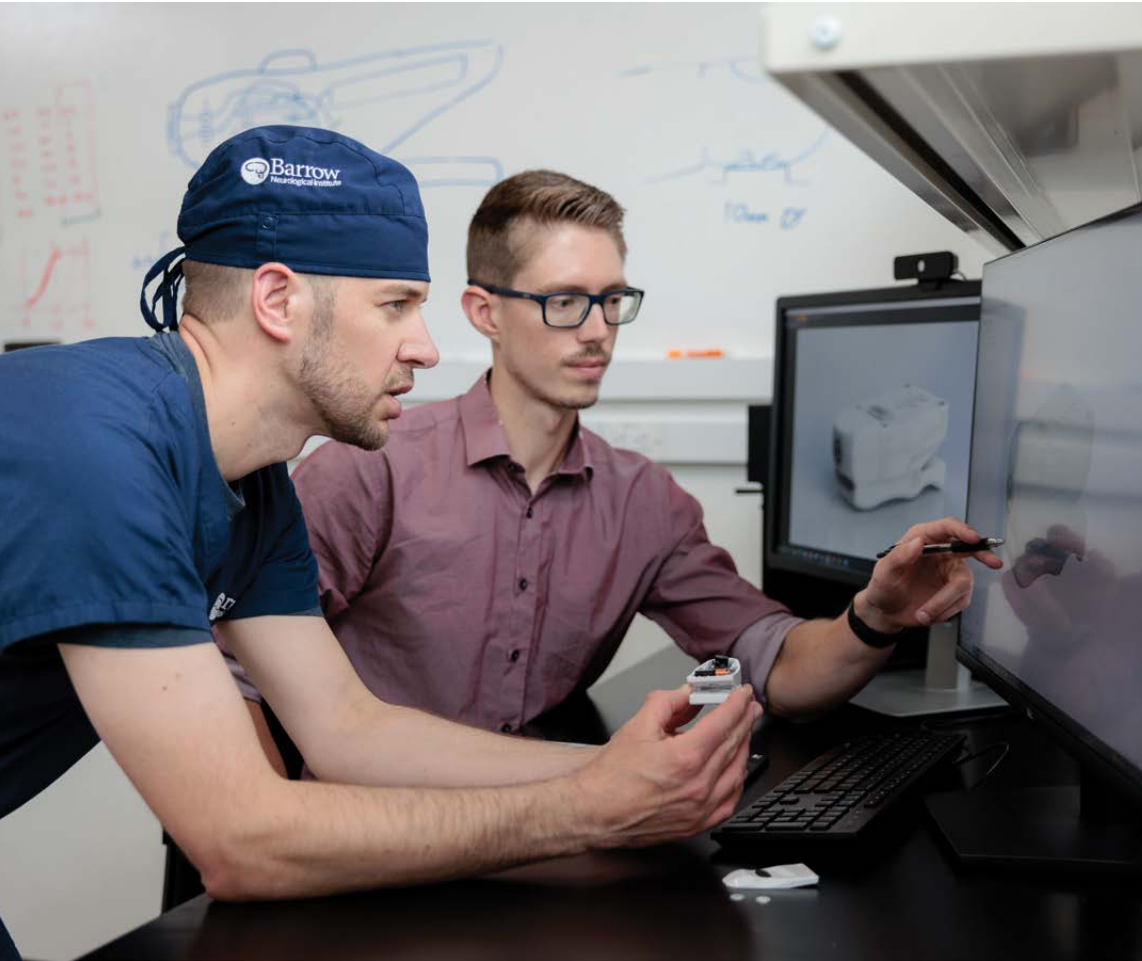


Thurston Innovation Center



IMPACT OF PHILANTHROPY



20
active projects



5
patent filings



11
prototypes
developed

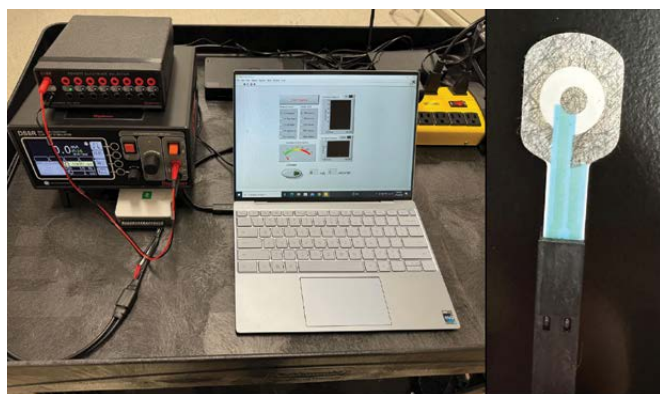
Recognizing the critical importance of innovation, Barrow neurosurgery residents established a training program that would provide all the necessary equipment, personnel, and resources to transform novel ideas into functional devices. Today, the Thurston Innovation Center is a leader in training future neurosurgical innovators while providing vital device-development services to departments throughout Barrow Neurological Institute.

Thurston Innovation Center leadership includes Barrow President and CEO Michael T. Lawton, MD, and Chief Scientific Officer Robert Bowser, PhD. Brian Kelly, PhD, is the technical adviser, and Dakota Graham is the lead research engineer. The Center's current resident director is Brandon Fox, MD.

Your support fuels groundbreaking medical innovation.

Last year, the Innovation Center helped neurosurgery residents develop seven proof-of-concept prototypes and four high-fidelity functional prototypes. The former is used to see if it is possible to create the device, while the latter closely resembles the final product for usability testing. Two Barrow residents currently have high-fidelity prototypes in licensing discussions with medical device firms.

With support from Barrow donors and the Flinn Foundation, resident Brandon Fox, MD, developed a novel device to measure a coma patient's level of consciousness. The device uses electrical stimulation instead of the traditional method of manually applying painful stimuli. Dr. Fox has completed all safety testing and recently received approval from the Institutional Review Board to begin clinical trials with the devices in the intensive care unit.



(Top) Prototype of Dr. Fox's neurostimulator device.

(Bottom) Clinical cart setup for the clinical trial.



Neurosurgery resident training kits.

You revolutionize neuroscience education.

