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Frontiers Magazine

University of Tennessee Graduate School of
Medicine

Summer 2011

Frontiers (Summer 2011) - Five Centers of Excellence: One Source for Comprehensive Care

University of Tennessee Medical Center

University of Tennessee Graduate School of Medicine

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Frontiers

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

**Five Centers
of Excellence.**

**One Source for
Comprehensive Care.**

**Cancer
Institute**

**Brain & Spine
Institute**

**Women &
Children's Health**

**Emergency &
Trauma Services**

**Heart Lung
Vascular Institute**

There shall be
 eternal summer
 in the grateful heart.
 ~Celia Thaxter



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

Summer 2011

Editor
 Becky Thompson

Publishers
 Joseph Landsman
 Norman Majors
 James Neutens

Contributors
 Rachel Greene
 Wendi Hope Hager
 Amanda F. Johnson
 John W. Lacey, III, MD
 Melissa Winchenbach
 Susan Wyatt
 Laura Young

Design
 Asen Marketing & Advertising, Inc.

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Send Correspondence to: *Frontiers*
 2121 Medical Center Way, Ste. 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 **UT**
 GRADUATE SCHOOL
 OF MEDICINE

UT THE UNIVERSITY OF TENNESSEE
MEDICAL CENTER

Wisdom for Your Life.

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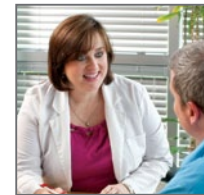
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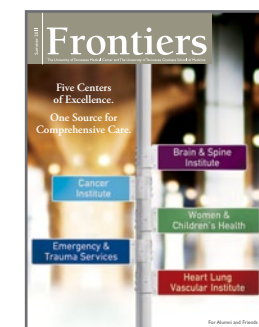
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About the Cover

The Five Centers of Excellence at The University of Tennessee Medical Center provide direction and dedicated care for the people of this community and the surrounding counties. Our patients know, whatever path lies ahead of them, comprehensive care is available right here in one convenient location.

Dear Alumni and Friends,



AS AN ACADEMIC MEDICAL CENTER,

we offer a wide range of healthcare expertise. This high level of interaction among our Centers of Excellence provides the most efficient and effective care available. Having all these services at one location can speed diagnosis and treatment for the patients we serve.

As an academic medical center, we have built and developed our Centers of Excellence based on the needs of the community, with the most qualified physicians, staff, and advanced techniques and technologies. In addition, we know the importance of having a primary care physician on your side as a key component to managing your health. These relationships afford personalized patient care, health education, and access to specialists should further care management be needed.

In this issue of Frontiers, you will read stories and experiences that bring patients to our Centers of Excellence - many of which come to us unexpectedly. In these instances, we are ready, with highly trained physicians, nurses, technologists, and other healthcare professionals, to deliver the highest quality of care. Whether you or a loved one is faced with a car accident, life-threatening heart attack or aneurysm, or welcoming a new baby into your family, our team of qualified staff and physicians stand ready and are prepared to care for you.

I hope you enjoy this issue of Frontiers and find the articles both interesting and informative. Thank you for your ongoing support of the University of Tennessee Medical Center.

Sincerely,

A handwritten signature in black ink, appearing to read "Joe R.", written over a white background.

Joseph R. Landsman, Jr.
President and Chief Executive Officer
University Health System, Inc.

This issue of Frontiers highlights the five Centers of Excellence at the University of Tennessee Medical Center. The Graduate School of Medicine faculty, fellows, and residents are proud to play significant roles in all five Centers.

As would be expected, excellence in patient care is our predominant responsibility, which is in concert with our educational mission. These same people participate in research endeavors keeping the medical center at the forefront of "discovery" research thereby providing opportunities for advanced patient care.

As part of The University of Tennessee, University Family Physicians works closely with the medical center's primary care network of family physicians, internists, and pediatricians to provide comprehensive care with specialists throughout each Center of Excellence. The GSM Genetic Center has become a critical component in several Centers of Excellence as we better understand the function of genetics in the disease process.

All five Centers of Excellence have our Simulation Center as a focal point for their patient, educational, and research efforts. Simulation provides opportunities to advance patient care in a fashion that will improve the health of Tennesseans.

Our community is fortunate to have these five Centers of Excellence, and the Graduate School of Medicine is proud to participate in each one making the University of Tennessee Medical Center the region's only academic medical center.

Sincerely,

A handwritten signature in black ink, appearing to read "James J. Neutens", written over a white background.

James J. Neutens, PhD
Dean
UT Graduate School of Medicine



David M. Rankin, MD, discusses wellness and disease prevention with his patient.

Primary Care Physicians

A Partnership for Your Health

In this edition of *Frontiers*, dedicated to our five Centers of Excellence with their unique expertise in certain diseases, you may wonder how primary care fits the plan. At the University of Tennessee Medical Center, we think of primary care as a key element in our overall caring for the region's people. And we know it's vital to good health to maintain a partnership with a primary care physician throughout your life.

"For me, as a general internist, the answer is in the term itself," says John W. Lacey, MD, the University of Tennessee Medical Center's chief medical officer. "Primary means fundamental, basic, first in order of importance. Here at the medical center, we've pursued the development of a broad and strong primary

care network and expanded its relationships with our Centers of Excellence."

Family practice, internal medicine, and pediatrics are the three branches of primary care. Physicians in these areas

keep their focus on patients, families, and good health outcome. Pediatricians provide comprehensive care for children, including the diagnosis and management of illnesses as well as the overall coordination of medical care. Particular emphasis is placed on wellness and preventive care from infancy to 18 years of age. This translates into regular well visits beginning shortly after birth.

The goal is to establish a lifelong relationship between patient and physician. Such partnerships enable doctors to develop a thorough, long-term knowledge of their patients and thus offer uniquely effective guidance, education, support, and treatment for acute and chronic illnesses.

"We provide comprehensive services that encompass the care of children from toddlers to teens, pregnant women, adults, and seniors. That allows us to partner with our patients and their families throughout life," says Amy B. Stevens, MD, a primary care physician with the medical center.



Focusing on wellness and disease prevention, our board certified primary care physicians measure and manage various risk factors for chronic illnesses, such as high blood pressure and elevated cholesterol, which contribute to the risk of heart disease. They recommend and schedule screenings such as mammograms, colonoscopies, and skin checks to protect against cancer. And they track patients' body mass index to prevent or manage obesity.

