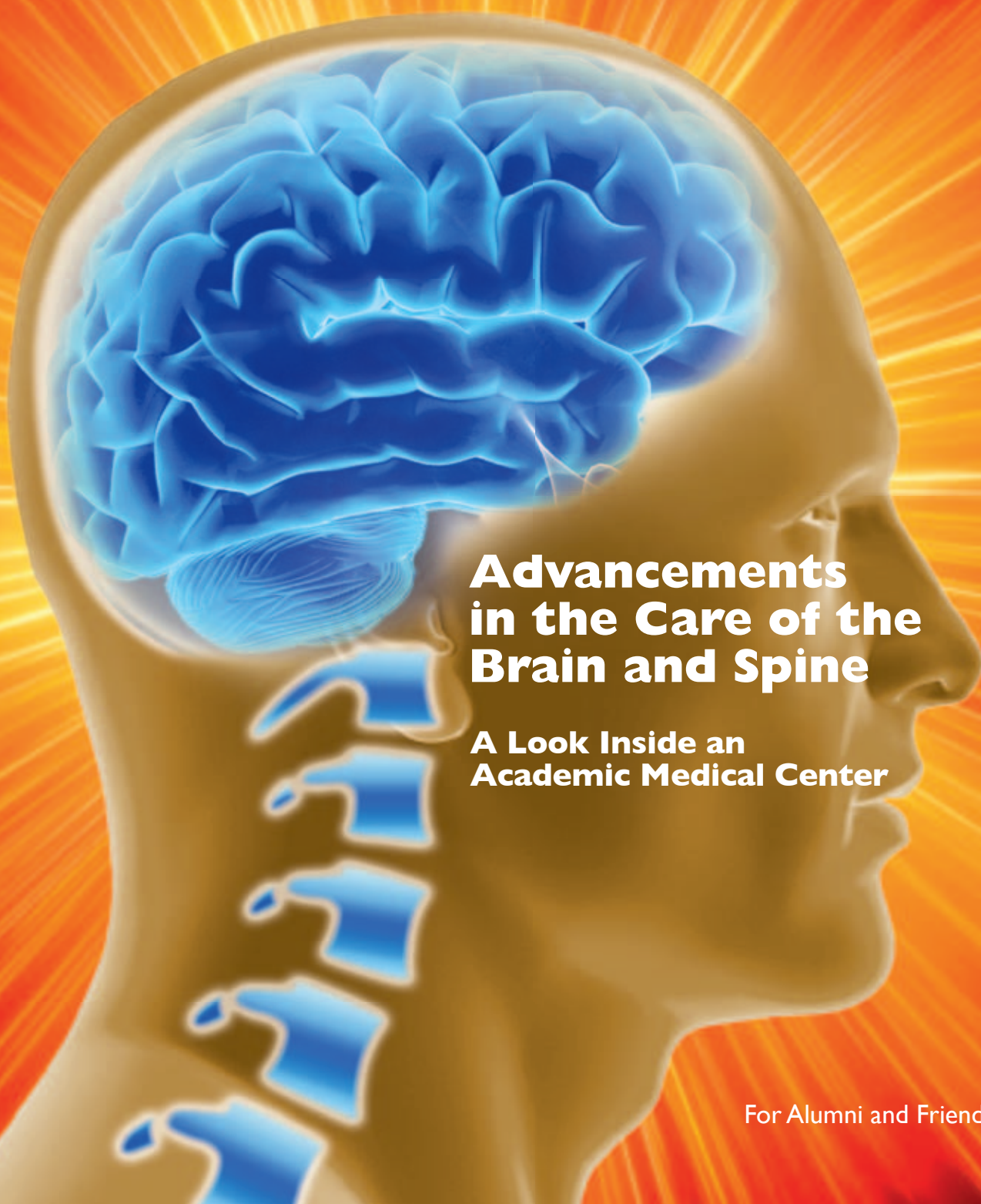


Spring 2010

Frontiers

The University of Tennessee Medical Center and The University of Tennessee Graduate School of Medicine



Advancements in the Care of the Brain and Spine

**A Look Inside an
Academic Medical Center**

For Alumni and Friends

OUR SINCERE APPRECIATION TO THE ROBERT F. AND MONICA COLE FOUNDATION

for establishing the Cole Neuroscience Center within the Brain and Spine Institute at the University of Tennessee Medical Center. Their decades of support and generosity have pioneered care for thousands of patients throughout the region facing the challenges of Parkinson's Disease, Alzheimer's Disease and other neurological disorders.



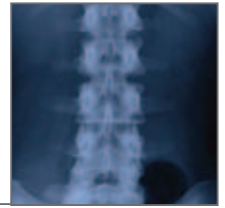
Contents



3 **One Beacon of Hope** The Cole Neuroscience Center

Minimally Invasive Spine Center Neurosurgeons Offer Patients a Quick Return to Daily Life

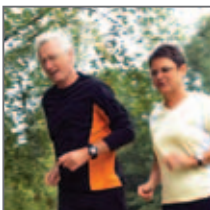
6



9 **Leading the World in Amyloid Research**

When It's More Than Just a Headache Knowing the Symptoms

12



14 **A Team Against Time** Fighting Stroke

A Balanced Approach to Dizziness

18



20 **The Difference is CyberKnife®**

Robotic Surgery Changing the Way We Operate

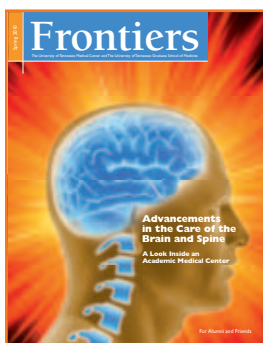
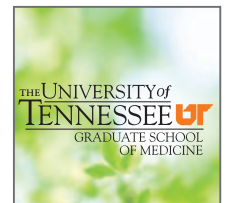
22



24 **Opportunities**

CME Course Calendar Continuing Medical Education

28



About the cover

Like technology itself, the University of Tennessee Medical Center is constantly evolving to meet the needs of our patients and our community at large. Step inside with us and discover how this academic medical center is addressing tomorrow's concerns today.

The University of Tennessee
Medical Center and The
University of Tennessee Graduate
School of Medicine Frontiers

Spring 2010

Editor

Becky Thompson

Publishers

Joseph Landsman

Norman Majors

James Neutens

Contributors

John Dougherty, MD

Rachel Greene

Wendi Hope Hager

Amanda F. Johnson

Lea Anne Law

Susan Lytle

Kristine Nevans

Melissa Winchenbach

Design

Asen Marketing & Advertising, Inc.

Frontiers is a magazine produced by The University of Tennessee Medical Center and the University of Tennessee Graduate School of Medicine. This publication was designed to showcase the unique benefits of having an academic medical center in East Tennessee.

Copyright ©2010

The University of Tennessee

Medical Center

All Rights Reserved.

EEO/TITLE VI/TITLE IX

Sec. 504/ADA

Send Correspondence to: Frontiers

1520 Cherokee Trail, Suite 300

Knoxville, Tennessee 37920-2205

Telephone: 865-305-6845

Fax: 865-305-6959

E-mail: frontiers@utmck.edu

Web: www.utmedicalcenter.org

or <http://gsm.utmck.edu>

THE UNIVERSITY of
TENNESSEE 
GRADUATE SCHOOL
OF MEDICINE

 THE UNIVERSITY OF TENNESSEE
MEDICAL CENTER

Wisdom for Your Life.

Dear Alumni and Friends,



The University of Tennessee Medical Center Brain and Spine Institute was formed in 2005 to provide the people of East Tennessee access to medical experts and services in neurology and neurosurgery for injuries, conditions, and disorders of the nervous system.

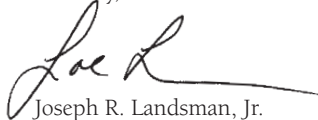
Recognizing the region's need for expertise in Stroke care, the Institute embarked on ensuring access to medical services of consistently high quality. To that end, the Brain and Spine Institute was the first hospital in the region to achieve The Joint Commission Primary Stroke Center Certification. Recently the Stroke Center was awarded Knoxville's only Gold Performance Achievement Award for 24 months of continuous compliance to nationally recognized quality standards for treatment of stroke.

Continuing its commitment to quality, the Minimally Invasive Spine Center, also part of the Brain and Spine Institute, offers access to neurosurgeons with not only expertise in care of the most severe injuries and diseases, but also the most up-to-date advances in spine care. The Minimally Invasive Spine Center is recognized by Blue Cross as a Blue Distinction Center demonstrating a commitment to quality care and better outcomes for spine surgery patients.

In the 1960's, one of our pioneering physicians, Frank Turney, MD, neurosurgeon, had a patient, Mr. Robert Cole. Through the generosity of Mr. Cole and his wife, the Robert F and Monica Cole Foundation provide significant private gift support to the Brain and Spine Institute for our neurology clinical services and research programs at Cole Neuroscience Center. The Center offers access to neurology sub-specialty clinics like no other in the region.

We are very proud of our history, thankful for the generous support of our community and excited about the success of our current patient care, research, education, and technological advances. As you enjoy this issue and read about the dedicated physicians, researchers, and health professionals who are bringing the latest skills and critical thinking to the care of our patients, please remember for a moment, the deep roots of our Brain and Spine Institute.

Sincerely,



Joseph R. Landsman, Jr.

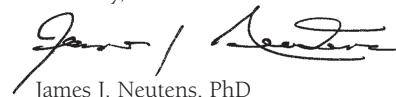
President and Chief Executive Officer
University Health System, Inc.

In today's world, more and more people are experiencing concerns about the care of the brain and spine either through knowledge of friends that require treatment or through personal tragedy. This issue of *Frontiers* illustrates the tremendous benefits that an academic medical center brings to the community with basic science research as a foundation for clinical advancement. We are leaders in Amyloid research – research that impacts many serious or life-threatening diseases. As you will see, our investigators use a team approach to the benefit of each other but, most importantly, to the benefit of patients who will be able to take advantage of their cutting-edge solutions.

While many in our community recognize our ability to advance medicine through research this is especially true for the Cole Foundation, which is a longtime supporter of our efforts. Several of our patients have benefited from how the Cole Neuroscience Center integrates our research and patient care missions in a very unique fashion as does the Lederer Family research scholarship. Similarly, the Brain and Spine Institute provides a broad range of services from direct medical care to surgical intervention.

