

## Montefiore-Einstein Heart Center's Door-to-Balloon Record Sets Industry Standard

By Gail S. Belmuth, Special to HeartLine

**C**ARDIOLOGISTS OFTEN SAY THAT "TIME IS MUSCLE" WHEN IT COMES TO RE-OPENING BLOCKED ARTERIES IN PATIENTS WITH ST-SEGMENT ELEVATION ACUTE MYOCARDIAL INFARCTION (STEMI).

That is why the American College of Cardiology (ACC), in partnership with the American Heart Association (AHA), has established a national door-to-balloon (angioplasty) goal of 90 minutes.

Achieving that goal is not easy, as evidenced by the fact that only 40% of hospitals with primary PCI (percutaneous coronary intervention) capabilities currently meet the standard.

An interdisciplinary care team at the Montefiore-Einstein Heart Center took the national challenge head-on, and the results have been nothing less than extraordinary. For the first quarter of 2008, Montefiore's door-to-balloon record was nearly 100% for procedures completed in 90 minutes or less. In many of these cases, blood

vessels were re-opened in less than 60 minutes. These figures include overnights and weekends, when it can be more difficult for some hospitals to provide full-service care.

"It took a little push to get everyone on board," explains Mark A. Greenberg, MD, a Heart Center interventional cardiologist who spearheaded the effort. "So we set up a committee that included cardiologists, hospital senior management, the ER directors, and the folks in the Cath [Cardiac Catheterization] Lab. We established a set of shared goals and developed new protocols and mechanisms to help achieve them. And from there, we never looked back."

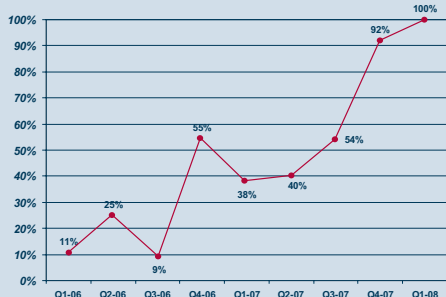
### Commitment, Teamwork, Clinical Excellence...and Walkie Talkies

For most hospitals, setting up a system that makes rapid door-to-balloon times possible requires a wholesale shift in traditional practices. Common protocol is that when a patient experiencing a heart attack arrives at an emergency room, the cardiology fellow on call is brought in to assess the patient.

(Continued on back)

### Heart Center Ahead of the Curve

Primary PCI within 90 Minutes, Montefiore 2006-08



### Hybrid Revascularization (see page 2)



## Also in this Issue:

- 3 Heart Center News
- 4 Physician Profile:  
David D'Alessandro, MD  
*Heart Failure Specialist*
- 5 Cryoablation

Published by the Montefiore-Einstein Heart Center

#### Co-Directors:

Richard N. Kitsis, MD  
*Dorros Chair  
Professor and Chief  
Division of Cardiology*

Robert E. Michler, MD  
*Surgeon-in-Chief  
Belkin Chair  
Chairman, Departments  
of Surgery and  
Cardiothoracic Surgery*

#### Heartline Editors:

Chris Snyder  
Melissa Crissman  
Amy Weiss, Designer

#### Correspondence:

Marketing Department  
111 East 210th Street  
New York, NY 10467  
tel. 718-920-7823  
fax 718-405-1938



The University Hospital for the  
Albert Einstein College of Medicine

# Hybrid Revascularization

## Using Robotic Coronary Artery Bypass Grafting and Drug Eluting Stents

By Joseph J. DeRose, MD

**T**HE TREATMENT OF MULTI-VESSEL CORONARY ARTERY DISEASE RANGES FROM INTENSIVE MEDICAL THERAPY, TO PERCUTANEOUS CORONARY INTERVENTIONS, TO CONVENTIONAL OPEN-HEART SURGERY. PROSPECTIVE RANDOMIZED STUDIES OVER THE PAST 30 YEARS HAVE DEMONSTRATED THAT SURGICAL REVASCUARIZATION REMAINS THE BEST LONG-TERM OPTION IN PATIENTS WITH MULTI-VESSEL DISEASE.

