



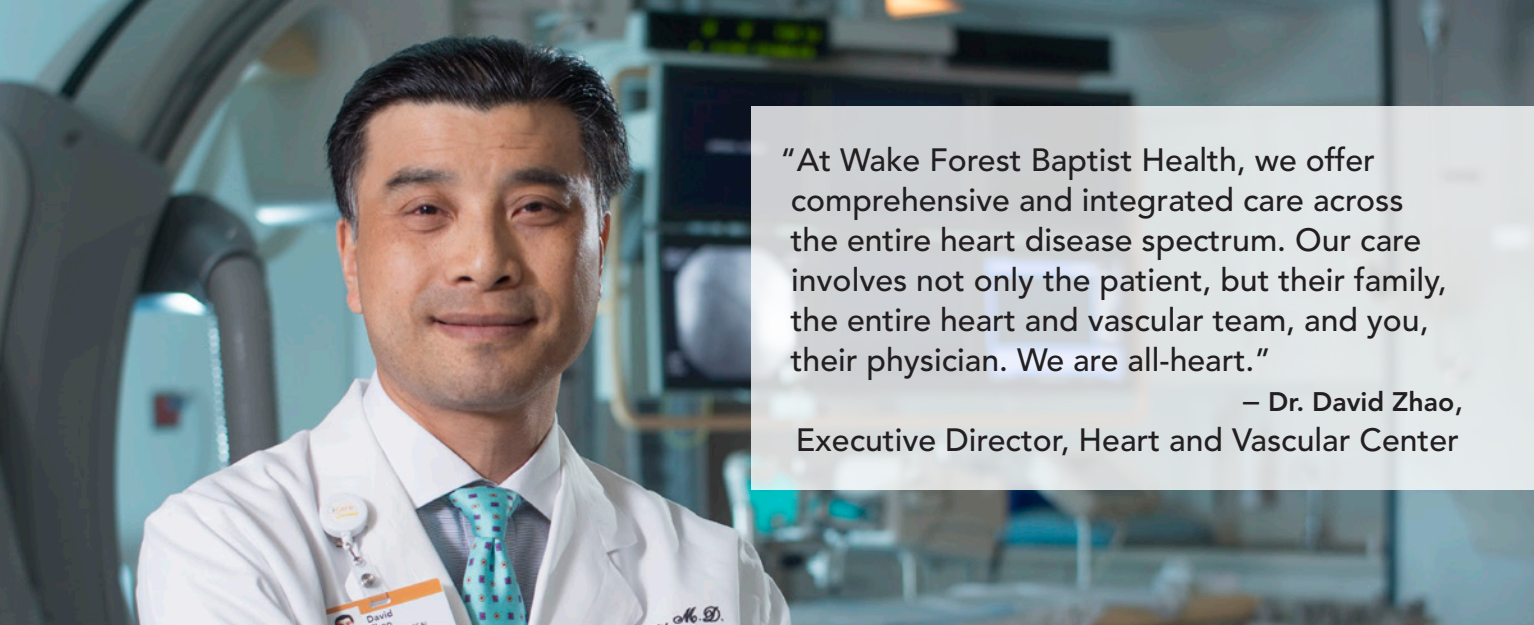
Heart and Vascular Care

A Referral Guide



Heart Physician Access Line (PAL®):
866-996-7370 or 336-716-7370
WakeHealth.edu/Referring-Physicians





“At Wake Forest Baptist Health, we offer comprehensive and integrated care across the entire heart disease spectrum. Our care involves not only the patient, but their family, the entire heart and vascular team, and you, their physician. We are all-heart.”

– Dr. David Zhao,
Executive Director, Heart and Vascular Center

The Wake Forest Baptist Health Difference

One of our opportunities as an academic medical center is sharing the advantages of new technologies and innovative treatments with our colleagues in the community. These technologies and practices can allow the majority of your patients to undergo minimally invasive percutaneous procedures rather than traditional invasive surgical approaches.

The Region’s Only Integrated Heart and Vascular Center

Wake Forest Baptist offers a seamless, multi-disciplinary approach to heart and vascular care. Our center includes:

- ♥ Advanced heart failure and transplant program
- ♥ A congenital heart disease program
- ♥ Integrated cardiovascular research
- ♥ An accredited chest pain center

How We Work with You and Your Patient

Our goal is to manage care across the continuum of services, and work with you to provide the best possible care for your patient. When you refer a patient to us, our team will conduct a multi-disciplinary review to create a personalized care plan for each patient.

