2014 ANNUAL REVIEW

SOUTHWESTERN MEDICINE

Contents

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The Future of Medicine Has a New Home

Every decision about the design of the innovative, new William P. Clements Jr. University Hospital – from its W shape, to the state-of-the-art technology in operating rooms, to including space for teaching and clinical research – was made to benefit the care and experience of patients.

It's a hospital unlike any other, built on the firm foundation of one big idea. When UT Southwestern's new William P. Clements Jr. University Hospital opened on December 6, 2014 – replacing the 50-year-old St. Paul University Hospital – it was the culmination of five years of planning and preparation by hundreds of people focused on creating an innovative, state-of-the-art facility with patient care and experience as the driving force behind every decision.

Certainly the numbers behind the new hospital are impressive. For example, 1.3 million square feet, 460 single-patient rooms, 72 adult ICU rooms, and 40 emergency treatment rooms. But the most distinctive feature of Clements University Hospital is the "big idea" behind its design, according to Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center.

"Every aspect of the hospital was designed to enhance the patient's care and experience," he said. "That's our commitment, and it guided every decision we made."

The result of that singular vision is a hospital that's unsurpassed among academic medical centers in the country and a tangible sign of the beginning of the next era of UT Southwestern's seven-decade history.

"With the opening of Clements University Hospital, our physicians, nurses, other caregivers, and staff now have an outstanding facility that, with their expertise and dedication, will make it possible for us to provide the people of Dallas, North Texas, and beyond with health care that reflects the seamless integration of our three-part mission as an academic medical center: excellence in patient care; the education and training of the next generation of caregivers; and research that advances our ability to prevent, treat, and cure disease," Dr. Podolsky said.

With 'W' design, form follows function – and function reflects vision

Clements University Hospital, located at 6201 Harry Hines Blvd., stands as a new medical – and architectural – landmark for Dallas. However, as distinctive as the facility's W design and exterior facade are, they are both examples of "form following function."

Architectural aesthetics were not the guiding focus; rather, the design was intended to achieve three overarching goals – to be patient-centered, to promote innovation, and to integrate UT Southwestern's research, educational, and patient care missions.

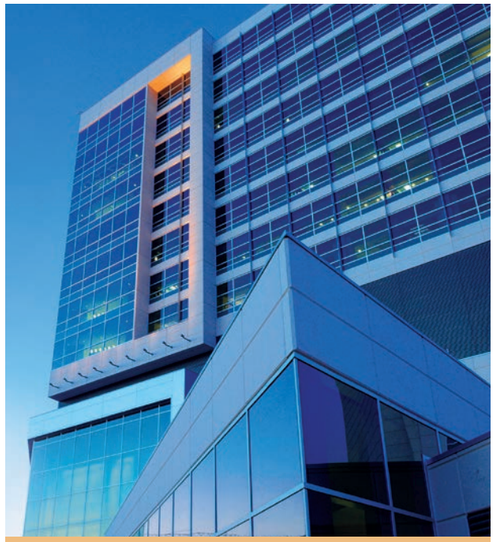
"Although we had three goals, the question, 'What's best for the patient?' drove decisions about virtually every aspect of the hospital," said Dr. John Warner, Vice President and CEO of UT Southwestern University Hospitals, who led the planning process for the new hospital and carefully monitored its construction. "The result is a facility that reflects a rethinking of what a hospital should be, from the ground up."

For example, each patient has a spacious individual room with large windows that allow in abundant natural light, which has been shown to improve healing and a sense of well-being. And because patients often feel that being in the hospital means giving up personal control of their surroundings, designers took steps to ensure that patients would be able to control the lighting, temperature, and window shades in their room – and even order meals – all from a remote at their bedside.


All of the 460 single-patient rooms allow patients to control the lighting, temperature, and window shades in their room – and even order meals – all from a remote at their bedside. The rooms feature Wi-Fi and a special videoconferencing system, which enable patients to stay connected to the outside world.

> **"Every aspect of the hospital was designed to enhance the patient's care and experience. That's our commitment, and it guided every decision we made."**
>
> Dr. Daniel K. Podolsky

"One of the most innovative patient-centric features is the technology in each patient room," said Dr. Bruce Meyer, Executive Vice President for Health System Affairs. "Flat-screen monitors with videoconferencing capability allow physicians to consult with other members of the patient's care team and show patients images – such as X-rays, CT scans, and MRIs – that help them better understand their illness and treatments. These same monitors are equipped with high-definition cameras, enabling patients to communicate with with family and friends."



CLEMENTS UNIVERSITY HOSPITAL

Facts at a Glance

12	Floors
1.3	Million square feet
460	Single-patient rooms
40	Emergency treatment rooms
24	Surgical suites
12	Interventional suites
72	Adult ICU rooms
16	Labor and delivery rooms
30	Neonatal ICU rooms
3	Obstetrics specialty surgical suites
4	CT scan, 2 MRI, and 6 X-ray suites
6	Endoscopy suites
2	Nuclear medicine rooms

Throughout the planning process, both Dr. Warner and Dr. Meyer emphasized the importance of listening.

"The W shape is distinctive, but we developed it by listening to nurses talk about what allows them to provide the best patient care," Dr. Warner said. One important consideration was that the shorter hallways provided by the W shape would reduce the distance that caregivers must walk to perform tasks. "Simulations we conducted indicate that nurses typically walk more than six miles a day in a traditional facility. Less time walking means more time spent with patients, and the shorter hallways enable caregivers to get to patients faster when needed," Dr. Warner said.

Shorter hallways also enhance patient privacy and are appreciated by visitors. As community participants in the planning process pointed out, with fewer rooms to walk by, visitors won't feel as if they're trespassing, as they often do in walking down long corridors of patient rooms.

The design, by architectural firm RTKL, also created patient care floors that offer a quieter, cleaner environment by having many routine functions involving supplies, meals, and medications located "back of house." This design concept was borrowed from Disney theme parks, where visitors don't see (or hear) behind-the-scenes delivery, provisioning, and preparation activity.

The W design also is meant to enhance comfort and ease for families and visitors. Color-coded twin patient towers (comprising a north wing and a south wing) make it easier to navigate through the building. As John Castorina, lead architect and Senior Vice President of RTKL, noted, "All public areas face the outside, so you always know where you are. You're not going to get lost."

As part of the emphasis on designing a healing environment, the architectural team looked for opportunities to provide natural light and interaction with nature while still offering protection from the effects of sun and heat.

Being mindful of energy efficiency, as well as patient and visitor comfort, solar studies indicated that only the "tips" of a W-shaped building would receive the most direct sunlight. Careful siting of the building so that it faces northeast further reduces exposure while allowing ample natural light to fill the facility through its glass. In fact, much of the building has some shade by 11:30 a.m. on most days. By design, even the outdoor dining area is shaded, allowing patients, families, and hospital staff to enjoy it on most days. Calming, creatively designed landscaping, including a special garden for patients who are able to go outside, surround the facility, allowing patients to enjoy a healing, natural environment while their conditions continue to be monitored electronically.

Innovation and collaboration drive planning process

The hospital planning process was unprecedented for UT Southwestern, involving more than a dozen work groups and ultimately more than 600 people. Physicians, nurses and other clinicians, staff from every sector of the hospital, patients, and members of the Dallas community all participated as work group members, as resources to work groups, or as stakeholder "reactors" to recommendations and mock-ups. Importantly, the planning process also involved the architects, who, from the beginning, listened carefully to discussions and input.

"In more than 30 years as an architect, I have never experienced the level of involvement by an organization's people in the planning, design, and layout of a building," Mr. Castorina said. "The design of the Clements University Hospital is really UT Southwestern's design, not mine. The people here have authorship – the most authorship of a building that I've ever seen."

The W shape evolved naturally from extensive discussions about what a modern hospital should provide, now and in the future, and what every hospitalized patient would want, Mr. Castorina said. For the first month of his firm's involvement, the architects did no drawings. "It was all gathering ideas, ideas, and more ideas," he said.

In addition to the ideas and insights of all those who participated in the planning process, the discussions – and the decisions – were informed by a series of site visits to hospitals around the country. For example, a group of UT Southwestern nurses visited a recently constructed hospital at the University of Alabama to learn from nurses there what they thought worked well and what could still be improved upon.

Aziza Young, Nursing Manager of the Neonatal Intensive Care Unit (NICU), said, "We sat down with nurses and managers there and had lots of meetings and 'show and tells' with them. Then we came back and had more meetings here. We were encouraged to offer input, and we were allowed to repeatedly examine blueprints as the design process evolved."

Michael Medina, Associate Vice President of Clinical Ancillary Services, participated in several hospital-planning work groups. In describing the planning process discussions, he noted, "People on the committees were very engaged because we knew the architects and our leaders were listening to us. They wanted our perspective. They wanted to hear our ideas about making the building patient-centered. And they listened to our thoughts about providing wonderful views, enabling caregivers to get to the patient quicker, and designing spaces that promote the best possible care. Those were our priorities."

Dr. Meyer said of the process, "We wanted the outcome to be a healing environment, where we treat the whole person, not just the illness.

"Being a patient in the hospital is not fun," he added. "Generally, it's very hard to get rest. People wake you up during the night, and there is some noise all night long. We thought of ways to increase privacy and reduce noise. Thought also was given to public areas and lobbies, which are located outside patient units for security and noise control."

The hospital features 16 labor and delivery suites and 30 neonatal intensive care unit (NICU) rooms, giving each baby his or her own room, in a space sized to easily accommodate both hospital staff and parents.

Each patient floor includes two spacious family lounges that provide comfortable and private areas for visitors to gather, and include public Wi-Fi, frosted-glass walls to shield the lounge from elevator traffic, and private cellphone areas where visitors can make and receive phone calls.

The hospital's surgical suites integrate the latest technology, including videoconferencing capabilities that enable real-time discussions among surgeons, pathologists, and other members of the caregiving team while operations are in progress.

Reducing congestion, increasing efficiency

In terms of day-to-day operations, one important goal was to reduce congested hallway traffic. Typically in hospitals, every hour is "rush hour." On patient care floors, busy caregivers are constantly taking supplies, meals, medications, and bulky medical equipment to patient rooms and nurse stations – all while patients are trying to rest and visitors are navigating the hallways, searching for the room where their loved one is recuperating.

At Clements University Hospital, locating as much of this activity as possible behind the scenes meant designing dedicated elevators to bring materials directly into supply areas, eliminating the clutter and noise of supply carts rolling down hallways where patients and families walk. It also led to secured cabinets ("nurse servers") being placed outside each patient's room to house supplies and medications, as well as documentation areas that allow nurses to remain close while updating charts and check on patients through windows with shades that open and close from the outside – avoiding disturbing patients' rest.

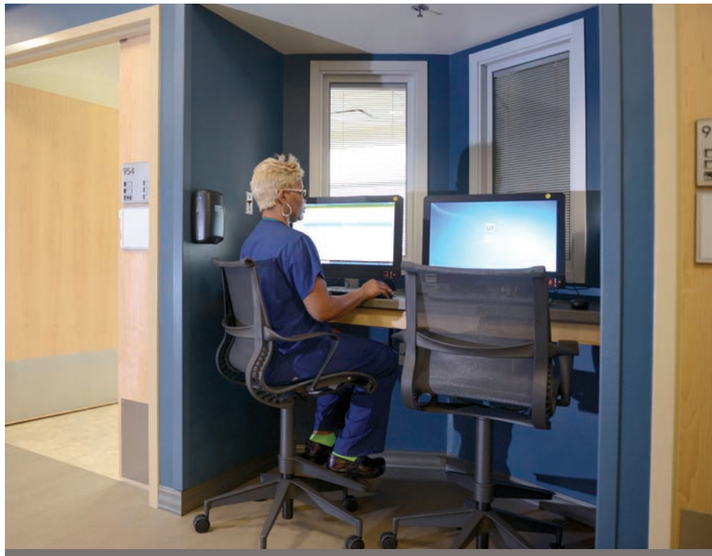
Rounding rooms tucked away on patient floors allow care teams to come together – moving conversations out of the hallway and into a private environment where caregivers can discreetly meet with family members or confer with colleagues.

Like many hospitals, the new facility uses a pneumatic tube system to rapidly transfer specimen samples, such as blood, to the pathology lab, allowing nurses to stay at their stations rather than walk specimens to the lab. That focus on speed, efficiency, and patient safety also is supported by an innovative chute system that quickly transports trash and used linens from patient floors to an area outside the building, further reducing hallway traffic and contributing to a safer, cleaner environment.

Cleanliness also is enhanced by a sophisticated air circulation system that enables more frequent air exchanges and double filtration in all areas of the hospital, providing fresher, cleaner air throughout the facility.

A much-debated – but widely endorsed – decision was to take an innovative approach to adjacencies, which is a major dimension of hospital planning. For example, it was determined that putting all the operating rooms on one floor (to achieve horizontal adjacency) would result in an area almost the length of a football field. But, after considerable discussion, it was agreed that "stacking" the operating rooms on separate floors (achieving vertical adjacency) would increase efficiency by reducing staff travel time and the time spent waiting for the delivery of supplies.

That same approach was used for intensive care units. Stacking the units vertically allows the smaller team of physicians overseeing ICU patients at night to move quickly and efficiently between floors, rather than traversing long hallways to get to patients in need.



Nursing alcoves directly outside each patient room allow nurses to spend less time traveling down hallways and more time with patients. Windows with shades controlled from the alcoves also allow nurses to check on patients without disturbing them while they sleep.

"The W shape is distinctive, but we developed it by listening to nurses talk about what allows them to provide the best patient care."

Dr. John Warner

A 10,000-square-foot Education and Conference Center provides a venue for student and staff education and training, as well as outreach, support, and educational opportunities (such as continuing medical education, meetings, and conferences) that help health care professionals and the community stay informed about the latest medical findings.

The interactive Hawn Foundation Patient and Family Resource Center, just off the Harold C. Simmons Atrium, highlights UT Southwestern's history of bench-to-bedside discoveries and therapies. It also offers guided online access to information on the causes, treatments, and cures of diseases; information about clinical trials; and a chance to send electronic cards and well wishes to inpatients.

Integrating education, research, and patient care

Academic medical centers are defined by their commitment to the tripartite missions of education, research, and patient care. "The new hospital not only reflects education and research in its approach to patient care, but is designed to integrate these priorities into the physical structure of the facility," Dr. Podolsky said.

The hospital has 35,000 square feet of space dedicated to research and learning. Every patient care floor has space to support clinical research – areas where patients, staff, faculty, and others can participate in cutting-edge research projects, and where patients who need more than current therapies provide have access to the most advanced efforts to create new, more effective therapies for their conditions.

Every patient care floor has conference rooms with SMART Boards® (interactive white boards) and videoconferencing capabilities, enhancing the ability of care teams to gather and confer on cases. Where appropriate, physicians use these areas to meet with patients, their families, and other members of care teams. The spaces also offer students a place to convene for instruction, to discuss cases with UT Southwestern faculty, or to participate in videoconferences with experts based anywhere in the world.

> **"Today, we have a magnificent new hospital that fully integrates our missions of education, research, and patient care."**
>
> Dr. Daniel K. Podolsky

A 10,000-square-foot Education and Conference Center provides a venue for staff education and training, as well as opportunities for outreach, support, and education for the community.

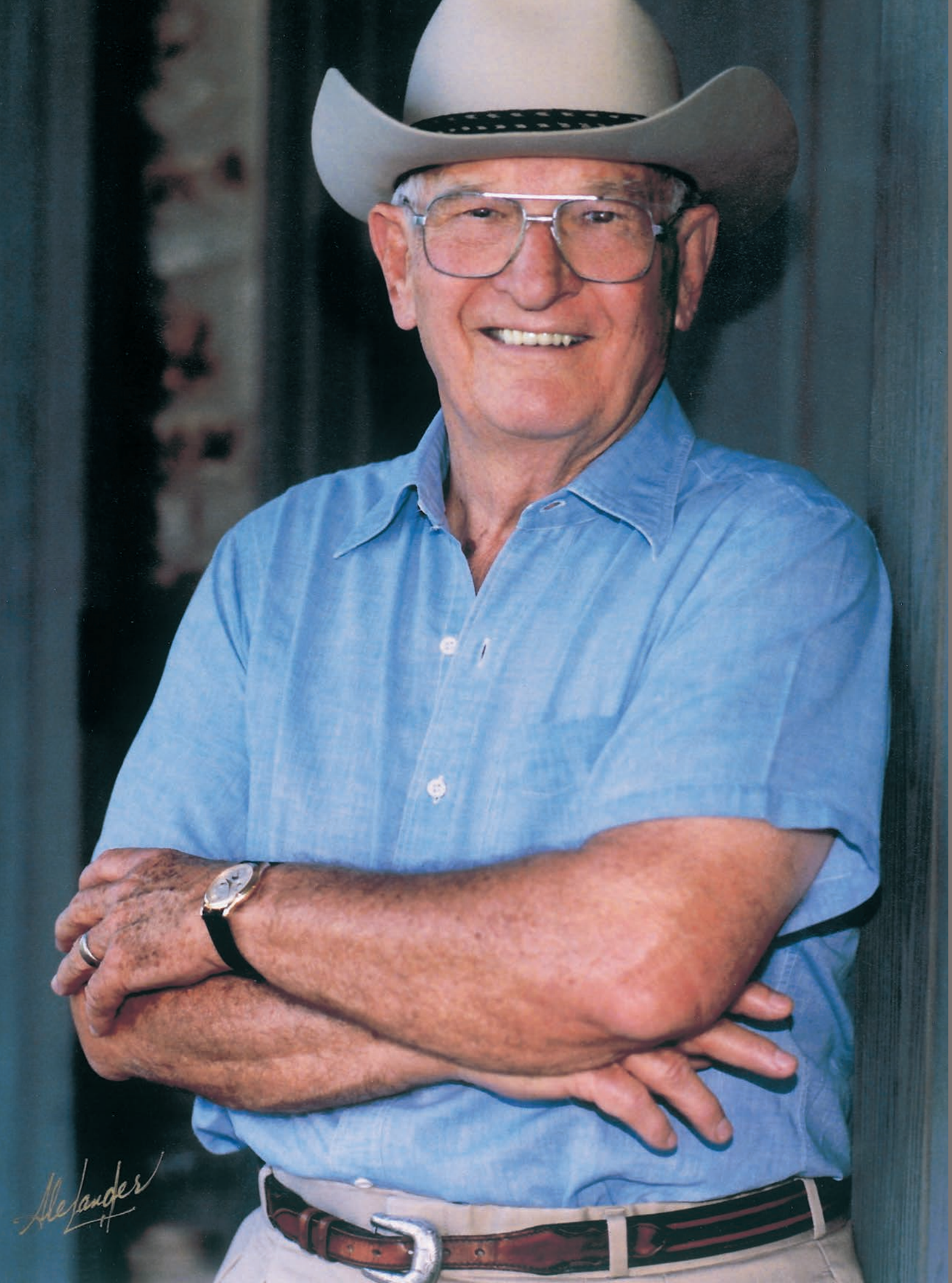
The Hawn Foundation Patient and Family Resource Center, located just inside the hospital's main entrance, is another area focused on education and research. Designed to provide patients and their families with access to the most up-to-date information about the causes, treatments, and cures of diseases, the Center also highlights UT Southwestern's history of bench-to-bedside discoveries and therapies. These resources were planned with guidance from staff and consultants of the Perot Museum of Nature and Science in Dallas.

In summing up the approach to designing the new hospital – as well as the result – Dr. Podolsky said, "Just as the architects listened, we listened. We listened to our patients, their families, and our staff – all of whom told us what matters most to patients. Naturally, there were hard choices to be made, but our decisions were consistently informed by what would make the patient's care and experience better.

"Today, we have a magnificent new hospital that fully integrates our missions of education, research, and patient care – combining the intellect, skill, and science of UT Southwestern with the high-quality, compassionate care we expect all patients to experience when they come here."

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Dr. Warner holds the Jim and Norma Smith Distinguished Chair for Interventional Cardiology, and the Audre and Bernard Rapoport Chair in Cardiovascular Research.



William P. Clements Jr.

Former Texas Governor William P. "Bill" Clements Jr. was a legendary supporter of UT Southwestern Medical Center and a champion of Texas education. His philanthropic spirit and commitment to advancing scientific discovery and innovation had a transformative impact on UT Southwestern. The new William P. Clements Jr. University Hospital was named in his honor.

Governor Clements, who died in 2011 at the age of 94, began his philanthropic support of the Medical Center in 1998, when he and his wife, Rita, donated $1.25 million to create the Rita C. and William P. Clements Jr. Scholar in Medical Research program. In 2006, Governor Clements donated $10 million to complete a UT Southwestern clinical and medical research facility now named the Bill and Rita Clements Advanced Medical Imaging Building, in honor of Governor Clements and Mrs. Clements, a former member of The University of Texas System Board of Regents.

