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I joined UTHSC in late July 2015 as Vice Chancellor for Research. In my first Town Hall I said, “I feel privileged to have become the Vice Chancellor for Research at the University of Tennessee Health Science Center on July 27, 2015. After all, I have been given the opportunity to work with an outstanding UTHSC upper administration, led by Chancellor Steve J. Schwab, and a world-class group of faculty investigators on a big goal of doubling research at our Institution over the next ten years.”

There was a great deal to be accomplished in the areas of vision for the research enterprise: improving and sometimes creating infrastructure, hiring key Associate Vice Chancellors, right-sizing the Office of Research staff, and creating a more interdisciplinary, intraprofessional, and entrepreneurial environment.

Accomplishing a shared vision requires strong buy-in from stakeholders at all levels, leadership that perseveres in the face of challenges that are inevitable, and people who are willing to roll up their sleeves and go to work. We have had all of these elements present in my first 2 and 3/4 years at UTHSC. Therefore, we have witnessed tremendous Institutional Research Accomplishments in less than three years, which are the focus of this booklet. We, of course, could not list all accomplishments in this short discussion. There have also been wonderful research accomplishments made in individual colleges and departments, which are not the subject of this booklet.

As you will see in this booklet, the strides that have been made in less than three years have placed us in a position to realize the goal of doubling research in ten years. This Vice Chancellor for Research and his team will do everything in our power to help the UTHSC Administration and faculty reach this shared goal.

Steven R. Goodman, PhD
Vice Chancellor for Research
office of research leadership team
the hire of the vice chancellor for research & the operational strategic plan for research vision and implementation
Dr. Steven R. Goodman was hired as Vice Chancellor for Research (VCR) effective July 2015. Dr. Goodman hired Dr. Steven L. Youngentob who became Senior Associate VCR effective September 2015. Production of the Operational Strategic Plan for Research (OSPR) began in August 2015 when VCR Goodman charged an OSPR Committee led by Governor’s Chair Dr. Robert W. Williams and Dean of the College of Nursing Dr. Wendy Likes. The OSPR Committee, composed of 25 leading researchers from multiple UTHSC Departments, Colleges and Campuses, prepared an outstanding detailed five-year blueprint to grow and strengthen the UTHSC Research Enterprise.

The six Areas of Excellence within the plan are Cancer; Obesity, Diabetes and Vascular Disease; Disorders of the Nervous System; Respiratory Disorders; Precision Medicine; and Health Outcomes and Health Sciences Research. The underlying theme of the OSPR is that we will be stronger as a Health Science Center if we build teams of interdisciplinary researchers, who cross Colleges and Campuses, and work together on research programs within these Areas of Excellence and their specified Focus Areas.

All sections of the OSPR were vetted multiple times by the OSPR Committee, the Research Council, and the Faculty Senate Research Committee and the document received final approval from Chancellor Steve J. Schwab on August 22, 2016.

Implementation of the OSPR is being led by the VCR’s Research Cabinet that was divided into eight Implementation Teams each defining, for their specific area, what portions of the OSPR need to be implemented over the first two years.
Shortly after arriving at UTHSC in 2015, Dr. Goodman created the Collaborative Research Network to provide UTHSC faculty with a new platform to create research partnerships across disciplines, Colleges, Universities and nations. Using an acronym for the Collaborative Research Network, Dr. Goodman presented the first CORNET Awards in 2016 based on short peer-reviewed proposals from teams of scientists.

The CORNET Awards have been implemented in six phases: (1) UTHSC CORNET Awards, where 15 new collaborative teams from different UTHSC colleges and campus locations have been granted funding since April 2016; (2) UT CORNET Awards, of which three teams of researchers from multiple UT campuses across the state of Tennessee were granted more than $150,000 to pursue their cancer research projects in April 2017; (3) USA CORNET Awards, of which UAMS is UTHSC’s first partner university; (4) Global CORNET Awards; (5) UTHSC/Southern Research CORNET Award in Drug Discovery and Development; and the newest CORNET opportunity to be created (6) the Clinical CORNET Awards.

To date, the CORNET Awards have provided almost $1.5 million in funding to support new collaborative research teams and their groundbreaking initiatives.
the clinical trials network of tennessee (CTN2) & the clinical trials governance board (CTGB)
CTN2 is the Clinical Trials Network of Tennessee. With CTN2, UT faculty investigators and institutions can design, solicit and conduct robust clinical trials of high integrity across campuses and institutions in Tennessee. We created CTN2 as a Site Management Organization (SMO) in order to increase access to new therapies for patient care, research opportunities and education, and to enable UTHSC to get credit for clinical trials conducted by its faculty. CTN2 will have specialists in contracting and billing, utilize the Enterprise Data Warehouse (EDW), a Medical Director, a Business Director, and a free standing Internal Review Board (IRB). It will be able to do business at the speed of Industry.

