Southwestern Medical Center staff is coming together in an extraordinary effort to focus on caring for one person. The Patient.

Science is the biggest adventure left to experience. And scientists are the adventurers.

At UT Southwestern, physicians are saving lives by increasing stroke awareness, pinpointing the causes and preventing future strokes with new techniques.

Researchers at UT Southwestern are identifying the factors that contribute to the fastest-growing major medical problem in the world. Left unchecked, it can lead to heart disease, diabetes and many other dangerous complications.

Interventional radiologists at UT Southwestern are helping patients avoid major surgery through the use of imaging techniques combined with minimally invasive surgery.

UT Southwestern is going the distance by bringing together a team of specialists in the largest clinic in the country designed solely for people with MS.

UV CAN BE SKIN'S SALVATION
A PRE-EMPTIVE PAIN STRIKE
ANXIETY AMONG US

2003 ANNUAL REVIEW
HIGHLIGHTS OF THE YEAR
FINANCIAL STATEMENT
GIFT REPORT
When university and civic leaders announced the Innovations in Medicine campaign for The University of Texas Southwestern Medical Center at Dallas in April 2002, an ambitious goal of $450 million for biomedical research and clinical care was adopted.

Within the overall goal was a special $50 million component of the drive – called the “Clinical Services Initiative” – designed to improve all aspects of how UT Southwestern provides care to its patients. Bolstered by a $10 million contribution from campaign chairman William T. Solomon and his wife, Gay, this new effort was intended not only to enhance health care at UT Southwestern, but also to lead the way nationally in returning the practice of medicine to its “patient-centered” roots.

Southwestern Medical Center staff is coming together in an extraordinary effort to focus on caring for one person. The patient.
THE CLINICAL INITIATIVE

“UT Southwestern’s Clinical Services Initiative is aimed at putting the patient’s perspective at the forefront. We believe this initiative will provide a model for the rest of American medicine.”

— William T. Solomon

A O U T P O U R I N G

AN OUTPOURING

of support for the campaign followed, including an anonymous $50 million gift in November 2003 – the largest in the medical center’s history and the biggest single philanthropic donation ever to a Dallas organization – much of which was dedicated to the Clinical Services Initiative. The enthusiastic response of the community carried the campaign past the $100 million mark by November 2003 and persuaded campaign leaders to set their sights even higher and raise the total campaign goal to $500 million.

“Clearly, leaders in our community are responding positively to what the medical center is and what we intend to become,” UT Southwestern president Dr. Kern Wildenthal said at the time. “Their support and encouragement have enabled us to increase our goal so that we may put more emphasis on the patient-services portion of the campaign.”

Although the donors of the record-setting $50 million donation did not desire recognition for themselves, Dr. Wildenthal said their wish is for UT Southwestern “to become as well-known for excellent clinical care and service as it already is for its outstanding research.”

The Clinical Services Initiative – with its budget now expanded to $100 million – is intended to transform care at UT Southwestern’s clinics and hospitals by enabling physicians and staff to center their attention on individual patients.

As the medical center has grown, so has the number of referred and private patients who seek care from its faculty – tenfold, to be exact. Just 20 years ago, annual private patient visits to UT Southwestern’s clinics totaled 40,000. Today, that number tops 400,000, in addition to an even greater number seen by the faculty at the clinics of Parkland Memorial Hospital.

Couple that with massive changes that have impacted American medicine as a whole – a technology explosion, nationwide insurance restrictions intended to curb costs, and an aging population even in need of greater medical care – and what once was a simple visit to the doctor can become a bewildering, bureaucratic experience.

“The explosion of technology in health care, together with nationwide structural changes brought on by rising costs, has made it increasingly difficult for patients everywhere to navigate today’s sophisticated health-care system with an experience that is humane and patient-friendly,” said Mr. Solomon. “UT Southwestern’s Clinical Services Initiative is aimed at changing that by putting the patient’s perspective at the forefront. We believe this initiative will provide a model for the rest of American medicine.”

It will start in the division of general internal medicine, the “front door” to the medical center.

The division, renamed the William T. and Gay F. Solomon Division of General Internal Medicine, is the largest clinical-care division at UT Southwestern. Its 53 primary-care physicians last year oversaw more than 67,000 outpatient visits for illnesses ranging from allergies to heart disease.

“Primary care is similar to the hub of a wheel, with specialty care being the spokes leading to the rim, which is why we wanted to start with general internal medicine,” said Dr. John Rutherford, vice president for clinical operations. “We will take what we learn there, improve upon it and then apply it throughout our system.”

These are among the clinical initiatives that should help patients access their doctors more efficiently, expedite their care and allow physicians to provide more individualized attention:

■ Emphasizing a more patient-centered culture, in which the quality of clinical service matches UT Southwestern’s world-class research, teaching, physician expertise and technology.

■ Creating a streamlined appointment scheduling system, so patient visits to various specialists can be coordinated easily.

■ Implementing a new patient-friendly telephone system, so calls can be completed without delay and frustration.

■ Installing a state-of-the-art electronic medical records system so all physicians involved in a case can simultaneously access data while maintaining confidentiality.

■ Enhancing customer-service training, performance measures, recognition and incentives for staff.

■ Making cutting-edge clinical treatment trials readily available to patients, and facilitating enrollment and participation in them.

■ Ensuring that there are adequate numbers of the latest models of magnetic resonance imaging machines, CAT scanners and other medical imaging technologies, so that patient care is not hindered by scheduling delays.

■ Linking management for all patient-related services so accountability is clear.

■ Establishing endowments for master physicians and practice groups.

“Our intent is to develop a seamless system of clinical care, combining exemplary patient-centered services with the latest technology and physician expertise,” Dr. Wildenthal said. “Because this is a key issue for the entire American health-care system, we hope our work will create a model for improved doctor-patient relations in other environments around the country.

The plan was devised after extensive internal studies, consultations with experts from other well-known American medical centers and site visits to top clinics, where both strengths and weaknesses were evaluated. In addition, focus groups composed of doctors, staff members and patients evaluated UT Southwestern’s current systems. And internal task forces throughout the medical center were created to determine how and in what order the various components of the Clinical Services Initiative will be implemented.

“All in all, this will permit UT Southwestern to make enormous progress in creating an unsurpassed patient-centered culture,” said Dr. Rutherford. “The Clinical Services Initiative is basically about customer service. We are focusing on the fact that we are in the business of providing not only excellent diagnosis and treatment but also excellent service.”

In addition to the Clinical Services Initiative, priorities of the Innovations in Medicine campaign include research and clinical programs in a number of areas of special importance, including Alzheimer’s and other neurological disorders; cancer; heart disease and stroke; pediatric illnesses, birth defects and inherited disorders; infectious diseases; immunology and biotechnology; and basic molecular research, biostatistics and computational biology, medical imaging, and biotechnology.

Early donations to the campaign have gone not only to the Clinical Services Initiative but also to facilitate construction of the largest biomedical research building in the state and to build the Moncrief Radiation Oncology Center on the UT Southwestern campus; for recruitment of leaders in neurology, psychiatry, cardiology, anesthesiology, radiology, pediatrics and internal medicine; and for support of a variety of research programs.

“The generosity of our benefactors already is making a difference,” said Dr. Wildenthal. “With continued support, there is no reason Dallas will not be internationally known as a destination for medical care as well as a center of research leadership.”
Serendipity in Science

By Susan Morrison

Dr. Steven McKnight had been born in a different time, he might have joined Captains Meriwether Lewis and William Clark for their four-year expedition across America. He would have reveled in the discovery of the unknown, soaking up things no other American ever had experienced.

Dr. McKnight doesn’t transverse uncharted land today, but his own territory – his lab – is equally a source of remarkable discoveries. Science, he says, is the biggest adventure left to experience. And scientists are the adventurers.

A sense of the unknown keeps them toiling in the lab, seeking to prove or disprove scientific theories, solve a problem, or answer a question. But all roads don’t lead to an expected end. The forks along the way can be fortuitous or, in some cases, simply frustrating. It’s all part of the journey that great adventurers thrive upon.

“Adventurers who are successful tend to have an idea of where they’re going; otherwise they would just flounder. But you’re going to places you’ve never been before, so you always get surprised,” said Dr. McKnight, chairman of biochemistry at The University of Texas Southwestern Medical Center at Dallas. “In fact, for me and for people who love science, it’s the adventure that’s the fun part. Science is the last frontier. It offers opportunities to make discoveries that no one has ever made before.”

To the untrained eye, science may appear to be a cut-and-dried universe. In some ways it is. Those who study physics or chemistry are bound to “certain laws of nature that you can’t break,” said Dr. McKnight, who holds the Sam G. Winstead and F. Andrew Bell Distinguished Chair in Biochemistry and the Distinguished Chair in Basic Biomedical Research.

The biological sciences, however, lend themselves more frequently to serendipitous discoveries. “In biology the answers to questions on how life works are crazy and baroque, and sometimes almost nonsensical.”

Dr. Michael Brown, director of the Erik Jonsson Center for Research in Molecular Genetics and Human Disease, said serendipity happens every day in the laboratory. The unexpected becomes the norm. In a lab that becomes a roadmap of possibilities, it’s up to the scientist to choose which path to take.

“The real challenge is to decide which unexpected result really is meaningful and which unexpected result is a mistake,” said Dr. Brown. “As they get older, most scientists don’t work directly at the bench anymore. I would say their major function is to help younger scientists navigate through this minefield of unexpected results.

“The classic cliche is, ‘Chance falling on the prepared mind.’ I suppose there’s a certain point to that, but often discoveries occur from chance falling on the unprepared mind.

“Very frequently an unexpected observation is made, and two people look at the data, and one says, ‘Boy, this is really important, and we need to pursue this,’ and the other says, ‘It’s nothing.’ The challenge is for the one who believes it is significant to actually do the next experiment to prove that it is.

“T here’s always that tension in science between whether an unexpected observation is really significant or whether it’s nothing. Of course 99 percent of these observations are not significant. It’s only the rare one that leads to a real discovery.”

Dr. Brown should know. He won the 1985 Nobel Prize in physiology or medicine with Dr. Joseph Goldstein, chairman of molecular genetics, for discovery of the underlying mechanisms of cholesterol metabolism. Their teamwork is an example of the give-and-take that makes serendipitous discoveries more feasible to pursue. It’s a scientific seesaw that’s common on the UT Southwestern campus, and one that students are drawn to.
“ONE VIRTUE of having two people do science together is that very frequently an unexpected result comes along, and one may say it’s nothing and want to move on; The OTHER may think it’s the key to everything. Me DEBATE IT and, in the end, agree on some course of action.” — Dr. Michael Brown

“EVERY TIME WE HAVE A COLLEGE student or high school student working in our lab, I ask them at the end of the summer if their concept of science has changed, and it always has, radically,” Dr. Brown said. “We have to teach students how science is done, how much trial and error there is, how much interaction it takes between people to make a scientific discovery these days. It’s rare that a scientific discovery is made by one person.