In 2009, Governor Clements made an unprecedented $100 million contribution to benefit UT Southwestern – the largest single gift in the institution's history.

"When Governor Clements made this remarkable gift, it was unrestricted in its use – with only one stipulation," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center. "Governor Clements wanted the funds to be used for something that would have a transformational impact on UT Southwestern and ensure that it would become one of the premier academic medical centers in this country. We believe the new hospital, made possible by this gift, truly fulfills the Governor's instruction," added Dr. Podolsky, who holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

In his long and distinguished career, which included serving as Deputy Secretary of Defense from 1973 to 1977 under Presidents Richard Nixon and Gerald Ford, Governor Clements made history in 1979 by becoming Texas' first Republican governor since Reconstruction. He served two terms as Texas governor, from 1979 to 1983 and from 1987 to 1991, making him the longest-serving governor in state history at the time. He also was an honorary trustee of Southwestern Medical Foundation.

Before he went into politics, Governor Clements achieved major success as an oil drilling contractor. He founded SEDCO in 1947, which grew to become the world's largest oil and gas drilling contracting company, merging with Schlumberger Limited in 1984. He retired as chairman in 1985. In retirement, he raised cattle and was an avid Texas history enthusiast, with a personal library of more than 8,300 volumes, most of which focus on the history of Texas and the Southwest.

Dr. Daniel K. Podolsky
President
UT Southwestern Medical Center

UT Southwestern's *Building the Future of Medicine* campaign, in conjunction with its philanthropic partner Southwestern Medical Foundation, exceeded its goal of raising $200 million in support of the new William P. Clements Jr. University Hospital.

"We are extremely grateful for the support of our friends whose extraordinary generosity enabled us to build this new, state-of-the-art hospital," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center. "Our gratitude also extends to everyone who continues to provide support for new and enhanced programs.

"This thoughtfully developed hospital offers the size and scope necessary for UT Southwestern to stay at the forefront of 21st-century patient care. It will help transform our clinical mission into one that matches the distinction that UT Southwestern is already known for through its research and educational missions," added Dr. Podolsky, who holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

The transformational aspect of the new hospital is in keeping with the desire of the late William P. "Bill" Clements Jr., the former Texas governor, for whom the hospital is named (see related story on the preceding pages). In 2009, Gov. Clements made an unprecedented $100 million gift to "help encourage and advance scientific discovery and innovation, prepare the next generation of physicians for Texas and the nation, and ensure the delivery of world-class medical care that uniquely happens at this academic medical center."

The generosity of Dallas' philanthropic community was essential to the success of the *Building the Future of Medicine* campaign, said William T. Solomon, Chairman of the campaign, immediate past Chairman of the Southwestern Medical Foundation, and Chairman of the Board of the Hoblitzelle Foundation.

"UT Southwestern continues to attract not only the best and brightest medical and scientific minds, but also individuals in Dallas' philanthropic community who believe in our mission and want to ensure that the Medical Center stays at the forefront of clinical care, research, and education," said Mr. Solomon. "People are inspired by UT Southwestern's ability to transform scientific breakthroughs into lifesaving interventions and advances in medical care. The work that happens here has a positive impact on the lives of millions of people."

Many notable gifts contributed to the *Building the Future of Medicine* campaign's success. Among the campaign's benefactors were:

Sammons Dallas Foundation contributed $20 million to support The Elaine D. and Charles A. Sammons Heart, Lung, and Vascular Comprehensive Center.

Mrs. Eugene McDermott, in concert with the **Eugene McDermott Foundation**, contributed $16.5 million, primarily as an unrestricted gift. Her generosity led to naming the Dialysis Unit in honor of Dr. Albert Roberts, and the restricted portion of her contribution was given to support enhancing the new hospital with landscapes designed by the acclaimed landscape architect, Peter Walker.

The late **Harold C. Simmons and Annette C. Simmons** contributed $10 million to the hospital campaign. The hospital's atrium is named in honor of Mr. Simmons.

The **John and Ginny Eulich** Pavilion is named in recognition of a $5 million gift from the Eulichs.

The hospital chapel was named to recognize a $5 million gift from **Terry and Robert Rowling**. Mr. Rowling is the current Chairman of the Southwestern Medical Foundation's Board of Trustees.

A $5 million gift also was received from an anonymous donor.

The ninth-floor Cardiovascular Patient Care Unit is named for **Peggy and Jere W. Thompson and family**, in honor of Dr. and Mrs. Kern Wildenthal, in appreciation of the Thompson family's gifts totaling $5 million.

The **Harry W. Bass, Jr. Foundation** contributed $3 million to support heart, lung, and vascular care.

Rory and Howard Meyers contributed $3 million.

Harlan R. Crow, Stuart M. Crow, and Trammell S. Crow and their families contributed a combined $3 million gift.

The **Hoblitzelle Foundation** contributed $2.5 million for the naming of the Education Center Foyer.

The Organ Transplantation Unit, named in honor of Dr. Willis Maddrey, is benefitting from a $2 million gift from **W.A. "Tex" Moncrief Jr.**

The late **Sam Y. Dorfman, M.D.**, and his brother, **Louis Dorfman, Sr.**, contributed $2 million, and the Physician Dining Room and Outdoor Dining Plaza is named for the Dorfmans.

In addition, the *Building the Future of Medicine* campaign received more than 20 gifts of $1 million each from – including contributions from anonymous donors – the **David M. Crowley Foundation, Carolyn and Harry "Buzz" Crutcher, Peggy Dear,** the **Dedman Foundation, Mamie and Kenneth C. English, Ute Schwarz Haberecht and Dr. Rolf R. Haberecht, Sandi and Ron W. Haddock,** the **Hamon Charitable Foundation, Linda and Mitch Hart,** the **Hawn Foundation Inc.,** the **Hirsch Family Foundation,** the **Roger Horchow Family,** the **Margaret Jonsson Family Foundation,** the **Lacerte Family Foundation,** the **Ralph B. Rogers Foundation, Edward W. and Deedie Potter Rose, William T. and Gay F. Solomon,** and **Jean and Tom Walter.**

Members of the Campaign Steering Committee included **Rita C. Clements, Mary McDermott Cook, Harlan R. Crow, Robert H. Dedman Jr., Ron W. Haddock, S. Roger Horchow, Laurence H. Lebowitz, Lydia H. Novakov, Caren H. Prothro, Carolyn P. Rathjen,** the late **Robert D. Rogers, Deedie Potter Rose, Ronald G. Steinhart, Dr. Kern Wildenthal,** and **Donald Zale.**

Southwestern Medical Foundation is an important philanthropic partner of the Medical Center, dedicated to supporting medical research, education, and patient care at UT Southwestern. The Foundation's former Board Chairman, William T. Solomon *(above)*, played a critical role in helping UT Southwestern meet the goal of the *Building the Future of Medicine* campaign.

Celebrating a Milestone

Dedication and opening of Clements University Hospital mark new era in clinical care

On a crisp fall morning in late October, a group of distinguished guests, supporters, and UT Southwestern leaders gathered to celebrate a milestone – the dedication of UT Southwestern's new $800 million William P. Clements Jr. University Hospital.

Dr. John Warner, CEO of UT Southwestern's University Hospitals, cuts the ribbon at the dedication of the William P. Clements Jr. University Hospital. He is joined by, from left, Rep. Eric Johnson of the Texas House of Representatives; Robert Stillwell, of the UT System Board of Regents; Dallas City Councilman Adam Medrano; Sen. Royce West of the Texas State Senate; Dr. Daniel K. Podolsky, President of UT Southwestern; Dallas Mayor Mike Rawlings; Congresswoman Eddie Bernice Johnson of the U.S. House of Representatives; former UT Chancellor Francisco Cigarroa, M.D.; Mrs. Nancy Seay, daughter of the late Gov. William P. Clements Jr., for whom the hospital is named; William T. Solomon, past Chairman of Southwestern Medical Foundation; and Robert Rowling, Chairman of Southwestern Medical Foundation.

> **"The new hospital is a centerpiece for medical innovation in an era of rapid growth."**
>
> Mike Rawlings, *Mayor of Dallas*

The hospital is named for the late Texas Governor William P. Clements Jr., who in 2009 made an unprecedented $100 million gift to benefit UT Southwestern – a gift that was instrumental in making the new hospital possible. At the October 30, 2014, dedication ceremony, Governor Clements' daughter, Nancy Seay, shared her family's sentiments as the new hospital was publicly unveiled.

"Our family is pleased that my father's name will be associated with UT Southwestern in a hospital that will foster the spirit of discovery and the pursuit of excellence that he embodied throughout his life. We are very grateful for this honor," Mrs. Seay said.

Dallas Mayor Mike Rawlings said, "The new hospital is a centerpiece for medical innovation in an era of rapid growth. North Texas is one of the fastest growing regions, and this facility will meet a growing and important need for Dallas' expanding population and the increasing demand for quality health care. It will help ensure that we remain at the forefront of the most advanced medical breakthroughs and patient care in the country."

Former UT Chancellor Francisco Cigarroa, M.D., noted that innovation has been a hallmark of the Clements University Hospital project from the beginning – including the way in which the new hospital was funded. Although UT Southwestern is a state institution, no state funds were used to build the facility. Along with support from donors, funds were provided through the sale of bonds and clinical revenues generated by UT Southwestern physicians.

"Supporters believed in the vision for this new hospital, and they invested in it," Dr. Cigarroa said. "As a result, an extraordinary new facility joins UT System's health institutions, serving not only patients but developing the best and brightest medical students, residents, and fellows, who will become the caregivers of the future."

State Sen. Royce West, D-Dallas, said the new hospital would benefit countless students, residents, researchers, physicians, and others from Texas and beyond, who will be drawn "by this truly state-of-the-art institution."

Robert Stillwell, UT System Regent and Chairman of the Board of Regents Health Affairs Committee, said, "Clements University Hospital reminds us of our commitment to excellence in health care, which is so important in our society, state, and country. I can't think of a better or more fitting tribute to the enduring legacies of both our beloved Governor Clements and to UT Southwestern than this wonderful hospital."

Following speakers' remarks, Dr. Daniel K. Podolsky, UT Southwestern President, asked

Nancy Seay, Governor Clements' daughter, said the hospital will foster the spirit of discovery and the pursuit of excellence that her father, William P. Clements Jr., embodied throughout his life.

Dr. John Warner, Vice President and CEO of UT Southwestern University Hospitals, who led the planning process for the new hospital, to join other project supporters on stage and cut a ribbon recognizing the hospital's official dedication.

After the ribbon cutting, guests toured the new facility, seeing the inside of the hospital for the first time. On campus, the celebratory week of hospital dedication activities was kicked off by a day of tours for UT Southwestern employees and included appreciation events for faculty, donors, friends, and the neighboring community. But, once the celebration was done, it was time to return to work and complete the new facility. Finishing touches were put on the inside of the hospital, the outside supporting infrastructure, and the grounds – all in preparation for the opening just a few weeks away.

UT Southwestern President Dr. Daniel K. Podolsky, center right, discusses the many innovations incorporated in the new hospital with guests at the dedication ceremony.

Opening Day Arrives

Caregivers safely and efficiently transferred 194 patients to Clements University Hospital during the nine-and-a-half-hour move on opening day. This included infants in the Neonatal Intensive Care Unit (NICU), where parents can stay in the same room with their baby, providing nurturing that contributes to the well-being of baby and parents.

After years of preparation and planning, opening day arrived on December 6, 2014.

In an extraordinary and meticulously planned effort, dual teams at St. Paul University Hospital and Clements University Hospital managed the successful transfer of 194 patients to the new facility. "The hospital opening reflects years of planning, work, and extraordinary execution by hundreds of people who are committed to a common vision," said Dr. Bruce Meyer, Executive Vice President for Health System Affairs and Professor of Obstetrics and Gynecology, as he watched the move unfold.

One of the first patients to arrive at the hospital was Stephanie Rutherford, an expectant mother who had been admitted to St. Paul around 3 a.m., just hours before the move began. At 8:38 a.m. – about an hour and a half after being transferred – she and husband Marc welcomed their son, 7-pound, 1-ounce Bradley, who became the first baby to be delivered at Clements University Hospital's new obstetrics floor, which permits infants to remain in the room with their parents for early bonding.

"The staff has gone above and beyond in providing wonderful care. It really is like a family around here," said Mrs. Rutherford, a former New Orleans resident who managed to get to Dallas just before Hurricane Katrina hit and decided to stay.

Mr. Rutherford added, "When our due date was pushed back, we knew it coincided with the opening day of the hospital, so we thought having the first baby in the new hospital was possible. The baby must have heard us talking about it, because he made it happen."

Later that day, surgeons performed the first operation in one of 24 expansive surgical suites, which are equipped with the most advanced medical and communications technology, including large-screen monitors that enable surgeons to consult with colleagues in the next room, the next city, or anywhere in the world.

The patient move began at 7 a.m., and for the next nine-and-a-half hours, 20 ambulances made the circle from the old hospital to the new facility, transferring patients with a calm precision that reflected two years of planning. Nothing was left to chance. And by late afternoon, all the patients had been moved from St. Paul University Hospital to Clements University Hospital, and they were settling into their new rooms.

Stephanie and Marc Rutherford welcomed their son, Bradley, the first baby born in the new hospital, just an hour and a half after the hospital opened.

The transfer of patients from St. Paul University Hospital to Clements University Hospital was managed by command centers at each facility. Becky McCulley, left, Chief Operations Officer for University Hospitals, led the Clements command center.

"The hospital opening reflects years of planning, work, and extraordinary execution by hundreds of people who are committed to a common vision."

Dr. Bruce Meyer

As evening fell, staff and faculty were saying farewell to St. Paul, performing the final procedures there.

"We will always have a special place in our hearts for St. Paul," said Becky McCulley, Chief Operations Officer for UT Southwestern University Hospitals. "At the same time, we're excited to begin serving the community in our new hospital," added Ms. McCulley, who was instrumental in planning the daily operations for the new facility.

Reflecting on this landmark step in UT Southwestern's history, Dr. Daniel K. Podolsky, President of UT Southwestern, concluded, "Clements University Hospital is an innovative, state-of-the-art facility that everyone at the Medical Center can be proud of, because it marks a new era in clinical care for UT Southwestern and the people we serve."

A surgical team performed the first surgery – an appendectomy – on the opening day of the hospital. The facility has 24 surgical suites, which are larger than many operating rooms, offering more space for caregiving teams to work efficiently together.

The Transformation of Zale Lipshy University Hospital

Hospital's dedicated focus on neuroscience advances diagnosis and treatment

With the opening of the new William P. Clements Jr. University Hospital, UT Southwestern's sister hospital, Zale Lipshy University Hospital, is being transformed into the region's first dedicated, freestanding neuroscience facility – one of only a few in the country and among the world's premier neurological diagnostic and treatment centers.

The medical, surgical, and research experts leading the Zale Lipshy transformation are at the forefront of new therapies and advanced technology to improve patient outcomes. Zale Lipshy's specialty areas, now housed under one roof, include neurology, neurosurgery, neuroradiology and imaging, neuro-oncology, ophthalmology, otolaryngology, orthopaedic spine, physical medicine and rehabilitation, psychiatry, and radiosurgery.

The facility features state-of-the art neuroangio suites equipped with leading-edge technology to improve diagnostic capabilities and decrease the time required to repair blockages and hemorrhages. Zale Lipshy is home to the largest neuro intensive care unit in the region and has the only Perfexion Gamma Knife System in North Texas, a completely robotic radiosurgical system that improves neurological surgery options.

Along with unsurpassed brain imaging technology, including CT and MRI, Zale Lipshy has the largest electroconvulsive therapy (ECT) program in North Texas, a treatment used to help patients with chronic depression and other psychiatric disorders, and offers comprehensive rehabilitation programs as well.

The hospital also houses specialized, multidisciplinary programs that include treatments for cerebrovascular disease, complex spine disorders, conditions affecting the cranial base, epilepsy, multiple sclerosis, and Parkinson's disease.

As a clinical center for excellence, Zale Lipshy was recognized in 2014 by *U.S. News* & *World Report* as being among the top 25 centers nationally for Neurology and Neurosurgery, and for the second consecutive year was awarded the Press Ganey Beacon of Excellence Award for patient satisfaction. The Beacon Award recognizes leading health care facilities that have achieved and consistently maintained high levels of excellence, representing the three top-performing organizations in each category.

Zale Lipshy University Hospital is being transformed into a premier neurological diagnostic and treatment center. With UT Southwestern's certification as an Advanced Comprehensive Stroke Center by The Joint Commission, the hospital provides a wide range of services, including cutting-edge imaging, a neuro intensive care unit, a neuroangiography suite offering diagnostic and minimally invasive treatment interventions, psychiatric care, state-of-the-art specialty surgery, and stereotactic services utilizing the latest Gamma Knife and Accuray technology.

Advancing stroke care

Recognizing UT Southwestern's outstanding comprehensive capabilities in treating the most complex stroke cases on a round-the-clock basis, The Joint Commission in March 2014 certified UT Southwestern as an Advanced Comprehensive Stroke Center.

The recognition is the highest level of certification for stroke care, with only 67 centers across the nation having received this distinction (at the time UTSW was recognized) from a unique collaboration that includes The Joint Commission, the American Heart Association, and the American Stroke Association. UT Southwestern's Robert D. Rogers Advanced Comprehensive Stroke Center is the first and only Joint Commission-certified Advanced Comprehensive Stroke Center in North Texas and only the second in Texas.

The Joint Commission is an independent, not-for-profit organization that accredits and certifies health care organizations and programs in the United States. To qualify for Joint Commission certification, a facility must have the dedicated resources, staff, training, and procedures needed to achieve the best outcomes for complex stroke cases. As a result of The Joint Commission certification, as well as a similar designation from the State of Texas, UT Southwestern is now a Level 1 Comprehensive Stroke Center.

"This certification assures the people of North Texas that stroke victims in this region have access to the most advanced technology, procedures, and best practices to serve stroke patients," said Dr. Daniel K. Podolsky, President of UT Southwestern.

UT Southwestern's highly trained stroke care teams include neurologists, neurosurgeons, neuroimaging specialists, stroke rehabilitation specialists, and emergency medicine physicians, along with others who have ready access to technology and medications that can limit damage during or after a stroke.

At UT Southwestern, stroke-prevention procedures involve the use of special lasers to connect arteries without stopping blood flow to the brain, as well as a special stent designed specifically for blood vessels in the brain to prevent further strokes. Specialized equipment includes a CT scanner that creates 3-D images of an organ in real time, allowing physicians to quickly diagnose strokes and heart attacks.

ZALE LIPSHY UNIVERSITY HOSPITAL

Facts at a Glance

- Certified stroke program staffed 24/7 by a specially trained multidisciplinary team
- Leading-edge imaging (such as the Aquilion One 320-slice CT scanner and 3T MRI)
- 20-bed neuro intensive care unit (ICU)
- Multiroom, multimodal neuroangiography suite and hybrid neuroangio operating room
- 18-bed inpatient psychiatric unit
- 42-bed rehabilitation unit
- 13 spacious surgical suites
- Stereotactic services, including the latest Gamma Knife and Accuray technology

UT Southwestern President Dr. Daniel K. Podolsky, left, joined Dr. Hunt Batjer, Chairman of Neurological Surgery and co-chair of the NFL's Head, Neck, and Spine Committee, former Dallas Cowboys fullback Daryl Johnston, and Dr. Mark Goldberg, Chairman of Neurology and Neurotherapeutics, in launching the new Texas Institute for Brain Injury and Repair at UT Southwestern.

Tackling brain injuries

In April 2014, UT Southwestern launched the Texas Institute for Brain Injury and Repair, furthering its commitment to being at the forefront in the field of neurology.

"The new Institute brings together diverse members of our community, as well as partners in this region and across the country, to address one of the great challenges of our society – traumatic brain injury," said Dr. Podolsky.

Through the Institute, UT Southwestern is focusing its strengths in basic and translational research on various types of brain injury and conditions, including traumatic brain injury, stroke, and Alzheimer's disease. The Institute also promotes brain injury education and prevention.

The Texas Legislature was instrumental in making the Institute possible, providing $15 million for the current biennium – the largest allocation for a brain injury initiative in state history.

The new Institute, which is a component of the Harold and Annette Simmons Comprehensive Center for Research and Treatment in Brain and Neurological Disorders at UT Southwestern, takes a multidisciplinary approach to brain injury research, involving a number of departments and areas of expertise. This research is intended to translate into better care and more options for patients.

