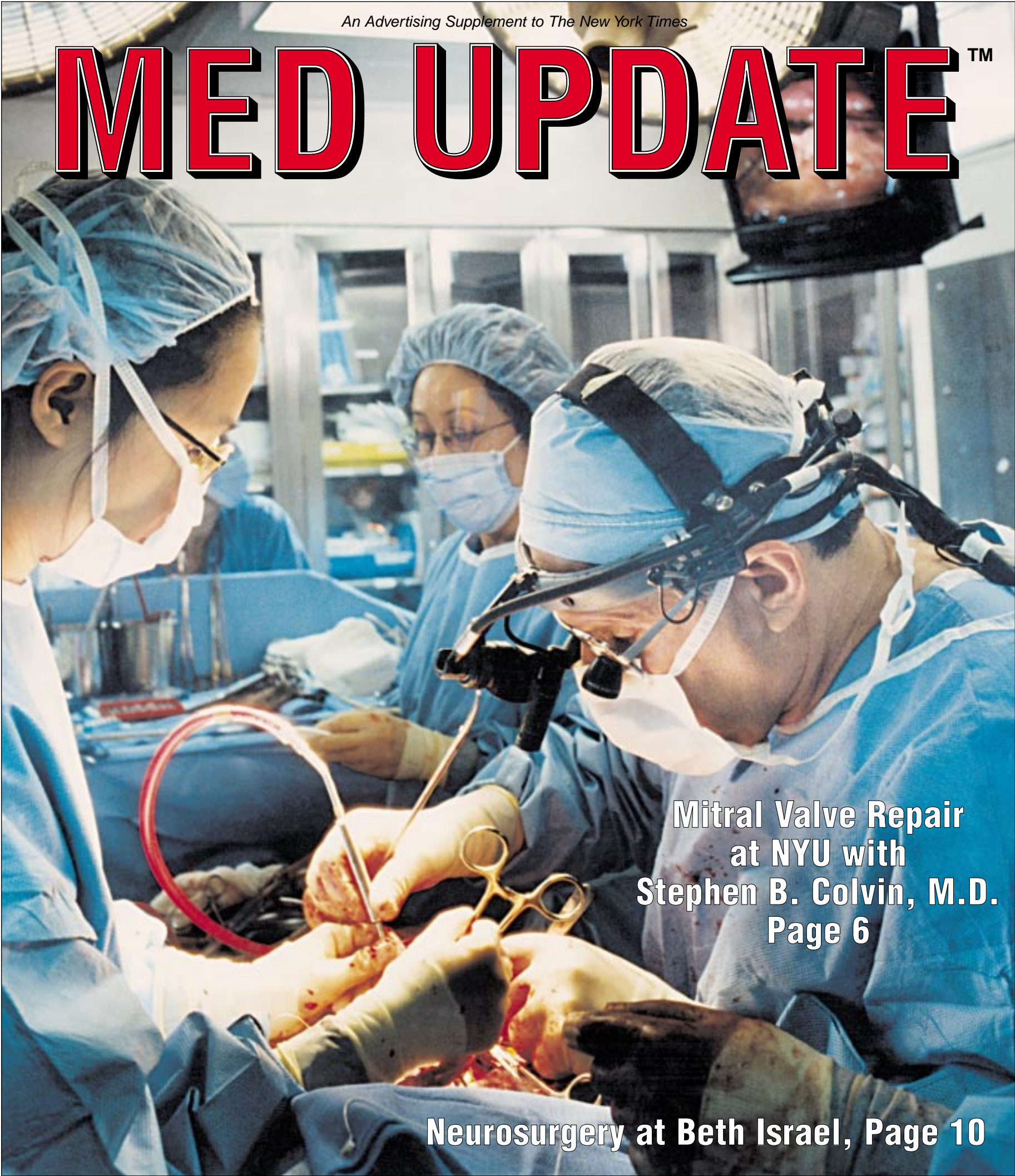


An Advertising Supplement to The New York Times

MED UPDATE™



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NYU Cardiothoracic Surgeons Operate at Cutting Edge



Dr. Aubrey Galloway listens to Sylvia Carl's heart following her mitral valve surgery.

