

INNOVATION

DISCOVERY

RESEARCH



2017



Erica Dorliae

Patient

“It is very convenient coming here: It’s so close to home. I really like that you can get everything done at once, all in the same day, and I don’t have to take off work more than one day.”

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Welcome

Research, Discovery, and Innovation are Deborah's key hallmarks. At this Hospital, where our patients face the most acute — often life or death — medical situations, nowhere are those three words more welcome.

The drive to excel and bring new technologies and techniques to our cardiac, pulmonary, and vascular patients has been an underpinning theme for our nearly 100-year history. It is this drive to excellence that has resulted in Deborah being at the forefront of medicine. From our early days when we performed the first open-heart surgery in New Jersey, to today as we launch the most comprehensive Advanced Heart Failure Center in the region, our goal has

always been superior medical care for the sickest patients. That drive and vision — and focus on Research, Discovery, and Innovation — has led to unprecedented and consistently high outcomes for our patients, with accompanying national and regional accolades exceeding the stringent benchmarks for superior quality care.

This publication, with insights from key medical staff, offers a snapshot of Deborah in 2017. Most importantly in these pages are the words of our patients — who are the strictest critics of our care — and the motivation fueling our journey into tomorrow's medicine.



A handwritten signature in black ink that reads "Joseph Chirichella".

Joseph Chirichella
President & CEO
Deborah Heart and Lung Center
Deborah Hospital Foundation



A handwritten signature in black ink that reads "Lynn McGrath".

Lynn McGrath, MD
Vice President of Medical Affairs
Deborah Heart and Lung Center



A handwritten signature in black ink that reads "Sandi Fein".

Sandi Fein
Board Chair
Deborah Heart and Lung Center

2017 Overview



76,101

OUTPATIENT VISITS



3,845

INPATIENT ADMISSIONS

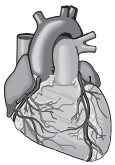


85

LICENSED BEDS

1,319

SURGICAL
PROCEDURES
PERFORMED



397

OPEN-HEART



81

TAVR



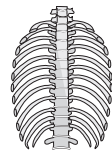
278

VASCULAR



451

ENDOVASCULAR



20

THORACIC



92

OTHER

6,087

NON-SURGICAL
PROCEDURES
PERFORMED



3,058

INTERVENTIONAL AND
NON-INTERVENTIONAL
CATH LAB PROCEDURES



2,642

ELECTROPHYSIOLOGY
PROCEDURES



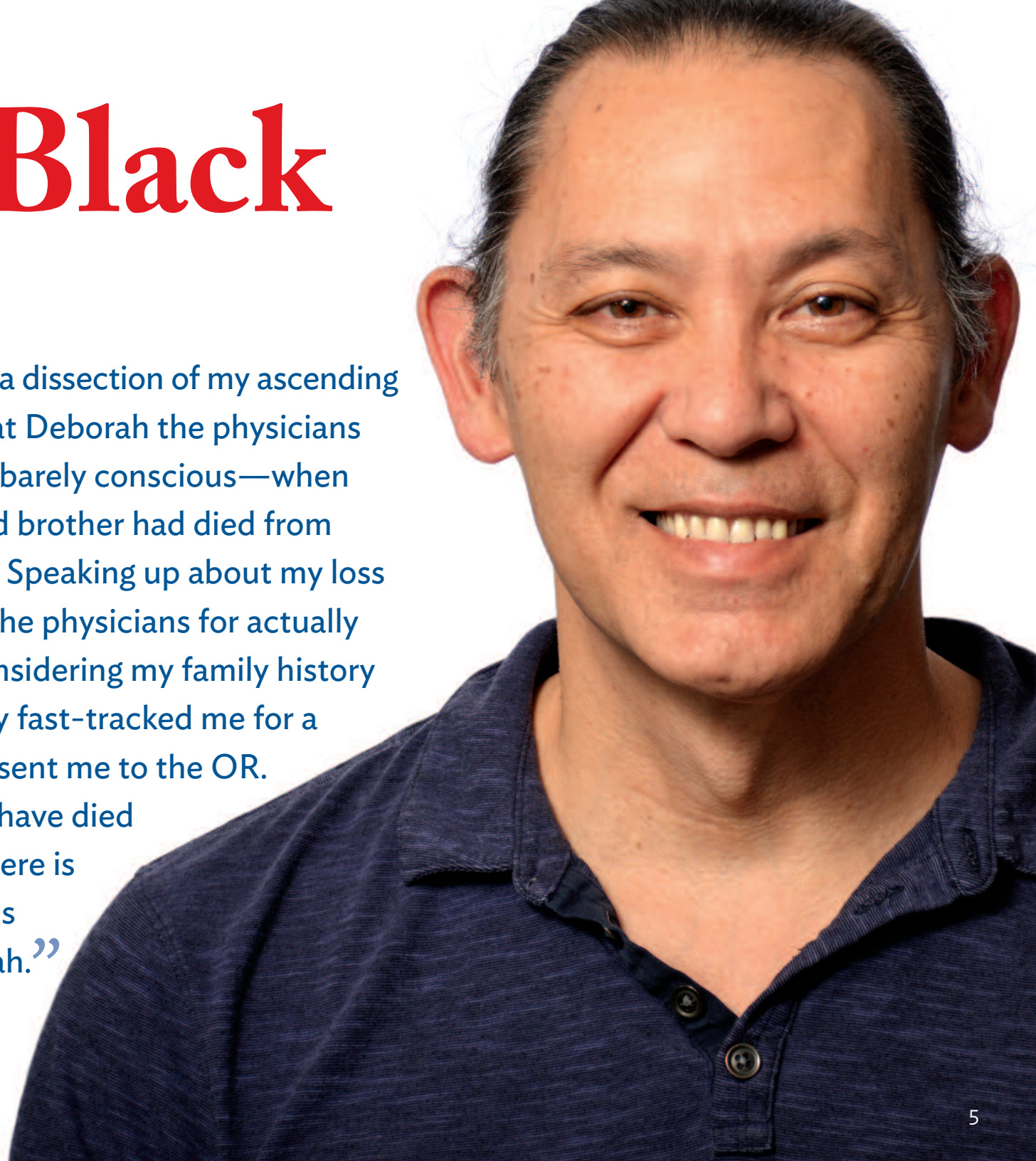
387

ENDOVASCULAR
PROCEDURES

John Black

Patient

“Without warning I had a dissection of my ascending aorta. When I arrived at Deborah the physicians listened to me—while barely conscious—when I told them my dad and brother had died from abdominal aneurysms. Speaking up about my loss saved my life. I credit the physicians for actually listening to me and considering my family history and my concerns. They fast-tracked me for a scan and immediately sent me to the OR. If they hadn’t, I would have died within half an hour. There is no other hospital in this region equal to Deborah.”