“One virtue of having two people do science together is that very frequently an unexpected result comes along, and one may say it’s nothing and want to move on to something else,” said Dr. Brown, who holds the W.A. (Monty) Moncrief Distinguished Chair in Cholesterol and Arteriosclerotic Research and, along with Dr. Goldstein, the Paul J. Thomas Chair in Medicine. “The other may think it’s the key to everything. We debate it and, in the end, agree on some course of action.”

The award-winning research on cholesterol metabolism of Drs. Brown and Goldstein, like most other scientific inquiry, had its twists and turns. “There certainly was no way to envision when we started our research, for example, how the LDL (low-density lipoprotein) receptor worked,” Dr. Brown said. “We started out trying to figure out what was wrong with children with high cholesterol, and we had a hypothesis that turned out to be wrong. But, in the course of the studies, we were able to figure out what the true defect was. And I guess the serendipitous part of it was that the mechanism that we found by which cells take up cholesterol from the bloodstream turned out to be a general mechanism that cells use to take up lots of other things from the bloodstream. We really didn’t have any right to expect that we would find this kind of general relevance.

“Usually when you make a discovery, it’s specific to your particular problem. It’s much more rare that a discovery opens up the way for other people to solve other problems. But sometimes what happens is that you make one of these crazy observations that don’t seem to fit, but you think that it might be telling you something. So you design another experiment to test whether that first result is right. When that second experiment confirms that the first one was really important, and it tells you something new about nature, those are fantastic moments, and they only happen a few times in the career of any scientist.”

Scientists have to be open-minded enough to let the real discoveries rise to the surface, Dr. Mcknight said. “You may be shooting for one answer to something and get a result that’s very different and one that may be much more important,” he said. “In that regard, it’s good to be broad-minded, knowing and thinking about science other than that which you study.”

As director of the Cancer Immunobiology Center, Dr. Ellen Vitetta knows that unexpected discoveries can be good or bad. They can make a planned project fail or delay the end result. But the key for scientists is to follow their instincts. “Probably 80 percent of the time serendipity kills me,” she said. “The other 20 percent of the time it leads to a path which I hadn’t anticipated taking, and it opens up a new area and a new way of thinking. Even when it works against you, those unexpected results sometimes make you rethink your whole research area and take another direction that you hadn’t anticipated.”

Dr. Vitetta, holder of the Scherley Simmons Patigan Distinguished Chair in Cancer Immunobiology, said the discovery of interleukin 4 in the mid-1980s was serendipitous. Interleukin 4 is a soluble molecule that promotes various components of the immune system, including killer T-cells, to fight allergies and make antibodies. Dr. Vitetta and her co-workers discovered that T-cells made an unidentified factor in a test tube. “We knew that this factor made antibodies switch from one class to another class. Up until that time, nobody had known what controlled the ability of our immune systems to switch that change. We found a factor that induced the change. We published that work, gave the factor a name, and we initially assumed that the work was complete,” she said.

Meanwhile, as Dr. Vitetta’s lab was studying how T-cells function, researchers at a laboratory in Bethesda, Md., directed by Dr. William Paul, had identified a factor that made those cells grow. The two labs soon reached the same conclusion: The factor they were studying turned out to be one substance, but with multiple functions. “No one would have predicted that one molecule could wear so many hats,” she said. “As we began to understand the immune system more, it fit together in a more rational pattern. But it was very serendipitous that three or four different discoveries converged onto the same molecule.”

Continued on page 29

“You MAY BE shooting for one answer to something and get a result that’s very different and one that may be much more important.”

Dr. Steven McKnight

8 SOUTHWESTERN MEDICINE

Dr. Michael Brown Dr. Joseph Goldstein

9 SOUTHWESTERN MEDICINE
"So, in this case, a treatment for cancer has led to a novel vaccine for a deadly toxin that is on the B list of bioterror agents," Dr. Vitetta said.

Researcher's in Dr. Masashi Yanagisawa's lab also got a surprise when they watched films of genetically engineered mice lacking a neuropeptide known to regulate appetite.

Dr. Yanagisawa, professor of molecular genetics and a Howard Hughes Medical Institute investigator, led a team that discovered orexin, a hormone important in the regulation of hunger. Using an infrared nighttime camera to study the nocturnal animals during their most active times, they noticed the mice that lacked orexin developed narcolepsy, a disorder that caused them to suddenly fall asleep for a couple of minutes.

"We felt that drawing any conclusion from the daytime behaviors of these mice (a nocturnal species) would be equivalent to observing men in the middle of the night and concluding that the human is a very lazy species," said Dr. Yanagisawa, holder of the Patrick E. Haggerty Distinguished Chair in Basic Biomedical Science. "So we decided to observe the orexin knockout mice during the night. More than anything, the infrared videos taught us that we never know where we are going in the great scientific endeavors. After all, we are still in the very initial stage of deciphering how nature works."

Nineteen years after winning the Nobel Prize, Dr. Brown still finds the scientific journey is one worth taking every day.

"It's interesting how a scientific problem evolves, but one way of analogizing it is to think of it as pieces of a puzzle," he said. "You can go for months or years with unconnected observations that seem to be telling you something, but you're not sure what it is. Those are the times when you have sleepless nights, or you wake up in the middle of the night with these brilliant ideas because it's obviously something that's dwelling in your subconscious; you know it's important but you can't understand it.

"Then, if you're lucky, you conceive of an experiment that will somehow put all the pieces together. When that experiment happens and is successful, then you say, 'That's why we had that result six months ago, and that's why we had that other result three weeks ago!' Now it all makes sense. Those are the fabulous moments.

"Some don't like the word serendipity because it implies dumb luck. But finding the unexpected is why you do science. No one should be surprised that there are often examples of this in science, where we're studying the elephant and the toe of the elephant, and we suddenly realize we're all studying the elephant.

"Now that the human genome is unraveled, and we're beginning to understand the proteins involved, I suspect that a lot more convergence will happen. We'll discover that one gene can do five things or make five proteins."

Recently, researchers in Dr. Vitetta's lab made a very timely discovery. While working on developing targeted therapies for cancer and autoimmune diseases, they stumbled upon the unexpected, which eventually led to a vaccine for a deadly toxin.

"For many years we had been developing antibodies coupled to ricin-A chain," Dr. Vitetta said. "But we found a side-effect in patients that we had not seen in mice or monkeys. Humans developed "vascular leak syndrome," which causes fluid retention. In essence the treatment worked very well, but the amount of drug we could give was limited by this problem."

The scientists spent time discussing the choices. Did they address the toxicity problem and try to solve it, or simply lower the dose and also the effectiveness? They decided the implications were too broad to ignore, particularly since it killed cancer cells so well. They identified the three amino acids in the ricin-A chain that caused the problem. Although those three couldn't be altered without losing effectiveness, they found two nearby residues that could be changed to block the deleterious effect. The altered protein was active but did not cause vascular leak in their animal models. It is now being tested as an anti-cancer drug; clinical trials will start in the next year.

It then occurred to the researchers that if they altered one of these three amino acids and also altered one of the active site residues, the result should be a totally harmless ricin-A chain protein—one that might make an effective vaccine against the toxin. Up until that time, the only ricin vaccine that was available was developed by the U.S. Department of Defense, and it was quite toxic. Dr. Vitetta and her co-workers made the appropriate mutations, and the mutant A-chain was expressed and purified. Mice immunized with the vaccine were protected against ricin, but the vaccine itself had no toxicity and could be safely given at doses 100 times higher than required to immunize the mice. It is now moving toward testing in human volunteers.

"No one would have predicted that one molecule could wear so many hats. As we began to understand the immune system more, it fit together in a more rational pattern.

But—it was very serendipitous that three or four different discoveries converged onto the same molecule."
Pamela Crim’s whole world started spinning as everything turned black.

In the time it took the 19-year-old to stand up from an office chair, she had gone to the epicenter of a stroke.

A co-worker brought her some water, but when she reached for the cup, her arm flailed in the wrong direction. Her face was paralyzed.

“I tried to tell people what I was feeling, but the words came out all wrong,” said Mrs. Crim, who was newly married. “I remember thinking, ‘Did I kiss my husband goodbye this morning?’ Because I thought I was going to die.”

The paramedics arrived within minutes. They took her to a military hospital near Fort Stewart, Ga., where her husband was stationed. Over the next nine hours, Mrs. Crim was transferred four times to various hospitals until doctors were able to get a magnetic resonance imaging (MRI) test that revealed the problem.

A clot was blocking the blood flow to parts of her cerebellum and brain stem. The diagnosis came too late to administer “clot-blocking” drugs that can greatly reduce the risk of death or disability caused by this most common form of stroke.

Mrs. Crim was lucky. She survived, but she had to relearn how to walk and talk.

At The University of Texas Southwestern Medical Center at Dallas – where Mrs. Crim would later be diagnosed with an underlying blood disorder that caused her stroke – neurologists are working hard to increase awareness and improve the quality of stroke care in North Texas and across the nation. Long considered one of the finest stroke centers in the United States, UT Southwestern neurologists regard the treatment and prevention of stroke as a top priority.

By Rachel Horton
Among their achievements:

- Researchers at UT Southwestern helped develop the first clot-busting therapy in the 1980s and are now testing the next generation of clot-busters.
- Interventional neuroradiologists use state-of-the-art diagnostic equipment to pinpoint the cause of stroke and, in many cases, prevent future attacks using minimally invasive techniques.
- Neurological surgeons save lives by pre-empting the chance of stroke from a ruptured aneurysm with a medical device smaller than a standard paper clip.
- The medical center recently created the Beatrice Menne Haggerty Center for Research on Brain Injury and Repair in Strokes in order to learn more about the fundamental abnormalities that cause strokes and develop new approaches for treatment and prevention.
- We have built a broad base and a wide reputation for taking care of patients with all different kinds of stroke,” said Dr. Duke Samson, chairman of neurological surgery and director of the Mobility Foundation Center for Rehabilitation Research. We have more experience with a lot of unusual types of strokes and are able to diagnose and treat them with a frequency that is rare at most medical centers.”

**Dr. Duke Samson**

*We have more experience with a lot of unusual types of strokes and are able to diagnose and treat them with a frequency that is rare at most medical centers.*

**What happens if a stroke occurs?**

A stroke occurs when a blood vessel that transports nutrients and oxygen to the brain is blocked or bursts. About 83 percent of strokes are caused by blocked blood vessels and are called ischemic strokes. The remaining 17 percent are known as hemorrhagic strokes and are caused by a ruptured blood vessel.

When either form of stroke occurs, part of the brain begins to die from lack of blood flow. This in turn causes symptoms in the areas of the body controlled by that portion of the brain.