In addition, the medical center's primary care physicians coordinate every aspect of a patient's treatment to provide integrated, highly skilled care. Working with the specialists at the Centers of Excellence, primary care doctors refer patients to the Brain and Spine Institute, Cancer Institute, Women and Children's Health, Emergency and Trauma Services, and Heart Lung Vascular Institute.

For primary care physicians, the common thread is the work of offering comprehensive, personal care – and, at the same time, coordinating and cooperating with other physicians so that the right knowledge and skills are available to fulfill a patient's needs.

While we're proud that medicine continues its advance into new technologies, research, and subspecialties, all healthcare begins with primary care. In the rapidly changing healthcare environment, it is more important than ever for each of us to have a primary care physician who can serve as a guide and advocate for our health. ■



Amy Barger Stevens, MD, primary care physician with the medical center.

Automatically Accepted: A protocol that's saving lives

By: **Melissa Winchenbach**

An excruciating headache,

nearly debilitating, hits him like a freight train. A headache bad enough he seeks medical attention. Assessments are conducted, and a CT scan determines he has a brain bleed. What does that mean? What's next?



A patient is transported by LIFESTAR to the medical center for emergent treatment of a brain bleed.



Joshua A. Miller, MD, neurosurgeon with the Brain and Spine Institute, participates in the auto-accept protocol.

Spontaneous bleeding of the brain can result from either a hemorrhagic stroke or a ruptured aneurysm. Alert and ready, teams of medical professionals at the University of Tennessee Medical Center are always prepared for the arrival of patients with brain bleeds. Thanks to an auto-accept protocol and partnerships with surrounding facilities, these patients reach the medical center swiftly, with no unnecessary delays and no questions asked.

They come straight to the emergency department, transported by LIFESTAR. If a brain-bleed patient is being transferred from an outlying facility, LIFESTAR gets a phone call and the process is set in motion. The flight crew – a pilot, a flight nurse, and a flight paramedic – prepares for liftoff. Meanwhile, LIFESTAR notifies the medical center's emergency department, surgical critical care (SCC) unit, and trauma team that the patient is en route. The efficiency of the process saves time and lives.

In accordance with the auto-accept protocol, the patient enters the medical center through the emergency department and is admitted directly to the SCC unit. This allows for immediate examination and treatment while the neurosurgeon is being notified.

*“The auto-accept program is a great service for our community, allowing **rapid access to high quality care,**” says Joshua A. Miller, MD, neurosurgeon at the medical center.*

In the SCC unit, all the members of the team work to assess the patient and manage the bleeding. They regulate the vital signs, align or elevate the head, and keep a constant check on blood pressure. As the plan of care is developed, they also make sure that stimulants such as bright lights and noise are reduced as much as possible to minimize the stress the patient is experiencing.

Time is of the essence, and the team's members work quickly to locate and diagnose the bleed. If a ruptured aneurysm is suspected, they perform a neurointerventional procedure called a cerebral angiogram, in which a catheter is inserted in the femoral artery in the groin and carefully advanced into the arteries of the neck. Dye is injected into those arteries to help identify the location of the bleeding and its severity. ▶▶

There are two ways of treating a brain bleed caused by an aneurysm. A neurosurgeon and a neurointerventional physician look at each individual case and confer as to which alternative will work best.

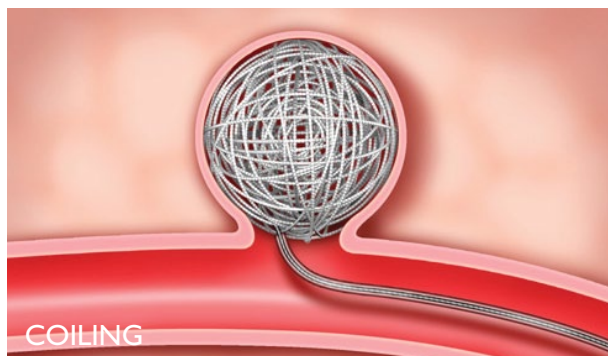
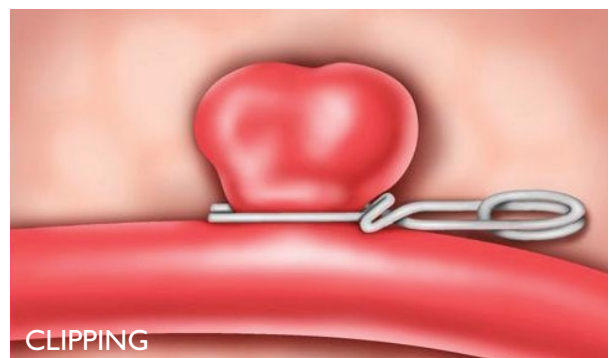
CLIPPING:

1 In this procedure, a neurosurgeon places a clip on the aneurysm to prevent blood from flowing into it. The clip remains with the patient, enabling blood to circulate normally through the blood vessel. This can be an ideal option, depending on the patient's age and medical condition and the size and shape of the aneurysm.

COILING:

2 Another method of treating an aneurysm is the very complicated procedure called coiling. A neurointerventional physician inserts a 1,500-millimeter microcatheter into the femoral artery in the groin and advances it through many twists and loops of vessels to reach the site of the bleed and insert a coil into an aneurysm that may be only two or three millimeters in size. Once the microcatheter is positioned inside the aneurysm, a series of specially shaped coils are inserted into the aneurysm to fill it. The physician chooses the coils' sizes according to the shape and size of the bleed. This procedure is highly intricate and requires years of specialized training.

Illustrations of clipping and coiling provided courtesy of Codman Neurovascular.



PREVENTING TREATING HEALING

How our Gastrointestinal Tumor Service Expedites Care for Patients

By: **Laura Young**

Christopher had begun experiencing constant abdominal cramps, bloating, and nausea. He told his wife about it, and she reminded him that at 52, he was past due for a colonoscopy. "But I'm healthy," he protested. Over the next few months, however, he continued to notice changes in his bowel habits. Eventually he decided it was time to see a physician about the symptoms. Now he and his wife needed to know where he should go and whom he should consult.

