Spring 2008

Frontiers

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



Education

How an Academic Medical Center Leads the Way

For Alumni and Friends

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

Spring 2008

Editor

Becky Thompson

Publishers

Joseph Landsman
Norman Majors
James Neutens

Contributors

Heather Grieve
Amanda Johnson
Lea Anne Law
William Metheny
Sherri Ramsey
Becky Thompson

Design

Asen Strategic Advertising & Marketing, Inc.

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

Copyright ©2008
The University of Tennessee Medical Center
All Rights Reserved.
EEO/TITLE VI/TITLE IX
Sec. 504/ADA

Send Correspondence to:
Frontiers
1520 Cherokee Trail, Suite 300
Knoxville, Tennessee 37920-2205
Telephone: 865-305-6845
Fax: 865-305-6959
E-mail: frontiers@utmck.edu
Web: www.utmedicalcenter.org
or http://gsm.utmck.edu

THE UNIVERSITY of TENNESSEE GRADUATE SCHOOL OF MEDICINE

THE UNIVERSITY OF TENNESSEE MEDICAL CENTER



Dear Alumni and Friends,

As the region's only academic medical center, we've placed at the core of our mission the work of providing educational opportunities for the people of our area and education for the healthcare professionals who will serve them in the future. This unique capability isn't something new for the University of Tennessee Medical Center. When our doors opened in 1956, a residency training program for physician specialists was established. And for more than 50 years, programs like that one have continued to grow, many new programs have been added, and literally thousands of people have received advanced training and education on our campus. We're very proud of this heritage, and we embrace our obligation to train the next generation of healthcare professionals.

In this issue of *Frontiers,* we are pleased to spotlight and recognize educational programs in the fields of medicine, dentistry, pharmacy, nursing, and pastoral care, as well as programs that train supporting specialists in radiology, anesthesia, and pharmacy. All of these programs are essential to the care we give our patients and their families every day, and provide the hope of a better quality of life for all of us.

Sincerely,

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

This issue of *Frontiers* highlights the very unique merits of the area's only academic medical center, the University of Tennessee Medical Center. In concert with UT Graduate School of Medicine, the medical center offers highly specialized care, the latest clinical research, and outstanding educational opportunities for healthcare professionals.

The articles in this issue demonstrate our commitment to advance quality of care and education through collaboration with multiple UT departments—an effort that can only be accomplished through an academic medical center.

We provide East Tennessee and beyond with physicians and dentists who are among the finest in the nation—all of our resident education programs exceed accreditation requirements. This level of education and clinical service requires excellent physician faculty who not only offer superb care but also engage in cutting-edge research that elevates care and education to superior levels.

I feel very fortunate to serve as dean of UT Graduate School of Medicine. All of us, like you, are gratified to see our young physicians and dentists move into the community to improve the healthcare of Tennesseans.

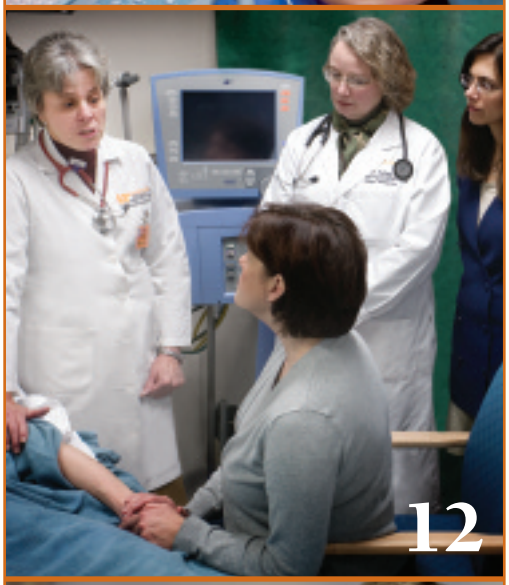
Sincerely,

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

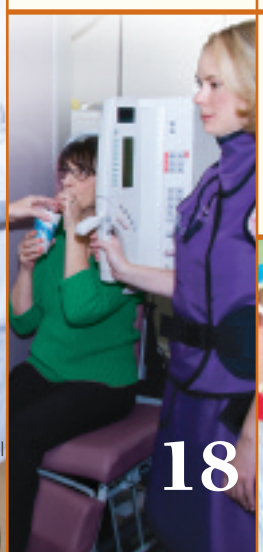
Contents

Frontiers | Spring 2008











2 **What Makes the Academic Medical Center Unique?**

3 **Benefits of an Academic Medical Center**

4 **Shaping the World of Medicine…**
From Hallways in Tennessee

6 **The "Tough" Soft Side of Medicine**

9 **Anesthesiology and Radiology**
Resident Physicians Score Among Best in Nation

10 **Nuclear Medicine**
Powerful Images Have Powerful Impact

11 **Prescription for Success**

12 **Bedside to Boardroom:**
Ethicists Impact Us All

14 **Building on a Foundation of Excellence in Nursing**

18 **Physical Therapy**
Beyond What You Normally See or Hear

19 **Pastoral Care Residency**
Education for the Soul

20 **Inside Medical School:**
The Clinical Years

22 **Medical Explorations Program**
Desire for Knowledge at an Early Age

24 **The Changing Face of Medicine**
Acknowledging Constant Support



What Makes the Academic Medical Center Unique?

