

**House Republican Policy Committee
November 17, 2010**

**Testimony of Daniel A. Notterman, M.A., M.D.
Associate Vice President for Health Sciences Research
Vice Dean for Research and Graduate Studies
Chief Science Officer
Penn State College of Medicine**

Good morning, Chairman Saylor, Representative Payne and members of the House Republican Policy Committee. I am Dan Notterman, Associate Vice President for Health Sciences Research, Vice Dean for Research & Graduate Studies and Chief Scientific Officer at the Penn State College of Medicine. Thank you for the opportunity to appear before you today to discuss how the transfer of Penn State College of Medicine-developed technologies for commercialization provides benefits to other researchers, universities, the citizens of the Commonwealth and beyond.

The Office of Technology Development serves the Penn State College of Medicine, the Hershey Medical Center and the scientific and business communities by facilitating translation of creative work into new products and processes, enabling constructive, responsible exchange of materials and ideas with outside partners and assisting with access to College of Medicine and Hershey Medical Center expertise. Overall, we bring more than \$100 million dollars per year of research and development funding to the local economy.

Our investigators at Penn State College of Medicine are prolific inventors, and we feel it is important to commercialize what we do to help the Commonwealth grow through new business and manufacturing. For example, in 2009 our scientists filed 26 patent applications and nearly 120 new discovery disclosures. Our focus is on assuring that practical solutions for patients emerge from our spectrum of discovery and clinical research; the concept of taking research from the bench to the patient's bedside and to the community.

The Hershey Center for Applied Research, where today's hearing is being held, represents an outstanding collaboration between the Penn State College of Medicine and the private sector. The Hershey Center for Applied Research fosters opportunities for the "bench to community" translational research as private firms recruited to the Center add their business expertise to Penn State Hershey's culture of discovery.

Today I will share three examples of College-developed technologies that have made their way from the research lab to the community. There are many other discoveries that are in the research pipeline and I hope to have the opportunity to share their success stories with you in the near future.

Hug 'n' Snug Neonatal Chest Splint – This noninvasive plastic device developed by neonatologist Charles Palmer, M.B., Ch.B., is applied to the newborn with respiratory distress. The splint provides external

stabilization to the chest of an infant with inward buckling of the soft chest wall, and allows the baby to breathe easier. This technology is licensed by Penn State to Respiroics, Inc. of Murrysville, PA.

EndoTower – This virtual reality program is designed to teach angled-lens camera driving techniques for minimally invasive surgery. The system consists of a simulated camera and an interactive program that run on a standard PC. This program has wide appeal as anyone who wants to develop or hone angled camera skills could use it. Because of the generic background and object, the program could be used by any specialty that uses minimally invasive surgical cameras, including General Surgery, Obstetrics/Gynecology and Orthopaedics.

Physicians and residents will find the trainer useful, as will OR nurses. Medical students are also frequent camera drivers, and could benefit from this as well. We know that the delivery of the best, evidenced-based quality of medical care ultimately depends on the competencies of clinicians as well as the system that supports their work. Simulation offers ethical benefits, increased precision and relevance of training and competency assessment, and new methods of teaching error management. Patient safety measures increase significantly when simulation is part of the training curriculum.

The EndoTower simulator was developed and tested in the Simulation Lab at the Penn State Hershey Medical Center by Dr. Randy Haluck. The technology was then licensed to a PSU spinout company, Verefi Technologies, Inc. in 2003. EndoTower has been purchased and used to train students and residents in some of America's most prominent Surgery programs.

Percutaneous Rib Repair Technology – This device was developed by the Innovation Group within Penn State Hershey's Department of Surgery. It is a patent-pending technology using a novel, minimally invasive surgical technique and instruments licensed for commercial development by a major industry medical company. The devices utilize a novel tethered method of instrument, fastener and reinforcing plate control which allows the surgeon the ability to complete the repair with only minimal disruption of the surrounding soft tissue with only a half-inch incision.