Deborah's commitment to Research, Discovery, and Innovation furthers medical advances and breakthroughs for our patients.

MitraClip — a minimally-invasive approach to mitral regurgitation surgery — is performed in the Hospital's state-of-the-art hybrid OR. The edge-to-edge valve repair, with the device's ingenious clip function, greatly reduces the risks and complications from an open-heart procedure.

Micra® Transcatheter Pacing System is the world's smallest leadless pacemaker, regulating bradycardia patients with a minimally-invasive procedure from the device, implanted directly into the heart's ventricle chamber where it delivers electrical stimulation.

PYP Imaging provides early detection of transthyretin-related cardiac amyloidosis — potentially sparing patients a biopsy — and offers analysis between myocardial amyloid deposits, which is particularly beneficial to elderly African-American males with heart failure.

Echo-Pixel True 3D Imaging combines CT and Echo 3D capabilities with a special virtual reality HP display and True 3D interactive Virtual Reality software, allowing manipulation of a 3D heart image in virtual space for calculating pre-procedural measurements and device choice selection.

RADIANCE-HTN Study, sponsored by ReCor Medical, is a clinical research trial evaluating the blood pressure-lowering effects of renal denervation using ultrasound energy with the Paradise® Renal Denervation System, a minimally invasive procedure to tone down overactive nerves leading to the kidney.

The Heart Failure Center at Deborah is now combining the subspecialties of trained Advanced Heart Failure and Transplant Cardiology experts to manage the spectrum of heart failure care with expanding treatment techniques, including new drug therapies, implantable left ventricular assist devices, and arranging for heart transplantation when necessary.

Robotic Ablation now treats complex arrhythmias such as ventricular tachycardia as well as epicardial ablations, targeting radiofrequency energy to both the inside — and the outside — of the heart.

The WATCHMAN™ left atrial appendage closure device offers patients with non-valvular atrial fibrillation (AF) an alternative to long-term warfarin medication therapy and keeps dangerous blood clots from the bloodstream, helping avert strokes.

CardioMEMS™ is a miniature implantable remote sensing device offering continuous monitoring of pulmonary artery pressure, serving as an early indicator of a patient's worsening heart failure, currently under study in a clinical research trial.



Deborah's Stereotaxis Remote Navigation Lab is among the Top 10 highest-volume robotic ablation centers in the country.



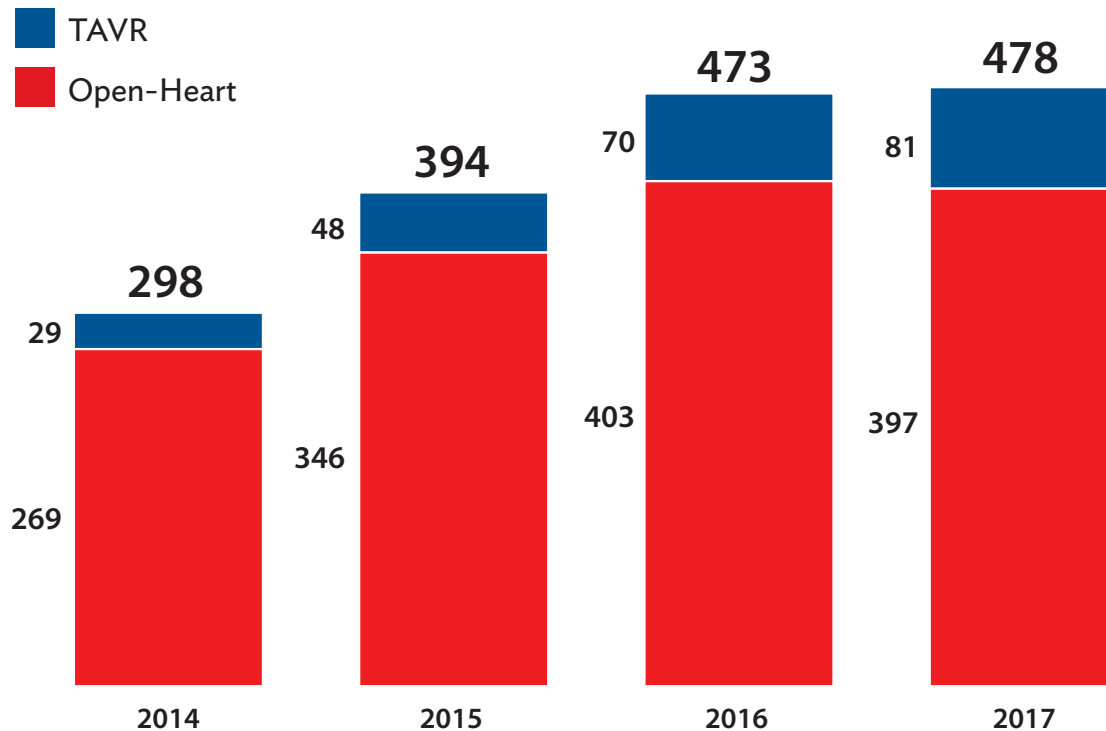
Cardiothoracic Surgery

Traditional open-heart surgery is moving in tandem with advancing technology, and these surgeries are nationally becoming more of an exception rather than an expectation. Procedures are performed in the Hospital's state-of-the-art hybrid operating room, which offers a sophisticated setting for combining the talents of surgeons, interventionists, electrophysiologists, and non-invasive imaging specialists for minimally-invasive catheter-based treatment options.

"This is an exciting time for cardiac surgery and this journey of innovation is exceptionally rewarding."