Like all academic medical centers, we set the bar high for our faculty physicians. A prime example in this edition is the Stroke Center, which was the first facility in Knoxville to earn certification from the Joint Commission. It is this physician-researcher leadership that allows us to offer excellent training for our future physicians as well as graduate students from the University of Tennessee.

Sincerely,



James J. Neutens, PhD

Dean

UT Graduate School of Medicine

ONE BEACON OF *Hope* The Cole Neuroscience Center

For more than 35 years the Cole Neuroscience Center, part of the University of Tennessee Medical Center's Brain and Spine Institute, has provided care to patients with degenerative neurological disorders. The only neurology subspecialty center of its kind in the region, Cole offers a complete spectrum of care for diseases such as Alzheimer's, Dementia, Movement Disorders, Parkinson's, Multiple Sclerosis (MS), Muscular Dystrophy, Amyotrophic Lateral Sclerosis (ALS or Lou Gehrig's disease), and Epilepsy. Its specialists work together to develop treatment plans that help both patients and their families. From the latest diagnostic tools and information on clinical trials to compassionate counseling and long-term care options, the Cole Neuroscience Center has so much to offer – especially hope.

Thanks to generous contributions from the Robert F. and Monica Cole Foundation, the clinic can offer crucial education and support for a patient's whole family. The team of specialized healthcare providers includes a registered nurse and a social worker, which is not typically found in a physician's office. The nurse's role is to teach the patient and family about the disease and medication management. The social worker meets with the family to identify risk points and provide information about support services. These services might include rehabilitation referrals, the ability to order special equipment, information about support groups, and respite care to give a weary family member a much-needed rest. The disease-specific clinics at Cole include:

- **The Movement Disorders Clinic** – Michelle Brewer, MD, and William Paulsen, MD
- **The Memory Disorders Clinic** – John Dougherty, MD, Richard Gibson, MD, and Monica Crane, MD
- **The Epilepsy Clinic** – Steven Rider, MD, and William Paulsen, MD
- **The Multiple Sclerosis Clinic** – Randy Trudell, MD
- **The Muscular Dystrophy Clinic** – Brian Wiseman, MD
- **The Amyotrophic Lateral Sclerosis Clinic** – Randy Trudell, MD



Parkinson's and Movement Disorders

Parkinson's disease affects about one and a half million people in the United States. It's a central nervous system disorder that impairs motor functions. It is characterized by slow movements (bradykinesia), stiff limbs, impaired balance, and tremors. There is no single definitive diagnostic test for Parkinson's disease, and at present there is no cure. Michelle Brewer, MD, a neurologist at the University of Tennessee Medical Center says, "We're a regional outpatient clinic serving patients with unique or rare neurologic disorders. Our staff build extra time into their schedules to address the specific needs of patients with complex conditions."

Multiple Sclerosis

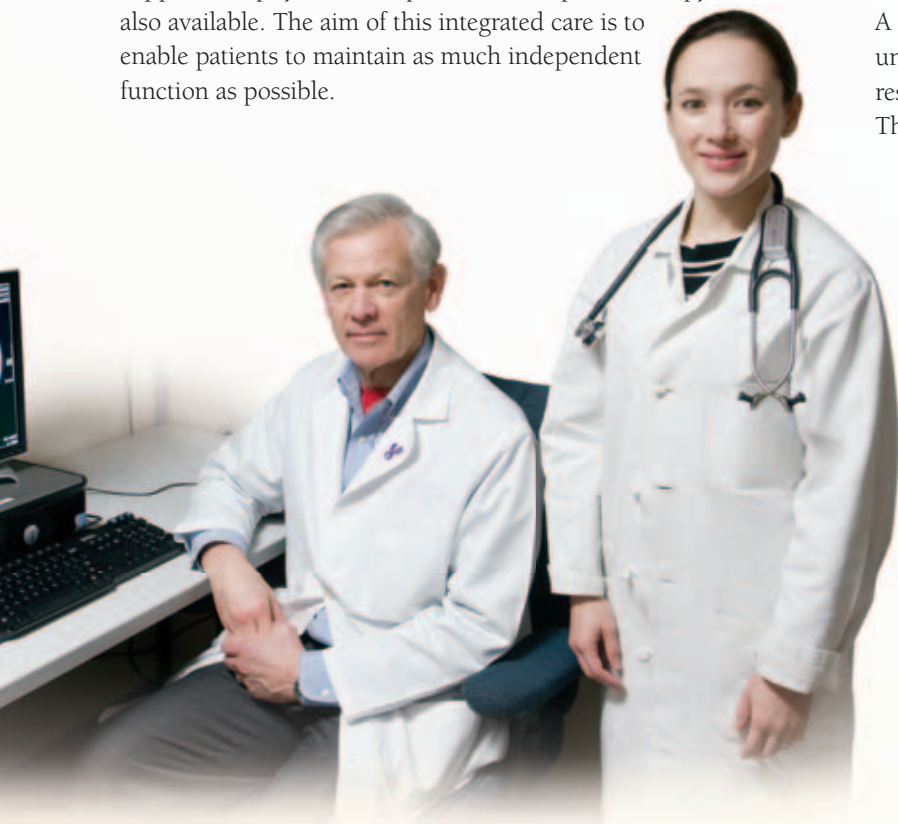
Multiple Sclerosis (MS) is a disorder of the central nervous system that leads to inflammation and damaged nerves in the brain and spinal cord. Its varied symptoms, which usually appear in episodes separated by periods of remission, may include problems with vision, coordination, sensation, and flexibility.

Cole's Multiple Sclerosis Clinic provides detailed diagnostic evaluation, then follows patients closely to help prevent episodes and manage symptoms. Studies have shown that early treatment aimed at episode prevention is better for MS patients than a wait-and-see approach. A patient's neurologist, nurse, and social worker have broad experience with the whole spectrum of MS-related issues, medical, emotional, and social. The clinic has a particular interest in treating muscle spasms (spasticity) and works with the medical center's urology department to provide state-of-the-art bladder management.

Amyotrophic Lateral Sclerosis

Also known as Lou Gehrig's disease, ALS causes progressive weakness. As yet there is no effective treatment, and in most cases the cause of the disease is not known. Close follow-up and aggressive attention to respiratory and nutritional needs have improved ALS patients' quality and length of life.

The ALS Clinic provides care sponsored by the Muscular Dystrophy Association. Patients are seen in a multidisciplinary setting attended by a neurologist, a nurse, a respiratory therapist, a social worker, and medical-equipment providers. Nutritional support and physical, occupational, and speech therapy are also available. The aim of this integrated care is to enable patients to maintain as much independent function as possible.



Memory Disorders

One of the greatest concerns that aging brings with it is the fear of lost cognitive function. For the past 25 years, John Dougherty, MD, director of the Cole Neuroscience Center, has been focused on research and care in the field of memory disorders. Cole currently serves about 2,000 families affected by various types of dementia, and the demand for appointments at the Memory Disorders Clinic has doubled in the last five years.

Monica Crane, MD, joined Dougherty at the clinic in 2009. Crane, fellowship-trained in geriatrics, brings an additional perspective to the treatment of patients and families. After her residency in community and family medicine at the University of Pennsylvania, she completed a two-year fellowship in geriatric medicine. She shares her knowledge in lectures and in

publications, and she is a member of the State of Tennessee's Task Force on Alzheimer's disease.

In tandem with the annual Knox County Alzheimer's Memory Walk, the Cole Neuroscience Center sponsors the Alzheimer's Awareness Garden. Patients' families and medical center staff share pictures of loved ones affected by the disease, and Cole staff provide information on brain-skills activities, news about the latest Alzheimer's research, and coping pointers for caregivers.

Research at Cole

A number of graduate students through the years have increased understanding of progressive neurological disorders through the research they've conducted at the Cole Neuroscience Center. Three students completed PhDs during their tenure at Cole:

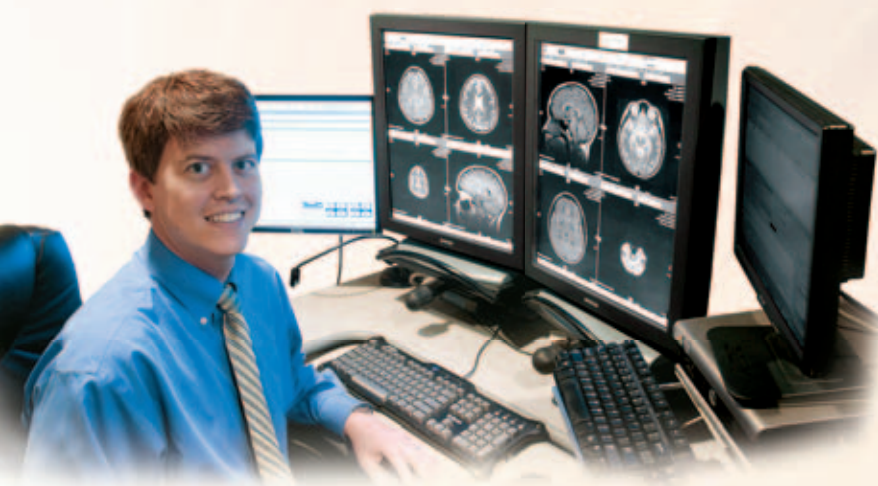
- **Mateja de Leonni Stanonik, PhD**, finished her research in 2006. She investigated PET-scan imaging of patients with Alzheimer's and evidence of anosognosia. (Anosognosia is a condition in which a person with a disability is unaware of the disability or denies its existence.)
- **Charles Licata, PhD**, developed a questionnaire to identify symptoms of anosognosia in 2008.
- **Rex Cannon, PhD**, investigated the functional connectivity of EEG LORETA (low-resolution electromagnetic tomography) in the brain's cortical components.

Current graduate students are involved in the following studies:

- **Chris Nichols** is investigating functional magnetic resonance imaging (MRI) in post-traumatic stress disorder.
- **Mike Gawrysiak** is comparing MRIs done before and after training sessions conducted on coping skills in breast-cancer patients exhibiting signs of depression.
- **Jennifer Janowitz** is collaborating with the University of Tennessee at Knoxville on the development of a valid, reliable driving simulation test for people with memory disorders.