Warming signs for strokes include sudden numbness or weakness in the face, arms or legs, especially on one side of the body; sudden confusion or difficulty speaking or comprehending; sudden vision problems; sudden trouble walking or loss of balance and coordination; and sudden severe headache with no known cause.

An individual's risk of stroke is influenced by heredity, habits and age. Those over 55 who have a family history of stroke or have high blood pressure are considered at high risk. Other factors that increase the risk include smoking, diabetes and heart disease.

But patients like Pamela Crim clearly demonstrate that everyone is at risk. During the six years following her first stroke, Mrs. Crim suffered a second stroke – when she was eight months pregnant – and a transient ischemic attack, or “mini stroke.”

Doctors declared her case a medical mystery until she moved to Allen, Texas, and was referred to Dr. Mark Johnson, assistant professor of neurology at UT Southwestern. Dr. Johnson diagnosed Mrs. Crim with a disorder that causes her blood to clot easily.

Living in Farmersville, Texas, with her husband and 4-year-old son, she now takes blood thinners regularly and has been stroke-free since June 2002.

**Progress in Stroke Care**

Until recent years, there was little doctors could do for stroke patients. Because of this, many physicians developed a defeatist attitude about stroke that remains prevalent despite significant advances made in treatment in the last 15 years.

“For something that is the third-leading cause of death in the United States, stroke is still, in many environments, poorly understood and poorly treated,” said Dr. Samson, who holds the Lois C.A. and Darwin E. Smith Distinguished Chair in Neurological Surgery and the Kimberly-Clark Distinguished Chair in Mobility Research.

“For the tragedy, and it strongly emphasizes the importance of the educational process. We need to do something about the idea that still exists among some physicians who say, ‘We can’t do anything about stroke.’”

**Wonder Drugs**

In 1989 researchers at UT Southwestern refined a fast-acting drug called tissue plasminogen activator, or tPA, which can rapidly dissolve blood clots in patients with ischemic stroke, greatly reducing the risk of death or severe disability.

But the drug must be administered within three hours of the attack, and most patients do not get to the hospital or receive a diagnosis in time to receive it. In the United States, 750,000 people suffer a stroke each year; only 3 percent receive tPA.

The reasons for the delay are numerous. Many people simply do not recognize the warning signs or understand that stroke is an emergency. In addition, some patients and family members are not treated properly with stroke patients left in waiting rooms while problems perceived as more urgent are treated.

A third problem is lack of resources. In Pamela Crim’s case, she had to be transferred to a second hospital to have a computed axial tomography scan, and yet a third hospital for an MRI.

At UT Southwestern, a team of experts, including nurses, neurologists, interventional neuroradiologists and neurological surgeons, are on call 24 hours a day to ensure that stroke patients are evaluated and treated rapidly.

Patients at UT Southwestern have access to an array of high-tech tests, including arteriograms, in which interventional neuroradiologists like Dr. Philip Purdy insert a tiny catheter into an artery in the leg, feed the tube through the body to the brain and insert dye that allows blood vessels in the brain to be shown clearly.

In cases of ischemic stroke, Dr. Purdy, professor of radiology at UT Southwestern and holder of the Otieno and Jack Woolf, M.D., Distinguished Chair in Neurosurgery and Neuroangiography, can administer tPA directly to the site of the clot by using a technique called thrombolysis.

Neurologists at UT Southwestern are also currently testing a drug that could sharply increase the number of patients who could be treated with clot-busting therapy. Decomplase, which is derived from the saliva of vampire bats, can be used up to 9 hours after the onset of stroke.

**Stroke Prevention**

Brain aneurysms rupture in about 30,000 Americans every year with devastating results. Sixty percent either die or are left permanently disabled. For Dr. Samson and his neurological colleagues at UT Southwestern, the challenge is to catch the aneurysm before it bursts.

Neurological surgeons at UT Southwestern perform more pre-emptive surgeries to prevent stroke by ruptured aneurysm than any other medical center in the nation – more than 2,300 over the last decade.

The surgeons perform these life-sparing procedures by making a small, temporary opening in the skull and placing a tiny clip across the base of an aneurysm, cutting off blood flow to the arterial weakness.

The clipping technique is only one of many leading-edge approaches to diagnosis and treatment of aneurysms at UT Southwestern that involve specialists in vascular neurology, neurovascular surgery and interventional neuroradiology.

And UT Southwestern’s neurosurgeons teach the technique to surgeons from around the world.
BYPASSING STROKES

Mary Gustola Simpson, a 26-year-old mother of two, might not be alive today if not for a different kind of stroke surgery at UT Southwestern.

A stroke first forced its way into Mrs. Simpson’s world on a scorching summer day in August 1997. She was driving from work to her mother’s home in south Arlington when the fingers in her left hand suddenly became numb and heavy. Her grip on the steering wheel loosened. She shook her hand to make it stop. But the sensation climbed up her arm, into the left side of her face.

When Mrs. Simpson visited her family doctor and told him about the attack, he said it was probably a pinched nerve. He prescribed muscle relaxers. Three years later, she suffered a second stroke on her right side and was referred to Zale Lipshy University Hospital. There, UT Southwestern neurologists ordered an arteriogram and quickly found the reason for her strokes.

Mrs. Simpson has moy-a-moya disease – a rare illness that causes deterioration of the blood vessels in the brain and can lead to multiple strokes or death. She is just one of dozens of moy-a-moya patients referred to UT Southwestern for treatment from across the country.

In the spring of 2002, UT Southwestern neurosurgeons performed an intricate procedure known as stroke bypass surgery on both sides of Mrs. Simpson’s brain. The labor-intensive microsurgery, which can be done several different ways, involves taking a blood vessel or vein from an area that gets a high volume of blood flow – such as the scalp or the leg – and sewing it into another blood vessel or artery that carries blood directly to the brain.

Arteriograms taken after Mrs. Simpson’s surgeries reveal a new network of healthy blood vessels that have grown as a result of this new blood supply.

In the mid-1980s, stroke bypass surgery fell out of favor after a national medical journal published a study that suggested it was an ineffective treatment. But researchers at UT Southwestern and a handful of other medical centers across the country are now demonstrating that the procedure saves lives when it is reserved for certain patients who suffer from poor blood flow to the brain.

“Bypass surgery can lower the risk of stroke by at least half in some select patients who have impaired cerebral blood circulation,” Dr. Samson said. “Until the last couple years, there really weren’t a lot of good tests to separate which patients would benefit from this. Now that we have these tests, we believe there are many patients who would be helped by brain bypass surgery but who are not getting it.”

Extracranial-to-intracranial bypass surgery is performed at only a few major medical centers in the United States. UT Southwestern neurosurgeons perform it about 25 times a year, with patients referred from around the country.

After undergoing the surgery, Mrs. Simpson has been stroke-free for more than a year and a half. To look at her, one would never guess she’s survived multiple strokes and two brain surgeries. Sitting on a plush couch in her cozy south Arlington home one afternoon in July 2003, she looks like any other young mother. Her blonde hair hangs just below her shoulders, and her pale freckles peak through a thin layer of makeup.

A few feet away, her 3-year-old son, Hunter, and her 5-year-old stepdaughter, Lindsay, play quietly on the floor. She watches them as she reflects on the events of the last six years. There was a time when she thought she might never see this day, she says.
Some 14 years ago, a 20-foot fall did permanent damage to Raul Cortez’s back, eventually requiring eight surgeries. But another, more deadly sort of damage to his body had begun years earlier.

Once at the hospital for treatment of his back injury, tests revealed that he had non-insulin dependent diabetes mellitus, or type 2 diabetes. The disease is no stranger to millions of Americans – 16 million to be exact. Experts estimate that an additional 6 million Americans, like Mr. Cortez was, are undiagnosed.

If uncontrolled, type 2 diabetes can cause a myriad of complications, including heart disease and stroke, retinopathy (eye disease), kidney disease, and neuropathy (nerve damage).

How does it occur?

Diabetes is caused by insufficient activity of a hormone called insulin. Type 1 diabetes, also called juvenile diabetes or insulin-dependent diabetes mellitus, occurs when there is a severe lack of insulin in the body. It usually appears in people under 40 and affects about 10 percent of Americans. Type 2 diabetes results from insulin resistance, when the body fails to use insulin properly. Deficiencies in insulin lead to an inability of the body to use glucose, its main energy source.

Insulin is produced in the beta cells of the pancreas and controls the amount of glucose in the blood. If all beta cells are lost, as in type 1 diabetes, no insulin is produced. Blood glucose levels then become extremely elevated. Even if insulin production is normal, however, the utilization of glucose by tissues may be impaired if an individual has insulin resistance. Type 2 diabetes typically develops when insulin resistance is combined with a mild-to-moderate defect in the secretion of insulin.

Researchers at UT Southwestern are identifying the factors that contribute to the fastest-growing major medical problem in the United States and the world. Left unchecked, it can lead to heart disease, diabetes and many other dangerous complications. If Americans could make a few simple lifestyle changes, syndrome X might be prevented.
If you can’t see the belt buckle on someone, and they are not yet diabetic, then they probably will be in five, maybe 10 years or more. It’s eventually going to happen, unless they die of a coronary event before that time,” he said.

Dr. Unger’s research as director of the Touchstone Center for Diabetes Research has examined the mechanism by which obesity damages various tissues, such as the pancreatic islets, and ultimately leads to diabetes and cardiac dysfunction.

Now he and other researchers at UT Southwestern have turned their attention to a cluster of symptoms that put individuals at a threefold risk of developing diabetes: the metabolic syndrome, also referred to as syndrome X or the insulin-resistance syndrome, which affects nearly one-fourth of all Americans.

Individuals are considered to have the syndrome if they have three of the following: abdominal obesity, high triglycerides, low levels of high-density lipoproteins (HDL, or the “good” cholesterol), high blood sugar levels and high blood pressure.

In Mr. Cortez’s case, high blood sugar levels, abdominal obesity and high blood pressure were the three signals long ignored.

“Right now I think the metabolic syndrome is the reflection of our not having any way to compensate for unlimited caloric surplus,” Dr. Unger said. “The metabolic syndrome is a progressive disorder in which cells undergo metabolic damage and ultimately die.”

Researchers in the Center for Human Nutrition at UT Southwestern are aggressively tracking factors related to the development of the metabolic syndrome.

“It’s a complex condition,” said Dr. Scott Grundy, director of the Center for Human Nutrition. “It is one of the major medical and public-health problems both in the United States and worldwide, and it is a precursor of both cardiovascular disease and diabetes.”

“The metabolic syndrome has emerged as being as strong a contributor to early heart disease as cigarette smoking.”

“We’re moving forward slowly, but surely. We have not found any immediate breakthrough drugs or cure-all, but we are working out the role that obesity and genetics play in this disorder,” said Dr. Grundy, holder of the Distinguished Chair in Human Nutrition.

