Sean Lyden, MD, medical director of Supply Chain Management and a vascular surgeon.

“Technology is always maturing and new technology is constantly being introduced,” Dr. Lyden says. “We don’t want to keep innovative products out. But there is often very little data on value for new technology. Is the new product an improvement on what came before, or is it simply competition for something we already have?”

And, he points out, “We don’t need everybody on the shelf.” There must be a balance struck between too much and too little variety.

Dr. Lindsay agrees. “We’re not putting all of our eggs in one basket,” he says. “It’s a balance between quality of care and cost effectiveness, while always mitigating risk to the patient.”

In only two years, more than $150 million was cut out of Cleveland Clinic’s operational costs. Fully one-third of those savings came from reducing costs in heart and vascular specialties.

“Cleveland Clinic has many advantages that helped this endeavor succeed,” says Dr. Lyden. “We are a group practice and share the same incentives. Without physician partnership, it would never work.”

For additional information, contact Carrie Steele, Director of Clinical Sourcing, Supply Chain Management, at 216.448.8112 or steelec@ccf.org.
Case Study:
Critical Care Transport for Cardiogenic Shock Requiring LVAD
BY NADER MOAZAMI, MD, AND JONATHAN SAGUE, MSN

Presentation
A 27-year-old woman with a history of bicuspid aortic valve and aortic stenosis was admitted to a Dayton, Ohio, hospital with acute aortic insufficiency, syncope, profound dyspnea on exertion and cyanosis. After evaluation, she underwent aortic valve replacement.

Postoperatively, the patient became hypotensive and experienced postcardiotomy cardiogenic shock. Cardiac enzyme elevation was suggestive of a large myocardial infarction. The patient was intubated, underwent cardiac catheterization and was placed on an intra-aortic balloon pump (IABP). Her blood pressure and cardiac index continued to deteriorate, and she became difficult to oxygenate and ventilate. She suffered cardiac arrest and was resuscitated after several rounds of ACLS drugs and chest compressions.

Suspecting that the patient would need extracorporeal membrane oxygenation (ECMO) and a left ventricular assist device (LVAD) as a bridge to heart transplant, her cardiothoracic surgeon requested that Cleveland Clinic's Critical Care transport (CCt) team treat and transport the patient by helicopter to Cleveland Clinic's main campus for evaluation and treatment.

The patient was assessed by the CCt team and found to be critically ill and unstable. They initiated transition to CCt IV medication pumps, cardiac monitor and IABP without incident or difficulty. Transition to a CCT ventilator was more challenging; sedation was increased, chemical paralysis was instituted and the patient was placed on volume-controlled ventilation.

During transport, the patient was treated medically for acute decompensated congestive heart failure and potential systemic inflammatory response syndrome. She also required treatment for ventricular tachycardia as the aircraft prepared to land.

Treatment
Upon arrival at Cleveland Clinic, the patient was taken to the operating room and placed on veno-arterial ECMO. The IABP was removed. The patient was found to have a large hemorrhagic infarct of the inferior and lateral wall. The patient returned to the cardiovascular ICU, with an edematous heart, for the beginning of an extensive stay and punctuated attempts to wean her off the ECMO. She was completely weaned from the ECMO 10 days later but again required IABP and was stable on high-dose inotropic support in a low-flow state. Due to ongoing low cardiac output, she required a Heartmate II implant (Thoratec Corp., Pleasanton, Calif.). She subsequently required a tracheostomy tube. Within two weeks of the surgery, the patient was moved to a regular nursing floor. Thirty days after surgery, she was discharged to acute rehab for ongoing physical therapy, and she was well enough to go home to her family 10 weeks after initial treatment in Dayton.

Her overall condition continues to improve in anticipation of being placed on the waiting list for a heart transplant. She makes regular visits to Cleveland Clinic for follow-up care.

Discussion
As this case demonstrates, the capability to transport highly complex, critically ill patients plays an essential part in providing access to lifesaving care. The nurse practitioner and physician-led CCt team is designed to execute these high-risk transfers and is equipped to handle difficult scenarios en route. Cleveland Clinic care starts the moment CCt arrives.

The LVAD was deemed the best choice due to the need to provide long-term circulatory support absent heart recovery. The device was implanted as an appropriate bridge to an eventual heart transplant.