Sylvia Carl's only complaint after having had mitral valve replacement surgery at New York University Medical Center is that she can't get any sympathy.

"To tell you the truth," articulated the Bronx octogenarian, "I can't get any sympathy from anyone because I look too good; I went to the beauty parlor shortly after the surgery and they all looked at me and said, 'I don't believe it.'"

When Mrs. Carl needed heart surgery, her son, a New York-area physician himself, circumspectly investigated his mother's options and settled on NYU and the less traumatic minimally invasive cardiac surgery.

NYU Excels in Higher-Risk Patients

"Many places won't operate on these patients at all. Sylvia Carl is older and had bad disease in the aorta. There would have been a lot more risk with surgery if it were done conventionally,"

said **Aubrey C. Galloway, M.D.**, who is a Professor of Surgery and Director of Cardiac Surgical Research at NYU Medical Center and who has played a large part in developing the minimally invasive approach.

While equally effective in terms of results and morbidity, the minimally invasive approach minimizes risk in elderly patients and encourages a quicker recovery. When outcomes of the standard sternotomy and the newer minimally invasive approach are compared for various procedures, such as mitral valve reconstruction, follow-up results favor the latter—with marked advantages for the patient.

"Due to increased osteoporosis and loss of bone strength in post-menopausal women, there is slowed healing—or they don't heal at all, but doing it minimally invasively, healing time is decreased. There is less pneumonia and other complications—and she's a good example of that."

Osteoporosis is a disease that reduces the strength of bones, causing them to become brittle and less dense; it is rec-

ognized as a major public health problem in the elderly. It affects women as well as men, primarily over the age of 65—the precise patient population demographics for heart surgery candidates.

"Many places won't operate on those higher-risk patients at all—just this morning I had a letter from a physician in Canada whose mother has the exact same thing as Mrs. Carl," Dr. Galloway explained, "but they didn't want to operate on her."

Candidates for Minimally Invasive Surgery

Dr. Galloway says that to ascertain if a patient is a candidate for the special techniques utilized at NYU, they need their echocardiogram and any other cardiac catharization data, so that they can "determine how bad their disease is and if they're operable."

"We like to get an overall assessment of the heart disease and we need some sense of their overall health," Galloway said, who added that their patient draw

is an international one due to their minimally invasive techniques and the fact that they do a large number of mitral valve repairs instead of complete replacements.

"We have one of the world's largest experiences with mitral valve reconstructive surgery where our patients keep their native valve rather than receiving valve replacements. We're much like a plastic surgeon who does reconstruction of a face in that we repair a valve rather than replace it; the institution is quite well known for this."

Reconstruction instead of replacement has shown significant benefits due to the avoidance of long-term anticoagulation therapy, which decreases thromboembolic complications. Other superior patient benefits include a dramatic reduction in pain; accelerated recovery and a speedy return to daily activities; reduced hospital stay; improved postoperative pulmonary function and a reduced need for inpatient cardiac rehabilitation.

"As soon as I got out of the post-op area and into a private room, I went back to work," said Alan Work, 45, of Chappaqua, New York, who had mitral valve surgery after having had rheumatic fever as a child.

"I was stir crazy and I'm not a lay-down kind of guy so I went back to work from my hospital bed; NYU even has call waiting in private rooms," the enthusiastic Work exclaimed.

Work said he chose NYU after his cardiologist recommended the medical center. "They said Dr. Colvin was the number one guy to do the procedure—he was the best. I'm a big fan. The surgical genius has even invited me to watch a similar procedure sometime," he added.

Stephen B. Colvin, M.D., Chief of Cardiothoracic Surgery at NYU, specializes in heart valve repair surgery as well as surgery for congenital heart disease. The vast majority of these procedures are accomplished using the minimally invasive procedure of which he is a pioneer and teacher. Small incisions, approximately 4–6 centimeters, and endoscopes, tubes holding miniature video cameras, are now being used instead of cracking open the sternum with an open-chest incision and then using a circular saw to split the bones.