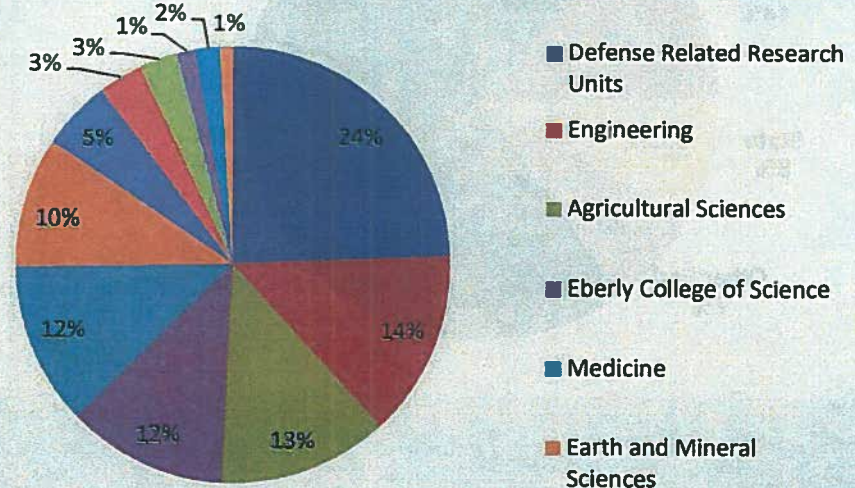
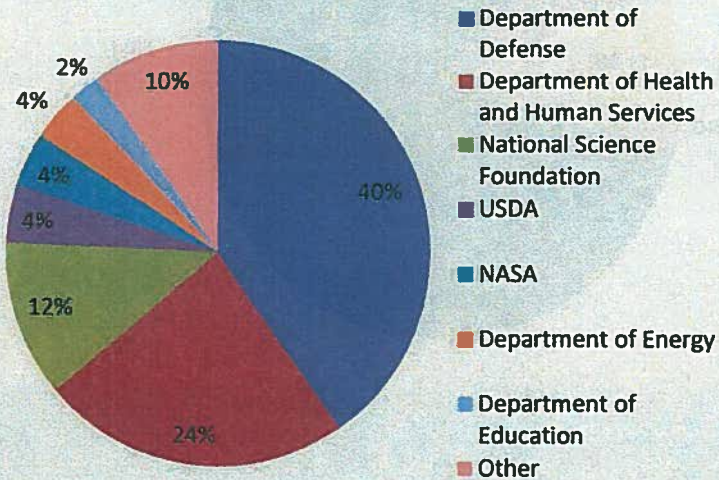
There are prototypes of all of these technologies available for you to look at today and we'll even provide a hands-on demonstration.

At Penn State Hershey, we believe that through sustained and consistent strategies, Pennsylvania's policymakers can support intelligent, measured risk-taking in the life sciences industry to ensure that a rich and diverse network of innovation can flourish. We hope to thrive in an environment of continued collaboration with our partners at the Hershey Center for Applied Research, the Life Sciences Greenhouse of Central Pennsylvania and our elected officials and policymakers in the Commonwealth to promote a statewide culture of innovation.

Thank you again for the opportunity to address the House Republican Policy Committee. At this time, I'd be happy to address your questions.

Penn State Vital Statistics

- Ranked 11th in the US in Research and Development Expenditures
- Ranked 3rd in the US in Industry-sponsored Research and Development
- Annual research expenditures were \$765 million in 2009
- \$445 million in federal funding