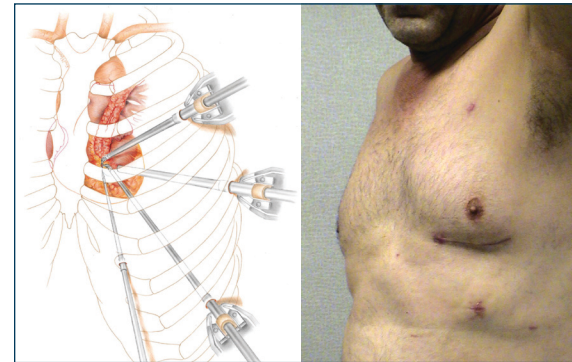
The long-term survival advantage of CABG, however, originates predominantly in the patency of a left internal thoracic artery (LITA) graft sewn to the left anterior descending artery (LAD). As the patient population referred for CABG has grown older with more co-morbidities, avoidance of cardiopulmonary bypass and the application of less invasive revascularization strategies has become more appealing.

At the Montefiore-Einstein Heart Center, minimally invasive cardiac surgeons and interventional cardiologists are routinely performing “hybrid” revascularization in patients with multi-vessel disease. This approach usually begins with a robotically assisted CABG in which the LITA is sewn to the LAD through a small incision between the ribs. Robotic techniques are used to perform this operation on the beating heart and the breastbone need not be divided. Recovery from this operation has been quite rapid and nearly all patients can return to full activity within two weeks. Joseph DeRose, MD, director of Minimally Invasive and Robotic Cardiac Surgery and chief of Adult Cardiac Surgery at the Jack D. Weiler Division has pioneered robotic CABG since its inception in 2001 and has performed over 100 such operations. The robotic CABG has allowed high-risk patients to

safely acquire the survival advantage of a LITA-LAD while minimizing the morbidity and complications of sternotomy and conventional bypass surgery. In mid-term analysis (1-5 years) angiography has demonstrated equivalent LITA-LAD patency rates between robotic and conventional CABG.

While robotic CABG does convey a survival advantage to patients with triple vessel disease, it fails to address coronary lesions in the circumflex and right coronary distribution. With the emergence of drug-eluting stents, percutaneous options have been devised in order to address these non-LAD territories of ischemia. It is postulated that using a strategy of minimally invasive LITA-LAD revascularization combined with a clinically directed approach of drug eluting stent placement for residual ischemic territories after robotic CABG, the morbidity of conventional CABG can be reduced in higher risk patients while still maintaining the advantages of complete revascularization.

Interventional cardiologists, Mark Greenberg, MD, and V.S. Srinivas, MD, work closely with the cardiac surgical team to identify patients whose coronary anatomy make them appropriate candidates for this novel approach. By combining the less invasive nature of stent placement with minimally invasive



cardiac surgical techniques the advantages of both approaches may be realized. This approach is not only allowing patients a quicker return to activity but is affording a revascularization strategy to high-risk patients who previously had no other options.

At the Montefiore-Einstein Heart Center an NIH sponsored multi-center study comparing hybrid revascularization to other coronary revascularization strategies is being developed. ♥

*For further information, contact Dr. Joseph J. DeRose at 718 405-8371 or via email at: [jderose@montefiore.org](mailto:jderose@montefiore.org)*

**LIVE INTERNET BROADCAST**  
**LVAD Procedure**  
**and the HARPS STUDY**  
*Bridge to Transplant and Bridge to Recovery*

**November 13 at 7:00 pm**  
**Cherkasky Auditorium**

(Foreman Pavilion/Moses Division)

All interested parties are invited to come and participate in the discussion and general question and answer period in person, or join us on **OR-LIVE.com**.

## GRAND OPENING

### *of the new MOSES DIVISION Cardiac Catheterization Laboratory*

Steven M. Safyer, MD, President of Montefiore Medical Center, Richard N. Kitsis, MD, Chief of the Division of Cardiology, and Mark A. Greenberg, MD, Director of the Cardiac Catheterization Laboratory and Clinical Chief, Division of Cardiology, announce the

### Grand Opening of the new MOSES DIVISION Cardiac Catheterization Laboratory, Gold Zone, 1st Floor

*The ribbon cutting ceremony will take place at 9:00 am on Monday, December 15, 2008. RSVP to 718-902-4212*

## News from around the Montefiore-Einstein Heart Center

### Promotions

Robert E. Michler, MD, has announced the promotion of Daniel Goldstein, MD, to vice chairman, Department of Cardiothoracic Surgery. Dr. Goldstein is director of Cardiac Transplantation and Mechanical Assist Device Programs and associate professor of Cardiothoracic Surgery.

Dr. Michler also announced the promotion of Joseph DeRose, MD, to Director of Adult Cardiac Surgery, Weiler Division. Dr. DeRose has also been appointed associate professor of Cardiothoracic Surgery.