Current clinical trials include:

- Monoclonal antibody in the treatment of Alzheimer's disease
- Selective antihistamine in the treatment of Alzheimer's disease
- Anticholinergic treatment for patients with advanced Alzheimer's disease



Paul Campbell, MD, neuroradiologist, diagnoses neurological diseases using MRI technology.

Neuroradiology

University Radiology brought Paul Campbell, MD, a native of East Tennessee “home”, to the University of Tennessee Medical Center after he completed his neuroradiology fellowship at Johns Hopkins. He’s an expert in the use of magnetic resonance imaging to arrive at accurate diagnoses of neurological diseases. MRI is a technique in which a patient is placed in a magnetic field and pulses of radio waves are used to generate signals that, when processed by a computer, produce a highly detailed image of the brain (or other part of the body).

This technique is the preferred diagnostic tool for neurological disorders including stroke, Multiple Sclerosis, Epilepsy and brain tumors. When it appears that a patient has had a stroke, MRI can not only distinguish between a clot (ischemic stroke) and a bleed (hemorrhagic stroke) but also identify the stroke’s extent – information that is crucial for selecting the most appropriate treatment.

When an episode of MS inflammation occurs, deposits of plaque leave nerves without the capacity to transmit messages. Using MRI, clinicians can identify the locations of nerves with these deposits.

One in every 10 Americans will have a seizure during his or her lifetime. MRI is the imaging technique that allows the most specific diagnosis of the region of the brain affected by epilepsy, one cause of seizures. Functional MRI is a technique that can be used to pinpoint brain areas associated with motor and sensory function, language, and memory

Another diagnostic tool used in treating brain tumors is MR spectroscopy, which identifies areas of the brain with particular concentrations of metabolites that are unique to certain disorders.

Diffusion tensor imaging is an MRI technique that makes it possible to map neural tracts by measuring differences in the diffusion of water in the brain. The images can be color-coded, and certain patterns emerge that may help in the diagnosis of ALS, dementia, or a brain tumor.

John H. Dougherty, MD

HOPE

Tom Spelce, a strong and independent man, was diagnosed with Parkinson’s disease when he was 40 years old. His wife had planned a 40th birthday party for him and invited his closest friends. At the party, a couple who had medical backgrounds noticed some changes in Tom.

His friends suggested that he see a neurologist. Tom looked in a medical encyclopedia and skimmed the relevant sections. He read the definition of Parkinson’s disease, thought nothing of it, and went to see his family doctor.

But he’d begun to become more aware of his body, noticing how his hands moved and how he had to swallow more frequently, which caused sore throats. “The symptoms and the disease seemed to sneak up on me,” he says.

After talking to his family doctor, Tom was referred to Michelle Brewer, MD, a neurologist at the University of Tennessee Medical Center. He became a patient at the medical center’s Cole Neuroscience Center and began receiving treatment for Parkinson’s disease. “Dr. Brewer is very good,” he says. “She’s able to match my medication with my symptoms, and she adjusts the medication to help with my movement.”

Tom has had Parkinson’s disease for 14 years now. He says he’s thankful for the Cole Neuroscience Center. There have been times when he wouldn’t have had the medication he needed without the center’s help. He’s also grateful for the personal support of the Cole staff, with whom he’s on a first-name basis. The Cole Neuroscience Center has given him hope.

Spring 2010 | 5





MINIMALLY INVASIVE SPINE CENTER

Neurosurgeons Offer Patients a Quick Return to Daily Life

Consider the anxiety, pain, and discomfort associated with spine surgery. The experience can also include a long hospital stay, scarring, and a withdrawal from daily activities for some time. Now consider the idea of going home right after the surgery, with reduced pain, minimal scarring, and fewer side effects. Sound too good to be true? It does, but it's what many patients at the University of Tennessee Medical Center's Minimally Invasive Spine Center are experiencing.

People suffering from spinal disorders such as ruptured discs and compression fractures have discovered the benefits of the latest outpatient treatments with their quick recovery times. The center – which offers minimally invasive microdiscectomy and laminectomy, minimally invasive spinal fusion and kyphoplasty, and many other procedures – provides patients with advanced treatments by the most experienced neurosurgeons using dedicated operating-room facilities, all under one roof. “The University of Tennessee Medical Center has the only dedicated center for minimally invasive spine surgery in the region,” says William Reid, MD, a medical center neurosurgeon. “Image-guided, minimally invasive techniques for lumbar spinal instrumentation and fusion have been in use for 10 years at the medical center. Computerized, image-guided techniques make it possible to place lumbar instrumentation (screws and rods) through one-inch incisions with precise accuracy.”

As many as 85% of Americans show evidence of disc degeneration by age 50. Help is available to a large number of these people. Now it's possible for them to find everything needed for back surgery at one location. Benefiting from advanced techniques that involve small incisions and very little downtime, patients can schedule back surgery without having to plan their lives around the procedure. “The University of Tennessee Medical Center offers all modalities for the treatment of spine disease,” says William Snyder, Jr., MD, a neurosurgeon at the medical center. “We employ minimally invasive techniques whenever possible to minimize operative time, the length of the hospital stay, and recovery time. Our goal is to return the patient to a normal level of activity with minimal to no restrictions in the long term.”

People who need spine surgery and want an alternative to traditional “open” surgical techniques should consider a minimally invasive option. “Candidates for minimally invasive spinal surgery include patients who are experiencing back and leg pain (sciatica) due to lumbar disc herniation, lumbar stenosis, or spondylolisthesis (spinal misalignment),” Reid says. “Patients with neck and arm pain due to disc herniation or stenosis are also candidates. Most patients with these conditions should first have a course of medical treatment (physical therapy, traction, analgesics, or anti-inflammatory drugs) before considering surgical treatment. Medical treatment can be managed by the patient's primary care physician or by a neurosurgical consultant at the medical center.”

Surgeons at the spine center have expertise in minimally invasive techniques that use only small incisions and require very little recovery time.

The procedures most commonly performed at the center include minimally invasive microdiscectomy, spinal fusion, and kyphoplasty.

- Minimally Invasive Microdiscectomy and Laminectomy allow the removal of a ruptured disc with minimal disruption of the spinal anatomy.
 - Microdiscectomy removes only the portion of a ruptured disc that is pinching one or more spinal nerve roots.
 - Laminectomy removes a part of the spinal canal's bony covering to relieve nerve compression.
- Minimally Invasive Spinal Fusion makes use of a surgical navigation system with 3-D computerized images invasive techniques.
 - Two bones in the spine are joined with rods and screws placed through one-inch incisions, to make the spine more stable.
- Kyphoplasty is a minimally invasive treatment for spine compression caused by fracture or osteoporosis; it requires only two needle-size incisions.
 - This procedure is employed to stabilize a vertebral compression fracture, an injury often caused by osteoporosis. It is done as an outpatient procedure.

Many neurosurgeons throughout the country believe there are many benefits to minimally invasive spine procedures over traditional surgery, including these:

- Reduced pain and discomfort due to smaller incisions and less muscle trauma

- A shortened hospital stay
- Less risk of infection
- Fewer complications
- Decreased blood loss and less need for blood transfusions
- A shorter recovery time
- Surgical precision
- Fewer side effects
- An earlier return to daily activities

"We treat a wide range of disorders of the spine utilizing minimally invasive surgical techniques. Examples include minimally invasive disc surgery and minimally invasive spine fusions all aimed at minimizing healing time and insuring excellent relief of symptoms. Patients should call if they have significant leg pain or weakness related to a back or neck injury or spinal pain that is unresolved over a period of time," says Todd Abel, MD, a neurosurgeon at the medical center.

Experts at the Minimally Invasive Spine Center are ready to provide you with highly skilled treatment and help you toward a fast, full recovery. As the only facility of its kind in the East Tennessee area, the center offers state-of-the-art medical techniques, more surgical precision, and fewer complications – all resulting in a quick return to daily life. The University of Tennessee Medical Center Spine Center is recognized by Blue Cross as a Blue Distinction Center for Spine Surgery. This designation is awarded to medical facilities exhibiting a commitment to quality care, resulting in better overall outcomes for spine surgery patients.

Wendi Hope Hager



BACK TO LIFE, BACK TO BASKETBALL

Ron Slay, a graduate of the University of Tennessee, has a deep love for basketball. He played throughout college, from 1999 to 2003, and is continuing his hoops career in Italy.

But after several years of back pain and leg numbness, Slay decided that he wasn't doing enough to protect his back. He intensified his exercise routine, adding more core strengthening and stretching. He found that the pain would go away, only to return later.

During one practice Slay went up for a dunk, felt a pull in his back, and landed unable to do anything but hobble off the court. He rested a few days and then returned to practice. "I felt I needed to work through the pain," he

says. Again there was a pull and a twinge in his back. This time he knew he needed help.

He went to the University of Tennessee Medical Center's Minimally Invasive Spine Center to see neurosurgeon William Snyder, Jr., MD. The diagnosis was a herniated disc; Slay needed surgery.

On an outpatient basis, he had a microdiscectomy, which removed the herniated disc that had been causing him so much back pain and numbness in his legs. The relief was immediate, and he returned to normal activity right away. His legs are more flexible and his back is pain-free. He's now stretching, exercising, and has returned to the court.

"I applaud Dr. Snyder. I'm feeling terrific," Slay says. "I wanted to come to the University of Tennessee Medical Center and see doctors I trust."

photo credit UT Media Relations



Valerie Berthelier, PhD

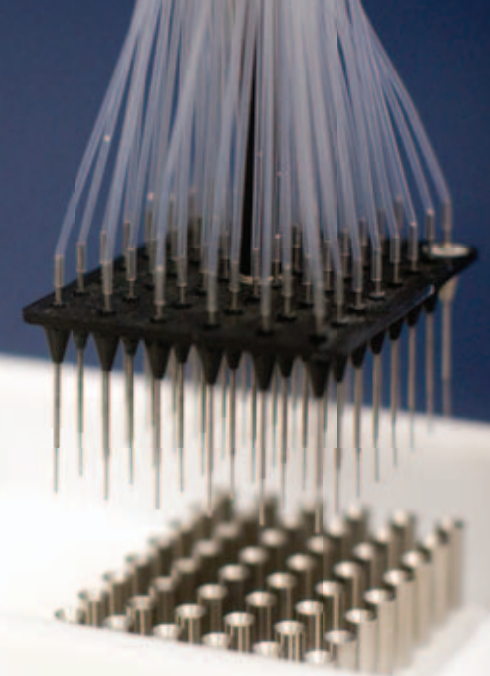
Leading the World in Amyloid Research

Understanding the cause and composition of a disease-producing substance known as amyloid is the quest of scientists across the globe. Identifying how amyloid forms and affects the living human body has become a mission of the University of Tennessee Medical Center scientists who find themselves revealing new discoveries to the world.