Paul G. Burns, MD
Chair, Department of Surgery

OPEN-HEART VERSUS
TAVR TRENDS



Valve Surgery

Deborah's consistently stable volumes for Coronary Artery Bypass Graft surgery and high volume numbers for aortic and mitral valve replacements — both alone and with CABG — ensure experienced surgeons offer excellent outcomes for patients. The team's expertise extends to combination double and triple valve replacements, as well as pulmonary or tricuspid valve replacements, when necessary.

The Society of Thoracic Surgeons (STS) Most Recent Public Report

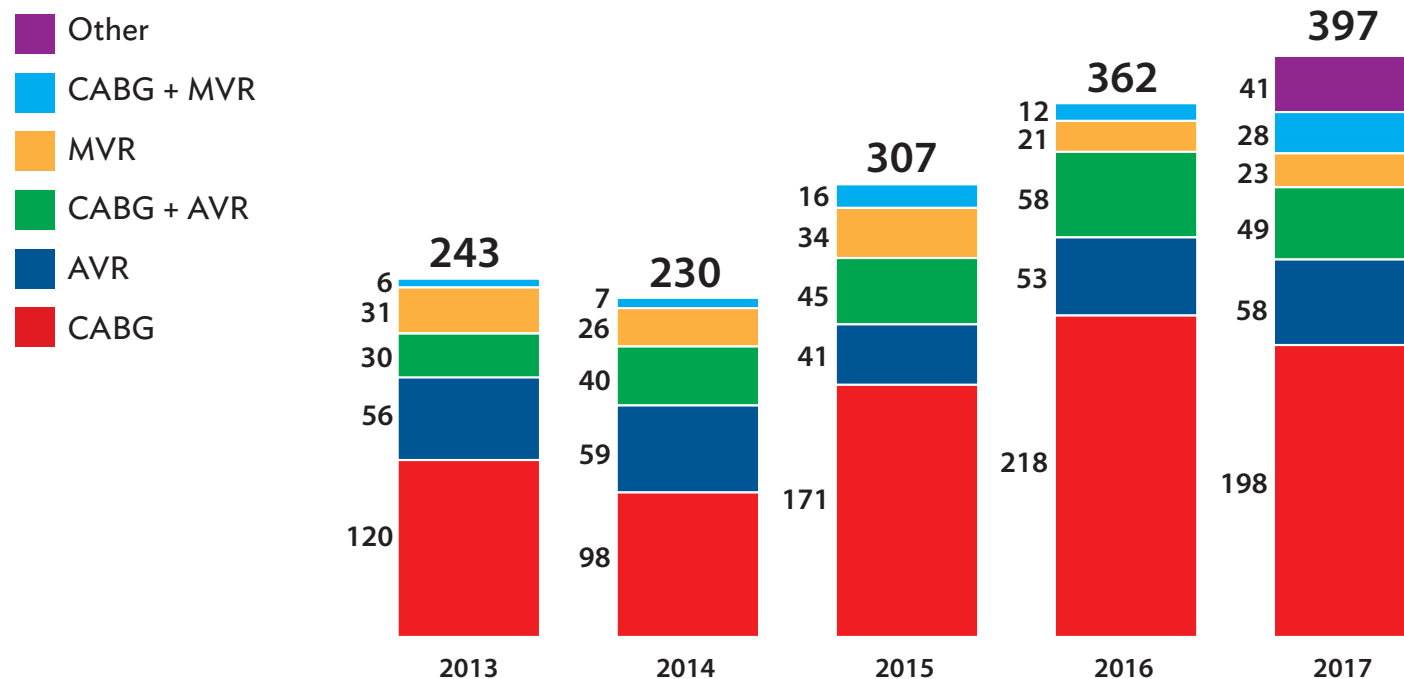
Composite Scores

| | |
|-------------|------|
| CABG: | 97.8 |
| AVR: | 95.6 |
| AVR + CABG: | 93.1 |

Absence of Operative Mortality

| | |
|-------------|------|
| CABG: | 98.5 |
| AVR: | 97.8 |
| AVR + CABG: | 97.1 |

OPEN-HEART SURGERY TRENDS



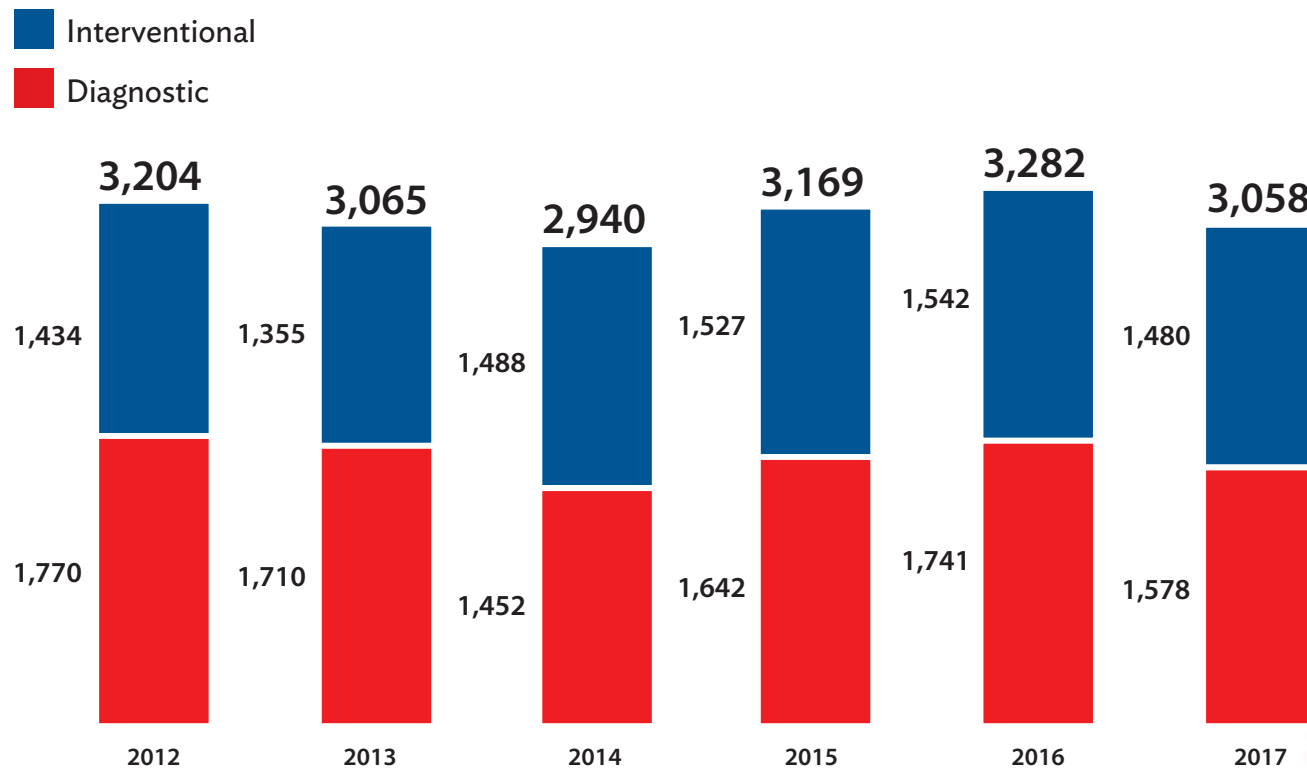
Cardiac Catheterization

Last year, Deborah's cardiac catheterization labs performed over 3,000 caths for both diagnostic and interventional cases.

A commitment to the latest technologies and techniques provides a wide range of treatment options that can be tailored to each patient's specific needs and anatomy.

"The lightning speed with which interventional cardiology has moved forward has empowered all of us in the cardiac catheterization laboratory. The broad range of complex procedures we now do every day, backed by superior imaging, has pushed the boundaries of heart care further than many of us could ever have imagined."

