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GEORGIA
HEART
INSTITUTE

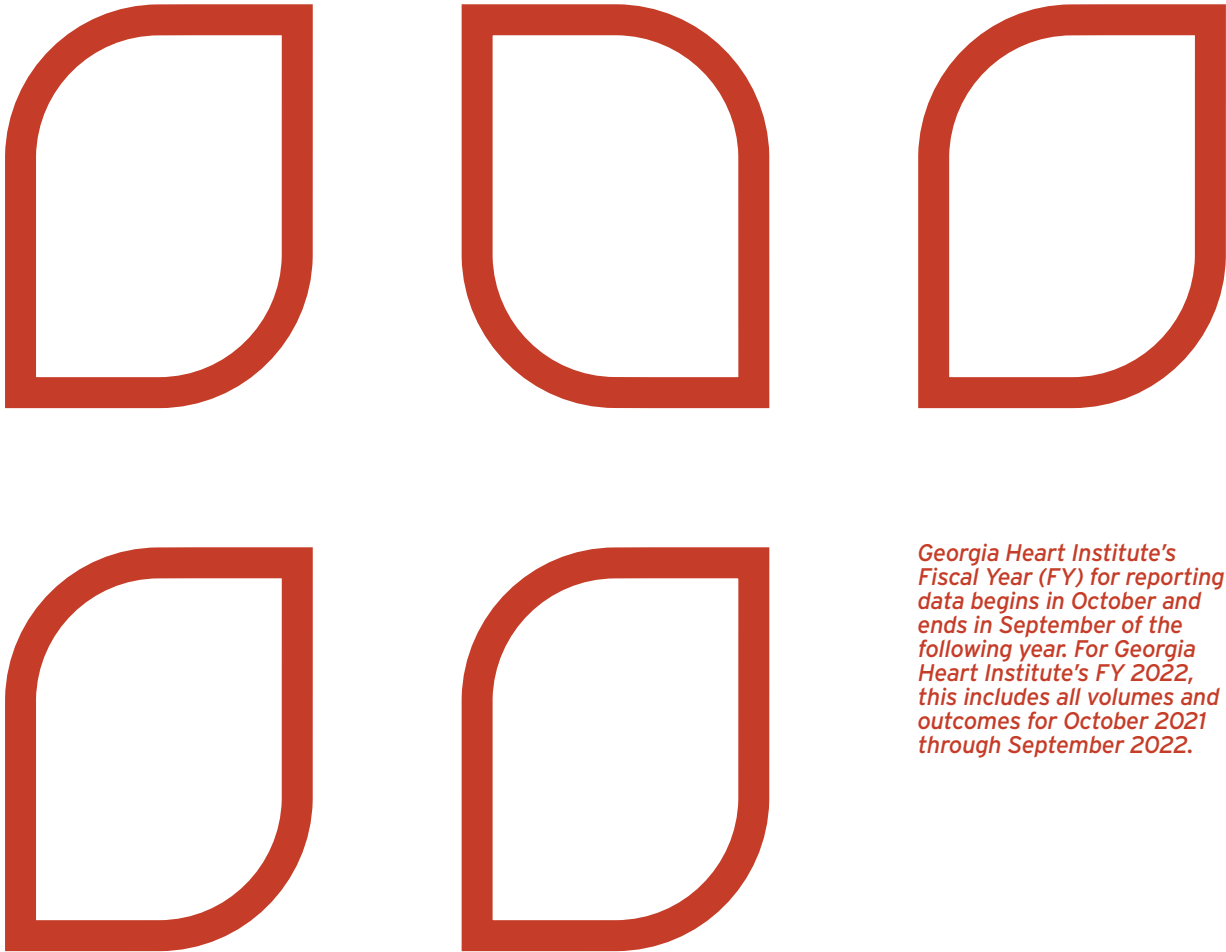
Heart & Vascular Report



ABOUT GEORGIA HEART INSTITUTE

Georgia Heart Institute is the most forward-thinking heart and vascular program in the state, one of the largest cardiology practices in the region. It includes more than 80 clinicians seeing patients at more than a dozen locations. With a multi-disciplinary team of experts treating nearly every type of heart and vascular disease and participating in leading national research, we're providing advanced care that ensures lasting heart health for generations.

The experts of Georgia Heart Institute also form the core of the cardiac care team at Northeast Georgia Medical Center's four hospitals in Gainesville, Braselton, Winder, and Dahlonega. It's all part of Northeast Georgia Health System, a non-profit which serves more than 1 million people across the region.



Georgia Heart Institute's Fiscal Year (FY) for reporting data begins in October and ends in September of the following year. For Georgia Heart Institute's FY 2022, this includes all volumes and outcomes for October 2021 through September 2022.

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WELCOME TO GEORGIA HEART INSTITUTE



Georgia Heart Institute is Northeast Georgia Health System's (NGHS) cardiovascular service line, bringing together the full spectrum of cardiovascular care for patients in our community. Since its inception a little more than a year ago, Georgia Heart Institute has already created a distinguished reputation for clinical excellence and multi-disciplinary services, making it one of the region's elite destinations for cardiovascular care.

Georgia Heart Institute launched in September 2021, and our clinical team and administrative leaders have continued to build on the high standards established by The Heart Center of Northeast Georgia Medical Center (NGMC) across the previous two decades. Today, our team strives for excellence and continuous improvement in both patient care and innovative practice despite the challenges stemming from various staff changes and lingering impacts of the pandemic.

We've added new practice locations and continued to grow our team (shown on pages 33 - 36), welcoming new doctors, advanced practice providers and surgeons. The clinical trials and research efforts on pages 19 - 20 and 23 - 24 have advanced understanding of atrial fibrillation, aortic valve disease, heart failure and more helping us provide optimal outcomes. Our educational footprint has extended with the launch of the inaugural class of cardiovascular disease fellows, introduced on pages 30 - 32 and Grand Rounds lecture series. And finally, we've signed with several strategic partners to create clinical platforms online (see page 37) that will provide opportunities to hear all about the innovative and educational activities here at the institute.

As proud as I am of the work encompassed in all those achievements, I'm most excited about the patient stories on pages 3 - 4 and 11 - 14. These are just two of the thousands of patients whose lives are improved by the care provided across the spectrum of services at Georgia Heart Institute. I'm so grateful for each of the clinicians, nurses, technologists, administrators, and others who bring their best each day so we can continue to improve the health of our community in all we do.

Sincerely,

Habib Samady, MD, FACC
President, Georgia Heart Institute

WHEN A TYPICAL MONDAY TAKES A TURN



"We immediately brought Mr. Holmes to the cath lab so we could place a stent in the artery with the culprit blockage."

Dale and Jean Holmes, a real estate agent and broker in Clarkesville, Georgia, were beginning what they thought was another normal week at their home when Dale started to feel ill.

"I started to feel like I had the flu," recalled Dale. "I laid down for a few minutes and then told my wife we needed to get to the hospital. That's when I tried to get up, but I passed out and hit the floor."

That's when Jean knew something serious was happening. She got Dale in the car and drove as fast as she could to the nearest hospital.

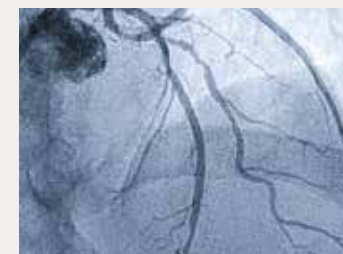
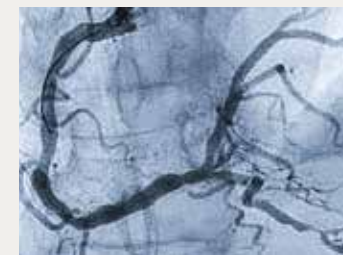
A RAPID RESPONSE

When they got to Habersham Medical Center (HMC), the medical staff quickly took over. They started to perform tests and discovered Dale was having a heart attack. The team then decided he needed to be transferred to the cardiac cath lab at Georgia Heart Institute.

When Dale arrived at Northeast Georgia Medical Center (NGMC) Gainesville, he was rushed to the front of the line to clear the blockages in his heart that were causing his heart attack.

Dale's loss of consciousness was due to a complete heart blockage which led to severe bradycardia.

"We immediately brought Mr. Holmes to the cath lab so we could place a stent in the artery with the culprit blockage," said Falgun Patel, MD, FACC, FSCAI the interventional cardiologist who initially cared for Dale. "This treatment restored his heart to normal function and saved his life in return."



The timely care that Dale received made all the difference in his outcome.

"We all know that in situations like Dale's, every second counts," said Dr. Nima Ghasemzadeh, MD, FACC, Dale's cardiologist at Georgia Heart Institute who continues his care. "The quick action of Dale's wife, Habersham Medical Center, the EMS team and the NGMC cath lab staff - that's what allowed Dale to make a full recovery."

RETURNING HOME

Within a few days, Dale was back at home in Clarkesville with Jean, and back to showing houses in a few weeks. They realized what a total shock his heart attack was as they reflected on what occurred.

"If you look at my husband, he's the epitome of health," said Jean. "We eat right and exercise regularly - that's why we were so surprised that he was having a heart attack. We learned later that Dale has a family history of heart disease."

The other surprise that day for the Holmes family - a more pleasant one - was the care that Dale received.

"I had no idea about all of the technology and expertise that is available for situations like mine," said Dale. "I got to see the machine in action - all of the people who have a common purpose to do miraculous work and save lives."

As a real estate agent in the area, Dale has always boasted the heart care down the road in Gainesville. But now he feels like he has the inside scoop to share with his clients.