Cleveland Clinic’s Kaufman Center for Heart Failure is staffed by a multidisciplinary team of experts who specialize in the treatment of cardiomyopathies and ischemic heart failure. The Cardiac Transplant Program has demonstrated ongoing success with the use of mechanical circulatory support devices, both for bridge to transplant and for destination therapy.

Contact Dr. Moazami at 216.444.6708 or moazamn@ccf.org. For more information about Critical Care Transport, visit clevelandclinic.org/cct.
HEARTS AND MINDS:
Mental Health Care for the Cardiac Patient

Among the many factors to be considered in properly diagnosing and treating cardiovascular disease, perhaps the most overlooked is the patient’s mental health. Cardiac events can be major sources of stress and anxiety, even after they have been identified and abated.

“It’s an unexpected encounter for many people,” says Leo Pozuelo, MD, Section Head of the Consultation Psychiatry Service. “Quite often, heart disease will throw patients for a loop because it’s a brush with their own mortality. There is also a subset of patients who have pre-existing depression or an emotional issue that is exacerbated by the ordeal.”

Dr. Pozuelo leads Cleveland Clinic’s Cardiovascular Behavioral Health Clinic, which addresses these concerns. “Cardiovascular medicine has progressed substantially to the point that the emotional coping and wellness of a patient is taken into consideration along with physical coping and wellness,” he says. “To facilitate and coordinate care, it is now well-known that co-located services for behavioral services within cardiology clinics is most beneficial.”

As part of the standard intake process, patients in preventive cardiology and those enrolled in the cardiac rehabilitation program are evaluated to determine how well they are coping emotionally in the wake of cardiovascular surgery or other potentially traumatic therapies. Quality-of-life scores coupled with screening questions on depression and anxiety help determine which patients could benefit from the Cardiovascular Behavioral Health Clinic.

“These patients often won’t take their medications, won’t see their physician, won’t stop smoking, and won’t take any of the other steps necessary for their recovery,” says Leslie Cho, MD, Section Head for Preventive Cardiology and Cardiac Rehabilitation and Director of the Women’s Cardiovascular Center. “It’s no longer enough for a cardiologist to simply tell them, ‘You’re fine.’ There’s a great need for psychiatry in prevention and cardiology, given the common occurrence of depression after these life-changing events.”

Dr. Pozuelo identifies three major benefits of the Cardiovascular Behavioral Health Clinic:

- It validates what patients are already feeling, helping them to understand that the care team is as interested in their emotional well-being as their blood pressure or cholesterol levels.
- It offers a more comprehensive approach to the disease with the goal of ensuring greater long-term wellness.
- The clinic is housed within Preventive Cardiology and Cardiac Rehabilitation as a consultation service available to the patient, the treating cardiologist and the patient’s primary care physician, contributing to a more wide-ranging set of recommendations for optimal treatment.

That last point is key, says Dr. Cho. “Many elderly patients don’t want to go to the psychiatry building,” she says. “There’s a stigma attached to it, so they stay with us in the cardiology clinic, which is where Dr. Pozuelo sees them. The stigma is completely gone.”

While each case is unique, some general approaches to behavioral health care are efficacious for many patients. “When we see a patient in this type of clinical encounter, we try to point out their strengths and resiliency and help them identify steps that have helped them through difficult times before,” says Dr. Pozuelo. “Taking the time to have that conversation is vital and helps patients understand that they’re equipped to deal with the stress of heart disease. A behavioral health cardiology clinic can facilitate patients’ recovery and hopefully improve their quality of life.”

For more information on the Cardiovascular Behavioral Health Clinic or to refer patients, call 216.445.9353. Contact Dr. Pozuelo at 216.444.7756 or pozuell@ccf.org. Dr. Cho can be reached at 216.445.6320 or chol@ccf.org.
A New Era Emerges in the Treatment of CTOs
Advances in percutaneous techniques, tools boost success rates

However, interventionalists who are experienced in revascularization of chronic total occlusions (CTOs) are seeing a marked increase in success rates due to advances in percutaneous techniques and technologies such as specialized guidewires and catheters.