Dr. Goodman created the Clinical Trials Governance Board (CTGB) as a Federated model to coordinate the multiple clinical trials offices across UTHSC. The goal of the CTGB is to support and grow clinical research by promoting access to resources and opportunities for investigators and faculty throughout the UTHSC system. The CTGB represents established clinical research offices on all UTHSC campuses and aims to develop a fully integrated model of generating and sharing best practices for clinical research. The CTGB coordinates with various clinical research offices to ensure adequate provision of services and resources to all UTHSC-affiliated investigators to improve quality, efficiency and regulatory compliance of the conduct of clinical trials.
institutes
The OSPR defines the mechanism by which new UTHSC Institutes are established, operated, supported and reviewed. Since the establishment of these criteria, the following new UTHSC Institutes have been established:

[1] The Institute for the Study of Host Pathogen Systems (ISHPS), with Dr. Colleen Jonsson as Director, will synergize infectious disease research among an interdisciplinary group of faculty across the UTHSC enterprise.

[2] The Institute for Biomarker and Molecular Therapeutics (IBMT), with Dr. Subhash Chauhan as Director, is a research enterprise focused on developing new biomarkers and molecular-level therapeutic modalities for chronic diseases including, but not limited to cancers, HIV/AIDS, stroke and cardiovascular disorders.

[3] The Memphis Institute for Regenerative Medicine (MIRM), with Dr. James Kang serving as Executive Director, is discussed in the “On the Horizon” section, as it has recently been created.
The Office of Research, in collaboration with the University of Tennessee Research Foundation (UTRF), has taken a leadership role in stimulating an entrepreneurial environment at UTHSC. Dr. Gabor Tigyi was named Associate VCR for Industry Relations and then his role was expanded to include global partnerships when Dr. Stephania Cormier left UTHSC. In his joint roles, Dr. Tigyi visited the Southern Research Institute (SRI) and developed a joint CORNET in drug discovery and development. He also was part of the UTHSC delegation that participated in meetings in Chengdu, China with representatives of West China Medical University, Innolife Ltd., and Revotek Inc. The impact of this visit is discussed in the “On the Horizon” section under Memphis Institute of Regenerative Medicine.

As the new Associate Vice Chancellor of Research and Entrepreneurship, Dr. Steve Bares’ responsibilities at UTHSC include working with UTRF Vice President Richard Magid, PhD, to develop training programs/seminars on intellectual property development, patent filing, marketing of IP and the nuts-and-bolts of launching start-up companies. In his short time at UTHSC thus far, Dr. Bares has already helped to create the Office of Research’s new UTHSC LEADS (Launching Entrepreneurial Activities and Discovery in Science) seminar series.

Phil Cestaro has taken on the new role of Associate Vice Chancellor of Research and Business Development. At UTHSC, Cestaro helped write the business plan for CTN2. He will direct CTN2, create a centralized budgeting and contracting process and provide business oversight for this 501(c)(3) wholly-owned subsidiary of UTRF. Phil Cestaro is also charged with bringing external industry users for our Institutional Research Cores.

Bares and Cestaro also worked alongside Drs. Magid, Tigyi, and Goodman to create the UTHSC Innovation Lab opportunity. Monica M. Jablonski, PhD, Professor of Ophthalmology, was selected as the first user of the Innovation Lab space to further develop an ophthalmic microemulsion designed to combat the shortcomings traditionally linked to standard eye drops and improve treatment efficacy in certain ophthalmic diseases.
In October 2015, Dr. Goodman established the Office of Research Development (ORD) with Lisa Youngentob as its Director. The ORD oversees the announcement and review of all intramural grants including Bridge Funding, New Grant awards, and the CORNET Awards. The ORD also provides targeted information to faculty on available grant opportunities through the Elsevier Pure system, and provides grant consulting services via Dr. Israel Goldberg. Additionally, the ORD is also now responsible for the announcement and internal review of limited submission grants.
Dr. Goodman established the Office of Scientific Writing in 2017, with Dr. Richard Redfearn as its Director. The Office of Scientific Writing is designed to assist research faculty, postdoctoral fellows and students in the writing of successful research grants and scientific manuscripts. The office supports the research faculty on UTHSC’s Memphis, Nashville, Chattanooga, and Knoxville campuses.