"Now I have my own story to share with folks about just how incredible the heart care is at Georgia Heart Institute," said Dale.

To learn more about Dale's story, visit georgiaheartinstitute.org/dale

A NEW CHAPTER IN INTERVENTIONAL CARDIOLOGY



DIRECTOR OF INTERVENTIONAL CARDIOLOGY AND CATH LABS

In November of 2022, Glen Henry, MD, FACC, FSCAI, made the move southward from Yale University after 30 years as an educator and leader to become Georgia Heart Institute's new Director of Interventional Cardiology and Cath Labs. During his time at Yale, Dr. Henry served as assistant professor of clinical medicine and Director of Complex Coronary Interventions. He was also named in Connecticut Magazine's Top Doctors List.

are all in alignment with the physician goals and administrative goals" said Dr. Henry. "We're growing with new people, new ideas, new technologies and new ways of taking care of patients. The ECCC certification and new tower that will open in 2025, complete with helipad, all speaks to the higher level of care we're able to bring to our patients. It's very exciting."

Watch the full interview with Dr. Henry at georgiaheartinstitute.org/henry-interview



"Receiving ECCC designation speaks volumes about the level of cardiac care NGHS provides."

EMERGENCY CARDIAC CARE CENTER DESIGNATION: THE FIRST IN THE STATE

Hospitals with the proper medical staff, space, and equipment to reduce the number of death and out-of-hospital cardiac arrest (OHCA) events may receive ECCC designation in one of three levels:

Level 1: Can perform open heart surgery and interventional cardiac catheterizations

Level 2: Can perform interventional cardiac catheterizations

Level 3: Able to stabilize patients until they are transported to a Level 1 or Level 2 center.

In 2020, each Northeast Georgia Medical Center (NGMC) location received ECCC designation. NGMC Gainesville received Level 1 designation; NGMC Braselton received Level 2 designation; and NGMC Barrow and NGMC Lumpkin both received Level 3 designation.

"Receiving the ECCC designation is such a tremendous accomplishment for our team," says Kody Savage, Northeast Georgia Health Systems (NGHS) regional STEMI coordinator. "But this achievement extends far beyond the walls of our system - connecting first responders, emergency departments and cardiologists throughout the region to ensure each patient receives the level of care they need."

To have all three ECCC designations associated with NGMC's name, means that all front-line staff from the techs to the surgeons are equipped and at the ready to provide exceptional emergency cardiac care in every stage

of a patient's experience when a major adverse cardiac event occurs.

"This designation speaks volumes about the level of cardiac care NGHS provides," says Dr. Henry. "Our continued dedication to excellent heart and vascular care - both routine and in emergent situations - is saving lives throughout our community and beyond."

LOOKING AHEAD:

In 2025, NGMC Gainesville will open its newest patient tower, complete with a helipad on the rooftop. Currently, NGMC has a helipad on hospital campus, but a very short ambulance ride is needed to bring patients to the cath labs, emergency department or surgical floor. Once the new helipad is in place, this will decrease door to balloon time, a major life saving benefit for patients.

STEMI Volumes & Outcomes
423
STEMIs

FY-22
Average Door to Balloon Time: 57.9 minutes

2022 US News & World Report lists Georgia Heart Institute as: #1 location in Georgia for acute myocardial infarction volumes #26 out of 4,878 hospitals in the USA, respectively.



PATIENT CENTERED CARE: A SEAMLESS EXPERIENCE



Jaime Burkle, MD



Laura Divoky, MD



Ronnie Ramadan, MD



Ugochukwu Egolum, MD

Since Georgia Heart Institute's launch, four centers of heart care have been developed to better coordinate care for patients and conduct forward-thinking research through clinical trials, grant funding and advanced procedures.

CENTER FOR CARDIOVASCULAR PREVENTION, METABOLISM & LIPIDS: Jaime Burkle, MD, FACC, Medical Director

The Center for Cardiovascular Prevention Metabolism & Lipids leads the way in preventing cardiovascular disease. When a new patient schedules an appointment with the center, they see a physician, wellness coach, and dietician. In follow-up appointments, a patient's care plan is individualized to their specific needs.

"Our program utilizes physical activity, culinary medicine, advanced imaging, and state-of-the-art treatments to help prevent cardiovascular disease in at-risk patients," said Jaime Burkle, MD, FACC,

Medical Director of the Center for Cardiovascular Prevention, Metabolism & Lipids. "This includes patients with diabetes, high blood pressure, intolerance to statin medications, high triglycerides, elevated coronary calcium score, high LDL cholesterol levels, or a family history of premature heart disease".

This comprehensive approach to care identifies risk factors before cardiovascular disease starts. Patients can now schedule a visit with this center in Braselton, Buford, Cumming, and Gainesville.

To learn more about the Center for Cardiovascular Prevention, Metabolism & Lipids, visit georgiaheart.org/prevention-center

Diagnostic Testing Procedure Volumes

EKG:
115,695

Stress Testing:
10,508

**ECHO (with and
without contrast):**
34,930

Cardioversion:
1,158

Vascular Testing:
27,256

**Transesophageal
ECHO:**
1,986

FY-22

WOMEN'S HEART CENTER:
Laura Divoky, MD, MPH, FACC,
Medical Director

Heart disease is the leading cause of death for women in the U.S., claiming nearly one in five female deaths. Additionally, the state of Georgia has one of the worst records for pregnancy and postpartum related deaths in the nation.

This is why the Women's Heart Center was created – to offer comprehensive cardiac care that's specific to heart disease in women, while improving patient outcomes and preventing maternal cardiac complications.

In addition to maternal health, the center treats patients with coronary microvascular disease (CMD), spontaneous coronary artery dissection (SCAD), post-menopausal heart disease and other heart conditions specific to women.

The center also hired its first Women's Center Coordinator, Savannah Sanders, PA, to focus on providing patient care and the implementing of the grant.

"As one of the nine grant recipients this year – and the only hospital selected – we're looking forward to all that we hope to accomplish with this award," said Laura Divoky, MD, MPH, FACC, Medical Director of the Women's Heart Center. "This funding will go towards innovative techniques such as remote patient monitoring, allowing patients to report their weight and blood pressure from the comfort of their home. This will allow us to prevent cardiac illness during and after pregnancy – and hopefully drive a reduction in postpartum mortality."

The Women's Heart Center sees patients in Blairsville, Braselton, Buford, Cumming, Dahlonega, Gainesville and Toccoa.

To learn more about the grant, visit georgiaheartinstitute.org/maternal-grant

HEART FAILURE TREATMENT & RECOVERY CENTER:
Ugochukwu O. Egolum, MD, FACC,
Medical Director

The Heart Failure Treatment & Recovery Center aims to treat heart failure patients so they can recover and return to a healthy lifestyle. After completing a thorough patient history and comprehensive testing, our team creates a treatment plan to address the complexities that come along with a diagnosis of heart failure.

"We take a collaborative approach to treating patients with heart failure," said Ugochukwu Egolum, MD, FACC, Medical Director for the Heart Failure Treatment & Recovery Center. "It's important that we coordinate care across the specialties of cardiovascular medicine to ensure the patients receive the best care possible. We work closely with the other subspecialties, such as electrophysiology, interventional cardiology, and cardiovascular and thoracic surgery to ensure that patients have a seamless experience."

The Heart Failure Treatment & Recovery Center also includes the left ventricular assist device (LVAD) program. Between October 2021 and September 2022, NGHS implanted 12 LVADs and currently cares for nearly 30 patients with an LVAD.

In 2022, the Heart Failure Treatment & Recovery Center earned the American Heart Association's Bronze Heart Failure Get with the Guidelines Award – the highest recognition available in the center's first year of applying for the award. The center will continue to apply for Get with the Guidelines awards in future years.

To learn more about the Heart Failure Treatment & Recovery Center, visit georgiaheartinstitute.org/heart-failure

30-Day Heart Failure Mortality Rate
Northeast Georgia Medical Center
2.96%
National Benchmark 11.3%

Heart Failure Readmission Rate
Georgia Heart Institute
16.9%
National Benchmark 23%
FY-22

STRUCTURAL HEART CENTER:
Ronnie Ramadan, MD, FACC, FSCAI,
Medical Director

As its name implies, the Structural Heart Center focuses on the treatment and repair of the valves, wall, and muscle of a patient's heart. From congenital structural heart diseases to complications that may arise as a patient grows older, the Structural Heart Center physicians work together to provide an innovative approach to patient care using transcatheter procedures and surgery or device implantation.

At the start of 2022, the Structural Heart Center welcomed Ronnie Ramadan, MD, FACC, FSCAI as Medical Director of the Structural Heart Center. Dr. Ramadan brings with him a wealth of experience in treating structural heart conditions.

The Structural Heart Center team was proud to conduct a complex live case during the inaugural Georgia Heart & Vascular Symposium (see page 25), hosted by Georgia Heart Institute. Dr. Ramadan and Fadi Sawaya, MD, FACC performed an imaging-guided percutaneous axillary TAVR case in a non-operable patient in the cath lab at Northeast Georgia Medical Center (NGMC)

Gainesville. The case was live streamed to the symposium, which was held at Chateau Elan Winery & Resort.

"I'm happy to report that the case was successful, and the patient is doing well," said Dr. Ramadan. "It was an honor to perform that case during the first Georgia Heart & Vascular Symposium. This type of case shows the level of advanced procedures we can offer our patients at Georgia Heart Institute."

To learn more about the Structural Heart Center, visit georgiaheartinstitute.org/structural-heart

12%
Growth in Structural Heart Procedures
FY-21
compared to
FY-22



SEEKING A NON-SURGICAL OPTION FOR COMPLEX CORONARY CARE



Bobby Bobo, a native of Hawkinsville, Georgia, visited his cardiologist and received some unwanted news: he had multiple blockages in his heart which appeared to be calcified and his only option was to have open heart surgery – not his first choice of treatment.