Christopher was only one phone call away from a program specifically designed to support and expedite the care of patients with symptoms or findings that might point to a gastrointestinal (GI) malignancy or with confirmed diagnoses of cancer. Last fall, the Gastrointestinal Tumor Service at the University of Tennessee Medical Center Cancer Institute began taking patient referrals to a program that offers prompt evaluations and help in finding the most appropriate care pathway for each patient.

"The Gastrointestinal Tumor Service is a unique program that provides easy access to a team specializing in the diagnosis, treatment, and follow-up care of patients with all GI cancers, including those of the colon, stomach, rectum, liver, pancreas, esophagus, bile ducts, and other GI locations," says Keith Gray, MD, a surgical oncologist and the medical director of the Gastrointestinal Tumor Service (GITS).

The GITS nurse navigator helps patients, physicians, and office staff coordinate each referral, at the same time offering information, education, and support to patients and their families.

"Our goal as a multidisciplinary team is to provide all our patients with direct knowledge about their treatment plan," Elaine Rector, RN, the GITS nurse navigator, explains. "With this knowledge, **the patient and family feel more in control and are prepared to deal with any situation.**" ▶▶

"I'm fortunate to work with great neurosurgeons and be at the University of Tennessee Medical Center, where there is a huge commitment to growing and developing cutting-edge programs like neurointerventional surgery," says Peter Kvamme, MD, a neurointerventional physician at the medical center. "That's extremely important. It's what an academic medical center is all about: providing the latest in innovative care and offering a unique, important service to the community."

When the brain needs medical care, the entire body is at stake. The auto-accept protocol that speeds patients to the University of Tennessee Medical Center makes it possible to provide immediate diagnosis, treatment, and surgery. Sophisticated procedures like coiling and clipping have advanced the treatment of intracranial aneurysms. This combination of skill and swiftness is another crucial step in the process of saving lives. ■

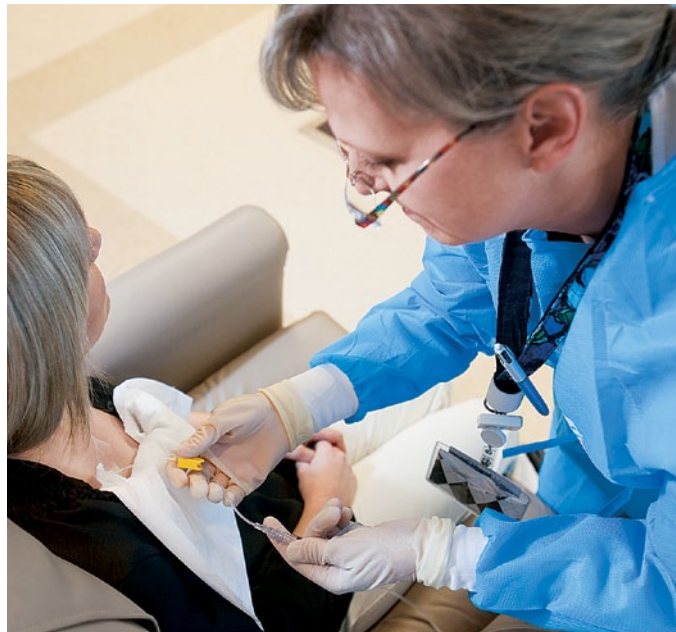


It takes a team:
From Front to Back: Peter Kvamme, MD; Ashley Goedeke, RN, BSN; Beth Osborne, RT (R); Melody Glenn, RN, BSN, CRN; Tiffany Thurston, RT (R); Cheryl Mahoney, RN, BSN; Terry Love, RN, Nurse Manager; Nina Miller, RN, BSN; Jo Ellen Moles, IR Scheduler; Dan Bernard, RT (R) CV; Brook Carannante, RT (R).



Elaine Rector, RN, GITS Nurse Navigator, counsels a patient and explains the GITS program.

During the multidisciplinary oncology conference, physicians present patient cases and devise the best plans of care.



Mary Beth Hooker, RN, prepares a patient for her chemotherapy treatment.

Patients may be referred to the GITS because of a confirmed cancer diagnosis or any of the following symptoms that can be suspicious for a GI malignancy:

- A change in bowel habits
- Diarrhea or constipation
- Blood in stools
- Weight loss for no known reason
- Abdominal discomfort (gas, bloating, cramps)
- A feeling that the bowel does not empty completely
- Fatigue
- Vomiting
- Nausea
- Difficulty swallowing
- Abnormal radiology scans

Upon referral to the GITS, the patient is scheduled to see the GI specialist who appears most appropriate according to the information available at the time. Many patients with symptoms are sent to a gastroenterologist, a physician specializing in the diagnosis and treatment of gastrointestinal-tract disorders. “For a patient like Christopher, we would first perform a routine colonoscopy and conduct a biopsy of any abnormal colonoscopy findings,” says John A. Stancher, MD, a gastroenterologist at the medical center.

After Christopher’s colonoscopy and some further imaging, the gastroenterologist determined that an endoscopic ultrasound was needed to evaluate an abnormality in the lymph nodes. The procedure combines endoscopy and ultrasound to obtain images of the digestive tract and the surrounding tissue and organs. Due to proximity, an endoscopic ultrasound produces more accurate images of the organs than a traditional ultrasound would, and abnormal lesions can be biopsied during the procedure.

“Endoscopic ultrasound has vastly improved our ability to diagnose GI-related malignancies and provide the information needed by the multidisciplinary GI team to determine the most effective treatment plan for each patient,” says Ramanujan Samavedy, MD, gastroenterologist and the only physician fellowship trained in endoscopic ultrasound in East Tennessee.



Keith D. Gray, MD, surgical oncologist and medical director of the Gastrointestinal Tumor Service (GITS).

All cancer cases referred to the GITS are presented at a weekly multidisciplinary oncology conference attended by a team of surgeons, medical and radiation oncologists, gastroenterologists, radiologists, pathologists, genetic counselors, nutritionists, and clinical-trial nurses. In collaboration, the team develops an individualized treatment plan for every patient that is designed to maximize the best outcome and quality of life. The plan may call for surgery, chemotherapy, radiation, or a combination of these.

“Communication is the largest success in our GITS program,” notes radiation oncologist Robert J. Bertoli, MD. “By the time a patient reaches me, I have a complete history of his or her case and have had the chance to discuss and review it in the oncology conferences.”