### New AATS Members

Abe DeAnda Jr., MD, and Daniel Goldstein, MD, were recently elected to membership in the American Association for Thoracic Surgery, joining Drs. Robert Michler, Lari Attai, and Robert Frater in representing Montefiore Medical Center/Albert Einstein College of Medicine in this prestigious organization.

Election to AATS membership requires a proven track record of distinction in the cardiothoracic field, with candidates having made a meritorious contribution to knowledge pertaining to

cardiothoracic disease or its surgical treatment. Specific qualifications reviewed for membership include accomplishments in clinical performance, professional stature, professional conduct, leadership advancing the discipline, and contributions to surgical literature in English language peer reviewed journals. Active membership is limited to 700 members.

Dr. DeAnda is the director of Aneurysm and Aortic Surgery, director of Thoracic Surgery Residency, and associate professor in the Department of Cardiothoracic Surgery. Dr. Goldstein is the vice chairman and associate professor in the Department of Cardiothoracic Surgery, as well as the director of Cardiac Transplantation and Mechanical Assistance and surgical director of the Center for Advanced Cardiac Therapy. Both Drs. DeAnda and Goldstein were recently listed in "Super Doctors in New York City."

Drs. DeAnda and Goldstein will be inducted during the 2009 Annual Meeting in Boston, MA.

### New Faculty

The Division of Cardiology is pleased to announce the

appointment of Lawrence M. Boxt, MD, FACC, as cardiovascular radiologist, at Montefiore Medical Center and professor of Clinical Radiology at Albert Einstein College of Medicine. Dr. Boxt served most recently as Director of MRI and CT in the Division of Cardiology at North Shore University Hospital.

### Alumni

P. K. Shah, MD, the director of Cardiology at Cedars-Sinai Medical Center (Montefiore Resident/ Cardiology Fellow 1972-76) will receive the AHA Council on Clinical Cardiology's 2008 James B. Herrick Award in New Orleans, LA on November 11, 2008.

### Administration

Donald Stark has been hired as Director for Clinical and Business Affairs for the Division of Cardiology. Mr. Stark joins Montefiore Medical Center after nineteen years at Hackensack University Medical Center in New Jersey. He will be working with the physicians and staff in cardiology to continue and expand the clinical and operational excellence of the Montefiore-Einstein Heart Center. ♥

## Heart Failure Specialist Directs Clinical Trials at Montefiore-Einstein Heart Center

**W**HILE HE GETS THE GREATEST PERSONAL SATISFACTION FROM TREATING PATIENTS, DAVID A. D'ALESSANDRO, MD, IS EQUALLY EXCITED ABOUT HIS RESPONSIBILITIES AS DIRECTOR OF CLINICAL TRIALS AT THE MONTEFIORE-EINSTEIN HEART CENTER. DR. D'ALESSANDRO—ATTENDING SURGEON IN CARDIOTHORACIC SURGERY AND ASSISTANT PROFESSOR OF CARDIOTHORACIC SURGERY AT THE ALBERT EINSTEIN COLLEGE OF MEDICINE—JOINED MONTEFIORE-EINSTEIN HEART CENTER IN JULY 2005. ACCORDING TO HIS COLLEAGUES, HE HASN'T LOOKED BACK SINCE.



“Dr. D'Alessandro currently juggles three key roles for the department, and he's doing a terrific job with each of them,” notes Robert E. Michler, MD, chairman of the Department of Cardiothoracic Surgery. “As a surgeon, as director of our clinical trials, and as senior advisor for our clinical affairs, Dr. D'Alessandro is helping to ensure that the Montefiore-Einstein Heart Center continues to provide state-of-the-art, compassionate care while expanding medical knowledge through extensive clinical research,” adds Dr. Michler.

Dr. D'Alessandro earned his medical degree from Columbia University College of Physicians and Surgeons and completed his general surgery and thoracic surgery residencies at New York Presbyterian Hospital/Columbia University Medical Center. While at Columbia, he conducted research on a range of topics related to heart failure under the mentorship of Dr. Mehmet Oz and Dr. Henry Spotnitz. He also served as a junior member of Columbia's medical faculty.

At Montefiore, Dr. D'Alessandro focuses on adult cardiac surgery, with a specialization in heart

failure. Along with other members of the surgical team, he regularly performs bypass operations, heart transplantations, valve procedures, the implantation of devices, and other procedures to address high risk coronaries. “Montefiore is unique in the passion we have for our community and also in the degree to which our staff works as an integrated team when treating patients,” says Dr. D'Alessandro. “That teamwork makes us more productive and is a huge benefit to our patients.”