Wake Forest School of Medicine

Cardiovascular Disease Training at Wake Forest School of Medicine has been accredited for the past 40 years. Our training programs produce outstanding clinicians and researchers with a strong foundation for providing excellent patient care and contributing to the advancement of medical science.

Accredited programs offered include:

- ♥ General cardiology
- ♥ Electrophysiology cardiology
- ♥ Interventional cardiology
- ♥ Cardiothoracic surgery
- ♥ Vascular and endovascular surgery

We also offer cardiology research fellowship and heart failure fellowship programs.

Recent Achievements

Wake Forest Baptist Health takes patient safety seriously, and we’ve been recognized for that commitment:

- ♥ Named an IBM Watson Health’s Top 50 Cardiovascular Hospital. This study identifies the nation’s best providers of cardiovascular care based on clinical, operational and other performance standards.
- ♥ Awarded the only 5-star heart transplant rating in the state and are one of only eight such programs in the country. This designation means that Wake Forest Baptist has one of the highest quality outcomes in the nation.
- ♥ Accredited by the TJC in Acute Myocardial Infarction, Chest Pain, Heart Failure and Ventricular Assist Device.

Clinical Trials

First in the region to conduct electrophysiology and structural heart clinical trials. Wake Forest Baptist is currently recruiting patients for a variety of heart disease, high blood pressure and vascular disorder studies. If you or your patients are interested in learning more about these studies, please visit WakeHealth.edu/BeInvolved.

Treatments and Technology

Percutaneous Circulatory Support

Wake Forest Baptist Health is the first institution in the region to offer the full array of available percutaneous circulatory support. These include the:

- ♥ Intra-aortic balloon pump (IABP)
- ♥ Impella
- ♥ Tandem heart
- ♥ Ventricular assist devices (VAD)
- ♥ Extracorporeal membrane oxygenation (ECMO)

Patients can require this support with little to no notice. Having a full array of support and trained experts on site is crucial to patient outcomes.

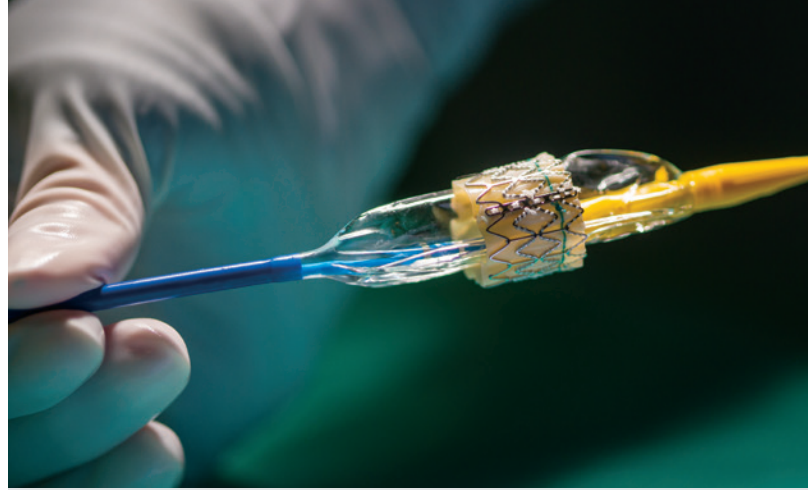
Types of Support:

- ♥ Cardiogenic shock treatment
- ♥ Left main lesions, hemodynamic supported interventions, and chronic total occlusion for patients undergoing high risk percutaneous coronary intervention (PCI). Many patients would have to undergo cardiothoracic surgery without this support.
- ♥ Bridge to permanent VAD/transplant support



Most experienced in region using ECMO.

Extracorporeal membrane oxygenation (ECMO) is the highest level of hemodynamic support. ECMO allows the heart to rest and assists in pumping while the heart recovers. This results in prolonged cardiac and respiratory support for the patient. ECMO is most commonly seen in pediatrics but is also used in adults with cardiac and respiratory failure.



Advanced Heart Failure and Transplant

Our comprehensive Advanced Cardiac Care and Transplant Program includes a dedicated team of highly trained specialists offering expert care for patients with severe forms of heart failure and require a heart transplant. In 2017, our transplant program received the Intermacs Vanguard Award and the Becker's Review "Top Heart Transplant Programs" Award, and was awarded the only 5-star transplant rating in the state. The Wake Forest Baptist VAD program is accredited by The Joint Commission.

