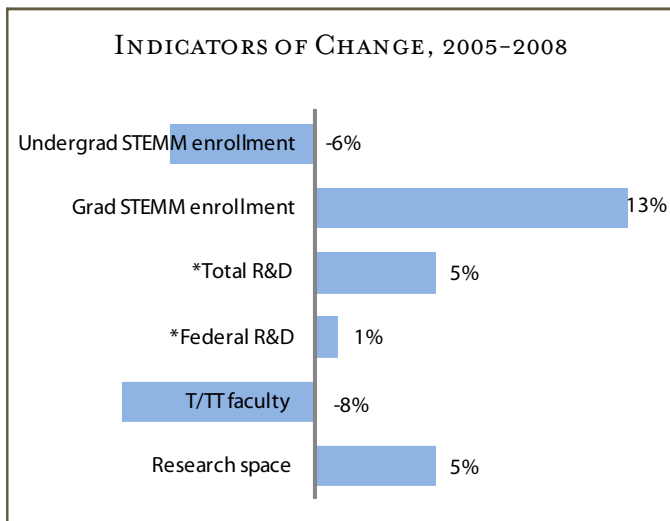


THE UNIVERSITY OF TEXAS MEDICAL BRANCH AT GALVESTON

The UT System has responded to the challenge set forth by the Rising Above the Gathering Storm (RAGS) report and has committed more than \$241.5 million to strengthen competitiveness at UT Medical Branch. The initial impact of these investments is presented here, organized according to the four critical elements described by RAGS: education, research and technology development, competitive capacity, and incentives.

On September 13, 2008, Galveston Island suffered a direct and devastating hit from Hurricane Ike, the third most destructive hurricane to make landfall in the United States. Ike's storm surge flooded more than 1 million square feet of first-floor clinical, research and education space on the UTMB campus, with flood levels ranging from a few inches in the university library to approximately eight feet in historic Old Red. Imaging equipment, linear accelerators, patient simulation equipment and other critical resources were also lost. In all, damages—including estimated business losses—amounted to approximately \$1 billion. As a result, many services provided by the institution had to be scaled back to protect and preserve UTMB's core missions and safeguard its future, resulting in a reduction in force affecting more than 2,000 employees. If Hurricane Ike has a silver lining, for UTMB it is the reawakened and expanded appreciation of UTMB's many vital contributions to the health and well-being of its home community, the region, the state as a whole and beyond. Coupled with the invaluable support of countless elected officials, the UT System, the local community, multiple philanthropic organizations and individuals, numerous alumni and friends, and dedicated faculty, staff and students, UTMB is well on the road to recovery, with every promise of being an even stronger institution in the years ahead.



STEMM = science, technology, engineering, math, and medical/health
* % Change, 2005-2007. Source: NSF.

UT MEDICAL BRANCH AT A GLANCE

Student enrollment in STEMM, 2008	
Undergraduate	504
Graduate	1,834
STARs faculty recruited (2005-2008)	4
Physical space (square footage)	
Teaching	162,000
Research	477,000
Clinical	182,000
Increase in total sq. ft. through initiative	20%
New STEMM-related endowments (2005-2008)	\$65 million
Research expenditures, 2008	\$154 million
Federal research expenditures, 2008	\$122 million
Intellectual property revenue, 2005-2008	\$6 million
U.S. patents issued, 2005-2008	43
Licenses/options executed, 2005-2008	72
Start-up companies, 2005-2008	6

Education

Under the UT System Competitiveness Initiative, UT Medical Branch increased its academic physical space by over 12,000 square feet, or 8 percent. Increases in classroom space allowed for the creation of five new degree programs in clinical laboratory services, clinical science (MS and PhD), physical therapy, and rehabilitation sciences. In 2008, UT Medical Branch established as an institutional priority achieving national prominence for innovative and effective educational curricula focused on evidence-based learning and practice across the health professions.

Undergraduate enrollment in STEMM has decreased by 6 percent at UT Medical Branch since 2005. This decline in STEMM enrollment is significantly less than the 14 percent growth in undergraduate STEMM enrollment at all UT System health institutions. The overall decline is due to a drop in enrollment in nursing programs, which decreased 17 percent, or a loss of 62 students. However, student enrollment in health professions increased by 33 students or 26 percent, and is higher than the growth trend for all UT System health institutions. Post-

baccalaureate enrollment decreased by 14 students, or 29 percent; however, enrollment in the biomedical sciences programs increased by 4 students, or 19 percent.