CARDIAC CATHETERIZATION VOLUME TRENDS



Richard Kovach, MD
Division Director, Interventional Cardiology



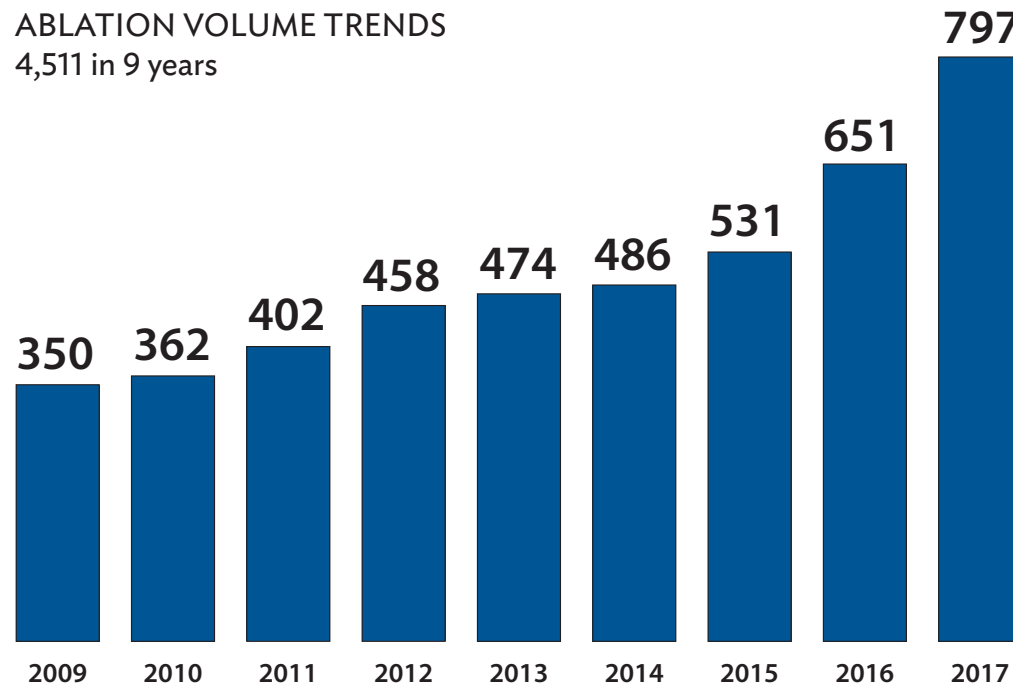
Electrophysiology

The Electrophysiology Team's robust procedural schedule meets the increased regional demand for the latest technologies and treatments promoting best care practices and safety. The Department's ablation volumes have more than doubled in the past nine years, including epicardial

ablations and ventricular tachycardias. Other routine EP innovations are multi-point pacing and Micra® Transcatheter Pacing System — the world's smallest, leadless device — and clinical research with CardioMEMS™ for remote sensor monitoring.

“Advancing technology keeps refining longevity and safeguards for devices. However, for the thousands of patients with aging implants, lead extractions and re-positioning are vitally important medical procedures. Our expertise and experience with Cook Medical's lead extraction system is a critically needed service.”

ABLATION VOLUME TRENDS
4,511 in 9 years



Raffaele Corbisiero, MD
Division Director,
Electrophysiology and Pacing

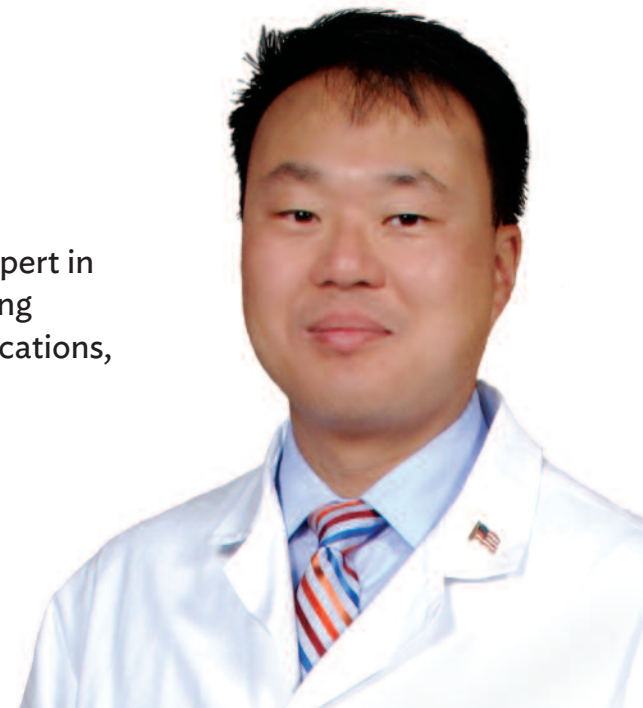


Vascular Surgery

The Vascular Surgery Program offers a full range of surgical services, the vascular team is expert in carotid stenting and endarterectomies. The Program also has a sterling reputation for treating complex aortic disease, including aortic dissections and aortic aneurysms of all types and locations, as well as lower extremity bypass.