The former cow farmer, Vietnam veteran and cancer survivor decided to pursue other options.

"I didn't want open heart surgery if I didn't have to have it," said Bobby. "I'm 78, and I was worried about the risks of anesthesia – so I asked my daughter to look on the internet to see if there were any other options."

FINDING GEORGIA HEART INSTITUTE 186 MILES AWAY

Bobby's daughter, Betsy, got to work. A nurse herself, she was familiar with the kind of procedures her father needed to relieve the blockages in his arteries. Her Google searches led her to Georgia Heart Institute, about a three-hour drive from home.

"I called and asked for the next available appointment for a consultation at Georgia Heart Institute, and they told me it would be a few weeks," recollected Betsy. "Knowing that my dad was scheduled for open heart surgery in Macon the following week, I asked if there were any cancellations. They had one for the next day! So, we packed up and headed to Gainesville for a second opinion."

Bobby met with interventional cardiologist Nima Ghasemzadeh, MD, FACC, who scheduled more tests and explained that open heart surgery was not the only option. Dr. Ghasemzadeh helped Bobby understand that for patients who have complex coronary artery disease, especially men of his age and prior health concerns, a minimally invasive coronary intervention would allow faster recovery and minimize procedural risks commonly found in open heart surgery.

Bobby was scheduled for the placement of two stents, accessed through his wrist, to clear the calcifications causing the blockages. For one of the blockages, an atherectomy device was used to modify the calcified plaque before stent placement. The Interventional Cardiology team at Georgia Heart Institute successfully completed the procedure without complication – an exceptional patient outcome the Bobo family didn't know they could have.

INNOVATIVE TREATMENT & COMPASSIONATE CARE

The major benefit of a minimally invasive procedure over open-heart surgery is the recovery time.

"Mr. Bobo was in the hospital for just one day after his procedure," said Dr. Ghasemzadeh. "With open heart surgery, you're looking at five to seven days in the hospital, plus four to six weeks to recuperate."

Bobby was awake during the procedure, avoiding any risks from anesthesia as well.

"I remember sitting in the waiting room while Dad was in the cath lab," said Betsy. "When the nurse escorted me into Dad's room, I was so surprised to see Dad awake. It just made his recovery so much shorter and easier."

"Everyone – from the receptionists to the nurses, to Dr. Ghasemzadeh, to the recovery team – everyone was just so nice," remembered Bobby. "I've never seen anything like it."

BACK TO NORMAL

"Dad stayed in the hospital one night before we took him back home to Hawkinsville," said Betsy. "He was back to his normal activities after a couple of days."

Dr. Ghasemzadeh had such an impact on Bobby that he's asked for him to continue to be his cardiologist. Even though he lives hours away, Bobby can have virtual visits with Dr. Ghasemzadeh when needed.

"We're proud to offer telehealth appointments to patients who live farther away," said Dr. Ghasemzadeh. "Of course, we'll have to schedule labs and tests to be done at a local hospital, but we can offer convenient access to Georgia Heart Institute's excellent heart care from the comfort of the patient's home. They don't have to worry about making multiple long trips to receive the quality patient experience we're known for. For patients like Mr. Bobo, we'll soon have a new Complex Coronary Center that specializes in high-risk procedures and care for those complicated cases."

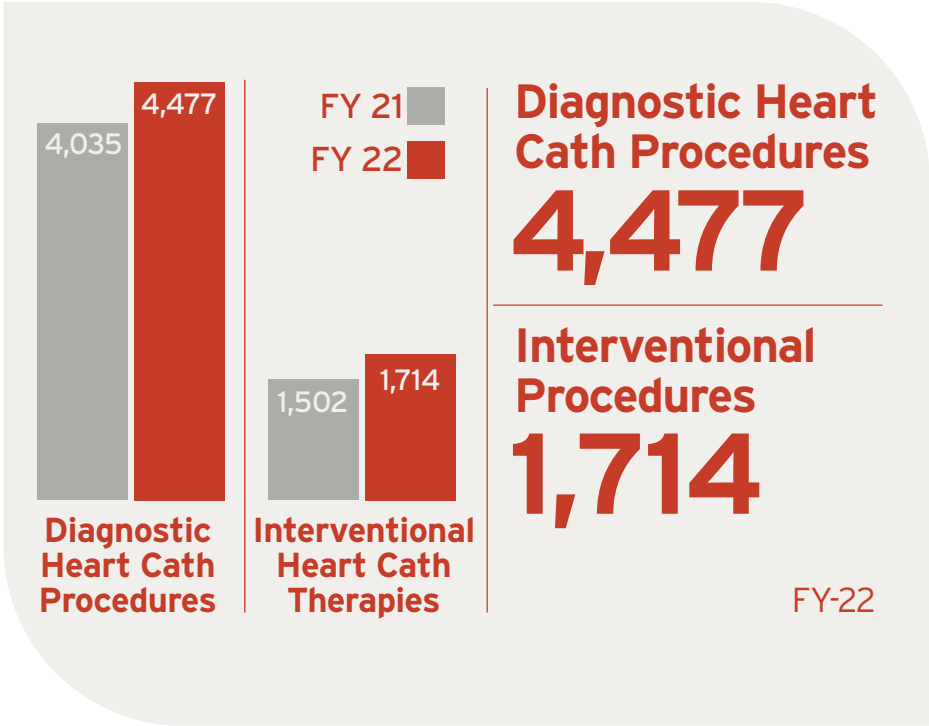
"I'm just so thankful for Dr. Ghasemzadeh's help," said Betsy. "He didn't push the less invasive procedure – he simply gave my dad his options and helped us to understand. In the end, the less invasive procedure saved my dad a lot of pain and suffering. It saved my dad's life."

"The care I received at Georgia Heart Institute was top-notch," said Bobby. "I'm so thankful for Dr. Ghasemzadeh and all the nurses and staff – they were such a blessing to me."

Learn more about Bobby's story at georgiaheartinstitute.org/bobby

**LOOKING AHEAD:
Complex Coronary Center Launching in 2023**

Patients with angina who may have previously been told that they have no other treatment options will soon have a center dedicated to their care at Georgia Heart Institute. Beginning in Spring of 2023, interventional cardiologists Glen Henry, MD, FACC, FSCAI; Nima Ghasemzadeh, MD, FACC, FSCAI; and Falgun Patel, MD, FACC, FSCAI, will lead this new Complex Coronary Center. Complex Coronary Interventions are high-risk procedures and the new center's team plans to focus on family involvement and patient education.



EXPANDING SURGICAL COLLABORATION



Northeast Georgia Physicians Group (NGPG) Cardiovascular & Thoracic Surgery and NGPG Vascular Center are part of Georgia Heart Institute, Northeast Georgia Medical Center's (NGMC) heart and vascular service line. The cardiovascular and thoracic surgery team provides an unmatched level of surgical care and expertise that supports both the patients and their families. NGPG's surgeons specialize in coronary artery bypass grafting (CABG), heart valve surgery, congenital heart disease, and various endovascular repair procedures. With hundreds of cases performed each year, NGMC has been recognized as Georgia's #1 Heart Hospital for providing exceptional patient care and optimal outcomes.

In addition to the exceptional cardiovascular and thoracic services, the surgeons at NGPG Vascular Surgery provide care to patients that require procedures or therapies to address vascular disease. "Some of the most common things we see and treat as vascular surgeons are arterial disease, venous disease, and hemodialysis access creation and maintenance," says Dr. James G. Reeves, MD, Medical Director of Vascular Surgery. To continue to treat and allow patients to receive the proper care they need to avoid serious health problems, Dr. Reeves stresses the importance of establishing a strong alliance with primary care providers. "Most of the common, dangerous vascular diseases don't have symptoms until it's too late. We rely on primary care doctors and cardiologists to screen patients appropriately for vascular diseases. Once they suspect their patient might have a problem, we're happy to take their referral."

Cardiovascular & Thoracic Surgery Volumes FY-22

**CABG
Procedures
758**

**Aortic Valve
Repair/Re-
placement
114**

**Mitral Valve
Repair/Re-
placement
45**

Endovascular Volumes FY-22

FY 21 ■
FY 22 ■

5,880
5,765
**Peripheral
Procedures**

**Open
Procedures
273**



NATIONALLY RENOWNED ROBOTIC HEART SURGEON JOINS NGPG CARDIOVASCULAR & THORACIC SURGERY AND GEORGIA HEART INSTITUTE

Whether it's saving lives on a battlefield in Iraq, walking on to a division 1 college football team, completing medical school in the Ivy League, training to be an instrument-rated pilot, perfecting robotic heart surgery techniques or helping train other surgeons in operating rooms across the nation - Sloane Guy, MD, MBA, FACS, FACC, has spent the past three decades striving to be the best and be of service.

Now, life has brought him to Northeast Georgia Physicians Group (NGPG) Cardiovascular & Thoracic Surgery and Georgia Heart Institute in Gainesville, Georgia. He is the first-ever robotic heart surgeon to perform surgeries at Northeast Georgia Medical Center (NGMC) Gainesville.

"Dr. Guy brings a unique skill set to our already talented group of heart surgeons," said Clifton Hastings, MD, medical director of NGPG

Cardiovascular & Thoracic Surgery, which is part of Georgia Heart Institute. "We're excited to see how innovative, robotic heart surgery procedures can continue our mission of improving the health of the community."

