Frontiers (1st Quarter 2006) - Books for Children; Becoming a Doctor; Surviving a Heart Attack

University of Tennessee Medical Center

University of Tennessee Graduate School of Medicine

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Features:
Books for Children
Becoming a Doctor—Part II
Surviving a Heart Attack
Frontiers is a quarterly 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.

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February 2006

Dear Friends:

The establishment of the Heart Lung Vascular Institute at the University of Tennessee Medical Center afforded us the opportunity to bring together in one place the talent and skills of physicians, nurses, and other health professionals treating diseases and illnesses of the heart, lungs, and vascular systems. More importantly, it has provided our patients with access to care in one location by a team of health care professionals who understand the complexities of these related systems.

We are proud to feature in this issue of Frontiers those men and women who dedicate themselves to the care of our patients suffering from heart, lung, and vascular diseases while contributing to the field of knowledge through specifically focused research and clinical trials. The physician leadership at the University of Tennessee Medical Center long ago recognized the interrelationships and complexities of treating patients with heart, lung and vascular illnesses and were pioneers in establishing multidisciplinary approach to providing the highest levels of care for all of East Tennessee.

Our intention with this issue of Frontiers is to provide you with overviews of the University of Tennessee Medical Center Heart Lung Vascular Institute and highlight for you its important contributions to the health care of the patients and families we serve.

Sincerely,

Joseph R. Landsman, Jr.
President & CEO
University Health System, Inc.

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Welcome to the third edition of Frontiers, the publication that keeps you up-to-date with the UT Graduate School of Medicine within the University of Tennessee Medical Center.

The last edition highlighted our cutting-edge imaging research on cancer, personal touch with patients through Preston Medical Library, and medical school as the first step in becoming a medical doctor.

Sequel articles in this edition illustrate the next step in becoming a doctor – the residency program. With approximately 180 residents, the UT Graduate School of Medicine embraces its principal mission of educating medical school graduates and providing physicians with clinical experiences. The vast majority of our graduating physicians remain in the State of Tennessee to practice medicine. As you will see, these well supervised training programs are very demanding with excellent patient care being one of our main educational goals. In keeping with patient care, our Health Literacy Program in Family Medicine is highlighted showing how we are making every effort to improve the health of Tennesseans by enhancing their ability to understand health information.

This issue also demonstrates how our alumni and friends help us achieve our mission through endowed lectures. Without their support these educational opportunities would not exist. These lectures go beyond resident education to meet the needs of physicians and other health care professionals in our surrounding communities.

I trust this edition will be informative and enlightening.

Sincerely,

James J. Neutens, Ph.D.
Interim Dean
UT Graduate School of Medicine
The heart is a wonderful machine that must work continuously to pump nutrient- and oxygen-rich blood to all the organs of the body. An interruption in the supply of blood lasting more than a minute or two can lead to severe damage to many of those organs, especially the brain. Like other machines, the parts of the heart can be damaged or wear out with time, which reduces the heart's ability to pump adequate amounts of blood to the body.

For centuries it was felt that performing surgery to repair a damaged heart was impossible. But since the invention of the heart-lung machine in the 1950s, heart surgery has become routine. Early efforts were considered good if patients survived surgery; now patients expect a full recovery, even after the most complex procedures.

Today's advances in heart surgery include the introduction of new operations for conditions not previously treatable with surgery, the development of safer and less complicated operations, and improvements in patient care both in preparation for surgery and in rapid recovery following it.

The most common open-heart operation performed in the United States is coronary artery bypass graft surgery (CABG). Patients with atherosclerosis, or hardening of the arteries, develop blockages in the arteries that carry blood to the heart—a process that leads to chest pain, also known as angina, and to heart attacks. Coronary artery bypass surgery has been found to be very effective in improving the blood supply to the heart, thereby relieving chest pain, reducing heart attack, and allowing patients to live longer, more active lives.

Most CABG operations are done using the heart-lung machine. Veins from the legs are used to reroute blood around coronary artery blockages.
By the 1980s, however, it was apparent that mammary arteries from the chest wall and forearm arteries last longer than vein grafts. Nearly all CABG operations now use a combination of arteries and veins. Many patients successfully undergo “redo” operations, and in selected patients CABG can now be done through small incisions and without the heart-lung machine. The number of CABG cases has declined because of better medical care and the use of stents and angioplasty which cardiologists perform in the catheterization lab without open-heart surgery. Unfortunately, stents can become blocked and in general do not last as long as bypasses. In the near future, many patients may receive a combination of bypass grafts and stents at the same time.

The human heart contains four valves whose function is to keep blood moving smoothly and in one direction through the different chambers. These heart valves may become narrowed so that the blood has trouble getting across them, or they may develop leakage so that blood goes in the wrong direction. When the damage to heart valves is severe enough, they need to be either repaired or replaced with artificial valves. All the artificial valves, however, have a tendency to wear out, or to develop blood clots on their surfaces so that the patient must take a powerful blood thinner. Major advances in heart-valve surgery have been the development of more durable valves, as well as more effective techniques for repairing the patient’s own diseased valves and avoiding the use of artificial devices.