Graduate enrollment in STEMM fields has increased 13 percent since 2005, adding an additional 209 students. The rate of increase at UT Medical Branch is considerably higher than the 4 percent increase of STEMM graduate students enrolled at all UT System health institutions and more than the national enrollment growth rate of 6 percent. Specifically, enrollment has increased in Master's degree programs in health professions (21%) and nursing (28%), yet has decreased for the Master's degree program in biomedical sciences (37%). Enrollment is fairly steady across doctoral programs in biomedical sciences and nursing and overall doctoral enrollment has increased with the addition of a doctoral program in health professions. Medical student enrollment has increased 9 percent, adding 73 students.

Research & Technology Development

UT Medical Branch has shown a firm commitment to becoming known nationally and globally as a leader in health care delivery and biomedical sciences. The institution plans to achieve this goal by developing or expanding priority clinical and research programs and facilities. One remarkable investment and accomplishment to this end is the establishment of the Galveston National Laboratory (GNL), one of two National Biocontainment Laboratories in the U.S. The GNL provides research space and specialized capabilities to develop therapies, vaccines, and diagnostic tests for naturally occurring emerging diseases as well as those employed by terrorists. While the GNL is owned and operated by UT Medical Branch, the lab is available to provide assistance to national, state, and local public health efforts during a biological attack, all within a safe and secure research environment. In addition to the GNL, UT Medical Branch is also home to the first full-size Biosafety Level 4 laboratory located on a university campus in the U.S.

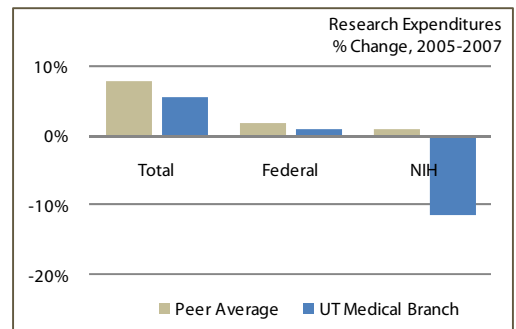
Galveston National Laboratory at UTMB is a secure research environment that assists with public health efforts during a biological attack.



UTMB recently received the highest score given by the NIH in this round of applications for the Clinical and Translational Science Award (CTSA). At press time for this publication, UTMB had not received final word yet on the awarding of the grant but feel confident—based on the grant score and the site visit by NIH—that UTMB will receive the CTSA five-year, \$42 million grant. The CTSA seeks to facilitate translational research as a rigorous discipline, develop translational research training programs at all levels in the graduate continuum, effectively conduct and bridge step one translational research to steps two and three, and interface productively with the national CTSA consortium. To accomplish these goals, UTMB organized its Institute for Translational Sciences (ITS) into 12 key resources—combinations of university core laboratories and intellectual resources, integrated by a single point of investigator/trainee contact. This structure will make ITS more rapidly responsive to the needs of investigators and trainees.

Another example of the innovation taking place at UT Medical Branch is InPlace Medical Solutions, an offshore medical service that connects remote workers to physicians using telemedicine capabilities in places such as oil rigs, correctional facilities, and other remote locations. The live, two-way video-conference offers up to 85 percent of the medical services provided by a “brick and mortar” doctor’s office. The product was licensed and developed by NuPhysicia LLC, a UT Medical Branch start-up company that was established in 2007.

These investments in excellence contribute to enhanced resources for faculty research projects, often tracked by the money spent to conduct the scientific investigations. Research expenditures at UT Medical Branch have increased 5 percent between 2005 and 2007, while peers averaged an 8 percent increase. Research expenditures from federal sources increased one percent during the same time period while peers



Source: NSF, NIH.

averaged a 2 percent increase. Research expenditures from grants awarded by the National Institutes of Health (NIH) were substantially different between UT Medical Branch and its peers: UT Medical Branch decreased by 12 percent and peers reported a one percent increase. The CTSA award described above is expected to catalyze research funding across the institution over the long term.

Competitive Capacity

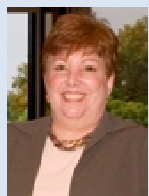
Competitive capacity, or the resources necessary to advance academic and research goals, is a fundamental building block for institutional activities. Resources include innovative buildings with advanced research laboratories and academic spaces, world-class faculty, recognition programs to support faculty efforts, and interest from external donors.