Dr. Guy grew up in North Carolina, then earned an Army ROTC scholarship to complete his undergraduate degree at Wake Forest University. Not only did he graduate on time and fulfill his duties as a cadet, he also somehow found time to walk on to the football team as a wide receiver.

"I was privileged to play for Coach Bill Dooley, who was the brother of University of Georgia's legendary coach Vince Dooley," Dr. Guy said. "We may not have won a national championship like Vince did at UGA, but Bill taught me a ton about dedication and teamwork."



The next leg of his journey took him to the University of Pennsylvania, where he earned his medical degree and completed his residency and fellowship at the university's health system - called Penn Medicine. Dr. Guy then went on to work at Walter Reed National Military Medical Center and eventually served three tours as an active-duty U.S. Army trauma surgeon - twice in Afghanistan and once in Iraq. He received a Bronze Star Medal and many other combat awards during his service.

"The U.S. Army was another place I learned the value of teamwork," Dr. Guy said. "We had to work together in stressful situations to effectively care for American soldiers. I couldn't do what I do today without the experience I gained while serving our country."

After finishing his time in the service, Dr. Guy cared for patients at renowned healthcare organizations, including Temple University Health System, Weill Cornell Medical Center, and Thomas Jefferson University Hospital.

He's also an award-winning physician, having been named a "Top Doc" by Philadelphia magazine and U.S. News & World Report. Now, he is bringing that expert care to the northeast Georgia community.

Dr. Guy has focused his surgical skills specifically on mitral valve repairs. He prides himself on performing the procedure, which fixes a leaky or stiff mitral valve in the heart, in the least invasive way possible - something that's hard for other surgeons to achieve because of the commitment it takes to learn.

"I'm looking forward to caring for patients in the northeast Georgia area and providing them advanced care close to home," said Dr. Guy, who trained in robotic heart surgery at Emory Saint Joseph's Hospital in Atlanta. "The robotic heart surgeries I perform can use incisions that are only eight millimeters long - about the diameter of an ink pen. This means faster recoveries and smaller scars for patients when compared to open heart surgery where an incision might be eight to 10 inches long."

"Dr. Guy is joining an impressive group of surgeons with Drs. Kyle Thompson and Clifton Hastings - and we're looking forward to welcoming him to our team," said Habib Samady, MD, interventional cardiologist, and president of Georgia Heart Institute. "Together with our exceptional cardiology services, our heart surgery program has built the foundation of cardiovascular care in this part of the state. Adding world-class robotic heart surgery to our cardiovascular surgery practice offers our patients the full spectrum of heart care and further distinguishes Georgia Heart Institute as a regional and national destination for cardiovascular care."

NGPG Cardiovascular & Thoracic Surgery and Georgia Heart Institute work together to create a seamless approach that allows patients to receive a broad spectrum of cardiovascular care, from general cardiology to complex surgeries and procedures.

To refer a patient for robotic heart surgery with Dr. Guy contact NGPG Cardiovascular & Thoracic Surgery at 770-501-7329 or by visiting georgiaheartinstitute.org/guy.

With the addition of robotic cardiac surgery to an already impressive surgical team, Northeast Georgia Health System's (NGHS) Heart & Vascular service line continues to live up to its name and statement: **Georgia Heart Institute: The Future of Heart Care. We're Leading Georgia There.**

Watch the full interview with Dr. Sloane Guy at georgiaheartinstitute.org/guy-interview



INNOVATIVE RESEARCH IN CARDIOVASCULAR CARE

Georgia Heart Institute is actively contributing to three National Institute of Health (NIH) studies, all of which have received funding from the NIH. This impressive list of projects is a collective effort between the doctors and clinical researchers at Georgia Heart Institute and other researchers around the country to address areas in cardiac imaging, coronary artery disease management, and heart attack prevention.

Collaborators: Univ. of Utah
Grant: NIH R01
Description: Wall Stress in CAD

BIOMECHANICAL INDICES FOR CORONARY LESION RUPTURE RISK AND LESION PROGNOSTICATION

Using advanced cardiac imaging and analysis, this study focuses on wall stress and if determined as an accurate predictor, can calculate not only if a patient will have a heart attack but also when one might occur. This study will help further advance efficient and proactive interventional treatment for coronary artery disease (CAD) and even prevent heart attacks all together. Lucas Timmins, PhD, from the University of Utah, collaborates with the Georgia Heart Institute clinical research team to delve further into better understanding two questions: why certain plaques within coronary arteries rupture and what causes these plaques to develop.

Collaborators: Cornell Univ.
Grant: NIH R01
Description: 3D Printing for FFR

PATIENT-SPECIFIC CORONARY HEMODYNAMICS BY 3D PRINTING

Simon Dunham, PhD, at Weill Medical College of Cornell University, assists Georgia Heart Institute's research team to understand the limitations of a new coronary artery disease diagnostic test for CT Fractional Flow Reserve (FFR). This study utilizes 3D printing, creating models of patients' arteries to corroborate CT FFR models. These 3D printed models can recreate a patient's blood flow which offers a more in-depth and accurate observation to validate CT and identify treatment plans for patients with suspected or confirmed ischemia. This effort can enable researchers to develop innovative diagnostic imaging, advance equipment and technology and develop procedures to improve effectiveness.

Collaborators: Harvard & Cornell
Grant: NIH R01
Description: WSS for MACE

INTEGRATING CORONARY ATHEROSCLEROSIS WITH PHYSIOLOGIC FEATURES FOR OPTIMIZED RISK STRATIFICATION

This study focuses on key characteristics of CAD and the anatomy of plaque in coronary arteries. Peter Stone, MD, from Harvard Medical School joins Georgia Heart Institute's research team for this study. Using CT imaging, researchers can further their understanding on the various predictors of heart attacks, calculate a biomarker, and investigate wall shear stress in coronary arteries of patients. This study also takes a closer look at additional characteristics of CAD, beyond wall shear stress, that should be considered when determining increased risk of heart attack. These characteristics include: FFR, plaque burden, plaque phenotype, particle resident time, axial plaque stress, and plaque structural stress. Keeping all the above listed factors in mind, more precision in a predictive structure can be used in patient care, especially for patients who have not been previously diagnosed with CAD.

Georgia Center for
Cardiovascular
Biomechanics and
Data Modeling
(GCCBM)