Several issues of *Frontiers* have introduced readers to conditions related to amyloid, protein-rich masses that play a role in serious or life-threatening diseases such as rheumatoid arthritis, type 2 diabetes, multiple myeloma, Alzheimer's, Huntington's, Parkinson's, and other degenerative diseases. Amyloid, a mix of proteins, sugars, and other molecules, occurs when proteins in the body misfold and form insoluble, often toxic and well-structured fibrils. The resulting disease, amyloidosis, can progress rapidly, causing complications that invariably lead to tissue disruption and organ failure.

The University of Tennessee Medical Center and UT Graduate School of Medicine faculty and researchers have been studying amyloid for decades, sharing information with fellow researchers throughout the world. Supported by grants from the National Institutes of Health and others, the teams work daily to unveil ways to diagnose, prevent, or eliminate amyloid from the body.

Valerie M. Berthelier, PhD, is studying Huntington's disease, a hereditary disorder in which nerve cells in the brain degenerate. She and her team are the only researchers in the nation currently using neutrons to determine the structure of the mutant huntingtin protein that is responsible for the disease.



Berthelier hopes to identify compounds that can stabilize stages of protein folding and amyloid formation, determine their toxicity, and ultimately render them harmless. Additionally, these compounds may be able to change the toxic structure of amyloid, which could allow healthy cells to destroy it.

Her research is greatly aided by the campus's proximity to Oak Ridge National Laboratory (ORNL), home to neutron-scattering instruments that are available at only a few locations worldwide.

"Once our proposal is accepted by ORNL, our team is typically assigned three consecutive days once every six months," says Berthelier. "The worldwide demand from scientists for the neutron lab is high. Our team must be well prepared when our turn to use the facility arrives. We take our materials with us, and we work nearly around the clock, taking short rest breaks in the wee hours of the morning."

Research outcomes are recorded and later analyzed back at the UT Graduate School of Medicine labs, where Berthelier and her team continue their quest to understand the formation of the mutant huntingtin protein and the resulting debilitating disease.



Researchers in the Conformational Diseases and Therapeutics Research Laboratory at the University of Tennessee Graduate School of Medicine are the only ones in the U.S. to use neutrons to study the structure of the mutant huntingtin protein that causes Huntington's Disease. Several members of the team are (back) Christopher Stanley, PhD; (L to R) Monique LeMieux, PhD graduate student; Penney Koeppen, MS; and Valerie Berthelier, PhD, Assistant Professor, Director. Not pictured are team members Erica Rowe, PhD, and Tatiana Perevozchikova, PhD graduate student.

Breaking New Ground: Imaging Amyloid Sugars

Recently, the National Institutes of Health awarded UT Graduate School of Medicine researcher and professor Jonathan S. Wall, PhD, a \$2 million, four-year grant to study new ways of capturing pictures of amyloid disease in patients. Discovering how to track the disease and get accurate images of amyloid as it insidiously invades the body's organs can lead to more rapid and effective methods of diagnosis as well as new treatments.

To date, most research around the globe has centered on targeting and imaging the protein fibrils present in amyloid. Wall's team of researchers is breaking new research ground by concentrating its efforts on the sugars that are present in an amyloid mass. "No one else in the world is looking into imaging the unique amyloid-associated sugars as a diagnostic tool," says Wall. "It's an understudied area that will be very important to diagnosing, monitoring, treating, and perhaps preventing death caused by amyloid."

He provides a layperson's explanation: "Sugars are present in all healthy tissues and help cells interact with each other and their surroundings as well as provide a scaffold for the whole tissue. There's an unusually large amount of these sugars found in all amyloid masses. If we can identify molecules that specifically target the sugars, we'll be able to use radioactive isotopes to image amyloid-related diseases, which will allow us to better diagnose and monitor patients. In the near future we can also deliver payloads that can destroy this material, perhaps using the body's own immune system."

Wall and his team are already discovering better ways to image amyloid deposits and tag them for destruction. In only three months, the team has taken the research to the next level, employing small molecules rather than larger proteins to carry

the radioactive tracers to amyloid. "Using these small molecules as transporters of the radioactive molecules is groundbreaking for research into amyloid and Alzheimer's disease," explains Wall. "The molecules can be easily made into a vehicle to carry a radioactive tracer to any area of the body, including the brain with its blood-brain barrier that usually restricts larger molecules."

He sees opportunity on the horizon. "If we continue on the path we're on now, we can reach an obtainable dream." His matter-of-fact demeanor belies the excitement brewing under the surface as he describes his vision of establishing the nation's first amyloid imaging and treatment facility at the University of Tennessee Medical Center. "We have the finest imaging equipment available through our partnership with Siemens," he says. "Our faculty includes Dr. Alan Solomon, one of the world's premier amyloid researcher-clinicians, from whom all amyloid research stems. Thanks to his invaluable and ongoing research in this field, we're already making phenomenal discoveries that will have an impact on the diagnosis and treatment of these awful diseases. This dream is within our grasp."

Although the research Wall is conducting is different from Berthelie's, both labs are working together to understand the consequences of the misfolding process. "No one is certain what happens between the time mutant proteins evolve through an intermediate stage when small toxic structures appear and the next stage where large intertwined fibrils can be found," Berthelie points out. "The discovery of what occurs during this process can be a key factor in developing treatments that will eliminate the toxicity or prevent the process altogether."

Lea Anne Law & Amanda F. Johnson

The team of researchers in the Diagnostic and Preclinical Molecular Imaging Laboratory are imaging amyloid and its associated sugars to fight diseases such as rheumatoid arthritis, type 2 diabetes, Alzheimer's, and other diseases. Team members include (L to R) Amy LeBlanc, DVM, Director, Translational Research; Jon Wall, PhD, Professor, Director; Alan Stuckey, BA, CNMT, Research Leader; Tina Richey, MS, Experimental Model Specialist and Steve Kennel, PhD, Associate Professor.





One of a kind. Jon Wall, PhD, Professor, Director, Preclinical and Diagnostic Molecular Imaging Laboratory, University of Tennessee Graduate School of Medicine, and his team are the only researchers in the world to have imaged certain amyloid deposits inside of a living body using antibodies and sugar-binding small molecules. The image of the insidious amyloid fibrils, shown here with Wall, is enlarged and hanging in Wall's lab.

WHEN IT'S MORE THAN *"just a headache"* KNOWING THE SYMPTOMS

Many of us have a headache from time to time. But do you know how to recognize when it's more than "just a headache"? What symptoms should you look for?

There are two main types of headaches, primary and secondary. Primary headaches are those not caused by other medical conditions; migraine, tension, and cluster headaches are

common examples. In migraine and cluster headaches, nerves and blood vessels inside the head send pain signals to the brain. Secondary headaches usually result from another medical condition, such as fever, an infection, overuse of a medication, high blood pressure, a head injury, stroke, stress, a tumor, or a nerve disorder. Distinguishing between primary and secondary headaches can be challenging. But it's important to differentiate between the two, because occasionally headaches can be caused by or associated with a serious medical condition.

Primary headaches are the more common type. In this category are migraine headaches, which can be very debilitating and are sometimes accompanied by worrisome symptoms. Even so, they don't usually indicate a more serious condition. Migraine headaches can occur a couple of times a year or for many days each month. The pain associated with them can range from dull or mild to excruciating. It is typically felt on one side or in one area of the head as a throbbing or pounding.

Besides this head pain, common symptoms of migraine headaches include:

- Nausea
- Sensitivity to light and sound (photophobia and phonophobia)
- Scalp tenderness
- Facial tenderness
- Numbness and tingling (paresthesia)
- Seeing shimmers or sparkles (scintillating scotoma)

If you note any of these symptoms, it's a good idea to discuss them with your physician, who can help identify the kind of headache you're having. In addition, the doctor can help you develop a treatment plan to lessen the pain and frequency of any type of headache.





Steven Rider, MD,
neurologist, treats a variety
of symptoms related to
different types of headaches.

Secondary headaches, unlike primary ones, are associated with another medical condition. They can be benign (such as a headache caused by medication overuse) or ominous (like the “thunderclap” headache that signals a subarachnoid hemorrhage).

Some secondary-headache features that can indicate a serious problem are:

- A headache that's the first ever or worst ever
- A severe headache that comes on abruptly
- Increased frequency or a change in the character of recurrent headaches
- Headaches at a very young age or later in life (under 5 or over 50)
- Abnormalities, such as weakness or vision loss, accompanying a headache
- Headaches that are associated with seizures, fainting, or a medical condition like pregnancy, cancer, HIV, or high blood pressure
- A headache accompanied by fever
- A headache that comes with exertion or straining, activities known as Valsalva maneuvers

If you have a headache with any of these features, get an evaluation from a physician. Ignoring the symptoms or waiting them out could result in long-term damage. If the symptoms point to a stroke, for example, time is of the essence.

While most headaches aren't life-threatening, being aware of these warning signs will help you respond properly if an emergency should arise.

During an evaluation, it's important to establish whether the headaches are primary or secondary. A headache journal is helpful, if you can keep one. Note such specifics as accompanying symptoms and the headaches' frequency, intensity, and duration, along with medication usage and changes in headache patterns. “If there's any question about whether an evaluation is warranted,” says Steven P. Rider, MD, neurologist at the University of Tennessee Medical Center, “it's safer to seek help for what might turn out to be a benign headache than to ignore the symptoms of a dangerous headache.”

Melissa Winchenbach



A TEAM AGAINST TIME

Fighting Stroke

In just minutes, a stroke can take away so much – speech, memory, muscle strength, even a life. As many as two million brain cells die every minute during a stroke, according to the National Stroke Association. Not only is stroke the third leading cause of death in the United States, killing as many as 144,000 people each year, it's also the primary cause of severe long-term disability in adults. Statistics like these make it clear that acting quickly to get help is crucial, because all strokes – even symptoms that seem to have passed – are serious and require emergency medical treatment.