Education and research enrich patient care services and provide a measure of excellence associated only with academic medical centers. Together as one of the 117 academic medical centers in the U.S., the University of Tennessee Medical Center and UT Graduate School of Medicine are unique in the region and a natural resource for the people and communities they serve. With the opportunity to prepare future healthcare professionals for the practice of medicine, dentistry, and other allied health professions comes the responsibility of providing top-notch faculty physicians who practice and teach in state-of-the-art facilities.

The Graduate School of Medicine is a growing enterprise of faculty and research with 190 medical and dental resident physicians and 200 faculty physicians and researchers. Our faculty provide the leadership and expertise necessary for a successful graduate program with 11 residency and 11 fellowship programs. In addition, the Medical Center focuses on educating many allied health professionals each year including physical therapists and radiology technologists.

Frontiers will devote its entire 2008 series to demonstrating how our academic medical center blends resources to be nationally unique.

We look forward to providing you with a closer look into the infrastructure and benefits of the academic medical center, where patients, physicians, faculty, resident physicians, and researchers create a team that improves lives through clinical innovation, early application of new treatments, new discoveries, and dynamic faculty leadership.

This issue will focus on education, the first of our mission objectives—education, research, patient care, and public service. Come along as we introduce you to the many educational programs conducted on our campus, highlight a few of our faculty, and demonstrate the importance of an academic medical center to you and your family.

Coming in the next issue — *Research in the Academic Medical Center*

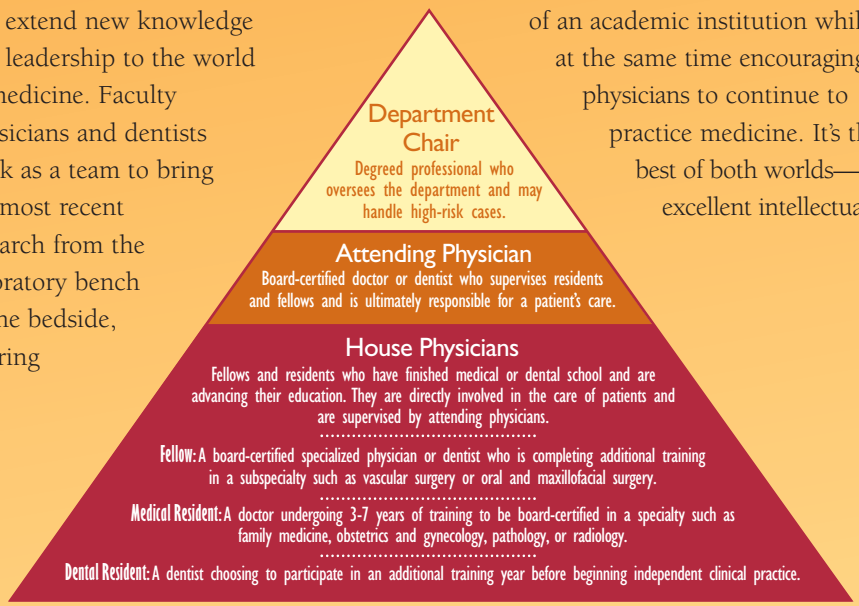
Benefits of an Academic Medical Center

Academic medical centers differ from other healthcare settings in that they provide highly specialized healthcare services in an environment of lifelong learning and teaching. They strike the balance of academics and excellent patient care. This means physicians, dentists, researchers and other medical professionals are on site to provide highly specialized expertise to patients, conduct scientific research that is then applied to patient care, and extend new knowledge and leadership to the world of medicine. Faculty physicians and dentists work as a team to bring the most recent research from the laboratory bench to the bedside, offering patients and their families new, scientifically-proven treatments that may take months or years to be offered through more traditional medical settings.

"The academic medical center benefits us in ways that many people may not realize," explains James J. Neutens, PhD, dean of the University of Tennessee Graduate School of Medicine. "This campus maintains the high standards of educational excellence required of an academic institution while at the same time encouraging physicians to continue to practice medicine. It's the best of both worlds—excellent intellectual study that translates to the most advanced and life-improving medical care."