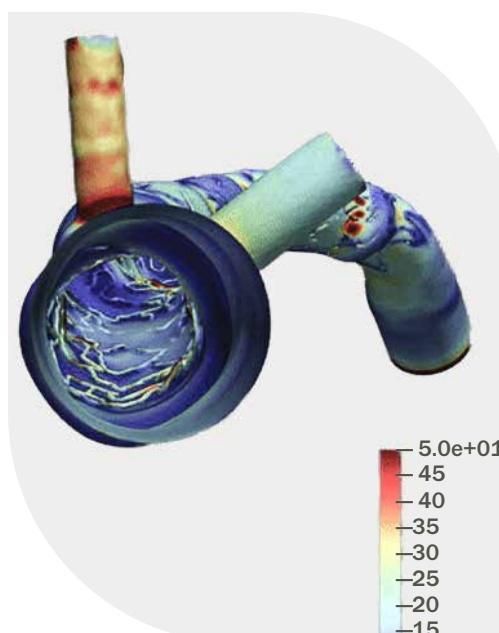
Biomechanics of Atherosclerosis

Collaboration on
three NIH R01
Studies

Machine Based Learning CV Imaging

Valvular Heart
Disease
Heart Failure

Device
Biomechanics
Shear Stent
Restoration
Valvular Heart
Disease



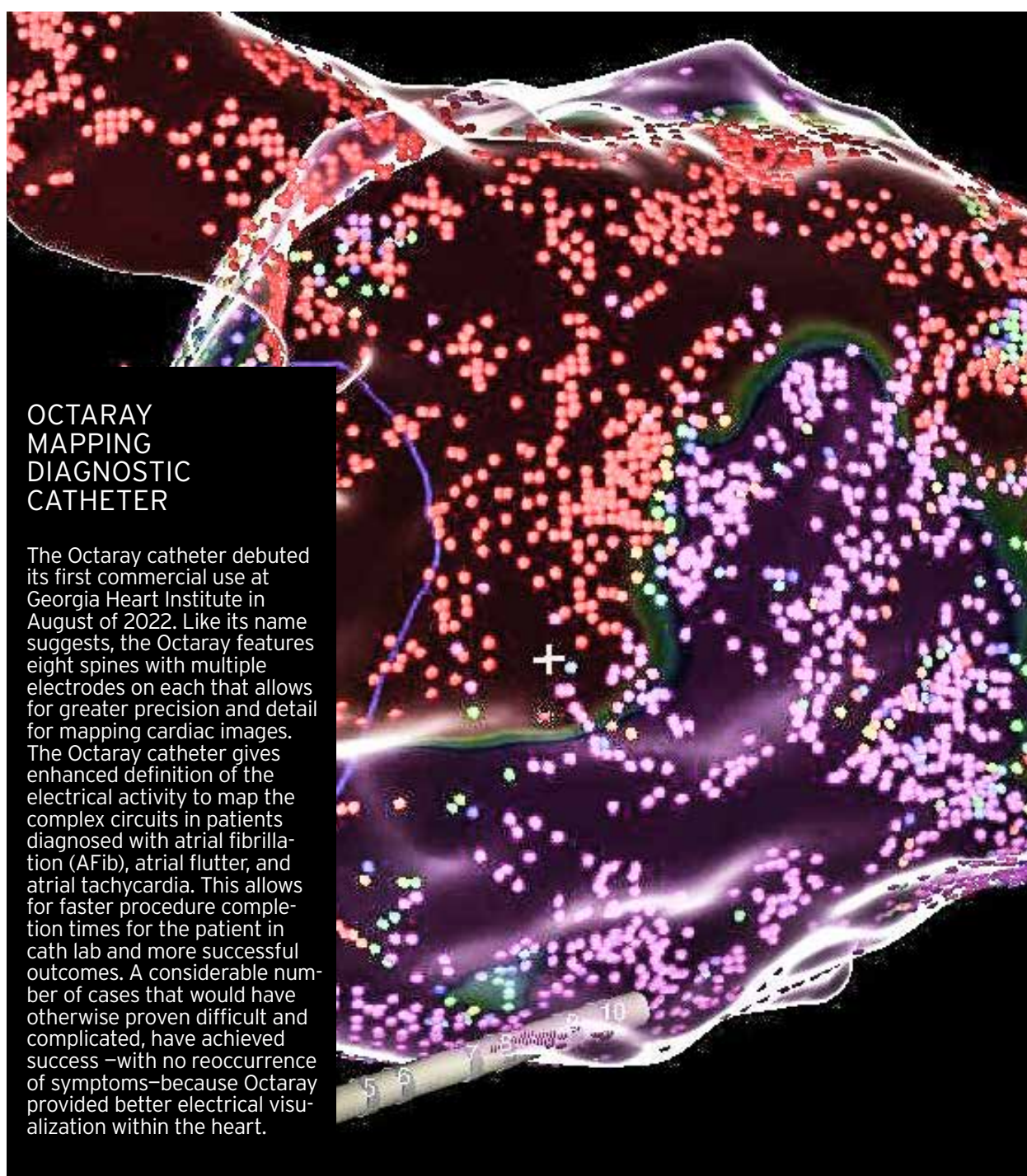
In addition to the three NIH research projects at Georgia Heart Institute, the Georgia Center for Cardiovascular Biomechanics & Modeling (GCCBM) located at the Gainesville campus, highlights three areas of study within technology-based research: machine-based learning for CV imaging, device biomechanics, and biomechanics of atherosclerosis. With the utilization of Optical Coherence Tomography (OCT), the GCCBM can investigate, measure, and determine certain predictors of major cardiovascular events. Particularly, the GCCBM has developed the DeepIVUS platform that automatically segments IVUS images with capabilities to measure lumen, plaque, and plaque burden areas within coronary arteries.

Learn more about cardiovascular
clinical research initiatives at
georgiaheartinstitute.org/research

NEW TECHNOLOGY

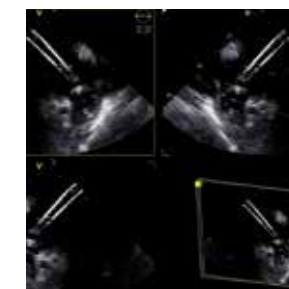
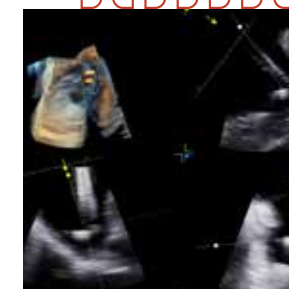
The use of two new technologies, Octaray Catheter and the NuVision 4D ICE catheter, now provides a more precise view into the electrical signals in a patient's heart for a variety of

electrophysiology (EP) procedures and allows enhanced clarity, speed, and precision when treating arrhythmias, left atrial appendage (LAA) occlusion procedures, and others.



OCTARAY MAPPING DIAGNOSTIC CATHETER

The Octaray catheter debuted its first commercial use at Georgia Heart Institute in August of 2022. Like its name suggests, the Octaray features eight spines with multiple electrodes on each that allows for greater precision and detail for mapping cardiac images. The Octaray catheter gives enhanced definition of the electrical activity to map the complex circuits in patients diagnosed with atrial fibrillation (AFib), atrial flutter, and atrial tachycardia. This allows for faster procedure completion times for the patient in cath lab and more successful outcomes. A considerable number of cases that would have otherwise proven difficult and complicated, have achieved success—with no reoccurrence of symptoms—because Octaray provided better electrical visualization within the heart.



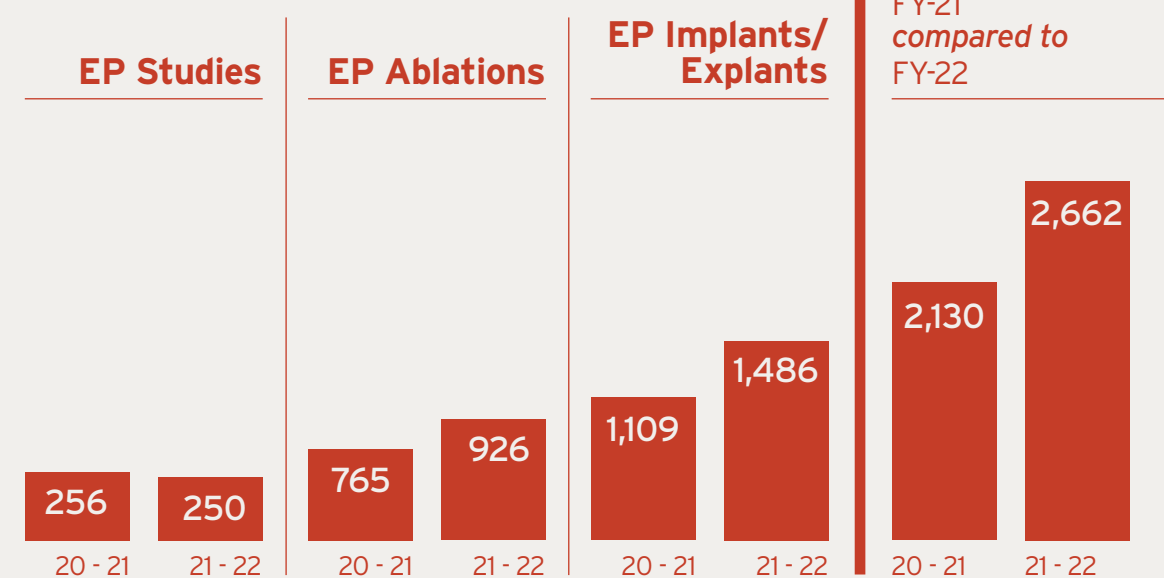
NUVISION 4D ICE CATHETER

Georgia Heart Institute was the first hospital in the state to use the 4D ICE catheter for a Left Atrial Appendage (LAA) closure procedure. The 4D ICE Catheter displays real time volumetric imaging along with both 2D and 4D Color Doppler flow ability, independent distal tip rotation and penetration depth up to about 15 cm. In addition to the high visual quality, two benefits of using the 4D ICE catheter is not having to perform a transesoophageal echocardiogram (TEE) and sometimes, eliminating the need for general anesthesia but instead, placing the patient under twilight sleep while still achieving optimal results. Before the use of the 4D ICE catheter, procedures like Watchman

devices may have taken longer to complete and proven to be more difficult. Now, total procedure time is shorter and success rates are better. The Structural Heart Center also incorporates the 4D ICE catheter during difficult cases. Certain procedures would not be possible as a non-invasive service if the 4D cath was not available. The use of this recent technology adds a higher level of confidence and allows the EP team and interventional cardiologists to see what they need to and add an element of ease to their workload.

Electrophysiology Procedures

FY-21 compared to FY-22



CLINICAL TRIALS FOR A BETTER TOMORROW

Northeast Georgia Health System (NGHS) has completed over 100 cardiovascular clinical trials and has become a leading institution in cardiology research, participating in high-impact Phase II-Phase IV Pharmaceutical as well as Investigational Device Exemption (IDE) and investigator-initiated trials. Our highly skilled and experienced cardiovascular clinical research team includes registered nurses with critical care and cardiology backgrounds who are fully dedicated and trained in clinical research. Led by a team of over 25 research-active physician principal and sub-investigators, Georgia Heart Institute is actively involved in over 35 clinical trials each year, consistently receiving national and international recognition for quality audits and high patient enrollments. By providing a robust clinical trial and research program infrastructure, Georgia Heart Institute demonstrates a commitment to offering the highest level of care and cutting-edge therapies for patients in our local community. In addition, the mission of the clinical trial research team at Georgia Heart Institute is to not only advance the prevention, diagnosis, and treatment of cardiovascular disease for our patients, but also to contribute actively to discovery, innovation, and advancements in cardiovascular health regionally, nationally, and globally.

Clinical trials are offered in cardiovascular surgery, general cardiology, heart failure, structural heart, interventional cardiology, wellness/prevention, and electrophysiology.