Insulin resistance appears to lie at the heart of the syndrome, said Dr. Nicola Abate, assistant professor of internal medicine and a nutrition scholar in the Center for Human Nutrition.

“One out of three individuals diagnosed with the syndrome will go on to develop diabetes,” Dr. Abate said.

In 2000 Dr. Abate received a $500,000 five-year grant from the National Institutes of Health to study insulin resistance in Asian-Indians and their descendents, a group with one of the highest incidences of diabetes and heart disease, and non-Hispanic Caucasians, who have a lower incidence than many ethnic groups.

His goal is to understand the interaction between an individual’s genes and acquired factors like obesity, age and lack of exercise.

“We believe there are genetic factors that cluster within ethnic groups and predispose populations more or less to the development of these conditions,” Dr. Abate said. “We think that insulin resistance is perhaps the area to look at for these ethnic differences.”

For the past five years, Dr. Abate and his collaborators have been studying the pathogenesis of insulin resistance, and they have discovered that several genetic polymorphisms, or slight variations, involved in insulin resistance are more abundant in Asians.

Identifying genes that may be involved in the predisposition to insulin resistance will have implications for all ethnic groups and may provide a possibility for early screening, Dr. Abate said.

Educating patients
Although Dr. Abate’s research could eventually allow doctors to identify individuals at risk for diabetes, he says educating patients now about their disease should be a major effort among physicians.

Dr. Abate believes patients are more likely to comply with a prescribed diet and lifestyle changes if they are actively involved in their own health care.

“Unless you educate people that there’s a danger in having an unhealthy lifestyle, nothing is going to change,” Dr. Abate said.

Putting his belief into action, Dr. Abate initiated an interactive class for patients at Parkland Memorial Hospital’s Lipid Clinic, for which he has served as medical director since 1998. It is where Mr. Cortez was referred more than a decade after his diagnosis and where he finally learned to manage his disease.

“I was in bad shape before I started going there. For about 13 years my diabetes control was very unstable. I even started having problems with my heart,” Mr. Cortez said.

During each visit, Mr. Cortez participates in a class on diabetes and nutrition before he is seen by Dr. Abate.

Mr. Cortez considers himself a veteran in the class. He is taught by a registered dietitian and nurse, along with a pharmacist, and includes a question-and-answer session and information about controlling diabetes through diet and exercise, as well as information about medications used in the management of type 2 diabetes.

During the class, participants discuss issues ranging from their experiences with lifestyle changes to accomplishments in weight, cholesterol and glucose control.

Mr. Cortez admits that he was hesitant to ask questions initially, but now he has a list prepared before he arrives.

The 47-year-old Dallas resident can recite the risk factors for diabetes, discuss how a healthy diet and an exercise program helps with diabetes control, and explain the complications linked to the disease. He can even explain how and why alcohol affects diabetes control.

“You can’t see the belt buckle on someone, and they are not yet diabetic, then they probably will be in five, maybe 10 years or more.”

—Dr. Roger Unger

“I was in bad shape before I started going there. For about 13 years my diabetes control was very unstable. I even started having problems with my heart.”

—Real Cortez

“Unless you educate people that there’s a danger in having an unhealthy lifestyle, nothing is going to change.”

—Dr. Nicola Abate
levels have improved from 280 mg/dL to 128 mg/dL. And through diet, exercise and medications, Mr. Cortez has increased his HDL cholesterol from 32 mg/dL to 48 mg/dL.

Desirable cholesterol levels are below 200 mg/dL, and optimal HDL levels are more than 40 mg/dL, according to the latest report issued by the National Cholesterol Education Program in 2001, for which Dr. Grundy served as the chairman of the Expert Panel on Detection, Evaluation and Treatment of High Cholesterol in Adults.

“You don’t have to get skinny to get rid of the metabolic syndrome,” Dr. Unger said. “But you do have to watch your weight and change your lifestyle.”

Although he still has a few pounds to lose, Mr. Cortez said he is well on his way to achieving his goals of keeping his cholesterol, blood pressure and blood glucose levels under control.

“I know that I can’t undo the damage that has already been done, but now I’m getting everything under control,” he said.

“We found that a diet rich in monounsaturated fatty acids led to improvement in HDL cholesterol, triglycerides and, most importantly, diabetes control.”

—Dr. Abhimanyu Garg

“It is a family problem,” said Dr. Dana Hardin, associate professor of pediatrics and internal medicine. “It is very rare when only one member of a family is overweight.”

Dr. Hardin said she recommends that the whole family—not just the child—keep food journals so they can record what and how much they are eating. A journal can help patients and their families zero in on problem foods and replace them with healthier alternatives.

Type 2 diabetes can be managed with insulin and oral medications, but diet and exercise are essential to avoid future complications from the disease, Dr. Hardin said. In some children, weight loss and exercise can return blood sugars to normal levels.

Encouraging active play is a good first step, said Dr. Steinberg. “Our children are becoming more and more sedentary,” he said. “Children should be encouraged to have unstructured play at home, in school, in child-care settings and throughout the community. They need to turn off the television, put down the video games, and go outside and run and play.”
For several years, says Judge Randolph Mason of Fort Worth, the jury was still out on how doctors would treat his aneurysm.

Would it be conventional surgery? Or would it be endovascular therapy performed by interventional radiologists?

“My doctors watched it each year, and it didn’t grow much at all,” Judge Mason said of the weakened area of the artery a sonogram first detected in 1999. “Maybe a tenth of a centimeter each year.”

But last spring, the situation became more acute when the aneurysm on the left iliac artery in his lower abdomen, virtually dormant, turned perilous.

By then, the small bulge in the vessel wall had ballooned. A rupture of an aneurysm in the aorta or in the iliac can cause severe blood loss — leading to shock — and, in roughly 70 percent to 90 percent of cases, death.

Men over 50 are particularly vulnerable to developing aneurysms.

“The aneurysm had reached 4 to 4.5 centimeters, and, for an iliac artery, that means you have to get it taken care of right away,” said Judge Mason, a 61-year-old federal administrative law judge. “It’s kind of like a time bomb, ticking away.”

Using conventional surgery to repair the weakened area of the artery, which supplies blood to the pelvic area and leg, would likely mean a hospital stay of one to two weeks and a convalescence of up to eight weeks — a prospect hardly palatable to a judge who hears nearly 500 cases a year.

For Judge Mason, interventional radiology, the specialty devoted to advancing patient care through the innovative integration of clinical and imaging-based diagnosis and minimally invasive therapy, would be far less complicated than conventional surgery. Judge Mason’s procedure, endovascular therapy, would involve only a tiny incision at the groin. Through it, a stent would be guided via imaging techniques and a wire threaded into a catheter. The stent, consisting of a metal scaffolding mesh covered by Dacron, would expand into the artery wall to reinforce the weakened area.

The procedure was performed by interventional radiologists from The University of Texas Southwestern Medical Center at Dallas working with their colleagues from the division of vascular surgery.

By Michael Blackman

minimally invasive surgery + imaging = interventional radiology
The advantages:

- Involves only minor surgery;
- General anesthesia usually not needed;
- Patient trauma, hospital and recovery time much shorter;
- Expert generally a fraction of that of conventional surgery.

Interventional radiology, officially recognized by the American Medical Association as a medical specialty in 1992, utilizes imaging techniques such as CAT scan, X-rays and ultrasound to do a number of targeted, through-the-skin procedures. These include stenting of ducts and vessels, draining fluids, performing needle biopsies, angioplasty (clearing of vessels), and embolization (shutting off blood and oxygen supply). Treatable maladies range from aneurysms to cancerous tumors, varicose veins to uterine fibroids.

"The beauty of interventional radiology is that we’re providing treatment that helps a lot of patients avoid major surgery," said Dr. Bart Dolmatch, professor of radiology and head of interventional radiology at UT Southwestern.

"Any one of a number of treatments — restoring blood flow to blocked arteries, treating blood clots, or preventing clots from going to the heart or lungs — are all being done simply through a puncture or small incision rather than conventional surgery.

"In some cases we’re providing treatment where surgery isn’t a good option or is impossible."

In Judge Mason’s case, the procedure lasted less than three hours, his hospital stay, two days, and "I was back at work in two weeks," he said.

Nowhere is the benefit of interventional radiology more evident than in women’s health care. Uterine fibroids, noncancerous growths that develop in the wall of the uterus, can lead to discomfiting symptoms, including pain and heavy bleeding. Traditional hysterectomy, the removal of the uterus by open surgery, has been the most common treatment for fibroids. Of the roughly half-million hysterectomies performed annually, about one-third are due to fibroids.

But many women are reluctant to have surgery, said Dr. Shellie Josephs, assistant professor of radiology. "Uterine fibroid embolization offers an effective alternative for selected women with heavy menstrual bleeding due to fibroids."

Younger women, in particular, want to preserve their child-bearing ability, and interventional radiology provides a means for them to do so, she said.

Chronic pelvic pain in women — often caused by pelvic congestion syndrome — can also be addressed by interventional radiology in an outpatient procedure. It occurs when blood flow reverses direction in the veins and pools in the pelvic area, causing pain when standing, during intercourse and menstruation, Dr. Josephs said.

By using a "cath" to block the blood flow, "the symptoms usually go away," she said of the procedure that usually takes one to two hours.

Another common condition in women is symptomatic varicose veins. "We are beginning a program, in conjunction with plastic surgery to treat varicose veins by laser ablation," said Dr. Josephs. The procedure involves cutting off the veins’ blood supply.

One of the rapidly developing areas of interventional radiology at UT Southwestern is chemoembolization of cancerous tumors of the liver, said Dr. Clayton Trimmer, assistant professor of radiology. "We put chemotherapy directly into the tumor and block the blood flow to trap the chemotherapy," he explained, adding that interventional radiology also makes use of radio-frequency ablation to treat liver tumors. Dr. Trimmer said he and Dr. Jeffrey Cadeddu, assistant professor of urology, have expanded that therapy to kidney treatment. Radio-frequency ablation involves inserting a probe directly into the tumor and heating it with a high-energy burst of radio frequency. The heat generated destroys the cancerous tumor.

"Dr. Cadeddu has spearheaded radio-frequency ablation of the kidney at UT Southwestern," said Dr. Trimmer. "And now we’re extending the procedure to liver, lung and bone."

In a way, interventional radiology specialists are misundertested.

"If we had neuro or cardiac before our name, everybody would understand what we do," said Dr. Dolmatch. "We work on all areas of the body, whether it’s a little duct or kidney problem, or an arterial or venous problem, for instance.

"Unlike most radiologists, who do mainly diagnostic work, we spend a lot of time with our patients."