Initiatives like the new Pulmonary Disease Medicine Fellowship and the Medical Simulation Center are great examples of blending the University of Tennessee Medical Center clinical setting with the academic excellence of the university. The Geriatric Fellowship planned for launch in 2008 will bring the fellowship training programs designed by UT Graduate School of Medicine to a total of 12 programs, which provide highly specialized care to the community. Joseph Landsman, president and CEO of the University of Tennessee Medical Center, explains, "These physicians are experts in their subspecialties. This gives us the opportunity to improve healthcare significantly in East Tennessee and beyond."

Dr. Matt Mihelic of the UT Graduate School of Medicine's Department of Family Medicine and director of the Center for Homeland Security Studies, understands the importance of an academic medical center to the citizens of the area. "The University of Tennessee Medical Center is a unique blend of academics and medicine," he says. "Our university faculty members of all specialties are involved in busy medical practices. That means that they are experienced medical and dental providers who also maintain a cutting edge academic orientation. We are fortunate as a community and region to have both."



Levels of Expertise and Continual Learning in the Academic Medical Center

Department chairs oversee the educational programs and all faculty who educate other physicians and dentists. These faculty members, called *attending physicians,* supervise and monitor all learners, called *resident physicians* since they have already earned their MD or DDS degrees, who are fulfilling licensing requirements and seeking specialized education following four years of medical or dental school. Other learners include *fellows,* practicing physicians, or dentists who have already completed residency programs and are seeking credentialing in a highly specialized medical expertise or wish to maintain their credentials through continuing medical or dental education provided by the University of Tennessee Medical Center and UT Graduate School of Medicine. Fellows provide care to patients and assist attending physicians in monitoring and supervising resident physicians and dentists.

Shaping the World of Medicine...

From Hallways in Tennessee

Through our environment of learning, teaching, and compassionate care, the quality of our nation's medical care is being shaped every day, beginning right here in Tennessee. How? By a unique partnership that allows the University of Tennessee Medical Center and UT Graduate School of Medicine to educate healthcare professionals who take advanced skills developed here to practices, hospitals, and research labs across the world…and across town.

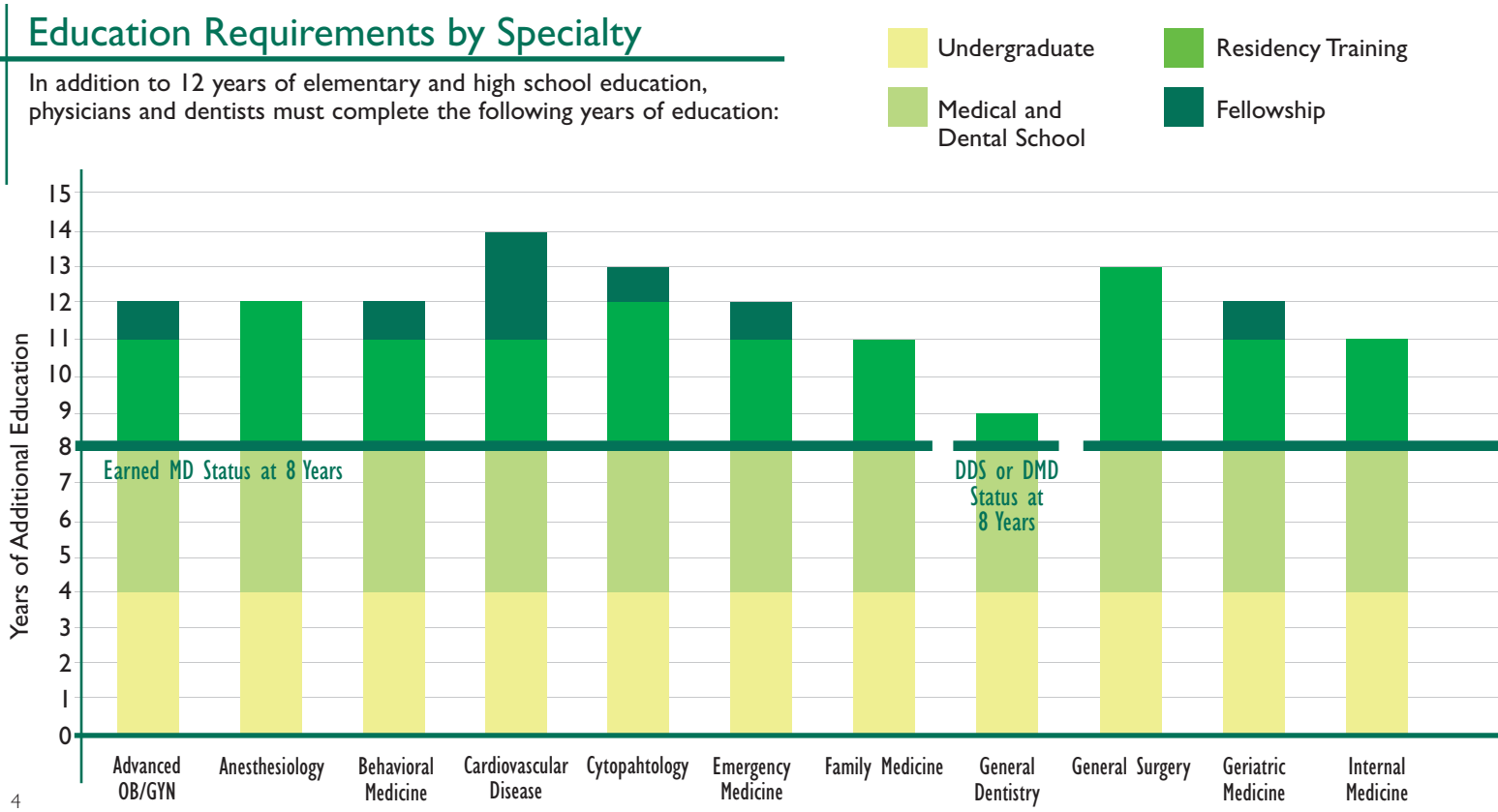
Our physicians and dentists educate new medical professionals while carrying out their own clinical practices and conducting research to improve the healthcare of Tennesseans. Statewide, the University of Tennessee has provided more than 12,000 medical students, physicians, and dentists with the education and experiences that make them skilled, compassionate healthcare providers.