For Christopher, that one phone call made all the difference. He was seen by a specialist within five days. At the two-week mark, a diagnosis had been made and a treatment plan designed for his individual case had been developed. All along the way, Christopher and his family were receiving support and direction from the GITS nurse navigator.

The University of Tennessee Medical Center has similar programs in place for patients with confirmed diagnoses or symptoms indicative of other cancers. The Cancer Institute’s multidisciplinary approach, in which patients’ cases are managed through teamwork and constant communication, provides patients and their families with comprehensive, coordinated, and compassionate care. ■

Other services available at the Cancer Institute:

UNIVERSITY PROSTATE & UROLOGY CANCER CENTER

Patients may choose to consult the University Prostate and Urology Cancer Center themselves or may be referred by their primary physicians. The center uses a coordinated team approach in diagnosing and treating benign or malignant tumors of the male genitourinary system and the female urinary system. Those tumors may affect the prostate, kidney, penis, ureter, bladder, testis, adrenal gland, or urethra. At the multidisciplinary conferences, clinical specialists meet to decide on individualized treatment-plan recommendations. The treatment options include:

- Bladder reconstruction surgery
- da Vinci robotic surgery
- Minimally invasive surgery
- Nerve-sparing prostatectomy
- CyberKnife radiosurgery
- External Beam radiation IMRT and IGRT
- High dose rate (HDR) brachytherapy
- Radioactive seed implants
- Chemotherapy
- Hormonal therapy
- Immunotherapy
- Radiofrequency ablation
- Clinical trials

GYNECOLOGIC ONCOLOGY

The University of Tennessee Medical Center Cancer Institute offers women access to an entire team of gynecologic cancer specialists who focus on the diagnosis and treatment of ovarian, uterine, cervical, and endometrial cancers. Advanced diagnostic treatment options such as surgery, chemotherapy, radiation, and clinical trials are available to patients. Specialized treatments include:

- Minimally invasive surgery
- Robotic surgery on the da Vinci system
- External beam radiation
- High-dose rate (HDR) brachytherapy
- Intraperitoneal (IP) chemotherapy

ORAL/MAXILLOFACIAL SERVICE

The Department of Oral and Maxillofacial Surgery provides state-of-the-art care for oral cancers, including tumors of the mouth, tongue, lip, and larynx. Among the treatment options are surgical care of benign or malignant tumors in the jaw, head, and neck regions, chemotherapy, radiation, and clinical trials. Reconstructive surgery is available to correct defects arising from cancer surgery. All cases are reviewed in biweekly head and neck tumor conferences.

For information on our Breast Service and Chest Service, please call the Cancer Institute at 865-305-6055.

A STORY OF

Patience Love & Grace

By: **Susan Wyatt**

At age 35, both Claire and her husband Elliot desperately wanted to start a family. They'd been trying for two years but still hadn't conceived. When it was time for her annual gynecological exam, Claire's doctor suggested she consult a reproductive endocrinologist. Seven months after her first visit to that specialist, the reproductive endocrinologist told Claire and Elliot that they were going to have a baby. Grace was born nine months later. From check-ups to the birthing plan, our team is ready.

What to Expect from Your OB/GYN

A woman should start having annual examinations by a gynecologist as soon as she turns 21 or becomes sexually active. This yearly checkup is necessary for the prevention, diagnosis, and treatment of women's health problems. It's especially crucial to make sure you're in good gynecological health when you want to start a family. "There are many factors that can affect fertility such as polycystic ovarian syndrome, endometriosis, and pelvic infections," said Natalie P. Blache, MD, an obstetrician/gynecologist at the medical center. "Your gynecologist can diagnose and treat these issues to better improve your chances of conception in the future."

Your relationship with your OB/GYN is important. The University of Tennessee Medical Center offers access to a large number of physicians specializing in women's health, which makes it easy to find a doctor you feel comfortable with. The doctor can guide you in matters ranging from birth control and family planning to breast health, diet and diabetes, infertility and hormone production issues, and many other areas of women's health. "We believe in providing customized care plans for individual patients that recognize and support their personal health care needs and desired outcomes," says Christina M. Shaw, DO, an obstetrician/gynecologist at the medical center.

If infertility is a concern, the OB/GYN will first evaluate you and make suggestions for treating infertility issues or risk factors. If you continue to have problems with infertility, the physician will recommend that you consult a reproductive endocrinologist. These highly trained physicians treat infertility and other reproductive disorders. They're trained in the specialties of obstetrics and gynecology before they undergo subspecialty training in reproductive endocrinology and infertility. Using comprehensive evaluations, reproductive endocrinologists can help identify infertility problems, offer therapies and treatments, and provide reproductive surgery, including advanced laparoscopic surgery. The medical center has two groups of these specialists from which to choose.

"One of the biggest privileges, I can imagine, is helping couples start or enlarge their families. Most couples do



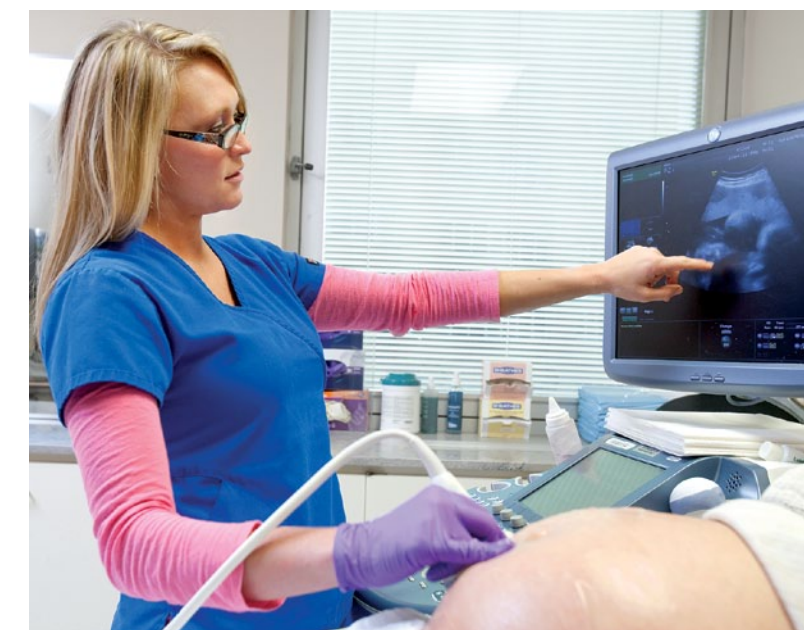
Natalie P. Blache, MD, discusses the birth plan for this expectant mother.

make sure you and your baby stay healthy. Among the potential complications are high blood pressure, diabetes or gestational diabetes, poor fetal growth, and multiple pregnancy (in which the mother is pregnant with twins or triplets). Advances in prenatal care, however, have greatly improved a woman's chances of safely delivering a strong, healthy baby. Office visits may involve fetal tests such as electronic fetal monitoring, ultrasound, or extensive lab work.