In Judge Mason’s procedure, Dr. G. Patrick Cagetti, chairman of vascular surgery, was a part of a team, along with Drs. Trimmer and Dolmatch. The vascular surgeon makes the incision through which the catherter and stent are guided and is available to perform more conventional procedures should the need arise.

Collaborative efforts such as these are leading to what will soon be an overall expansion of cardiovascular service delivery at St. Paul University Hospital.

Interventional radiology is not always an option or appropriate treatment in all cases. If Judge Mason’s aneurysm had been closer to the aorta, stenting may not have been possible; open surgery would have been required.

But as imaging and other therapy technology mature, interventional radiologists say further treatment options will follow.

For patients, that’s good news. Ask most anyone about his or her interventional radiology treatment, and they are enthusiastic about their experience.

They speak of quality of life, of trauma avoided, pain gone away, limbs that once more work; they speak of resuming life’s routines more quickly than they believed possible.

Judge Mason now exercises for an hour and a half, three days a week, works hard on the treadmill, and says he’s in better shape than he was before his procedure.

"I was swinging a golf club by early July and took a trip to Europe that month," he said.

His recovery experience is not unique.

Jane Smith, 78, of Dallas, in the words of daughter Tricia, a feisty woman,” loves to exercise, having long appreciated the thrill of competition.

“You know, back about 1950 and before, they didn’t encourage young girls to participate in sports like they do today. But I always liked to exercise.”

The number of seven used to run 10ks, winning in her age group at age 55.

But more recently the pain in her right leg became so great from lack of circulation — she suffered from arteriosclerosis, a hardening of the arteries — that it impaired her ability to walk. Then in 2003 interventional radiologists performed angioplasty in her leg to free her of the debilitating pain.

And now “Ah, there’s light at the end of the tunnel. I can walk further and better than I did before. I can get about the track and lift some weights. I may not be a good athlete, but I work at it,” she said.

Then there’s James Matlock. He likes to do volunteer work. The 63-year-old from Watauga, Texas, helps out at College Hill Church of Christ, and, a carpenter at heart, likes to build things for family members, “like wishing wells.”

A former environmental lab technician and a retired janitor for the Keller Independent School District, Mr. Matlock began experiencing bleeding from the throat. Over the next two years the father of three grown children and five grandchildren underwent several interventional radiology procedures at UT Southwestern — chemoembolization for a cancerous tumor on his liver, angioplasty and having a shunt placed onto the portal vein of the liver to eliminate body fluid accumulating in his abdomen.

"I have cirrhosis,” said Mr. Matlock, who in late 2003 was hoping to become a candidate for a liver transplant. “But my liver is fairly decent, for now, and my kidneys look all right.”

Interventional radiology has brought quality of life back to him.

“I’m getting around again,” he said. “That helps.”

And he’s back building his wishing wells. »
At 34, ALYE GlAZER LEVY has a husband, a new baby, and a busy schedule full of everyday responsibilities and an occasional power yoga session. She jogs, tends to her 6-month-old daughter, devotes time to her burgeoning graphic-design business and occasionally steals away for a lunch out with friends.

She also has multiple sclerosis (MS), which is almost a footnote in an otherwise full and happy life.

She didn’t always view her disease that way, however.

What she thought three years ago was a badly pulled muscle in her back prompted Mrs. Levy to visit her family doctor, who became suspicious and referred her to a neurologist. A battery of tests pointed to MS.

Young, fit, and newly married, she was stunned, and, sobbing in her doctor’s office, wondered if she would be able to share a long and active life with her husband.

It took a visit to The University of Texas Southwestern Medical Center at Dallas for Mrs. Levy to realize that a diagnosis of MS was not a death sentence.

UT Southwestern is going the distance by bringing together a team of specialists in the largest clinic in the country designed solely for people with MS.

BY RACHEL SKEI DONIHOO
Changing The Way We Look At MS
Multiple sclerosis, an often-debilitating autoimmune disease that attacks the central nervous system, is the sole focus of a unique, comprehensive clinic at UT Southwestern — a clinic devoted to changing the way multiple sclerosis is viewed and treated.

Recognized as a world leader in the research and treatment of MS, the center rises to the demands of its more than 3,900 patients with an all-encompassing program equipped to handle the wide range of symptoms that make the disease so notoriously difficult to diagnose and treat.

It is here that Mrs. Levy found respite and a much-needed dose of confidence to tackle her disease head-on.

“When I was told I had MS, I really thought that it was the end of the line for me,” she said. “I had so many preconceived notions about multiple sclerosis, and I immediately jumped to the most extreme conclusions about what having the disease would do to my life. I was really misguided.”

According to the program’s director, Dr. Elliot Frohman, associate professor of neurology and ophthalmology at UT Southwestern, Ms. Levy’s initial reaction is common. “Multiple sclerosis has an ominous reputation and for good reason. The first viable treatment for MS wasn’t developed until 1993, so the prognosis had, until just 10 years ago, been substantially different than what it is today. We have come incredibly far — both in the clinic and in the laboratory — in understanding the disease and what it means for the patients who have it.”

Ms., which plagues more than 400,000 Americans (two-thirds of them women), affects the central nervous system (CNS), which consists of the brain, spinal cord and the optic nerves. Surrounding and protecting the nerve fibers of the CNS is a fatty tissue called myelin, which helps nerve fibers conduct electrical impulses. In MS, myelin is lost in multiple areas, leaving scar tissue (also known as lesions) in the brain. In some cases, the nerve fiber itself is damaged or broken, disrupting the ability of the brain to send and receive critical electrical impulses.

The most common disabling disease of young people aged 18 to 45, MS has earned a reputation as an unpredictable and illusive disease. Symptoms vary widely by individual and often come and go, sometimes disappearing for years before manifesting again — often morphing into a different symptom altogether. While one patient may experience severe vision problems, another may have abnormal fatigue. Loss of balance and muscle coordination, slurred speech, tremors, stiffness, and bladder problems are all common.

While the exact cause of MS is unknown, most research points to deteriorating myelin as a result of abnormal activity of the body’s immune system. Normally, the immune system defends the body against foreign invaders such as viruses or bacteria. In autoimmune diseases like MS, the body attacks its own tissue — presumably in response to a variety of factors, including genetics, gender, potentially, environmental triggers, such as infection, trauma and exposure to heavy metals.

MS symptoms can sometimes be severely debilitating if not caught early and managed properly. “Multiple sclerosis is a disease that directly affects the brain and spinal cord; however, there are many areas of collateral damage that must be tackled as well, in order to successfully treat it,” said Dr. Kathleen Hawker, assistant professor of neurology. “Addressing concerns such as skin integrity, bone loss, sexual function, bladder and bowel control, depression, weight gain, and other related issues is paramount to managing MS. It is our goal to be able to treat the whole patient, while continuing to educate ourselves about the disease.”

UT Southwestern’s MS clinic has recently relocated to a 6,000-square-foot facility in Professional Office Building 1 at St. Paul University Hospital. The much-anticipated move created the largest MS facility in the United States, providing patients with specialists in virtually every discipline related to the diagnosis and treatment of the disease.

Concerns ranging from vision and psychiatric disorders to wheelchair use now can be treated in one place. UT Southwestern’s MS team, composed of 45 neurologists, immunologists, physical therapists, postdoctoral fellows, social workers and other experts, can be accessed without the complications of transportation issues and conflicting appointment schedules.

“It’s very difficult for our patients to visit multiple physicians and often hard for them to travel, so the capability of being able to address multiple symptoms in one place is extremely important,” said Dr. Frohman, holder of the Irene Vidal and Robert I. Altha Distinguished Chair in Neurology and the Kenney Marie Dixon-Pickens Distinguished Professorship in Multiple Sclerosis Research.

Dr. Hawker said, “We like to think of our MS center as an intellectual pipeline, through which the newest information on the disease can pass. We are all participants in the disease process and are committed to a common goal: to halt its progression and restore function in our patients.”

UT Southwestern also is home to the only federally sponsored physicians’ training program for multiple sclerosis in the country. The National Training Program for the Comprehensive Care of Individuals with Multiple Sclerosis was funded by Congress in 2001 and has trained, in weeklong preceptorships, more than 300 neurologists and neurology residents from 46 states. While at the medical center, physicians observe doctor-patient interaction, work through various treatment scenarios and take assessments exams. They, in turn, take their new understandings of MS back to their communities, further broadening the program’s reach and fostering referrals to Dr. Frohman and his colleagues.

A referral was what brought 33-year-old Mary Thompson to UT Southwestern shortly after her diagnosis in 1987.

Although she had an isolated bout with optic neuritis (temporary loss of vision) years earlier, it wasn’t until she experienced a strange numbness in her back that her condition was pinpointed.

“I realized something was very wrong when I stepped out of the shower one morning and began to dry off. It felt surreal — as if I were drying someone else’s back,” said Mrs. Thompson, who now sits on the board of the Lone Star Chapter of the National Multiple Sclerosis Society. “When I was finally told that I had MS, I really didn’t want to believe it. That’s not the kind of news you’re ever prepared for.”

It took several months before the mother of three found UT Southwestern, where she says she has gratefully remained. Although Mrs. Thompson’s disease has progressed rapidly, forcing her to walk with the help of a cane, she remains active — determined to lend support to others facing the illness.

“I’ve been so fortunate to have had access to a medical center of UT Southwestern’s caliber and feel that I can make a difference with all the knowledge I have gained as a patient,” she said. “There is no better luck when you’re dealing with a chronic disease than to find authoritative medical care. It can make a world of difference in the course of your disease and, really, in the course of your life.”

—Dr. Elliot Frohman

Dr. Elliot Frohman, right, with physicians who are participating in the MS national training program.

“We have come incredibly far — both in the clinic and in the laboratory — in understanding the disease and what it means for the patients who have it.”

—Alyce Glazer Levy

Alyce Glazer Levy with her daughter, Jordan Claire Levy.
At the heart of UT Southwestern's MS program is an integrated team of researchers and clinicians whose unique collaborations bring multiple advantages. While scientists here and at other research sites around the world work to build better drugs for treating MS, physicians at UT Southwestern are able to translate these new discoveries into cutting-edge patient care.

“There are currently only a handful of drugs used to treat MS, but the field is growing by leaps and bounds,” said Dr. Michael Racke, vice chairman for research in neurology and associate professor in the Center for Immunology. “We are able to stay on the leading edge of disease detection and management partly because we are able to take what we learn in the lab and make even the newest therapies available to our patients.”

Although MS is traditionally treated with interferons and glatiramer acetate (synthetic proteins) and chemotherapy medications, Dr. Racke and his team are working to develop new drugs that can be used in combination with current therapies to enhance treatment.

Dr. Hawker is the principal investigator for a clinical trial of new agents for patients with a form of MS for which there currently is no effective treatment. The trial will include 35 MS centers across North America.