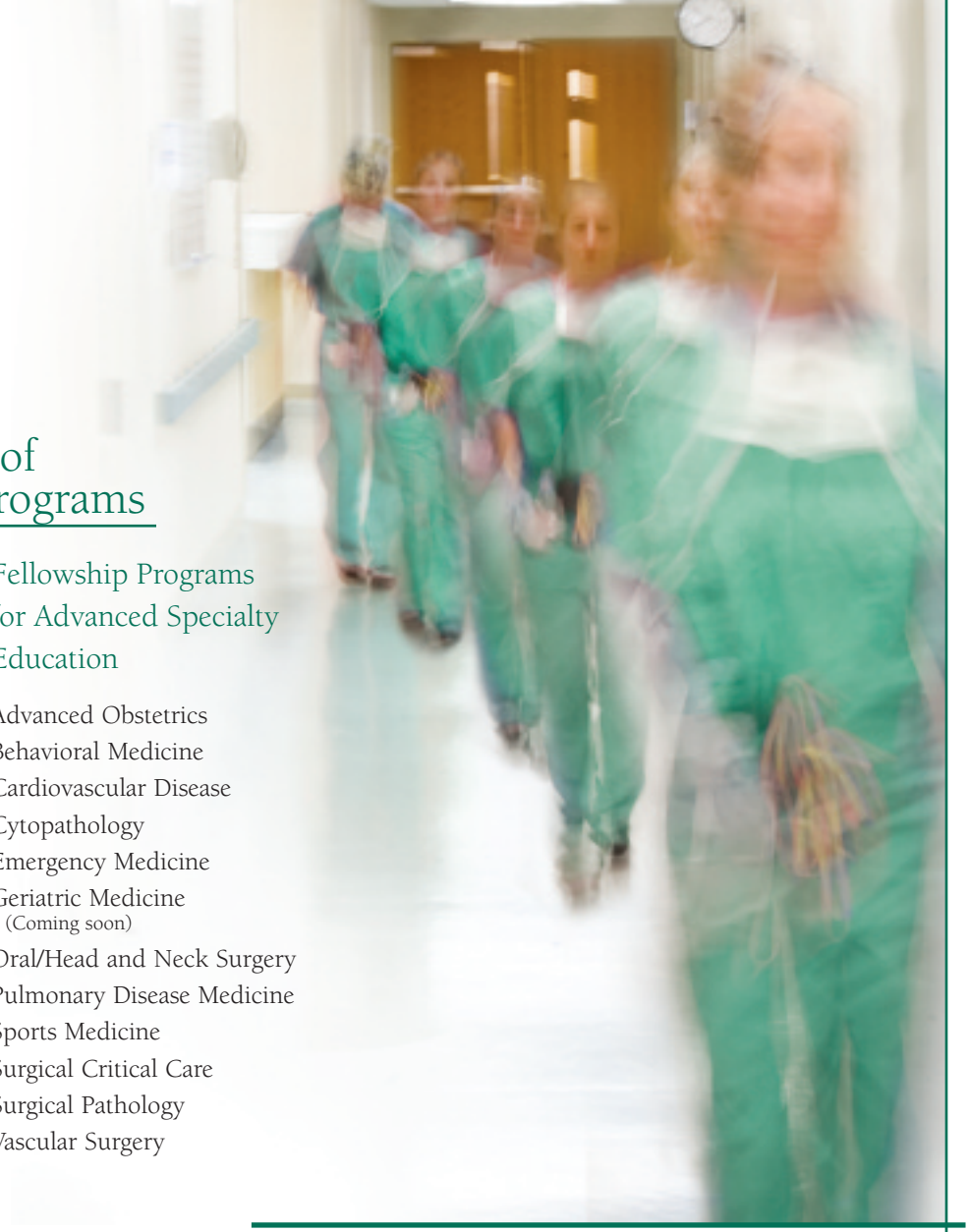
UT Graduate School of Medicine on the Medical Center campus has more than 200 full-time faculty and 180 volunteer faculty physicians and dentists who educate medical and dental resident physicians to practice clinically and conduct research of their own. "We believe that practicing physicians and dentists make better educators and that the best medical educators are those who never stop learning," explains Dr. James J. Neutens, dean of the UT Graduate School of Medicine. Almost 200 resident physicians, dentists, and fellows participate in 11 residency and 11 fellowship programs to gain advanced training in specialties, such as dentistry, vascular surgery, cardiology, internal medicine, obstetrics/gynecology, and family medicine. Only at an academic medical center is this type of specialized education possible, and only here will patients find the benefits of this specialized knowledge.