"Our board certified Maternal-Fetal Medicine physicians utilize the latest technology and advances in care to assist in the management of various obstetrical, medical, and surgical complications of pregnancy. Our goal is to work with patients and their primary obstetric providers to optimize the outcomes of each pregnancy," says Bobby C. Howard, MD, director of Maternal Fetal Medicine and Chair of the Department of Obstetrics/Gynecology.

Depending on the risk factors, the perinatologist may see you just once, regularly for several months, or throughout your entire pregnancy. In Claire's case, it was determined that she and the baby were doing fine and could be cared for by her OB/GYN. ▶▶

Niki Hall, ultrasound technologist, performs an ultrasound on her patient, allowing the mother to follow the development of her child.



not realize that modern fertility care is highly effective and minimally invasive," says Jeffery A. Keenan, MD, a reproductive endocrinologist at the medical center. "Treatment by an infertility specialist has been shown to increase pregnancy rates and decrease the time needed to achieve conception. I have been privileged to work at the University of Tennessee Medical Center for over 20 years, and appreciate the compassion and support for women in need of reproductive care."

When you've had to overcome issues with infertility, two of the most joyous words you can hear are "You're pregnant!" Once your reproductive endocrinologist gives you the wonderful news, you'll return to your OB/GYN's care for the rest of your pregnancy. If you're considered a high-risk patient, the OB/GYN will refer you to a perinatologist.

Specialists in managing the problems of mothers and their unborn babies, perinatologists work closely with your own OB/GYN, doing everything possible to

► A story of Patience,
Love & Grace (continued)

Pregnancy Classes

During your final months of pregnancy, you'll be encouraged to take classes offered by the medical center to help you prepare for childbirth and your new baby's care. The classes include:

- Prepared Childbirth
- Partner Massage
- Breastfeeding Preparation
- Sibling Preparation
- Labor and Delivery Tours
- Infant Massage
- Infant Care
- Infant Safety and CPR
- Boot Camp for New Dads



*Christopher Rader welcomes son,
Collin Scott Rader, at the University
of Tennessee Medical Center.*

At last the long-awaited day has arrived and your baby is ready to be born. When you arrive at the medical center, you may be seen by a doctor in the triage area to determine whether you're in labor. If you are, you will be moved to a labor room where your support person can stay with you throughout the delivery. Once the baby is born, visitors to your room are welcome. A few hours after the birth, you and your baby will be transferred to the mother-and-baby unit. The baby will remain in your room during your hospital stay, though he or she may be taken to the nursery at your pediatrician's request or for a hearing screen or circumcision. At the University of Tennessee Medical Center, you'll find comfort in knowing our physicians provide care before, during, and after your pregnancy, and should your baby require it, care in the NICU just a few steps away. ■

The Tom and Katherine Black Neonatal Intensive Care Unit

a NICU here for you

If your baby has any trouble during the delivery, neonatology specialists are just seconds away –

a benefit of having the Neonatal Intensive Care Unit (NICU) located right next to Labor and Delivery. In addition, the medical center is the only hospital in East Tennessee to have individual, private NICU rooms, where the families are able to stay with the babies. The secluded "cove" of 10 to 12 rooms has triangular nurses' stations tucked between each pair of rooms, with windows for looking in on the infants. Monitors, ventilators, and "smart" intravenous pumps provide the medical staff with an instantaneous flow of data.

*Tara M. Burnette, MD, neonatologist,
checks vital signs of this newborn.*



ALWAYS READY: a trauma center on *Full Alert*

By: **Melissa Winchenbach**

Driving along as usual, same route and time of day – and then, in an instant, everything changes. There's the wail of approaching sirens. Flashing lights, loud noises, murmurs in the background...

WHAT JUST HAPPENED?

Pulled from the wreckage and safely strapped to a stretcher, you're off to the hospital. And at the University of Tennessee Medical Center, the trauma team is ready, on full alert.

Events involving traumatic injury, such as car wrecks, happen all too frequently. As the region's only Level I Trauma Center, the University of Tennessee Medical Center has a team of experts ready to provide care 24 hours a day, seven days a week.

Trauma patients are brought to the medical center by LIFESTAR or an emergency medical services ambulance. If helicopter transport is needed, LIFESTAR receives notification from the first on-scene responder – the fire department, the police, emergency medical services personnel, or the rescue squad. If the patient is transported by ambulance, the paramedics contact the medical center's emergency department with an estimated time of arrival. En route, they communicate details of the patient's condition to the emergency department nurse and team. From there, a team of medical professionals is in motion, preparing for the patient's arrival. It's a full alert. ►►





Blaine L. Enderson, MD, trauma surgeon, leads the team assessing the trauma patient.

▶▶ Always Ready (continued)

The entire trauma team is paged. An alert goes out to more than 20 team members, including physicians, nurses, emergency technicians, pharmacy staff, phlebotomists, respiratory therapists, chaplains, radiologists, radiology technicians, security personnel, surgical critical care specialists, the blood bank, and the operating room team. Everyone is ready.

1 PRIMARY ASSESSMENTS

When the patient arrives at the medical center, things move quickly. The vital first order of business is a primary assessment to detect injuries that might be immediately life-threatening.

The team checks the patient's airways, breathing, and circulation; does a brief neurological exam; and looks for internal bleeding and injuries, using FAST (short for focused assessment sonography for trauma) assessment, which includes an ultrasound of the abdomen. Any injuries or other abnormalities discovered at this stage are immediately treated.

2 SECONDARY ASSESSMENTS

Next comes a secondary assessment, consisting of a full head-to-toe examination and appropriate care, including diagnostic workups. The radiology department is prepared to provide imaging and intervention for trauma victims around the clock.

