ADDITIONAL AGENDA ITEM
MEETING OF THE BOARD
AUGUST 25, 2011

6. U. T. System: Affirmation of the Lower Rio Grande Valley Plan - Education and Health Initiatives including proposed funding of $30 million for:

- **UTeach programs in Science, Technology, Engineering, and Mathematics (STEM) education and engineering at U. T. Pan American and U. T. Brownsville**
- **a faculty recruitment program to attract exceptional STEM faculty and researchers**
- **a Simulated Teaching Hospital, a joint endeavor with U. T. Pan American, U. T. Brownsville, and the Regional Academic Health Centers (RAHC), which are part of U. T. Health Science Center - San Antonio (UTHSCSA)**
- **a Biomedical Research Program, a joint endeavor with U. T. Pan American, U. T. Brownsville, RAHC, the Laredo Regional Campus which is part of UTHSCSA, and the Regional School of Public Health in Brownsville, which is part of U. T. Health Science Center – Houston**
- **a stronger foundation for medical education by expanding the number of residency opportunities throughout South Texas**
- **Strength in Numbers funding for the development offices at U. T. Brownsville and U. T. Pan American**

RECOMMENDATION

The Chancellor concurs in the recommendation of the Executive Vice Chancellor for Academic Affairs, the Executive Vice Chancellor for Health Affairs, and the Executive Vice Chancellor for Business Affairs that the U. T. System Board of Regents approve a $30 million investment in "The Lower Rio Grande Valley Plan - Education and Health Initiatives (the LRGV Plan)," as set forth on Pages 4 - 10.

The LRGV Plan involves investment in Science, Technology, Engineering, and Mathematics (STEM) faculty, replication of the UTeach program, establishment of a simulated teaching hospital infrastructure, development of a biomedical research program, and building a medical education program. All components of the plan comprise an additional foundation for a medical school in the LRGV, and will involve the collaboration of U. T. Brownsville, U. T. Pan American, U. T. Health Science Center - San Antonio and its Regional Academic Health Centers (RAHC) together with its Laredo Regional campus, and U. T. Health Science Center - Houston, through its Regional School of Public Health in Brownsville.

BACKGROUND INFORMATION

On December 3, 2010, the Board of Regents heard a presentation from Chancellor Cigarroa and Executive Vice Chancellor Prior on an initiative to advance education titled "Enhanced Higher Educational Opportunities in the Lower Rio Grande Valley of Texas" commissioned to identify and implement ambitious and wide-ranging education and research initiatives in the LRGV and South Texas over the next decade. The initiative is based on the principle that higher education can continue to make a marked difference in this vital region of Texas, but there is still much to do. The LRGV region has potential for further economic development and enhanced quality of life, but is challenged by explosive population growth, a lower per capita income, and educational opportunities that do not meet the demand.

The initiative identifies six focus areas that are considered to be critically important and worthy of an investment. Improvement in STEM education is the fundamental building block. It underpins the other three key areas identified in the LRGV Plan for enhanced education and research opportunities: Environment and Energy, Advanced Manufacturing, and Health Professional Education.

Collaboration among secondary and post-secondary educational institutions in the region, as well as across the state, is the single most important factor that will govern success. Additionally, there must be a commitment by all for engagement in the long term when new opportunities arise. It is strongly emphasized that the academic initiative merely provides a beginning step in the journey to provide expanded and enhanced higher educational and research opportunities to the LRGV for the benefit of its people, both now and in the future.

