

# Brain Injury & Sports Neurology Center



**P**ATIENTS WHO HAVE SUSTAINED a concussion or a more severe type of traumatic brain injury (TBI) require expert specialty care for a successful recovery. If not treated early or adequately, TBI can lead to long term-impairments, including concentration and memory problems, imbalance, vision changes, headache, and mood disturbance. The effect of repeat concussions can be particularly debilitating and, in rare cases, numerous smaller hits to the head can even lead to chronic traumatic encephalopathy (CTE), a fatal brain disorder.

Led by Glynnis Zieman, MD, MPH, FAAN, FAHS, the Brain Injury & Sports Neurology Center at Barrow Neurological Institute is the first program of its kind in the nation to offer comprehensive treatment for concussion and TBI. Moreover, the Center is dedicated to providing world-class care to patients from all walks of life, from professional athletes to domestic violence survivors with TBI. Barrow also leads the nation in concussion education and outreach for youth athletes and offers a Sports Neurology & Traumatic Brain Injury Fellowship.



survivors of domestic violence served



students per year complete Barrow Brainbook



outpatient clinic visits in FY23

# 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

## MAKING SPORTS SAFER FOR ALL ATHLETES

Barrow's expertise in TBI has led to opportunities to treat athletes both on the sidelines of games and in the clinic. Dr. Zieman and the Center's other neurologist, Yvette Brown-Shirley, MD, provide priority care for Arizona Interscholastic Association (AIA) athletes, are sideline concussion and sports neurology consultants for Arizona State University (ASU), and are sideline neurotrauma consultants for the National Football League (NFL). Dr. Zieman also serves as the independent neurologist for the Arizona Cardinals. When the Super Bowl came to Arizona in February 2023, Barrow held a Super Bowl Healthcare Summit with NFL Chief Medical Officer Allen Sills, MD, on brain injury education, prevention, and treatment just days before the game.

Concussions also are a cause of distress and confusion for many student-athletes and their families. To provide Arizona youth athletes with concussion education and prevention tools, the Center formed the Barrow Concussion Network in partnership with the AIA. Through this initiative, Barrow offers neurocognitive baseline testing and post-injury cognitive testing, as well as the second opinion telemedicine platform, which provides athletic trainers with the opportunity to virtually consult with a Barrow concussion specialist at any time.

The Barrow Concussion Network also includes the Barrow Brainbook, the most comprehensive high school concussion education course in the country. The third version of the course, "Brainbook 3.0," was released in 2023 and features interactive modules that require students to correctly answer a series of questions in order to complete the course.

## PROVIDING CARE TO UNDERSERVED POPULATIONS

The Center's Domestic Violence Brain Injury Program provides compassionate care and treatment to survivors of domestic violence who have suffered a TBI as a result of their abuse. The Program currently partners with five women and family shelters, one foster care shelter, and a hospital on a Native American tribal community. With philanthropic support from Barrow Neurological Foundation donors, the Center is able to offer this critical care to domestic violence survivors with TBI regardless of their insurance status.

Beyond clinical care, the program provides outreach through Brains Club, a cognitive retraining program offered to all residents in participating shelters. Brains Club aims to help these individuals improve their memory, concentration, and planning skills, so they can return to work, find housing, and live fully once again. The program recently received a copyright for the Barrow-branded Brains Club curriculum, which allows the team to expand it to other facilities throughout Arizona.

In fall 2023, Dr. Zieman established a once-per-month TBI clinic at St. Vincent de Paul Virginia G. Piper Medical Clinic in downtown Phoenix. St. Vincent de Paul primarily serves uninsured patients, including the homeless population and domestic violence survivors, helping to fill a major gap in underserved populations with brain injuries. Barrow also partnered with the Ali Kemp Educational Foundation to provide two complimentary women's self-defense classes. The sessions featured a teaching course, followed by live demonstrations of applicable self-defense skills to help women increase their confidence and peace of mind.

## ON THE HORIZON

Dr. Brown-Shirley, the Southwest's first and only female Native American sports neurologist, will be leading efforts to expand the Center's outreach efforts to underserved populations. This includes increased partnerships with schools in rural and underserved areas of Arizona and additional partnerships with organizations serving domestic violence survivors and other populations at risk for brain injuries.

The Center plans to hire a trauma-informed counselor to work with brain injury patients struggling with anxiety, depression, memory loss, and language difficulties. The team also plans to conduct more research evaluating the scope and severity of brain injuries sustained by domestic violence survivors, as well as the effectiveness of current interventions.

## 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



## THANK YOU FOR YOUR GENEROSITY

Thanks to our generous donors, the Barrow Brain Injury & Sports Neurology Center continues to provide comprehensive treatment and resources to every patient who comes to the clinic seeking care for a brain injury, whether the patient is a professional athlete, a student-athlete, or a survivor of domestic violence.

With your support, we have further enhanced our concussion education programs for Arizona student-athletes, including releasing a new version of the Barrow Brainbook. The updated course now provides a more engaging experience for the 150,000 Arizona student-athletes who complete it each year. Your support also allows us to provide vital medical care, rehabilitation services, and ongoing support to help domestic violence survivors heal from their brain injuries and reclaim their confidence and lives. On behalf of all the faculty and staff in the Center, we could not be more grateful for your generosity and commitment to our patients.

With gratitude,

Glynnis Zieman, MD, MPH, FAAN, FAHS  
Director, Brain Injury & Sports Neurology Center  
Associate Professor of Neurology, Concussion and Brain Injury

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.