“Seeing the patient after surgery, recovery and on subsequent visits is the most gratifying, and humbling, experience for a surgeon.”

Kane L. Chang, MD
Director, Vascular and Endovascular Surgery

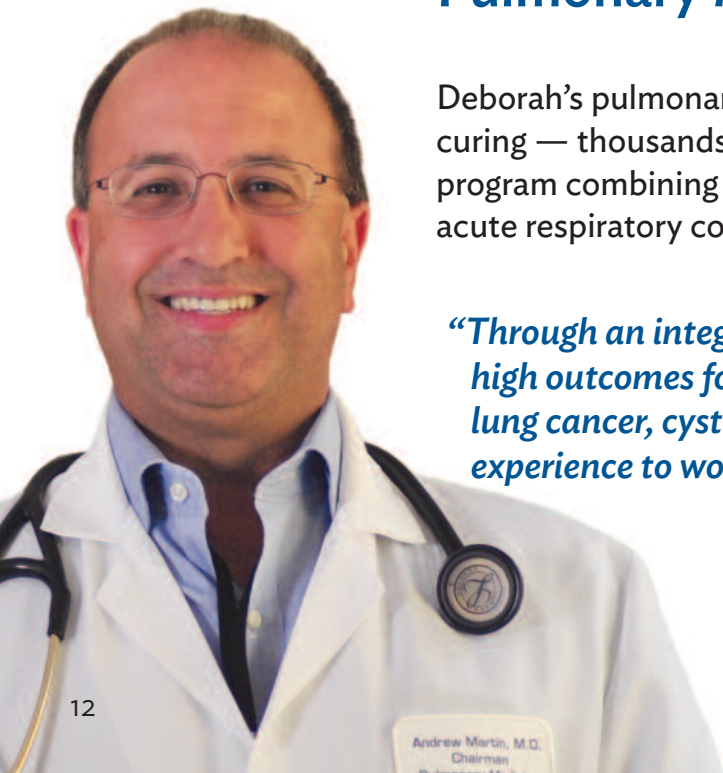


Pulmonary Medicine

Deborah's pulmonary expertise dates to 1922 when it was a legendary TB Sanatorium, caring for — and curing — thousands of patients. That history has shaped today's comprehensive pulmonary medicine program combining inpatient and outpatient evaluations for the full gamut of progressive, chronic, and acute respiratory conditions which sees more than 7,500 patient visits.

“Through an integrated approach to pulmonary and respiratory diseases, we've had consistently high outcomes for patients facing COPD, occupational lung disease, pulmonary hypertension, lung cancer, cystic fibrosis, and severe asthma. Our team of experts has the knowledge and experience to work with even the most complex cases.”

Andrew Martin, MD
Chair, Pulmonary Medicine



Advanced Heart Failure

Deborah's well-established Heart Failure Center is poised to leap into the next generation of heart failure care. As the only hospital in South Jersey where left ventricular assist device patients can be admitted and treated for illness, Deborah provides inpatient and outpatient care to left ventricular assist device and heart transplant patients.

“Bold new techniques and technology will play a key role in extending both the longevity and quality of our patients’ lives. Our goal is to bring these advanced therapies to South Jersey, offering better patient outcomes and satisfaction.”

Kulpreet Barn, MD
Medical Director, Advanced Heart Failure Center



Ambulatory Care Services

Deborah has the region's largest outpatient clinical cardiology practice, with more than 76,000 patient visits annually. A unique care model provides “one-stop shopping” for cardiac, pulmonary, vascular, and sleep evaluations and follow-ups.

“The volume of patients in Clinic is staggering. This reflects our excellent diagnostic reputation and attention to follow-up care. Just as important is our emphasis on well-being and lifestyle modifications.”

William S. Hirsch, DO
Chair, Cardiology





Donna Canfield Kann

Patient

“I had excruciating pain walking and my doctor told me I was out of shape. I decided to come to a peripheral arterial disease (PAD) screening event at Deborah. It turned out I had a much more serious problem — a severe blockage in my abdominal aorta.

Within days I had a minimally-invasive procedure for a stent to open the blockage. I am so glad I didn't ignore my symptoms.”

Women's Heart Center

The specialists combine the Hospital's expertise in treating heart and vascular disease with programs to reduce weight; quit smoking; eat better; sleep more soundly; manage diabetes; and educate women about the signs and symptoms of heart and vascular disease.

“Working with women one-on-one and addressing their needs — including taking time for themselves to eat better, relax, and exercise — I am always reminded of how much depends on these wives, mothers, sisters, and friends.”

Renee Bullock-Palmer, MD
Director, Women's Heart Center



Pediatric Cardiology

An expert team of pediatric cardiologists and nurse practitioners provides comprehensive diagnostic and follow-up care for children with congenital and acquired heart disease, and those at risk of developing heart disease. From birth through adulthood, the Children's Heart Center works with diagnosing children at risk of cardiovascular disease due to other factors such as kidney disease, Kawasaki disease, and dyslipidemia.

“One of the exciting projects here is in conjunction with our Outreach Department, offering Sudden Cardiac Arrest screenings for teenagers. Identifying teenagers with undetected heart problems, and getting them treatment, is one of the most gratifying experiences for our entire team.”