“This is probably the most exciting area we’re involved with—the identification of new drugs for the treatment of the disease,” said Dr. Racke. “It’s a constant process, in which we try to unravel the many puzzles of MS, one by one.”

Dr. Nitin Karandikar, assistant professor of pathology and neurology, focuses his research on the role of the immune system in MS patients and the effects of treatment on different immune cells—a devotion that recently garnered him the National MS Society’s top young researcher’s award.

“It is very important to understand the exact contributions of these different populations of immune cells in the course of the disease so as to develop better and more rational treatment strategies,” he said. “We are learning more every day and are working toward the time when we can eliminate a disease that is responsible for long-term illness in so many young Americans.”

The long and arduous process of diagnosing multiple sclerosis also may soon be simplified. New data from Dr. Frohman and his colleagues suggests that advanced applications of magnetic resonance imaging (MRI) scans can be used in concert with clinical observations to identify the often-misdiagnosed neurological disorder more quickly.

“There is compelling evidence that in the majority of patients with a first MS-like attack, the presence of characteristic lesions within the central nervous system strongly predicts clinically definite MS,” said Dr. Frohman.

Until recently, conclusive diagnosis of multiple sclerosis has required lengthy clinical observation of the complex grouping of symptoms, including signs of the disease in different parts of the nervous system and instances of at least two separate flares-ups of symptoms at least a month apart.

Using the new MRI technology, diagnosis can be confirmed as early as a patient’s first clinical attack. This simpler method allows quicker access to therapies that can keep devastating symptoms of the disease at bay for many years—a primary goal for patients like Mrs. Levy.

“For now, I treat MS as just a small blip in my life—never giving it more credit than it deserves. But I’m always aware that it’s there, and that it may one day radically change the way I feel,” she said. “I also know, however, that there is hope around every corner, and I am completely confident that—together—we can lick this thing.”
Ann Mayo suffers from psoriasis, a chronic, immune-mediated skin disease. A red, scaly rash used to cover most of her body, making her self-conscious and reluctant to even wear shorts in the summertime.

But that was before she came to The University of Texas Southwestern Medical Center at Dallas. “The rash was unsightly,” the Dallas dental hygienist said. “The skin lesions looked horrible – some of them were the size of baseballs.”

Ms. Mayo saw several dermatologists and tried creams and other medications but nothing worked. Last January, she contacted the dermatology clinic at UT Southwestern – one of the few institutions in the Dallas area to take a cue from the sun and use ultraviolet rays to treat patients with skin diseases such as psoriasis.

The treatment is called phototherapy. “This is a therapeutic way to administer a very specific spectrum of ultraviolet light, one component of sunlight,” said Dr. Heidi Jacobe, assistant professor of dermatology who oversees the phototherapy unit.

Phototherapy can target large areas of skin without the side effects of oral or topical medications. It works by basically resetting the immune system, thus preventing the body from attacking itself. And it’s effective for other skin conditions besides psoriasis.

Phototherapy is often prescribed for patients suffering from conditions such as mycosis fungoides, a type of non-Hodgkin lymphoma that first appears on the skin, and itching related to end-stage renal disease, liver disease and HIV. The therapy is also helpful for people with vitiligo, a condition especially common in African-American, Hispanic and Asian populations, in which patients suffer a patchy loss of pigment, and atopic dermatitis, the most severe form of eczema, characterized by inflamed, dry, itchy skin.

“It has worked fantastically for me,” Ms. Mayo said, adding that her lesions are almost gone. “All that’s left are two itty-bitty, pencil-eraser-size dots – one on each leg. They are no more than just dry patches of skin.”

During phototherapy treatment, the patient stands in a vertical box – imagine a cross between a phone booth and a tanning bed – and soaks up UV rays for about 30 seconds on the first visit. Sessions could eventually last five to 10 minutes. Initially, patients return to the clinic two or three times a week, but visits usually taper off as treatment progresses.

UT Southwestern dermatologists recently began offering a new, localized form of phototherapy called UVA-1. The new therapy emits a narrower band of light that has the potential to penetrate more deeply into the skin, is more focused and intense than older technology, and doesn’t usually burn the skin in therapeutic doses. It is used to treat some patients with eczema, especially those with hand dermatitis or dyshidrosis, and morphea, thought to be an autoimmune disease that is localized to the skin and causes it to thicken and discolor.

Phototherapy isn’t for everyone, Dr. Jacobe said. People with a history of melanoma and some other types of skin cancer are not candidates for the treatment, which may increase some patients’ risk of skin cancer. Shielding areas that don’t need attention, using the minimum effective doses, and limiting the number of treatments minimize this risk, Dr. Jacobe said.

Ms. Mayo said the risk has been worth the results. She’s looking forward to wearing shorts next summer.
It doesn’t show up on an MRI or CT scan. Blood tests or X-rays can’t confirm that it’s there. But when it comes to chronic pain, you only have to ask someone who suffers from it to know it exists.

“There’s no way to explain how much chronic pain impacts your life,” said Marion Tassin, a 47-year-old mother of four. “There are days when you just can’t do the simplest things. It’s very hard on the person suffering and the people around them.”

In May 2001, while working at her family’s cattle ranch near Waxahachie with her two youngest boys, Mrs. Tassin first felt the chest pains that would become part of her everyday life.

“It felt like a gorilla was sitting on my chest,” she said. “I basically collapsed.”

In the emergency room, doctors eventually diagnosed her with pericarditis – inflammation of the lining of the heart – a chronic, but not life-threatening condition resulting in pain and fluid buildup. In search of relief from the excruciating pain, Mrs. Tassin traveled across the country and consulted with numerous doctors. Improvements were minimal.

The litany of recommended treatments was dizzying. She was put on steroids, taken off steroids, put on opiates, taken off opiates, told it was in her head, told she needed surgery.

“Then along came Dr. Lou,” Mrs. Tassin recalled.

Dr. Leland Lou, director of the Eugene McDermott Center for Pain Management at The University of Texas Southwestern Medical Center at Dallas, immediately decided to try nerve blockers to deaden the chest pains that radiated down Mrs. Tassin’s back and arms.

By testing local anesthetics on different locations along Mrs. Tassin’s spine, Dr. Lou began to pinpoint where the nerves sending and receiving the pain signals were located. Eventually, he hit the bull’s-eye.

“I remember the moment. I had tremendous results right away,” Mrs. Tassin said. “It was amazing.”

With the trouble spot identified, Dr. Lou recommended a spinal-cord stimulator, a unique device that uses low-level electrical signals to vibrate the aggravating nerves, converting the pain signals to a tingling sensation. The frequencies are sent through a small catheter directly into the epidural space around the patient’s spinal cord. An external remote control sets the signals.

Mrs. Tassin will be fitted with a permanent stimulator later this year. The device will be implanted under the skin near her hip, delivering the needed electrical impulses.

“It stimulates the nerves to inhibit their interpretation of pain,” Dr. Lou said of the device. “The electrical signals convert the pain into a more innocuous feeling. The device is not new, but using it for pericarditis is quite rare.”

Mrs. Tassin’s case highlights the two-part philosophy of Dr. Lou and his colleagues at the McDermott Center: Employ the latest technology, but first exhaust the least-invasive procedures.

Dr. Lou and his team are working on treating other sources of chronic pain, including neck injuries, with minimally invasive procedures.

Chronic neck pain, often caused by automobile accidents or other traumatic events, can send aches and pains to all parts of the body. Pinpointing the genesis of the pain can be difficult, and treating it often involves surgery.

But doctors in the McDermott Center are using a variety of techniques to locate the source of the pain and to “stun” the nerves transmitting pain signals.

One technique – dedicated fluoroscopy – uses an X-ray system to allow physicians to target precisely where to apply pulse radiofrequency therapy, which interrupts pain messages to the brain, or, more simply, where to inject a local anesthetic.

“We can often relieve patients’ pain without surgery,” Dr. Lou said. “That allows them to begin physical therapy sooner, saves money and, in the end, allows them to feel better quicker.”

Mrs. Tassin still suffers from pericarditis. Doctors say she has one of the rare cases without a known cause, and they do not know when or if the condition will ever dissipate.

But in the meantime, you’ll find her doing chores at the ranch, pain-free.*
**By Susan Morrison**

**Fight or flight:** Most wild animals live by this survival concept. They either run from an enemy, or they stay and battle it out.

But people, able to grasp the gray areas of life's situations, may be caught in a state of uncertainty. Rather than responding quickly, they feel anxious and behave indecisively. They worry and lose sleep. They experience fear and may avoid places, things and even other people. Although some level of anxiety is normal, and may even be helpful, excessive anxiety can disrupt lives and produce suffering.

"Anxiety is an emotion associated with the idea of threat. Threat is the perception that the person, his loved ones or his security is being threatened," said Dr. Robin Jarrett, professor of psychiatry at The University of Texas Southwestern Medical Center at Dallas. "We believe that anxiety must have some sort of survival value. All organisms need a signaling device to warn them of impending danger. The body has evolved to produce a physiological response when the brain signals that there is a threat. Anxiety signals taking actions that promote survival."

Today's world – with terrorism and war, Severe Acute Respiratory syndrome (SARS) and West Nile virus – creates challenges that complicate the average person's evaluation of what fears are "realistic," Dr. Jarrett said.

Anxiety disorders can develop when a person's perception of threat and the anxiety that follows are greater than the situation warrants. Dr. Jarrett said a lack of understanding or information can exacerbate anxious feelings.

"When the situation is ambiguous, a person's perception of threat may increase," she said.

Recent events have spiked anxiety in the average American, Dr. Jarrett said. Sept. 11, 2001, "shook the average person's understanding of risk. Each person had to develop his or her own way of coping.

"People who began Sept. 11 with very high levels of anxiety may have needed to turn off the newscasts because the continuous coverage taxed their ability to cope," she said. When people can "register" their baseline anxiety, they can then decide how much exposure to information is tolerable.

"People can look for ways to control their exposure to some environmental stressors," she said.

Dr. Jarrett noted other possible coping skills:

- Learn, admit and seek what you really need to stay healthy and free of excessive anxiety. "Most average people without underlying illnesses know what they really need. If you think about children, they know what they need – when they’re hungry, when they need to sleep, when they want to play. They’re good at getting those things that they need," Dr. Jarrett said. "Sometimes, with maturity, people ignore what they know they need. If there are simultaneous needs, prioritizing may help. Focus on one thing at a time, rather than the list of 10 things."

- Set aside time to think about what’s important. "On Sept. 11, we were all changed. Whenever people think their time is shorter rather than longer, their ability to prioritize increases," she said.

- Listen to your emotions. "Emotions and the body may signal the need for change. If you’re continuously anxious, that’s a signal that something may need to change in your environment or in the way you perceive your environment," she said. "There may be some merit in deciding what precautions are reasonable and what aspects you can and cannot control."