Daily clinics allow your patients to be quickly evaluated and treated with diagnostics such as:

- ♥ Telemonitoring
- ♥ CardioMEMS device
- ♥ Endomyocardial biopsy
- ♥ 3D echocardiography
- ♥ Cardiac MRI

The result is improved patient outcomes and a reduced chance of readmission.

Ventricular Assist Device (VAD)

VAD is a surgically implanted mechanical pump that helps the heart pump blood from the lower portion of the heart to the rest of the body. VADs are used for patients with heart failure.

Structural Heart Services

Wake Forest Baptist Health's structural heart program is unique in that non-invasive imaging, interventional cardiology and cardiothoracic surgery partner to find the best solution for each patient.

In addition, we offer a wide range of access sites and device options that allow more patients to be treated with minimally-invasive approaches. This program also gives patients with peripheral artery disease or other vascular complications the ability to have a successful implantation.

If your patient is not a candidate for a minimally-invasive procedure, our cardiothoracic surgery team can provide other services to treat simple to complex structural conditions.

In one uncommon case, Wake Forest Baptist became the first in the region to perform a STEMI to emergent valve replacement procedure.

TAVR

Transaortic valve repair/replacement (TAVR) is a minimally invasive structural procedure. By having many different types of valve offerings and access site options, we can select the most appropriate device for the patient.

Wake Forest Baptist began offering TAVR in 2011 and has performed 88 research and 447 commercial (250 CoreValve® System and 197 SAPIEN heart valve) procedures as of 2017. Given their experience with TAVR, our physicians are sought nationwide to train on these techniques.



Jack Vynalek, Patient

"Our 66-year old patient Jack Vynalek was just minutes from death when his heart valve suddenly failed and he was rushed to our hospital. Mr. Vynalek's sudden failure represented a unique case, but the experience of our heart team with the TAVR device is an example of how advances in technology give us another tool that can quickly benefit patients," said Dr. David Zhao, chief of cardiovascular medicine and executive director of the Heart and Vascular Center.



Mitral Clip

The MitraClip® procedure (mitral clip) is used to treat mitral regurgitation caused by a leaky mitral valve. This technique is less invasive than open procedures and allows the mitral valve to be repaired on patients who are not candidates for open heart surgery. The clip is attached to the mitral valve through percutaneous access, causing the valve to more completely close and restore normal blood flow through the heart.

Wake Forest Baptist Health began offering mitral clip procedures in 2014 and has performed the most in the region, 66 procedures as of 2017.

Electrophysiology

Atrial Fibrillation

Wake Forest Baptist treats all levels of atrial fibrillation and has the entire array of treatment options available so patients can expect an optimal, tailored approach to their care.

Device Placement

Wake Forest Baptist is the only high volume, complex center in the region for lead extraction. We were also the first in the region to place leadless pacemakers in 2016. When compared to other pacemakers, these leadless pacemakers:

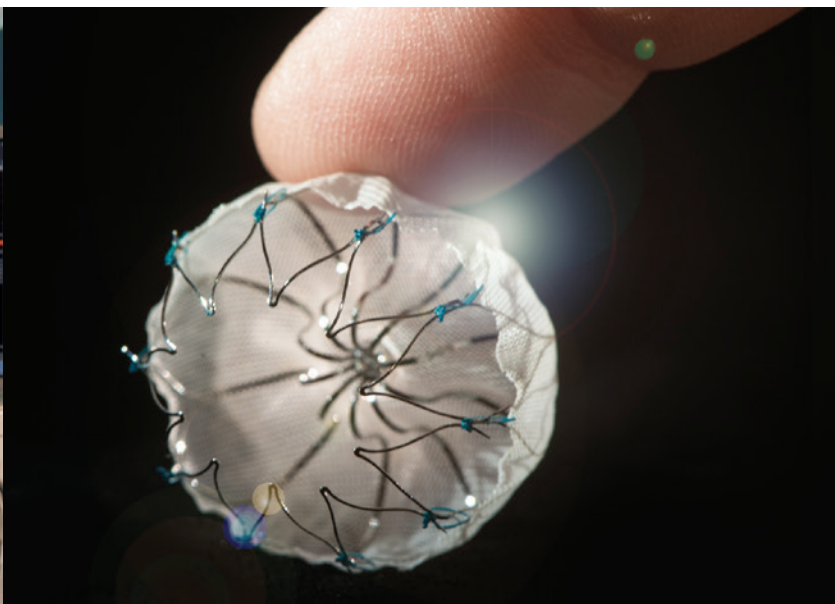
- ♥ Leave no chest scars
- ♥ Eliminate pocket infections, hematoma and erosion
- ♥ Have fewer restrictions post-implant

This allows patients to return to normal activity more quickly.