Heart failure occurs when the heart muscle is unable to pump an adequate amount of blood to the body. This may be caused by diseases or infections of the heart muscle itself, heart-valve problems, frequent heart attacks resulting in damage to the muscle, or other conditions such as high blood pressure. Heart failure can be improved with medications, but frequently this is not adequate. In patients with terminal heart failure, heart transplantation is the best option available. The problems with it are that the procedure is very expensive, requires lifelong medications to avoid rejection and infection, and is limited by the supply of available hearts to transplant. Mechanical artificial hearts have been developed to pump blood temporarily while the patient is awaiting a heart transplant. Much work is being done to develop a total mechanical heart that can be implanted inside the body, but there does not seem to be a practical device for long-term use on the horizon. Again, the need is for mechanical parts that do not destroy blood cells, develop clots, or wear out. A major problem with the mechanical heart is the lack of a reliable, high-output power supply that can be placed inside the body and can provide enough energy to enable the artificial heart to work continuously.

Birth defects involving the heart are uncommon, occurring in approximately eight out of 1,000 births, but they frequently require surgical correction. A large number of different birth defects can affect the heart; these are called congenital heart defects. They include holes between the heart chambers, incorrectly formed
heart valves, underdevelopment of the heart chambers or aorta, and failed closure of fetal structures that are supposed to regress at birth.

Ever since the very first open-heart operations, steady advances have been made in the field of congenital heart surgery, and more defects are now fixable. Surgery can be done even in newborns. An important advance in congenital heart disease has been earlier and more accurate diagnosis using ultrasound machines. Routine fetal ultrasounds are now so detailed that experienced pediatric cardiologists can accurately diagnose congenital heart defects well before birth—a development that allows early planning for surgery shortly after delivery. One advancement that is somewhat futuristic but has been used in certain other birth defects is repair prior to birth by means of intrauterine surgery.

Heart surgery for most cardiac conditions can be performed today with a very low rate of complications, a very high rate of survival, and relief of heart symptoms leading to a more active and satisfying life. Future advances in surgery will center on less invasive procedures that give equal results with smaller incisions, shorter operations, quicker recovery, and briefer hospital stays. Advances will also include improved devices such as heart valves, graft materials, suture materials, and suture alternatives, as well as better instruments for minimally invasive procedures such as robotics. Research in genetics and stem cells may someday allow the growth of new heart muscle, valves, and blood vessels to replace diseased ones.

In the future, medications may take the place of most coronary artery bypasses and angioplasties for blocked coronary vessels. Current heart surgery is beyond the wildest dreams of the pioneers of the 1950s, and it is difficult to imagine what refinements in surgical techniques, operative materials, and artificial organs will have been made by 2050.

John W. Mack, Jr., MD
Children… Connections for Families

UT Family Physicians Embrace Reach Out and Read Program

The literacy facts aren’t very pretty.
In the U.S., 42% of Americans cannot extract basic information from a newspaper article or comprehend directions for taking medication. About one in four is unable to understand information on a physician’s appointment slip.

In Tennessee, adults have lower literacy rates than across the U.S., and we see high school and college graduation rates below the national average. The rates often are even lower in our rural counties, including those surrounding Knox County.

It’s simple: We must improve the literacy rates of citizens, and the University of Tennessee Graduate School of Medicine is working toward that goal every day.

Taking Action in Our Corner of the World
Family Medicine physicians and residents at UT Graduate School of Medicine give more than checkups and immunizations. They also give the gift of imagination to children and promote stronger literacy skills in parents.

Fifteen-month-old Spencer Strunk is mesmerized by a book he reads with the help of his mother, Angela Strunk. Steven Roskos, MD participates in the Reach Out and Read program by giving a book to Spencer and other patients at the UT Graduate School of Medicine Department of Family Medicine at every well visit. “We love the program,” said Angela. “Spencer really enjoys the books.” And from the look on little Spencer’s face, we believe it.
As part of the national non-profit program, Reach Out and Read, these everyday heroes give age-appropriate books to every child in their practice at every “well” visit from the time each child is six months old until he or she is five years old. That’s ten books by the time the child reaches kindergarten.

Along with books for children comes information for parents about the importance of reading aloud to their children as well as promotion of adult literacy.

“The program allows us to help the whole family in a lasting and meaningful way by encouraging parents to read to their children, which not only promotes the child’s reading skills but also strengthens the relationship between parent and child and encourages improved adult literacy,” says Steven Roskos, MD, family physician and medical director for the Reach Out and Read program at UT. “And importantly, reading is a wholesome activity that can simply bring families together.”

**Approaching Literacy in Children and Adults**

Encouraging literacy in children translates to their success as adults, and it starts early. In the first three years of life, literacy is vital to successful brain development. Early literacy helps children develop memory and curiosity, experience enjoyment and realize mastery—even if it’s just learning to turn a page or identifying rhyme and repetition.

Children who are familiar with books are ready to learn once they enter school. And children who are engaged in learning are less likely to drop out of school and more likely to become successful adults.

“If we can get books into the hands of children and their parents and encourage their parents to read aloud to them, we are making small steps toward improving literacy for both and promoting closer parent-child relationships,” says Lorraine Wallace, PhD, UT Graduate School of Medicine’s Reach Out and Read program coordinator. “This is especially important here in East Tennessee, where literacy rates are low and high school dropout rates are high.”