- Be realistic, and learn about the causes of your anxieties. "Denial can be a pretty effective coping strategy, but it may be unrealistic in many situations," Dr. Jarrett said. "When precautions have been taken and when danger persists, acceptance of risk may be a useful strategy. In this situation, we all have a choice: Devote even more time to worrying, or accept that some risk is inevitable."

"How much time do we spend thinking about dying while we’re living? We all have to accept that there is some risk involved in living, especially if we are to live fully."
NIH GRANT ESTABLISHES SICKLE CELL CENTER

UT Southwestern and UT Dallas established the Southwest's first National Institutes of Health sickle cell center, thanks to a multi-million-dollar, five-year federal grant. The center's principal clinic site is at Children's Medical Center Dallas.

The center -- funded by the grant of almost $8 million and led by Dr. George Buchanan, professor of pediatrics at UT Southwestern -- is one of 10 NIH centers that will form the first national clinical trials network for sickle cell disease.

UT SOUTHWESTERN RANKS IN TOP 10

An analysis of scientific research impact showed that UT Southwestern ranked in the top 10 institutions in America in four of six assessed biomedical fields.

UT Southwestern -- along with Yale University, Rockefeller University and the University of California, San Francisco -- achieved top rankings in four of the Science Watch survey categories. Only Harvard University and the University of California, San Francisco, scored higher, with top 10 rankings in five of the six fields. The independent study analyzed the impact of research publications from 1997 through 2001.

UT Southwestern was especially dominant in the principal basic sciences relevant to all areas of medicine -- molecular biology and genetics, and biology and biochemistry -- ranking second in the country in each. The medical center ranked 10th overall in immunology and clinical medicine.

DEADLY RICIN TOxin DEFEATED BY VACCINE

UT Southwestern researchers developed a vaccine in mice against ricin, a deadly toxin that can be used as a biological weapon. Their study was published in the journal Vaccine.

It is feared that ricin has found its way into the arsenals of extremist individuals, groups and governments because of its ease of production and high toxicity. The Centers for Disease Control and Prevention ranks ricin on its “B” list of bioterrorist agents, placing it as a moderate threat against America.

UT Southwestern researchers, led by Dr. Ellen Vitetta, director of the UT Southwestern Cancer Immunobiology Center, mutated the DNA that produces ricin’s active “A chain” at the site that inhibits protein synthesis and at the site inducing vascular leak. Injecting the artificially altered “A chain” into mice induced an immune response that protected them against high doses of ricin subsequently administered.

$16 MILLION NIH GRANT CREATES PROTEOMICS CENTER

UT Southwestern became one of 10 U.S. institutions to receive a multimillion-dollar National Institutes of Health grant to develop faster methods to study proteins critical to drug development.

The grant is part of the National Institutes of Health’s Proteomics Initiative, a $157 million, seven-year nationwide program that has been likened to the Human Genome Project.

Dr. Thomas Kodadek, professor of internal medicine and molecular biology and the grant's principal investigator, said the funds would be used to create tools to study G protein-coupled receptors and transcription factors.

NIH RENEWS LONG-RUNNING PROJECT ON EXERCISE

A five-year, $10.7 million grant to UT Southwestern provided continuing support for the medical center’s oldest research project, now in its 43rd year.

The study explores the physiological, biochemical and molecular processes that cause acute responses and chronic adaptations of the cardiovascular and skeletal muscle systems to exercise.

Dr. James Stull, chairman of physiology and director of the NIH grant, said the project consists of four areas of research: regulation of skeletal muscle protein contraction by protein phosphorylation; regulation of skeletal muscle protein degradation; skeletal muscle-derived nitric oxide and vascular regulation; and transcriptional control of muscle growth and remodeling.

NEW 86 MILLION STUDENT CENTER OPENS

The Bryan Williams, M.D., Student Center, an ultra-modern, 43,000-square-foot facility, in which students can exercise, relax and congregate, opened with a celebration honoring Dr. Bryan Williams, professor emeritus of internal medicine and associate dean emeritus for student affairs.

Plans for the center were launched in 2000 following a $4 million challenge gift from Mrs. Nancy Hamon, a Dallas philanthropist and civic leader. Dr. Kern Wildenthal, president of UT Southwestern, said the center was the realization of a dream of Dr. Williams, a champion of improving the quality of life for UT Southwestern students. Dr. Williams died of a long illness in April 2003, shortly after participating in the opening of the center that bears his name.

YOUNG SCIENTIST PRIZE GOES TO BIOCHEMISTRY RESEARCHER

Dr. Jared Rutter, a postdoctoral biochemistry researcher studying the body’s circadian clock, earned the prestigious Young Scientist Prize. The international prize, established in 1995 by Science magazine and Amersham Biosciences, is the highest recognition awarded worldwide to a single molecular biologist scientist early in his or her career.

Dr. Rutter won on the strength of his work on proteins that are involved in regulating the body’s internal clock, which regulates body activity on a 24-hour cycle.

NEWLY DISCOVERED GENE MAY LEAD TO TREATMENTS FOR SLEEP DISORDERS

A researcher at UT Southwestern helped uncover key information in the treatment of sleep disorders, which affect 70 million Americans, by identifying a gene that controls the rhythmic behavior of animals.

Dr. Jin Jiang’s findings were published in Nature.

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Dr. Jin Jiang, associate professor in the Center for Developmental Biology and Pharmacology, and colleagues learned through studying fruit flies that the gene slmb is a vital component in the regulation of the circadian clock—the brain’s day-night mechanism. By altering the activity of slmb in the fruit fly brain, the circadian clock can be accelerated, decelerated or derailed, the researchers found. Almost 70 percent of human-disease genes have counterparts in fruit flies—including the clock genes in the brain.

Dr. Luis Parada, director of the Center for Developmental Biology, said the research exemplifies the power of using a primitive organism in dissecting signaling pathways that are related to the genes in human beings. The discovery, he said, may lead to the development of drugs that speed up or slow down the circadian clock.

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**HIGHLIGHTS**

**CENTERS TO STUDY MOLECULAR MECHANISMS OF MENTAL ILLNESS**

UT Southwestern joined an elite research fraternity in receiving a $9 million, five-year grant from the National Institutes of Health to establish a Sibbald O. Conte Center for the Neuroscience of Mental Illness.

The prestigious Conte Centers support highly focused research at 12 major institutions around the United States, said Dr. Eric Nestler, chairman of psychiatry and principal investigator for the grant.

Researchers in the new center are studying the cellular and molecular mechanisms involved in mood regulation. They are focusing especially on discovering how the neural circuitry that controls mood is related to the cellular elements of the brain that respond to food, alcohol and drugs that may be abused.

**LDL RECEPTOR PROTEINS STRUCTURE UNRAVELED**

Three Nobel laureates at UT Southwestern and their colleagues defined the structure of the low-density lipoprotein (LDL) receptor protein, a finding that could lead to advances against diseases caused by high cholesterol.

Nobelist Dr. Johann Deisenhofer, professor of biochemistry, was senior author of the study, published in Science, which detailed the three-dimensional structure of the cholesterol-transporting protein. Other UT Southwestern scientists playing prominent roles in the research included Dr. Gabrielle Rudenko, instructor of biochemistry, and Nobel laureates Drs. Michael Brown and Joseph Goldstein. Dr. Brown directs the Erik Jonsson Center for Research in Molecular Genetics and Human Disease, and Dr. Goldstein is chairman of molecular genetics.

Their study, published in the Annals of Internal Medicine, found that tests on Alzheimer's disease, according to UT Southwestern researchers who published their findings in the Archives of Neurology.

**NOBEL LAUREATES BROWN, GOLDSTEIN SHARE ALBANY PRIZE**

Dr. Michael Brown and Joseph Goldstein were named co-recipients of the $500,000 Albany Medical Center Prize in Medicine and Biomedical Research.

The Albany Medical Center Prize is the largest prize in medicine in the United States. Drs. Brown and Goldstein shared the 1985 Nobel Prize for their discovery of the basic mechanisms by which cholesterol levels are regulated. Dr. Brown directs the Erik Jonsson Center for Research in Molecular Genetics and Human Disease, and Dr. Goldstein is chairman of molecular genetics.

The Albany Medical Center Prize recognized the scientific duo for their post-Nobel contributions.

**NEW CLASS OF DRUGS MAY HELP FIGHT HEPATITIS C**

A new generation of drugs restores the immune response blocked by the hepatitis C virus, reducing the virus to nearly undetectable levels in laboratory experiments, researchers at UT Southwestern and UT Medical Branch at Galveston reported in Science.

“We found that the new protease inhibitors could actually prevent the virus from blocking this immune response and basically restore the innate antiviral response in human cells,” said Dr. Michael Gale, assistant professor of microbiology at UT Southwestern and senior author of the study.

Protease inhibitors, which are undergoing clinical trials as therapies to treat chronic hepatitis C infections, target the enzymatic activity of the viral protease.

Protease, an enzyme that can split a protein into component peptides, is required to process viral proteins into their functional forms. Hepatitis C virus, which is primarily transmitted by intravenous drug use, blood transfusions or blood products, as well as through sexual contact, affects 4 million people in the United States, making it the most common blood-borne infection in the nation.

**VITETTA ELECTED TO AMERICAN ACADEMY OF ARTS AND SCIENCES**

Dr. Ellen Vitetta, director of the Cancer Immunobiology Center at UT Southwestern, was elected to membership in the American Academy of Arts and Sciences. She is the 12th faculty member and the first woman from UT Southwestern to be elected to the prestigious academy.
Dr. Yinieta is internationally recognized for her research on B lymphocytes and Interleukin-4 and is a pioneer in immunotoxin therapies for cancer and AIDS. Immunotoxin function much like a “smart bomb,” finding cancer cells and destroying them without hurting the surrounding cells or tissue.

PRC Recognizes Bruick, Kinoshita

President’s Research Council presented its 2003 Distinguished Young Researchers Award to Dr. Richard Bruick, assistant professor of biochemistry, and Dr. Shigemi Kinoshita, assistant professor of dermatology and in the Center for Immunology.

Dr. Bruick is conducting research aimed at understanding how human cells sense change in oxygen availability and adapt to prolonged periods of low oxygen. Through her research, Dr. Kinoshita hopes to discover why T-cell activation is needed for HIV-1 production and to identify ways HIV production may be inhibited.

The Distinguished Young Researchers 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.

Legislature Provides Special Funding for UT Southwestern

Given in the context of a severe budget deficit that required cuts in many areas of state spending, the 2003 Legislature determined that adding more resources to UT Southwestern’s research program would be of great benefit to Texas. Spurred by Speaker of the House Tom Craddick, the Legislature appropriated, and Gov. Rick Perry enthusiastically approved, a new “special-item appropriation” of $7 million per year for a unique research institute at UT Southwestern – the General Clinical Research Center (GCRC) at UT Southwestern.