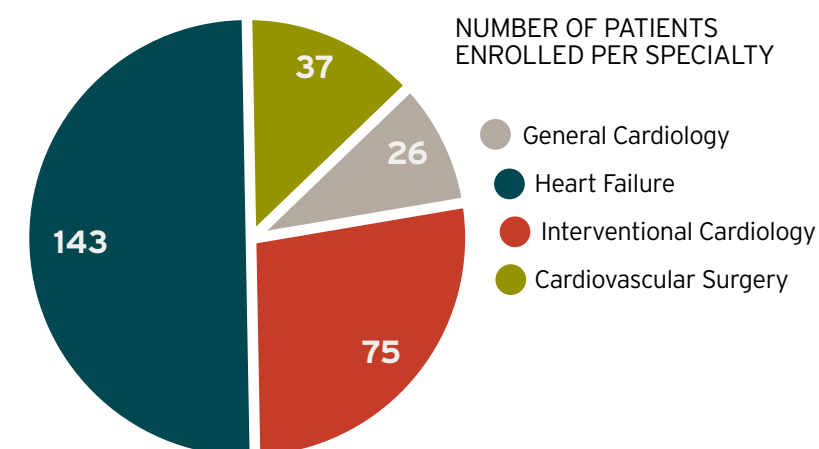
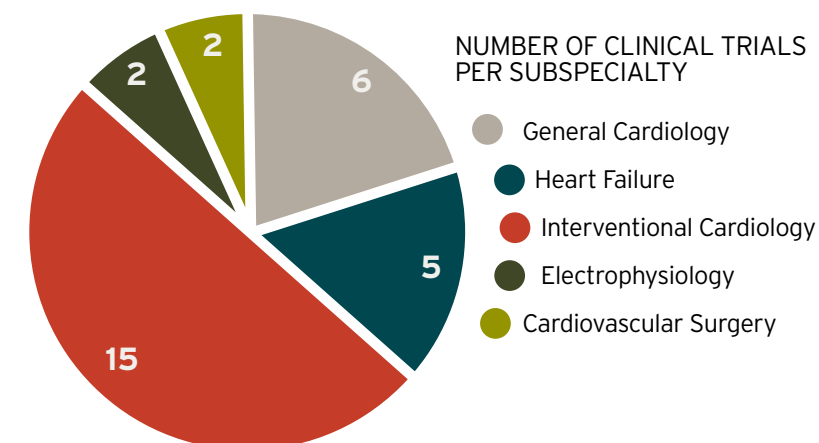
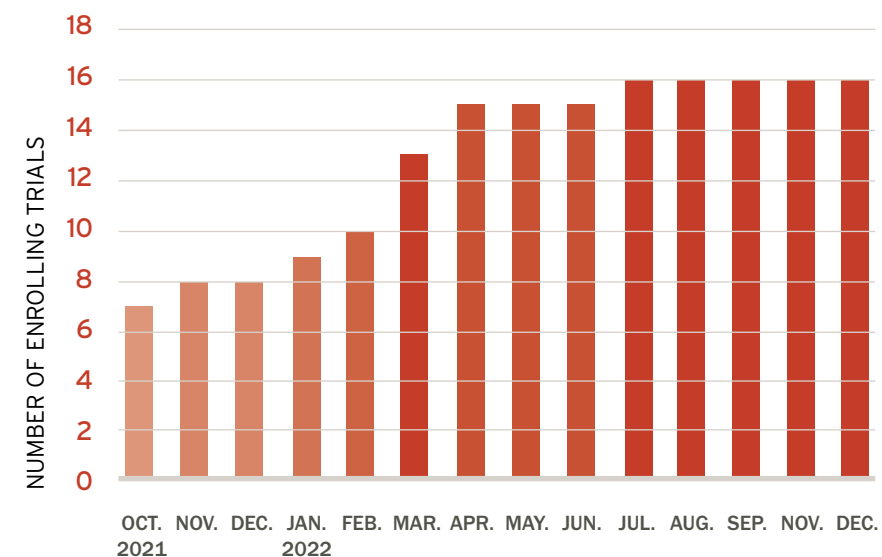
Specific breakthrough therapies offered through clinical trials include:

- Evaluating the use of the Bodyport Cardiac Scale and biomarkers for remote patient monitoring in heart failure patients (DCRI, SCALE-HF Study)
- The Amgen Olpasiran Trial of Cardiovascular Events and Lipoprotein(a) Reduction (OCAEN(a)) - Outcomes Trial evaluates and sheds new light on the efficacy and safety of lowering lipoprotein(a) through RNA interference with olpasiran in participants with atherosclerotic cardiovascular disease and elevated lipoprotein(a) concentrations.
- The Phillips DEFINE GPS Study is a global multicenter, prospective and randomized controlled trial that will assess the impact of iFR co-registration on both outcomes and cost effectiveness.

By leading outcomes-based clinical trials at the Georgia Heart Institute, our clinical teams are thrilled to continue to provide cardiovascular care and research opportunities of the highest quality in our community.

Led by a team of over 25 research-active physician principal and sub-investigators, the Georgia Heart Institute is actively involved in over 35 clinical trials each year and consistently receives national and international recognition for quality audits as well as for high numbers of patient enrollments.

CLINICAL TRIAL VOLUME



View all current clinical trials for cardiology at georgiaheartinstitute.org/clinical-trials

A listing of all NGHS clinical trials can be found in the High Enroll app, which allows easy access to information about clinical trials including trial summaries, inclusion criteria, phase details and enrollment information. This app is free and easy to navigate. Simply download the app, search "Northeast Georgia Health System" and select any categories of interest. All of Georgia Heart Institute's cardiovascular clinical trials are located under the "Heart & Vascular" category.

High Enroll is available in the App Store.



INAUGURAL GEORGIA HEART & VASCULAR SYMPOSIUM



More than 400 participants gathered to attend talks given by renowned cardiovascular disease experts in Braselton on June 24 and 25, 2022, to speak about improving care for patients with all types of heart conditions. Hosted by Georgia Heart Institute, the inaugural Georgia Heart & Vascular Symposium included case studies, seminars and two heart procedures live streamed from Northeast Georgia Medical Center (NGMC) for the physicians, advanced practice providers, nurses, and EMS staff in attendance.

"Our goal is to deliver the best possible heart and vascular care to our patients and their families," said Habib Samady, MD, FACC, interventional cardiologist, the symposium's course director and president of Georgia Heart Institute. "One of the ways we do this is by bringing the most innovative experts in the field of cardiovascular medicine together for this kind of learning event. It is especially important as we emerge from the pandemic to re-center our focus on putting patients first and renew our efforts to bring the latest in technology and treatment to Georgia Heart Institute."

Keynotes of the event included Peter J. Fitzgerald, MD, Ph.D., professor emeritus of medicine and engineering at Stanford University Medical Center and co-founder and managing partner of Triventures, and Christopher M. Kramer, MD, distinguished professor of cardiovascular medicine and

chief of the cardiovascular division at the University of Virginia Health System.

The live cases included a complex coronary case and an imaging-guided percutaneous axillary TAVR case in a non-operable patient. Both cases were performed successfully and were a highlight of the event.

Register now for the 2023 Georgia Heart & Vascular Symposium and view the full 2023 program at georgiaheartinstitute.org/symposium



Interested in becoming a sponsor of the Georgia Heart & Vascular Symposium? Visit georgiaheart.org/sponsor-symposium

"Our goal is to help clinicians deliver the best possible heart & vascular care to our patients and their families."

400+
Attendees

13.0
ABIM MOC
Credits
Awarded

SHAPING TODAY'S DOCTORS INTO TOMORROW'S LEADERS



GRAND ROUNDS

Georgia Heart Institute kicked off its calendar of Ground Rounds lectures in November of 2021. Grand Rounds guest presenters hailed from medical institutions around the nation such as UCLA in California, Brigham and Women's Hospital in Massachusetts and Emory University. Presentations included topics ranging from general cardiology and prevention to interventional and structural cardiology.

"At Georgia Heart Institute, we strive to provide high-quality medical education to our physicians, nurses, trainees, and staff," said Jaime Burkle, MD, FACC, Chair of the Education Committee and Medical Director of the Center for Cardiovascular

Prevention, Metabolism & Lipids. "For our Grand Rounds, we dedicate a great deal of time to screening and selecting our speakers, who are nationally and internationally recognized for their work, research, and expertise. Over the past year, we have been fortunate to have physicians like doctors Spencer King, Nehal Mehta, and Noel Bairey-Merz, to name a few, share their vast knowledge in cardiovascular medicine. We look forward to continuing to provide top-notch education in cardiology, CT surgery, and vascular medicine through Grand Rounds in the years to come."

PAST GRAND ROUNDS LECTURES

Date	Speaker	Topic
November 2021	Habib Samady, MD, FACC	Emergence of Georgia Heart Insitute: One Stop Shop for Delivering Cutting-Edge Cardiovascular Care & Leading Research and Innovation
December 2021	Spencer B. King, III, MD, MACC, FSCAI, FESC	Coronary Interventions: A Half Century Journey
February 2022	Jaime Burkle, MD, FACC	Cardiometabolic Therapies
March 2022	Nehal Mehta, MD, MSCE, FAHA	CCTA is the Future for Coronary Risk Stratification
April 2022	Brad Leshnower, MD	Cutting Edge Surgical Options for Aortic Disease
May 2022	Yoshi Kaneko, MD	Future of Structural Heart Programs: Can Surgeons and Cardiologists Coexist?
September 2022	Karol Watson, MD, PhD, FACC	Coronary Calcification: Basic Mechanisms, Research Applications, & Clinic Utility
October 2022 Research Week	Amir Lotfi, MD, FRCPC, FSCAI	Analyzing Patient-Specific Coronary Arteries With and Without Stents Using Proper Orthogonal Decomposition
	David Molony, PhD	How Will Advancements in Simulation and Artificial Intelligence Augment Cardiology Practice?
November 2022	Noel C. Bairey Merz, MD, FACC, FAHA, FESC	Women and Coronary Microvascular Dysfunction: Update 2022

See past Grand Rounds lectures and stay up to date as new speakers are added at georgiaheartinstitute.org/grandrounds

JOURNAL CLUB

The Graduate Medical Education (GME) team began Georgia Heart Institute's Journal Club in December 2021. Journal Club sessions meet monthly to discuss scholarly literature and submit ideas and opinions on how particular clinical knowledge can be applied within Georgia Heart Institute's plan for patient care. Not only do these educational forums help keep faculty and staff up to date on developments within the field but also provide a collaborative space for maintaining a spirit of teamwork.