FACULTY RECRUITMENT

Attracting top-caliber senior researchers who are internationally recognized for advanced breakthroughs in their field leads to major innovations in discovery, development, and application of research. UT Medical Branch's number of tenured/tenure track faculty decreased by 8 percent, or 41 people, between 2005 and 2008. However, the research expenditures per tenured/tenure-track faculty member grew 11 percent during this time. It is important to note that the financial impact of Hurricane Ike led to faculty layoffs at the institution in FY 2009 and will impact future trends at the institution.

The STARS (Science and Technology Acquisition and Recruitment) Program enabled UT Medical Branch to add four faculty members and retain one professor, increasing the collection of talent at the institution.

STARS FACULTY



Dr. Miriam Alter is the Robert E. Shope Professor in infectious diseases epidemiology and director of the Infectious Disease Epidemiology Program. Dr. Alter is a professor in the departments of internal medicine and preventive medicine and community health. Dr. Alter is internationally recognized for her work in epidemiology of the transmission patterns of Hepatitis viruses and influenza which can be found in more than 200 publications. The recruitment package included \$1.25 million from STARS and \$300,000 from UT Medical Branch, which established molecular epidemiology core laboratory and the first "wet-lab" in the UT Medical Branch School of Nursing. Dr. Alter was recruited from the Centers for Disease Control and Prevention.



Dr. George Jackson is John Sealy Chair for Parkinson's Disease Research, director of the George P. and Cynthia Woods Mitchell Center for Neurogenerative Diseases and professor of neurology, neuroscience and cell biology, and biochemistry and molecular biology. Dr. Jackson is an expert in neurodegenerative diseases such as Huntington's disease, Parkinson's disease, and ALS. A STARS award of \$700,000 was used to recruit Dr. Jackson from UCLA.



Dr. James LeDuc is the Robert E. Shope, M.D., and John S. Dunn Distinguished Chair in Global Health, director of the program in public health, professor of microbiology and immunology, and deputy director of Galveston National Laboratory. Dr. LeDuc has over 200 publications and was recruited to fill a critical new role within the Institute for Human Infections and Immunity—that of the first Director of the Global Health Program. His recruitment from the Center for Disease Control and Prevention was successful with \$1.5 million from STARS, \$400,000 from endowment funds, and support from a recent \$54 million award for operation within the Galveston National Laboratory.



Dr. Csaba Szabo, visiting professor of anesthesiology, was recruited from the University of Medicine and Dentistry in New Jersey. Dr. Szabo is a physiologist and pharmacologist who has developed a unique translational approach to human disease and is described as the driving force behind a paradigm shift in the management of critical illness. Dr. Szabo received \$1.1 million from the STARS program and \$250,000 plus 1,200 square feet of laboratory space from UT Medical Branch.



Dr. David Walker is the Carmage and Martha Walls Distinguished Chair in Tropical Diseases and professor and chair of pathology, was retained to implement a campus-wide program in Endothelial Pathobiology with emphasis on acute injury. Dr. Walker has been a driving force in UTMB's world-renowned infectious disease program and has been responsible for attracting more than \$200 million in biodefense research and construction awards from NIH in recent years. The \$2.5 million STARS award was matched by the UT Medical Branch.

INFRASTRUCTURE

New construction and renovation of state-of-the-art buildings create educational and research possibilities that drive the competitiveness initiative. Funds from the Competitiveness Initiative have been used for the Galveston National Laboratory (\$174 million, including almost \$117 in external grants and \$57 million in tuition revenue bonds) and the Specialty Care Center at Victory Lake (\$61 million, including \$10 million in institutional funds). Construction of a new surgical tower, the Jennie Sealy Replacement Hospital, had been put on hold. However, UTMB recently received authorization to issue \$150 million in tuition revenue bonds and received a \$125 million commitment from the Sealy & Smith Foundation for the construction of the new surgical tower as well as the repair and modernization of the existing hospital complex. The Basic Science Renovation is currently in the design phase.