Lea Anne Law

Education Requirements by Specialty

In addition to 12 years of elementary and high school education, physicians and dentists must complete the following years of education:





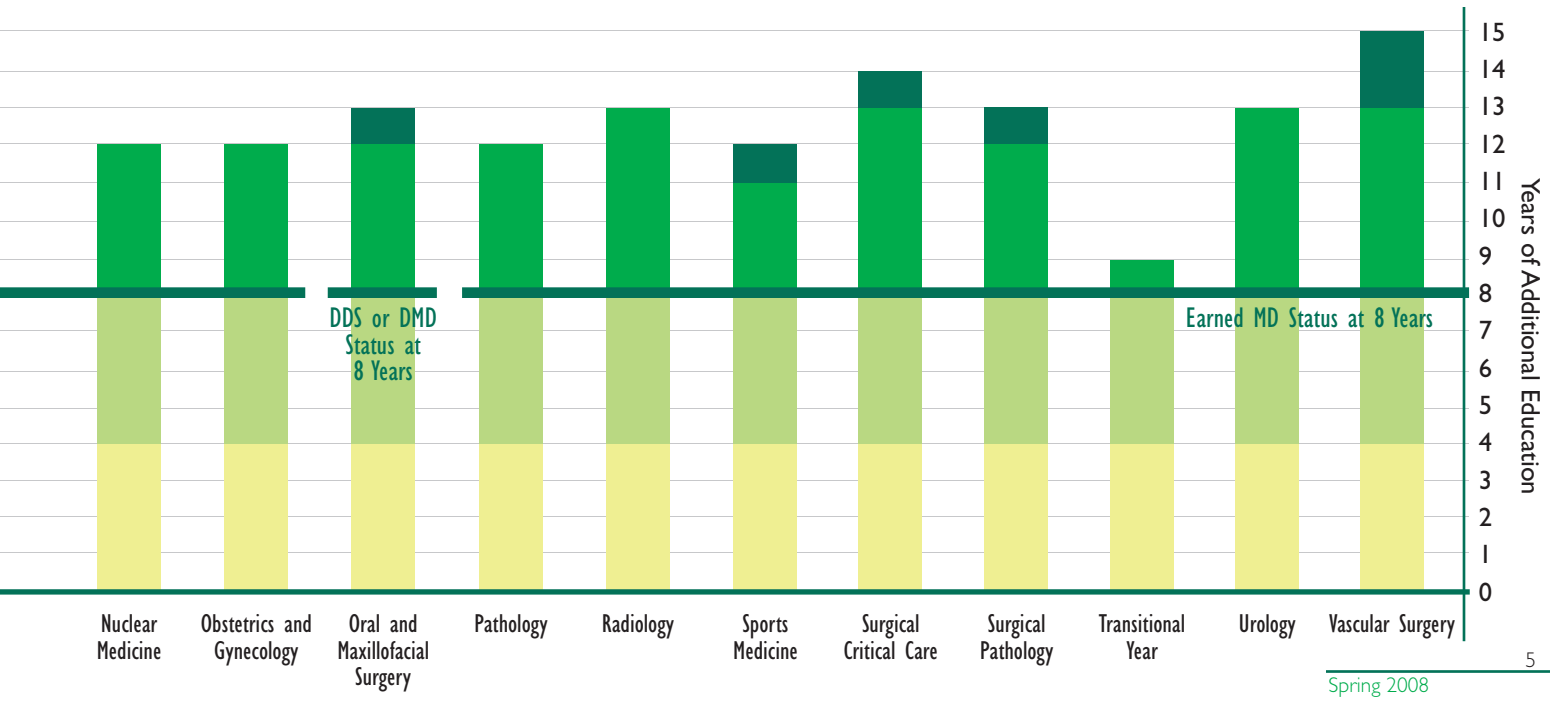
UT Graduate School of Medicine Teaching Programs

