



THE PETZNICK STROKE CENTER at Barrow Neurological Institute, led by Michael Waters, MD, PhD, is dedicated to the philosophy that every person suspected of having a stroke deserves to be evaluated and treated by an expert vascular neurologist, regardless of their location when the stroke occurs. With support from Barrow Neurological Foundation donors, the Stroke Center is making strides in realizing this vision by expanding its footprint through Telestroke consultations and the Barrow Emergency Stroke Treatment Unit.

Barrow also is one of only three medical facilities in Arizona to be named a Comprehensive Stroke Center by The Joint Commission, and it is a multi-year recipient of the prestigious *Get With The Guidelines – Stroke Gold Plus Achievement Award* and the *Target Stroke: Honor Roll Elite Award* from the American Heart Association.



active research studies



Telestroke calls per month



Mobile Stroke Unit Dispatches

BARROW NEUROLOGICAL INSTITUTE BY THE NUMBERS



CLINICAL IMPACT

117,700+

total number of
patient visits

5,800+

brain and spine surgeries

14

Centers of Excellence



GLOBAL IMPACT

59

research fellows and visiting scholars: Argentina, Austria, Brazil, Chile, China, Colombia, Czech Republic, Denmark, Finland, Germany, India, Italy, Jordan, Mexico, Pakistan, Peru, Portugal, South Korea, Spain, Taiwan, Turkey, United Kingdom

EXPANDING CARE OUTSIDE OF THE CLINIC

Telestroke Program: The Telestroke Program connects Barrow vascular neurologists with community hospitals and free-standing emergency rooms across Arizona in real time, allowing them to diagnose and recommend a course of treatment for patients virtually. The Telestroke Program currently has contracts with 17 health care sites in Arizona and fields more than 70 calls per month. The Stroke Center offers continuous training for all Telestroke sites, providing onsite education to paramedics, air medics, nurses, EMTs, firefighters, and pre-hospital physicians.

Barrow Emergency Stroke Treatment Unit: The Barrow Emergency Stroke Treatment Unit (Mobile Stroke Unit) brings rapid emergency room care curbside to stroke patients. Last year, the stroke team welcomed registered nurse Shelby Wirtanen as the Mobile Stroke Unit program manager. Shelby worked with the Phoenix Fire Department Aircraft Rescue and Fire Fighting (ARFF) teams at Phoenix Sky Harbor International Airport to provide education on the Mobile Stroke Unit. Little did she know how soon this training would be called into action.

One evening, Richard Flores, his wife Rose, and some family members were flying home to Texas after a vacation. Not long into the flight, Richard told Rose that he couldn't see, and she noticed that he was slurring his words and the right side of his face was drooping. Richard was having a stroke—at 30,000 feet. Their son-in-law, an emergency medicine physician, was sitting behind them on the plane. He immediately confirmed the signs of stroke, alerted the flight crew, and told ground control that they needed to land as soon as possible.

When they touched down at Phoenix Sky Harbor, four firefighters transported Richard off of the plane and into the Mobile Stroke Unit. Once inside, the team performed a CT scan and sent the images to Barrow vascular neurologist Daniel Gonzalez, MD, via telemedicine so he could review them in real time. Dr. Gonzalez confirmed that Richard had suffered an ischemic stroke and that it was safe to administer tenecteplase (TNK), a clot-busting medication. Within one minute of receiving the TNK, Richard went from non-responsive to opening his eyes, talking, and moving all four limbs. With the Mobile Stroke Unit, the total time from when Richard's symptoms began on the plane to when he received the TNK was only one hour and 20 minutes.

LIFE-SAVING STROKE RESEARCH

Clinical Trial Highlights: Barrow is one of the highest enrollment sites for the international, multicenter Biogen CHARM study. This study evaluates the use of intravenous glibenclamide for the prevention and treatment of severe cerebral edema (brain swelling) in large hemispheric infarction (LHI), one of the most severe types of ischemic stroke.

Barrow is participating in the National Institutes of Health (NIH)-funded StrokeNet FASTEST study, which aims to improve outcomes in hemorrhagic stroke by getting the coagulation drug rFVII to patients in the quickest manner possible. Barrow also is one of only a few sites internationally included in the FASTEST subgroup study to include pre-hospital care with the Mobile Stroke Unit.

In addition, Barrow is one of only 30 sites in the United States participating in the prestigious DISCOVERY trial. The DISCOVERY (Determinants of Incident Stroke Cognitive Outcomes and Vascular Effects on Recovery) Network is a landmark study investigating the mechanisms of post-stroke cognitive impairment and dementia. The goal is to develop potential targets for personalized medicine and to dramatically reduce the rates of cognitive and functional disability in high-risk stroke populations.

Neurosonology Lab Research: Barrow is the second-highest enrollment site for the first multicenter study of robot-assisted transcranial Doppler (raTCD) ultrasonography. The study aims to assess the accuracy of using this technology to diagnose right-to-left shunt (RLS), an irregular pattern of blood flow to the heart, and patent foramen ovale (PFO), a hole between the left and right upper chambers of the heart. These two conditions are recognized as a common cause of stroke in younger populations. Results from this important, practice-changing study were recently published in the prestigious journal *Stroke*.

ON THE HORIZON

The Petznick Stroke Center plans to continue expanding its research programs, which will allow stroke scientists to conduct more high-risk, high-reward studies that otherwise would not be funded by federal agencies. The stroke team also plans to add a third fellow each year to its Vascular Neurology Fellowship program. Currently, it has two fellows per year for the program. In addition, the Stroke Center is partnering with the United Stroke Alliance to host a three-day, two-night Retreat & Refresh Stroke Camp for survivors and their caregivers in April 2024.

BARROW NEUROLOGICAL INSTITUTE BY THE NUMBERS



RESEARCH

327

active research studies

200+

peer-reviewed
journal publications

\$12 MILLION

in new federal research
grant support



DONOR IMPACT

3,898

total donors

\$44 MILLION

distributed to Barrow Neurological
Institute, including:

\$25.4 MILLION

designated to the
Ivy Brain Tumor Center

\$5.3 MILLION

designated to specific
centers/programs

\$11.9 MILLION

for basic, clinical, and
translational research

\$1 MILLION

in endowments



Michael Waters, MD, PhD, is the director of the Petznick Stroke Center and the Dorrance Chair of Vascular Neurology.

THANK YOU FOR YOUR SUPPORT

Because of your generous support, we are increasing speed and access to stroke treatment, so patients can receive the best care possible when they need it most. A perfect example of this is Richard Flores. His stroke symptoms started at 30,000 feet in the air, but with the Mobile Stroke Unit's advanced diagnostic equipment, telemedicine capabilities, and skilled team, we were able to administer a life-saving dose of TNK in less than 90 minutes.

Your generosity also allows us to conduct research into novel ways of protecting the brain and improving recovery after a stroke, so patients can go on to live a fulfilling life. On behalf of the entire stroke team, thank you for your support and dedication to helping our patients.

With gratitude,

Michael F. Waters, MD, PhD
Dorrance Chair of Vascular Neurology
Director, Petznick Stroke Center
Chief, Division of Vascular Neurology
Barrow Neurological Institute

The mission of Barrow Neurological Foundation is simple: to be the catalyst of our donors' passion for transformation by providing the resources for Barrow Neurological Institute to achieve its mission of saving human lives through innovative treatment, groundbreaking research, and educating the next generation of the world's leading neuroclinicians.

Barrow
Neurological Foundation

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