“There has been a revolution in the technique of opening the CTOs,” says Patrick L. Whitlow, MD, Director of Interventional Cardiology in the Department of Cardiovascular Medicine. “They have always been difficult to open, with an average success rate over the years of 50 to 70 percent. Over the past decade, with a better evolution of techniques and tools, the success rate has jumped to 85 to 90 percent for skilled operators who do 100 or more of these procedures per year.”

Novel Techniques
Cleveland Clinic is one of a small number of centers in the United States where interventionalists are now using an innovative retrograde approach in which CTOs are accessed from collateral blood vessels, says Stephen G. Ellis, MD, Section Head of Invasive/Interventional Cardiology in the Department of Cardiovascular Medicine.

Another novel technique involves going into the wall of the blocked coronary artery and routing the wire parallel to where the blood previously flowed. The wire tracks around the hardest part of the blockage and then re-enters the correct central blood flow lumen of the artery. This new channel is then enlarged and stented open to allow normal blood flow around the previous 100 percent blockage.

The fine movement of newer guidewire tips makes them easier to control, which facilitates the complex maneuvers required for re-entry and retrograde collateral channel approaches.

“The majority of CTO revascularizations that we do at Cleveland Clinic are referrals,” Dr. Ellis says. “This is not a routine procedure at most hospitals; the success rate is highly dependent on the skill and experience of the operator.”

Cleveland Clinic also has begun using these same types of innovative techniques to treat peripheral vascular disease of the legs.

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Pioneered in Japan
Many of the newer CTO revascularization tools and techniques — including the retrograde approach — have been pioneered by Japanese operators and "a small cadre of American innovators," Dr. Ellis says.

Due to cultural beliefs, many patients in Japan prefer to avoid CABG because they don’t want their circulation supported by a bypass machine. “So there was a patient-driven demand for interventionalists there to get better at opening these 100 percent blockages,” says Dr. Whitlow, who traveled to Japan several times to learn the retrograde approach. He also invited Japanese interventionalists to his catheterization lab to teach the technique.

“The idea of using a backdoor approach to get to the occluded artery was a big breakthrough,” he says.

Appropriate Candidates
While not all patients with CTOs require revascularization, Dr. Whitlow says that it is a "very needed" procedure, especially in patients with activity-limiting angina who want to avoid bypass surgery and in patients with weakened and oxygen-deprived but viable heart muscle.

“If patients have symptoms despite medical therapy, that’s a good jumping-off point,” Dr. Ellis says. “There also are anatomic features that you can see during catheterization that help determine whether someone will be a good or bad candidate.”

While randomized trials are still needed, Dr. Whitlow says there are at least two scenarios in which CTO revascularization may prolong life:

• When the artery that is occluded is in the proximal to mid-segment of the left anterior descending artery. "A lot of registries show that patients with a successful vs. unsuccessful opening of the artery have improved life expectancy."

• In patients with multivessel disease who present with a heart attack. "If one of the arteries has a chronic total occlusion, then the chance of dying in the next year goes up from about 4 percent to 25 percent. So we believe that opening the CTO in those patients may prolong life."
Shown here is a proximal right coronary artery chronic total occlusion (CTO).

A microcatheter loaded with a guidewire is pictured passing through a septal collateral artery with the opaque wire tip already visible in the distal right coronary artery from the left anterior descending coronary artery in a retrograde approach.

A balloon is inflated in the right coronary artery to dilate the occlusion from the retrograde approach.

The patent and stented right coronary artery are shown following retrograde recanalization.

Dr. Whitlow points out that historically, in major clinical trials of surgery vs. angioplasty or stenting in multivessel coronary disease, CTO is the main reason that people have been turned down for randomization.

“Most patients with CTO and multivessel disease who are symptomatic go to surgery and aren’t randomized, because of the belief that the operator wouldn’t be able to open the CTO,” he says. “In the last decade, our success rate has improved to the point that CTO should no longer be a valid reason to refuse a patient the option of percutaneous revascularization for coronary artery disease.”

Contact Dr. Whitlow at 216.444.1746. Dr. Ellis can be reached at 216.444.6712 or elli@ccf.org
In addition, progressive coronary artery disease can add to the complexity. With patients surviving longer after their primary cardiac surgeries, older age not only increases operative risk but allows for the development of comorbidities that can complicate a reoperation.