To help patients, their families, and regional healthcare professionals, the Stroke Center at the University of Tennessee Medical Center has a multidisciplinary stroke team of physicians, nurses, and therapists who plan, implement, monitor, and improve the care of patients suffering from stroke. The Stroke Center is dedicated to continually improving stroke outcomes and meeting the unique needs of people throughout East Tennessee. In 2006 it became the first facility in Knoxville to earn certification as a primary stroke center from the Joint Commission, the nation's preeminent standards-setting and accrediting body in healthcare. It continues to maintain its recertification each year.

"Joint Commission standards are regarded as the most rigorous in the industry," says John Beuerlein, MD, medical director of the Stroke Center. "Centers that have achieved disease-specific Joint Commission certification have demonstrated their commitment to providing integrated, high-quality care.

The Joint Commission's Gold Seal of Approval is a clear sign that certified programs have complied with or exceeded the stringent standards of performance set forth by the Joint Commission. We can only do this through the coordinated efforts of our nurses, therapists, and dedicated support staff, who are the extra hands and eyes of our physician staff from the Association of University Radiologists, Knoxville Neurology Clinic, Neurosurgical Associates, UT Hospitalists, University Pulmonary Critical Care, and University General Surgeons."

Earning trust isn't just about certification. It's about continually providing premium patient and family-centered care by means of improved clinical processes and a strong commitment to stroke education, outreach, and prevention throughout the community. The Stroke Center demonstrated that commitment when it became the only facility in Knoxville to receive the prestigious 2010 Get With the Guidelines Gold Award from the American Heart Association and American

John Beuerlein, MD, evaluates a patient at the Stroke Center.

Stroke Association, which is conferred on stroke facilities that adhere to the program's stringent guidelines for quality and performance improvement in the care of stroke patients. Gold Award winners have continuously met or exceeded the Get With the Guidelines standards for a minimum of 24 months.

As part of the Brain and Spine Institute, the Stroke Center collaborates with emergency medical services, regional emergency departments, and the community to make sure that stroke symptoms are promptly identified and treatment interventions are swiftly implemented, with the goal of reducing the long-term impact of stroke.

"Care for a person experiencing stroke is complex; it involves a multidisciplinary team," says Jennifer Henry, RN, CNRN, the stroke program's coordinator. "Collaboration among all the disciplines and departments ensures that patients and their families receive the best care possible. It's about working together to make sure that every patient receives the best care every time."

When a patient arrives, the stroke team immediately assesses which of the two types of stroke – ischemic or hemorrhagic he or she is having. An ischemic stroke is when blood gets clogged up and cannot reach the brain. A hemorrhagic stroke is when bleeding into and around the brain keeps blood from getting into the brain. The treatment offered depends on the type. About 87% of all strokes are ischemic; these occur when an artery carrying blood to the brain is completely blocked. Brain tissues die and parts of one side of the body become weak or numb for days or weeks, or even permanently. Often medications are used for treatment.

Approximately 13% of all strokes are hemorrhagic, and although this type is less common, it is usually more severe. According to the National Stroke Association, hemorrhagic strokes account for more than 30% of all stroke deaths. They result from the rupture of an artery in the brain or on its surface, which leads to bleeding into the brain tissue (an intracerebral hemorrhage, or ICH) or bleeding onto the surface of the brain (a subarachnoid hemorrhage, or SAH).



ICH is often a product of damage to arteries in the brain caused by chronic hypertension or high blood pressure. SAH is most frequently caused by a ruptured aneurysm in the brain, the weakening of an arterial wall that releases blood into the spaces around the brain.

The treatment of ICH varies according to the exact location, size, and cause of the hemorrhage. The ruptured aneurysms that cause SAH are repaired with “open” surgical techniques or “closed” catheter-guided endovascular procedures.

The Stroke Center offers advanced treatment options such as coiling, in which a surgeon closes off the blood flow to an aneurysm by packing it tightly with detachable platinum coils, using a catheter and X-ray images for guidance. The procedure saves lives, improves patient comfort, and may shorten recovery time.

“Over the past 15 years, endovascular coiling of cerebral aneurysms has emerged as an alternative to microsurgical

clipping,” says Peter Kvamme, MD, who works at the medical center as an interventional neuroradiologist. “The latest evidence from the American Stroke Association demonstrates that excellent results can be achieved with both coiling and clipping. However, good patient outcomes are strongly linked to higher-volume centers with experience and expertise in both techniques.”

Kvamme adds, “At the University of Tennessee Medical Center, I’m especially proud of our collaborative, multidisciplinary neurovascular team, with its neurology, neurointerventional, and neurosurgery specialists. We believe there are three types of intracranial aneurysms: ones that should be coiled, ones that should be clipped, and ones that can be treated either way. We emphasize that patients are individuals, treat them as though they were family, and keep trust at the center of our unbiased collaboration during critical decision-making. We’re also extremely fortunate to have fellowship-trained neuroanesthesiologists and 24/7 neuro-critical-care support, which are requisites for improved patient outcomes.”

Stroke Warning Signs



Weakness

Sudden numbness or weakness of the face, arm, or leg – especially on one side of the body



Trouble Speaking

Sudden confusion, difficulty speaking, or understanding



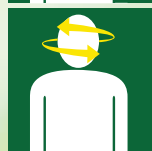
Vision Problems

Sudden onset of double vision, dimness, or loss of vision



Headache

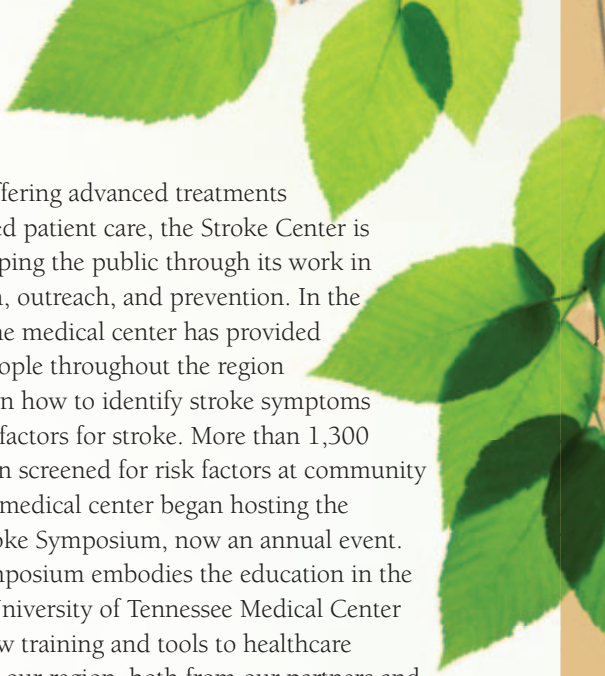
Sudden severe headache without apparent cause



Dizziness

Unexplained dizziness, unsteadiness, or loss of balance – especially in combination with other signs

If you notice any of the warning signs of stroke,
call 911 immediately.



In addition to offering advanced treatments and distinguished patient care, the Stroke Center is dedicated to helping the public through its work in stroke education, outreach, and prevention. In the last few years, the medical center has provided some 22,000 people throughout the region with education in how to identify stroke symptoms and reduce risk factors for stroke. More than 1,300 people have been screened for risk factors at community screenings. The medical center began hosting the region's first Stroke Symposium, now an annual event. "The Stroke Symposium embodies the education in the mission of the University of Tennessee Medical Center by providing new training and tools to healthcare providers across our region, both from our partners and from competing hospital systems, to improve overall stroke care for all East Tennesseans" says Beuerlein.

The Stroke Center offers education, uses proven clinical procedures, implements advanced treatment methods, and gives patients excellent care, all in order to provide the very best patient outcomes. Its service offers care and hope to those affected by stroke.

Wendi Hope Hager

80% of strokes can be prevented with a healthy diet, exercise, and regular visits with your doctor.



NATIONAL AWARD HONORS THE UNIVERSITY OF TENNESSEE MEDICAL CENTER'S STROKE CENTER

In 2010, the Stroke Center became the only certified primary stroke center in the Knoxville region to earn the prestigious 2010 Get With the Guidelines Gold Award, presented by the American Heart Association and American Stroke Association. The award honors stroke care facilities for their adherence to Get With the Guidelines' stringent standards in quality and performance improvement.

"It's an honor for the University of Tennessee Medical Center to receive the 2010 Gold Award because of what it means concerning the quality of stroke care we provide for our patients," says John Beuerlein, MD, medical director of the Stroke Center. "The entire Stroke Center team at the medical center is committed to delivering positive outcomes for our patients and their families and to providing stroke education, outreach, and prevention measures to people throughout our region."

The University of Tennessee Medical Center was recognized in the July 2008 and 2009 issues of U.S. News & World Report for the previous two Get With the Guidelines awards. The stroke team has worked to standardize and improve care for patients suffering from stroke, the third leading cause of death in this country. The Get With the Guidelines awards honor the stroke team's commitment to delivering positive outcomes and providing stroke education, outreach, and prevention measures to the public.

Hospitals that participate in the Get With the Guidelines program must meet American Heart Association and American Stroke Association guidelines by providing the latest evidence-based treatments for patients with coronary artery disease, heart disease, and stroke to improve health and save lives.



A BALANCED APPROACH TO DIZZINESS

Dizziness is one of the most common complaints patients bring to their physicians, generating about eight million doctor visits a year. Despite that prevalence, it causes continue to elude many healthcare professionals.

At the University of Tennessee Medical Center's Balance and Hearing Center, people suffering from dizziness can get information, help, and often relief for the condition.

The University of Tennessee Medical Center opened its Balance and Hearing Center in 2003, with one goal in mind: to provide the most comprehensive

diagnostic and treatment facility in the region for people with dizziness, imbalance, or vestibular (inner-ear) dysfunction. Since that time, under the direction of William D. Horton II, MD, the specially trained staff of audiologists and physical therapists has evaluated more than 2,500 patients with symptoms and diagnoses including Benign paroxysmal positional vertigo (BPPV), vestibular hypofunction, motion sensitivity, and difficulty walking.

It's the team approach employed at the Balance and Hearing Center that sets the facility apart from other clinics. When new patients come to the center for an evaluation, they receive

two examinations to assess balance: a VNG (videonystagmography) test administered by an audiologist, and a physical therapy evaluation. The VNG examines the status of the inner ear, and the physical therapy evaluation determines whether there are any functional deficits that need to be addressed with therapy. Since both tests are done in the same facility, communication between disciplines is easy. This flow of clear information between audiologist and physical therapist results in better care for the patient. Most medical facilities don't house the two disciplines together, which makes diagnosis and treatment more disjointed.