Immediate Priorities

The initiative presents the U. T. System's long-term vision for and commitment to the LRGV and South Texas, which will require much time, resources, and capacity building to accomplish. As a first step in moving to action, the LRGV Plan identifies six priority areas where action and resources will have the most immediate impact:

- Establish UTeach programs in STEM education and engineering at U. T. Pan American and U. T. Brownsville ($8.5 million = $4.0 million from Intermediate Term Fund [ITF/Swap Proceeds]);

- Establish a faculty recruitment program (ValleySTARs) to attract exceptional STEM faculty and researchers to U. T. System institutions in the LRGV ($9.5 million from ITF/Swap Proceeds);

- Establish a Simulated Teaching Hospital - a joint endeavor with U. T. Pan American, U. T. Brownsville, and the Regional Academic Health Centers (RAHC), which are part of U. T. Health Science Center - San Antonio ($6 million from Permanent University Fund Bond Proceeds [PUF] and $4 million from ITF/Swap Proceeds);

- Establish a Biomedical Research Program - a joint endeavor with U. T. Pan American, U. T. Brownsville, RAHC including the Laredo Regional campus, and the Regional School of Public Health in Brownsville, which is part of U. T. Health Science Center - Houston ($4 million from ITF/Swap Proceeds);

- Establish a stronger foundation for medical education by expanding the number of residency opportunities in the LRGV and South Texas for existing and future medical students ($1.5 million from ITF/Swap Proceeds); and

- Establish "Strength in Numbers" funding to strategically build infrastructure, skills, programs, and personnel in the development offices at U. T. Brownsville and U. T. Pan American with a goal of creating new levels of philanthropic support at both institutions (up to $1 million from ITF/Swap Proceeds).

Outcomes will be tracked by specific metrics over the time of this investment and developed and reported as this initiative is implemented.

Enhanced Higher Educational and Health Opportunities in the Lower Rio Grande Valley of Texas

Executive Recap

The University of Texas System (UT System) presents a plan to implement ambitious and wide ranging education and health-related initiatives in the Lower Rio Grande Valley (LRGV) and South Texas over the next five years.

A bold, innovative UT System initiative addresses the needs of the LRGV for improved access to high quality education and health programs that will ultimately expand existing educational and research capacities, provide jobs and reduce poverty, while most importantly saving and enriching lives. This plan will not only impact South Texas, but our entire state.

Science, Technology, Engineering and Mathematics (STEM) education is a fundamental building block upon which enhanced education and health research opportunities will be advanced. It provides a basis for six focus areas, which are identified as both critical and worthy of investment.

- Enhancement of teaching, especially in STEM fields, by replication of UTeach programs
- Recruitment of exceptional STEM faculty and researchers through a new ValleySTARs program, modeled after the successful UT System STARs program
- Establishment of a simulated teaching hospital in Harlingen to serve Valley higher education institutions and medical facilities
- Expansion of research programs in biomedical research, especially in such critical areas as diabetes and obesity
- Enhancement of UT System medical education presence through residency programs in South Texas
- Strength in Numbers

The plan builds on a collaborative concept that seeks to interconnect all of the public higher education and medical capacity in the region. It provides focus for greater impact by fully integrating the combined missions of research and discovery, teaching and learning, and service to address specific societal and economic needs of the region.

The UT System requests the UT System Board of Regents to allocate $30 million in support of the LRGV Plan to implement initial activities through The University of Texas at Brownsville (UTB), The University of Texas – Pan American (UTPA), and The University of Texas Health Science Center at San Antonio (UTHSCSA) and its Regional Academic Health Centers (RAHC) together with its Laredo Regional Campus, and the Regional School of Public Health located in Brownsville representing The University of Texas Health Science Center at Houston (UTHSCH). Funds allocated by the Board are intended to serve as a catalyst and incentive for subsequent years' funding from external sources.

The initial investment by UT System is expected to be used by the institutions to leverage additional funds from private industry, the federal government, the State of Texas, and state and national foundations interested in supporting such activity. For example, the UT System and its LRGV institutions have already gained the interest

of private foundations to support UTeach. Similarly, federal departments will be tapped to support research. The institutions and the researchers will be expected to generate faculty salaries and benefits after the initial investment by UT System. For example, UTB and UTPA have each already applied for and received $45,000 planning grants for UTeach replication.

Each of these strategies/programs have proven effectiveness in the UT System and its institutions and can be confidently expected to be successfully applied to serve the needs of the LRGV.