The most recent information from United Health Foundation shows that in Tennessee, only 57% of children entering high school will graduate in four years. “Low graduation rates tell us that our literacy rates are just as low, or lower, and students likely to drop out of high school have the lowest literacy skills,” says Wallace.

And who better to make these strides toward literacy than physicians? Physicians are trusted advisors to families. Parents look to them for advice on health and
well-being, and information shared by physicians is viewed as reliable and important.

Our Numbers and Our Legacy
Since August 2005, when Reach Out and Read was implemented at UT Graduate School of Medicine’s Department of Family Medicine, 36 physicians and residents have given 400 books to children—and an immeasurable amount of support to parents.

“Our program is one of the very few in Tennessee,” says Wallace, “and we hope to expand it through our residency program.” UT Family Medicine faculty physicians urge their residents to get involved in Reach Out and Read, with the hope that when the residents move into private practice, they will implement the program themselves.

“Our residents leave here with an excellent medical education, and as part of that education, we try to make sure they understand how someone’s life situation affects their health,” says Roskos. “We want our residents to know how to counsel parents on healthy lives, and that includes encouraging parents to read to their children and improve their own literacy skills.”

What’s Next?
The UT Graduate School of Medicine Family Medicine physicians and residents have big plans for their Reach Out and Read program, including providing books in Spanish, offering books to siblings and to children during sick visits. The group also will have volunteer readers in the waiting room to model reading aloud.

And because parents with low literacy skills often don’t know of community resources that can help them improve their skills, our UT physicians soon will have such information available for their patients.

The literacy numbers might be discouraging, but at UT Graduate School of Medicine, we know that every book, every encouragement, and each interaction with parents are small steps that will make important differences.

Amanda F. Johnson, APR

The Need is NOW

Literacy Challenges
Linked to Low Graduation Rate

The Reach Out and Read Program, which provides books to children during their “well” visits to their family physicians at UT, couldn’t come at a better time. The most recent information from United Health Foundation shows that Tennessee has only a 57 percent high school graduation rate, and a low graduation rate tells us that literacy rates are low, too.

Perhaps an even more alarming fact is that 15 years ago, the high school graduation rate in Tennessee was 10 percent higher, at more than 67 percent. “We’re moving in the wrong direction,” said Lorraine Wallace, PhD, Associate Professor, UT Graduate School of Medicine.

“History has shown that each generation is generally better prepared than the last, but that is not proving to be the case today. We must take action to positively affect the literacy of our children.”

You Can Help!

If you would like to volunteer your time as a waiting-room reader or make a donation of new books or of money to purchase books, please contact Dr. Lorraine Wallace at 865-544-9352.
FOR YEARS, AN OFTEN DEADLY LUNG CONDITION BAFFLED doctors. An initial problem—injury, bodywide infection, pneumonia, even a blood transfusion—was eclipsed by a bigger one: the patients couldn’t breathe. Because the range of causes was so broad, physicians didn’t realize that the syndrome was one entity. During the Vietnam War, however, trauma doctors caught on, referring to the syndrome as shock lung, wet lung, or even Da-nang lung.

Now called acute lung injury (ALI) in its less serious form and acute respiratory distress syndrome (ARDS) in its most dangerous one, the condition affects as many as 150,000 Americans each year—and 40% of those patients die. “ALI/ARDS occurs when the initial insult to the lungs, such as pneumonia, results in an inflammatory state that causes more harm than the initial injury,” explains Paul R. Branca, MD, director of the medical intensive care unit at the University of Tennessee Medical Center and section chief of Critical Care Medicine at UT’s Graduate School of Medicine. “The patient has no reserve. And sometimes the oxygen level drops too low to sustain life.”

Still, Branca and his colleagues have reason to be hopeful. The University of Tennessee Medical Center has developed a dramatically effective new ventilator...
protocol, or plan, for managing ALI/ARDS patients. This protocol was based on a 2000 study of ALI/ARDS by the National Heart, Lung, and Blood Institute in Bethesda, Maryland also known as the ARDSNET study. This study suggested that a ventilator approach focused on protecting the lungs from further injury could save lives. The study also found that patients with ALI/ARDS were more likely to survive when they were supported by a ventilator pushing less air into their lungs at a lower pressure than traditionally used. In a patient with ARDS, parts of the lung are swollen and stiff while other parts remain normal. Branca says, “A high volume of air overexpands the relatively normal parts and injures them, making the lung injury last longer or worsen.”

A second prompt was the development in December 2001 of a new ventilator weaning protocol—implemented in all of the University of Tennessee Medical Center’s intensive care units. That plan shortened hospital stays and time on a ventilator by almost two days.

The protocol’s success, coupled with the results of the National Heart, Lung, and Blood Institute study, spurred the Medical Center to begin writing a more specialized ventilator protocol for ALI/ARDS in the spring of 2003. The center involved respiratory therapists, critical care nurses, pulmonologists, trauma and cardiothoracic surgeons, and anesthesiologists—including Blaine Enderson MD, professor and chief of the Department of Surgery’s Division of Trauma and Critical Care; Paul D. Banick MD, PhD, MBA, chairman of the Pulmonary and Critical Care Division; J. Russell Langdon, MD, associate professor of anesthesiology and chief of critical care anesthesiology; and Magnus O. Meyer III, DO, critical care physician in the Division of Pulmonary Critical Care Medicine, program director of the transitional residency, and assistant professor of medicine.