Under the interim guidance of two of UT Southwestern's physician-scientists, Dr. Hunt Batjer, Chairman of Neurological Surgery, and Dr. Mark Goldberg, Chairman of Neurology and Neurotherapeutics, the Institute is designed to propel dramatic progress in understanding and healing mild, moderate, and severe brain injuries. It explores the full spectrum of brain injuries with a primary focus on traumatic brain injury.

"Our depth of expertise across the spectrum of pediatric and adult neurosciences allows us to do things that other big centers don't even think about doing," Dr. Goldberg said. "We draw on the incredible strength of UT Southwestern by relentlessly focusing on translating the discoveries of the lab into the clinical realm."

Medical costs of traumatic brain injuries amount to nearly $60 billion annually, and the Centers for Disease Control and Prevention estimates that severe brain injuries affect as many as 1.7 million people in the U.S. every year, contributing to more than 30 percent of all injury-related deaths.

"When the opportunity to get involved and help solve some of these challenges was presented, we simply couldn't walk away from it," Dr. Batjer said. "We are focused on everything from treating war veterans who are returning home and athletes who are trying to return to play, to finding concrete answers on how to maximize the recovery of people suffering from brain injuries."

Dr. Bruce Mickey, Professor and Vice Chairman of Neurological Surgery, performs surgery at Zale Lipshy University Hospital, which is being transformed into a center dedicated to neurosciences. Dr. Mickey directs the Annette G. Strauss Center for Neuro-Oncology.

Treating tumors of the nervous system

The Neuro-Oncology Program at UT Southwestern is dedicated to the diagnosis and treatment of malignant tumors of the brain and spinal cord, as well as tumors and other cancer-related neurological disorders of the central nervous system and the peripheral nervous system. The Neuro-Oncology Program is supported by the Annette G. Strauss Center for Neuro-Oncology and is conducted in collaboration with the Harold C. Simmons Comprehensive Cancer Center and the departments of Neurosurgery and Radiation Oncology.

The Annette G. Strauss Center is the cornerstone of UT Southwestern's neuro-oncology research, where patient care and translational science come together to improve treatments – for both inpatients and outpatients – and to conduct tumor research of the central nervous system, including benign and malignant brain and spinal-cord tumors.

"A major focus of the Annette G. Strauss Center is the search for a difference between the way tumor cells and normal cells utilize glucose, in an effort to devise a treatment strategy that will inhibit the growth of a tumor without damaging normal tissues," said Dr. Bruce Mickey, Professor and Vice Chairman of Neurological Surgery. "That compares to traditional chemotherapy, which targets cells that are dividing. The usefulness of chemotherapy is, therefore, limited by its potential to also damage normal cells that are dividing."

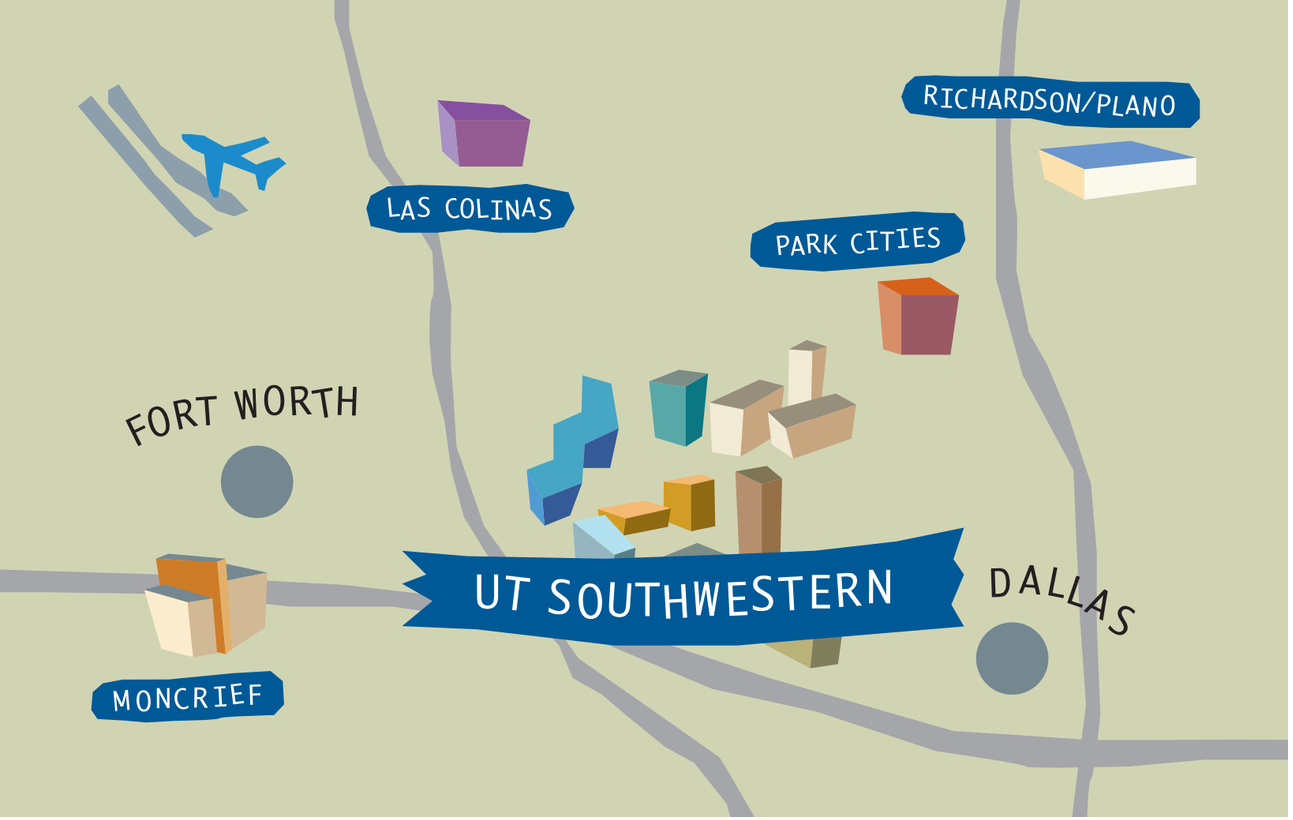
Additionally, cancer professionals on staff at the Annette G. Strauss Center work to improve treatments through innovative clinical trials. They focus on projects aimed at creating new treatments for childhood and adult brain malignancies, as well as improving existing treatments. Exciting discoveries from these clinical trials are routinely being translated into better care at the patient's bedside.

Dr. Batjer holds the Lois C.A. and Darwin E. Smith Distinguished Chair in Neurological Surgery.

Dr. Goldberg holds the Linda and Mitch Hart Distinguished Chair in Neurology.

Dr. Mickey holds the William Kemp Clark Chair of Neurological Surgery.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.



Growth Promotes UT Southwestern's Presence and Prominence

UT Southwestern is growing. From an active program of campus construction to an expanding clinical presence throughout the region, the Medical Center is expanding its physical presence and prominence in Dallas, North Texas, and beyond.

West Campus Master Plan focused on expansion and clinical care

UT Southwestern has undergone a dramatic transformation from its humble beginnings as a small medical college housed in temporary Army barracks.

The Medical Center, then known as Southwestern Medical School, was established in 1943 with 17 faculty members and 200 students. In 1951, state legislators approved funds to construct a permanent home next to the new site for Parkland Memorial Hospital on Harry Hines Boulevard. Now, UT Southwestern spans 387 acres and comprises nearly 11 million square feet of laboratory, clinical, educational, and administrative space across four campuses – North, South, East, and West.

In 2013, in anticipation of the 2014 completion of the William P. Clements Jr. University Hospital and the 2015 demolition of the decommissioned St. Paul University Hospital, UT Southwestern leaders created the West Campus Master Plan, which represents much more than a construction schedule for building five new structures over the next 20 years. It reflects UT Southwestern's strategic goals as an academic medical center, committed to remaining at the forefront of biomedical research, medical education, and patient care. The West Campus Master Plan also reflects the need to position UT Southwestern as a clinical enterprise in the rapidly changing health care landscape.

"This plan will allow UT Southwestern not only to grow but also to align resources in a way that will capitalize on the important synergies that exist among our research, education, and clinical care missions," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center.

The comprehensive plan reflects the addition of 1.1 million square feet of new space, including a high-tech simulation center for training students, residents, fellows, and faculty. It also includes construction of a new thermal energy plant and more than 5,000 new parking spaces. The redesign also will consolidate a significant number of outpatient services, providing easier access for patients.

Other features of the plan include, as the first project for design and construction, an 11-story building that will add 275,000 square feet of space, approximately half of which will be used for academic and educational purposes, with the remainder used for expansion of UT Southwestern Health System's ambulatory clinics.

"The new facilities will be significant in attracting and retaining the very best faculty, as well as enabling UT Southwestern to provide optimum and innovative training for students, residents, and fellows as they move into new roles as the next generation of physicians," Dr. Podolsky said.

Donald Seldin Plaza – honoring a great man

In May 2014, UT Southwestern held a groundbreaking ceremony to mark the start of a South Campus plaza renovation project and the decision approved by the UT System Board of Regents to name the plaza in honor of Dr. Donald W. Seldin, who is heralded as the intellectual father of UT Southwestern. The plaza is now the Donald Seldin Plaza, and the comprehensive renovation – which was undertaken to correct structural deficiencies, improve pedestrian safety, and provide better handicap access to the South Campus – was completed in the fall of 2014.

During the groundbreaking ceremony, Dr. Podolsky said, "Dr. Seldin was the driving force in the development of UT Southwestern as a major academic medical center. Moreover, his vision, values, and accomplishments made him an icon of American academic medicine. We are, therefore, very pleased to have this opportunity to designate this plaza, the iconic front door to our campus, in his honor."

Dr. Seldin was recruited to UT Southwestern in 1951 from Yale University, where he had gone to medical school and was subsequently appointed to the faculty. He accepted the UT Southwestern position without having visited the campus and was quite surprised to find a medical school operating from converted Army barracks. The following year, at age 31, he became Chairman of the Department of Internal Medicine, and remained in that position for 36 years.

Dr. Seldin's key strategy for developing UT Southwestern Medical School was to identify promising students, send them off for advanced education and training, and then recruit them back to fill faculty positions.

UT Southwestern named the main South Campus plaza in honor of Dr. Donald Seldin, known as the "intellectual father" of UT Southwestern.

Designed from the ground up to serve North Texas cancer survivors, especially medically underserved adults, the Moncrief Cancer Institute focuses on prevention, research, and survivorship programs, as well as offering services such as genetic counseling, mammography screening, nutritional counseling, and cooking classes.

UT Southwestern President Dr. Daniel K. Podolsky at the dedication ceremony with building fund donor W.A. "Tex" Moncrief Jr. Guests included officials from Tarrant County, the city of Fort Worth, UT Southwestern, Moncrief Cancer Foundation, and the Moncrief Cancer Institute.

One such former student is Dr. Joseph L. Goldstein, Chairman of the Department of Molecular Genetics and a Regental Professor, who, in turn, recruited Dr. Michael S. Brown, Director of the Erik Jonsson Center for Research in Molecular Genetics and Human Disease and a Regental Professor, whom he met at Massachusetts General Hospital while following Dr. Seldin's plan for his advanced study. Both Dr. Goldstein and Dr. Brown went from Massachusetts General Hospital to the National Institutes of Health (NIH) before coming to UT Southwestern. They have worked together at UT Southwestern ever since, and their collaboration has been celebrated, most notably with their sharing the 1985 Nobel Prize in Physiology or Medicine.

Another notable student, Dr. Kern Wildenthal, President Emeritus of UT Southwestern, also was once a promising student who went off for advanced training and then returned to hold a faculty position during Dr. Seldin's tenure. Eventually, the two became partners in UT Southwestern's development, as Dr. Wildenthal moved into positions of institutional leadership.

Dr. Jean Wilson, Professor Emeritus of the Department of Internal Medicine, who has long been considered a leading national figure in endocrinology research, also set his career path based on work he did in Dr. Seldin's lab during the summer after his third year of medical school.

"Dr. Seldin's sticking it out was an active, not a passive, process," Dr. Wilson said at the plaza dedication ceremony. "I personally believe that his staying here and sticking it out for more than 60 years stabilized the department, and ultimately the school, and made possible the realization of his dream."

Moncrief collaboration expands UT Southwestern's presence

UT Southwestern's clinical expertise recently expanded west in a new collaboration with – and a new building for – the Moncrief Cancer Institute.

An official affiliate of UT Southwestern's Harold C. Simmons Comprehensive Cancer Center, the Institute is located in Fort Worth on a 3.4-acre site at 400 W. Magnolia Ave. While the $22 million facility's striking architecture makes it a standout in the neighborhood, it's what is inside this unique building that makes the Moncrief Cancer Institute so distinctive.

It was designed to serve North Texas cancer survivors, especially medically underserved adults, by focusing on prevention, research, and survivorship programs. The new center – which replaced a smaller facility in Fort Worth – offers services that include genetic counseling, mammography screening, nutritional counseling, and cooking classes. A new telemedicine unit will allow the staff to provide testing and risk assessment to patients in outlying counties, and the 60,000-square-foot building also houses an expanded fitness center, demonstration kitchen, and 90-seat auditorium.

"The programs offered at the new Moncrief Cancer Institute in collaboration with UT Southwestern will provide cancer patients with vitally important care and services that would not be available otherwise," Dr. Podolsky said. "The center will provide new hope to untold thousands, now and in the future."

The Moncrief Cancer Institute was founded by W. A. Moncrief in 1966 when his son, W. A. "Tex" Moncrief Jr., lost his 8-year-old daughter to leukemia. It is funded now in large part by the philanthropy of W. A. "Tex" Moncrief Jr. and his family, who believe that expanding the Institute's mission to include patient treatment, clinical trials, and a variety of cancer-related research will benefit generations of Fort Worth-area citizens.

The Moncrief family, with a decades-long tradition of supporting cancer services, also funded the former Moncrief Center, which was founded in 1958 as one of the nation's first community radiation facilities. In 2000, UT Southwestern assumed responsibility for management of the facility and broadened the scope of services. In 2010, the nonprofit organization changed its name to the Moncrief Cancer Institute.

According to Dr. Podolsky, additional cancer research is also planned for the Moncrief Cancer Institute. "In providing opportunities for clinical, population, and translational research at Moncrief Cancer Institute, as well as state-of-the-art cancer care, we hope to directly benefit the citizens of Fort Worth and its surrounding communities. We look forward to developing these programs in continued partnership with Fort Worth providers, including the JPS Health Network."

Clinical Centers in the community

Patients in North Texas are seeking convenient access to quality health care. In response to this demand, UT Southwestern opened its first community Clinical Center in October 2013, a second in January 2014, and a third in March 2014.

All three Clinical Centers are operated based on patient-centered "medical home" principles, a holistic approach to health care that focuses on the management of chronic illnesses and the coordination of care so individuals stay healthier and avoid costly hospitalizations.

UT Southwestern opened three neighborhood Clinical Centers, including this one for the Richardson/Plano area. The Centers are based on patient-centered "medical home" principles that focus on preventive care and managing chronic illnesses.

"We recognized that in order to effectively serve our community, we needed to have more services placed off campus where they can be more accessible," said Dr. Bruce Meyer, Executive Vice President for Health System Affairs.

The first Center, located across from UT Dallas at 3030 Waterview Parkway in north Richardson, includes a mix of physicians and medical professionals in sports medicine, behavioral health, neurology, obstetrics and gynecology, general internal medicine, cancer, and urology. The Richardson/Plano Clinical Center also offers CT scans, bone scans, mammography, ultrasound, and X-rays.

The second Clinical Center, located in Dallas' Park Cities neighborhood, is housed on the third floor of a building at 8611 Hillcrest Road, which blends the comfort of a small neighborhood doctor's office with the expertise of a world-renowned medical institution. Like the Richardson/Plano Clinical Center, it also includes a mix of primary and specialty care, including cardiology, general internal medicine, obstetrics and gynecology, and rheumatology.

The third Center, at 701 Tuscan Drive in Las Colinas, offers expert care in obstetrics and gynecology. In addition to providing basic gynecologic care such as annual pap smears, breast examinations, and treatment of menopause symptoms, specialists also treat more complex issues, such as pelvic infections and endometriosis. The Center's obstetrics offerings include comprehensive pregnancy management and prenatal care for both mother and baby, including high-risk pregnancies.

With the UT Southwestern campus just a few miles away from each location, patients have access to the latest technology and advanced medical services should they need care beyond what is available in the Clinical Centers.

"Providing these services in the community also improves efficiency and promises a more comprehensive way of taking care of patients," Dr. Meyer said. "We believe this philosophy will improve outcomes, decrease costs, and enable us to better care for our patients."

Dr. Brown holds The W.A. (Monty) Moncrief Distinguished Chair in Cholesterol and Arteriosclerosis Research, and the Paul J. Thomas Chair in Medicine.

Dr. Goldstein holds the Julie and Louis A. Beecherl, Jr. Distinguished Chair in Biomedical Research, and the Paul J. Thomas Chair in Medicine.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Dr. Seldin holds the William Buchanan Chair in Internal Medicine.

Boundless Generosity

How Harold C. Simmons' extraordinary support continues to transform the future of medicine

In 1959, when he was just 29 years old, Harold Simmons invested $5,000 from his savings and took a $100,000 risk when he bought a Dallas drugstore near Southern Methodist University. He was banking on his ability to parlay the investment into a profitable future – and it worked.

Before long, Mr. Simmons was able to buy a small chain of drugstores. Then another. Then another. In less than 15 years, he had transformed that initial investment into a large chain of drugstores worth $50 million, which he then sold to Jack Eckerd, propelling Eckerd's into the fourth largest drugstore chain in the nation. Mr. Simmons, meanwhile, found new investments, transforming them into billions before his death on Dec. 28, 2013.

An astute businessman, Mr. Simmons knew how to spot a good investment, and he believed UT Southwestern Medical Center had enormous potential. Over the years, Mr. Simmons donated nearly $200 million to the Medical Center, and his expectations for that investment were ambitious.

"We feel certain that the community's support of UT Southwestern will result in great discoveries that will find cures and preventions for many diseases," Mr. Simmons said when asked why he and his wife, Annette, gave more than $125 million to support UT Southwestern's *Innovations in Medicine* campaign for research.

As usual, he was right.

The outcomes from their investments have resulted in life-changing findings that cover the entire gamut of health care, everything from arthritis in the hands to diabetic problems in the feet, from tumors in the brain to degeneration of nerves. The buildings bearing his name house discoveries by Nobel Laureates and scores of researchers renowned in their respective fields.

The Simmons' investments have fueled the development of imaging and therapeutic technologies with ever-greater precision and innovative uses. These technologies have translated into successful treatments for thousands of people with virtually all types of cancers, from lung and breast, to pancreatic, kidney, and colorectal. The Simmons' generosity has provided clinical care to the poorest areas of South Africa and coverage of family planning services across Dallas. Their investments have supported developing vaccines against deadly chemical weapons such as ricin, and they have drawn smiles from patients visiting a beautiful rose garden made possible by the Simmons' generosity.


Harold C. Simmons

"The legacy of Harold C. and Annette Simmons, whose legendary philanthropy has been instrumental in transforming UT Southwestern into one of the top academic medical centers in the country, is the scientific research and clinical care that benefits patients everywhere … making a positive difference in millions of people's lives," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center.

Ongoing impact

That difference unfolds daily in petri dishes and under high-tech microscopes; in bursts of cancer-killing stereotactic radiation and other therapies; in symposia on emerging medicines, technologies, and knowledge; and in new generations of researchers and caregivers who represent the future of medicine.

The contributions made by the Simmons are recognized throughout the UT Southwestern campus, most notably in the Simmons Biomedical Research Building, the National Cancer Institute-designated Harold C. Simmons Comprehensive Cancer Center, the Annette Simmons Stereotactic Treatment Center, the Harold and Annette Simmons Comprehensive Center for Research and Treatment of Brain and Neurological Disorders, the Annette Simmons Rose Garden outside the North Campus entrance, and in the new William P. Clements Jr. University Hospital, where the atrium is named in Mr. Simmons' honor.

Gifts from the Simmons also supported the Paul M. Bass Center for Neurosurgical Innovation, the Komen/UT Southwestern Breast Cancer Research Program, and six endowed chairs, including the Scheryle Simmons Patigian Distinguished Chair in Cancer Immunobiology, the Andrea L. Simmons Distinguished Chair in Cancer Research, the Annette Simmons Distinguished Chair in Breast Cancer Research, the Lisa K. Simmons Distinguished Chair in Comprehensive Oncology, the Serena S. Simmons Distinguished Chair in Cancer Immunopharmacology, and the Harold C. Simmons Chair in Arthritis Research.