Programs for Resident Physicians

Anesthesiology
Family Medicine
General Dentistry
General Surgery
Internal Medicine
Nuclear Medicine
Obstetrics and Gynecology
Oral and Maxillofacial Surgery
Pathology
Radiology
Transitional Year

Fellowship Programs for Advanced Specialty Education

Advanced Obstetrics
Behavioral Medicine
Cardiovascular Disease
Cytopathology
Emergency Medicine
Geriatric Medicine
(Coming soon)
Oral/Head and Neck Surgery
Pulmonary Disease Medicine
Sports Medicine
Surgical Critical Care
Surgical Pathology
Vascular Surgery



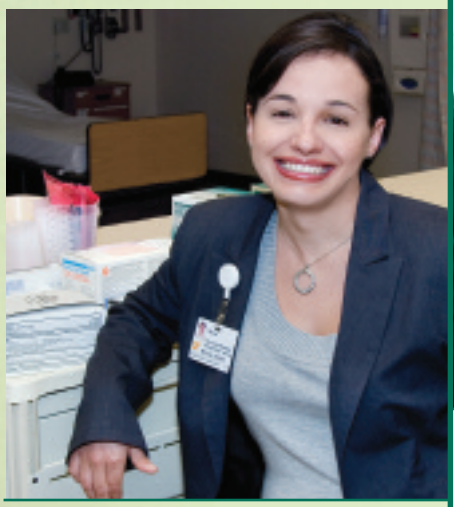


TOUGH The Soft Side of Medicine

Tim Henderson lay expressionless on the gurney in the emergency department. Physicians and nurses worked to ebb the flow of blood from his right hand, which now, after an accident, was missing three fingers. Psychology resident Nicole Perez approached the scene, having been called by the emergency team in hopes she could console the patient until his family arrived.

In emotional shock, Tim stared blankly. Beside him lay the iced plastic bag containing his severed fingers—a medically sound practice to ensure digits and patients remain together. Gently, Perez talked to him, helping him put the accident into words, pulling him back from the shocked place his mind had allowed him to go. Healing had begun.

Nicole Perez had probably never thought of herself as the only one of… well, anything. But as far as anyone knows, in 2006 she became America's first psychology doctoral resident in a Level I Trauma Center, an unlikely pioneer blazing trails in the University of Tennessee Medical Center emergency department.



Nicole Perez, the nation's first psychology doctoral resident.



Psychology residents Lina Schlachter (left) and Chris Nicholas (right) are mentored by professor Michael Nash.

Perez, a doctoral candidate in psychology at the University of Tennessee, Knoxville, first heard about the idea of the Emergency Trauma Psychology Resident Program from psychology professor Michael Nash. The pilot program would embed a trained psychologist in the emergency department (ED), allowing treatment of the "soft side" of medicine, the emotions and the mind.

As far as UT faculty knew, this program was truly unique; one did not exist anywhere in the country. Nash offered to oversee the program and championed Perez as its first resident. "Nicole is an exceptional student," says Nash. "If anyone could prove the importance of emotional support in traumatic health situations, she could."

And prove it she did. So much so that the program at the University of Tennessee Medical Center now includes two more doctoral residents: Chris Nicholas, a Massachusetts native, and Lina Schlachter, a Fulbright scholar from Brazil.

Nicholas says that sometimes just the feeling of helplessness surrounding a trauma can be challenging. "Learning to deal with the feeling of helplessness the patient, the family, and I feel during a traumatic situation can be very difficult," he explains. "Hopefully, together we can enable the patient's coping skills to help organize the experience in ways that make the stress of injury or illness manageable."

Dealing with death is the most difficult aspect of the program. Schlachter describes treating a father, the only survivor of a car wreck in which his young family had been killed. "Everyone—the father, his extended family, and the ED staff—was in so much emotional pain."

Perez agrees solemnly. "There is absolutely no way to describe the sound of a parent who has just lost a child."