Detailed Plans

Strategy I: UTeach

Nationally, a severe lack of highly qualified high school teachers in specific STEM disciplines leads to weak preparation of high school students for success in STEM fields. This shortage is caused by (1) not enough students opting for a post-secondary major in a STEM field and (2) not enough STEM majors going into teaching. This situation is especially true in the LRGV. The major goals of the STEM education element of this plan are to increase the number of students, especially those from underrepresented and low socioeconomic populations, who choose teaching careers in math and science fields and to provide programs for current public school teachers who are teaching outside of their content areas to become proficient in teaching the STEM fields.

The number of undergraduates training as future STEM teachers would be expanded by replicating UTeach programs at both UTB and UTPA to provide the highest caliber pre-service training in math and science education. Collaboration with local community colleges [Texas Southmost College (TSC), South Texas College (STC), and Texas State Technical College (TSTC)] would ensure curriculum and instructional alignment enabling smooth transfer of students into STEM majors. Additionally, the number of public school teachers who are specifically trained and highly qualified to provide STEM education to their high school students would increase. An important vision is that these highly qualified teachers will teach the next generation of students who will be better prepared to matriculate into a medical school in the LRGV as the RAHC reaches important milestones consistent with Senate Bill 98.

Approximately $4 million is requested for the UTeach program, which will begin after the first year of planning with initial and subsequent enrollment as follows:

Served By UTeach Program	Year 2	Year 3	Year 4	Year 5
UTPA Students	49	133	217	301
UTB Students	58	100	162	226
Total South Texas	107	233	379	527

In addition, the program will target 40 LRGV high school teachers per year for improvement of qualifications and content knowledge of STEM fields. Over five years, our plan is to train 200 LRGV teachers and serve over 1,200 students at UTPA and UTB.

Strategy II: ValleySTARs Program

The ValleySTARs program is based upon the extremely popular and successful UT System STARs program for "**S**cience and **T**echnology **A**cquisition and **R**etention" of outstanding faculty. The ValleySTARs program will permit UTB and UTPA to request funding to cover faculty salary and benefits for no more than three years in support of their recruitment efforts for new "star" faculty to teach in STEM fields and/or begin a research program in biomedical issues affecting the LRGV in collaboration with faculty from the RAHCs. Funding can also be requested for strategic renovation of classrooms, laboratories or equipment needed to successfully recruit the

faculty member. It is essential that the quantity and quality of teaching and learning in STEM fields is enhanced by state-of-the-art teaching concepts and technology employed by scholar teachers.

The criteria for allocating funding will be based on the following:

- Extraordinary commitment to undergraduate teaching demonstrated in a variety of ways, including mentoring, service, and advising.
- Sustained high performance as evidenced by student evaluations.
- The extent to which the recruitment will provide outstanding scientific leadership in an area of significant strength to the individual institution, e.g., the addition of a high quality research program in an underdeveloped area within the institution, or a substantial enhancement of an existing program.
- The extent to which recruitment provides important research leadership in a priority area for the UT System and the State of Texas. Specific attention will focus on research capabilities in biomedical sciences such as diabetes and obesity, as well as engineering and technology.
- The extent to which the recruitment would introduce a researcher into high quality collaborative activities involving interactions between health science campuses and academic campuses, or among multiple campuses.
- The extent to which the recruitment will contribute to scientific development in areas bridging multiple disciplines, will enhance translation of research from bench to bedside, or will provide scientific or technological skills supportive of a number of other investigators and/or programs.

Approximately a total of $9.5 million is requested for the ValleySTARs program. Recruiting and hiring will be done collaboratively between UTB, UTPA and the RAHCs to foster synergy and avoid duplication and redundancy in program development. An external panel of high caliber STEM faculty will evaluate proposals requesting funding. Final allocation decisions will be made by UT System and the Chancellor.

Approximately 40 new faculty positions are expected to be recruited. The ValleySTARs program will apply the assessment metrics used by the successful UT System STARs program. These will include: sponsored research projects generated by the initiative, technology transfer, number of patents, scientific publications, service on national or international boards, number of undergraduate students involved in research, and number of graduate students recruited.