“With an interdisciplinary approach,” says Paul D. Banick, MD, PhD, MBA, FCCP, who also is medical director of respiratory care services and the University of Tennessee Medical Center’s Lung Center, “you adopt a culture of efficiency, decreased errors, and better patient-centered care.”

The ALI/ARDS protocol, implemented in May 2004, provides three options for doctors. One follows the approach described in the national ALI/ARDS study, minimizing the volume of air going into the lungs.

The second option which is a variation of the ALI/ARDS study (ARDSNET) concept is pressure control ventilation, which allows pressure-controlled breaths delivered at a set rate. “A physician may choose this if a patient is not responding to the volume control method of the ALI/ARDS study based protocol,” Banick says, “or when pressure control...
Respiratory therapist monitors ventilator patient.

makes more sense—for instance, if the abdomen is enlarged due to fluid accumulation. The third option, airway pressure release, combines a release in airway pressure with the patient’s spontaneous breathing. “Since the patient is breathing,” says Banick, “he has less need for heavy sedation than with other ventilation methods.” This option also oxygenates the blood efficiently and can be a good choice when the patient has a head injury, since it avoids increased pressure in the brain.

“The challenge was to develop a standard protocol that applied the principles of the national ALI/ARDS study but also allowed physicians options,” says Bill Farnham, RRT, a clinical specialist in respiratory therapy at the Heart Lung Vascular Institute, who helped develop the protocol. The plan also allows respiratory therapists to make minute-by-minute adjustments within physician guidelines—a significant advantage in patient care, according to respiratory therapist Michael Powers, MS, RRT, director of the Lung Center at the University of Tennessee Medical Center.

Since the adoption of the protocol, mortality has dropped to 22% in a group of 107 ALI/ARDS patients—a 56% reduction from the year before and well below the national average of 40%. Although the process wasn’t easy, the results are spectacular. “We asked our physicians, nurses, and respiratory therapists to do a 180-degree turn in approach,” Branca says. “But it’s been an effective way of implementing a proven strategy.”

George F. Schuchmann, MD
Heart Lung Vascular Gift Fund

It is only fitting for the general gift fund for the Heart Lung Vascular Institute at the University of Tennessee Medical Center to be named in Dr. Schuchmann’s honor in recognition and appreciation for his many contributions to the successes at the Medical Center.

Gifts to the George F. Schuchmann Heart Lung Vascular Institute Gift Fund are used to support people and programs in furtherance of the Heart Lung Vascular Institute’s objectives of excellence in patient care, education, and research. Gift to this fund have been made by friends, colleagues, and former patients of Dr. Schuchmann and also by other patients and their families who have benefited from the leadership and dedication exhibited by Dr. Schuchmann during his continuing service to his patients and the institution.
In the last issue of *Frontiers*, we introduced you to the first step in educating physicians – medical school and the passing of medical board exams. Upon successfully completing the three stages of exams, these medical students become licensed physicians and enter the next phase of the educational process for physicians. They are now residents. In this issue, we offer you a look at what it means to be a resident physician and the importance of residency programs to physicians and the quality of our nation’s health care.

*Cedric Palmer, MD, and Robin Huskey, MD, UT Graduate School of Medicine resident physicians*
When I started to medical school, I was embarrassed to ask the difference between an “intern” and an “internist.” In time, I learned that there was a tremendous difference, and I have spent my professional career helping others understand the differences, too.

“The enterprise of teaching, research, and academic inquiry is the stimulus that brings out the best in those involved. It becomes the passion to be passed to the next generation.”

The educational process of turning undergraduate students into practicing physicians is actually quite simple. First, students must complete a collegiate pre-med program before qualifying to apply to medical school. The medical school curriculum is a four-year commitment and requires successful completion of medical board examinations. Students are then awarded a graduate degree—the Doctor of Medicine, or MD.

In the old days, earning the MD degree often entitled the new physician to practice medicine. Now, however, 3-8 years of post-graduate training, called a residency period, is required to qualify for licensure to practice any specialty and to qualify for membership on a hospital staff.

Residency education occurs in teaching hospitals and academic medical centers like the University of Tennessee that have been certified for that purpose. Together, the UT Graduate School of Medicine and UT Medical Center provide the critical clinical setting that prepares residents for their role in the delivery of high-quality patient care.

At the UT Graduate School of Medicine, all doctors are supervised by attending faculty physicians. During the early years of residency, each new physician is observed first hand to ensure that procedures are correctly and efficiently performed and to maintain patient safety and comfort. In later years of residency, physicians are allowed to acquire more responsibility as they function more independently. This progressive process requires a carefully crafted curriculum, constant supervision and critical feedback by UT faculty physicians and administrators.

The enterprise of teaching, research, and academic inquiry is the stimulus that brings out the best in those involved. It attracts the brightest minds. It becomes the passion to be passed to the next generation.

Alfred Beasley, MD
It’s hard to describe the typical day of a medical resident. Each physician has selected a specific educational program, has an individualized work schedule, and is assigned to certain patient cases. One can bet, though, that the day is busy and trying, starting somewhere around 6 a.m. at the hospital and ending long after dinnertime for most Americans.