Pictured above: (L to R) William D. Horton, MD, medical director; Steve Doettl, AuD, audiologist; Paula Kyser, PT, MS, physical therapist; Kristine Nevans, PT, MPT, physical therapist; Susan Lytle, AuD, audiologist manager.



In addition to the Balance Center team's daily communications, its members meet once a week to discuss every patient who has been referred for evaluation and treatment. At this meeting, the center's medical director, otolaryngologist William Horton, MD, meets with the audiologists and physical therapists to hear salient evaluation findings, discuss possible courses of treatment, and suggest further medical evaluation in other specialty areas when appropriate. Involving three different medical perspectives and scheduling time for face-to-face conversation opens the way to concrete problem-solving and provides unique benefits to patients, especially those whose conditions are complex. "The causes of and variability in dizziness are so broad that the team approach is the only way to consistently identify the diagnosis and most effective treatment," explains Wes Priestley, PT. "This is really medicine at its best – thorough communication between three overlapping fields of expertise to arrive at a singular conclusion and plan of action."

Most patients treated at the Balance Center experience a reduction in symptoms and an improvement in function. Elderly patients who complete therapy will soon have the option of continuing with a strength-and-balance fitness program known as SAIL, which will be offered through the fitness center in the same clinical department. The goal is to restore patients to the highest possible level of independence and autonomy and to encourage well-maintained fitness and balance.

If dizziness or vertigo is plaguing you and you haven't been able to find relief, maybe the Balance and Hearing Center at the University of Tennessee Medical Center, with its skilled team dedicated to providing the best possible care to every patient, is for you. Call 865-305-6630 if you have questions about a patient referral.

Kristine Nevans



Kristine Nevans, physical therapist, walks a patient through the center's evaluation process.

Benign paroxysmal positional vertigo (BPPV) is the most common cause of vertigo and dizziness. This condition typically produces brief episodes of vertigo (a sense of false motion), provoked by particular changes in head position and accompanied by rotary eye movements (nystagmus). Classic BPPV has proved to be highly treatable with canalith-repositioning maneuvers (CRM), the Balance and Hearing Center sees many patients who have the subjective complaints associated with BPPV without the nystagmus. A study was conducted to ascertain whether patients with

subjective symptoms of BPPV might respond to canalith-repositioning maneuvers as well as those with classic BPPV do. The study looked at pre- and post-testing data for 36 patients in the "objective" group (those with nystagmus) and 27 patients in the "subjective" group (those without nystagmus). Both groups of patients showed dramatic improvement in symptoms after receiving CRM treatment. It took both groups an average of 3.2 visits to eradicate the symptoms of BPPV. These findings reinforce the idea that CRM is an effective treatment for BPPV, whether the symptoms include nystagmus or not.

Susan Lytle

The Difference Is CyberKnife®

When we think of treatments involving surgery we think of an operation, a hospital stay, and a lengthy recovery process. But stereotactic radiosurgery is a highly advanced, continuously developing treatment method that offers new hope to many patients. This amazing technology, which is actually “knifeless”, enables a doctor to treat complex cases on an outpatient basis and with no incisions at all.

Both the CyberKnife® and Gamma Knife® systems are used to deliver the treatments. Is there a difference between them?

When the University of Tennessee Medical Center began exploring stereotactic radiosurgery in 2004, a full understanding of the two systems was essential. Both deliver high-dose radiation beams to an affected site such as a tumor or lesion. But the scope of the systems’ technology differs.

Gamma Knife was developed a long time ago to treat only brain lesions. More recently, CyberKnife was developed specifically to expand the options for use of stereotactic radiation “surgery”. With CyberKnife doctors can treat tumors and lesions outside the brain. Many more areas can be treated with CyberKnife, among them the lungs, kidneys, liver, prostate, and soft tissue, as well as brain and spine tumors. The flexibility of CyberKnife’s technology makes its potential almost limitless.

The decision to implement stereotactic radiosurgery at the University of Tennessee Medical Center was a collaboration between the Brain and Spine Institute and the Cancer Institute. This was driven by a need for innovative technology that could help patients with “untreatable” or “unreachable” tumors or lesions.



CyberKnife, with its ability to treat sites throughout the entire body, was the obvious choice.

“The CyberKnife system provides radiosurgery treatment without the need for the cumbersome and painful frames that are required for the Gamma Knife,” says Daniel Green, MD, a radiation oncologist at the medical center. “CyberKnife also allows the use of radiosurgery in any area of the body, the brain, or anywhere else. That isn’t possible with other radiosurgery systems, such as Gamma Knife. This versatility and painless treatment make the CyberKnife system the clear leader in radiosurgery equipment.”

When the CyberKnife was installed in 2005, the University of Tennessee Medical Center was only the 23rd facility in the world to offer this leading-edge technology. The CyberKnife Center has cared for more than 600 patients and provided almost 1,700 patient treatments during its first five years of operation.

In December, the next-generation CyberKnife radiosurgery system received an upgrade. Among the new features are a number of advanced tools that can reduce planning and treatment times, thus making the patient’s treatment experience more comfortable, more convenient, and quicker.

The new technology includes:

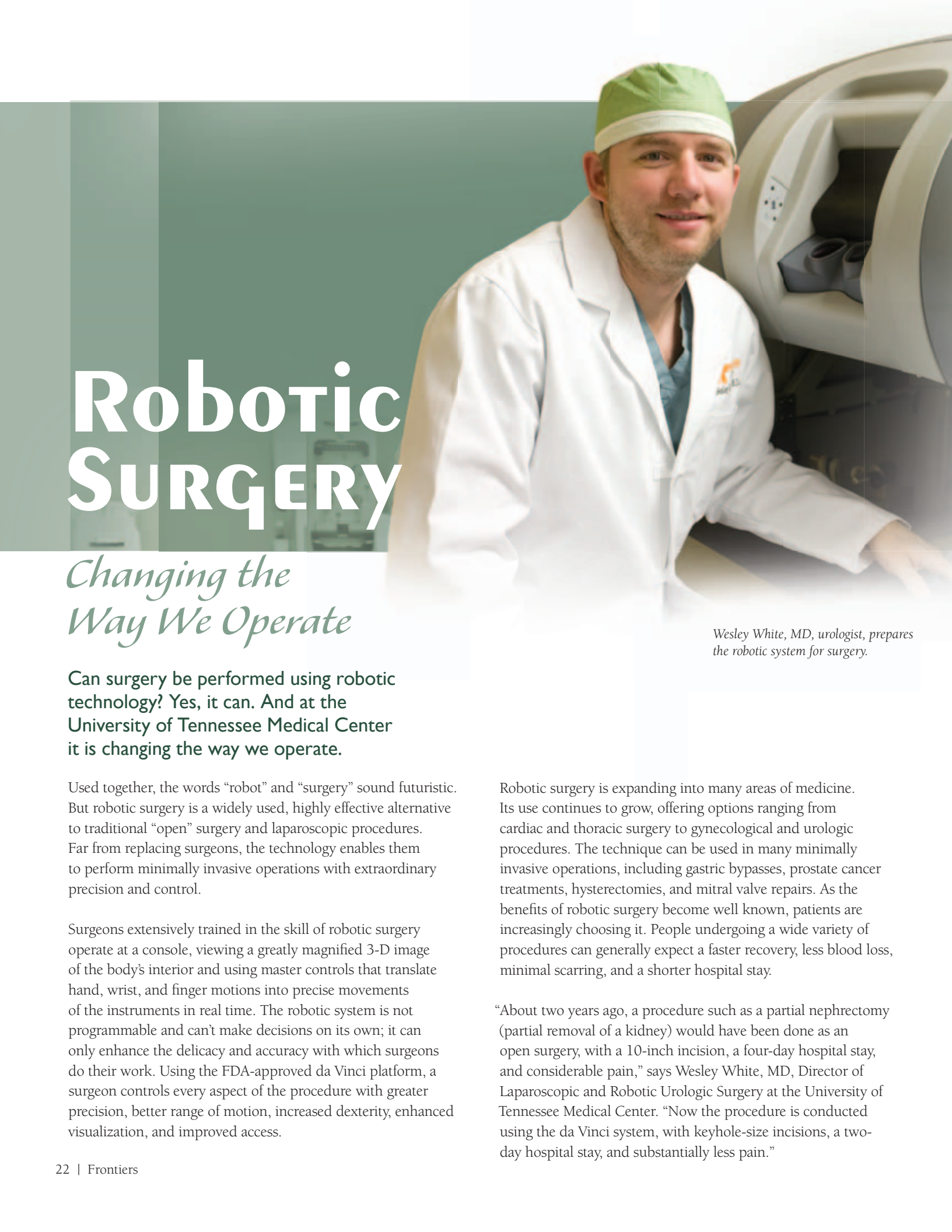
- A sequential optimization planning tool that allows clinicians to develop complex treatment plans very efficiently
- A higher-output linear accelerator that can more swiftly deliver a prescribed dose of radiation to the target
- The IRIS variable-aperture collimator, which enhances the rapid delivery of very conformal multi-collimator treatments to even the most complex targets
- Optimized path traversal, which supports more efficient motion by the robotic linear accelerator to the coordinates where the radiation needs to be delivered

In combination, these new tools allow for the development of highly sophisticated treatment plans and the delivery of treatment more quickly than ever before. Those gains reduce treatment time and enable the center to help more patients.

Systems like CyberKnife bring hope to patients in need of cutting-edge treatment and provide care in the form of quick, painless, noninvasive procedures. In this way, the University of Tennessee Medical Center continues its commitment to the delivery of excellent patient care and the use of new and improved technologies and treatments to serve its patients.