As the year progressed, Journal Club participants read and discussed topics led by Medical Directors Jaime Burkle, MD, FACC, and Ronnie Ramadan, MD, FACC, FSCAI. The last Journal Club meetings rounding out the year were led by Cardiovascular Disease Fellows, Jacob Mok, MD and Sheriff Doodoo, MD. Journal Club topics were presented from a wide range of subspecialties from general cardiology to structural heart procedures.

To learn more about Northeast Georgia Medical Center's (NGMC) Journal Club and see upcoming meetings, visit georgiaheartinstitute.org/journalclub



FIRST CLASS FELLOWS



Ugochukwu Egolum, MD, FACC
Program Director



Manivannan Veerasamy, MD
Associate Program Director

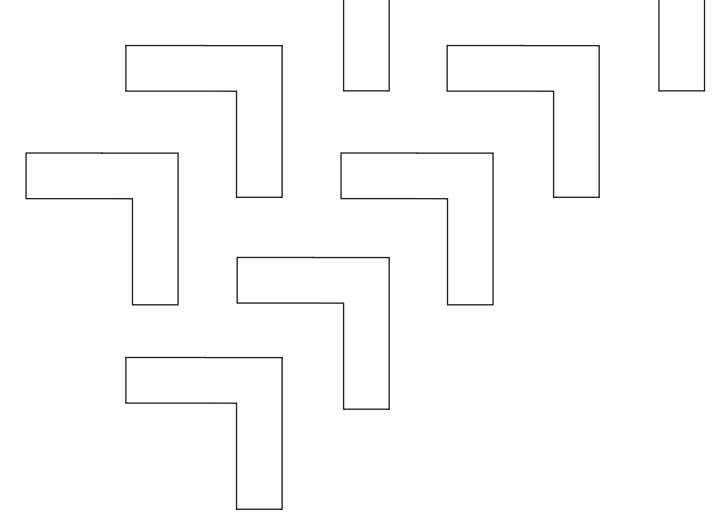


Angela Lewis, MEd, MPH
Program, Coordinator

Georgia Heart Institute welcomed the first class of six fellows into its Cardiovascular Disease Fellowship Program - the second largest of its kind in the state - in July 2022. 70 of the more than 300 applicants were invited for formal interviews, and six fellows hailing from all over the world were finally selected based on criteria such as board exam scores, letters of recommendation, and participation in impressive research projects.

"The pool of applicants for our fellowship was truly impressive," said Ugochukwu Egolum, MD, FACC, program director for the Cardiovascular Disease Fellowship Program. "It is a testament to the strength of our heart and vascular program that so many highly qualified physicians want to finish their specialized training here. These fellows truly are the future of heart care, and I'm just so excited about all the ways their passion, energy, and innovative perspectives will take Georgia Heart Institute's care to the next level."

"It is a testament to the strength of our heart and vascular program that so many highly qualified physicians want to finish their specialized training here."



2022 - 2023 FELLOWS

Alex Adams, DO, completed his internal medicine residency with Northeast Georgia Medical Center (NGMC) and then continued to his cardiovascular disease fellowship with Georgia Heart Institute.

Priyadarshini Dixit, MD, completed her residency in internal medicine at Joseph Mercy Oakland Hospital in Pontiac, Michigan. Her professional goal is to pursue a career in interventional cardiology.

Daisy Abela Ngwainmbi, MD, pursued her internal medicine residency at ECU Health in North Carolina. Her plans are to specialize in advanced heart failure and transplant cardiology.

Emmanuel Olayiwola Amoran, MD completed his internal medicine residency at Pennsylvania Hospital in Philadelphia. Dr. Amoran aspires to use his internal medicine training to provide high quality cardiovascular care to his patients.

Jacob Mok, MD was excited to join Georgia Heart Institute's Cardiovascular Disease Fellowship Program because of all the growth and possibilities Northeast Georgia Health System (NGHS) has to offer. Dr. Mok completed his residency training at University of Tennessee College of Medicine at Chattanooga in internal medicine. Dr. Mok seeks a career in interventional cardiology.

Sheriff Dodoo, MD finished his internal medicine residency at Meharry Medical College in Nashville, Tennessee where he won the Medical Excellence Award. Dr. Dodoo also pursues a career in interventional cardiology.

Dr. Mok along with fellow cardiologist Dr. Dodoo gave an interview at the 2022 Heart & Vascular Symposium in June. In the interview, Dr. Dodoo says "Choosing Georgia Heart Institute's fellowship program over many other established programs in the country was a 'no brainer.'" He believes that due to the extensive research in disease pathology and expertise found in a supportive faculty, will best advance him to become a future leader in cardiovascular medicine.

Watch the complete interview with fellows Jacob Mok, MD, Sheriff Dodoo, MD and Program Director, Ugochukwu Egolum, MD, FACC.



Choosing Georgia Heart Institute's fellowship program over many other established programs in the country was a 'no brainer.'"



Alex Adams, DO
Home: Kentucky
Medical School:
Lincoln Memorial University-DeBusk
College of Osteopathic Medicine
Residency:
Northeast Georgia Medical Center
Specialty:
General Cardiology



Sheriff Dadoo, MD
Home: Ghana
Medical School:
Kwame Nkrumah University
of Science and Technology
Residency:
Meharry Medical College
Nashville
Specialty:
Interventional Cardiology



Priya Dixit, MD
Home: South India
Medical School:
Jawaharlal Nehru Medical College
Residency:
St. Joseph Mercy Oakland
Michigan
Specialty:
Interventional Cardiology



Jacob Mok, MD
Home: South Korea
Medical School:
Mercer University School of Medicine
Residency:
University of Tennessee College of
Medicine Chattanooga
Specialty:
Interventional Cardiology

Daisy Abela Ngwainmbi, MD
Home: Cameroon
Medical School:
Ross University School of Medicine
Residency:
ECU Health
North Carolina
Specialty:
Heart Failure/Transplant Cardiology



Emmanuel Olayiwola Amoran, MD
Home: Nigeria
Medical School:
Semmelweis University, Hungary
Residency:
Pennsylvania Hospital Philadelphia, PA
Specialty:
General Cardiology



Follow the NGHS GME team on
Twitter for updates, events, and
accomplishments @ngmcgme

GROWING THE GREATER GOOD



New Tower NGMC Gainesville



Medical Plaza in Buford



Medical Plaza in Jefferson

As a part of Northeast Georgia Health System's (NGHS) Growing the Greater Good initiative, Georgia Heart Institute has been able to expand its care into more areas, with plans for more in the future.

BREAKING GROUND FOR NEW TOWER AT NORTHEAST GEORGIA MEDICAL CENTER (NGMC) GAINESVILLE

In March of 2022, NGHS broke ground to a new, multi-story tower at NGMC Gainesville. Anticipated to open in early 2025, the new tower will boast an expansion of emergency services, cranial surgery, and all levels of inpatient care for neurology and heart and vascular patients.

The new tower will bring together the heart and vascular services provided by Georgia Heart Institute, including diagnostic testing, cardiac cath and open-heart surgery, so heart patients and families will experience more seamless care.

The new tower will increase bed capacity by over 150 inpatient beds and will add three cath labs, three electrophysiology (EP) labs, three cardiovascular operating rooms (CVORs), and one endovascular operating room (EVOR).

The new tower will also have a helipad, equipped with elevator access that can take STEMI patients directly to the cath lab. This new feature will eliminate this extra step of transporting patients from the current ground-level helipad 200 yards from the Emergency Department, drastically reducing the time required to get the patient to the lifesaving care that they require.

GRAND OPENING OF MEDICAL PLAZA IN BUFORD

The Grand Opening of the new medical plaza in Buford was celebrated in September of 2022. Georgia Heart Institute patients can now see clinicians in General Cardiology, Interventional Cardiology, Electrophysiology, Center for Prevention, Metabolism & Lipids, Women's Heart Center, and Heart Failure Treatment & Recovery Center, all in one clinic location.

The clinic on the second floor of the new plaza also has spaces for testing and diagnostics, allowing patients to access convenient services closer to home.

Additionally, Northeast Georgia Physician Group (NGPG) Family Medicine, Orthopedics & Sports Medicine, Psychiatry, Urology, General Surgery, and Urgent Care also see patients at the Buford location.

GRAND OPENING OF MEDICAL PLAZA IN JEFFERSON

Patients in the Jefferson and Jackson County area can now experience the expert care of Georgia Heart Institute closer to home.

In September of 2022, the Commerce location relocated to NGHS' new multi-specialty medical office building. In addition to Georgia Heart's services, patients can also see clinicians in NGPG Urgent Care, Family Medicine, General Surgery and Sports Medicine & Orthopedic Surgery





STREAMLINING THE INPATIENT EXPERIENCE

Because of the high numbers of COVID patients in 2020, 2021 and 2022, NGMC's heart and vascular patients were not always able to be placed on the same unit together - but now that those challenges are for the most part in the rear-view mirror, Georgia Heart Institute leaders have focused on creating the ideal environment for inpatient cardiovascular care. Gregory Giugliano, MD, SM, FACC, FSCAI, medical director of Inpatient Cardiology, and Darlene Sweet, executive director of Cardiac and Neuroscience Nursing Services have worked closely together as a dyad team to transition all cardiac care into one unit, making the patient experience more seamless than before.

"Through this transition, our team learned the true meaning of deep interdependence," said Dr. Giugliano. "We had to coordinate with teams from Environmental Services to IT - and involved all the nursing staff because everyone brings a different piece of knowledge that we couldn't foresee. We are excited to be in one unit now because our patient care is a lot more efficient. Additionally, the nurses are happier because their cardiac expertise is best utilized, and we can reduce patients' length of stay by putting patients in the right beds the first time."