The couple has also supported research into kidney disease through a program that sent UT Southwestern physicians to South Africa to provide clinical care for indigent patients in the poorest areas of that country, and they once covered a shortfall in state funding for family planning clinics in Dallas.

"While the total amount that Harold and Annette Simmons have contributed to UT Southwestern over the decades is astounding, it is the ongoing impact that their gifts have made – and will continue to make – that inspires us," said Dr. Podolsky. "Their generosity and concern for others truly knows no bounds."

Harold C. Simmons Comprehensive Cancer Center

At the Harold C. Simmons Comprehensive Cancer Center, approximately 114,000 patient visits take place each year, as the physicians, surgeons, nurses, counselors, and staff help patients choose the best possible treatment options.

Rick Curiel, 60, of Forney, Texas, said liver cancer screening at the Center saved his life. Mr. Curiel had cirrhosis and a 2012 screening found tumors on his liver. The cancer was surgically treated, paving the way for him to have a lifesaving liver transplant at UT Southwestern in 2013.

"Without the screening, they wouldn't have discovered the cancer," said Mr. Curiel, who was eventually able to return to work installing hardwood floors. "I am living proof that this works."

Brianna Hinojosa-Flores also counts herself among the beneficiaries. After having two children in her 30s, Mrs. Hinojosa-Flores felt a lump above her right breast. A mammogram, ultrasound, and biopsy revealed triple-negative breast cancer – one of the hardest to treat.

The generosity of Harold C. and Annette Simmons, pictured with Dr. Daniel K. Podolsky, UT Southwestern President, and Dr. James Willson, Associate Dean for Oncology Programs, has had an enduring impact on UT Southwestern and generations of patients.

After Mrs. Hinojosa-Flores' cancer was eliminated, she wanted to help others, so she joined the UT Southwestern arm of a national trial to collect DNA samples from triple-negative breast cancer survivors to identify risk factors for hard-to-treat cancers.

At the Harold C. Simmons Comprehensive Cancer Center, approximately 114,000 patient visits take place each year, as the physicians, surgeons, nurses, counselors, and staff help patients choose the best possible treatment options.

"Patients are seeing benefits, from multidisciplinary clinics and conferences where specialists hone and individualize cancer care, to advanced testing to better ensure patients receive only effective therapies, to a substantial and growing portfolio of clinical trials available at all stages of disease," said Dr. James Willson, Associate Dean for Oncology Programs, Director of the Harold C. Simmons Comprehensive Cancer Center, and Professor of Internal Medicine.

Unique in North Texas

UT Southwestern's Harold C. Simmons Comprehensive Cancer Center is the only National Cancer Institute-designated cancer center in North Texas and is one of just 66 NCI-designated cancer centers in the nation. The UT Southwestern Center includes 13 major cancer care programs, each focused on treating the whole patient with innovative therapies, while fostering groundbreaking basic research that has the potential to improve patient care and prevent cancer worldwide.

In addition, the Simmons Cancer Center is among only 30 U.S. cancer research centers to be named a National Clinical Trials Network Lead Academic Site, which means it is one of 30 sites in the country where promising new drugs often are tested. This is a prestigious new NCI designation, and the Simmons Cancer Center is the only cancer center in North Texas to be so designated.

Impressive growth

The Simmons Cancer Center's clinical ambulatory facilities have almost doubled since 2009, with satellite locations in Richardson and Fort Worth. Among the specialized centers is the Komen/UT Southwestern Breast Cancer Research Program, established with a gift from Susan G. Komen for the Cure, plus gifts from Mr. and Mrs. Simmons, Nancy B. Hamon, and others.

Square footage for clinical care and research has more than doubled, the number of annual patient visits has doubled, the number of patients participating in clinical trials each year has more than doubled, and peer-reviewed funding is up more than 60 percent. Expansion in Radiation Oncology faculty and facilities has led that program to become the second-largest radiation therapy program in Texas.

"These metrics paint a picture of a cancer center gaining recognition for excellence," Dr. Willson said. "These achievements are the kind of successes Mr. Simmons envisioned in 1988, and his generous giving to the cancer cause has left an enduring legacy."

Simmons Biomedical Research Building

In the neighboring 11-story Simmons Biomedical Research Building, named in honor of Mr. Simmons' parents, Reuben Leon and Fairess Clark Simmons, the hallways and laboratories bustle with activity as world-renowned research takes place in areas ranging from cancer to neuroscience, cardiology to pathology, developmental biology to the genetics of immunology.

"The range of scientific undertakings in this building is simply astounding," said Dr. David Russell, Vice Provost and Dean for Basic Research and Professor of Molecular Genetics. "The breadth and value of the work underway in so many fields – cardiology, pathology, neuroscience, cancer, and the very fundamental mechanisms of biological processes and disease – are second only to the creative strategies and insights that are being developed to defeat these diseases."

As the first research tower built on the North Campus, the Simmons Biomedical Research Building embraces all three missions at UT Southwestern – research, education, and clinical care – housing more than 100 laboratories that produce some of the world's top research.

At the Center for the Genetics of Host Defense, Director and Nobel Laureate Dr. Bruce Beutler, a Regental Professor, is working to identify the molecular machinery that mammals use to fight infections. Dr. Beutler discovered an important family of receptors that allow mammals to sense infections when they occur, triggering a powerful inflammatory response. For this work he shared the 2011 Nobel Prize in Physiology or Medicine. The problem inflammation represents is now seen to be even broader in its scope and impact, with current research suggesting that diseases such as arteriosclerosis, Alzheimer's disease, cancer, and obesity have inflammatory components.

Wide-ranging investigations

In a neighboring laboratory, Dr. Helen Hobbs, Professor of Internal Medicine and Molecular Genetics and a Howard Hughes Medical Institute Investigator, is Director of the Eugene McDermott Center for Human Growth and Development, which serves as the Center for Human Genetics at UT Southwestern. The McDermott Center provides expertise and resources for clinicians and basic scientists to identify genes and sequence variations that contribute to human diseases and traits. She also is Director of the Dallas Heart Study, a longitudinal, multiethnic, population-based study of Dallas County that is transforming cardiovascular risk factor identification and management for physicians, and leading to better care for patients.

In nearby cardiology labs, Dr. Joseph Hill, Chief of Cardiology, Professor of Internal Medicine and Molecular Biology, and Director of the Harry S. Moss Heart Center, leads an interdisciplinary research program related to cardiovascular diseases. Dr. Hill focuses on molecular mechanisms with an eye toward therapeutic intervention.

In neighboring cardiology labs, such as that of Dr. Jay Schneider, Associate Director of the Hamon Center for Regenerative Science and Medicine and Associate Professor of Internal Medicine, researchers are studying the development and mechanisms of generating new cardiac muscle cells to see if stem cells from the heart itself can lead the heart to regenerate after injury.

On yet another floor, Dr. Joseph Takahashi, Chairman of Neuroscience and a Howard Hughes Medical Institute Investigator, is trying to understand the molecular and genetic basis of circadian rhythms in mammals and how to use forward genetic approaches to discover genes that influence behavior. Nearly 20 years ago, Dr. Takahashi was the first to identify a mammalian gene involved in the circadian rhythms that govern virtually every aspect of life, including sleeping, waking, and eating.

Critical insights

Elsewhere, Dr. Luis Parada, Chairman of Developmental Biology, studies the regulatory pathways that control the complex process of nervous system development and the consequences of inappropriate development, which can include behavioral and mood disorders, as well as cancer.

Dr. Parada also serves as Director of the Kent Waldrep Foundation Center for Basic Research on Nerve Growth and Regeneration, where his research integrates the fields of molecular genetics, embryonic development, and signal transduction to study human disease, including nervous system cancers, neurofibromatosis, and autism. Currently, a main focus of the lab is investigation of the role of cancer stem cells in malignant brain tumors.

Dr. John Minna, Professor of Internal Medicine and Director of the Nancy B. and Jake L. Hamon Center for Therapeutic Oncology Research and the W.A. "Tex" and Deborah Moncrief Jr. Center for Cancer Genetics, leads a team with the goal of developing and implementing new methods of prevention, detection, and treatment of various types of cancer.

Annette Simmons Stereotactic Treatment Center

Across campus, the Annette Simmons Stereotactic Treatment Center at Zale Lipshy University Hospital is exploring new frontiers in cancer treatment with advanced radiation treatment techniques offered through the Department of Radiation Oncology.

A particularly robust specialty of the Radiation Oncology team is stereotactic ablative radiotherapy – also known as stereotactic body radiation therapy, a relatively new, noninvasive treatment in which high-dose radiation beams enter the body through multiple angles and intersect at the desired target. This allows for a concentrated dose to reach the tumor, while also limiting the dose to surrounding healthy tissues.

"The generosity of the Simmons gift has allowed our highly trained and skilled physicians to explore innovative new uses for two highly specialized radiosurgery tools: the Gamma Knife and CyberKnife," said Dr. Hak Choy, Chairman of Radiation Oncology. Dr. Choy is known globally for his pioneering work, beginning in the early '90s, showing the benefit of combining paclitaxel and other chemotherapeutic agents with radiation treatment.

The CyberKnife has a precise robotic arm optimized to safely deliver a highly potent dose of radiation from multiple angles, which allows for fewer treatments, typically about five. In addition, UT Southwestern physicians developed a new regimen that reduces the dose at each treatment, but increases the total number of treatments to lessen the impact of the radiation on healthy tissue, said Dr. Robert Timmerman, Director of the Annette Simmons Stereotactic Treatment Center and Professor of Radiation Oncology and Neurological Surgery.

Dr. Joseph Takahashi, Chairman of Neuroscience, is known for landmark discoveries in the field of circadian (daily) rhythms, which govern virtually every aspect of life, including sleeping, waking, and eating.

Groundbreaking trials

Two clinical trials now underway also are notable for being the world's first to treat particular sites outside the central nervous system with the CyberKnife.

Stephen Wiley, from Terrell, Texas, helped UT Southwestern pioneer a new treatment for vocal cord cancer, volunteering to be the world's first known patient to be treated for vocal cord cancer with the CyberKnife, a process by which the physician controls the robotic device to destroy tumors with highly precise doses of radiation.

A yard driver for a manufacturing company, Mr. Wiley, 59, said, "We have to talk on the radio constantly and whenever my voice went away, it was a safety issue. I said, 'Heck, if it works and it's

going to help other people, I'm willing to go for it.' It has worked out great."

UT Southwestern doctors' success treating Mr. Wiley yielded important information that physicians are already using to make treatment times shorter for other people with vocal cord tumors, said Dr. Baran Sumer, Associate Professor of Otolaryngology – Head and Neck Cancer and a member of the Harold C. Simmons Comprehensive Cancer Center.

'Outside the realm'

UT Southwestern physicians have similarly developed innovative opportunities for Gamma Knife technology.

"The Simmons gift allowed us to not just use the machines as indicated, but to go outside the realm of established practice," Dr. Timmerman said. "That's what gifts do for you – they let you explore."

Harold and Annette Simmons Comprehensive Center for Research and Treatment of Brain and Neurological Disorders

Evidence of that exploratory value also evolved from the Simmons' 2008 commitment that established the Harold and Annette Simmons Comprehensive Center for Research and Treatment of Brain and Neurological Disorders. This Center has made possible fundamental discoveries that are providing new insights into brain function and neurological disorders, addressing some of the most devastating unmet medical needs of our time, including Alzheimer's disease, stroke, and autism.

The Center further reflects the exponential power of such investments. Just in the past year, more than 10 new faculty – including experts in neurocritical care, movement disorders, imaging, and neurodegenerative diseases – were recruited to UT Southwestern. Collectively, faculty associated with the Center have published more than 140 articles in top journals and received grants totaling more than $45 million from external sources.

These accomplishments and recruitments also fueled expansion of existing clinical care and research components, including services for patients dealing with stroke, traumatic brain injury, autism, and neurodegenerative diseases such as Alzheimer's and Parkinson's. Scientific breakthroughs included critical insights into how damaged proteins move from one cell to another – an important mechanism underlying Alzheimer's disease and other neurodegenerative diseases. Center investigators also made substantive progress in understanding how biological clocks control bodily rhythms such as sleep and wake cycles, some of the basic mechanisms contributing to development of Parkinson's disease, and launched early clinical trials for drug compounds discovered by Center investigators for treatments of neurodegenerative diseases and traumatic brain injury.

Mrs. Annette Simmons, right, with her daughter, Amy, attended the dedication of the new William P. Clements Jr. University Hospital, where the hospital's atrium is named in honor of Harold C. Simmons.

Harold C. Simmons Atrium

The Simmons' most recent contribution supported the newly opened William P. Clements Jr. University Hospital, where the atrium bears the name of Mr. Simmons. The Harold C. Simmons Atrium serves as the entrance to the $800 million, 12-floor, 460-bed hospital.

The three-story atrium infuses the entrance space with natural light to showcase the beautiful architecture and warm color palette. The atrium also houses the interactive Hawn Foundation Patient and Family Resource Center – located just off the hospital's main entrance – which highlights UT Southwestern's history of bench-to-bedside discoveries, therapies, and medical breakthroughs. The Resource Center, which was planned with guidance from the staff of the Perot Museum of Nature and Science in Dallas, as well as consultants who designed the exhibits for that facility, includes guided online access to information for patients, family members, and visitors seeking to better understand the causes, treatments, and cures of specific diseases, as well as information about clinical trials.

"Harold would be so pleased to see the level of planning that has gone into creating a comfortable and healing environment for patients at Clements University Hospital," Annette Simmons said. "I am delighted that the Simmons Atrium will provide a warm welcome to every patient and visitor who enters the hospital."

It will serve not only as a fitting introduction to UT Southwestern, but also to the institution's vast array of accomplishments, so many of which are fueled by Mr. and Mrs. Simmons' generosity – gifts that keep on giving.

Dr. Beutler holds the Raymond and Ellen Willie Distinguished Chair in Cancer Research, in Honor of Laverne and Raymond Willie, Sr.

Dr. Choy holds The Nancy B. and Jake L. Hamon Distinguished Chair in Therapeutic Oncology Research.

Dr. Hill holds the James T. Willerson, M.D., Distinguished Chair in Cardiovascular Diseases, and the Frank M. Ryburn Jr. Chair in Heart Research.

Dr. Hobbs holds the Eugene McDermott Distinguished Chair for the Study of Human Growth and Development, the Philip O'Bryan Montgomery, Jr., M.D., Distinguished Chair in Developmental Biology, and the 1995 Dallas Heart Ball Chair in Cardiology Research.

Dr. Minna holds the Sarah M. and Charles E. Seay Distinguished Chair in Cancer Research, and the Max L. Thomas Distinguished Chair in Molecular Pulmonary Oncology.

Dr. Parada holds the Diana K. and Richard C. Strauss Distinguished Chair in Developmental Biology, and the Southwestern Ball Distinguished Chair in Nerve Regeneration Research.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Dr. Russell holds the Eugene McDermott Distinguished Chair in Molecular Genetics.

Dr. Schneider holds the Dallas Heart Ball Chair in Cardiac Research.

Dr. Takahashi holds the Loyd B. Sands Distinguished Chair in Neuroscience.

Dr. Timmerman holds the Effie Marie Cain Distinguished Chair in Cancer Therapy Research.

Dr. Willson holds The Lisa K. Simmons Distinguished Chair in Comprehensive Oncology.

Harold C. and Annette Simmons

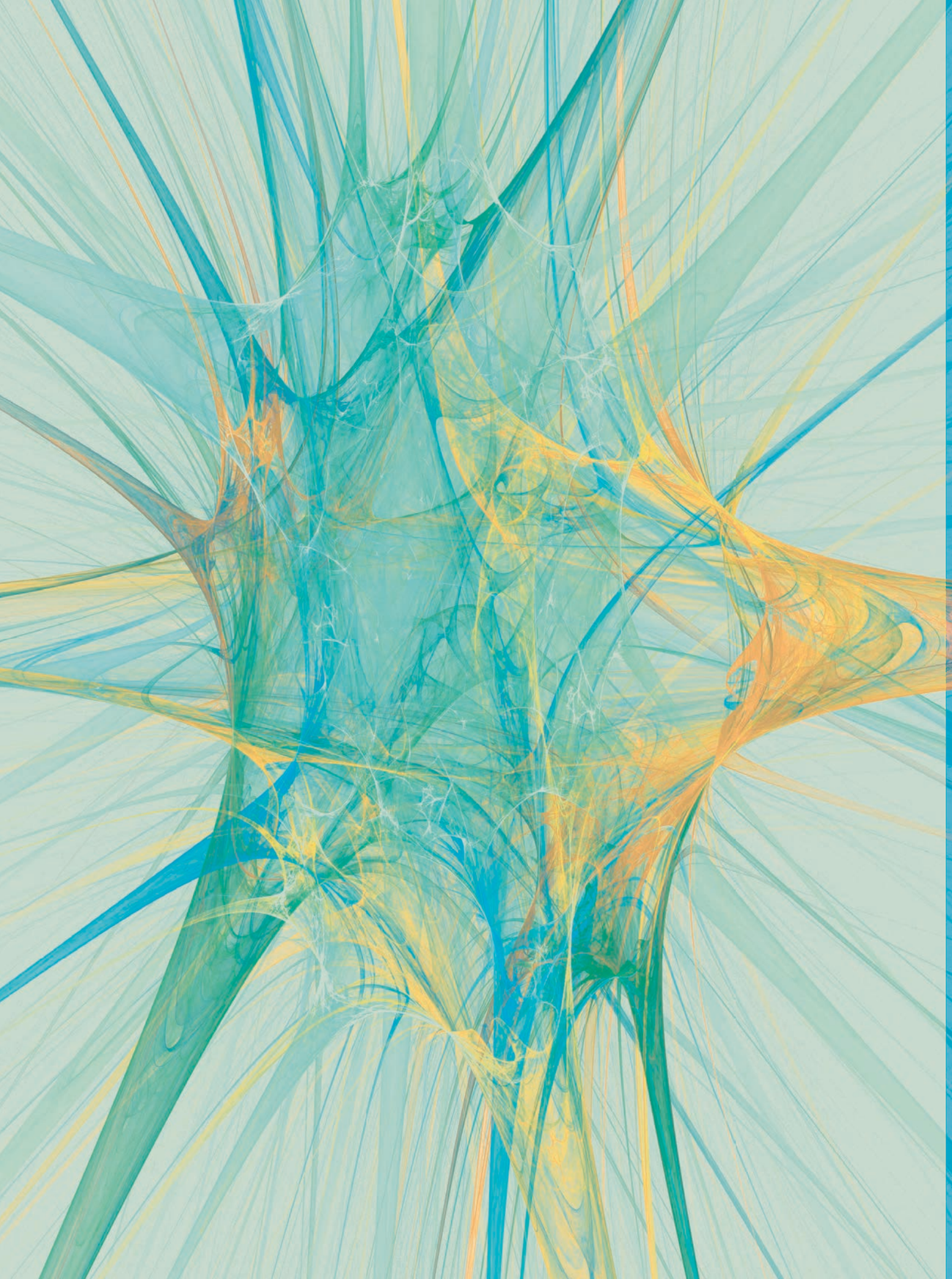
The late Harold C. Simmons, the middle son of rural Texas schoolteachers, became a legendary, self-made American billionaire.

After he graduated from UT Austin in 1952 with a master's degree in economics, he worked first for a U.S. government agency and then for a Dallas-based bank. He went on to build a statewide drugstore chain worth more than $50 million. He sold the drugstore chain to the Eckerd Corp. in 1973 and launched a second career as an investor. Mr. Simmons prospered as a brilliant and creative financier and controlled numerous companies.

In 1988, Mr. Simmons established the Harold Simmons Foundation, which supports programs that promote education, health care, social welfare, and the arts. His two daughters help manage the foundation, through which a major part of the family's philanthropy is carried out. Lisa K. Simmons is President of the foundation and Serena Simmons Connelly is Director.

Annette Simmons, a native of Tyler, Texas, and a graduate of Southern Methodist University, has been active in a variety of civic organizations and has been on the boards of the National Kidney Foundation of Texas, the Parkland Foundation, the Susan G. Komen for the Cure Foundation, Southern Methodist University Tate Distinguished Lecture Series, and the Crystal Charity Ball. Her community involvement has earned her numerous awards, including the Crystal Charity Ball Hall of Fame Award in 1997. She was honored in 2008 with the naming of the Annette Simmons Rose Garden near the entrance to the Simmons Biomedical Research Building.

She and her husband jointly received Southwestern Medical Foundation's Charles Cameron Sprague Community Service Award in 1995, the Dallas Historical Society Philanthropy Award for Excellence in Community Service in 1999, the Annette G. Strauss Humanitarian Award in 2000, and the Dallas County Medical Society Alliance's "Champ Award" in 2003.