Leadless Pacemakers

Wake Forest Baptist is the only high volume, complex center in the region for lead extraction. When compared to other pacemakers, leadless pacemakers leave no chest scars, eliminate

pocket infections/hematoma/erosion, and have fewer restrictions post-implant, allowing patients to return to normal activity more readily.



First in region to offer WATCHMAN.

The WATCHMAN™ procedure is a minimally invasive treatment that places a “parachute” in the left atrial appendage to seal it off. This procedure helps reduce patients’ risk of a stroke by as much as 77 percent. It also allows patients to stop taking blood thinners within 45 – 60 days.

Wake Forest Baptist is the only medical center in the region that can treat AFib across the continuum. We have implanted more than 60 WATCHMAN devices as of 2017.

“We try medications first. However, if that fails, we may then use the WATCHMAN catheter-based technology to help the patient maintain normal heart rhythm. There’s no absolute cure for AFIB, but there is better management, and we have the technology to do so.” – Dr. Elijah Beaty

Additional Services

Vascular Care

The Vascular Team at Wake Forest Baptist offers:

- ♥ Management of common to rare vascular conditions with medical management, minimally invasive endovascular techniques and surgical approaches
- ♥ Treatment of pre-mature atherosclerosis
- ♥ The ability to treat lymphedema, management of deep vein thrombosis, chronic venous insufficiency and difficult-to-control hypertension
- ♥ Renal duplex imaging which allows for diagnostic testing and prevents unnecessary radiation exposure to patients
- ♥ One of the first vascular labs in the nation and first in the region to receive ICAVL (Intersocietal Commission for the Accreditation of Vascular Laboratories) accreditation

Aneurysms

Wake Forest Baptist has the only comprehensive limb preservation program in the region to manage complex aneurysm disease as well as surgeons specialized in open and percutaneous repair. Through imaging, endografts are made that are specifically designed for your patient's anatomy, allowing for a non-invasive endovascular repair of the aneurysm without disrupting flow to the associated artery.

Peripheral Arterial Disease (PAD)

PAD is a flow limiting atherosclerotic disease of the lower extremities' arteries and is usually associated with coronary artery disease and cerebrovascular disease. Patients at increased risk for PAD include patients aged ≥ 65 years, those with other risk factors for atherosclerosis (e.g., diabetes, any smoking history, hyperlipidemia, hypertension), a family history of PAD, or other known forms of atherosclerosis (e.g., coronary or carotid atherosclerosis, renal or mesenteric atherosclerosis, abdominal aortic aneurysms).

A resting ankle-brachia index (ABI) is recommended to establish a diagnosis. ABI readings (the higher of each arterial pressure in each limb) are categorized as abnormal (ABI ≤ 0.90), borderline (ABI 0.91-0.99), normal (ABI 1.00-1.40), or noncompressible (ABI > 1.40).

Supervised exercise is recommended to improve functional status and quality of life as well as to reduce leg symptoms. Structured community-based or home-based exercise programs are an alternative to supervised exercise for patients with claudication.

Patients with PAD should be followed periodically to assess cardiovascular risk factors, limb symptoms, functional status and ABI testing.

Cardiac and Pulmonary Rehabilitation Program

Wake Forest Baptist's cardiac and pulmonary rehabilitation program was the first in North Carolina, and one of the first in the United States. Our team of cardiac and pulmonary rehabilitation experts develop customized programs to help over 90 patients a day recover from heart and lung conditions. Our goal is to help your patients understand their condition and treatment, help make lifestyle changes that will improve their health, and support them through exercise training and dietary guidance to allow them to perform to the best of their ability.