Each day across this country, physicians are completing required residency periods that place them face-to-face with patients with whom they are unfamiliar. These residents are full-fledged physicians in jobs that put their medical school training to the test, drain their energy reserves, and strain their emotional well-being. Welcome to the on-the-job training world of the medical resident.

It’s 9 a.m. on a Tuesday morning and Dr. Robin Huskey is preparing to go home. She started her family medicine residency shift at 6 p.m. Monday evening where she worked on team reports, maneuvered through three personnel shift changes, answered pages from clinic patients, advised medical personnel caring for her nursing home patients, responded to hospital floor and emergency room pages, made notations in patient charts and hospital records, and participated in patient checkout rounds with the inpatient team. All in all, this has been a rather light-duty day made unusual because she did not need to admit any of the patients she cared for during this shift.

Robin had taken care of several personal chores before starting her shift on Monday. General household duties had to be done before taking her mother to a medical appointment. Now on Tuesday morning, she makes her way to the Tennessee Department of Motor Vehicles to obtain a new driver’s license before heading to bed where a few hours of welcomed rest are waiting.

Robin’s next few days as Dr. Huskey, resident physician, start in just nine hours. And they are going to be arduous.

From the diary of Robin Huskey, MD

Tuesday
6 p.m. At the hospital & heading for rounds with the day team.
5 p.m. Answering pages from patient floors, ER, nursing homes and clinics. Helping medical grad student assigned to be on call with me.
7:15 p.m. Very, very busy in the ER.

Wednesday
2 a.m. ER has been extremely busy since 7 p.m. I’ve admitted many patients including Patient with mild mental retardation and Schizophrenic being evaluated for possible delirium and stroke.
- Toddler with pneumonia in need of IV antibiotics and fluids.
- Middle aged female with cryptogenic cerebrovascular who requires withdrawal of fluid from her abdomen due to liver failure.
- Toddler with new onset of encephalopathy who needs observation to rule out Rocky Mountain spotted fever.
- Young adult with chronic diarrhea and severe abdominal pain.

8 a.m. Check-out rounds with day inpatient team.
10 a.m. Leaving hospital for some time off. Heading to bed after a stop at the gym for a workout. Must get a haircut.
Then plan to some more shopping before dinner with friends.
Then early to bed tonight.

Thursday
8 a.m. Eat breakfast with dog and Weimaraner named Emma.
8 a.m. Examine patients at part of clinic duties at University Family Physicians (4, 5 days a week).
9:30 a.m. Interview residency candidate as part of my co-chief resident duties.
10 a.m. Back to University Family Physicians clinic.
12 p.m. Finished clinic, today’s patients included:
- Elderly patient with diabetes, high cholesterol and congestive failure.
- Middle aged patient with a history of stroke, muscular dystrophy and renal failure who currently is undergoing chemotherapy and weight loss program.
- Young adult with chronic respiratory condition and severe obesity.
- Young adult with anorexia and bulimia who currently is experiencing weight loss and psychiatric changes.
- Young adult with chronic headache and abdominal pain.
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- Young adult with chronic headache and abdominal pain.
- Young adult with chronic headache and abdominal pain.
So much of my journey to becoming a physician has been an exercise in faith and perseverance. I grew up in New Orleans, where I had the duties of an eldest child—raising a young brother and sister while my mother worked two and three jobs, and of parent-substitute, filling the void my father left when he abandoned the family. I did not have time for the distractions of the sometimes mean streets of New Orleans. My free time was spent pursuing my fascination with literature and science, and at the age of 16, my aspiration became to serve families in the capacity of family physician.

I wanted to be a glimmer of hope to families affected by circumstances of health.

As an undergraduate student, I worked to gain entrance into medical school and to continue aiding my family financially and spiritually. At Meharry Medical College, I plunged into the rigors of medical training.

Fueled by determination and God’s grace, I have found myself in East Tennessee at UT Graduate School of Medicine. My residency here is filled with the things that define me as the eldest child and as the country doctor I hope to become. I have persevered through long-hour weeks balancing a host of responsibilities.

“My residency here is filled with the things that define me as the eldest child and as the country doctor I hope to become. I have persevered through long-hour weeks balancing a host of responsibilities.”

About my residency, I feel gratification, knowing that I have had a tangible role to play in some of the most important moments in the lives of my fellow human beings.

My goal—to practice family medicine in a rural or inner-city setting—is providing the enviable opportunity to move beyond being a “glimmer of hope” and become a real force for the betterment of the lives of families and communities. I want to make a difference.

I am ready.

Cedric Palmer, MD

A graduate of Xavier University and Meharry Medical College, Dr. Cedric Palmer is a UT Graduate School of Medicine Department of Family Medicine resident. As of this writing, twenty-one of his family members displaced from their New Orleans Ninth Ward homes are living in Knoxville and he shares his apartment with brother, Poree’, whom he is helping complete a degree in fine arts. Dr. Palmer enjoys fishing, creative writing, and collecting limited first edition books.

If you missed “BECOMING A DOCTOR: PART I—MEDICAL SCHOOL” in the last issue of Frontiers, you can read the article at http://gsm.utmck.edu/about/frontiers.cfm or call the UT Graduate School of Medicine at 865-544-9190 for your copy of the November 2005 issue. In the next issue, Focus on Fellowships.
Who’s Helping Educate Your Doctor?