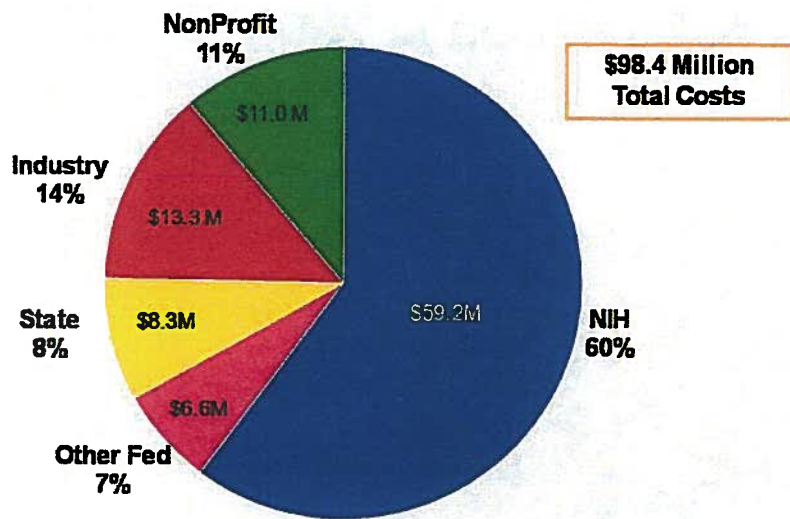
PENNSSTATE HERSHEY



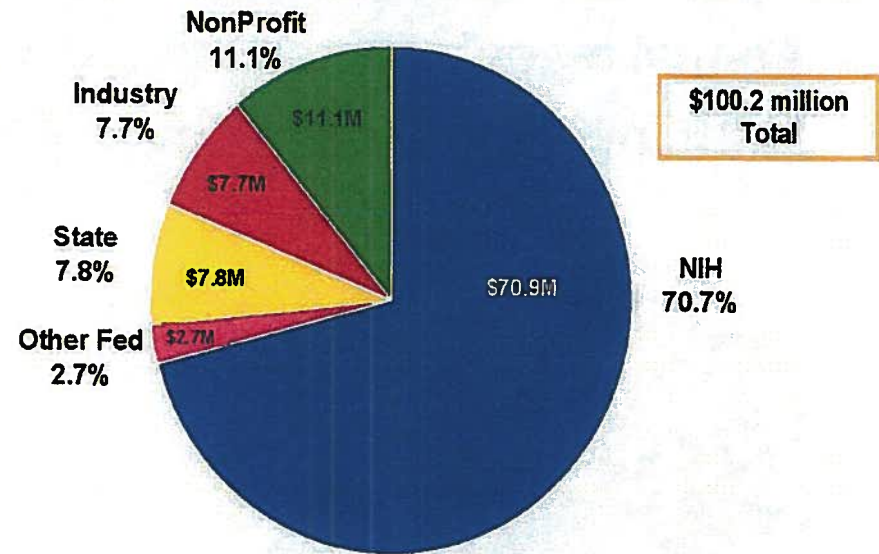
Good People. Great Medicine.™
PennStateHershey.org

College of Medicine Awards by Sponsor (FY 09 & 10)

2009



2010



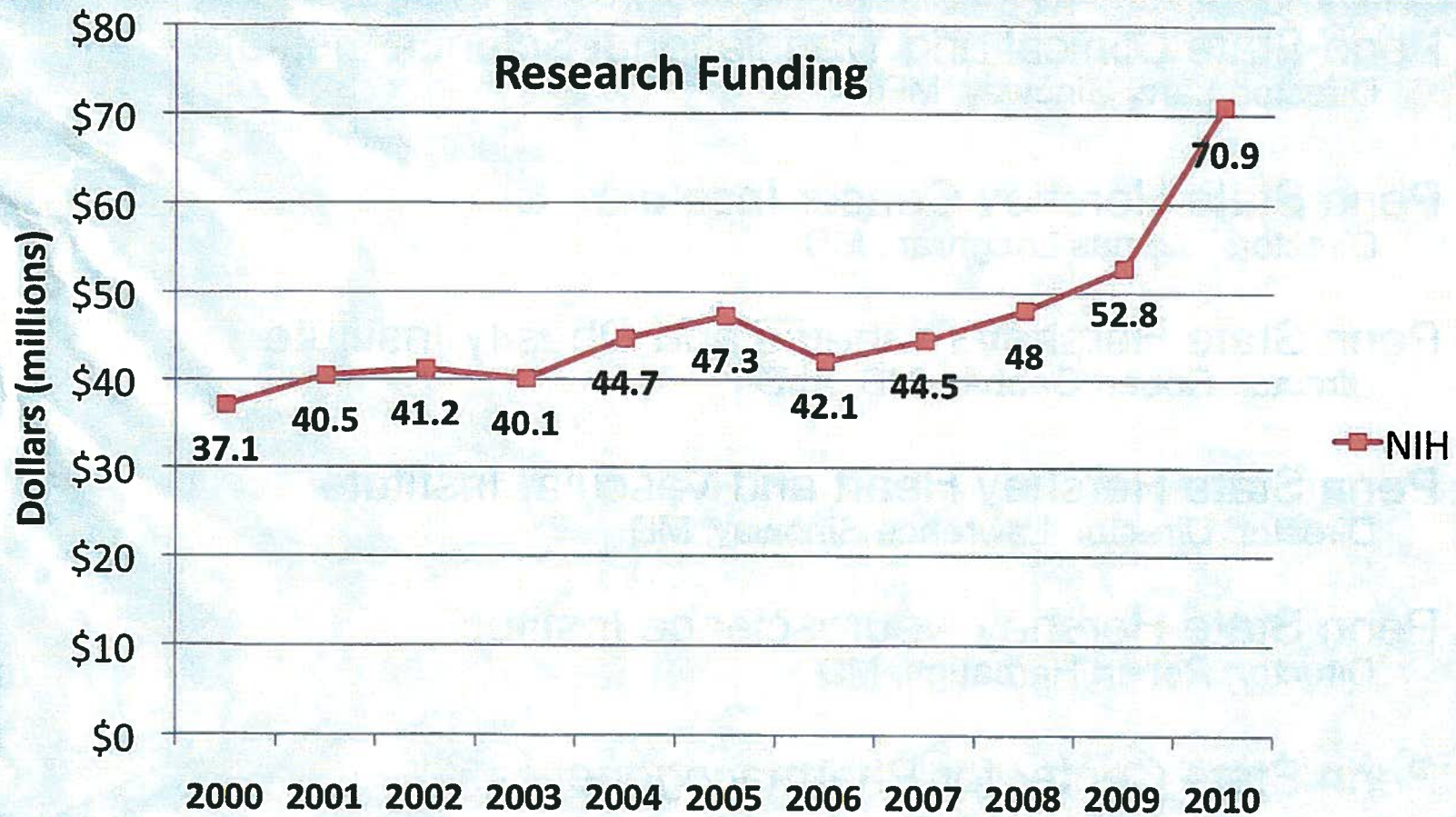
PENNSTATE HERSCHEY



Milton S. Hershey
Medical Center

Good People. Great Medicine.™
PennStateHershey.org

College of Medicine Research Funding Trends



PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center

Good People. Great Medicine.™

PennStateHershey.org

Penn State College of Medicine Institutes & Centers

Penn State Clinical and Translational Science Institute
Director: Larry Sinoway, MD