Measures that indicate the successful impact of this program include:

- ♥ 98 percent patient satisfaction
- ♥ Reduction in cardiovascular events, hospital readmissions and health care costs to patients
- ♥ Increase in medicine adherence, functionality and exercise capacity
- ♥ Improvement in quality of life and modifiable risk factors

Stroke Care

Wake Forest Baptist's Comprehensive Stroke Center is designated by The Joint Commission, which recognizes our commitment to quality and the highest standards of care. Dr. John Wilson, Dr. Stacey Wolfe and the Wake Forest Baptist Health stroke team provide nationally recognized stroke care to patients. By using the latest minimally invasive techniques, they help reduce lasting damage and improve chances for recovery.

Our stroke rehabilitation program has continually earned accreditation from the Commission on Accreditation of Rehabilitation Facilities for the past 15 years. Our rehabilitation services include:

- ♥ Physical therapy
- ♥ Occupational therapy
- ♥ Speech therapy
- ♥ Recreation therapy

Patients also work with nurses certified in rehabilitation, clinical psychologists, neuropsychologists, dietitians, social workers and assistive technology specialists. Our team believes in maintaining the continuity of our care even after the patients go home. Through our follow-up care program, a nurse practitioner will keep in contact with the patient to follow up on their recovery after they leave the hospital.

Pediatric Care

Pediatric cardiology needs are multifaceted, extending all the way from the womb to adulthood. Brenner Children's Heart Program offers specialty cardiac care that ranges from fetal interventions to adult congenital disease management—and all of the complexities in between.

Pediatric Heart Surgery

Our program is one of only three in North Carolina to offer pediatric heart surgery, and we do so with exceptional results. Our cardiac surgeon continues to achieve patient safety performance levels above the national averages recorded in the STS National Database.

Adult Congenital Program

Thanks to medical advances, many children with congenital heart disease now survive into adulthood and are in need of continued cardiac care that addresses congenital disorders as well as adult heart disease. According to the Adult Congenital Heart Association, however, fewer than 10 percent of these patients have access to specialized adult cardiology. Our clinic meets this growing need by providing board-certified expertise that transitions patients from pediatric to adult cardiology in a way that uniquely addresses congenital issues.

Cardiovascular Genetics

We offer the only Cardiovascular Genetics Clinic in North Carolina—and one of only a few in the Southeast. Headed by Dr. Matthew Lisi, our multidisciplinary team blends cardiology and genetics to offer families comprehensive testing, evaluation and management of hypertrophic cardiomyopathy disorders and aortopathic diseases such as Marfan syndrome and Loays-Dietz disease. Our specialty clinic allows for all examinations, testing and counseling to be conducted under one roof during one appointment—streamlining the coordination and efficiency of care.

Imaging

At Brenner Children's Heart Program, we don't rely on generalists to conduct imaging tests. Within our pediatric cardiology team are specialists who have specific expertise in performing and interpreting fetal and pediatric imaging. Having a specialized, dedicated imaging team allows for priority reporting, hands-on physician imaging and immediate consultations of abnormal findings.

Fetal Heart

Our fetal heart program specializes in detecting and managing a wide variety of heart conditions as early as 15 weeks' gestation. We are one of only a few programs in the Southeast to offer such early fetal cardiac imaging.

Specialties

- ♥ Adult congenital
- ♥ Arrhythmia
- ♥ Cardiac catheterization
- ♥ Cardiac genetics
- ♥ Fetal heart
- ♥ Pacemaker
- ♥ Pediatric Echocardiography
- ♥ Pediatric echocardiography telemedicine
- ♥ Pediatric and congenital cardiac magnetic resonance imaging (cMRI)
- ♥ Pediatric and congenital heart surgical services
- ♥ Pediatric and congenital catheterization
- ♥ Pediatric heart surgery
- ♥ Pediatric pulmonary hypertension

Pediatric Cardiology Team



Wesley Covitz, MD



Brandon Hays, MD



Matthew Hazle, MD



Matthew Lisi, MD



Yoshio Otaki, MD, PhD



Sara K. Swanson,
MD, PhD



Michael Walsh, MD



Derek Williams, DO
Chief

Meet Our Heart and Vascular Team



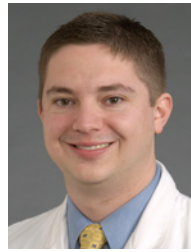
Manrique Alvarez,
MD



Robert Applegate,
MD, Section Chief



Elijah Beaty,
MD



P. Matthew Belford,
MD



Prashant Bhawe,
MD



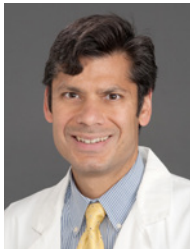
Ross Davis,
MD



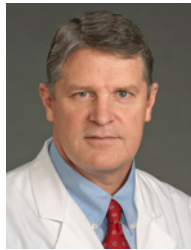
Matthew Edwards,
MD, Chair



Julie Freischlag, MD,
CEO, Wake Forest
Baptist Medical Center,
and Dean, Wake Forest
School of Medicine