The minimally invasive surgery allows cardiac surgeons to perform the procedures with results comparable to the conventional type. However, it greatly reduces postoperative ventilatory and intensive care requirements, not to mention the cosmetic results. The mitral valve replacement and reconstruction is accomplished through a minimally inva-

sive right anterior thoracotomy. Patients undergoing the minimally invasive approach have less pain and many advantages.

This minimally invasive approach to the mitral valve employs catheters introduced through the femoral vessels are proving popular with patients who are showing up at NYU from all over the world. Eighty to ninety percent of medical institutions still perform conventional surgery, but the less invasive surgery is de rigueur at NYU.

In exciting new developments that are continually evolving, wonderful results and excellent benefits have been realized with minimally invasive surgery for most patients with valvular heart disease. It has, in fact, become the preferred approach for most mitral and aortic valve surgery. The procedures are also proving popular for children with atrial septal defects who no longer receive the conventional midline sternotomy.

"We now have over 200 children on whom we've done minimally invasive surgery. They come from all over for this and other complex procedures that can't be done in their region of the world," says Colvin.

Quality of Life and a Good Outcome

"This is silly to admit, but I love the beach," said Didi Terbrak, who is in her 30's and enjoys trips to Aruba. "I didn't want to have that huge scar from my neck all the way down; I have watched open-heart surgery as a student and I was aware of the scar."

Terbrak, an ICU nurse, had a genetic defect that resulted in a mitral valve prolapse with mitral insufficiency. After a near-death episode, an MRI found that her problems were valve related and had progressed to a severe regurgitation.

"I had asked my cardiac surgeon, who doesn't do many valves in this area where I live in a small town in Missouri, just outside St. Louis, who he would send his wife to?" Without hesitation, he asked, "Do you have any qualms about going to New York?" He had trained with Dr. Galloway, and he knew about his research. He called him right on the spot," said the enthusiastic and greatly relieved Terbrak.

Terbrak said that NYU made all arrangements as to where her family would stay while she underwent the operation. She said her primary concerns were "quality of life and a good outcome." She said she was impressed with NYU, "down to the housekeeping staff."

"It was a great experience all the way around," remarked Terbrak.

"We didn't have a care in the world. Everything was arranged. I flew into New York on the 8th of March; I met Dr. Galloway on the 9th, and had the

surgery on the 12th and was released on the 16th, and then I started cardiac rehab for a few days. My husband was so relieved that he was almost in tears when it was all over," said the mother of three children, the youngest being two.

Tracking the Patients for Life

NYU has two clinical research nurses who answer the queries from around the world that come into the facility. Julie Delianides and Patricia Ursomanno establish relationships with the patients and maintain a follow-up database for the minimally invasive surgeries.

"It's mostly the adult children of elderly patients that find us on the Internet," said Ursomanno, who has been at NYU since 1982. "The research we maintain is applicable and of interest to the patients."

Delianides says that NYU has maintained a database of more than 2,000 patients on mitral valve repairs. The

patients cooperate in annual post-op echocardiograms that allow the surgeons to track how the patients carry on with their lives and how well they are doing.

"No other facility has this set-up and on-going study," said Delianides. "It's pretty remarkable. We've learned that it's better to do procedures before symptoms become worse. In the old days, people would sit around with increasing valve leakage, for instance and not do anything if the person was asymptomatic."