The investigator must provide a first draft of a manuscript or Research Proposal portion of a grant application to the Office of Scientific Writing to initiate this process. The Director of Scientific Writing will provide investigators with editorial services, specific aims development and concise explanations, project descriptions, project narratives development and educational resources and expertise for improving the clarity and cogency of manuscripts and grant applications.

In March 2016, we opened the Office of Research Communications and Marketing to provide specialized support to the Office of Research and its affiliate offices. Sarah Bloch serves as its Director. The office is responsible for publishing The Research Rainmaker and other documents such as the OSPR, Institutional Research Core Business Plans, the Allocation of Research Space Plan, and the CTN2 Plan.

Additionally, the Office of Research Communications and Marketing is responsible for creating and updating all Office of Research-affiliated web pages and, more recently, social media platforms. Sarah’s team is also responsible for organizing the VCRs Distinguished Lecture Series, Hot Topics in Research series, and the new UTHSC LEADS seminar series.
From “basic research”, involving the explanation of more fundamental scientific principles, to clinical research, which is distinguished by the involvement of patients, the Office of Research strives to keep the UTHSC community abreast on the world’s most pressing research topics. One way we honor this commitment of creating a more robust research environment is by offering educational seminar series such as the VCR’s Distinguished Lecture Series and UTHSC LEADS (Launching Entrepreneurial Activities and Discovery in Science).

Designed by Dr. Goodman, the VCR’s Distinguished Lecture Series aims to bring prestigious leaders in the field of biomedical research to the institution so they can share their knowledge and expertise with the university. Invited speakers are typically spend two to three days on UTHSC’s campus interacting with faculty and administration, and delivering a scientific lecture. Since 2016, the Office of Research had the honor of welcoming over a dozen prominent investigators ranging in expertise from Sickle Cell Disease to translational genomics and cancer. More recently, the office hosted Dr. Aaron Ciechanover, Israeli Biochemist and 2004 Nobel Prize winner.

In Fall 2017, Dr. Bares helped to create the Office of Research’s new UTHSC LEADS (Launching Entrepreneurial Activities and Discovery in Science) seminar series. The series is designed to bring successful and engaging entrepreneurial scientists involved in biotech, life sciences, Pharma and device sectors to UTHSC so that they may relay their “entrepreneurial stories” to our faculty, staff, and students. Specifically, UTHSC LEADS focuses on speakers who have taken an idea from “bench-to-bedside,” taking research done in the laboratory to develop new ways to treat patients.

LEADS has featured two speakers thus far: Dr. Samuel E. Lynch, current Chairman and CEO of Lynch Biologics, LLC, who hosted a compelling conversation with a packed auditorium on the successes and struggles of moving research from bench-to-bedside; and Dr. Amy L. Hester, co-founder of HD Nursing, LLC, whose area of research focuses on falls and injury prediction and prevention across the continuum of care. In May 2018, UTHSC will welcome Dr. Todd D. Giorgio, who will speak on “Academic Research and New Company Formation: Inspirations and Obstacles.”
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allocation of research space plan
Laboratory space is a valuable and limited resource that is essential to UTHSC reaching its goal of doubling research. As such, meeting both the current and future needs of the University’s biomedical research program required a process for optimal usage of research space. Under the auspices of the Office of Research, a committee with broad faculty representation developed the Allocation of Research Space Plan, which was subsequently adopted by the Research Council in 2016. Briefly, the committee crafted an open and transparent process that now guides the assignment, solicitation and usage of space based on clear metrics.

Key features in determining the allocation of research space to a faculty member are a rolling three-year average of extramural funding, the type and scope of their research, as well as the building where it is conducted. Further, in order to provide continual performance transparency, Deans are provided a yearly assessment of the departments in their college’s standing relative to the space metrics. Finally, in order to achieve the research goals and objectives of the campus, the Allocation of Research Space Plan provides for a review, and possible reallocation of space, on a triennial basis to assure the most efficient and effective alignment of space with the research mission.
Institutional cores were defined by the Operational Strategic Plan for Research as shared resources that are widely used among UTHSC faculty, preferably across multiple Colleges and Departments. In FY15, seven campus cores were recommended by the Vice Chancellor for Research’s Research Cabinet to become Institutional Research Core facilities, and this was accepted by the VCR.

The original seven Institutional Research Cores included: the Lab Animal Care Unit (LACU), the Regional Biocontainment Laboratory (RBL), the Molecular Resource Center (MRC), the Flow Cytometry and Flow Sorting (FCCS) Core, the Molecular Bioinformatics (MBio) Core, the Proteomics and Metabolomics Core (PMC) and the Research Histology Core (RHC).