Sanjay Gandhi,
MD



Randolph Geary,
MD



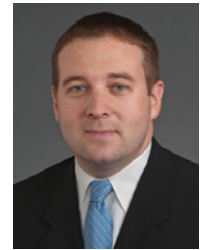
Matthew Goldman,
MD



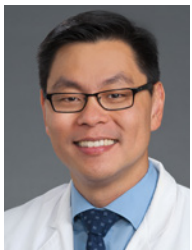
David Herrington,
MD



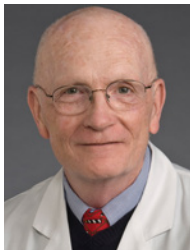
William Hundley,
MD



Justin Hurie,
MD



Geoffrey Jao,
MD



Frederic Kahl,
MD



Edward (Ted) Kincaid,
MD, Section Chief



Dalane Kitzman,
MD



Neal Kon,
MD



Michael Kutcher,
MD



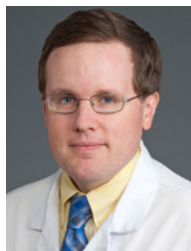
Adrian Lata,
MD



Pavel Levy,
MD



William Newton III,
MD



Thomas O'Neill IV,
MD, PhD



Barbara Pisani,
DO



Min Pu,
MD, PhD



Karl Richardson,
MD



Killian Robinson,
MBBCh



William Scarpa Jr,
MD



Tony Simmons,
MD



Richard Stacey,
MD



Walter Tan,
MD



Julian Thomas,
MD



Katie Twomley,
MD



Bharathi Upadhyia,
MD

Meet Our Heart and Vascular Team (continued)