“Cardiac reoperation volume is an important indicator of experience,” says Joseph Sabik, MD, Chairman of the Department of Thoracic and Cardiovascular Surgery. The number of cardiac reoperations performed at Cleveland Clinic since 2010 exceeds 3,000. Approximately one-fourth of those were performed on patients who’d had one or more reoperations. During that time, the risk of having a bad outcome during a second operation was actually less than that with a primary cardiac surgery. Cardiovascular surgery mortality was less than 1 percent among patients undergoing a reoperation at Cleveland Clinic, while it was 1 percent among those undergoing their first cardiac operation.

The data highlight the importance of experience in realizing good outcomes with coronary reoperation.

Reoperations Are Unpredictable; Experience and Team Approach Reduce Complications

“Reoperations are characterized by being unpredictable,” says Gösta B. Pettersson, MD, PhD, Vice Chair, Department of Thoracic and Cardiovascular Surgery and Surgical Director of Lung Transplantation. He and colleague Eric Roselli, MD, reviewed adverse events encountered during reoperative cardiac surgery and found that adverse events occurred primarily during dissection and when preventive strategies were not used. The total rate of intraoperative adverse events was 7 percent.

In the reoperative setting, sternotomy is more hazardous as the loss of pericardium from previous surgery can cause adhesion of heart structures to the sternum and chest wall. Severe bleeding can occur from injury to cardiac and vascular structures during sternal re-entry. Injury to the aorta, bypass grafts, large veins, right ventricle, right atrium, native coronary vessels, or the internal thoracic artery is possible during resternotomy. Scar tissue and fibrosis near the prior operative site can cause difficulty. Lung injury causing bleeding or air leakage can occur.

All these potential adverse effects can necessitate a change in strategy. Patients who have had prior repair of congenital defects may have altered anatomy and physiology that make the procedures more difficult and increase the risk of injury. The omission of retrograde cardioplegia after coronary sinus injury is also more problematic with a reoperation.
“You have to have all the tools available to put the heart back together,” says Dr. Pettersson. “You have to understand all the different approaches that can be taken and how to get access to the heart, how to get exposure, how to handle the scar tissue, and the correct planes [for dissection].”

Reoperation is not a risk for poor outcomes when a specific multidisciplinary approach is used. If the entire team of surgeons, anesthesiologists, perfusionists and nurses is well-prepared, institutes preventive strategies and responds in a coordinated fashion when required, the reoperation itself is no longer a risk for a worse outcome.

“If there's anything for which we need a team approach, it's for the patient undergoing a reoperation,” says Dr. Sabik. “I believe it's the team approach that has been responsible for our success in reoperations. All our cardiac care is delivered in one building where we have our cardiac surgeons, cardiologists, anesthesiologists, intensivists and operating rooms. All we do is chest surgery in our operating room. The intensive care unit is limited to cardiothoracic patients.”

At Cleveland Clinic, preventive strategies include preoperative planning to understand anatomy, and standardized imaging and interpretation of images prior to reoperation. Imaging studies include cardiac catheterization films, chest radiographs, and computed tomography and magnetic resonance imaging enhanced by 3-D reconstruction.

Because reoperations usually take longer than primary surgeries and the patient's cardiac function can be reduced, myocardial protection becomes more important, say Drs. Sabik and Pettersson. Retrograde cardioplegia is delivered in all reoperations and requires particular attention in patients with patient old vein grafts.

Rescue strategies, including preparedness for emergency establishment of cardiopulmonary bypass and protection of the heart and brain, must also be in place in the event of an injury or ischemia.

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**Cleveland Clinic Cardiovascular Surgery Mortality 2010-2012**

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From 2010-2012, valve surgery accounted for 67 percent of cardiac surgery volume at Cleveland Clinic.

**Cleveland Clinic Valve Surgery Mortality 2010-2012**

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Experience at Work:
Reoperation Following Endovascular Abdominal Aortic Aneurysm Repair

The depth of Cleveland Clinic’s experience with reoperations isn’t limited to complex cardiac procedures. Abdominal aortic aneurysm (AAA) repair and the excellent outcomes achieved are also benefits of our large experience in the area of vascular repair. Endovascular aortic abdominal aneurysm repair (EVAR) allows minimally invasive repair of aneurysms with groin incisions or small groin punctures. EVAR has allowed repair of AAAs with lower mortality rates than open repair.

