

# Cleft & Craniofacial Center



*Patricia Beals, DMD, is the Co-Director of the Center and is a craniofacial orthodontist.*

→ **ABOUT 200 CHILDREN** are born each year in Arizona with a cleft lip or palate, craniosynostosis (a skull that cannot expand to accommodate the growing brain) or craniofacial microsomia (one part of the face is smaller than normal). These children and adults face a challenging future of multiple surgeries and multiple specialist visits, as well as the psychological and emotional impacts of living with a facial difference. The Barrow Cleft and Craniofacial Center (BCCC), was founded in 1986 on the principle of the interdisciplinary team approach. Health professionals in more than 15 specialties – including neurosurgery, plastic surgery, orthodontics, speech pathology and psychology – collaborate in providing comprehensive care. The doctors and therapists meet regularly, creating an interdisciplinary plan to address the needs of each patient and family. In some cases, this plan begins before the child is even born.



**ABOUT 200**

children per year born in Arizona with cleft lip or palate or other facial difference



Cleft lip/palate is the **MOST COMMON** facial birth defect



Barrow Cleft and Craniofacial Center founded in

**1986**

ABOUT BARROW  
NEUROLOGICAL INSTITUTE



**#1 IN ARIZONA**  
**#11 IN THE UNITED STATES**  
for neurology and neurosurgery



CLINICAL IMPACT

**92,515**

BNI Clinic visits

**3,135**

number of neurosurgeries

**1,578**

number of spine surgeries

**\$2.8 MILLION**

amount of charity care



GLOBAL IMPACT

**54**

visiting scholars, research fellows and observers from Mexico, India, Egypt, Pakistan, UK, Russia, China, Chile, Spain, Brazil, Japan, France, Italy, Kingdom of Saudi Arabia, Indonesia, Turkey, Germany, Poland, Colombia, Philippines, Israel, Argentina and Thailand.

PROGRAM ACCOMPLISHMENTS

The babies and children treated at Barrow Cleft and Craniofacial Center are more than patients, they are family. In addition to many appointments, sometimes over the course of 18 years or more, the medical and surgical treatment of these birth defects requires detailed care coordination. Health providers at BCCC accommodate 12,000 patient visits each year including surgery, orthodontics, and speech therapy. Each year surgeons perform 25 to 30 jaw surgeries and providers see approximately 70 new babies for surgical, feeding and other medical services.

In addition to providing leading-edge treatment to patients, BCCC offers approximately 20 education and fellowship opportunities annually for nearly 2,000 participants. These events include sessions on what to expect from surgery, visits to Phoenix Children's Museum, and a family picnic for fun and fellowship.

Health providers at BCCC are leaders in their field. Patricia Beals, DMD, MS, co-director of BCCC, is the 2020 president of the American Cleft Palate-Craniofacial Association (ACPA). Kelly Cordero, PhD, CCC-SLP, speech pathologist at BCCC, became a board member of ACPA. Davinder Singh, MD, a plastic surgeon and co-director, was appointed to the executive council of the International Society of Craniofacial Surgery.

Barrow Cleft and Craniofacial Center is teaming up with the Barrow Innovation Center on a variety of projects. The center will print three-dimensional models from the intra-oral scanner as well as images from our existing iCat system. The three-dimensional iCat scan, from the eyebrows down to the jaw, will allow surgeons to prepare for surgery. Additionally, the two centers are working on printing stents necessary to repair cleft lip and palate. In both examples, printing models on-site would produce real-time results and improve care and accuracy. This partnership will streamline the process by providing the models more efficiently and economically.

RESEARCH ADVANCES

A study led by Stephen P. Beals, MD, co-director of BCCC, evaluated the long-term needs of adults with cleft lips, cleft palates, or both. The paper suggests the most common patient concerns are lip and nose aesthetics. The results also demonstrate, for the first time, that interdisciplinary care leads to improved outcomes and is the most effective way to address the needs of this patient population.



Stephen P. Beals, MD



**“Thank you for being a part of my journey. You have no idea what an impact you have had on my life. Thank you for creating a safe environment for us.”**

**JENNIFER PEHRSON (RIGHT),  
MOTHER TO BCCC PATIENT  
HOLDEN (LEFT)**

←  
*Holden was born in March 2018 with a complete bilateral cleft lip and palate. He has had two surgeries and may need more in the future, but, now he is working with speech pathologists at the Barrow Cleft and Craniofacial Center.*

While our patients are getting the best care possible, BCCC strives to improve the patient experience through research. The center hired a part-time research assistant, Debra Karam, who will be working on a variety of projects including an analysis of patient outcomes in the areas of plastic surgery, speech therapy and orthodontics for quality improvement.

## ON THE HORIZON

The center strives to provide the best care possible to our patients. With that in mind, BCCC is participating in the Cleft Outcomes Research Network (CORNET) Outcomes Project, a comparative effectiveness study of speech and surgical treatments using a Cleft Palate Registry/Research Outcomes Network. The study will examine the relationship of speech outcomes to surgical intervention. Assessments will occur after palate repair at 14, 24, and 36 months of age. The center is one of 15 participating institutions. The CORNET study is funded by the National Institutes of Health and is the first of its kind for cleft care in the United States.

Barrow also is collaborating with Arizona State University on a project to measure speech outcomes of children with cleft palate. ASU is developing an artificial intelligence algorithm to analyze the speech characteristics of children with hypernasality, when too much sound resonates in the nasal cavity during speech. The algorithm results will be compared to evaluations of the same samples by expert speech therapists, some of whom work at the center. This important work will improve the reliability and quality of speech evaluations for all children.

## BY THE NUMBERS



### RESEARCH

**320**

active research studies

**839**

patients enrolled in clinical trials

**\$9 MILLION**

in federal research grant support



### DONOR IMPACT

**\$3.98 MILLION**

for basic and translational research

**\$3.65 MILLION**

for strategic initiatives including Barrow Aneurysm & AVM Research Center, Barrow Artificial Intelligence Center, neuroimaging and stroke

**\$1.26 MILLION**

for education and fellowship programs

**\$2.52 MILLION**

for community outreach programs



## THANK YOU FOR YOUR SUPPORT

There is nothing more challenging, or gratifying, than working with families when a baby has craniofacial deformities. Our work takes patience, time, and expertise found only at Barrow. I would like to thank the Inzalaco family for generously matching all gifts up to \$25,000 this year. Only with philanthropy can we make the impossible, possible at the Barrow Cleft and Craniofacial Center.

With Gratitude,

Dr. Stephen P. Beals

CO-DIRECTOR, BARROW CLEFT  
AND CRANIOFACIAL CENTER

↑ *Each year, the Barrow Cleft and Craniofacial Center cares for approximately 70 new babies for surgical, feeding and other medical services.*

**Barrow Neurological Foundation** raises awareness and funding for patient care, medical education, community outreach and research offered at Barrow Neurological Institute. Barrow is an internationally-recognized leader in neurology, neurosurgery and neuroscience research, treating patients with a wide range of conditions, including brain and spinal tumors, concussion and brain and spinal traumas, neuromuscular diseases, stroke, cleft and craniofacial disorders, and cerebrovascular disorders. It is home to several centers of excellence, including the Ivy Brain Tumor Center, Muhammad Ali Parkinson Center and Gregory W. Fulton ALS and Neuromuscular Disease Center. [www.SupportBarrow.org](http://www.SupportBarrow.org)



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