Patience, Planning, and Prayer

"The seed for the program idea was planted 10 years ago," explains Reverend George Doebler, past director of and current special adviser to the University of Tennessee Medical Center's Pastoral Care program.

The idea was slow to blossom, however. Finally, two years ago, the stepping stones were aligned and interest in the program rekindled. Soon it became clear that the program could provide emotional and mental support to patients and their families. Thus, an initiative that would become the nation's first Emergency Trauma Psychology Resident Program began to take shape.

Doebler scraped together $10,000 to launch the plan. Then he began the quest to design the pilot program that now provides emergency support and educates UT resident psychologists in a specialized trauma-based setting.

Reverend Steve Sexton, director of pastoral care at the Medical Center, says that very special factors allowed the program planning. "This program could not be started just anywhere," he points out. "First, we had to have a robust psychology doctoral program and a professor willing to oversee the program and the residents. The Knoxville campus psychology department and its professor Michael Nash were ready to go. Next, we had to have an academic medical center accustomed to working with

residents. UT Graduate School of Medicine already had a dynamic infrastructure in place. And finally, we needed an emergency department handling a wide variety of injuries and illnesses. What better resource than the University of Tennessee Medical Center, the region's only Level I Trauma Center?"

Two Sides of Medicine

Sandi L. Madden, the University of Tennessee Medical Center vice president for emergency and trauma services, was eager to include the psychology residents. However, she was initially concerned that doctoral candidates might not be ready for the human suffering they would experience. "On any given day, there is a variety of different levels of emergencies. In one room may be a patient with chest pain, in another a broken limb, and in yet another life-threatening conditions. There's so much raw emotion coming together for many people. Let's face it, working in the emergency department can be tough."



Reverend George Doebler and Reverend Steve Sexton discuss the history of the psychology resident program based in the Medical Center emergency department.

It was during one of those emotional moments that Dr. Fred G. "Kip" Wenger Jr., the University of Tennessee Medical Center ED director, first began to see how psychology residents can improve patient care. "A very bright college student working on his PhD was in the ED for an illness," he says. "I had to break the news that lab tests indicated he needed to be hospitalized with a life-threatening disease. The young man had no family in the U.S. and virtually no other emotional support. Our psychology resident came in and spent



Dr. Fred G. "Kip" Wenger, Jr. discusses a chart with UT resident psychologists.

time helping the patient accept the diagnosis and determine the next steps to take. It was in that single moment I became an advocate for the psychology resident being considered a necessary part of our trauma team."

Confidence in the program and for the residents rose quickly. Physicians, nurses, and technicians soon discovered that they could concentrate better on treating a patient's physical condition if the psychologist worked with the patient's emotional state. "The program brings an added component of quality care to the emergency and critical care situation," she adds. "It brings emotional care to our staff, patients, and families at a time when they may not even know they need it."

Professor Nash feels the program demonstrates the unique opportunities the academic medical center makes available to our area. "The most exciting work at a university often occurs at its edges, where one discipline touches another. In this case, the blending of resources enhances both patient care and professional education." And he adds with enthusiasm, "It's invigorating."

> "It was in that single moment I became an advocate for the psychology resident being considered a necessary part of our trauma team."
>
> Dr. Fred G. "Kip" Wenger, Jr.

Reverend Doebler is convinced that the program advances the quality of care provided at the Medical Center. "This program forces us to reconsider how we take care of people during their worst times," he says. "We have to consider both sides of medicine—how we treat the tangible physical side of the body and how we nurture the mental side."

"Besides that," he adds with a soft smile, "it's good medical care. It's just the right thing to do."

> "We have to consider both sides of medicine—how we treat the tangible, physical side of the body and how we nurture the mental side."
>
> Rev. George Doebler

Anesthesiology and Radiology

Resident Physicians Score Among Best in Nation



Anesthesiology resident physicians scoring best in the nation: Corey Carpenter, MD; Tom Higley, MD; Jeff Staack, MD; David Eckard, MD; Brian Shepherd, MD; Matt Sherrer, MD, chief resident; and Craig Combs, MD, chief resident.

The academic medical center environment blends educational excellence and forward-thinking medical research with the most comprehensive and specialized care for patients. This environment demands continual improvement and achievement, as shown by anesthesiology and radiology resident physicians at the University of Tennessee Medical Center. Through residency programs at the UT Graduate School of Medicine, these physicians recently scored among the best in nationwide tests.

Anesthesiology resident physicians take nationally-required examinations throughout their advanced education program, which are conducted by the American Board of Anesthesiology (ABA).