“Our elective EVAR mortality has been less than 1 percent for the past several years,” says Sean Lyden, MD, staff surgeon in the Department of Vascular Surgery.

Cleveland Clinic has been a lead participant in nearly every clinical trial that has led to Food and Drug Administration (FDA) approval of devices used for EVAR. “Right now, there are six FDA-approved abdominal aortic aneurysm stent grafts. We have been involved in the trials with all of those,” says Dr. Lyden.

All of the EVAR devices approved from 1999 through 2012 have had similar anatomic requirements for use. Long-term data has shown that late failures do occur with these devices in 1 to 2 percent of patients. Device migration and Type I and III endoleaks are the most common reason for failure of EVAR devices. Device migration and Type I endoleaks occur more commonly in treated patients who have anatomy that is outside of the instructions for use for these devices.

“We have the world’s largest single-center experience with treating EVAR late failures, both with endovascular and open means,” says Dr. Lyden. “We can fix some EVAR failures with repeat catheter-based endovascular procedures. We also can create custom endovascular grafts in a physician-sponsored investigational device exemption trial (IDE),” he says.

“This FDA-approved IDE trial allows us to design and use custom fenestrated and branched endovascular devices to fix failures from FDA-approved EVAR devices.” – Sean Lyden, MD

Conversion of failed EVAR to open repair is still necessary in a small percentage of patients. Dr. Lyden points out that Cleveland Clinic has published outcomes with late open removal of EVAR devices, results that have shown this procedure can be performed electively with a 3.3 percent mortality rate - less than the 4 percent mortality found for original open repair in the Medicare population. When done emergently for infection or rupture, the risk of mortality is much higher.

“Because of this, we push for early referral for failing devices to allow us all options for treatment,” concludes Dr. Lyden.

For additional information, contact Dr. Sabik at sabikj@ccf.org or 216.444.6788. Dr. Pettersson can be reached at petterg@ccf.org or 216.444.2035. Contact Dr. Lyden at lydens@ccf.org or 216.444.3581.
Severe paravalvular mitral regurgitation after four previous mitral replacements successfully treated with transcatheter implantation of two Amplatzer® Muscular VSD Occluder devices.

FOR MORE INFORMATION ON THIS PROCEDURE, CONTACT SACHIN GOEL, MD, AT 216.444.6735 OR GOELS@CCF.ORG, OR WILLIAM STEWART, MD, AT 216.444.5923 OR STEWARW@CCF.ORG.
Save the Dates
For These Events and Conferences

14th Annual Intensive Review of Cardiology

Aug. 18 – 21, 2013

InterContinental Hotel & Bank of America Conference Center | Cleveland, Ohio

This four-day symposium will focus on practicing cardiologists and the delivery of contemporary cardiovascular medicine including complex patient management decision-making. Cardiovascular board certification and recertification examination candidates may also find this symposium useful. The clinical evaluation and management of the patient encountered in daily practice will be highlighted. The current ACC/AHA guidelines supporting treatment and management recommendations will be referenced as will treatment controversies and dilemmas. Interactive patient management evening sessions specific to electrophysiology, advanced imaging and the cardiac catheterization laboratory are also planned.

For more information, visit ccfmce.org/cardioreview13.

2013 Preceptorship in Carotid Ultrasound Interpretation

Aug. 26 – 30 | Dec. 2 – 6, 2013

Cleveland Clinic
Miller Family Heart & Vascular Institute
Noninvasive Vascular Laboratory | Cleveland, Ohio

(class size is limited to six participants)

This intensive 4 ½-day program will train the participant to interpret carotid duplex ultrasound examinations through a series of activities, including didactic lectures, preceptorship interpretation sessions with staff physicians from Cleveland Clinic’s Noninvasive Vascular Laboratory, hands-on scanning sessions, and review of an extensive library of programmed-learning carotid cases with angiographic correlations.

For more information, visit ccfmce.org/carotid13.