Strategy III: Simulated Teaching Hospital

The major goal of the health component of the plan is to lessen health disparities caused by allied health provider shortages and knowledge gaps in health delivery systems. Currently, the number of students that many of the existing programs can competently serve is severely restricted. The simulated teaching hospital will provide undergraduate and graduate students with experiences that simulate care in the real world with learning occurring through planned events that are coordinated with the curricula of the programs involved. Additionally, continuing education activities will be developed and offered on a fee basis to community health services providers with training needs.

The goal is to increase the quantity and quality of clinical and technological experiences for students in health professions by creating and operating a simulated hospital. It is designed to replicate nearly all the essential aspects of a clinical situation by using high-tech manikins as patient surrogates, so that the student can have a

greater variety and number of hands-on learning experiences that can be applied later, in real clinical practice. This also allows for repeated practice of difficult procedures. Quality is expected to increase with skill mastery.

The simulated teaching hospital will be established at the RAHC in Harlingen and operated to serve student demand in all allied health and nursing fields at UTB, UTPA, TSC, STC, and TSTC, as well as medical students at the RAHCs. The facility will be 15,000 square feet and include a fully functional 20-bed simulated hospital with designated teaching areas for Trauma/ER, Obstetrics and Pediatrics, and Medical/Surgical simulations. Simulation equipment would include a combination of low, medium and high-fidelity manikins for adults, children, babies, newborns, and birthing. Approximately $10 million is requested for the establishment and maintenance of the simulated teaching hospital. It will be modeled after the highly successful clinical simulation hospital at The University of Texas at Arlington.

The quality of training and, hence, the level of competency, of students and professionals in the health disciplines and industry in the LRGV would be enhanced. An increase of approximately 20% in the number of annual enrollments in Nursing and Physician Assistant programs is expected. Operating as a service bureau to other health education interests, both private and public, the simulated teaching hospital will be able to earn revenues to help offset operating expenses.

Strategy IV: Building a Biomedical Research Program

The UT System proposes to create a multi-campus and community-based research program that will advance the scientific discovery enterprise of the LRGV in an integrated way. The program involves UTB, UTPA, UTHSCSA's and UTHSCH's regional campuses, and a network of affiliated health-related research and education programs in Brownsville, Harlingen, Edinburg/McAllen and Laredo. Across the academic universities, there is considerable expertise in biology, chemistry, biochemistry, behavioral sciences, computer science and informatics. This expertise complements strengths in public health, genetics, immunology, epidemiology and community-based participatory research within the health university components. Specifically, the program will:

1) leverage existing research strengths and allow strategic growth by ***investing in high-impact, coordinated faculty recruitment.***
2) advance research amongst the program sites ***by purchasing telecommunications and IT equipment,*** enabling intensely collaborative endeavors with synergy among campuses and their LRGV communities.
3) craft a foundation for students to engage in STEM and health research that will educate students for future discovery and advance their goals.
4) serve as a national model in which UT System universities interact with, and empower their local communities to be participants in scientific discovery and by so doing, would increase competence and confidence to address and impact threats to their health and quality of life.

The initial focus of discovery will be on obesity and diabetes. This focus is a logical choice because of the high incidence of obesity (48.5%) and progressive diabetes (30.7%) in LRGV adults. Even more ominous is the fact that over half of the region's adolescents are overweight or obese. In addition to the directly deleterious impact of obesity and diabetes, these conditions also lead to non-alcoholic liver disease, cardiovascular disease including stroke, end-stage renal disease, retinopathy and increased susceptibility to infection. How these linked events occur over time and how they might be prevented is poorly understood and a compelling ground for new discovery. Lastly, obesity and diabetes are well-recognized as conditions of enormous economic cost, i.e. an

estimated annual treatment cost that consumes 2-3% of per capita annual income in the United States. However, in the economically depressed South Texas Border Region, the high incidence and low income result in health care cost for these two diseases that represents over 12% per capita annual income.