When he is not in the operating room, Dr. D'Alessandro is active in the laboratory. In one particularly promising study, Dr. D'Alessandro and his colleagues have developed a transplant model in animals to see how cardiac stem cells can be used to re-grow the native heart. In addition to conducting extensive independent research, Montefiore-Einstein Heart Center is one of only seven hospitals in North America to have received a prestigious 5 year grant from the National Institutes of Health (NIH) to conduct pioneering studies in cardiothoracic surgical practice and cardiovascular disease management. Dr. D'Alessandro and

others at Montefiore are currently completing a grant application to supplement this work with independent studies that will investigate whether ventricles can be recovered through a combination of assist devices and cardiac stem cells, thereby reducing the need for heart transplantation.

“In the field of cardiothoracic surgery, some of the most promising developments involve the discovery and use of new mechanical assist devices—with or without cardiac stem cells—in treating heart failure,” explains Dr. Michler. “Montefiore-Einstein Heart Center is at the forefront in this area, and we've had great success finding new applications for the TandemHeart®, for example. With young, talented, committed physicians like Dr. D'Alessandro, I know we will continue to find new ways to improve and save the lives of critically ill patients who—just a few years ago—would not have had hope.” ♥

*For further information, contact Dr. David D'Alessandro at 718-920-6515 or via email at: [ddalessa@montefiore.org](mailto:ddalessa@montefiore.org)*

# Cryoablation May Lessen the Complications of Heart Block

by Eugen Palma, MD

**T**HE MOST COMMON REFRAIN HEARD BY MANY ELECTROPHYSIOLOGISTS WHEN TRYING TO EXPLAIN THEIR SPECIALTY AND CATHETER ABLATION TO THEIR PATIENTS IS, “WHATEVER ELSE YOU DO, I DO NOT WANT A PACEMAKER.” EVEN IN THE MOST EXPERIENCED AND BEST OF HANDS, THE INCIDENCE OF COMPLETE HEART BLOCK NECESSITATING A PACEMAKER STILL REMAINS 1-2% USING CONVENTIONAL RADIOFREQUENCY ENERGY.

Now, cryoablation offers a new way to assure patients of not having this complication as well as providing other safety benefits.

Unlike radiofrequency energy that delivers heat, cryotechnology uses extreme cold to freeze tissues and create its curative lesions. First used in a patient in 1998, the cryocatheter uses liquid nitrous oxide in a vacuum-sealed chamber to create lesions similar in size and depth to those that result from radiofrequency.

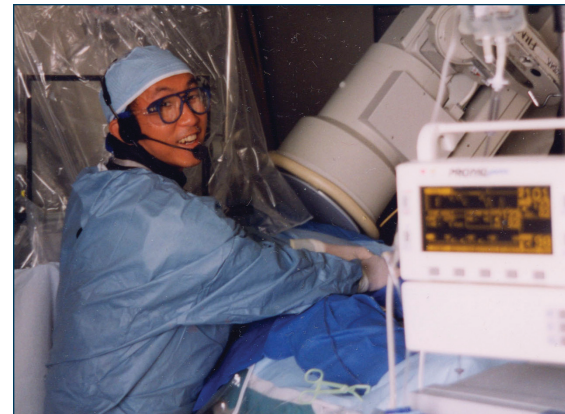
Cryoablation offers several distinct advantages over radiofrequency energy:

1) The lesion that cryoablation creates can be reversible. A unique property of freezing is that cells only suffer permanent damage at -80 degrees F. If you only freeze to only -30 degrees F,

cells can recover once thawed.

The obvious application of this reversible property becomes clear when ablating the most common arrhythmia, AV node reentry. Using cryoablation, one can freeze to -30 degrees, and check to see if the catheter is at the correct curative as well as safe spot. If you see damage being done to the AV node, then you simply stop freezing and thereby avoid complete heart block. If you don't see the desired curative effect, the catheter can be moved to a different spot.

2) Once frozen, the catheter adheres to the tissue thereby creating better contact and stability. Catheter slippage from poor contact is a major safety issue when ablating in a beating heart using radiofrequency energy.



3) Cryoablation does not have the same risk of thrombus formation, or steam-pops that lead to perforations and tamponade radiofrequency. It is particularly effective in areas where blood flow limits the ability to heat tissues, such as inside the coronary sinus.

There have now been several reports that have looked at the long-term efficacy of cryoablation, comparing it to radiofrequency, in many different types of arrhythmias. These reports have found cryoablation to have the same efficacy long-term as RF, with perhaps a better safety record. Future uses of cryotechnology such as with a balloon-catheter that freezes around the pulmonary veins for atrial fibrillation are extremely promising (Montefiore was the only center in New York to participate in this clinical trial).