Shuping Ge, MD
Chair, Pediatric Cardiology



Teaching Center

Deborah's well-established and highly coveted Cardiovascular, Interventional Cardiology, and Vascular Fellowship Programs provide rigorous training for the next generation of specialists. Those accepted into the competitive Fellowship Program receive high quality, in-depth training with physicians who excel in their specialties and are

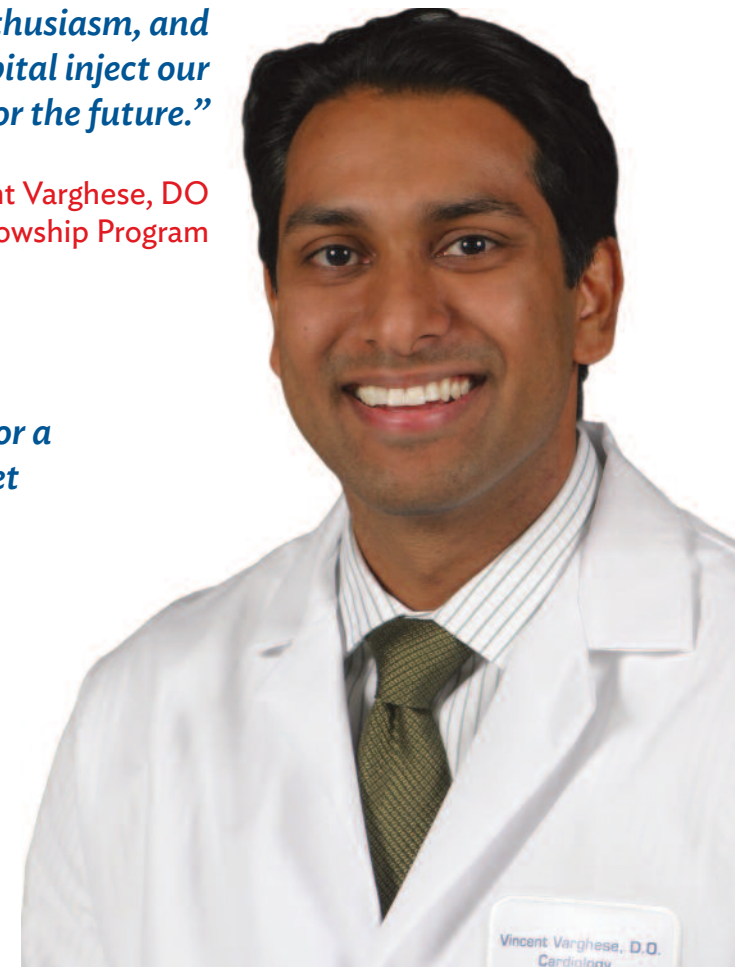
knowledgeable about the most current technologies and techniques in the field. The Fellows — during their extended tenure at Deborah — blend seamlessly into the Hospital's medical staff, and learn not only the sophisticated skills needed to practice, but also care and compassion for the patient, a Deborah hallmark.

“Working with the next generation of physicians has been an immensely gratifying experience. The energy, enthusiasm, and inquisitiveness which our Fellows bring to the Hospital inject our program with hope and vision for the future.”

Vincent Varghese, DO
Director, Interventional Cardiology Fellowship Program

“Everything that we do here, whether it is medicine or a procedure, is to allow people to live. My goal is to get people treated and back out there in their lives.”

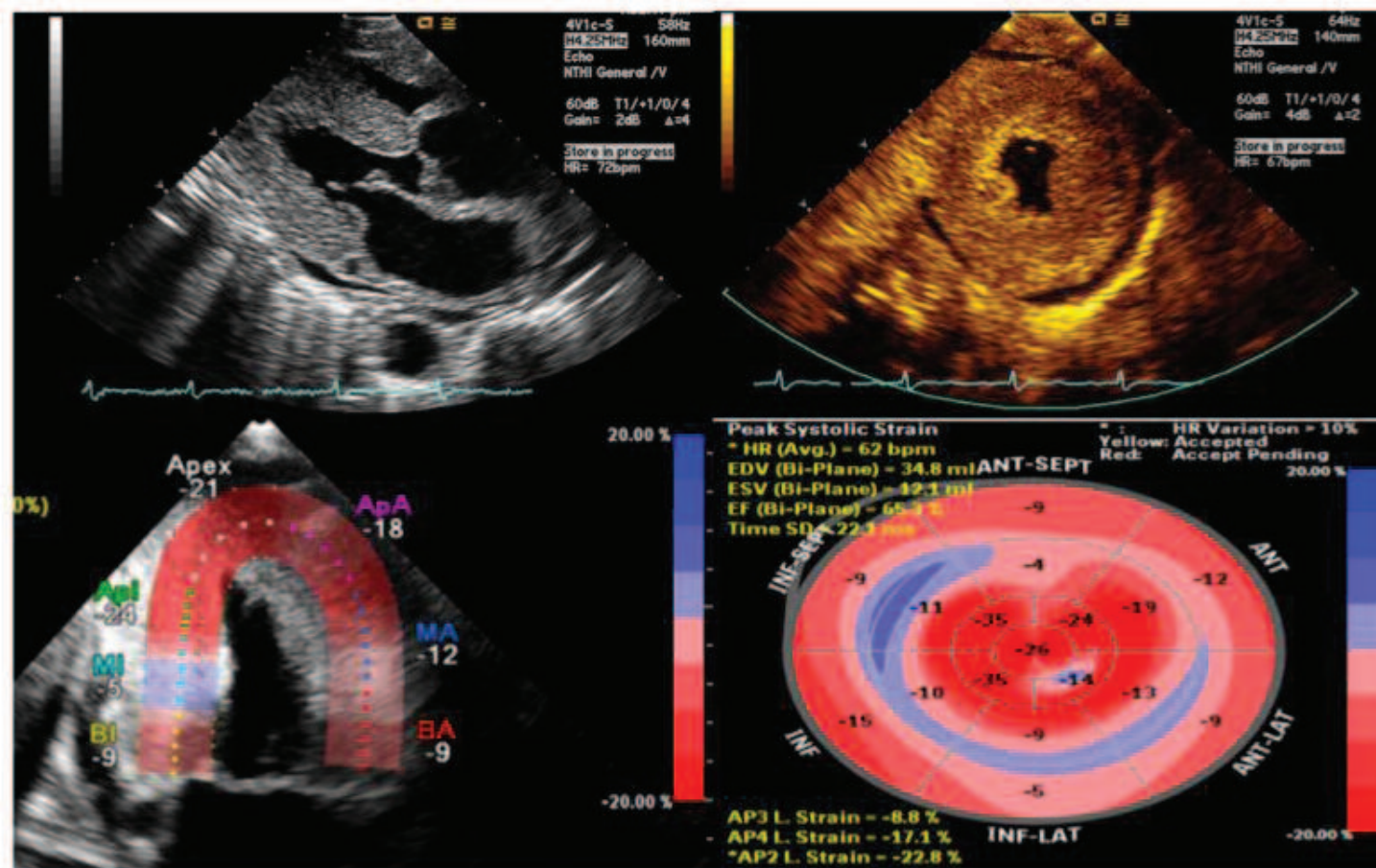
Denise Zingrone, DO
Director, Medical Education and
Cardiovascular Fellowship Program

