

Muhammad Ali Parkinson Center



PARKINSON'S DISEASE takes a devastating toll on both patients and their loved ones. At first, those diagnosed with Parkinson's can experience tremors, rigidity, and changes in gait. As the disease advances, they become prone to serious injuries from loss of balance and falling. Parkinson's patients also experience symptoms such as sleep trouble, memory loss, hallucinations, and anxiety, which can drastically impact their quality of life.

The Muhammad Ali Parkinson Center at Barrow Neurological Institute, led by Holly Shill, MD, offers comprehensive care and support services to patients and their families while conducting research into new treatments for the disease. It is the only Parkinson's Foundation Center of Excellence in the Southwest. It is also a Huntington's Disease Center of Excellence and a Lewy Body Dementia Association Research Center of Excellence.



25+

clinical trials



38,600+

individuals
impacted by the
Legacy Care Program



14

countries reached
through the Legacy
Care Program

BARROW NEUROLOGICAL INSTITUTE BY THE NUMBERS



CLINICAL IMPACT

91,800+

total number of
patient visits

20,900+

telemedicine visits

5,500+

brain and spine surgeries



GLOBAL IMPACT

78

international
research fellows and
visiting scholars

PROGRAM ACCOMPLISHMENTS

Last year marked the 25th anniversary of the Muhammad Ali Parkinson Center. What started as Muhammad and Lonnie Ali's vision to create a world-class center dedicated to helping Parkinson's patients is now one of the largest Parkinson's centers in the country and a national model for providing comprehensive care to those suffering from the disease.

All staff members in the Muhammad Ali Parkinson Center have completed the Team-Based Palliative Care Essentials for Parkinson's Disease course, which provides information and tools on topics such as complex symptom and pain management, advance planning, difficult emotions, care partner support, and more.

In spring 2022, Barrow welcomed Brad A. Racette, MD, FAAN, a movement disorders specialist and the new Kemper and Ethel Marley Professor and Chair of Neurology. Dr. Racette's research focuses on environmental risk factors for Parkinson's. Specifically, he has been collaborating with researchers in South Africa to study manganese toxicity and other Parkinson's risk factors affecting rural communities. In addition, Dr. Racette focuses on administrative data studies of Parkinson's to improve patient care. Barrow also welcomed Susan Criswell, MD, MSCI, a movement disorders specialist and international leader in the use of neuroimaging to investigate the role of environmental toxicant exposure in the risk of developing Parkinson's.

UNSURPASSED PATIENT CARE

The Muhammad Ali Parkinson Center has one of the most robust community outreach programs in the nation. Key components include:

- Virtual recreation and exercise classes, including yoga, tai chi, and dance, which reached more than 3,500 individuals.
- Creative classes, including music therapy, theater, and expressive arts, which reached more than 2,600 individuals.
- Support groups, including ones for caregivers and young-onset Parkinson's, which reached 875 individuals.
- The Hispanic Outreach Program, which includes Spanish voice classes, support groups, education, and choir, which reached more than 2,600 individuals.

Lonnie and Muhammad Ali Legacy Care Program: The Legacy Care Program ensures world-class, personalized care for advanced Parkinson's patients and provides critical support services to their loved ones. Last year, the Legacy Care Program touched the lives of more than 38,600 patients and caregivers in 44 states and 14 countries. This included respite care, clinic visits, home visits, education, online support groups, therapy classes, phone calls, and outreach.

RESEARCH ADVANCEMENTS

The Muhammad Ali Parkinson Center continues to expand its research portfolio with more than 25 active clinical trials. Sana Aslam, DO, who joined the team after completing both her neurology residency and movement disorders fellowship at Barrow, is working on a study that investigates the impact of physical activity level and exercise on cognitive outcomes in Parkinson's.

Justine Chan, MD, who also completed her residency and fellowship at Barrow, is working on a study that aims to identify predictors and protective factors of severe outcomes in advanced Parkinson's, including uncontrolled motor and non-motor symptoms, increased emergency room visits, and caregiver strain. Through this study, Dr. Chan hopes to help develop standards of care for patients with advanced Parkinson's.

Fredric Manfredsson, PhD, focuses on gene therapy to treat Parkinson's at the cellular level. One of his studies looks at how the function of the kynurenine metabolic pathway is impaired in Parkinson's, resulting in the production of molecules detrimental to the survival of neurons.

Dr. Manfredsson hypothesizes that using gene therapy to deliver the protein ACMSD to this pathway will both reduce the production of harmful molecules and facilitate the production of a neuroprotective compound. ACMSD gene therapy represents a completely novel therapeutic modality in Parkinson's.

Dr. Shill is collaborating with Jeffrey Kordower, PhD, at Arizona State University on a first-of-its-kind clinical trial that utilizes stem cell therapy to reverse the motor symptoms of Parkinson's. The clinical trial will be tested in Parkinson's patients who have a specific mutation in the gene parkin. This groundbreaking study has the potential to lead to the use of stem cell therapy in other neurodegenerative diseases.

BARROW NEUROLOGICAL INSTITUTE BY THE NUMBERS



RESEARCH

397

active research studies

791

patients enrolled in clinical trials

\$14 MILLION

in federal research grant support



DONOR IMPACT

\$20 MILLION

total distributed to Barrow Neurological Institute, including:

\$3.5 MILLION

designated to specific centers/programs

\$15.4 MILLION

for basic, clinical, and translational research

\$1.5 MILLION

in endowments



Holly Shill, MD, FAAN, is the director of the Muhammad Ali Parkinson Center and the Bob and Renee Parsons Chair in Parkinson's Disease and Movement Disorders.

THANK YOU FOR YOUR SUPPORT

Thank you for your support in helping the Muhammad Ali Parkinson Center to improve the lives of Parkinson's patients. This past year marked a major milestone for the Center—25 years since its official opening. Today, it is one of the largest Parkinson's centers in the country, with our incredible movement disorders team providing compassionate, expert care and support to patients and their loved ones. We also welcomed two renowned specialists, Dr. Racette and Dr. Criswell, to our team. Their research expertise will help us significantly expand both our clinical and basic science research programs.

With gratitude,

Holly Shill, MD, FAAN

Director, Muhammad Ali Parkinson Center

Bob and Renee Parsons Chair in Parkinson's Disease and Movement Disorders

Professor, Department of Neurology, Barrow Neurological Institute

Professor, Department of Neurology, University of Arizona College of Medicine - Phoenix

Professor, Department of Neurology, Creighton University School of Medicine

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 by educating the next generation of the world's leading neuroclinicians.

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