"We're glad to be part of the medical center team that rapidly focuses on the diagnosis and treatment of trauma-related injuries," says J. Mark McKinney, MD, the medical center's chairman of Radiology. "From CT imaging to endovascular control of bleeding arteries, we're ready to provide needed services."

The sequence of events is fast-paced: quickly assessing injuries, developing diagnoses, and offering whatever care is required to help the patient recover. "Trauma centers save lives. Having a team ready to coordinate care helps people return from unexpected events," says Blaine Enderson, MD, a trauma surgeon at the medical center.

3 SURGICAL CRITICAL CARE

Once the primary and secondary assessments have been completed, the patient is transferred to the surgical critical care (SCC) unit, where the plan of care includes continuing injury assessment, as well as treatment for any secondary complications. An orthopedic surgeon may be called in to evaluate other injuries, such as broken bones.

"The trauma system works effectively, with the attending trauma surgeon leading the team and multiple specialists contributing to care for all of the patient's injuries," says Scott T. Smith, MD, an orthopedic surgeon at the medical center.

When there are broken bones, the energy or force that caused the fractures is factored into the treatment. A low-energy impact break is caused by a slip and fall; a high-energy impact break results from an automobile accident at 50 miles per hour. In both categories, surgery and other techniques for repairing broken bones have advanced dramatically over the years.



Scott T. Smith, MD, orthopaedic surgeon, discusses his patient's condition with a nurse in the SCC.

J. Mark McKinney, MD, chairman of Radiology and interventional radiologist.



The use of casts to aid in healing isn't as common as it once was. Now titanium rods and screws enable the physician to set a bone but allow the limb some mobility. (Casts are still used in treating children, however.)

"Our goal is to return patients to the same level of function they had before their accidents," Smith says.

When something unexpected happens, the presence of a Level I Trauma Center with experts on-site 24 hours a day is peace of mind. At the University of Tennessee Medical Center, the team is in place, ready, and on full alert. ■

with your *heart* in mind

early detection of disease
saves lives



By: **Wendi Hope Hager**

Your primary care physician has just finished discussing with you the risk factors associated with coronary artery disease, which include high blood pressure, a family history of heart disease, and too much body fat. Of course you're worried, since you just found out your blood pressure is high and you know cardiovascular disease remains the leading cause of death in the United States. Your doctor suggests a diagnostic test to find out more and refers you to the University of Tennessee Medical Center for coronary computed tomographic angiography (CCTA).

Although the name sounds formidable CCTA is just a noninvasive coronary mapping technique that provides high-resolution diagnostic images of the heart and coronary arteries. The procedure, done on an outpatient basis, combines diagnostic precision with patient comfort to help identify people who need cardiac catheterization and possible angioplasty, stent, or bypass surgery. Early detection with CCTA saves lives and leads to an increased chance of full recovery. Results from the procedure can be used to help a physician determine the most effective treatment plan.

Patients who benefit the most from CCTA are:

- Those with no symptoms but with an intermediate to high risk of coronary artery disease
- Those with atypical symptoms and a low to intermediate risk of coronary artery disease
- Those with unclear or inconclusive stress-test results

Dale C. Wortham, MD, cardiologist and Jeffery W. Peeke, MD, radiologist, partner on a patient case while reviewing CCTA results.

"The Heart Lung Vascular Institute is **very excited to be able to offer our patients this additional sophisticated imaging modality**," says Dale C. Wortham, MD, a cardiologist at the medical center. "In appropriately selected patients, important diagnostic information is obtained noninvasively. This can sometimes replace more expensive and invasive cardiac catheterization, or provide essential information in cases where catheterization is needed."



It can be overwhelming to be told you're at risk for cardiovascular disease, so the University of Tennessee Medical Center's Heart Lung Vascular Institute has made it easy for you to register for CCTA in the same building where the procedure will be performed. After a convenient registration on the institute's main floor, you just go up one floor, to suite 250.

Your cardiologist will work with other professionals, including colleagues in the radiology department, to generate an accurate report backed by consensus. The CCTA scan is painless, easy, and quick.

"Our collaborative team of cardiologists and radiologists **works together on every study to create a highly accurate and useful evaluation** for each of our patients and their physicians," says Jeffrey W. Peeke, MD, a radiologist at the medical center.

During the procedure, you will lie on the CT scan table (you'll need to remain still for several minutes). A nurse will insert an IV in your arm, and contrast material will be administered to improve the view of the coronary arteries, as well as nitroglycerin to help dilate the arteries. You may feel a slight pinprick from the IV needle, a metallic taste in your mouth, or a warm sensation during the injection, but it will last only a few minutes.

Next, a technologist will place small electrode patches on your chest. The patches are attached to an ECG monitor that records the electrical activity of your heart. The table you're on will move through the scanner as you lie still so the images won't blur. During the exam, X-rays will pass through your body and be picked up by special detectors in the scanner. You will be alone in the room during the scan, but a technologist will see, hear, and be able to speak to you during the entire procedure. ▶▶



Cutting edge technology, such as CCTA, allows the heart to be viewed as a 3-D image.



Josh Yauney, radiology technician, walks a patient through the CT scan process.

▶▶ With Your Heart in Mind (continued)

The scanner uses advanced technology to quickly capture hundreds of images, which are later used to construct 3-D images of your heart. You'll hear only slight buzzing, clicking, or whirring sounds during the process.

The test itself will take no more than about 15 minutes. One of the benefits of CCTA is that you can return to normal activities right after the scan, although there may be some restrictions because of the contrast material.

Your cardiologist and radiologist will study the images and send a report to your primary care physician. The scan is for diagnosis only; treatment may still be needed.

"CCTA is used to diagnose atherosclerotic coronary artery disease [blocked arteries], congenital and valvular heart disease, and myocardial infarction [heart attack]. It's also used to evaluate heart function prior to some types of arrhythmia surgery or ablation," Wortham explains.

The test may reveal that surgery is unnecessary. If it's determined you require surgery, however, the CCTA will allow for more precision in the surgical procedure. Your physician can refer you to University Cardiology if further evaluation or treatment is needed.