In addition to the added annual funding, (the only new special-item in Texas), UT Southwestern was one of only eight medical schools and universities to receive state support for new construction. The Legislature authorized $56 million for a new biomedical research and advanced medical imaging facility on the medical center’s North Campus to help accommodate the 40 percent increase in federal research projects won over the past two years.

Summer 2003

General Clinical Research Center Gets $22 Million NIH Grant

The General Clinical Research Center (GCRC) at UT Southwestern received its sixth National Institutes of Health grant renewal - a projected $22 million over the next five years.

The GCRC provides free-of-charge clinicalresearch, now in its 29th year of funding, provides an infrastructure to facilitate patient-oriented research,” said Dr. Khahayar Sakhaee, GCRC program director.

“After five years, the GCRC provides free-of-charge hospital beds and outpatient rooms, expert nursing, controlled diets, statistical and data management, some laboratory tests, and oversight in human subject protection for approved clinical trials.”

Researchers from dermatology, internal medicine, obstetrics and gynecology, pathology, pediatrics, psychiatry, radiology, and surgery, as well as in centers such as the Center for Human Nutrition and the Eugene McDermott Center for Human Growth and Development, use the GCRC’s resources.

Scientists Discover Heart Defect Gene

Researchers discovered that mutations in a gene critical to the development of the human heart cause specific forms of congenital heart defects - the leading non-infectious cause of death in newborns.

Mutations in the gene GATA 4 were found to produce cardiac septal defects, which occur when the walls separating the heart’s four chambers do not form properly.

The discovery could one day help doctors prevent cardiac defects before a baby is born, said Dr. Dee- pak Srivastava, associate professor of pediatrics and molecular biology and the study’s senior author. “We cannot change the fact that the child will inherit the mutated gene,” he said, “but we might be able to develop a way to keep the disease from occurring.”

AHA Selects Yancy as Physician of the Year

The American Heart Association named Dr. Clyde Yancy, medical director of the UT Southwestern/ St. Paul Heart Transplant Program, Physician of the Year. The award is given to a practicing physician who has rendered outstanding contributions to the AHA’s mission to reduce disability and death from cardiovascular diseases and stroke.

Dr. Yancy is internationally recognized for his work in heart failure and cardiac transplantation. The UT Southwestern/St. Paul Heart Transplant Program has a more than 90 percent one-year survival rate, the highest of any Texas institution and among the best nationally. Dr. Yancy heads the group of specialty physicians that patients first see when they are evaluated for the transplant program.
Dr. J. Gregory Fitz was named $1 million from Mr. and Mrs. Edward Livingston $1 million from the Eugene Haggerty Foundation to establish a center for birth defects research. Formerly director of administration for the pain management division at Texas Tech University Health Sciences Center, Dr. Louis holds undergraduate and medical degrees from Tulane University.

Dr. Mary Ellen Weber, a former NASA astronaut who flew on two space shuttle flights, was named associate vice president for commerce and public policy. The University of California, Berkeley, doctoral graduate’s duties include developing venture-capital support for Metropolis biotech projects and ensuring infrastructure is in place for the startup companies.

MAJOR GIFTS 2002-2003

$10 million from Mr. and Mrs. William T. Solomon to endow the Division of General Internal Medicine and to help develop a model for the exemplary delivery of clinical services, enabling physicians and staff to center their attention on patients.

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$1 million from Mr. and Mrs. Tom Hicks to support medical research.

$1 million from Mr. and Mrs. J.L. Huffines to establish the J.L. and Sydney Huffines Fund at Southwestern Medical Foundation to support medical research.

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

- William Bishop, an ex-Army officer and former director of a $116 million fund-raising campaign for the National World War II Memorial Project, was named vice president for development.
- Mr. Bishop was a 1970 graduate of the United States Military Academy and retired from the Army in 1995 as a lieutenant colonel. He holds master’s degrees from Tulane University and Webster University in St. Louis.
- Dr. Hak Choy was named chairman of radiation oncology and holder of the Nancy B. and Jake L. Hamon Distinguished Chair in Therapeutic Oncology Research. A leader in the treatment of brain, lung, and head and neck cancers, Dr. Choy was vice chairman of radiation oncology at Vanderbilt University Medical Center before joining UT Southwestern. He received his medical degree from UT Health Science Center at San Antonio.
- Dr. Mekinian Cobb was named dean of Southwestern Graduate School of Biomedical Sciences. Dr. Cobb, a UT Southwestern faculty member since 1983, is also a professor of pharmacology and holder of the Jane and Bill Bowring Jr. Chair in Medical Science, as well as the Ruth Haberrecht and Ute Schwarz Haberrecht Danship of the UT Southwestern Graduate School of Biomedical Sciences, in honor of Olga & Max Haberrecht and Anna & Hans Schwarz.

NEW APPOINTMENTS FOR 2002-2003

- Dr. J. Gregory Fitz was named chairman of internal medicine and holder of the Donald W. Seldin Distinguished Chair in Internal Medicine. Formerly head of gastroenterology and hepatology at the University of Colorado Health Sciences Center, Dr. Fitz graduated from the University of North Carolina before earning his medical degree at Duke University School of Medicine.
- Dr. George Lister was named chairman of pediatrics and holder of the Robert L. Moore Chair in Pediatrics. He formerly was medical director of the Pediatric Intensive Care Unit at Yale-New Haven Hospital and chief of the critical care and applied physiology section of Yale University’s Department of Pediatrics. Dr. Lister received his medical degree from Yale after graduating from Brown University.
- Dr. Edward Livingston was named chief of the division of Gastroenterology surgery and vice chairman of the Department of Surgery. He also holds the Dr. Lee Hudson-Robert P. Finn Chair in Surgery. Prior to joining the UT Southwestern faculty, Dr. Livingston was assistant dean at the University of California, Los Angeles, School of Medicine. He earned his undergraduate degree from UC, Davis, before graduating from the UCLA medical school.
- Dr. Ieland Lou, associate professor of anesthesia and pain management, was named director of the Eugene McDermott Center for Pain Management. Formerly director of administration for the pain management division at Texas Tech University Health Sciences Center, Dr. Lou holds undergraduate and medical degrees from Tulane University.

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$1 million from Mr. and Mrs. J.L. Huffines to establish the J.L. and Sydney Huffines Fund at Southwestern Medical Foundation.

$1 million from the March of Dimes North Texas Chapter to endow a center for birth defects research.

$1 million from the Eugene McDermott Foundation to establish the L.T. “Buddy” Hall Distin- guished Chair in Cardiac Anesthesia.

the highest rate of return of royalty income compared to research expenditures – 4.5 percent. Nationally, the Dallas medical center ranked 14th in licensing revenues and 11th in return on investment among all universities and medical centers.

“This reflects years of effort, and the work we’re doing now will provide even greater returns in the future,” said Dr. Dennis Stone, vice president for technology development. “In addition to royalty fees, we also have equity positions in several companies that could become much more valuable in future years.”

347 EARN MEDICAL, GRADUATE, ALLIED HEALTH SCHOOL DEGREES

Dr. Kern Wildenthal, president of UT Southwestern, presided at the June 2003 graduation of 188 students of Southwestern Medical School and 59 students of Southwestern Graduate School of Biomedical Sciences.

Paul Bass Jr., chairman of the board of Southwestern Medical Foundation and vice chairman of First Southwest Co., delivered the commencement address.

The top award to a graduating medical student, Southwestern Medical Foundation’s Ho Din Award, was presented to Dr. James “Jay” M. Isbell by Caren Prothro, a foundation trustee.

John W. “Trey” Fondon III received the Nominate Award, given to the outstanding graduate school student.

Southwestern Allied Health Sciences School conferred degrees on 100 students during its August commencement exercises.

YU WINS $1 MILLION KECK SCHOLAR AWARD

Dr. Hongtao Yu, assistant professor of pharmacology, was named a Distinguished Young Scholar in Medical Research by the Los Angeles-based W.M. Keck Foundation. The award of up to $1 million over five years will support the scientist’s research into the mechanisms that cause a dividing cell to distribute exactly the same number of chromosomes between the two “daughter” cells. Dr. Yu said his studies might help explain abnormalities in cancer cells, which usually have increased numbers of chromosomes.

The Keck Foundation named Dr. Hongtao Yu one of five distinguished young scholars in medical research nationwide.

THE KECK FOUNDATION NAMED DR. HONGTAO YU ONE OF FIVE DISTINGUISHED YOUNG SCHOLARS IN MEDICAL RESEARCH NATIONWIDE.
Highlights

$1 million from Gayle and Paul Stoffel to endow a distinguished chair in cardiology.
$1 million from Mr. and Mrs. Sam Wyly for research in urology and mental health.
$831,000 from the annuity trust of Mildred Reddick to support pathology programs.
$790,000 from William D. “Sonny” and Marilyn Oates to support Zale Lipshy University Hospital.
$660,000 from the estate of Jane Mercer Shackelford to establish the Earl Jolliffe Shackelford, D.O., and Earl A. Shackelford Scholarship Fund.
$500,000 from family members, friends, colleagues, former students and residents to establish the Judith and Charles Ginsburg Chair in Pediatrics.
$500,000 from GlaxoSmithKline to establish a Distinguished Professorship in Pediatric Infectious Diseases.
$500,000 from the Rosewood Foundation for cancer research in memory of John Banker Sands.
$350,000 from Mr. and Mrs. Edward Ackerman to enhance their Fund for Medical Research at Southwestern Medical Foundation.
$266,000 from the estate of Ms. Esther Lee Wittington for research on cancer and mental illness.
$250,000 from B.J. Brown to establish the Rod J. Rohrich, M.D., Distinguished Professorship in Wound Healing and Plastic Surgery.
$250,000 from the Children’s Cancer Fund to establish a Distinguished Professorship in Pediatric Cancer Research.
$250,000 from the Jane Ray Dietrich Living Trust for research on macular degeneration.
$250,000 from the Florence Foundation for enhancement of information technology in the Fred F. Florence Bioinformation Center and Library.
$250,000 from the McGee Foundation, in addition to earlier gifts, to establish a Distinguished Professorship in Arthritis.
$250,000 from Mr. and Mrs. Jon Mosle to upgrade the Meredith Mosle Distinguished Professorship in Liver Disease, in Honor of Dr. William M. Lee, to the level of an endowed chair.
$210,000 from Once Upon a Time …
$225,000 from the Lawrence H. Gabagen Trust for medical research and clinical programs.
$200,000 from the Jane and Charles Y.C. Pak Foundation to establish the Floyd C. Rector Jr., M.D., Professorship in Acid-Base Regulation and the Jacob Lemann, M.D., Professorship in Calcium Transport.
$200,000 from Mrs. Elaine Sammons to add to her previous gifts for cancer research in honor of Dr. Eugene Frenkel.
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