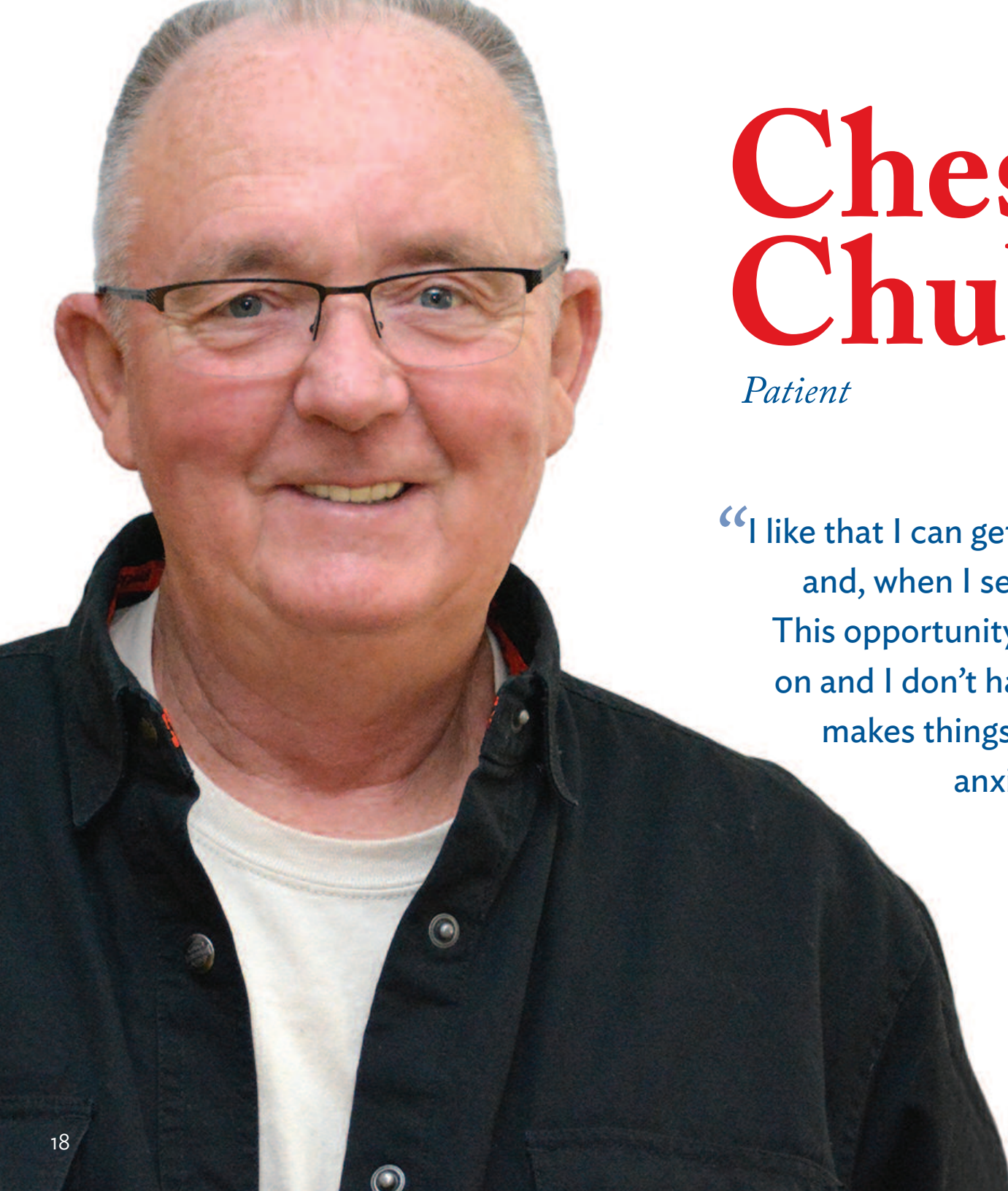


Imaging

Deborah's reputation for cardiac expertise is backed by its expert, accurate, and timely diagnostic imaging capabilities. Cardiac imaging has dramatically evolved over the past few years, driven by the need to provide the highest-quality images — in the shortest time possible — and with the

least amount of radiation to patients. Deborah remains in the forefront of this revolution, using new technologies, including myocardial strain-rate imaging and 3D echocardiography.





Chester Chubbuck

Patient

“I like that I can get all my testing done at once and, when I see the doctor, get my results. This opportunity lets me know what is going on and I don’t have to go home and worry. It makes things stress-free and relieves the anxiety of waiting and worrying.”



The Clinical Research Team works on cutting-edge technology and treatments, offering promising new therapies for patients, and positioning Deborah at the crux of tomorrow's medicine. Some of the research includes:

Electrophysiology

- Longitudinal Surveillance Study of the 4-SITE Lead/Header System (LSS of 4-SITE)
- Understanding outcomes with the Emblem S-ICD system in Primary Prevention Patients with low ejection fraction
- St. Jude Medical Product Longevity and Performance (SCORE) Registry
- Evaluation of ACUITY™ X4 Quadripolar Coronary Venous Leads and RELIANCE™ 4-FRONT Defibrillation Leads

Heart Failure/EP

- Paced and Sensed Electrical Delay in CRT Therapy
- QP ExCELS, Sentus QP – Extended CRT Evaluation with Quadripolar Left Ventricular Leads
- Quadripolar Pacing Post Approval Study (Quad PAS)

- MultiPoint Pacing Post Market Study (MPP PMS)
- Validation of the Indicor™ Device in Identifying Elevated Left Ventricular End Diastolic Pressure-Vixiar Study