The skilled, compassionate staff at the Heart Lung Vascular Institute will provide you with the best and most advanced care throughout the entire experience, from screening to diagnosis to treatment. Early detection is a key to saving lives, and CCTA, in the hands of the medical center's experts, makes it even easier for you to get healthy and stay healthy. ■

Risk Factors for Coronary Artery Disease

- A Family History of Heart Disease
- High Blood Pressure
- High Cholesterol
- Diabetes
- Smoking
- Excess Weight
- A Lifestyle That Involves Little or No Exercise

HEART LUNG VASCULAR INSTITUTE SERVICES

The Heart Lung Vascular Institute's sophisticated services provide patients with opportunities to be screened for a wide variety of conditions and to receive excellent, advanced diagnosis and treatment, all while being expertly cared for. Here are other heart, lung, and vascular services at the medical center:

- The Atrial Fibrillation Center
- The Aortic Center
- The Cardiac Catheterization Laboratory
- Cardiac CT for coronary calcium scoring
- Cardiovascular and Pulmonary rehabilitation
- The Chest Service
- Community screenings and education
- Endovascular surgical services
- Interventional pulmonology
- The Vascular Access Center

SUSAN G. KOMEN supports groundbreaking research at the UT Graduate School of Medicine

In 1982, Nancy G. Brinker established Susan G. Komen for the Cure to honor her sister, Susan, who had lost her life to breast cancer. Brinker's promise to her sister – to fight and end the disease – has grown into a worldwide grassroots network of breast cancer survivors and activists fighting to save lives. The Komen organization is the largest source of nonprofit funds dedicated to the fight against breast cancer in the world.

Grants provided through the Komen organization are awarded to a variety of programs on a regional and a national basis. One such regional grant received by the University of Tennessee Medical Center supports the Breast Health Outreach Program, which uses this annual community grant from the Komen Knoxville affiliate to provide no-cost or reduced-cost mammograms to the underserved populations of East Tennessee. Most recently, however, through a \$575,000 national Komen research grant, researchers at UT Graduate School of Medicine have joined with Susan G. Komen for the Cure to combat breast cancer.

Research is being led by Daniel Kestler, PhD, an assistant professor in the Human Immunology and Cancer Program, and Charles Bruker, MD, a pathology resident. The three-year grant will be used to determine whether a protein known as odontogenic ameloblast-associated protein (ODAM)* is one of the keys to increasing the survival rate of breast cancer patients. This study will provide a basis for the possible use of ODA in diagnostic assessments, potential treatment options, and treatment outcomes of breast cancers within the next decade. ODA was first detected by Alan Solomon, MD, director of the UT Graduate School of Medicine Human Immunology and

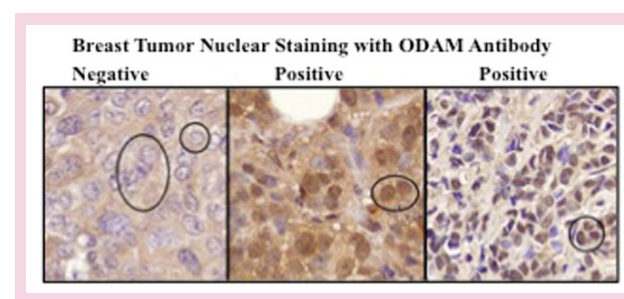


ODAM research team:
Back row: Jonathan Phipps, Sallie Macy, James Foster
Front row: Dr. Dan Kestler, Charles Bruker, MD.

Cancer Program. Following his discovery, residents from the Graduate School of Medicine's Departments of Surgery and Pathology, under the tutelage of John Bell, MD, director of the University of Tennessee Medical Center's Cancer Institute, and Solomon, studied a population of breast cancer patients. Their findings suggested an important relationship between ODA expression, cancer staging, and survival rates. Kestler and Bruker will now take the research to the next level.

"We plan to verify the importance of ODA presence in tumor tissue and to determine the relationship of the presence or lack of ODA to breast cancer stages, survival, recurrence, and status," Kestler says. Bruker adds, "This is translational research. It serves as the bridge between clinicians and the research lab. This type of research has been less common in the past; discoveries were made at the bench, and physicians were not aware of those new findings. Translational research brings these results to the patient."

The partnership between the University of Tennessee Medical Center and UT Graduate School of Medicine provides our clinicians with the ability to collaborate on translational research grants such as the Komen grant. The strong research capabilities of the Graduate School of Medicine, coupled with the expertise of medical center clinicians, bring cutting-edge testing and medical treatments from the bench to the bedside.



As shown here, histological sections reveal either a loss of ODA from or an increased relocation to the cell nucleus of breast cancer cells that correlates with patient cancer staging.



The strength of a community is clearly demonstrated by partnerships formed to improve its residents' quality of life. The partnership formed between Food City and the University of Tennessee Medical Center to expand the Healthy Living Kitchen program is a prime example of the potential of this collaboration.

“With Tennessee ranking as the fourth-most-obese state for adults, I’m proud to announce this partnership, which represents a commitment from both organizations to address the health needs of those we serve,” says Joseph R. Landsman, president and CEO of the University of Tennessee Medical Center. “Together we’ll expand the message of positive nutritional choices, reaching out to people in the region, including the loyal Food City customer base and the thousands of Food City associates.”

Consisting of a University of Tennessee Medical Center registered dietitian, a cardiac nurse specialist, and a senior executive chef, the Healthy Living Kitchen team presents healthy-cooking classes and provides information on nutrition, label-reading, and making the right choices while grocery-shopping. With the help of Food City’s generous donation and a variety of in-kind services, the partnership is expected to result in a greater reach for Healthy Living Kitchen programs through educational efforts at schools and community events, as well as grocery-shopping tours with a University of Tennessee Medical Center registered dietitian at select Food City locations.

“Food City is excited to partner with the University of Tennessee Medical Center to bring about the expansion of this needed program,” says Steven C. Smith, Food City’s president and CEO. “We’re proud to be a local, family-owned company employing more than 13,000 associates. As the leading supermarket in our region, we have a responsibility to our customers, associates, and community to do all we can to



Pictured Above:
Dietitian Janet Seiber, RD, LDN, CDE; Executive Chef Mark McKinney; Associate Director of Food and Nutrition Cardiac Nurse Specialist Jane Kelly, BSN, RN

educate them on the importance of making wise decisions with regard to their purchases. Many of the issues that affect our health and wellness are a direct result of our eating habits, good or bad. We feel this program will work hand in hand with our NuVal nutritional-scoring system to provide consumers with the added insight necessary to make more informed choices for their families.” Food City’s NuVal system scores food by giving it an overall nutritional-quality score; the higher the score, the more nutritious the food. NuVal scores are displayed on shelf price tags, scale labels, and other in-store signage.