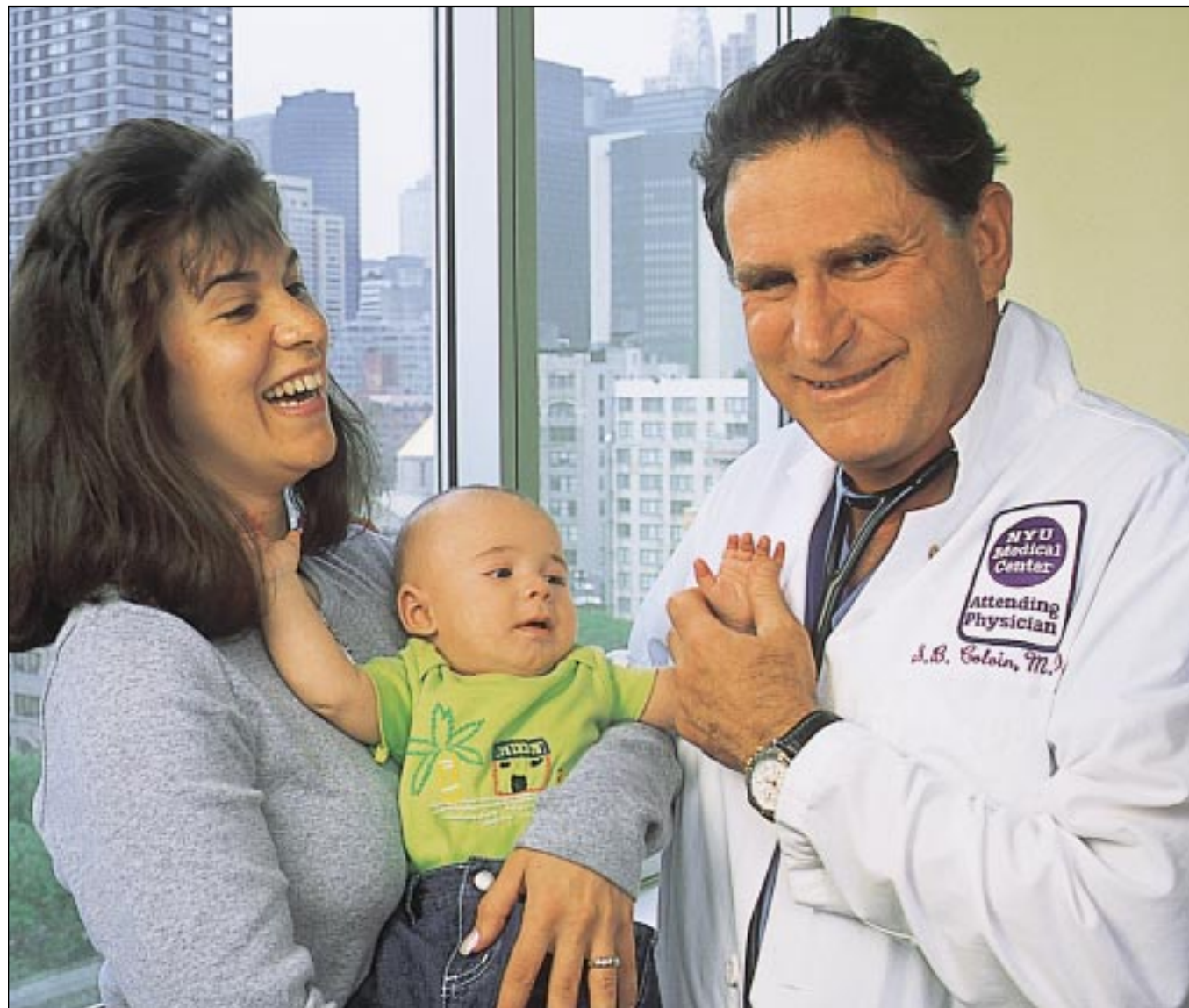
These symptoms, according to Delianides, would include shortness of breath, weakness, fatigue, palpitations, irregular heartbeat—all the way to heart failure.

"We've learned that you can wait too long, but by then the repair doesn't have much benefit if the heart has been allowed to become thick and stretched out and lose its function. Our studies found that people should be referred sooner and not wait for people to get so sick and have the muscle lose its pumping ability. Repair is always better than

replacement and the icing on the proverbial cake is that since 1995, most mitral valve repair procedures we do are through a minimally invasive incision. We're not cracking the sternum; it's just a four-inch incision in the chest and a one-inch incision through the groin. The length of stay is three or four days and then a return to activities."