Interventional Cardiology

- Inhibition, Endothelialization and Avoiding Longterm Dual Anti-Platelet Therapy: The PZF Shield Trial
- Randomized Trial of COBRA PzF Stenting to Reduce Duration of Triple Therapy (COBRA-REDUCE)
- Randomized, Multicenter, Controlled Trial to Compare Best Endovascular versus Best Surgical Therapy in Patients with Critical Limb Ischemia (BEST-CLI Trial)
- Chocolate Touch™ Paclitaxel Coated PTA Balloon Catheter, in Above the Knee Lesions: The Chocolate Touch Study
- A Study of the ReCor Medical PARADISE® System in Clinical Hypertension (RADIANCE)
- Cobra PzF Stenting to Reduce the Duration of Triple Therapy in Patients Treated with Oral Anticoagulation Undergoing Percutaneous Coronary Intervention (Cobra Reduced)
- The OPTIMIZE Trial to Assess the Procedural and Clinical Value of the Svelte DES-IDS and DES-RX Sirolimus-Eluting Coronary Stent Systems for the Treatment of Atherosclerotic Lesions in a Randomized Study

continued...

Research *continued...*

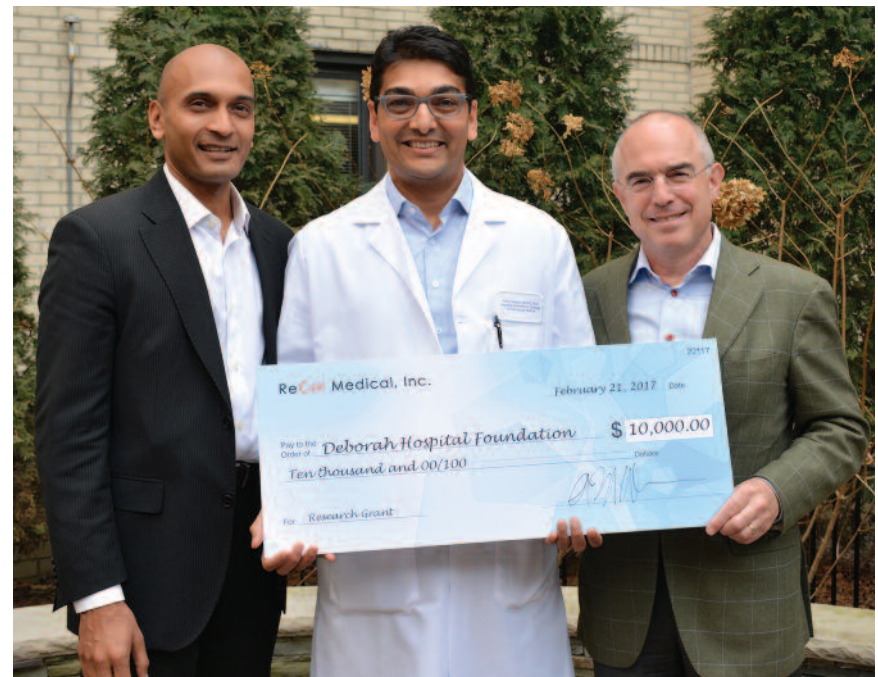
- Physiologic Assessment of Coronary Stenosis Following PCI (DEFINE PCI)
- Evaluation of Treatment Strategies for Severe CaLcific Coronary Arteries: Orbital Atherectomy vs. Conventional Angioplasty Technique Prior to Implantation of Drug-Eluting StEnts (ECLIPSE)

Vascular

- EVOLVE II: A Prospective Multicenter Trial to Assess the Safety and Effectiveness of the SYNERGY™
- Everolimus-Eluting Platinum Chromium Coronary Stent System (SYNERGY™ Stent System) for the Treatment of Atherosclerotic Lesion(s)—Active, not recruiting
- Lutonix DCB Versus Standard Balloon Angioplasty for Treatment of Below-The-Knee (BTK) Arteries
- The Evaluation of Safety and Efficacy of the BioMimics 3D Nitinol Stent System in the Femoropopliteal Arteries of Patients with Symptomatic Peripheral Artery Disease
- Evaluation of Safety and Efficacy of the FlexStent® Femoropopliteal Self-Expanding Stent System (OPEN)
- Randomized study of the Shockwave Medical Peripheral Lithoplasty* System used in combination with DCB versus standard balloon angioplasty used in combination with DCB to treat moderate and severely calcified femoropopliteal arteries (Disrupt PAD III)
- Evaluation of the Pantheris OCT-Imaging Atherectomy system for treatment of in-stent restenosis (ISR)

lesions in lower extremity arteries – INSIGHT

- Moxy Drug Coated Balloon vs. Standard Balloon Angioplasty for the Treatment of Femoropopliteal Arteries (LEVANT 2)
- Endovascular Registry Evaluating Safety, Efficacy and Patient Comfort (ELITE)



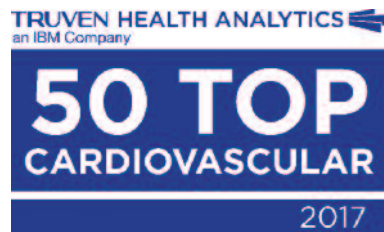
ReCor Medical presented a research grant to Deborah. The Hospital is one of the highest enrolling trial sites in the world for the Radiance Hypertension Research Trial. Left to right: Mano Iyer, ReCor Founder; Kintur Sanghvi, MD, Principal Investigator and Attending Interventionist; Andy Weiss, ReCor President & CEO.

Carol Henry

Patient

“After a year-long misdiagnosis for my leg pain, I came to Deborah for a second opinion. I had hours of testing and then was informed that I needed aorto-bifemoral bypass surgery. I was told the risks and scheduled right away. I know that if I hadn’t gone to Deborah, I wouldn’t be here today.”





From over 1,000 hospitals



Above National Averages
Never Events, Medical Errors - 19% above
Proper Antibiotic Use - 9% above
ICU Specialists - 37% above
Computerized Medication Safety - 14% above



Silver Plus

AHA Get with the Guidelines®
Heart Failure Quality Achievement



1 of 16 New Jersey hospitals
with 4 & 5 Stars by CMS



Five-star rating:
"Willingness to Recommend" by CMS
"Overall Hospital Rating" by CMS