Making headway against

neuro-degen-eration

Debilitating. Devastating. Neurodegenerative diseases are among the cruelest of disorders. Now, UT Southwestern researchers are unlocking answers and creating new hope for patients.

Mrs. Vernita Ford lived independently in her Irving home and was in her mid-70s when her son first noticed a gradual decline in her memory and cognitive skills.

"She started coming up with stories and imagining things – thinking people had taken things from her. Finally, she started wandering off, and we realized that we needed to move her into an assisted living facility," said her son, Dr. David Ford, Professor of Organizational Studies, Strategy, and Internal Management at UT Dallas' Naveen Jindal School of Management.

Dr. Ford watched for a decade as Alzheimer's disease gradually stole from his mother her keen mind, her cognitive abilities, and, ultimately, her ability to recognize her loving son.

"Until the last year, she recognized me, and I would take her for little outings away from the facility," he recalled.

After his mother passed at age 84, Dr. Ford continued to educate others about the devastating neurodegenerative effects of Alzheimer's. Although he has no sign of the disease himself, he has participated in clinical trials at UT Southwestern's Alzheimer's Disease Center and has served on focus groups and committees at UT Southwestern to help promote funding and support for research into neurodegenerative disorders.

UT Southwestern has been assembling a powerhouse team of researchers in the field to tackle the obstacles of these diseases on multiple fronts.

"There is so much we need to learn about these types of diseases," he said. "Finding successful treatments is going to take a collective effort on many fronts."

Neurodegenerative disorders – diseases in which nerve cells deteriorate – are debilitating, progressive diseases that steadily worsen over time. The best known include Alzheimer's disease, Parkinson's disease, Lou Gehrig's disease or amyotrophic lateral sclerosis (ALS), and Huntington's disease. More than 5 million Americans live with Alzheimer's. Another half million Americans live with Parkinson's disease. For most of these diseases there is little – or no – effective treatment available. But change is coming.

UT Southwestern has been assembling a powerhouse team of researchers in the field to tackle the obstacles of these diseases on multiple fronts. And they're beginning to see some exciting results.

The Calico collaboration

In September 2014, UT Southwestern, Dallas-based 2M Companies, and a California research and development company, Calico, began a collaborative effort to develop and commercialize molecules known as P7C3 compounds.

Death of nerve cells is the key mechanism in many devastating neurological diseases for which there are currently inadequate treatment options. UT Southwestern researchers Dr. Steven McKnight, Chairman of Biochemistry, Dr. Joseph Ready, Professor of Biochemistry, and Dr. Andrew Pieper, a former UT Southwestern faculty member who is now Associate Professor of Psychiatry and Neurology at the University of Iowa Carver College of Medicine, have collaborated since 2007 to find novel drugs that promote the growth of new nerve cells in the brain, a process known as "neurogenesis."

The P7C3 compounds discovered by the team have been shown to be effective in animal models of age-related neurocognitive impairment, Parkinson's disease, and ALS.

In the original research, the team screened 1,000 molecules to see which ones might enhance the production of neurons in the adult mouse hippocampus, a region of the brain critical to learning and memory. The scientists found that one of the compounds, P7C3, achieved this by protecting newborn neurons from dying. In elderly rats, which characteristically show a decline in the birth and formation of hippocampal neurons, researchers found that P7C3 increased both the birth and survival of new neurons, as well as the memory and learning capability of the aged rats.

Research published in the journal *Cell* shows that these drugs activate a cellular enzyme involved in energy metabolism, nicotinamide phosphoribosyltransferase (NAMPT), which is crucial to the proper functioning and survival of cells. A study published in the journal *Cell Reports* showed that the P7C3 compounds protect against brain dysfunction when given to rodents following traumatic injury.

Under the collaborative agreement, Calico is responsible for developing and commercializing the compounds resulting from the research program and will fund research laboratories in the Dallas area and elsewhere to support the program.

Dr. Joseph Ready and Dr. Steven McKnight

"Over the past decade, Joe Ready, Andrew Pieper, and I have worked collaboratively to discover, characterize, and optimize the P7C3 class of neuroprotective chemicals," Dr. McKnight said. "We are excited to join forces with the Calico team to advance our scientific discoveries toward clinical and commercial objectives."

The ApoE approach

UT Southwestern's Center for Alzheimer's and Neurodegenerative Diseases is focused on two disorders: late-onset Alzheimer's disease (which

Dr. David Ford, a UT Dallas professor, with a photo of his mother, Vernita Ford, who had Alzheimer's disease.

is the majority of Alzheimer's cases) and familial frontotemporal dementia (FTD).

"We selected these two diseases because we are experts in the mechanisms that cause them and because we are confident that we can use these mechanisms to develop effective drug interventions," said the Center's former Director, Dr. Joachim Herz, Professor of Molecular Genetics, Neurology and Neurotherapeutics, and Neuroscience. Dr. Herz now directs the Center for Translational Neurodegeneration Research.

The Alzheimer's research focuses on the major genetic risk for late-onset Alzheimer's, a lipoprotein molecule called ApoE4, which is present in about 15 percent of the population. People whose genes code for ApoE4 are at much higher risk of developing Alzheimer's than people whose genes code for the ApoE3 or ApoE2 version of the molecule.

Lab work has uncovered the cellular-level reason for this increased risk: ApoE4 interferes with "vesicle trafficking" in neurons, a kind of recycling that occurs in cells. And the Center's researchers have found a drug that, in experiments in cells and in mice, restores the normal recycling function. The problem is that this class of drugs does not cross the blood-brain barrier, but Dr. Herz is hopeful his team will find a treatment that works.

"We have demonstrated proof of concept in an animal model that mirrors the genetic predisposition as closely as can be achieved in a mouse, so we are confident that this approach has a good chance of being clinically effective," Dr. Herz said. "Now we need to find a drug that will cross the blood-brain barrier. This is a very standard pharmacological problem."

The research on inherited frontotemporal dementia is even further along. Mutations in a gene that codes for a cell-signaling protein called progranulin cause the inherited form of the disease, which accounts for about 25 percent of cases. It is a "haploinsufficiency" disease, meaning that the genetic defect needs to occur in only one of the two twinned DNA strands to cause the disease, because not enough protein can be produced from a single gene copy. The researchers reasoned that increasing the amount of progranulin produced by the DNA strand that has the correct coding would treat the disease.

A clinical trial recently got underway for a Food and Drug Administration (FDA)-approved cancer-treatment drug that does just that. Dr. Herz said this treatment moved from initial laboratory work to clinical trial at a rapid pace.

"Our overall goal is to identify rational therapeutic drug strategies for these diseases, to implement drug-discovery programs in the order of the highest likelihood of success, and to integrate our translational neuroscience research with the clinical research programs of our own Alzheimer's Disease Center," Dr. Herz said.

The regeneration route

The goal of the Hamon Center for Regenerative Science and Medicine is not just stopping existing patterns of degeneration, but actually promoting the growth of new, healthy cells.

Dr. Joachim Herz's lab has identified a drug that is being tested in clinical trials for treatment of familial frontotemporal dementia.

"We all know what degeneration is; that's what happens with age," said Dr. Eric Olson, Chairman of Molecular Biology and Director of the Hamon Center. "Regeneration is the opposite. It focuses on how to rejuvenate aged and diseased tissues. The goal of this Center is to understand the basic mechanisms for tissue and organ formation, and then to use that knowledge to regenerate, repair, and replace tissues damaged by aging and injury."

While the research at the Hamon Center focuses on a variety of body systems, some of the researchers, such as Associate Professor of Molecular Biology Dr. Chun-Li Zhang, are honing in specifically on neurodegenerative diseases. Dr. Zhang has taken one kind of cell and, through various manipulations, turned it into another kind of cell – a motor neuron – which is the cell from the spinal cord that is involved in directing muscle movement. He is using this system to treat ALS in a mouse model of the disease. He's also had some success in converting human fibroblasts into motor neurons in the lab.

All of this means it may someday be possible to regenerate neurons from the body's own cells to treat conditions such as ALS or multiple sclerosis.

Other researchers at the Hamon Center recently used a genome-editing technique to precisely remove a mutation in DNA, allowing the body's DNA repair mechanisms to replace the mutation with a normal copy of the gene. The researchers used this technique to correct a muscle-degeneration disease called Duchenne muscular dystrophy in a mouse model of the disease. Their genome-editing technique could, presumably, be applied to neurodegenerative diseases that are caused by a single genetic mutation, such as early-onset Alzheimer's disease.

"At the moment, we still need to overcome technical challenges, but in the future we might be able to use this technique therapeutically," Dr. Olson said.

He added that the Hamon Center has been met with great enthusiasm by the University and the wider community. "The excitement that it has engendered has exceeded our expectations," he said. "For example, we started a lecture series and every lecture has been standing-room only."

An Alzheimer's vaccine

Dr. Roger Rosenberg, Professor of Neurology and Neurotherapeutics and Physiology, has been researching neurodegenerative diseases for 30 years. In the early days, he focused on a disease called

Dr. Eric Olson

Machado-Joseph disease, an inherited movement disorder. Dr. Rosenberg described the spread of the disease throughout the world and mapped the problem to a specific mutation in chromosome 14. But then someone he knew died after a battle with Alzheimer's, and Dr. Rosenberg turned his focus to the disease.

His goal is a vaccine that would remove or prevent the beta-amyloid plaques that build up in the brains of people who have Alzheimer's. Not everyone who has beta-amyloid plaques develops Alzheimer's disease, but everyone who has Alzheimer's has these plaques in the brain.

Researchers elsewhere, using a mouse model of the disease, proved that it was possible to immunize with beta-amyloid protein and remove the amyloid plaques.

Dr. Rosenberg's vaccine concept has two key principles: The first is administering the vaccine to patients before they develop symptoms. "The thinking now in neurodegenerative disease such as Alzheimer's disease is, if you're going to do immunotherapy – that is, make an antibody against amyloid – you have to do it when the

"The goal is to understand the basic mechanisms for tissue and organ formation, and then to use that knowledge to regenerate, repair, and replace tissues damaged by aging and injury."
—Dr. Eric Olson

Dr. Roger Rosenberg has dedicated much of his career to developing an Alzheimer's vaccine.

patient is asymptomatic but at risk," Dr. Rosenberg said. "You can show the patient is at risk because you can do a brain scan and show the patient's brain is accumulating amyloid."

The other key principle is using a DNA vaccine rather than a protein vaccine.

"I'm giving DNA that code for amyloid into the skin. If you inject the DNA for a protein into the skin with a gene gun, not the preformed protein injected with a needle into the muscle, the skin cell makes amyloid protein. But then the skin cell moves to the lymph nodes and the lymph nodes recognize that amyloid is there and make an antibody against it, but it's a different antibody," Dr. Rosenberg explained. "By starting with DNA and injecting it into the skin, it makes an antibody that's not inflammatory, which is safe, compared to injection of the amyloid protein into muscle, which is pro-inflammatory. That's the difference."

Dr. Rosenberg expects to present the results of his laboratory work to the FDA in two years, after completing vaccination studies in other species. Shortly after that, he hopes to begin clinical trials of his vaccine on people who have accumulations of beta-amyloid in their brains but are not yet exhibiting Alzheimer's symptoms.

"There's a common theme to all these neurodegenerative diseases," Dr. Rosenberg said. "What seems to be essential for neurodegenerative diseases to occur? Misfolded proteins are stored, and a specific protein is stored for each disease. In Alzheimer's disease, it's beta-amyloid as amyloid-containing plaques, but it's also fribrillary tangles, and these tangles are made up of tau protein."

The prion principle

Dr. Marc Diamond is UT Southwestern's newest research expert. He is Director of the Center for Alzheimer's and Neurodegenerative Diseases, and Professor of Neurology and Neurotherapeutics.

Recruited to UT Southwestern in 2014, Dr. Diamond's idea about the way accumulations of tau and other proteins spread pathology in the brain and throughout the nervous system is considered by many to be the future of neurodegenerative disease research.

Dr. Diamond's big idea is that the toxic proteins that accumulate in neurodegenerative diseases move from cell to cell through the brain, leaving destruction in their wake. This also is thought to be how prions cause disease.

"I started wondering about a simple question: Why are these diseases progressive? Why don't they just stop with one part of your brain? That was spurred by knowledge I had about Lou Gehrig's disease, in which progressive pathology has a clear anatomical relationship," Dr. Diamond said. "Motor neurons begin to degenerate in part of your spinal cord to start the process, but the next neurons to go are the ones that are nearby, geographically very close to the original sick cells, or connected to them by synapses."

He added, "In prion diseases, we think pathology begins in one cell with the formation of a toxic assembly, or a clump of proteins. Then it moves to another cell and triggers more toxic assemblies. These clumps act something like crystal seeds, causing more protein to pile on and become abnormal."

Dr. Diamond realized that the pattern of disease spread throughout the brain in prion diseases looked strikingly similar to the pattern of disease spread in common neurodegenerative diseases such as Alzheimer's and Parkinson's, making him wonder if they had the same underlying mechanism.

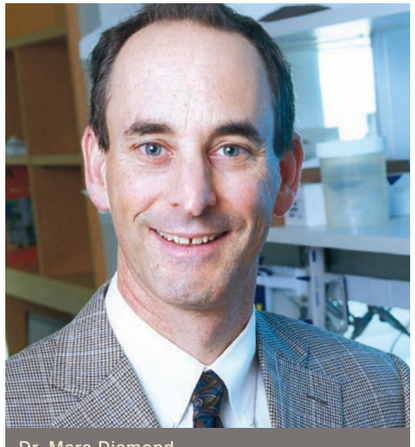
"I wasn't the first one to think of this, but what we did that other people hadn't done was start testing this idea directly in a simple, well-controlled way," he said. "In parallel with one other group, which at the same time published studies in mice, we did a series of very straightforward cell experiments that started this whole avenue of investigation that we've been working on for the last 10 years. The idea has caught on and since then a lot of people have replicated our basic experiments."

Dr. Diamond's lab worked primarily with the protein tau, which accumulates in Alzheimer's disease. Others have studied synuclein, a protein that accumulates in Parkinson's disease, and still others have studied proteins that accumulate in ALS and frontotemporal dementia.

"All of a sudden, now we can start to unify how we think about all of these different disorders based on the simple idea that toxic protein aggregates, or seeds, are moving from cell to cell in the brain," Dr. Diamond said.

Perhaps even more important, this idea suggests approaches to halting the progression of Alzheimer's disease, using drugs such as antibodies or small molecules that will attack the protein seeds while they are between cells. It also suggests that detection of the seeds could lead to very early diagnosis.

Dr. Diamond is optimistic. "My dream, actually, where I'm hoping we'll go with all this, is that you or I will come into a doctor's office when



Dr. Marc Diamond

The way accumulations of tau and other proteins spread pathology in the brain and throughout the nervous system is considered by many to be the future of neurodegenerative disease research.

we're 35 or 40 and they'll take a drop of blood or a little spinal fluid and run a test on it for seeds for all these different proteins that cause all the common diseases," he said. "Then the doctor will tell you whether or not you have them. And if you do, a treatment will be started before you even show any signs of disease. I don't think that's unreasonable. I think we could get there in the next 10 to 15 years."

Dr. Diamond holds the Distinguished Chair in Basic Brain Injury and Repair.

Dr. Herz holds the Thomas O. and Cinda Hicks Family Distinguished Chair in Alzheimer's Disease Research.

Dr. McKnight holds the Distinguished Chair in Basic Biomedical Research, and The Sam G. Winstead and F. Andrew Bell Distinguished Chair in Biochemistry.

Dr. Olson holds the Annie and Willie Nelson Professorship in Stem Cell Research, the Pogue Distinguished Chair in Research on Cardiac Birth Defects, and the Robert A. Welch Distinguished Chair in Science.

Dr. Rosenberg holds the Abe (Brunky), Morris and William Zale Distinguished Chair in Neurology.

Medical Training goes ‘New School’

A new medical school curriculum combines integration, team-based learning, and science to teach physicians of the future. In addition to the revised curriculum, key components of the approach to education include **earlier introduction of clinical activities, learning through simulation technology, and more focus on teams.**

The new realities of medicine demand a different kind of medical education, and UT Southwestern Medical School is poised to debut a revised curriculum for fall 2015 that will better train physicians to be knowledgeable, confident, and forward-looking clinicians and scientists in a rapidly changing 21st century.

"The body of medical knowledge is doubling every 18 to 24 months," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center. "To put it another way, as our students enter their traditional four-year period of undergraduate medical education, the amount of knowledge out there will have grown fourfold by the time they graduate."

The world of medicine today is vastly different from the environment that existed when UT Southwestern opened in 1943 – in ways that go well beyond the accelerating accumulation of knowledge.

Today's physicians are the leaders of an expanding medical team that includes not only nurses and pharmacists but also physician assistants, physical therapists, informatics specialists, radiation therapists, geneticists, and biomedical engineers. They also look up treatment parameters on smartphones, consult with colleagues in distant settings via teleconferencing, and use precise robotic tools to perform surgery with minimal trauma to patients.

To meet the changing paradigm, UT Southwestern is preparing physicians to meet the future demands of medicine, today.

The foundational structure of the new curriculum is the work of a committee of five UT Southwestern academicians who devoted a year to analyzing the strengths and weaknesses of the existing curriculum. In addition, the committee visited other leading medical schools to identify innovations that worked and read surveys of graduating students and reports from groups such as the Howard Hughes Medical Institute. Dr. James Stull, Chairman of Physiology, led the group.

"The reports said our students were doing well on national tests and placing well in residency applications," Dr. Stull said. "Our curriculum was recognized as having many strengths, but we wanted to do even better."

Going to 30,000 feet

The situation that UT Southwestern Medical School faced was not unique. About 10 years ago, the Institute of Medicine issued a report questioning whether medical schools were preparing students adequately. This launched soul-searching among many of the nation's top medical schools. The basic structure of medical school education across the country – two years of preclinical sciences followed by a year of clerkships and a year of electives – had been unchanged for a century, and it was time to reassess. In 2008, UT Southwestern made reviewing the medical school curriculum a priority in the school's six-year planning process. And in 2009, when Dr. Podolsky – who had become President in September 2008 – announced his agenda, it included developing a "forward-looking curriculum" as one of his seven strategic priorities for UT Southwestern.

In June 2013, under the leadership of Dr. Greg Fitz, Executive Vice President for Academic Affairs and Provost, and Dean of UT Southwestern Medical School, the work of overhauling the medical school curriculum began in earnest. The committee, which began meeting weekly, included Dr. Stull; Dr. Dennis Burns, Professor of Pathology and Co-Chair of the committee; Dr. David Greenberg, Assistant Professor of Internal Medicine and Microbiology; Dr. Lynne Kirk, Professor of Internal Medicine and Family and Community Medicine; and Dr. Diane Twickler, Professor of Radiology and Obstetrics and Gynecology. In the fall, the group began a series of visits to five top-tier medical schools, commenced town hall meetings with students, and held discussions with faculty, deans, and department chairs.

"Early on, we went up to 30,000 feet and took a global view of what the curriculum looked like," Dr. Stull said. "We visited other schools, read the reports and said, 'Now, with what we know, what would be an ideal curriculum for UT Southwestern?' That had never really been done before. This was the first time in 70 years."

Armed with insight and fresh ideas, they were ready to begin the design of a 21st-century format for medical education, eventually called the Foundation for Excellence Curriculum.

Integration, integration, integration

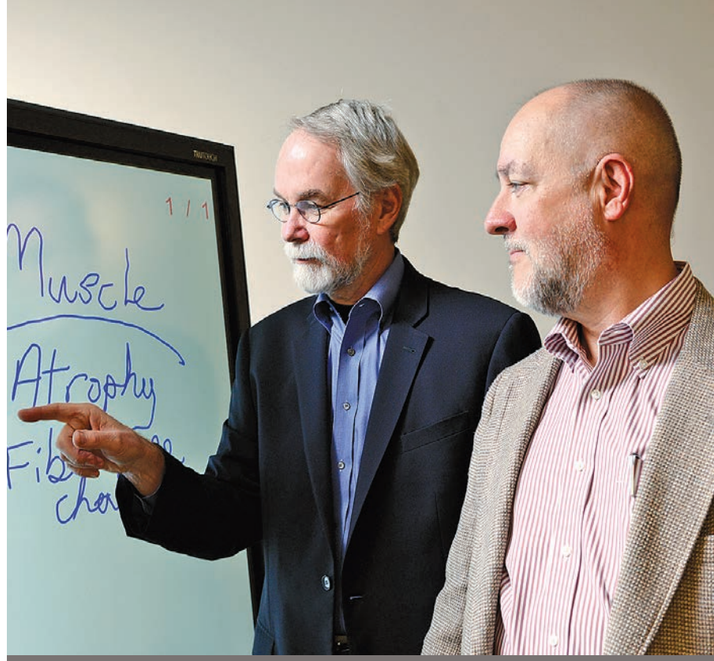
If there's one overarching theme of the new curriculum, it is integration: integration of classes such as cell biology and biochemistry; integration of the study of normal and abnormal body processes; and integration of clinical perspectives with basic sciences.