Penn State Hershey Cancer Institute
Director: Thomas Loughran, MD

Penn State Hershey Diabetes and Obesity Institute
Director: Robert Gabbay, MD, PhD

Penn State Hershey Heart and Vascular Institute
Director: Director: Lawrence Sinoway, MD

Penn State Hershey Neuroscience Institute
Director: Robert Harbaugh, MD

Penn State Center for Pharmacogenetics

PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center

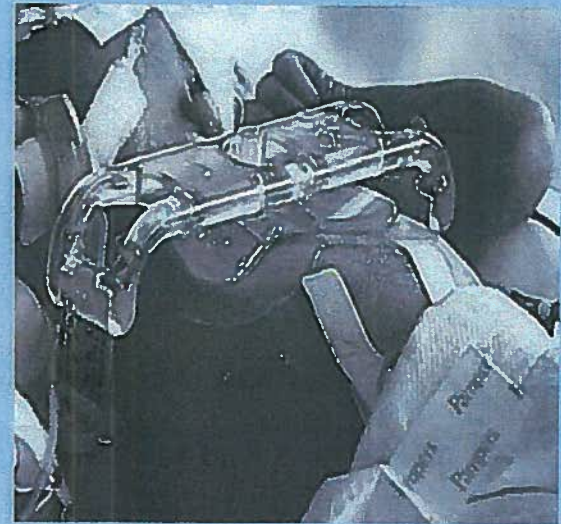
Good People. Great Medicine.™
PennStateHershey.org

Hug 'n' Snug Neonatal Chest Splint

Developed by Charles Palmer, M.B., Ch.B., and the Pediatric Innovation Program team.

Provides external stabilization to the chest of extremely premature infants allowing baby to breath easier while decreasing the risk of infection.

Licensed by Penn State to Respirationics, Inc. of Murrysville, PA.



PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center

Good People. Great Medicine.™

PennStateHershey.org

EndoTower Virtual Reality Program

Developed by Randy Haluck, M.D., of Penn State Hershey's Department of Surgery to teach angled-lens camera driving techniques for minimally invasive surgery.

Technology allows clinicians and students to learn how to manipulate a laparoscope during minimally invasive surgery in a simulated environment.

Patient safety is greatly enhanced.

EndoTower was licensed to a PSU spinout Company, VerEFI Technologies, Inc. in 2003.



PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center

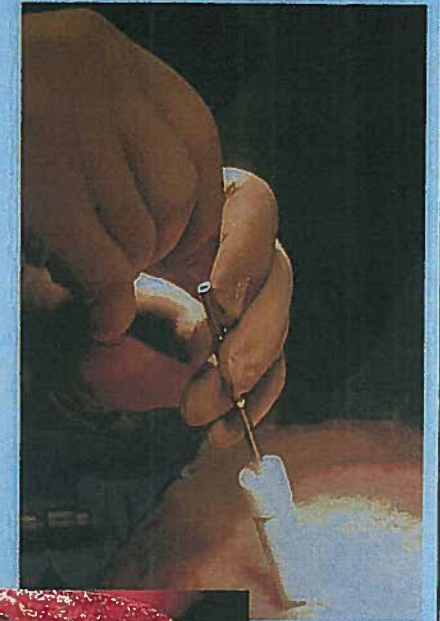
Good People. Great Medicine.™
PennStateHershey.org

Percutaneous Rib Repair Technology

Device was developed by the Innovation Group within the Penn State Hershey Department of Surgery.

The technology uses a novel, minimally invasive surgical technique and instruments to allow the surgeon to complete repair of rib fractures with minimal impact on soft tissue and an 1/2 inch incision.

The device is patent-pending licensed for commercial development by a major industry medical company in PA.



PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center

Good People. Great Medicine.™

PennStateHershey.org

Research Makes Us Better!

Daniel Notterman, MD

Vice Dean for Research—Penn State College of Medicine
Professor of Pediatrics, Biochemistry and Molecular Biology

PENNSTATE HERSHEY



Milton S. Hershey
Medical Center

Good People. Great Medicine.™
PennStateHershey.org