5th Annual Diabetes and the Heart: Best Practices in Managing CVD in Your Diabetic Patient

Oct. 21 – 22, 2013

InterContinental Hotel & Bank of America Conference Center | Cleveland, Ohio

This two-day program will focus on the relationship between diabetes and cardiovascular disease, with discussions on current and future treatment approaches to reducing complications of diabetes and preventing adverse cardiovascular events. Topics will include the impact of current trials, lifestyle interventions, lipid management and bariatric surgery in the management of diabetic patients with cardiovascular disease within and beyond the hospital setting. Current guidelines for hypertension and peripheral arterial disease management will be discussed, as will the controversy over weight-loss drugs and why focusing on the gut may help reduce cardiovascular disease.

For more information, visit ccfmce.org/diabetesheart13.

9th Annual Pulmonary Hypertension Symposium: Translating Discoveries into Patient Care

Nov. 15 – 16, 2013

InterContinental Hotel & Bank of America Conference Center | Cleveland, Ohio

The Pulmonary Hypertension Symposium brings together leaders in the field of pulmonary hypertension to discuss recent advances and future directions in the diagnosis and management of this disease. The symposium will highlight the disease mechanisms and pathophysiology of pulmonary hypertension as well as the evaluation and medical management of the patient. Expert speakers will present the recent advances in the context of challenges faced by physicians and other healthcare providers caring for patients with this complex medical condition. Saturday will include a half-day patient-oriented session.

For more information, visit ccfmce.org/pulhype13.
Resources for Physicians

Referring Physician Center and Hotline
Cleveland Clinic’s Referring Physician Center has established a 24/7 hotline – 855.REFER.123 (855.733.3712) – to streamline access to our array of medical services. Contact the Referring Physician Hotline for information on our clinical specialties and services, to schedule and confirm patient appointments, for assistance in resolving service-related issues, and to connect with Cleveland Clinic specialists.

Physician Directory
View all Cleveland Clinic staff online at clevelandclinic.org/staff.

Track Your Patient's Care Online
DrConnect is a secure online service providing real-time information about the treatment your patient receives at Cleveland Clinic. Establish a DrConnect account at clevelandclinic.org/drconnect.

Critical Care Transport Worldwide
Cleveland Clinic’s Critical Care Transport teams and fleet of vehicles are available to serve patients across the globe.

• To arrange for a critical care transfer, call 216.448.7000 or 866.547.1467 (see clevelandclinic.org/criticalcaretransport).

• For STEMI (ST elevated myocardial infarction), acute stroke, ICH (intracerebral hemorrhage), SAH (subarachnoid hemorrhage) or aortic syndrome transfers, call 877.379.CODE (2633).

Outcomes Data
View clinical Outcomes books from all Cleveland Clinic institutes at clevelandclinic.org/outcomes.

Clinical Trials
We offer thousands of clinical trials for qualifying patients. Visit clevelandclinic.org/clinicaltrials.

CME Opportunities: Live and Online
The Cleveland Clinic Center for Continuing Education's website offers convenient, complimentary learning opportunities. Visit ccfme.org to learn more and use Cleveland Clinic’s myCME portal (available from the site) to manage your CME credits.

Executive Education
Cleveland Clinic has two education programs for healthcare executive leaders — the Executive Visitors’ Program and the two-week Samson Global Leadership Academy immersion program. Visit clevelandclinic.org/executiveeducation.

Same-Day Appointments
Cleveland Clinic offers same-day appointments to help your patients get the care they need, right away. Have your patients call our same-day appointment line, 216.444.CARE (2273) or 800.223.CARE (2273).
For the second year in a row, Cleveland Clinic has received the GOLD Certification from the American Heart Association’s Get With The Guidelines Heart Failure Recognition Program. The GOLD recognition is awarded to hospitals with the greatest success in using AHA’s achievement measures for treatment interventions.

“Our team of caregivers is proud to meet the benchmark set to deliver the best care to our hospitalized heart failure patients,” says Randall Starling, MD, MPH, Head of the Section of Heart Failure and Cardiac Transplant Medicine and Medical Director of the Kaufman Center for Heart Failure. “Our mission is to provide the best possible care to our patients in the hospital, at home, and in all venues of care.”

By following these proven guidelines and procedures, Cleveland Clinic is able to improve the quality of care for heart failure patients and prevent future hospitalizations.