"We have taken the first two years and mixed it up," said Dr. Stull of the new curriculum. "Instead of being disciplines in silos, we're integrating. We're using current content but pulling it together in new and better ways."

Rather than attending courses titled Anatomy and Immunology, students beginning their medical education in August 2015 will attend a block called Body Structure Functions, which incorporates gross anatomy, embryology, histology, and radiographic imaging, and a Foundations of Biomedical Sciences block, which incorporates biochemistry, genetics, cell biology, physiology, neuroscience, microbiology, immunology, and pathology.

In January of their first year, medical students will take a block called Integrated Medicine: Health to Disease, which will review body systems – cardiovascular, pulmonary, musculoskeletal, etc. – combining both normal and diseased-stated function. Under the old curriculum, students studied the normal state in their first year and the diseased state in their second year.

"One of the challenges that you have when you are teaching a first-year normal and a second-year abnormal is that you spend a lot of time reviewing. What we are aiming for is eliminating redundancy," said Dr. Burns, adding that he sees that redundancy, which requires review of the normal nervous system, in the neuropathology section he currently teaches second-year students.



Dr. James Stull, left, and Dr. Dennis Burns led the committee that developed a curriculum for 21st-century medical students.

Diving in

Under the new curriculum, students will be ready to dive into the core clerkships in January of their second year – half a year earlier than under the old curriculum – which will please students.

To meet the changing paradigm, UT Southwestern is preparing physicians to meet the future demands of medicine, today.

"Everyone is really eager to see patients, to treat them, to help them," said Sam Parnell, a third-year medical student. "At the end of the day, we're all here to serve patients, and when you're able to see the start of that, that's what gets you going, gets you excited."

The core clerkships that incoming medical students will take are the same – internal medicine, surgery, pediatrics, etc. – but the clerkships will be spread out over 72 weeks rather than 48 weeks, giving students the opportunity to intersperse other activities, such as laboratory or clinical research, electives, and sub-internships. Starting the clerkships earlier will give students more time to explore the various clinical fields before they apply

for their residencies and provide opportunities for students who have already decided on a particular discipline to explore that field in greater depth.

In the post-clerkship period, among other classes, students will take a Back-to-Basics block that will return their focus to basic science subjects such as biochemistry and cell biology but at a more sophisticated level that will be integrated with their newly acquired clinical knowledge. Students will select one of four versions of the Back-to-Basics block that corresponds to their career interests. For example, a student anticipating becoming an obstetrician could select a Back-to-Basics block that focuses on reproductive biology at the cellular level.

Dr. Burns pointed out that integration of the curriculum is "not a radical departure from what we've been doing in the second year for about 12 years now. For about that time period, we've taught organ systems. We're just extending that further."

There's more to the new curriculum than integration of subject matter and a revised timetable. Much more.

A learning curve

But there's more to the new curriculum than integration of subject matter and a revised timetable. Much more.

Dr. Greg Fitz, Executive Vice President for Academic Affairs and Provost, and Dean of the Medical School, meets with a group of students.

It's also about employing sophisticated teaching methods, about training students to think of themselves as part of a team, about fostering relationships between students and experienced clinician mentors, and about teaching students how to identify the relevant information from among a mountain of facts and synthesize that information into problem-solving for patients.

The new curriculum will employ more small-group learning in which students can engage in fluid discussions with professors. It will include more active learning (simulations and clinical scenarios) and less passive learning (lectures). Furthermore, it will guide students to become self-learners so they can continue to expand their knowledge throughout their careers and keep up with the explosion of scientific advances and new technologies.

"Medical education is evolving away from memorization and toward developing critical-thinking skills," Dr. Stull said. "Students don't need to memorize drug dosages; they can pull them up on their mobile phones."

One teaching method that will be widely employed under the new curriculum is an instructional method called team-based learning.

Dr. Lindsey Pershern, Assistant Professor of Psychiatry, is the innovative course director for Human Behavior who is using team-based learning in her classes this year.

Team-based learning, she explained, is a three-phase process that begins with students reading assigned material. In Phase II, students are individually quizzed on the reading material and they then retake the quiz as a team of six classmates, debating the merits of the answers. The team quiz is also graded and, not surprisingly, team quiz scores are consistently higher than individual scores. Students working in teams get immediate feedback about the material, learn from one another, and also learn to work in tandem with colleagues, Dr. Pershern said.

Phase III of team learning is the application phase. Students are given a carefully designed problem that requires them to apply the material being studied. For instance, for a lesson on stages of emotional development, Human Behavior students may be presented with a family – a mother, a 4-year-old, a 7-year-old, and a teen – who are dealing with the death of the father. The students are given detailed descriptions of four reactions, and then they talk about which reaction likely would have come from which family member.

"It's teaching them to solve problems. It's very structured, very specific," Dr. Pershern said.

Passive learning is known to be less effective than engaging students in the process of learning. That's why active learning has been part of every UT Southwestern medical student's education since the school began – think of anatomy-class dissections – but lectures constituted the lion's share of lessons for much of its history. In recent years, there's been a drift toward active learning, but the gradual move is about to become a landslide.

Nearly 200 academicians are creating content for the new curriculum. A new Office of Medical Education will provide support for "flipped classrooms" in which students receive lectures outside of class and use actual class time for concept engagement, helping faculty to develop their content in new ways. Classroom settings are even being changed to facilitate the new teaching style. For example, the third floor of the South Campus library is being renovated for team-based learning activities. Simulation centers will be centralized and made more robust. Even testing tools will be modernized, with all exams taken on computers to make testing more efficient.

The new curriculum incorporates technology that students will be using during their residencies and beyond.

Colleges of knowledge – and camaraderie

At more than 200 students per graduating class, UT Southwestern is one of the largest medical schools in the country. That's a source of pride for the school but also a potential problem. With that size, individual students can become a face in the crowd.

To address that, in 2006, UT Southwestern introduced Academic Colleges, learning groups to which each student is assigned. Each College, named after a UT Southwestern luminary, comprises 40 students. The Colleges are further broken down into groups of six students and a mentor, and this subgroup meets once a week during the first two years under the current curriculum. Students learn how to take medical histories in their College subgroups, practice history-taking skills on standardized patients (actors who are pretending to be patients), practice physical exams on mannequins, and have their first real-patient contact observing their mentors. The mentors lead the groups in discussions of ethical issues, quiz students about normal numbers for lab tests, and sometimes even take the group out for dinner.

The Academic Colleges have been a huge success. The groups of six students become a source of support for one another. "I know all of the students in my group really well. We have a constant group-text going," said Mr. Parnell, the third-year student. Even more importantly, the students form a bond with their mentors. The mentor-student relationship is an opportunity for students to model the behavior of a seasoned practitioner and practice skills in a safe learning environment.

Under the new curriculum, students will interact with patients earlier in their studies.

Under the new curriculum, the Academic Colleges have been extended to the third and fourth year, with the small groups meeting with their mentors once a month.

"This is one of the special things about UT Southwestern," Dr. Stull said. "There are not a lot of schools that offer an opportunity for students to closely interact with a mentor. These relationships with the mentors are very deep, sincere relationships. You'll see the mentors participate in the graduation ceremonies, offering their warm, good wishes. That's a very special thing."

Science reigns supreme

"We are not going to be science-lite. We are a science-oriented school, and we are going to remain a science-oriented school," Dr. Stull emphasized.

If anything, the new curriculum lays the groundwork for even more of the school's graduates to become physician-scientists.

A learning block titled Foundations of Clinical Reasoning is a new addition to the curriculum that will introduce first-year students to principles of epidemiology, biostatistics, and evidence-based medicine. "We have taught some of these topics in a catch-as-catch-can manner. This will shift to formal, didactic presentations on these topics," Dr. Burns said.

One of the key changes to the curriculum is the addition of a 12-week scholarly project that every student will be required to complete under the direction of a faculty mentor or committee. Posing a hypothesis and arriving at an answer will help students hone intellectual abilities they will need throughout their careers, notes the curriculum committee. The project will culminate with a publication, presentation, or some other product. Students anticipating a career in research may wish to choose a bench-science or clinical-science research project that starts them down a path they are interested in pursuing. Other possible topics for the scholarly project include community medicine, global health, health policy, and biomedical ethics. Students will be given wide latitude in the selection of tracks for their project. After all, a key stated goal of the new curriculum is for students "to have novel career opportunities that excite and inspire."

The design of the new curriculum also offers an opportunity to update specifically what and how students are being taught, and the curriculum content leaders creating that new content are taking full advantage of the opportunity. Dr. Barry Botterman, Associate Professor of Cell Biology, is working on the content for the Body Structure Foundations class, which will integrate gross and micro anatomy, as well as embryology. The new curriculum will have more synergy among dissection, imaging, and the clinical context, he said. One thing that will change sharply is the incorporation of more computerized imagery.

It's all about challenging each medical student to be the best possible physician he or she can be, according to the curriculum committee.

"There is a spectrum of abilities within a class, and we have defined a curriculum appropriate for every medical student, no matter what he or she is going to do. Then we have added diversity to inspire them in various directions they may head," Dr. Stull said.

Administrators, faculty, and students are all enthusiastic about the changes.

Dr. Botterman has talked to and worked with dozens of faculty members concerning the new curriculum. "Everybody that I've interacted with is very positive about this. Everybody's on board with it," he said.

"Everything has been done at other schools, and it works. What we've done is customize it for our culture, which is science-oriented, and we're maintaining that." — Dr. Dennis Burns

"We will have an increased radiographic presence," Dr. Botterman said. "We've traditionally presented plain radiographs in our teaching. Students now will see more cross-sectional radiographic images, CT scans, and MRIs. This is important because this is how medicine is practiced these days."

And there's more. The Back-to-Basics block will allow students to leverage both their clinical and basic science experience to understand causation of disease from a sophisticated perspective. A four-week sub-internship required for all students will give them an opportunity to advance clinical skills they will use in residencies.

"We're not proposing anything that's radical and untested," Dr. Burns said. "Everything has been done at other schools, and it works. What we've done is customize it for our culture, which is science-oriented, and we're maintaining that."

All aboard

"The integration of clinical topics early on is a huge benefit for students. There will be more interaction with clinical instructors. That's the power of this," Dr. Botterman said.

Under the new curriculum, the students' four-year experience concludes with courses that point them directly toward their future. Physicians and Society is a module that weaves together topics such as health economics, health systems, medical ethics, and medicine and law. Transitions in Clinical Training prepares students for their upcoming residencies. "That transition from being a medical student to an intern is a big hurdle, and we want to do the best job we can to get them ready," Dr. Stull said.

"We have had thoughtful and creative input from every party on designing the new curriculum – students, clinicians, investigators, and teachers," said Dr. Fitz. "Dr. Stull and Dr. Burns, and their committee members, have done an outstanding job in synthesizing these ideas to create an exciting model that we are looking forward to implementing for the next class of students. We want to be sure to reinforce the scientific foundations of medicine and to prepare our students to be the best in whatever their chosen field might be."

Dr. Burns holds the Jane B. and Edwin P. Jenevein, M.D., Chair in Pathology.

Dr. Fitz holds the Nadine and Tom Craddick Distinguished Chair in Medical Science, and the Atticus James Gill, M.D. Chair in Medical Science.

Dr. Kirk holds The Toni and Timothy P. Hartman Professorship in Medicine.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Dr. Stull holds the Fouad A. and Val Imm Bashour Distinguished Chair in Physiology.

Dr. Twickler holds the Dr. Fred Bonte Professorship in Radiology.

The evolution of emergency medicine

As the field of emergency medicine evolves, UT Southwestern Medical Center remains committed to addressing that evolution and to staying at the vanguard of the field's transformation.

A generation ago, the emergency room was a stopover for practitioners, whose job it was to stabilize patients and transfer them to the right hospital department quickly. Today, Emergency Medicine is an academically based specialty that requires a variety of medical skills to treat, educate, and serve patients.

Long a leader in the field of emergency medicine, to meet today's needs, UT Southwestern has created a new Department of Emergency Medicine, upgrading what had been a longstanding division in the Department of Surgery.

Dr. Deborah Diercks, the new department's nationally recruited chair, arrived in September 2014, a propitious time to assume this new position, with the opening of two new hospitals planned to occur during her first year. UT Southwestern's William P. Clements Jr. University Hospital and the new Parkland Memorial Hospital will both be staffed by UT Southwestern doctors and trainees, all working under the direction of the new department. Taken together, the two hospitals' combined number of emergency visits will make UT Southwestern's program one of the largest emergency medicine programs in the country.

Dr. Deborah Diercks

"We thought creating a new department was the best way to support the important work of our faculty," said Dr. Greg Fitz, Executive Vice President for Academic Affairs and Provost, and Dean of UT Southwestern Medical School. Dr. Fitz holds the Nadine and Tom Craddick Distinguished Chair in Medical Science, and the Atticus James Gill, M.D. Chair in Medical Science. "This follows a national trend and a growing appreciation for the highly specialized training and skills required to excel in emergency care," he said.

Parkland is a first-rate facility with one of the best trauma programs in the country, staffed by UT Southwestern faculty and Parkland nurses and other personnel. As for Clements University Hospital, the new emergency room will represent the "front door" of the hospital for those in need of urgent care, Dr. Fitz noted. "I don't think you can overstate how important Dr. Diercks will be to all this. She's an excellent emergency medicine physician, and her combination of skills has made her a national leader in high-intensity care and training," he added.

Dr. Diercks manages the emergency departments of both hospitals. "This position provides the opportunity to work with outstanding emergency physicians, to be a part of an excellent health care system, and to serve an amazing community," said Dr. Diercks, who holds the Audre and Bernard Rapoport Distinguished Chair in Clinical Care and Research. "I am honored to help make this a nationally recognized Department of Emergency Medicine."

The transformation of emergency medicine into a newly created department reflects ongoing innovation in the field for those on the front lines of patient care. From surgeons who are part of the Dallas Police Department SWAT team to training regional first-responders in the latest CPR techniques, UT Southwestern's Emergency Medicine faculty have broken ground in research and field strategies.

True to the core mission of educating future physicians, UT Southwestern also recently expanded its emergency medicine residency program to 19 residents per year, to meet the manpower needs of this evolving medical specialty, as well as the changing landscape of health care delivery.

"We are sending our students into unfamiliar situations, which might be very different from UT Southwestern," Dr. Diercks said. "They might be going to rural hospitals where emergency medicine physicians must be proficient in a mixture of specialties, such as toxicology, sports medicine, ultrasound, and others. Whatever challenges they face, we want our students to be fully prepared."

Rallying the antiviral troops

Dr. Zhijian "James" Chen, Professor of Molecular Biology and Howard Hughes Medical Institute Investigator, is considered a top strategist in the war on disease.

Dr. Chen's laboratory is essentially command central for work in deciphering just how the body determines when it is being attacked and how it will defend against such encroachments. The goal for Dr. Chen and his team is to discover ways to halt tumor growth in its tracks or launch a full-scale counterattack by initiating the body's immune response at will.

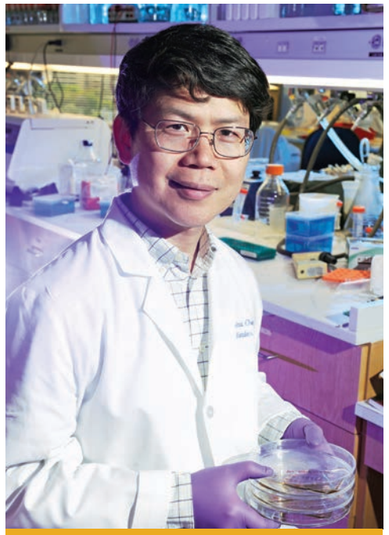
From cancer to autoimmune diseases, Dr. Chen, also a member of UT Southwestern's Center for the Genetics of Host Defense, has generated profound insights into our most basic understanding of how we get sick and, more importantly, how we can get well by seizing upon the cellular pathways that our body uses to detect disease and fight infection. Identifying and eventually controlling those critical pathways is akin to controlling the supply lines for troops on the front lines, which in this case are fighting infections. Some lines need to be cut off; others reinforced. The Chen lab has been busy determining which need to be closed off and which are critical to keep open.

"As you go in and try to solve a problem, along the way there are surprises waiting to be discovered. In our research, we are constantly running into these surprises, which are very exciting," said Dr. Chen, who holds the George L. MacGregor Distinguished Chair in Biomedical Science.

Dr. Chen's research focuses on the protein ubiquitin, so named because it is ubiquitously, or universally, found in all cells. Ubiquitin's best-known role is to mark other proteins for destruction by the cell. But Dr. Chen identified another, very different role. He found that certain proteins in the cell, when tagged with ubiquitin, are activated instead of destroyed. Once turned on by this chemical tag, proteins send signals inside the cell that regulate growth and other essential functions. In addition, Dr. Chen found that mitochondria – organelles within cells that produce energy – also contribute to the body's immune response. More recently, Dr. Chen discovered a new pathway called the cGAS pathway, which orchestrates immune responses to DNA, the body's genetic materials. This pathway is critical to infectious diseases such as HIV, autoimmune diseases such as lupus, and immune control of cancer.

By reconstituting these complex processes in a test tube and dissecting them in living cells, Dr. Chen has revolutionized our understanding of fundamental cellular mechanisms of disease and has revealed new targets for drug development to fight infections, autoimmune diseases, and cancer.

"In the effort to understand how viruses and other microbes are detected by the immune system once they get inside our cells, Dr. Chen



Dr. Zhijian "James" Chen

has dominated the field," said Dr. Bruce Beutler, Director of the Center for the Genetics of Host Defense, Regental Professor, and winner of the 2011 Nobel Prize in Physiology or Medicine for his own groundbreaking work in innate immunity. "Dr. Chen is an immunologist and a biochemist working at the summit of both fields. In fact, he really has no peers," added Dr. Beutler, holder of the Raymond and Ellen Willie Distinguished Chair in Cancer Research, in Honor of Laverne and Raymond Willie, Sr.

Dr. Chen's accomplishments were honored in 2014 with his induction into the National Academy of Sciences, carrying forward a long and distinguished tradition for researchers at UT Southwestern. In 1979, the late Dr. Ron Estabrook was the first UT Southwestern faculty member to be elected to the National Academy of Sciences. Currently, 20 other top scientists at UT Southwestern have been elected to the NAS, including UT Southwestern's six Nobel Laureates. Five members have been inducted in the last six years.

"As you try to solve a problem, along the way there are surprises waiting to be discovered. In our research, we are constantly running into these surprises."

—Dr. Zhijian "James" Chen

"These individuals represent the very top echelon of their respective fields of research," said Dr. Daniel K. Podolsky, President of UT Southwestern, who holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science. "While many university environments have grown increasingly competitive, UT Southwestern's research community has steadfastly maintained the collaborative spirit on which its heritage is built. That not only continues to attract the best and brightest, such as Dr. Chen, but also fosters the ongoing scientific success and accomplishment that ultimately benefits our campus and the scientific community as a whole."

Stem cells: lost in translation

For the first time, researchers have shown that an essential biological process known as protein synthesis can be studied in adult stem cells – something scientists have long struggled to accomplish.

The revolutionary findings from the Children's Medical Center Research Institute at UT Southwestern (CRI) also demonstrate that the precise amount of protein produced by blood-forming stem cells is crucial to their function.

The discovery measures protein production, a process known as translation, and shows that protein synthesis is not only fundamental to how stem cells are regulated but also is critical to their regenerative potential.

"We unveiled new areas of cellular biology that no one has seen before," said Dr. Sean Morrison, Director of the CRI, Professor of Pediatrics, and holder of the Mary McDermott Cook Chair in Pediatric Genetics. "No one has ever studied protein synthesis in somatic stem cells. This finding not only tells us something new about stem cell regulation, but it also opens up the ability to study differences in protein synthesis between many kinds of cells in the body. We believe there is an undiscovered world of biology that allows different kinds of cells to synthesize protein at different rates and in different ways, and that those differences are important for cellular survival."

By chemically modifying the antibiotic puromycin, researchers made it possible to visualize and quantify the amount of protein synthesized by individual cells within the body. Dr. Robert A.J. Signer, a postdoctoral research fellow in Dr. Morrison's laboratory and first author of the study, realized that this reagent could be adapted to measure new protein synthesis by stem cells and other cells in the blood-forming system.

"We unveiled new areas of cellular biology that no one has seen before."