Last year, chief neurosurgery resident Arnau Benet, MD, brought fifteen 3D-printed cranial models developed in the Innovation Center to Indonesia to lead a neurosurgical training program. These cranial models have the potential to transform neurosurgery in countries like Indonesia, where there is limited access to cadavers for medical training.

With guidance from sixth-year resident Robert Rudy, MD, the Innovation Center developed neurosurgical anatomy kits for incoming residents. These kits, which include a skull and three spinal segments, will allow new residents to enhance their understanding of neurosurgical techniques through hands-on learning.

The Innovation Center also collaborated with biomedical engineering graduate students from Arizona State University to co-develop projects with Barrow neurosurgery residents. In addition, it hosted two college students as part of Barrow's Summer Undergraduate Internship Program, enabling them to gain hands-on experience in device development.



“Since I am a biomedical engineering major and interested in medical school, it was great to see how the research engineers at Barrow get to work directly with the medical staff to make a direct impact on patients. My experience in the Innovation Center was really insightful and has opened my eyes to the career path I would like to take.”

Veronica Pramono
Grand Canyon University
2024 summer intern



On the Horizon

Recruitment: The Innovation Center plans to recruit a biomedical engineer to support the design, manufacturing, and testing of its growing number of projects. This will allow the Center to expand its reach and impact.

Technology: To continue moving ideas to prototypes, the Innovation Center needs the most advanced technology. This includes a PolyJet 3D printer to improve anatomy model resolution, a CNC mill (cutting machine) to produce highly accurate prototypes, and heat-resistant injection molds to make small-scale devices.



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 neuroscience specialists.