COMPETITIVENESS INITIATIVE PROVIDES \$235 MILLION FOR CAPITAL PROJECTS AT UTMB



The Galveston National Laboratory (GNL) is a 186,000 square foot research facility. The Laboratory is an essential component of a national initiative to enhance biodefense research capabilities in order to promote the development of effective vaccines, diagnostics, and therapeutics capable of mitigating the threat of dangerous emerging infectious diseases. The \$174 million initiative builds on UT Medical Branch's strengths and establishes the institution as the world's premier site for infectious disease research while supporting national objectives. Construction of the GNL was completed in August 2008. When Hurricane Ike struck Galveston Island in September, the GNL withstood the storm and suffered no damage—precisely as designed. The lab's dedication moved forward in November, a mere two months after the hurricane made landfall.

The Specialty Care Center at Victory Lakes will provide 110,000 square feet of space for outpatient services when it opens in early 2010. The \$61 million project will serve one of the fastest growing areas in the state of Texas and will address the short stay and ambulatory care needs of UT Medical Branch employees and families as well as residents of the region.



PHILANTHROPY TO SUPPORT STEMM INITIATIVES

A compelling indicator of competitiveness is the institution's appeal to philanthropists who join the institution's commitment to excellence. UT Medical Branch raised \$65.3 million in STEMM-specific endowments since FY 2005, including graduate fellowships, distinguished chairs to support faculty research, and student scholarships. Almost \$2 million is distributed for STEMM research and scholarships on an annual basis from these new endowments.

FACULTY AWARDS

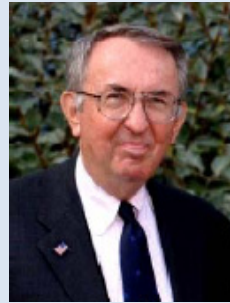
The faculty at UT Medical Branch are often recognized for their significant contributions to their areas of expertise and respective fields of study. For example, two professors are members of the prestigious Institute of Medicine, two professors were named fellows of the American Academy of Nursing, two were inducted into the American Academy of Arts and Sciences, and two received Fulbright American Scholars awards.

Four faculty hold NIH MERIT (Method to Extend Research in Time) Awards, a true symbol of scientific achievement in the research community. MERIT awards are rare, offered to less than 5 percent of NIH-funded investigators, limited to those who have demonstrated superior competence and outstanding productivity in previous research efforts. MERIT awards provide investigators with long-term, stable research funding to foster their continued creativity without the burden of preparing frequent research grant proposals. UTMB's past NIH MERIT award recipients include scientists with expertise in gastrointestinal physiology and the molecular mechanisms of normal intestinal and cancer growth; drug metabolism and molecular toxicology; the role cell death plays in various immune-mediated diseases, especially HIV; DNA repair processes; and the influence of proteins on diabetic complications and therapeutic strategies to suppress such complications.

MEMBERS OF THE NATIONAL ACADEMIES OF SCIENCE



Dr. Howard Brody is director of the Institute for the Medical Humanities, John P. McGovern Centennial Chair, and professor of family medicine. Dr. Brody is internationally recognized for his work in medical ethics, family medicine, and philosophy of medicine and his work has been translated into six languages. Dr. Brody has been inducted into the Institute of Medicine and the National Academy of Sciences.



Dr. Frederick Murphy is professor of pathology and McLaughlin Professor in Residence. Dr. Murphy is a pioneering virologist and is credited as one of the scientists who first identified the Ebola and Marburg viruses, among others. Dr. Murphy was elected to the Institute of Medicine among many other prestigious honors.

Incentives

Listed below are examples of two system-wide initiatives that provide additional incentives to excel in science, technology, mathematics, and health.

The Chancellor's Entrepreneurship and Innovation Awards recognized Dr. Darrell Carney, professor of biochemistry and molecular biology, for his research to understand the molecular regulation of inflammation and wound healing. Dr. Carney is co-founder and scientific director of the biopharmaceutical start-up company, Chrysalis BioTechnology, Inc. The company's lead product, Chrysalin[®], is used for bone fracture healing and wound healing of chronic diabetic ulcers. Chrysalis was acquired by OrthoLogic Corp. in 2004.

The UT System Texas Ignition Fund (TIF) has awarded projects to commercialize four inventions at UT Medical Branch:

- A small, lightweight and low cost IV pump that precisely monitors and controls the amount of fluid released to a patient to ensure that errors in over-resuscitation do not occur
- A pulmonary drug delivery system that converts dry powder into an aerosol form
- A novel device for performing tissue sutures in the colon, known as a needle-electrode anchor system
- A device to deliver a nerve block with an electrode rather than an incision