It could be you!

Want to raise awareness for a disease a loved one is dealing with? Have an interest in broadening the knowledge of medical issues faced by our community? Looking for a way to make a difference? The Endowed Lecture Series at UT Graduate School of Medicine may be the answer.

A lecture funded by annual gifts or a permanent endowment can be designed to match the interests or wishes of those seeking to memorialize or honor an individual. Endowed lectures can increase awareness about a disease, broaden the region’s knowledge about community issues, or provide a forum for discussion of the latest research on a particular topic.

Several East Tennessee families have banded together to increase the learning opportunities for our region’s medical professionals, educators, and social services administrators.

Preserving a Legacy

One such family is the clan of Dr. R. Ben Alley. Ben Alley tragically lost his courageous battle with cancer in September 2003. His legacy lives on in the Dr. R. Ben Alley Lecture Series created through an endowment fund established by Dr. Alley’s family, colleagues, patients and friends.

Taking It to the Streets

What’s the impact of street drugs and how do you identify those impaired by them? A cutting-edge conference, funded in part by the John E. Sullivan, DDS Memorial Endowed Lecture, answered those questions for dentists, oral surgeons, dental office personnel, nurses, public health
The inaugural Dr. R. Ben Alley Lecture Series conference included honored guests (L to R) inaugural lecturer Peter D. Quinn, DMD, MD, chair, Department of Oral & Maxillofacial Surgery & Pharmacology, University of Pennsylvania; John J. Sheridan, UHS; family members of the late Dr. Ben Alley including Sharon Alley, David Alley, Dr. Bob Alley and Mrs. Helen Alley; and UT Course Director for the lecture, Eric R. Carlson, DMD, MD, chair, Oral & Maxillofacial Surgery.

Revealing Research

The most recent endowed lecture, the Thomas J. Weaver AIDS Education Endowment, allowed the Graduate School to bring to Knoxville the renowned scientist, educator and physician, James Earl King Hildreth, PhD, MD, director of the Meharry Medical College Center for Health Disparities Research in HIV. Dr. Hildreth's lecture allowed East Tennessee healthcare professionals to learn about recent research in AIDS prevention.

Serving the Community

Some endowments or gift funds are established for use in particular departments or designated to benefit the education of specified health care professionals.

• The John W. Whittington Visiting Professorship Endowment was established by Dr. John Whittington, an alumnus of the UT Graduate School of Medicine General Surgery Residency Program. The endowment provides resources to attract outstanding scholars and medical leaders to lecture and stimulate continued learning among resident surgeons, faculty and community physicians.

• The Kevin Robert Swabe Family Values Lecture was established within the Department of Pastoral Care to bring experts in human dynamics and personal interaction to the campus for the benefit of chaplains and health professionals.

• The Robert F. Lash Memorial Endowment Fund was established at the University of Tennessee Medical Center by friends and family of Robert F. Lash, MD to recognize Dr. Lash for his dedication to patient care, teaching and service. Income from this endowment funds an annual education program in emergency medicine and pre-hospital care.

• The Edward J. Boling Health Policy Forum was established by Edward J. Boling, former UT president, and his wife, Carolyn. The forum, open to all interested citizens, brings together government officials and healthcare providers to discuss national healthcare issues affecting the delivery of health care in the United States.

Raising Awareness

The next endowed conference, The Patterson Lecture, will be held on May 19, 2006, at UT Medical Center’s Wood Auditorium. This continuing medical education event is funded through the Patterson Domestic Violence and Child Abuse Education Fund established by the Patterson family. The fund allows the UT Graduate School of Medicine to offer biennial conferences that help local health care professionals better understand the destructive forces that target the most vulnerable elements of society.

The previous Patterson Lecture raised awareness about the effects of drug abuse on families and the challenges faced by professionals trying to help them. This year’s lecture will focus on “The Delayed Health Effects of Childhood Sexual Abuse.”

Lea Anne Law, APR

For more information about upcoming lectures, contact UT Graduate School of Medicine at (865) 544-9190.

To establish or support a lecture, contact the Office of Development at (865) 544-6611.
In 1984, just as the University of Tennessee Medical Center was setting up its division of vascular surgery, Julio Palmaz, MD, the Argentinian who had recently developed the endovascular stent, was trying to persuade companies to produce his invention. Since that time, physicians worldwide, including researchers at the University of Tennessee Vascular Research Lab have been working to improve the lifesaving stent, a tiny metal scaffolding designed to hold diseased arteries open.

By the early ’90s, the Medical Center’s vascular surgeons had read the medical literature about stents and knew they were a vast improvement over conventional methods of repairing arteries. But still no companies manufactured them. And the repairs involved working inside arteries only fractions of an inch across. Nonetheless, the vascular surgeons began hand-sewing stents and the fabric that lined their metal walls. As they perfected the devices, they started
to use them on patients who couldn’t survive traditional major surgery. Before stents, for example, the repair of an aortic aneurysm—a weakening or bulging on the wall of the aorta, the body’s largest artery—involved opening the patient’s abdomen, pushing aside his organs, clamping the aorta, opening it, and splicing in a tube of Dacron, a synthetic material, to do the repair.