Accordingly, ***the proposed program is designed to crystallize research directions around these dual and often linked diseases, assuring a critical mass of researchers by recruitment of additional faculty with expertise in obesity and diabetes and by assuring advanced data analysis/sharing by expanding existing IT resources.*** In addition, the program will provide high-profile education opportunities for learners at all levels. In light of the larger scale of obesity prevalence across the nation, the proposed program also has considerable potential for developing novel, commercially viable treatments and cost saving health-monitoring technology. A total of $4 million is requested to build the biomedical research program.

Strategy V: Building Medical Education

During the 81st Texas Legislature, SB 98 provided that the Board of Regents "may establish the University of Texas Medical School - - South Texas at the Health Science Center as soon as the Board considers appropriate considering available resources and the best interest of The University of Texas System and the people of this state and the South Texas region." No funds may be appropriated before State fiscal biennium ending on or before August 31, 2015.

Among the conditions required for the establishment of a medical school in South Texas, there must be support for a comprehensive institution that supports outstanding research and educational programs. The school will require broad-based regional support including philanthropy. An absolute necessity will be additional state funding for operations and infrastructure. This funding cannot come at the expense of existing UT System institutions.

As noted above, a highly focused and impactful plan for research enterprise has been developed. This plan will support the research opportunities for a Medical School. An essential feature of the educational program is the availability of an adequate number of graduate medical education residency positions in the region. Currently a growing number of medical students from UTHSCSA do clinical rotations at the RAHC centered at Harlingen. However there are limited number of existing residency opportunities for these students to further their education in South Texas. These are limited to five first-year positions in Internal Medicine and six positions in Family Medicine. In the absence of adequate positions, students graduating from a medical school would have to seek residencies elsewhere. A high proportion will then practice in areas where they take their residencies. Moreover the quality of the medical student experience depends critically on high quality residency programs in which they learn. Ultimately, the Medical School should have a minimum of 120 residency positions in six specialty areas. These include Family Practice, Internal Medicine, Psychiatry, Surgery, OB/Gyn, and Pediatrics. Fortunately seven hospitals across the region have tentatively committed to 129 residency positions. Initial plans call for expansion of Internal Medicine and Family Practice over the next two years. A planning group is currently preparing a proposal for a training program in Psychiatry to be submitted for accreditation evaluation in 2012. A steering group has been created for development of residency programs in Surgery.

Although the cost of the residency programs including faculty teachers will be largely met by the hospitals, a total of $1.5 million is requested to support further development of these programs throughout South Texas. This also includes the need for expert outside consultation to assist the hospitals in designing new programs, including the complexities of rotations at various sites, surveys of available patient populations and preparation of complex

documentation. Residency educational consultants will be required to assist in the creation of innovative and high quality programs. These funds will also allow partial support of program directors required to implement new and expanded programs in a cost sharing arrangement with the hospitals. Recruitment of faculty for the residency programs will be carefully coordinated with the research agenda noted above.

The objectives of these efforts will include expansion of Internal Medicine and Family Practice, establishment of new programs in Surgery and Psychiatry and completion of plans for OB/Gyn and Pediatrics, by 2015.

Strategy VI: Strength in Numbers

Establish "Strength in Numbers" funding to strategically build infrastructure, skills, programs, and personnel in the development offices at UTB and UTPA with a goal of creating new levels of philanthropic support at both institutions (up to $1 million).

Conclusion

The University of Texas System, through the Chancellor and the Board of Regents, has committed to making a difference in educational, research and medical services in the LRGV, which will impact all of South Texas and our state. An investment of $30 million in proven programs and building new capabilities will serve notice that the Board's commitment to the LRGV is tangible and substantial.

Strategy	Resources Required					
	Year 1	Year 2	Year 3	Year 4	Year 5	5 yr Totals
UTeach	1,000,000	1,000,000	1,000,000	500,000	500,000	$4,000,000
ValleySTARs Program	9,500,000					$9,500,000
Simulated Hospital	6,700,400	670,469	862,220	876,237	890,674	$10,000,000
Biomedical Research	4,000,000					$4,000,000
Medical Education	1,500,000					$1,500,000
Strength in Numbers	1,000,000					$1,000,000
Totals	23,700,000	1,670,469	1,862,220	1,376,237	1,390,674	$30,000,000