Using a business model approach, the Office of Research established a structured oversight of these Core Facilities, and optimized their operations. Briefly, internal service fees were set based upon market evaluation in which pricing for services were compared among our peer academic institutions and set to be in the bottom-third to bottom-half of internal prices of our peers. Further, the cores are now managed using three-year pro-forma business plans to develop core budgets and use data-based metrics to measure core success on a yearly basis. Each year, core success is summarized in an annual research cores performance report.
The Operational Strategic Plan for Research identified three specific infrastructure challenges that directly threatened the productivity of researchers at UTHSC and, as such, required specific attention by the Office of Research. These three challenges were: [1] the quality of the Laboratory Animal Care Unit (LACU), a critical “Institutional Research Core” serving the majority of campus investigators; [2] the need to expand and strengthen the Office of Grants and Research Agreements (GRA) in order to provide an integrated support center that facilitates the pace of research; and [3] review the activities and policies related to compliance (e.g., IACUC, IRB, IBC, etc.), with the goal of streamlining processes and reducing unnecessary burdens on investigators. Outlined in the following subsections, significant progress has been made in all three domains.
In January 2017, the LACU began a complete reorganization of its staffing and leadership, as well as a re-derivation of all standard operating procedures, policies and staff training practices. A centerpiece of the reorganization process was the new requirement that all husbandry staff achieve a minimum level of American Association for Laboratory Animals Science (AALAS) certification appropriate for their position. Training toward these industry standard certifications has now become a routine part of the continual proficiency training in the LACU. In this respect, the reorganization of the LACU included the creation and hire of an Assistant Operations/Quality Assurance Manager and a Training/Quality Assurance Coordinator. These positions are responsible for the ongoing implementation and assessment of both initial and continued staff training, as well as facility quality assurance monitoring. These enhancements to the program recently led to a three-year re-accreditation of the facility by Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) with no mandatory findings for correction.
creating a unified office of sponsored programs (OSP)
The strategic goals outlined in the OSPR were the unification, under the Office of Research, of all existing pre- and post-award functions, as well as additional activities directly related to the research enterprise. This unification process was also focused on both right-sizing the UTHSC office, as well as the development of sponsored programs offices as which fully integrated the Knoxville, Chattanooga and Nashville campuses into the overarching UTHSC mission. In so doing, the Office of Research, in conjunction with other newly developed services, would provide support for all activities associated with an agreement, grant or clinical trial life cycle (e.g., identify research funding sources, grant writing, proposal editing services, proposal development and submission, award management, specialized contracting and compliance).

The Office of Research is pleased to announce that the unification process is currently underway. Several key accomplishments have occurred: [1] On May 15 2017, sponsored programs staff previously under Finance were transferred (both physically and administratively) to a newly-created unified Office of Sponsored Programs (previously Grants and Research Agreements); [2] On July 28 2017, the campus was informed about the consolidation of services and the specific activities that were moved from the Office of Finance to the Office of Research. Briefly, all research related processes previously administered by Sponsored Projects Accounting now fall under the aegis of the unified Office of Sponsored Programs. Further, additional research-specific related activities, of note, that have moved to the new unified office include Data Use Agreements, Equipment Release Requests, and Research Agreements; [3] Since May 15, 2017, the OSP has hired a new and highly experienced Associate Vice Chancellor for Research – Office of Sponsored Programs, as well as four additional Contracts Administrators and two Grants Administrators; [4] Unification has created an economy of scale by using a team-based approach.

The unified model has also improved effective communication among personnel, thereby increasing efficiency. We estimate that the changes thus far have resulted in OSP turn-around times that are approximately 3X faster and faculty satisfaction has improved.
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institutional animal care use & committee (IACUC)
In order to promote research while enhancing regulatory compliance, the Institutional Animal Care and Use Committee (IACUC) has made a number of critically needed policy-related and operational changes. First, the IACUC performed an extensive review of all existing policies that cover animal research activities at UTHSC, as well as developed new ones. This activity served two main purposes, namely, to ensure that IACUC policies do not create unnecessary self-imposed burdens on the research community, and to provide researchers with clear regulatory guidance related to their animal research activities.

In addition, the IACUC initiated major procedural changes in the submission and review process of animal use protocols. The goal of these changes was to decrease the time required to obtain an approved IACUC protocol, and streamline the submission and review process in a manner consistent with that goal. All newly proposed animal-related activities are now required to undergo mandatory pre-review prior to submission. Essential to this pre-review process, assigned reviewers and subject matter experts now interact collaboratively with investigators in order to foster the development of a quality protocol prior to submission.