“It was a grueling operation,” says Scott Stevens, MD, director of endovascular surgery at UT Medical Center and associate professor of surgery at the UT Graduate School of Medicine. “The patient had to have several days in intensive care, five to 10 days in the hospital, and two to three months to recover. But now, using endovascular surgery, we travel up the femoral and iliac arteries through the groin with a balloon-tipped catheter—a procedure called an angioplasty where the artery is dilated—and a covered stent is put inside the diseased artery. The patient rarely goes to intensive care, and usually goes home in a day or two.

“The use of stents is a perfect example of how we have taken a day-to-day clinical problem to the research lab and then returned with improvements to the operating room,” Stevens adds. UT Medical Center’s Division of Vascular Surgery was the first in East Tennessee to do a stent graft.

“Our work has led to some of the developments in covered stents,” agrees Oscar H. Grandas, MD, assistant professor of surgery at the University of Tennessee School of Medicine and the scientific director of the Vascular Research Lab since his arrival at UT Medical Center a year ago. “Now covered stents are used everywhere.”

The lab has worked with the Oak Ridge National Laboratory Center for Computational Sciences to predict aneurysms, using a CT (or computerized tomography) scan, a precise X-ray of specific sections of the body. “An aneurysm in a blood vessel is like a weakness in an inner tube,” explains Mitchell H. Goldman, MD, professor and chairman of the Department of Surgery at the University of Tennessee Graduate School of Medicine. “It’s dangerous because it can rupture, and people bleed internally.”

“We have taken a day-to-day clinical problem to the research lab and then returned with improvements to the operating room.”

Scott Stevens, MD

Researchers in the lab were also the first to describe the effects of hormone replacement therapy (HRT) in women who have stents, Goldman says. Five years after surgery, their stented arteries are far less free from blockage than those of women who had the surgery but are not on HRT. Stevens says, “HRT likely affects the clotting quality of the blood.”

Of course, training is no small part of what happens in the research lab. More than 10 vascular surgery fellows have trained at UT Medical Center and are now in private practice or academic centers across the country. “UT’s vascular fellowship is one of the most sought-after,” says Trent Prault, MD, one of two current vascular fellows. “We get extensive endovascular experience, and UT Medical Center is the center in this part of the state
for stenting the carotid artery”—the major artery of the head and neck—
“and for endografts that treat aortic aneurysms. You can’t get better training.”

The lab also works with undergraduates, medical students, and residents. Each week
students, lab technicians, and the lab supervisor meet with Grandas to decide on
experiments, assign research tasks, and present updates of ongoing research. Those in
the lab also write grant proposals applying for federal funding of research projects.

“Endovascular surgery has grown
with the advance in technology,
the way the Internet or cell phones have.”

Scott Stevens, MD

“The lab is productive because it has strong support from the hospital, the
Graduate School of Medicine and from all the physicians in the division,” Stevens
says. For example, the hospital has provided generous lab space that includes two
small labs, two medium-sized labs, two office areas, and a darkroom. And the
Graduate School has funded research tools such as a scanner, specialized
microscopes, and cell-culture equipment. The lab has also received funding from
the National Institutes of Health, the American Heart Association, the
Juvenile Diabetes
Association, various
industries, and
private donors.

The vascular surgery
division has five
vascular surgeons, all
involved with patient
care, training, and research. Each has developed a specific
area of expertise as well.

“We’re studying how to prolong and improve vascular
constructions, looking at how grafts heal and how well they
exclude the aneurysm from the pressure of the blood flow,”
says Grandas. “That’s the value of the research: to
advance knowledge.”

Stevens agrees: “Endovascular surgery has grown with the
advance in technology, the way the Internet or cell phones
have. It’s such an exciting time, because we have so much
more to offer patients.”

Dorothy Foltz-Gray

Angiograms courtesy of Barry T.
Katzen, MD and Miami Cardiac
and Vascular Institute, Miami, FL.
A middle-aged man is enjoying a round of golf in Loudon, a 45-minute drive from the University of Tennessee Medical Center, when he begins to suffer chest pain and shortness of breath. His condition deteriorates to cardiac arrest. The local emergency department calls LIFESTAR, UT Medical Center’s emergency helicopter service. From the time the call is made to the moment the man’s blocked artery is open again: 45 minutes. “He walked out of here a few days later,” says George Schuchmann, MD, medical adviser to UT Medical Center’s Heart Lung Vascular Institute and retired chief of the cardiothoracic surgery division. “But without a system like ours, where one phone call activates the whole system, that patient would have stood little chance of survival.”

When there’s a heart-attack victim to be saved, timing is critical. Cardiologists have about two hours from the beginning of the attack to open the blocked artery; otherwise, injury to the heart muscle will lead to irreversible damage or death. That’s why the cardiology department’s automatic-acceptance policy—which allows LIFESTAR to airlift patients in severe cardiac distress without waiting for physician consent—saves lives. “We’re on a stopwatch system,” Schuchmann says. “We time every minute from the outlying emergency department to the cardiac catheterization lab, where the blocked artery is opened.”

Until the policy changed four years ago, an emergency room had to speak to a cardiologist before LIFESTAR could send a helicopter. “Contacting a cardiologist could take 20 minutes,” says Stuart Bresee, MD, chief of UT Medical Center’s cardiology division and a clinical associate professor in the Department of Medicine. “And every 10 minutes you wait before opening the blocked artery amounts to a 1% higher death rate.”