Food City and the University of Tennessee Medical Center agree that the Healthy Living Kitchen program is an ideal fit with the missions and goals of both organizations.

For more information about upcoming Healthy Living Kitchen classes and grocery-store tours, please go to www.utmedicalcenter.org or call **865-305-6877**.



An Evening In Orange

On April 30, friends and supporters from throughout the East Tennessee community gathered at Thompson-Boling Arena to celebrate the 4th Annual *An Evening in Orange*. This unprecedented gala benefited the Cancer Institute at the University of Tennessee Medical Center and is the first event in Knoxville history to raise more than \$1 million in a single night. Chaired by Brandy and Bruce Pearl, the evening entertained more than 700 guests with outstanding performances from the UT School of Art, UT School of Music, UT School of Theatre, and the Dance Society.

Our heartfelt gratitude and appreciation to all of our guests, sponsors, and supporters for this amazing evening and for their compassionate generosity aiding the more than 50,000 patients who come to the Cancer Institute for care each year.



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The Journey from Hospital Administrator to Hospital Volunteer

The Great Smoky Mountains were the magnet that drew Duane Johnson and his wife, Nancy, to Tennessee more than 20 years ago; their volunteer careers at the University of Tennessee Medical Center keep that pull strong.

Following service in the Navy, Duane began a 40-year career as a hospital administrator. He was drawn to hospitals with university affiliations – such as the relationship the University of Tennessee Medical Center has with the University of Tennessee.

When Duane began planning his retirement, being an active volunteer was part of that plan. In fact, motivated by the desire to remain connected to a university medical center, he and Nancy selected a home that is just a five-minute walk from the medical center and university campus.

In 1989, one of Duane's first volunteer roles was assisting with the research for a published history of the medical center. He studied documents dating back to 1945, finding accounts of the hospital's

planning and construction. His work contributed to the book, *Miracle in the Valley*.

Duane spent eight years as the “candy man.” That role, pushing a cart filled with candy and newspapers throughout the hospital, allowed him to become well acquainted with the employees and patients. He chuckles, recalling, “People loved to see the cart!”

Currently you can find Duane at the Physician Office Building information desk, “helping people get to where they need to be.” He also serves on a team of volunteers who review requests for financial support of hospital projects. The Auxiliary raises more than \$150,000 annually, and then Duane and his fellow volunteers determine how best to put those dollars to good use at the hospital.

You might wonder where you'll find Duane next. One thing you can be sure of: it will be fulfilling some needed role at the University of Tennessee Medical Center.

To find out more about volunteer opportunities, please contact Mary Brown at 865-305-9515 or mlbrown@utmck.edu.



Concord Title Inc. has pledged a minimum of \$25,000 to the University of Tennessee Neonatal Intensive Care Unit (NICU) Phase II renovation, with the goal of increasing that donation to \$200,000. It hopes to achieve this by encouraging area real estate agents and lenders to give and matching all

contributions made by them at purchase closings.

“We have been very successful as a company and wanted to do something to ensure success in our community as well,” says Trevor Piety, owner of Concord Title. “My partner and friend, Boog Potter, had twins in the NICU at the medical center, and with me being a graduate of both UT and UT College of Law, we decided the NICU was a perfect fit for giving back to the community.”

Concord Title is currently working to create a community enrichment board that will involve real estate industry professionals dedicated to enriching the local community through various fund-raising efforts. “Our goal is to find people willing to work with us to multiply our initial goals,” explains Piety.

For more information about the Concord Title program or philanthropic opportunities in the NICU, contact the Office of Development at 865-305-6611 or www.development@utmck.edu.

Summer 2011

Continuing Education Course Calendar

The University of Tennessee Graduate School of Medicine offers these educational courses this summer for physicians, researchers, allied health providers, and other healthcare professionals seeking continuing education.

July 25-28

Approved for AMA, AAPA and ACPE credits and CEUs

Electronic Health Records: The Basics of EHR and Meaningful Use

Haslam Business Building
University of Tennessee
Knoxville, Tennessee

The federal government is offering incentives for physicians to purchase and use automated medical recordkeeping systems, suggesting financial penalties will follow for those who fail to adopt the technology. This course will provide physicians and other healthcare professionals with background to understand the technology and knowledge to use tools to ensure effective implementation.

August 21-26

Approved for AMA, AAPA and ACPE credits and CEUs

Lean for Healthcare

Haslam Business Building
University of Tennessee
Knoxville, Tennessee

This course uses the concept of lean processes traditionally practiced in the manufacturing industry but applied now to improving efficiencies and eliminating waste in healthcare. It is appropriate for healthcare professionals, including physicians, nurses, pharmacists and others, as well as healthcare executives and those who impact medical and financial decisions in organizations.

Graduates Influence Health and Health of Economy

Diplomas have been earned. Tassels have been turned. Graduates impact the workforce and their communities in important ways, but one group of graduates makes a difference for generations to come.

The UT Graduate School of Medicine is pleased to announce the graduation of 60 new physicians and dentists. Some will continue their training in advanced programs, called fellowships. Almost half of these professionals, though, will choose to begin practicing medicine and dentistry in East Tennessee, enriching not only the healthcare resources but also the economy of our area.

These 60 professionals will strengthen the quality and availability of healthcare in the community through diverse specialties:

- Anesthesiology
- Cardiovascular Medicine
- Dentistry
- Emergency Medicine
- Family Medicine
- Internal Medicine
- Obstetrics/Gynecology
- Oral Surgery
- Pathology
- Pulmonary Medicine
- Radiology
- Surgery
- Urology and Vascular Surgery

Their expertise makes both our health and the health of the economy better. A new medical practice brings an estimated \$34-40 million to the economy, and the region benefits from a healthier and, therefore, more productive workforce [see insert]. Additionally, employers are attracted by the quality of healthcare resources in the region, bringing with them jobs and a stronger economy.

Congratulations, UT Graduate School of Medicine Class of 2011. Welcome to the community.



Save the Date!

September 9-10, 2011

Heart, Lung, Vascular Update for Primary Care Providers

Knoxville Marriott
Knoxville, Tennessee

To register or for more information about these courses, call 865-305-9190 or visit our website at www.tennessee.edu/cme

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