—Dr. Sean Morrison

Dr. Sean Morrison

What they came across was astonishing, Dr. Morrison said. The findings suggested that different types of blood cells produce vastly different amounts of protein per hour, and stem cells in particular synthesize much less protein than any other blood-forming cells.

"This result suggests that blood-forming stem cells require a lower rate of protein synthesis as compared to other blood-forming cells," Dr. Morrison said.

Researchers applied the findings to a mouse model with a genetic mutation in a component of the ribosome – the machinery that makes proteins – and the rate of protein production was reduced in stem cells by 30 percent. The scientists also increased the rate of protein synthesis by deleting the tumor suppressor gene Pten in blood-forming stem cells. In both instances, stem cell function was noticeably impaired.

Together, these observations demonstrate that blood-forming stem cells require a highly regulated rate of protein synthesis, such that increases or decreases in that rate impair stem cell function – essentially it becomes lost in translation.

"Amazingly, when the ribosomal mutant mice and the Pten mutant mice were bred together, stem cell function returned to normal, and we greatly delayed, and in some instances entirely blocked, the development of leukemia," Dr. Morrison said. "All of this happened because protein production in stem cells was returned to normal. It was as if two wrongs made a right."

Many diseases, including degenerative diseases and certain types of cancers, are associated with mutations in the machinery that makes proteins. However, why this is the case has yet to be understood. Discoveries such as this raise the possibility that changes in protein synthesis are necessary for the development of those diseases.

"Many people think of protein synthesis as a housekeeping function, in that it happens behind the scenes in all cells," Dr. Signer said. "The reality is that a lot of housekeeping functions are highly regulated; they have just not been studied enough to recognize the difference among cells. I think what we are seeing with this study is just the tip of the iceberg, where the process of protein production is probably quite different in distinct cell types."

The heart of scientific discovery

Heart attack and stroke are among the most serious threats to health. But novel research at UT Southwestern has linked two major biological processes that occur at the onset of these traumatic events, a finding that, ultimately, could lead to protection for the heart.

On one end of the cascade of processes set in motion with a heart attack or stroke is the so-called Unfolded Protein Response (UPR); at the other end are numerous proteins with modified glucose molecules attached to them. For years, researchers have made countless observations relating to these opposite ends of the spectrum. Now, UT Southwestern researchers have discovered a pathway that links these two disparate biological occurrences, a discovery that might open the door for new types of treatment.

"Our findings uncover the direct coupling of these two important pathways and raise the prospect of therapeutic manipulation of the UPR to lessen the damage caused by heart attack and stroke," said Dr. Joseph A. Hill, Professor of Internal Medicine and Molecular Biology, and holder of the James T. Willerson, M.D. Distinguished Chair in Cardiovascular Diseases, and the Frank M. Ryburn, Jr. Chair in Heart Research.

The work by Dr. Hill's team has revealed a previously unrecognized progression following ischemia (when a tissue is deprived of oxygen and nutrients) and reperfusion (when that supply is restored, either spontaneously or therapeutically). Ischemia / reperfusion injury underlies health issues such as heart attack, stroke, and numerous other ailments including diseases of the kidney, liver, skeletal muscles, and more.

Heart attacks trigger the UPR process inside myocytes (heart cells). A link between ischemia reperfusion and UPR has been suggested previously, but compelling evidence was absent until this new scientific discovery emerged.

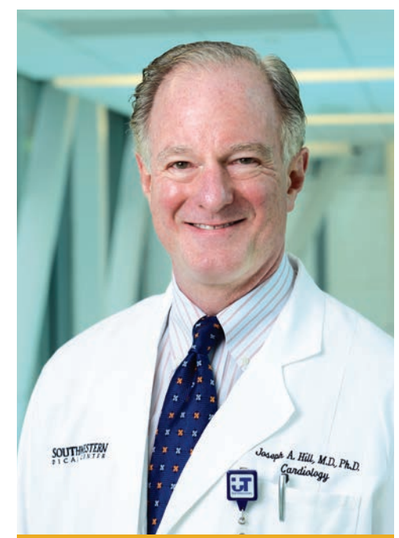
The onset of UPR leads to production of a molecule called spliced X-box binding protein 1 (Xbp1s), which activates the hexosamine biosynthetic pathway (HBP). The HBP is responsible for producing modified glucose molecules that attach to proteins, causing beneficial changes in function and stability.

"We discovered a linear cascade downstream of ischemia/reperfusion that involves UPR activation, elicitation of Xbp1s, consequent activation of the HBP, and robust cardioprotection," said Dr. Hill, also Chief of the Division of Cardiology and Director of the Harry S. Moss Heart Center. "It is the first time that researchers have been able to unveil a clear pathway leading to significant cardioprotection, often thought of as the 'holy grail' of cardiology."

While it is clear that the O-GlcNAcylation process protects the heart, researchers still do not understand how protection is mediated, Dr. Hill noted.

"However, now we know what turns the process on, a finding that points the way to future research and possibly new therapeutic means by which to safeguard the heart," he said.

The study, undertaken by Dr. Zhao Wang, an Instructor of Internal Medicine, directly raises the question of whether Xbp1s



Dr. Joseph A. Hill

can be manipulated therapeutically. The thought is that increasing the body's production of Xbp1s will enhance the heart's ability to withstand a heart attack. In fact, using mice engineered to have extra copies of Xbp1s in the heart, Dr. Wang initiated heart attacks that were ultimately smaller and less harmful to the host. Conversely, when he deleted the gene altogether and initiated heart attacks, the effects were much larger and more harmful to the carrier.

"If we can find a way to enhance Xbp1s in the heart, it could be a very significant medical advancement," Dr. Hill said. "At this juncture, however, we're extremely pleased to have uncovered a major pathway that leads to protecting the heart in the face of danger."

Comprehensive care for the most complex wounds

UT Southwestern's multidisciplinary wound care efforts have converged in a new, state-of-the-art clinic. One of the first clinics in North Texas to offer comprehensive, streamlined wound care, the Wound Care Clinic provides care for patients who suffer from a variety of chronic wounds, such as diabetic foot ulcers, abdominal wounds, venous ulcers, traumatic injury wounds, pressure ulcers, and wounds that occur following surgery and cancer treatment.

Patients can now see a team of wound-care specialists in physical medicine and rehabilitation, plastic surgery, podiatry, and vascular surgery for evaluation and treatment in one centralized location – a process that eases access to care for both patients and physicians.

In wound care, easy access to multiple disciplines is critical, because many complex wounds are caused by other medical conditions. For instance, the clinic's wound-care specialists often treat patients with lymphedema, a common disease among individuals who have undergone treatment for cancer in the lymph nodes. Specialists also care for patients suffering from diabetic foot ulcers, which affect approximately 25 percent of all diabetes patients.

In treating diabetic foot ulcers, the team's goal is not only to alleviate acute discomfort and restore function, but also to prevent long-term consequences. "Advanced diabetic ulcers are the single most common reason for amputations," said Dr. Lawrence Lavery, Professor of Plastic Surgery, Orthopaedic Surgery, and Physical Medicine and Rehabilitation. "What makes us unique is our ability to assess patients' needs early, determine any vascular or plastic surgery care they may need, work to accelerate healing, and prevent further deterioration of the ulcer. This, in turn, disrupts the pathway to amputation for many patients."

In addition to advanced, comprehensive care, patients also receive access to UT Southwestern's leading-edge research on how to prevent and care for the most complex wounds. "Another important advantage we offer patients is access to a full spectrum of therapies based on scientific evidence," Dr. Lavery said. "For some patients, that could be a combination of new and old therapies for diabetic foot ulcers, while for others it may include stem cell-based wound therapy or use of bioengineered tissue."

The clinic offers a full range of wound-care treatment services, including hyperbaric oxygen therapy, new and advanced wound-specific dressings, negative-pressure wound therapy, total contact casting, vascular imaging, and surgery focused on restoring blood flow, as well as reconstructive techniques to improve function. Together, these methods are key to healing chronic wounds and, most importantly, improving patients' quality of life.

"Many of the patients who come to us have lost hope that they can find relief or solutions for their chronic wounds," said Dr. Jean de Leon, Professor of Physical Medicine and Rehabilitation and Medical Director of the Wound Care Clinic. "But after seeing our team of specialists and receiving a comprehensive plan of care, they see their conditions drastically improve."

"Another important advantage we offer patients is access to the full spectrum of therapies based on scientific evidence."

—Dr. Lawrence Lavery

Hyperbaric oxygen chambers are used to assist in healing patients' chronic, complex wounds.

2014

ANNUAL REVIEW

HIGHLIGHTS

of the year

HONORS

NEUROSCIENCE CHAIR TAKAHASHI ELECTED TO INSTITUTE OF MEDICINE


Dr. Joseph Takahashi

Dr. Joseph Takahashi, Chairman of Neuroscience, was elected to the Institute of Medicine, a component of the prestigious National Academies. With his election, 19 current UT Southwestern faculty members have been inducted into the IOM.

Dr. Takahashi, who also is an Investigator in the Howard Hughes Medical Institute at UT Southwestern and holder of the Loyd B. Sands Distinguished Chair in Neuroscience, was inducted into the National Academy of Sciences in 2003.

He is known for landmark discoveries in the field of circadian (daily) rhythm. He pioneered the use of forward genetics and positional cloning in the mouse as a tool for the discovery of genes that underlie neurobiology and behavior. Nearly 20 years ago, Dr. Takahashi identified the world's first gene in a mammal involved in the circadian rhythms that govern virtually every aspect of life, including sleeping, waking, and eating. Last year, his laboratory's ongoing investigations of addiction and behavior patterns successfully identified a gene in mice that controls the body's response to cocaine.

SCIENTISTS RECEIVE PRC DISTINGUISHED AWARDS

The President's Research Council (PRC) presented its 2014 Distinguished Early Career Researcher Awards to two of its "best and brightest" early-career researchers – Dr. Said Kourrich, Assistant Professor of Psychiatry, and Dr. Luke Engelking, Assistant Professor of Internal Medicine and Molecular Genetics. Each received a $65,000 award.

Dr. Kourrich studies experience-induced synaptic and intrinsic plasticity, especially focusing on exposure to drugs that are commonly abused. He also studies the interaction between intrinsic and synaptic excitability in the shaping of global neuronal activity, and the regulation of neuronal excitability. Dr. Kourrich came to UT Southwestern in 2013 from the National Institutes of Health's Intramural Program at the National Institute on Drug Abuse.

Dr. Engelking, a 2007 graduate of the Medical Scientist Training Program at UT Southwestern, studies the role of the intestine in the control of metabolism and the development of metabolic diseases such as obesity, diabetes, and fatty liver. He earned his doctorate in the UT Southwestern laboratory of Nobel Laureates Drs. Michael Brown, Professor of Molecular Genetics, and Joseph Goldstein, Chairman of Molecular Genetics. Dr. Engelking joined the Digestive and Liver Disease Program at UT Southwestern in 2010, completing his fellowship in February 2014.


Dr. Luke Engelking (left) and Dr. Said Kourrich have received 2014 Distinguished Researcher Awards from the President's Research Council.

The Distinguished Researcher Award is presented annually by the PRC, which is made up of community leaders who are interested in learning about and advancing medical research at UT Southwestern. The PRC was founded 29 years ago through the vision and generosity of UT Southwestern supporters Cece Smith and Ford Lacy and has awarded more than $2.5 million in research funds contributed by its members.

TAMEST SELECTS RESEARCHER FOR O'DONNELL AWARD

UT Southwestern researcher Dr. Richard Bruick, Professor of Biochemistry, received the 2014 Edith and Peter O'Donnell Award in Medicine.

The Academy of Medicine, Engineering and Science of Texas' Edith and Peter O'Donnell Awards recognize Texas researchers whose work exemplifies excellence in advancing understanding of important unmet needs.


Dr. Richard Bruick

The awards, first presented in 2006, are named in honor of the O'Donnells, who are among the state's staunchest advocates for excellence in scientific advancement and STEM (science, technology, engineering, and mathematics) education.

Dr. Bruick, a Michael L. Rosenberg Scholar in Biomedical Research, uses a variety of chemical, biological, and structural approaches to identify and characterize the mechanisms cells use to respond to environmental and metabolic cues. He studies cellular responses to maintain oxygen and iron homeostasis that have helped lay the foundation for the development of small molecule therapeutics. These hold the potential to provide improved treatments for anemia, renal cancers, and iron overload disorders.

LEVINE RECEIVES KORSMEYER AWARD FOR AUTOPHAGY RESEARCH

Dr. Beth Levine, a Howard Hughes Medical Institute Investigator and Director of the Center for Autophagy Research at UT Southwestern, received the 2014 Stanley J. Korsmeyer Award from the American Society for Clinical Investigation (ASCI).


Dr. Beth Levine

The award recognized Dr. Levine's fundamental contributions to the understanding of autophagy – literally, "self-eating" – a housecleaning process in which cells destroy damaged proteins and organelles.

Each year, the award recognizes the outstanding achievements of ASCI members in advancing knowledge in a specific field and in mentoring future scientists. The ASCI, established in 1908, is one of the nation's oldest and most respected medical honor societies and counts more than 3,000 physician-scientists as members.

In 2013, Dr. Bruce Beutler, Nobel Laureate and Director of the Center for the Genetics of Host Defense, became the first UT Southwestern faculty member to receive the Korsmeyer Award for his discoveries in innate immunity. Dr. Levine's honor marked the second award for a UTSW researcher. Only one other institution – Harvard University – has had two faculty members honored with this award.

Dr. Levine holds the Charles Cameron Sprague Distinguished Chair in Biomedical Science. In 2013, she was elected to the National Academy of Sciences, which represents one of the highest honors attainable by an American scientist.

UNGER EARNS PRESTIGIOUS AWARD FOR DIABETES RESEARCH

Dr. Roger Unger, Professor of Internal Medicine, was awarded the 2014 Rolf Luft Award for his identification of glucagon as a pancreatic hormone that raises blood sugar levels, having the opposite effect of insulin.


Dr. Roger Unger

The award from the Karolinska Institutet, the prestigious medical university in Sweden that is also home to the Nobel Assembly, annually honors one scientist worldwide for outstanding contributions to endocrinology and diabetes research.

Dr. Unger was not only at the forefront of the identification of glucagon as a key hormone that balances insulin regulation of blood sugar, but almost single-handedly rekindled the current widespread interest in the physiology of glucagon by establishing the hormone as a major drug target. Dr. Unger's research revealed that diabetes is a bihormonal disease in which insufficiency of insulin is always associated with an excess of glucagon, which accounts for the hepatic overproduction of glucose and ketones in diabetes, noted the Karolinska Institutet. Dr. Unger holds the Touchstone/West Distinguished Chair in Diabetes Research.

The award marked the second time in three years that a UT Southwestern faculty member has received this honor. Dr. David Mangelsdorf, Chair of Pharmacology, received the Luft Award in 2012 for his research on nuclear receptor pathways.

SEN. HUTCHISON HONORED FOR SUPPORT

UT Southwestern renamed the central drive through the main campus Senator Kay Bailey Hutchison Drive in honor of the former senator who has strongly supported UT Southwestern, medical discovery, and higher education in general.

Through her numerous leadership positions in the Senate, Sen. Hutchison helped to secure funding for critical research infrastructure and health issues, such as Gulf War Syndrome, which have benefited patients across the country. She also has been instrumental in promoting a better understanding and appreciation for the benefits provided by


Former U.S. Sen. Kay Bailey Hutchison and Dr. Daniel K. Podolsky

The central drive through the main campus was renamed Senator Kay Bailey Hutchison Drive, recognizing the contributions the Senator has made to UT Southwestern, medical discovery, and higher education.

science and technology, as well as the importance of educating new generations of scientists and caregivers.

"It is clear that Sen. Hutchison – with much foresight – has long appreciated the need to support medical research and discovery, to drive advances in care that have benefited so many, in so many ways," said Dr. Daniel K. Podolsky, President of UT Southwestern Medical Center. Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

RESEARCH

NEW CENTER TARGETS PATIENT-CENTERED OUTCOMES RESEARCH

UT Southwestern's new Center for Patient-Centered Outcomes Research is part of a national network of seven institutions focused on patient-centered outcomes and comparative-effectiveness research aimed at improving patient care. Patient-centered outcomes research is a relatively new field that assesses the benefits and harms of different preventive, diagnostic, therapeutic, palliative, and health delivery system interventions.

The center is funded through a $5 million, five-year grant from the federal Agency for Healthcare Research and Quality, and led by Dr. Ethan A. Halm, Chief of the William and Gay Solomon Division of General Internal Medicine and Chief of Outcomes and Health Services Research in the Department of Clinical Sciences. The grant expands the research infrastructure, databases, training programs, personnel, laboratories, and collaborative relationships needed to conduct successful patient-centered research.

Dr. Ethan A. Halm

"The best way to improve the quality, safety, and efficiency of health care is to conduct rigorous studies that establish what works and doesn't work, for whom, and under what circumstances. Once this information is known, the next challenge is to understand how to most effectively deliver the right care, to the right person, in the right way, at the right time in the real world," said Dr. Halm, principal investigator of the grant, Professor of Internal Medicine and Clinical Sciences, and holder of the Walter Family Distinguished Chair in Internal Medicine in Honor of Albert D. Roberts, M.D.

UTSW NAMED STRATEGICALLY FOCUSED PREVENTION RESEARCH CENTER

Researchers and clinicians at UT Southwestern are among a small, select group at U.S. universities to receive inaugural funding from the American Heart Association for work that takes aim at heart disease and stroke. The funds, totaling $15 million nationally, launched Strategically Focused Prevention Research Centers around the country.

UT Southwestern faculty are tackling heart failure with preserved ejection fraction, HFpEF, which is the single greatest cardiovascular problem for which there are currently no therapies. Half of the people who experience heart failure suffer from HFpEF.

At UT Southwestern, the four-pronged collaborative approach is led by Dr. Joseph A. Hill, Chief of the Division of Cardiology, Director of the Harry S. Moss Heart Center, Professor of Internal Medicine and Molecular Biology, and holder of the James T. Willerson, M.D. Distinguished Chair in Cardiovascular Diseases, and the Frank M. Ryburn, Jr. Chair in Heart Research. He, along with Dr. Thomas Gillette, Assistant Professor of Internal Medicine, are focusing on the basic science side of the prevention research. Dr. Jarett Berry, Associate Professor of Internal Medicine and Clinical Science, and Dedman Family Scholar in Clinical Care, is focusing on the population science aspects of HFpEF prevention. Dr. James de Lemos, Associate Program Director of the Cardiology Fellowship Program and Professor of Internal Medicine, is leading the education and training portion of the collaborative effort. Dr. de Lemos holds the Sweetheart Ball-Kern Wildenthal, M.D., Ph.D., Distinguished Chair in Cardiology. Focusing on clinical applications are Dr. Benjamin Levine, Professor of Internal Medicine, holder of the Distinguished Professorship in Exercise Sciences, and Director of the Institute for Exercise and Environmental Medicine (IEEM), a collaboration between UT Southwestern and Texas Health Presbyterian Hospital Dallas, and Dr. Tom Sarma, Assistant Instructor in the Department of Internal Medicine.

RESEARCHERS GENERATE NEW NEURONS IN ADULT MAMMALS

Scientists at UT Southwestern have created new nerve cells in the brains and spinal cords of living mammals without the need for stem cell transplants to replenish lost cells.

Although it may someday be possible to regenerate neurons from the body's own cells to repair traumatic brain injury or spinal cord damage, researchers said it is too soon to know whether these initial studies resulted in any functional improvements. Spinal cord injuries can lead to a loss of neurons, scarring, and impaired motor and sensory functions. Scientists are hopeful that regenerating cells can be an avenue to repair damage, but adult spinal cords have limited ability to produce new neurons.

Scientists in the Department of Molecular Biology first successfully turned astrocytes – the most common non-neuronal brain cells – into neurons that formed networks in mice. They then successfully turned scar-forming astrocytes in the spinal cords of adult mice into neurons. The findings were published in *Nature Communications* and follow previous findings published in *Nature Cell Biology*.

Dr. Chun-Li Zhang

"Our earlier work was the first to clearly show in vivo (in a living animal) that mature astrocytes can be reprogrammed to become functional neurons without the need of cell transplantation. The current study did something similar in the spine, turning scar-forming astrocytes into progenitor cells called neuroblasts that regenerated into neurons," said Dr. Chun-Li Zhang, Associate Professor of Molecular Biology, a W.W. Caruth, Jr. Scholar in Biomedical Research, and senior author of both studies.

CLINICAL CARE

GOV. RICK PERRY TAPS UTSW TO LEAD EBOLA INITIATIVE

UT Southwestern teamed with Methodist Hospital System and Parkland Health & Hospital System to establish and operate the North Texas Ebola treatment and infectious disease bio containment facility. The facility and equipment are provided by partner hospitals, and staffing will be moved to the facility on an as-needed basis if the unit is activated.