Since the outcome and quality of life is of paramount importance to the NYU cardiothoracic surgeons, Mrs. Carl will have to endure her lack of sympathy and enjoy the incredulity of her friends, not to mention her renewed good health. ■

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Susan Cardillo introduces her son, Louis, to Dr. Colvin, who successfully performed high-risk heart surgery on Mrs. Cardillo when she was 15 weeks pregnant. Mrs. Cardillo has a long history of heart disease and was diagnosed with an aneurysm early in her pregnancy. Following Dr. Colvin's surgery to replace her aortic valve, the remainder of her pregnancy was uneventful, the birth normal, and both mom and son are doing well. According to Mrs. Cardillo, "Dr. Colvin is the closest thing to God's hands."



Minimally invasive surgery on mitral valve with inset showing videoscopic picture of mitral valve transmitted fiberoptically.

World Class Research at NYU

New York University Medical Center is a remarkably original voice in teaching technological advances in heart surgery around the world. Their team is the harbinger of new treatments for cardiovascular disease and like the Johnny Appleseeds of heart surgery trends, the NYU team travels the world, teaching their perfected state-of-the-art less traumatic surgical methods.

Being the primary purveyors of the new minimally invasive operating techniques, surgeons from around the world are eager to soak up the collective NYU surgical team's knowledge. The NYU team frequently travels to Europe, and in October, they plan to teach mitral valve repair and minimally invasive surgery at China's Fu Wai Hospital in Beijing.

"One of our missions as an academic medical center is to first push the edges of medical technology and beneficial breakthroughs, and to then teach them," said Dr. Aubrey Galloway, Professor of Surgery and Director of Cardiac Surgical Research at NYU Medical Center. "Healthcare should not be looked at as a competitive marketing issue, rather how we can deliver the best care in this country, and throughout the world."

Dr. Galloway says that his team travels the world to accomplish their mission to bring their knowledge to remote corners.

"There is a shortage of heart surgical procedures outside of the U.S., Europe and Australia. The humanitarian goal of medicine is to be able to provide these services to as many people as possible that need them. That requires that we train people to do as well with the procedures as we do here in the U.S."

The venerable NYU Medical Center also hosts visiting surgeons about twice a month. They are treated to a full television set-up of the operating arena where they can see and hear everything that goes on.

"We train about 50 cardiac surgeons that come in to watch our new techniques every year," said Dr. Galloway. "In academic medicine, we see what's good and new and hope to perfect it and disseminate the information throughout the United States and the world, so that healthcare can progress."

Due to the fact that NYU Medical Center is a premiere facility where research

routinely makes its way to the patient population, it receives about 75 applications from hopeful medical interns for only three highly-coveted spots for residencies in their cardiothoracic surgery program. Only the finest candidates succeed in getting in the door.

"We look at the overall background of the applicant, their skills—their drive, and how creative they are," Dr. Galloway said.

The research team is currently conducting molecular-level biological research. Within the next two or three years, Dr. Galloway says they will be able to genetically manipulate the signaling pathways of body parts by inserting different DNA into the sequence with a keen eye always trained on the best outcome for the patient. The goal is to achieve more durable 30-year results with fewer side effects.

"Whenever you do anything to the body, there is a certain response," Dr. Galloway explained. "If you take a vein out of the leg, which is used to low pressure, and you make it act as a heart artery, which is high pressure, the body's fats, lipids, and scar tissue response are called into action. We're trying to understand the process at the molecular level and change the response of the internal signals to lessen the likelihood of late failure."

The NYU research team is also currently working on methods to facilitate and simplify coronary bypass surgery.

"We're perfecting ways so that patients can be operated on without heart and lung machines and the need for any blood," said Dr. Galloway, who added that the mission of the medical center is to always lower the risks and side effects of any operation they perform.

"At the molecular level, we want to slow the entire course of heart disease and arteriosclerosis," said Dr. Galloway.

At the end of the day, Dr. Galloway says he hopes to be able to reflect on a concrete contribution to humanity and the satisfaction that his patients are leading normal, healthy lives.