The Center for Medical Innovation at the Swanson School of Engineering is a collaboration among the University of Pittsburgh’s Clinical and Translational Science Institute (CTSI), the Innovation Institute, and the Coulter Translational Research Partnership II (CTRP). Established in 2011, CMI promotes the application and development of innovative biomedical technologies to clinical problems; educates the next generation of innovators in cooperation with the schools of Engineering, Health Sciences, Business, and Law; and facilitates the translation of innovative biomedical technologies into marketable products and services. CMI has supported more than 50 early-stage projects through more than $1 million in funding since inception.

CMI VISION
The vision of the CMI is to establish an internationally recognized center for developing innovative medical technologies, educating students, and facilitating commercialization.

CMI MISSION
The mission of CMI has three essential components:
- **Research:** To provide an organizational structure to link engineering faculty, clinicians, and students at the University of Pittsburgh, and to fund early-stage development of innovative biomedical technologies.
- **Education:** To educate the next generation of innovators in the design, development, and commercialization of medical technologies through classroom and hands-on experiences in cooperation with the schools of Engineering, Health Sciences, Business, and Law.
- **Development:** To facilitate the translation of innovative biomedical technologies into marketable products, services, and business ventures in collaboration with the University of Pittsburgh Innovation Institute, Clinical Translational Science Institute (CTSI), and the Coulter Translational Research Partnership.

Structure
The CMI promotes collaborations among University of Pittsburgh clinicians and engineers which are likely to result in improvements to healthcare. A multi-disciplinary CMI leadership team is in place to manage the process. Seed money will be available to clinician-engineer teams whose collaborative project proposals are successfully reviewed and approved by CMI.

Educational Program
CMI will offer, through the Swanson School’s Department of Bioengineering, two options for a Professional Masters degree, and a new graduate Certificate in Medical Product Innovation. Additionally, engineering graduate students may participate in courses and innovation projects as part of their dissertation work. Medical students will be able to satisfy School of Medicine research requirements through participation in CMI sponsored projects. Courses in innovation and entrepreneurship already offered through the Swanson School of Engineering, the Katz School of Business, and the School of Law will be available to all students interested in medical innovation. Multi-disciplinary student teams (including graduate students in engineering and business, as well as law and medicine) will work with engineering faculty, clinicians, and industry advisors to develop innovative medical technologies through the prototype stage.

Visit us at engineering.pitt.edu/cmi
The University of Pittsburgh’s Center for Medical Innovation (CMI) awarded grants totaling $65,000 to three research groups through its 2017 Round-1 Pilot Funding Program for Early Stage Medical Technology Research and Development. The latest funding proposals include a new technology for reducing risk of post-partum uterine hemorrhage, a thermal device for inducing nerve block in pain control, and a system to improve transplanted organ viability.

CMI, a University Center housed in Pitt’s Swanson School of Engineering, supports applied technology projects in the early stages of development with “kickstart” funding toward the goal of transitioning the research to clinical adoption. Proposals are evaluated on the basis of scientific merit, technical and clinical relevance, potential health care impact and significance, experience of the investigators, and potential in obtaining further financial investment to translate the particular solution to healthcare.

“This is our sixth year of pilot funding,” said Alan D. Hirschman, PhD, CMI Executive Director. “Since our inception, more than $1 million from external funding sources and from the Swanson School of Engineering has been invested in early stage medical technologies. Many of these technologies have the potential to significantly improve the delivery of health care and several new companies have resulted from the program, which has successfully partnered UPMC’s clinicians and surgeons with the Swanson School’s engineering faculty.”

AWARD 1
Gerhardt Konig, MD
Department of Anesthesiology
University of Pittsburgh School of Medicine
Jason Shoemaker, PhD
Assistant Professor of Chemical and Petroleum Engineering
University of Pittsburgh Swanson School of Engineering
FOR: Objective Postpartum Uterine Tone Monitoring
Funds development of a new prototype uterine tone measurement device for eventual testing in the clinical setting. The device would evaluate intra-uterine muscle tone for detection of and control of postpartum bleeding.

AWARD 2
Changfeng Tai, PhD
Associate Professor of Urology
University of Pittsburgh School of Medicine
Associate Professor of Bioengineering
University of Pittsburgh Swanson School of Engineering
Christopher Chermansky, MD
Assistant Professor of Urology
University of Pittsburgh School of Medicine
Bo Zeng, PhD
Assistant Professor of Industrial Engineering
University of Pittsburgh Swanson School of Engineering
FOR: Novel Thermal Block Technology to Block Nerve Conduction
For development and preclinical testing of a thermal nerve block device for anesthesia and pain control. Early research in mice shows that the effect can be useful in controlling production and communication of nerve impulses. The award will demonstrate proof of concept to attract additional funding from external competitive grants. Development of a small implantable, wireless controlled, wireless chargeable device to control the electrodes will be a primary goal. The prototype device will then test the pudendal nerve to confirm the nerve block effects.

AWARD 3
Paulo Fontes, MD
Associate Professor of Surgery
University of Pittsburgh School of Medicine
Director of the Machine Perfusion Program
University of Pittsburgh Medical Center
John Pacella, MD, MS
Assistant Professor of Medicine, Division of Cardiology
University of Pittsburgh School of Medicine
University of Pittsburgh Medical Center Heart and Vascular Institute
Fiordeliza Villaneuva, MD
Vice Chair for Pre-Clinical Research, Department of Medicine and Professor of Medicine, Division of Cardiology
University of Pittsburgh School of Medicine
Director, Center for Ultrasound Molecular Imaging and Therapeutics, University of Pittsburgh Medical Center
FOR: OrganEvac/Whole Organ Thrombolysis Device
This award is an equal participation between the Center for Medical Innovation and the Coulter Translational Research Partners II Program at Pitt. The early stage seed grant will demonstrate proof of concept of a new technology to lyse thrombus in human liver tissue.