Melissa Winchenbach

What makes the University of Tennessee Medical Center's CyberKnife® different?		Both systems offer benefits such as no incisions, no blood loss, and minimal risk of complications, and both are used on an outpatient basis. But there are also differences between them, as outlined in the comparison below.
CyberKnife®		Gamma Knife®
Developed for treating tumors in the Brain, Spine, and throughout the body		Designed for treating tumors in the brain only 1.25-megavolt cobalt-60 source
6-megavolt photon beam produced by a linear accelerator		1.25-megavolt cobalt-60 source of radiation
Frameless; soft mesh face mask or body cradle used for guidance and immobilization		Rigid head frame screwed to the outer skull used for guidance and immobilization
Collimators allow for 12 different beam sizes		Collimators allow for only 4 different beam sizes
Can treat 1 to 5 times to minimize radiation exposure, preserving normal tissue		Must treat with only one large radiation dose
1,200 beam positions		201 beam positions
Treatment planning from various orientations		One orientation for planning
CT and/or MRI scans, planning, and treatment occur over multiple days		CT and/or MRI scans, planning, and treatment must be done in one day
Real-time tracking allowing for beam adjustment for any movement by the patient		Targeting based only on previous acquired images



Robotic SURGERY

Changing the Way We Operate

Can surgery be performed using robotic technology? Yes, it can. And at the University of Tennessee Medical Center it is changing the way we operate.

Used together, the words “robot” and “surgery” sound futuristic. But robotic surgery is a widely used, highly effective alternative to traditional “open” surgery and laparoscopic procedures. Far from replacing surgeons, the technology enables them to perform minimally invasive operations with extraordinary precision and control.

Surgeons extensively trained in the skill of robotic surgery operate at a console, viewing a greatly magnified 3-D image of the body’s interior and using master controls that translate hand, wrist, and finger motions into precise movements of the instruments in real time. The robotic system is not programmable and can’t make decisions on its own; it can only enhance the delicacy and accuracy with which surgeons do their work. Using the FDA-approved da Vinci platform, a surgeon controls every aspect of the procedure with greater precision, better range of motion, increased dexterity, enhanced visualization, and improved access.

Wesley White, MD, urologist, prepares the robotic system for surgery.

Robotic surgery is expanding into many areas of medicine. Its use continues to grow, offering options ranging from cardiac and thoracic surgery to gynecological and urologic procedures. The technique can be used in many minimally invasive operations, including gastric bypasses, prostate cancer treatments, hysterectomies, and mitral valve repairs. As the benefits of robotic surgery become well known, patients are increasingly choosing it. People undergoing a wide variety of procedures can generally expect a faster recovery, less blood loss, minimal scarring, and a shorter hospital stay.

“About two years ago, a procedure such as a partial nephrectomy (partial removal of a kidney) would have been done as an open surgery, with a 10-inch incision, a four-day hospital stay, and considerable pain,” says Wesley White, MD, Director of Laparoscopic and Robotic Urologic Surgery at the University of Tennessee Medical Center. “Now the procedure is conducted using the da Vinci system, with keyhole-size incisions, a two-day hospital stay, and substantially less pain.”

“The da Vinci is technology that provides our patients benefits. We are proud to offer this technique here at the medical center.”

— Robert Elder, MD

A prostatectomy was once thought to be the only urologic procedure for which the robotic system would be used. Now the list has grown to include the treatment of bladder prolapse, bladder cancer, and kidney cancer, among other conditions.

Partnerships are in place at the medical center for the care of patients who need treatment from different specialties. Robert Elder, MD, a medical center gynecologist, partners with White to perform pelvic reconstruction (sacrocolpopexy) on patients with vaginal vault prolapse. Using the da Vinci system for this procedure lets the surgeons work as a team to restore the physiological position of the vagina. “Although open sacrocolpopexy has long been the undisputed gold-standard treatment for bothersome prolapse, many women have preferred to seek other less invasive treatment options,” White says. “The robotic system allows us to provide women with these gold-standard outcomes with significantly less pain and a shorter recovery.”

“The da Vinci is technology that provides benefits to our patients. We’re proud to offer this technique here at the medical center,” says Elder.

The most intriguing and exciting use for the robot are still being developed. Most recently White has used da Vinci to perform single-port or “scarless” surgery. “Using the robotic system in single-port surgery allows us to perform complex reconstruction with greater ease,” he says. “This type of innovation will translate into better outcomes for our patients and a faster return to daily activities.”



Wesley M. White, MD, began his career as a medical student at the University of Tennessee College of Medicine. Earlier, as an undergraduate, he’d thought he would specialize in surgical oncology. He’d participated in the Medical Explorations program, spending time with John Bell, MD, a surgical oncologist at the University of Tennessee Medical Center.

In medical school, White did clinical rotations here in Knoxville at the Graduate School of Medicine. After he observed a partial nephrectomy surgical procedure with Frederick Klein, MD, a professor and chief of the surgery department’s division of urology, he grew interested in urology as a specialty.

After graduating from medical school, White became the first urology resident at UT Graduate School of Medicine, in 2004. He trained under Klein and helped develop the school’s residency program in urology. After completing a fellowship in robotic urologic surgery at the Cleveland Clinic in Cleveland, Ohio, White returned to the University of Tennessee Medical Center, this time as a clinical faculty member of the UT Graduate School of Medicine.

He practices with University Urology, and his interests center on minimally invasive urological oncology, urinary stone disease, and single-port operations. Asked why he became a physician, he says it was for the intellectual stimulation and, even more, for the reward of being able change people’s lives.

An Evening In Orange

The third annual

An Evening In Orange was held on Saturday, January 16. More than 440 guests gathered at Cherokee Country Club to enjoy an evening of wine, chocolate, and entertainment. The evening's success was created under the leadership of event co-chairs Christy and Teddy Phillips and all the members of the An Evening in Orange committee.

This year's event raised more than \$500,000, with the proceeds designated for the new Heart Hospital at the University of Tennessee Medical Center. The Heart Hospital, the only one of its kind in the region, will provide specialized, multidisciplinary cardiovascular and pulmonary patient care, in addition to fostering medical discovery and education through various academic and research programs.

Sponsorship committee chair Steve South and his committee members achieved amazing success, with more than \$460,000 in sponsorships. Visionary sponsors for the evening were Regal Entertainment Group, Phillips & Jordan Inc., Morrison Healthcare, Pilot, Bilo Nelson, and South College. In all, more than 46 corporations, individuals, and foundations pledged their sponsorship and support for An Evening in Orange.

A special opportunity was available to participants and friends through An Evening in Orange's HeartSaver campaign. The HeartSaver committee, chaired by JE Henry, far exceeded its goal, and to date 90 individuals have pledged \$1,000 each to become a HeartSaver of the new Heart Hospital.

Wine committee chair Thad Cox and his committee brought five internationally renowned vintners to Knoxville to be highlighted during An Evening in Orange. The vintners – David Arthur, the Frank Family Vineyards, MadoroM, Sparkman Cellars, and the Vines of Mendoza – all delighted An Evening in Orange attendees with their extensive portfolios of wines available for tasting and coupled with chef David Pinckney's culinary creations.

Joanne Hazelwood, serving as live-auction chair, and her committee brought tremendous success to the evening with a highly anticipated live auction that raised \$70,500. The auction included premier items like a trip to see a Pittsburgh Steelers game from the owner's box, a gourmet dinner for 12 at the Frank Family Vineyards, and a UT Basketball Dinner for 10 couples with Coach Pearl, Coach Summitt, and Women's Athletics Director Cronan.

After dinner, the An Evening in Orange guests were treated to a dessert reception sponsored by Nestlé and music by Matt Stillwell.

The University of Tennessee Medical Center and UT Graduate School of Medicine extend their sincere gratitude and appreciation to all of An Evening in Orange's sponsors and guests. Their support has greatly advanced exemplary academic medicine dedicated to healing, education, and discovery for all of East Tennessee and beyond.



VISIONARY SPONSORS

Regal Entertainment Group
Morrison Health Care
Bilo Nelson
Phillips & Jordan, Inc.
Pilot
South College

LUMINARY SPONSOR

Bandit Lites

LEGEND SPONSORS

Regions Bank
BESCO
SunTrust Bank

VINEYARD SPONSOR

NOCCRVRG

PIONEER SPONSORS

The Charlie and Moll Anderson Foundation
Cowan Benefits
First Tennessee Bank
Holrob Investments
LabCorp
Radio Systems, Inc.
Revenue Recovery Corporation
University Cardiology
University Heart Surgeons
University Vascular Surgeons

TABLE SPONSORS

The Apple Barn
Association of University Radiologists

Gish, Sherwood & Friends
Drs. Samia and Wahid Hanna
The Hildreth Agency
Holston Gases, Inc.
Johnson & Galyon
Dr. and Mrs. Frederick Klein
Regional Neonatal Associates
TeamHealth
University Anesthesiologists
University Physicians' Association
University Pulmonary & Critical Care
Women's Specialty Care

PARTNER SPONSORS

Del-Air Mechanical
East Tennessee Children's Hospital
Furrow Auction Co.
Tony Holin and Herb Newton
State Volunteer Mutual Insurance Company
Verizon

SPONSORS

BarberMcMurry architects
Cerner Corporation
Medtronic
Morgan Stanley

PRINT MEDIA SPONSOR

Knoxville News Sentinel

*Design Services Provided By Asen Marketing & Advertising



The *Lederer Family* Research Scholarship

A new program has been designed to improve the quality of life for Alzheimer's patients, their families, and others with memory disorders. The Lederer family is supporting this valuable new technology.

Through the family's recent philanthropic gift, the Lederer Family Research Scholarship – Patient Driving Simulation Program has been established at the University of Tennessee Medical Center's Cole Neuroscience Center. The scholarship will help thousands of patients every year through the creation of a computerized driving simulation that determines how memory impairments affect driving. In addition, the scholarship will offer what medical center officials believe is a first-of-its-kind assessment to determine whether a memory-impaired individual has the cognitive abilities needed to continue driving without putting others at risk.

The family members, who include parents Robert and Barbara Lederer; their son Reid and his wife, Allison; and their daughter, Natalie, and her husband, Gary Canaday, want to help those in the Knoxville and East Tennessee community who are facing the challenges of memory

disorders. They want to enable these individuals, along with their families and care providers, to make informed decisions regarding the care they receive.

Reid Lederer says that the most recent gift came about following discussions with the Cole Neuroscience Center's director, John H. Dougherty, MD, who impressed upon the family the need to develop a reliable, objective method of assessing the impact of cognitive impairments on driving.

According to Ann Giffin, vice president of the Brain and Spine Institute, the Cole Neuroscience Center serves patients and families throughout the East Tennessee region, in addition to several communities in bordering states. The center is dedicated to research and treatment of patients with neurological disorders. Each year it provides patient care for more than 2,000 individuals with Alzheimer's or other memory impairments.