UT Southwestern is contributing the expertise of physicians experienced in infectious disease, critical care and other specialties, and some nursing professionals as staffing requires.

Texas Gov. Rick Perry announced the creation of the state-of-the-art Ebola treatment and infectious disease bio containment facility in North Texas, which was among the first recommendations made by the Governor's Texas Task Force on Infectious Disease Preparedness and Response in order to better protect health care workers and the public from the spread of infectious diseases.

Dr. Daniel K. Podolsky speaks at a press conference to announce that UT Southwestern will lead a unified response for the care of future Ebola patients in Texas. Also pictured are, from right, Texas Governor Rick Perry, Dr. David Lakey, Commissioner of the Department of State Health Services, and Dr. Brett Giroir, who is leading the Texas Task Force on Infectious Disease Preparedness and Response.

SIMMONS CANCER CENTER ATTAINS NCI CLINICAL TRIALS DESIGNATION

The Harold C. Simmons Comprehensive Cancer Center at UT Southwestern is among only 30 U.S. cancer research centers to be named a National Clinical Trials Network Lead Academic Site, a prestigious new designation by the National Cancer Institute. It is the only Cancer Center in North Texas to be so designated.

UT Southwestern received a U10 grant, which brings $3.24 million over five years to bolster the cancer center's clinical cancer research for adults and to provide patients access to cancer research trials sponsored by the NCI, where promising new drugs often are tested.

"The National Cancer Institute's awarding of this important grant to UT Southwestern demonstrates that our cancer center continues to be the leader in North Texas and one of the national leaders in the latest cancer research," said Dr. James Willson, Associate Dean for Oncology Programs, Professor and Director of the Harold C. Simmons Comprehensive Cancer Center, and holder of The Lisa K. Simmons Distinguished Chair in Comprehensive Oncology.

The grant expands UT Southwestern's ability to do even more clinical trials. Cooperative group trials are national drug trials in which promising new drugs are tested with patients at research centers throughout the country to get a wider, more accurate representation of the patient population.

HISTORIC IMPLANT OF LVAD DEVICE SAVES MS PATIENT

A multidisciplinary team of UT Southwestern surgeons successfully implanted a specific, smaller left ventricular assist device (LVAD), marking the first such surgery in the country.

"Today, we're going to make history," said 18-year-old Eric Ramos on the day UT Southwestern doctors operated on his ailing heart. At the time, Eric, who has Duchenne muscular dystrophy, was one of only three patients in the country with the condition to receive a battery-operated LVAD. In addition, he was the first in the U.S. to be given a specific, smaller LVAD that meant doctors would not need to manipulate his diaphragm, potentially compromising his limited pulmonary function.

Duchenne muscular dystrophy, a recessive X-linked form of the disease, affects around 1 in 3,600 boys. Diagnosed at age 6, Eric has used a wheelchair for the past seven years because his muscles, including his heart and lungs, are rapidly degenerating.

Lead surgeon Dr. Dan Meyer, Professor of Cardiovascular and Thoracic Surgery and Director of Mechanical Assist Devices, said it took a team to pull Eric through this historic feat. "We had cardiologists, cardiothoracic surgeons, LVAD coordinators, neurologists, pulmonologists, social workers, nutritionists, and a host of nurses and others excited to be a part of this unique opportunity," Dr. Meyer said.

"Delivering advanced medical care to patients like Eric is something you can only do at an institution like UT Southwestern, where we have the experience and the specialized care to perform higher-risk surgeries that other hospitals would not even entertain," Dr. Meyer added.

EDUCATION

THREE SCHOOLS CONFER DEGREES

Diplomas were conferred to 225 UT Southwestern Medical School students and 99 UT Southwestern Graduate School of Biomedical Sciences students in May 2014, commencement ceremonies. In December 2013, the UT Southwestern School of Health Professions awarded 132 students their degrees or certificates. The graduates included students from physical therapy, physician assistant studies, prosthetics-orthotics, clinical nutrition, radiation therapy, and rehabilitation counseling.

Dr. Andrew Avery, left, was awarded the Southwestern Medical Foundation's Ho Din Award for 2014. Offering congratulations are, center, Wes Norred, Vice President of Student and Alumni Affairs, and Edward Cary III, the grandson of Dr. Edward H. Cary, the foundation's first president.

Dr. Richard J. Baron, President and CEO of the American Board of Internal Medicine and the ABIM Foundation, delivered the keynote address to the Medical School graduates and guests. Southwestern Medical Foundation's Ho Din Award, the top honor for graduating medical students, was presented to Dr. Andrew "Drew" Avery.

The Graduate School's address was delivered by Dr. Luis Parada, Chairman of Developmental Biology. Dr. Parada holds the Southwestern Ball Distinguished Chair in Nerve Regeneration Research, and the Diana K. and Richard C. Strauss Distinguished Chair in Developmental Biology. Jiaxi Wu received the Nominata Award, given to the outstanding Graduate School student.

RESIDENCY PROGRAMS AMONG NATION'S BEST

Five specialties at UT Southwestern rank among the top 10 national medical residency programs, including the nation's top program for plastic surgery, according to new listings compiled by *U.S. News & World Report* and physician referral network Doximity. UT Southwestern residency programs ranking among the top 10 are:

- #1 in Plastic Surgery
- #6 in Obstetrics and Gynecology
- #8 in Urology
- #9 in Dermatology
- #10 in Internal Medicine

UTSW AMONG TOP 10 IN LEADERSHIP DEVELOPMENT

UT Southwestern was named among the top 10 "Best Organizations for Leadership Development" by the National Center for Healthcare Leadership (NCHL) for its efforts to prepare current and future leaders, who are transforming health care.

The BOLD recognition identified health care organizations for their evidence-based leadership development practices, aimed at achieving excellence and improving the quality of health care in their communities. The practices will be shared with organizations throughout the country to help them prepare future leaders and achieve organizational excellence.

UT Southwestern was the only Texas institution in the top 10.

APPOINTMENTS FOR 2013-2014

The following individuals were appointed to endowed positions or to major leadership positions at UT Southwestern during the past fiscal year.

- **Dr. Kathleen Bell,** to Chair of Physical Medicine and Rehabilitation, and to the Kimberly-Clark Distinguished Chair in Mobility Research.
- **Amanda Billings,** to Vice President for Development.
- **Dr. Steven Bloom,** to the Jack A. Pritchard, M.D. Chair in Obstetrics and Gynecology.
- **Dr. E. Sherwood Brown,** to the Aradine S. Ard Chair in Brain Science.
- **Dr. Diego Castrillon,** to the Vernie A. Stembridge, M.D., Distinguished Chair in Pathology.
- **Dr. David Corey,** to the Rusty Kelley Professorship in Medical Science.
- **Archana Cronjaeger,** to Assistant Vice President, Physical Plant Administration.
- **Dr. Gaudenz Danuser,** to the Patrick E. Haggerty Distinguished Chair in Basic Biomedical Science.
- **Dr. Ralph DeBerardinis**, to the Joel B. Steinberg, M.D. Chair in Pediatrics.
- **Dr. Marc Diamond,** to the Distinguished Chair in Basic Brain Injury and Repair.
- **Dr. Deborah Diercks,** to Chair of the new Department of Emergency Medicine, and to the Audre and Bernard Rapoport Distinguished Chair in Clinical Care and Research.
- **Kathryn Flores,** to Assistant Vice President, Health System – Application Services.
- **Jeanne Forbis,** to Assistant Vice President for Communications.
- **Dr. Christine Kim Garcia**, to the Kern and Marnie Wildenthal President's Research Council Professorship in Medical Science.
- **Dr. Carlos E. Girod,** to the Ron Anderson, M.D. Professorship in Clinical Care and Education at Parkland Memorial Hospital.
- **Kelly Gonzalez,** to Assistant Vice President for Library Services.
- **Susan Hernandez,** to Associate Vice President and Chief Nursing Officer, UT Southwestern University Hospitals.
- **Dr. Lora Hooper,** to the Jonathan W. Uhr, M.D. Distinguished Chair in Immunology.
- **Dr. Jay Horton,** to Chief of Digestive and Liver Diseases.
- **Dr. Steve Jiang,** to Chief of the Division of Medical Physics and Engineering, which is part of the Department of Radiation Oncology, and to the Barbara Crittenden Professorship in Cancer Research.
- **Dr. Jane Johnson,** to the Shirley and William S. McIntyre Distinguished Chair in Neuroscience.
- **Dr. Manjula Julka,** to the Dr. John L. and Louise Roan Professorship in Family Medicine.

HIGHLIGHTS

■ **Ken Kellough,** to Assistant Vice President for Real Estate Auxiliary Services.

■ **Dr. Jeffrey Kenkel,** to interim Chair of Plastic Surgery.

■ **Dr. Kenneth Lee,** to the John W. and Rhonda K. Pate Professorship.

■ **Dr. Mark Lehrman,** to the John P. Perkins, Ph.D. Distinguished Professorship in Biomedical Science.

■ **Dr. David Mangelsdorf,** to the Alfred G. Gilman Distinguished Chair in Pharmacology.

■ **Angelica Marin-Hill,** to Vice President for Government Affairs and Policy.

■ **Dr. Bradley Marple,** to the Arthur E. Meyerhoff Chair in Otolaryngology/Head and Neck Surgery.

■ **Steve Moore,** to Vice President for Communications, Marketing, and Public Affairs.

■ **Gwen Natola,** to Associate Vice President, University Hospitals – Neurosciences.

■ **David Ngo,** to Assistant Vice President for Sponsored Programs Administration.

■ **Dr. Eric Olson,** to Director of the Hamon Center for Regenerative Science and Medicine.

■ **Sharon Parsley,** to Assistant Vice President for Institutional Compliance.

■ **Dr. Juan Pascual,** to The Once Upon a Time Foundation Professorship in Pediatric Neurologic Diseases.

■ **Dr. Craig Powell,** to the Ed and Sue Rose Distinguished Professorship in Neurology.

■ **Dr. Marilynn Punaro,** to Master of Fashena College.

■ **Dipti Ranganathan,** to Associate Vice President, Academic Information Systems.

■ **Dr. Roshni Rao,** to Director of the George N. Peters, M.D. Center for Breast Surgery.

■ **Dr. Stuart Ravnik,** to Associate Dean of UT Southwestern Graduate School of Biomedical Sciences.

■ **Dr. Gary Reed,** to Associate Dean for Quality, Safety, and Outcomes Education, and to Headmaster of Academic Colleges.

■ **Dr. Jose Rizo-Rey,** to the Virginia Lazenby O'Hara Chair in Biochemistry.

■ **Dr. Craig Rubin,** to Master of Seldin College.

■ **Dr. Ravi Sarode,** to the John H. Childers, M.D. Professorship in Pathology.

■ **Dr. Dan Sepdham,** to the Drs. Malone V. Hill and John W. Pate Professorship in Family Medicine.

■ **Dr. Stephen Skapek,** to the Distinguished Chair in Pediatric Oncology Research.

■ **Dr. Celette Skinner,** to the Parkland Community Medicine Professorship.

■ **Joshua Spencer,** to Assistant Vice President, Information Resources – Security.

■ **Dr. Lance Terada,** to the Dr. Carey G. King, Jr. and Dr. Henry M. Winans, Sr. Chair in Internal Medicine.

■ **Dr. William Turner,** to Master of Sprague College, and the Carla and Paul Bass Professorship in Medical Education Honoring Charles C. Sprague, M.D.

■ **Dr. Maria Veling,** to the Beth and Marvin C. "Cub" Culbertson Professorship in Pediatric Otolaryngology.

■ **Valla Wilson,** to Assistant Vice President, Office of Internal Audit.

■ **Dr. Ruth Ann Word,** to the Mary Dees McDermott Hicks Chair in Medical Science.

■ **Dr. Helen Yin,** to the Margaret Yin Chair for the Advancement of Women Faculty.

■ **Cynthia Young,** to Assistant Vice President, UT Southwestern University Hospitals.

■ **Dr. Andrew R. Zinn,** to Dean of UT Southwestern Graduate School of Biomedical Sciences.

MAJOR GIFTS IN 2013-2014

Philanthropists continued to demonstrate their commitment to UT Southwestern in 2013-2014, providing support for a variety of research, clinical, and educational programs.

Major new pledges and gifts received in the fiscal year 2013-2014 included:

■ An anonymous donor gave multiple transformational gifts in excess of $95 million. Gifts totaling $36,000,000 were directed to support the Medical Center's efforts in brain injury/repair research. A gift of $45,000,000 was given in support of research programs in the area of obesity and in the Center for Human Nutrition. A $10,000,000 gift was directed to establish the Eugene P. Frenkel, M.D. Program for Endowed Scholars in Clinical Medicine. A gift of $9,200,000 supported genetics research under the direction of Dr. Bruce Beutler. In addition, a gift of $500,000 was given to promote nursing excellence at UT Southwestern and a gift of $250,000 helped establish the Alfred G. Gilman Distinguished Chair in Pharmacology.

■ $10,005,124 from Mr. W.A. Moncrief, Jr., including $8,000,000 to enhance UT Southwestern's clinical service delivery in Fort Worth and $2,000,000 to support construction of the new William P. Clements Jr. University Hospital.

■ $10,000,000 from the Hamon Charitable Foundation to support the establishment of the Hamon Center for Regenerative Science and Medicine at UT Southwestern.

■ $9,711,250 from the Welch Foundation to support research.

■ $5,000,000 from Mr. and Mrs. John F. Eulich to Southwestern Medical Foundation to support the construction of the new William P. Clements Jr. University Hospital.

■ $3,948,341 from the Lydia Bryant Test Trust to support the Lydia Bryant Test Distinguished Professorship in Psychiatric Research II.

■ $3,800,000 from Mr. Jere W. Thompson and family to Southwestern Medical Foundation to support the construction of UT Southwestern's new William P. Clements Jr. University Hospital.

■ $1,716,635 from the proceeds of the 2013 Sweetheart Ball to Southwestern Medical Foundation in support of cardiology research at UT Southwestern.

■ $1,637,500 from an anonymous donor, including $1,000,000 to support the purchase of an instrument for cryo-electron microscopy and cryo-electron tomography, $250,000 to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology, and $187,500 to support High Impact/High Risk Research Grant awards.

■ $1,500,000 from an anonymous grateful patient to support the construction and operation of the Neurosurgical Bioskills Training Laboratory.

■ $1,250,000 from Mrs. Ute Schwarz Haberecht and Dr. Rolf R. Haberecht to support the Robert D. Rogers Stroke Center and to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology.

■ $1,167,408 from the Juvenile Diabetes Foundation to support diabetes research.

■ $1,002,735 from an anonymous donor to Southwestern Medical Foundation to support research.

■ $1,000,000 from Mrs. Wayne E. Dear to Southwestern Medical Foundation for the construction of the new William P. Clements Jr. University Hospital.

■ $1,000,000 from Mr. and Mrs. Lawrence Lacerte to Southwestern Medical Foundation to support construction of the new William P. Clements Jr. University Hospital.

■ $1,000,000 from the Margaret Jonsson Family Foundation to Southwestern Medical Foundation to support construction of the new William P. Clements Jr. University Hospital.

■ $593,947 by the Grace H. Kirkpatrick Trust, on behalf of the Estate of Ruth H. Burnham, to support the establishment of the William F. and Grace H. Kirkpatrick Endowment Fund.

■ $592,363 from the Muscular Dystrophy Association to support research and the MDA Clinic at UT Southwestern.

■ $550,000 from the estates of Drs. Solomon B. Margolin and Nancy A. Cox to Southwestern Medical Foundation to support cancer research.

■ $525,000 from the David M. Crowley Foundation to support research in the areas of pathology and cancer, bipolar disease and schizophrenia, breast cancer, neurological surgery, and Parkinson's disease, as well as to support the Facial and Reanimation Program and the David M. Crowley Research and Rehabilitation Laboratory.

■ $500,000 from the Hartwell Foundation to Southwestern Medical Foundation to support research.

■ $500,000 from Ms. Margaret Yin to establish the Margaret Yin Chair for the Advancement of Women Faculty.

■ $493,000 from the Rainwater Charitable Foundation to Southwestern Medical Foundation to support research into the causes, treatment, and prevention of tauopathies.

■ $400,000 from the Lupe Murchison Foundation to Southwestern Medical Foundation to establish the Lupe Murchison Foundation Scholarship Endowment Fund.

■ $396,160 from the Children's Clinical Research Advisory Committee of Children's Medical Center Dallas to support pediatric research.

■ $365,585 from Novo Nordisk Inc. for education programs.

■ $338,500 from Ellison Medical Foundation to support research.

■ $335,048 from the Foundation for the Physically Disfigured to promote excellence in patient care and the treatment of physical disfigurements and wound healing.

■ $335,000 from the Charles Y.C. Pak Foundation to support research in cardiology, electrophysiology, and mineral metabolism.

■ $300,000 from Mr. and Mrs. Edwin R. Daniels to Southwestern Medical Foundation to support research.

■ $265,000 from the Damon Runyon Cancer Research Foundation to support cancer research.

■ $250,000 from Mr. and Mrs. Harold M. Brierley to Southwestern Medical Foundation to support biomedical research.

- $250,000 from the Eugene McDermott Foundation to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology.
- $250,000 from the Donald W. Reynolds Foundation to support geriatric research.
- $250,000 from Dr. and Mrs. Douglas P. Sinn to support activities in the Department of Oral and Maxillofacial Surgery.
- $250,000 from Mr. and Mrs. Charles M. Solomon to Southwestern Medical Foundation to support the new William P. Clements Jr. University Hospital.

Generous contributions and pledges of $100,000 to $249,999 were received from a number of additional donors, including the following new commitments from:

- Alex's Lemonade Stand Foundation for cancer research.
- Rita Allen Foundation for research.
- An anonymous donor to support lung cancer programs.
- An anonymous donor to support geriatric research and geriatric training.
- An anonymous donor to support urological disease research.
- BJC HealthCare to provide gastroenterology training support.
- Mr. Jeffrey A. Chapman to Southwestern Medical Foundation to support the construction of the new William P. Clements Jr. University Hospital.
- Chicago Community Trust/Searle Fund to support research.
- Columbia University to support diabetes research.
- Curing Kids' Cancer Inc. to support pediatric cancer research.
- Mrs. John J. Freiberger to support Alzheimer's disease research.
- Gayden Family Foundation to Southwestern Medical Foundation to provide unrestricted support for UT Southwestern.
- Mr. and Mrs. Mark D. Gibson, through The Melchizedek Fund of Communities Foundation of Texas, to Southwestern Medical Foundation to support education, research, and clinical care.
- Mr. and Mrs. Jeremy L. Halbreich to Southwestern Medical Foundation to establish endowed professorships in gastroenterology and cardiology in honor of John Warner, M.D., and Mack Mitchell, M.D.
- Mr. Wallace L. Hall to Southwestern Medical Foundation to support the construction of the new William P. Clements Jr. University Hospital.
- Johns Hopkins University to support neurofibromatosis research.
- Mr. and Mrs. Christopher W. Johnson to support autism research.
- The Kim Jordan Foundation to support amyotrophic lateral sclerosis (ALS) research.
- Nancy W. Marcus to Southwestern Medical Foundation to establish an endowed professorship in honor of Mack Mitchell, M.D.
- The Mary Kay Foundation to support breast cancer research.
- Miles Foundation for an organ transport system.
- William A. and Elizabeth B. Moncrief Foundation to support a new urology clinic at the Moncrief Cancer Institute.
- Mr. and Mrs. Jon L. Mosle III, to support the construction of the new William P. Clements Jr. University Hospital.
- National Ataxia Foundation to support research.
- PANAMAB, Inc. to support research.
- Ara Parseghian Medical Research Foundation to support research.
- Research to Prevent Blindness to support ophthalmologic research.
- Ms. Nancy Tartaglino Richards to support cancer genetics research.
- Mary R. Saner Charitable Trust to support patient care.
- Stanley Medical Research Institute to support research.
- Stryker-Leibinger for medical equipment.
- V Foundation for Cancer Research to support cancer research.
- The estate of Jo Ann F. Wells to support programs in medical education, research, and clinical care.
- Mr. and Mrs. J. McDonald Williams to Southwestern Medical Foundation to support the construction of the new William P. Clements Jr. University Hospital.
- Mrs. Michael H. Winter to support programs in physical medicine and rehabilitation.
- The Ivor and Mildred Wold Charitable Fund of Communities Foundation of Texas to Southwestern Medical Foundation to support the Mildred Wyatt and Ivor P. Wold Center for Geriatric Care.
- Mr. and Mrs. Sam Wyly to support research, education, and patient care.