Further, the IACUC implemented the use of two IACUC meetings per month, and added the use of Designated Member Review (DMR) (i.e., two assigned reviewers who act on behalf of the committee), as a possible mechanism for protocol review. Two meetings per month (i.e., every two weeks), coupled with mandatory pre-review, has created what amounts to a rolling review process. The use of the DMR process for appropriate protocols has also permitted the IACUC to review and approve protocols outside a normally scheduled meeting and, thus, at a faster pace than those requiring Full Committee Review (FCR). The result of these cultural and functional changes has exceeded expectations, reducing the average time of protocol approval from 9.3 weeks to 21 days.
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on the horizon
CTN2 will be a 501(C)(3) wholly owned subsidiary of the University of Tennessee Research Foundation (UTRF). The paperwork for CTN2 becoming a 501(C)(3) was filed on February 15, 2018. The UT Board of Trustees has approved providing CTN2 with $3 million to support its personnel and infrastructure costs for three years. The first $1 million installment will transfer to UTRF, and then CTN2, after the UT Board of Trustees meeting on March 23, 2018. By mid-April 2018, CTN2 will be hiring personnel and the anticipated start date for CTN2 accepting clinical trials will be June 2018.

The Memphis Consortium for Sickle Cell Disease and Classical Hematology Research (MCSCDCHR) will be a Consortium without walls, and with representation from all participating institutions: UTHSC, West Cancer Clinic, Methodist University Hospital, Regional One and St. Jude Children’s Research Hospital. The Goals of MCSCDCHR are: [1] to develop collaborative sickle cell research among all participating Memphis institutions, [2] to create standardized evidenced-based clinical care across participating institutions that will support clinical and translational research. Dr. Ken Ataga has been recruited to direct the MCSCDCHR. Additional co-Directors will be named when Dr. Ataga arrives in the Summer of 2018. MCSCDCHR will utilize CTN2 infrastructure when interventional late phase clinical trials are planned.
The Memphis Institute for Regenerative Medicine (MIRM) will bring together the expertise of UTHSC, the University of Memphis, St. Jude Children’s Research Hospital and Industry Leaders (Revotek, Medtronic) to perform basic, clinical and translational research in the areas of stem cell biology, 3D bioprinting and tissue engineering. The goal is to translate scientific discovery into new organ repair and replacement therapies for people suffering from organ damage. We have recruited the world leader in production of 3D bioprinted blood vessels, Revotek International, to Memphis where they will produce blood vessels that will be utilized in the coming months for the first FDA-approved human trials of stem cell derived bioprinted blood vessels. The blood vessels will be produced in the Plough Center for Sterile Drug Delivery at UTHSC and the human trials will be conducted via the Clinical Trials Network of Tennessee (CTN2). Dr. James Kang, CEO and Scientific Director of Revotek, has been recruited as a part-time faculty member at UTHSC along with his colleague Dr. Wenjing Zhang who will be full time faculty. Dr. Kang will be the Executive Director of MIRM with Directors leading each academic site.

The UTHSC Research Council approved a new approach for our future CTSA applications. Led by Dr. Goodman, we have assembled a Delta Consortium CTSA group that includes UTHSC, Tulane University and the University of Mississippi. This will be a multiple principal investigator (PI) application, with PIs coming from each partner institution. Based on our patient population in the Delta region, the focus of the application will be Health Disparities and Minority Health. The UTHSC PIs will be Dr. Karen Johnson and Dr. Michelle Martin. CTN2, the EDW and the CTGB will all be critical to the application that will be submitted in Fall 2018.
On August 7, 2017, Dr. Goodman charged a group of broad-based faculty to draft a recommendation on how the university can best provide statistics and experimental design support to the UTHSC community across all Colleges and campuses. In particular, this new “Core” support should be in addition to that provided by the BERD (Biostatistics, Epidemiology and Research Design) clinic, which was created as a requirement for CTSA applications. The task force recommended the establishment of a new Statistics and Experimental Design (STATED) Core designed to serve several critical functions:

[1] provide technical assistance and guidance in biostatistics and data management for all types of research projects;

[2] give research design and implementation assistance;

[3] design methodological, analytic, and biostatistical consulting services to the various academic communities across all UTHSC Colleges and campuses.

The Research Council approved the concept for the STATED Core and the Business Plan on March 1, 2018.