Gabriela Velazquez,
MD



Sujethra Vasu,
MBBS



Sean Whalen,
MD



Timothy Williams,
MD



Joseph Yeboah,
MBChB



David Zhao,
MD, PhD,
Executive Director

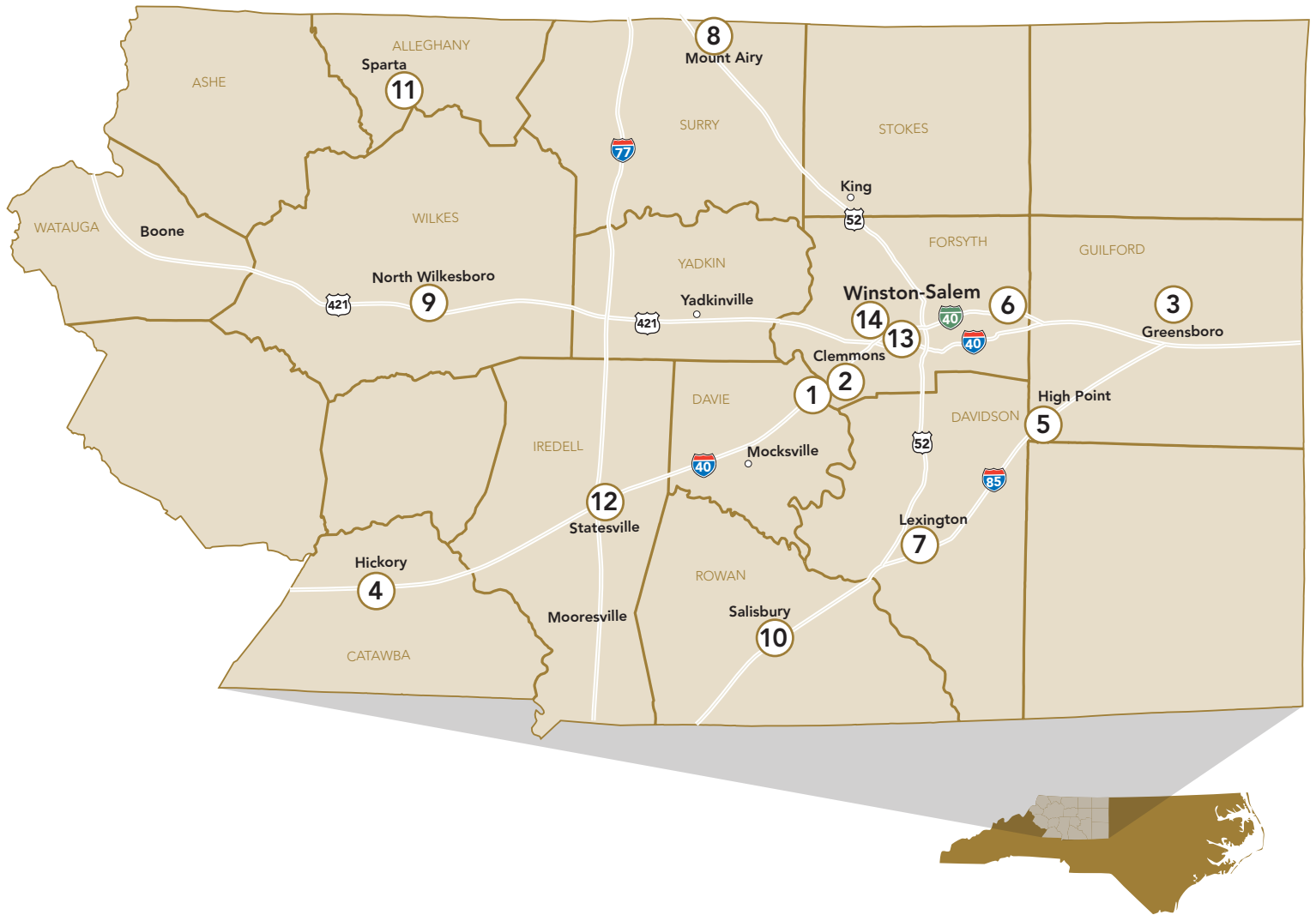


Li Zhou,
MD, PhD

Photo not available: Luke Peters, MD

Convenient Locations Throughout the Area

- 1 Bermuda Run**
1 Davie Medical Center – Bermuda Run
329 NC Highway 801 North
Bermuda Run, NC 27006
- 2 Clemmons**
2 Medical Plaza – Clemmons
2311 Lewisville Clemmons Road
Winston-Salem, NC 27012
- 3 Greensboro**
3 Medical Plaza – North Elm
3903 N. Elm Street
Greensboro, NC 27455
- 4 Hickory**
4 Catawba Valley Medical Center
810 Fairgrove Church Rd SE
Hickory, NC 28602
828-326-2354
- 5 High Point**
5 Wake Forest Baptist Health – Premier
4515 Premier Drive, Suite 402
High Point, NC 27265
- 6 Kernersville**
6 Kernersville VA Health Care Center
1695 Kernersville Medical Park
Kernersville, NC 27284
- 7 Lexington**
7 Lexington Medical Center
14 Medical Park Drive
Lexington, NC 27292
- 8 Mount Airy**
8 Northern Hospital of Surry County
830 Rockford Street
Mount Airy, NC 27030
- 9 North Wilkesboro**
9 Wilkes Medical Center
1370 West D Street
North Wilkesboro, NC 28659
- 10 Salisbury**
10 W. G. Hefner Veteran's Affairs
1601 Brenner Avenue
Salisbury, NC 28144
- 11 Sparta**
11 Alleghany Memorial Hospital
233 Doctors Street
Sparta, NC 28675
336-372-3254
- 12 Statesville**
12 Vascular Services – Statesville
(In partnership with Iredell Health System)
770 Hartness Road
Statesville, NC 28677
- 13 Winston-Salem**
13 Wake Forest Baptist Medical Center
Medical Center Boulevard
Winston-Salem, NC 27157
- 14**
14 Medical Plaza – Country Club
4610 Country Club Road
Winston-Salem, NC 27104



For more information about our Heart and Vascular locations, visit WakeHealth.edu/Heart-and-Vascular/Locations.

Referral Resources

Transfers or referrals—Heart Physician’s Access Line (PAL®): **866-996-7370** or **336-716-7370**

Ambulatory clinic referrals: **336-716-WFHV** or **336-716-9348**

Structural heart information—Leanne O’Donnell, RN: **336-970-1738**, structuralheart@wakehealth.edu

Outreach—Amy Craver, BSRT: **336-713-6446** or **336-462-7102**, acraver@wakehealth.edu

Physician Liaisons



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Emily Suhrer

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