"One of the most wrenching decisions faced by these patients and their families is at what point it's no longer safe for patients with impaired memories to continue to drive," says Giffin. "Because of the kindness and compassion of the Lederer family, we've been able to help

those in need and provide a resource of support, guidance, and thoughtful collaboration between patient, family, and medical professionals."

Reid Lederer, president of Carton Service Inc., a Lederer-family-owned pharmaceutical packaging manufacturer, says that the Lederer Scholarship will create a valid assessment tool that helps take the emotion out of the decision for the patient, family, and doctor. "By having data and a simulator to provide the data, pressure is taken off the family and the doctor," he says. "It makes it a more objective rather than subjective conversation, which hopefully families can embrace more comfortably than in the past."

The Lederer family is relatively new to the Knoxville area, having moved here from Ohio in the mid-1990s. But they have embraced the Knoxville community and describe their charitable support as a way of saying thank you to organizations that are giving back to the community.

"The University of Tennessee has touched us as a family in many different ways," Lederer says, singling out medical care at the hospital as well as the university's sports programs and intellectual activities. "We're grateful for the programs they provide to the community and the tremendous resource they are for everyone in Knoxville."



"It's a way of giving back"

After nearly 37 years

of donating her time and talents to the University of Tennessee Medical Center, Barbara Kaminsky has set a new record for hospital volunteers, logging more than 15,300 hours in what she calls a labor of love.

Kaminsky thrives on the work – so much so that when two knee replacements made it impossible for her to continue to push the hospitality cart around the medical center several years ago, instead of quitting she transferred to the gift shop. She also serves on the University of Tennessee Medical Center Auxiliary Board as gift-shop co-chairman.

"I've had a very good life," the mother of four grown boys explains. "It's a way of giving back."

Kaminsky signed on as a volunteer in March 1973, after learning while attending a PTA meeting that the hospital was seeking help. A stay-at-home mother, she was looking for a way to contribute to the community.

When she operated the hospitality cart, a veritable "rolling gift shop" no longer used at the hospital, Kaminsky did more than provide candy, newspapers, and other sundries to patients and nurses. She used the opportunity to make the days a little brighter for patients who were, she says, "scared or lonesome and just wanted a kind word. It makes them feel better, and it makes you feel good to think you've helped somebody."

Since she began volunteering, Kaminsky's sons have become adults. She has seven grandchildren ranging from middle-school age to three in college, and her engineer husband, Vic, has retired.

In that time she's also seen a lot of change at the hospital, including an expansion of the gift shop, where she currently volunteers as a cashier two days a week.

"When I first started, the gift shop was just a little tiny space not bigger than an overgrown closet," she says. "They remodeled it, and we have a beautiful gift shop."

Kaminsky's years at the hospital have taught her to count her blessings.

"Some of the stories we hear are very, very sad," she says, mentioning instances of parents with sick children and visitors to the area who have sustained serious injuries in auto crashes. "I've had a good life, and it's just giving back."

Has she given any thought to retirement?

"No, I sure haven't," she replies in less than an instant. Kaminsky says she intends to continue volunteering "as long as I'm able to drive there and walk around."

"Most of us do it because we enjoy it," she adds. "We all have good lives. We're fortunate. We do it because we love it."

For more information about volunteer opportunities, please contact Mary Brown in the Volunteer Office at (865) 305-9195 or mlbrown@utmck.edu.



Each day the lives of University of Tennessee Medical Center patients are touched by a quiet but substantial group of good corporate citizens... companies that continually invest in our community's health through their donations to the medical center.

When you visit these businesses or talk with their employees, you immediately sense a difference in their approach to what they do. To put it simply, they care not just about the bottom line but also about their employees and the communities they serve.

Starting today, when you see the Broadway Electric Service Corp. (BESCO) logo, think "good corporate citizen." The logo is a familiar sight throughout East Tennessee; BESCO is one of the largest electrical contractors in the state, employing more than 500 people. And it's one of the University of Tennessee Medical Center's strongest supporters.

The company made its first gift to the medical center in 1996. Since then it has donated generously to a long list of programs, including neurochemistry education and research, pastoral care, cardiothoracic surgery, emergency care and trauma, and the general medical center fund. "Our employees, our friends, and our customers all rely on University of Tennessee Medical Center for their healthcare. It just makes sense for us to help keep them strong through our donations," says BESCO project manager David Neubert.

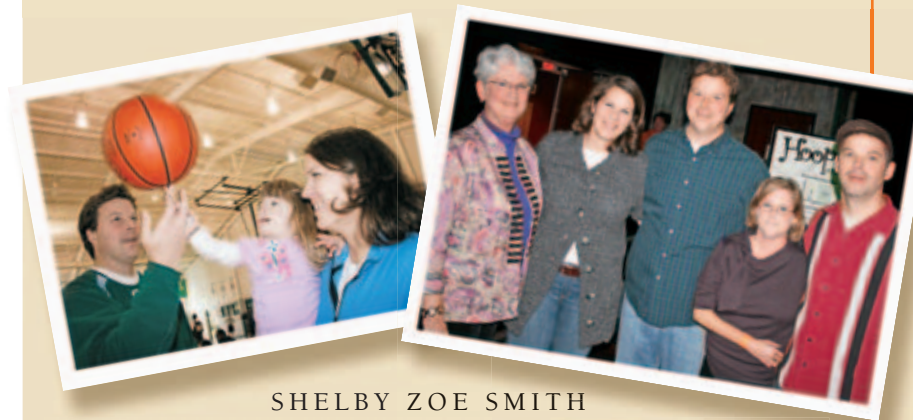
BESCO enlarged its support of medical center programs in 2007 by becoming a sponsor of the annual An Evening in Orange gala. "The 2010 An Evening in Orange was amazing," Neubert says. "The medical center raised over \$500,000 for the Heart Hospital with this one event, and we were pleased to be a part of that accomplishment through our Legend-level sponsorship."

One of BESCO's guiding principles is the goal of positively contributing to the region's communities and the lives of its people. The company's ongoing support of the University of Tennessee Medical Center demonstrates its faithful adherence to this goal.

BRAIN AND SPINE INSTITUTE

The University of Tennessee Medical Center is honored to announce the creation of the Brain and Spine Institute's Community Advisory Committee. Chaired by Kim Reid, the committee is dedicated to expanding public relations and awareness of the institute's programs and the impact they have on our community. Over the years Reid has worked closely with the Brain and Spine Institute in a variety of roles – most recently as co-chair of the second annual An Evening in Orange, which garnered more than \$300,000 for the institute.

Thank you, Mrs. Reid, for your leadership and guidance as we begin this new venture and for your outstanding dedication to the patients and families we serve.



SHELBY ZOE SMITH

HOOPS HOOPLA at the for Preemies Square Room

In a show of support from throughout the region, high school basketball teams came out for a day of scrimmages at Shelby Zoe Smith Hoops for Preemies. The Hoops for Preemies tournament was created by Seth and Millicent Smith in gratitude for the excellent care they received upon the birth of their daughter, Shelby, who was born prematurely and spent several months in the medical center's Neonatal Intensive Care Unit.

This special effort in Shelby's honor continued into the evening with Hoopla at the Square Room, where hundreds of community members came out for an evening of fun and entertainment. Shelby's aunt, Stacey Rivers, graciously designed and hosted the event at the Square Room within Café 4 on Knoxville's Market Square.

More than \$7,000 was raised during the Hoops and Hoopla events, with all proceeds directed to the NICU Phase II Capital Campaign. This campaign will renovate the remaining open-bay nursery into private-room suites for infants and their families. For further information about the NICU campaign, please contact Chris Bray in the Development Office at 865-305-6611 or cbray@utmck.edu.

Spring 2010 CME Course Calendar

UT Graduate School of Medicine offers the following courses this spring for physicians, researchers, allied health and other healthcare professionals seeking continuing medical education.

April 1 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds:

John W. Whittington, MD, Visiting Lectureship

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 8 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Topic to be announced

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 13 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Internal Medicine Grand Rounds: Medical

Complications of Pregnancy

8 to 9 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 15 *Up to 1 AMA and AAPA credit or .1 CEU will be available..*

Department of Surgery Grand Rounds: Topic to be announced

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 16 *Up to 2 AMA and AAPA credits or .2 CEUs will be available.*

East Tennessee Dermatology Society Meeting

4 to 6 p.m., Knoxville Dermatology Group, Suite 209

University of Tennessee Medical Center, Knoxville, Tennessee

This CME-certified activity is designed to show dermatologists the unusual presentations of dermatologic disorders and diseases that are refractory to typical therapy. Items to be discussed are pathology, dermatologic disorders and their mimics, and treatment strategies.

April 19 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Neurology/Neurosurgery Quarterly Case Conference: Stroke

Presented by the University of Tennessee Medical Center Brain and Spine Institute

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 22 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Pediatrics

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

April 29 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Topic to be announced

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

May 6 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Vascular

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

May 11 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Internal Medicine Grand Rounds:

Narrative Medicine/Creative Writing

8 to 9 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

May 13 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds:

Interventional Radiology

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

May 20 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Education

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

May 27 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Simulation

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

June 3 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Surgery Grand Rounds: Urology

7 to 8 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

June 8 *Up to 1 AMA and AAPA credit or .1 CEU will be available.*

Department of Internal Medicine Grand Rounds:

Update in Pulmonary Disease

8 to 9 a.m., Morrison's Conference Center

University of Tennessee Medical Center, Knoxville, Tennessee

Save the Dates!

September 24 to 25, 2010

Heart, Lung, Vascular Update for Primary Care Providers

UT Conference Center, Knoxville, Tennessee

October 1, 2010

Third Annual Stroke Symposium

UT Conference Center, Knoxville, Tennessee



Thank you for your support

The generosity of East Tennessee and our partner sponsors have raised \$130,000 to directly benefit cancer patients treated at The University of Tennessee Medical Center Cancer Institute.



T-shirts are still available,
visit utoutlive.org for more details.

OUT LIVE

TENNESSEE FIGHTS TO BEAT CANCER

Wisdom for Your Life.

1924 Alcoa Highway
Knoxville, Tennessee 37920-6999

www.utmedicalcenter.org

Non-Profit Org.
U.S. POSTAGE

PAID

Permit No. 575
Knoxville, TN