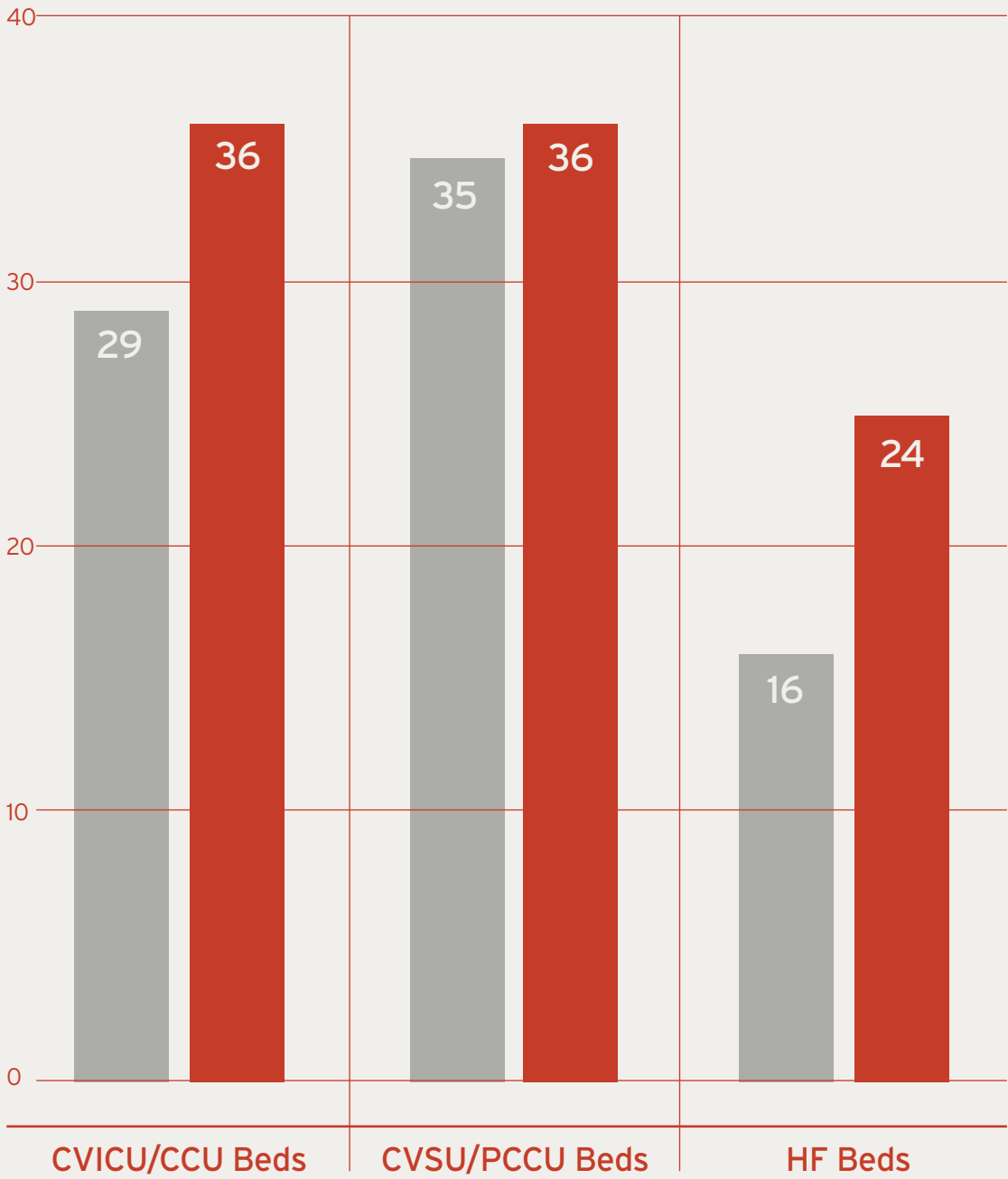
Beyond improving patient care and staff experience today, this transition also informs a massive undertaking on the horizon - the move into the new patient tower on the Gainesville campus.

"We are planning now for the next move in 2025," said Sweet. "That means creating similar units in our current structure to emulate the layout of the new tower in terms of cardiovascular specialty and level of acuity. We have been working with our nurses and providers to obtain the equipment that we will need there, and we have started training to ensure we are ready to go when we open our new doors!"

"Through this transition, our team learned the true meaning of deep interdependence."

Cardiology Units

Current Units New Tower Units



CONNECT WITH US

Explore clinical content specifically for physicians such as live cases, webinar events, articles, and more happening across all cardiovascular specialties right here at Georgia Heart Institute!

BROADCASTMED

Georgia Heart Institute launched its newest page, powered by BroadcastMed in January 2023. A revolutionary healthcare media platform specifically for the clinician audience, BroadcastMed allows users to browse and search for videos, podcasts, educational courses, and articles from physicians and health care systems across the country.



Follow us on Twitter @GaHeart_NGHS. Information on the latest CME opportunities, Symposium updates, pictures and videos showcasing clinical developments and updates on how Georgia Heart Institute cardiologists are involved in the community can be found in the Twitter feed.

VuMedi

VuMedi is primarily a clinical video platform for physicians across all subspecialties of medicine. Find convenient and comprehensive educational content on therapies, techniques, research, and more from Georgia Heart Institute's forward thinking cardiovascular program. This platform allows users to not only view educational content but also to connect with other cardiology professionals.

WONDR MEDICAL

Georgia Heart Institute is one of the only three healthcare systems in the United States that has partnered with Wondr Medical to create clinical content for the cardiology community. Users can watch, read, and interact with other physicians around the world and share peer-to-peer information.

For links to all Georgia Heart Institute's clinical channels, visit georgiaheartinstitute.org/connect

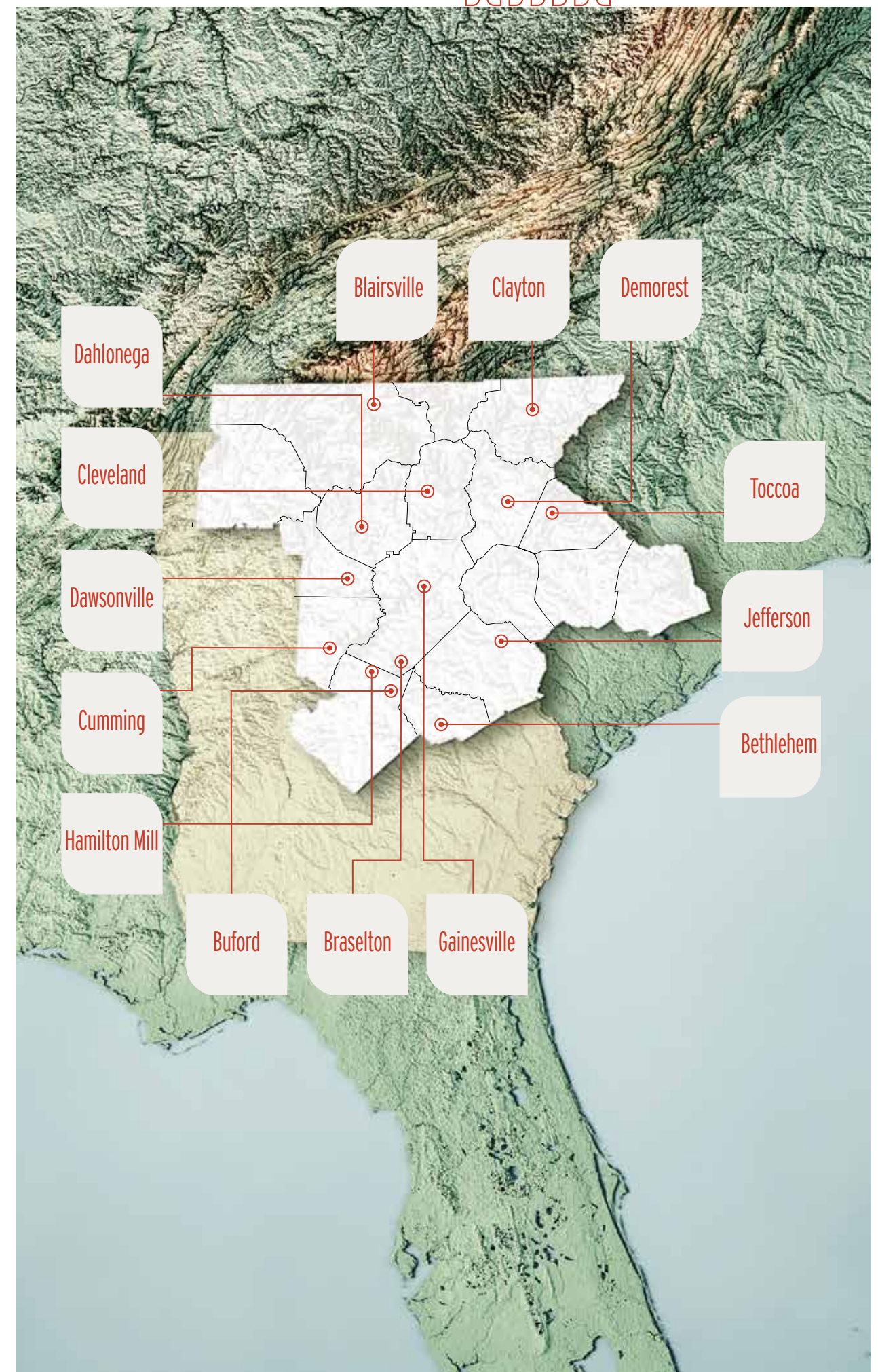


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