Now LIFESTAR, founded in 1984, can automatically send a helicopter to pick up any patient with one of the...
following conditions:
• Acute myocardial infarction, or heart attack
• Unstable angina, or pain from lack of oxygen to the heart
• Life-threatening dysrhythmia, or abnormal heart rhythm
• Cardiac arrest
• Sudden congestive heart failure

About 230 cardiac patients a year arrive at UT Medical Center on one of LIFESTAR’s three aircraft.

“We have a similar automatic-acceptance system in area counties that don’t have a hospital, like Union County,” says Christopher Brooks, MD, medical director of aeromedical services. In these cases, ambulance personnel assess a patient’s condition, then make the call.

“For a patient suffering from a heart attack, time is heart muscle. The sooner we’re able to get that patient into the cardiac cath lab and restore blood flow, the better the outcome will be,” says director of aeromedical services Jeffery Gregory. “One phone call to LIFESTAR activates air medical transport, patient acceptance, consultation with a cardiologist, and notification of our cath lab. Our goal is to make it a seamless process without delays.”

While the helicopter speeds to the patient, the outlying emergency department or ambulance personnel confer with a consulting physician at UT Medical Center. Once the patient is aboard the aircraft, he or she is attended by a nurse and a paramedic, who perform tests including a 12-lead electrocardiogram to assess or confirm the patient’s condition. From the helicopter, the medical personnel communicate the test results to the in-house attending cardiologist.

“Waiting for the patient’s arrival at the new cardiac catheterization laboratory is a cardiac team that includes a cardiologist, a registered nurse, and two cardiovascular

"And every 10 minutes you wait before opening the blocked artery amounts to a 1% higher death rate."

–Stuart Bresee, MD

Dale Wortham, MD in heart catheterization lab.
Our physicians provide care for conditions that represent six of the top seven leading causes of death in the United States. Acute heart attack, heart failure, peripheral vascular disease including aneurysms and carotid artery blockage, respiratory problems such as chronic obstructive pulmonary disease (COPD), and pneumonia are among the conditions treated at the Institute.

The concept of the Heart Lung Vascular Institute developed in 1999 and culminated in the opening of a new building in May 2004. Because heart, lung, and vascular diseases are interrelated and have common issues, we have integrated cardiology, cardiothoracic surgery, pulmonary medicine, and vascular surgery under one roof. Our team provides coordinated diagnostic, surgical, therapeutic, rehabilitative, and preventative services for patients with heart disorders, breathing difficulties, or problems with arteries and veins.

Our purpose is to provide the best patient outcomes for the citizens of East Tnesean.
If you are a physician or allied healthcare professional, researcher, or faculty member seeking continuing education, you may be interested in this sampling of upcoming activities offered through the UT Graduate School of Medicine Office of Continuing Medical and Dental Education.

## UT CME Course Calendar

### Spring Semester 2006

<table>
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<tr>
<th>Course Title</th>
<th>Date</th>
<th>Location</th>
<th>Description</th>
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<tr>
<td>Incorporating Genomics into the Treatment of Breast Cancer</td>
<td>February 21, 2006&lt;br&gt;February 22, 2006</td>
<td>Riverside Tavern, Knoxville, TN&lt;br&gt;UT Medical Center, Knoxville, TN</td>
<td>Participants will learn proven prognostic and predictive factors that are used to stratify newly diagnosed breast cancer patients for adjuvant treatment as well as valuable and timely information on biomarkers, gene expression profiles and more.</td>
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<tr>
<td>The “D” Team: Fighting Diabetes Together 2nd Annual Diabetes Update</td>
<td>March 11, 2006</td>
<td>University Club, Knoxville, TN</td>
<td>This conference is focused on the latest techniques and medicines in the treatment of diabetes. It is a conference designed for the whole office as a team approach for battling this disease. From the front desk staff to the physician, everyone is included in this learning experience.</td>
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<td>29th Annual Family Medicine Update: Prevention in Practice for the Family Physician</td>
<td>April 27–29, 2006</td>
<td>Park Vista Resort Gatlinburg, TN</td>
<td>The 29th Annual Family Medicine Update has a rich tradition of providing new methods and research on diseases and syndromes that the family physician will see. This year’s update will cover immunization schedule changes, management of cirrhosis, depression in young adults, well-child screening and more.</td>
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<td>The 2006 Patterson Endowed Lecture: Long-Term Health Effects of Childhood Sexual Abuse</td>
<td>May 19, 2006</td>
<td>UT Medical Center Wood Auditorium, Knoxville, TN</td>
<td>Understanding that while the immediate and short-term effects of childhood sexual abuse are generally known, physicians seeing adult patients need information regarding the long-term effects of such a history.</td>
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<td>Life...Inside &amp; Out Perinatal and Neonatal Care Symposium</td>
<td>May 24–26, 2006</td>
<td>Grove Park Inn, Asheville, NC</td>
<td>This perinatal conference will focus on the specialties of obstetrics, neonatology and pediatrics. Invited participants will include physicians, physician assistants, nurse practitioners and others. The faculty will be composed of the top specialists in the region.</td>
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To register or for more information call 865-544-9190 or visit our website www.tennessee.edu/cme
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