What do I tell my patients when they worry about needing a pacemaker after an ablation? My best answer at this time is that I will be using cryoablation. ♥

## STATE OF THE ART HEART CARE is now MORE CONVENIENT THAN EVER

The Montefiore-Einstein Heart Center has opened its new electrophysiology lab at the Jack D. Weiler Division in the East Bronx. Under the direction of Eugen Palma, MD, physicians at Weiler now have the ability to perform regular EP studies and ablations, including the latest cryoablation procedure.

*For more information, contact Dr. Palma, at (718) 920-6269.*

**Weiler Division Electrophysiology Lab**  
1825 Eastchester Road • Bronx, NY 10461

## Door-to-Balloon Time *(continued from cover)*

He or she brings in the attending physician to confirm the diagnosis, and only then is the Cath Lab team activated. By the time the actual treatment begins, upwards of 45 potentially life-saving minutes can have been lost, with negligible upside for the patient or the care team.

At Montefiore, the ER sets the process in motion, activating a team from all pertinent disciplines. This streamlined approach is just one of the secrets of Montefiore's success. According to *Circulation: Journal of the American Heart Association*, the common characteristics among hospitals like Montefiore, include a shared commitment to improving door-to-balloon times, the support of senior management, uncompromising clinical leadership, interdisciplinary teamwork, flexibility in refining standard protocols, and an organizational culture that embraces continuous improvement.

Montefiore took this list a step further by incorporating a number of critical time-saving tools into their approach. "A couple of us put together 'STEMI Kits,'" notes Mark A. Menegus, MD, FACC, FSCAI, director of Montefiore's CCU and ICCU. "They include all of the medications we'll need during the procedure, so when a patient comes in, we're ready to go."

In addition, each team member has a Nextel Direct Connect® push-to-talk phone, which allows for instant group communication at the touch of a button. "We have a triple notification process in place that includes the walkie talkies, beeper paging and Internet paging with text messages transmitted by beeper and phone," explains Dr. Greenberg. "When you're playing 'beat-the-clock' like we are, we don't have a minute to spare. Other hospitals do this. We just do it faster."

### Success Breeds Success

Other hospitals have taken note of Montefiore's success and are actively seeking to replicate our systems and processes. It's no wonder, since studies repeatedly demonstrate that emergency PCI for STEMI patients results in reduced mortality or permanent organ damage, shorter hospital stays, and lower overall healthcare costs.

Montefiore's performance extends to patient transfers from hospitals in the Bronx and Westchester that are not equipped to perform emergency catheterization. By placing a single call to our 1-800-ME-HEART hotline, Montefiore's ambulances are dispatched, the team is notified, and the Cath Lab prepares for the patient's arrival. ♥

*For further information, contact:*  
Dr. Mark Menegus, 718 920-5528 or [mmengus@montefiore.org](mailto:mmengus@montefiore.org)  
Dr. Mark Greenberg, 718-920-4212 or [mgreenbe@montefiore.org](mailto:mgreenbe@montefiore.org)

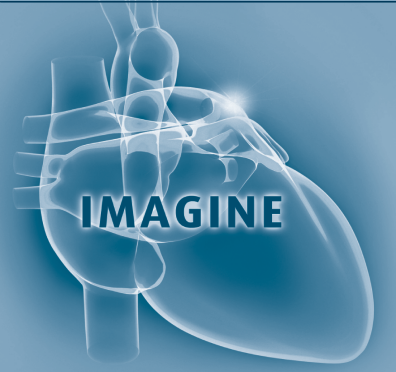
## 2007 National STEMI Statistics

- Close to 400,000 people suffer from a STEMI heart attack in the United States each year.
- 75% of the nation's acute care hospitals are not capable of performing life-saving PCI for STEMI patients.
- Of those patients who receive PCI, only 40% are treated within 90 minutes, as recommended by the American College of Cardiology and the American Heart Association.
- In 2004, the median time to PCI was 293 minutes, according to The Joint Commission (TJC).

*Courtesy: American Heart Association*

MONTEFIORE-EINSTEIN HEART CENTER

**ADMITTING AND TRANSFERS Made Easy.**



- Track arrival of patients
- Track progress of patients
- Admit or transfer your own patients

**One call is all you make**  
**1-888-ME-HEART**  
[www.montefiore.org/heart](http://www.montefiore.org/heart)