Recently, the anesthesiology residency class, now in its third year, scored above the 95th percentile on the ABA exam. This performance places this group in the top handful among 130 anesthesiology residency programs in the nation.

"Our program holds our resident physicians to an extremely high level of academic excellence from day one," says Jerry Epps, UT Graduate School of Medicine anesthesiology department chairman and residency program director. "All of our classes of resident physicians and our graduates are high achievers and self-motivators."

And it's not just the current resident physicians who are excelling. Physicians who graduated from the medical center's anesthesiology residency program are making a national impact as well.

According to statistics from the ABA, 94% of the anesthesiology resident physicians who completed education at the UT Graduate School of Medicine over the past five years have passed the ABA tests required to become certified by the ABA. For the same time period, the national average is 70%.

This level of expertise has been the benchmark throughout the 50-year history of our anesthesiology residency program.

Reaching excellence and providing the best care for patients is also the mantra of the UT Graduate School of Medicine radiology residency program. In 2007, our resident physicians placed among the top 15% in the nation on selected American Board of Radiology board examination results. The radiology resident physicians ranked 31st out of 201 programs in the written physics board examination and 32nd out of 201 programs on the written clinical board examination.

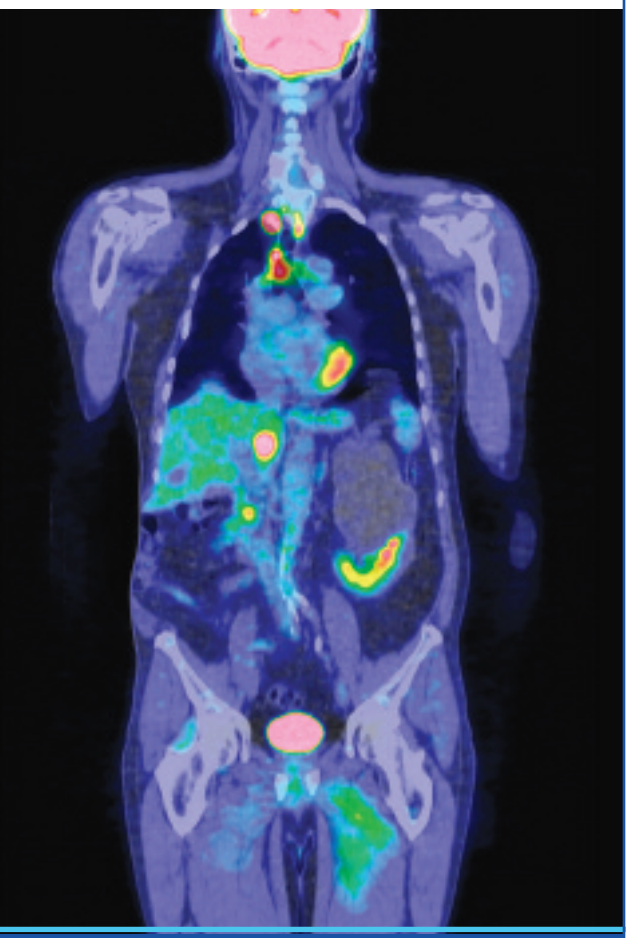
"The resident physicians are highly motivated, and the exceptional board scores are an attestation to their willingness to share information and take personal responsibility for advancing their education," says Kathleen Hudson, MD, interim chairman of the Department of Radiology and residency program director.

The University of Tennessee Medical Center's Department of Radiology performs more than 200,000 imaging procedures annually, including MRI, CT, and PET/CT scans. The four-year program provides education in conventional radiology, nuclear medicine, angiography, and interventional radiology.



Radiology resident physician, Cathryn Shaw, MD, examines a patient using an ultrasound as Tony Divito, MD, radiology resident physician, and Steven Knight, MD, assistant professor of radiology observe.

Amanda Johnson



Nuclear Medicine Can Be Used To:

- Analyze kidney function
- Image the blood flow and function of the heart
- Scan lungs for respiratory and blood-flow problems
- Identify gallbladder blockage
- Evaluate bones for fractures, infection, arthritis, or tumors
- Determine the presence or spread of cancer
- Identify bleeding into the bowel
- Locate the presence of infection
- Measure thyroid function to detect an overactive or underactive thyroid.

Nuclear Medicine

Powerful Images Have Powerful Impact

It's difficult to describe the importance of the images produced every day by the nuclear medicine department at the University of Tennessee Medical Center. Doctors rely heavily on these pictures of the body to uncover otherwise inaccessible information about their patients' conditions.

Nuclear medicine is a subspecialty of radiology that uses radioactive materials to produce images of body anatomy and function. The images are generated from the detection of energy emitted by a radioactive substance given to the patient either orally or intravenously. Nuclear medicine shows the size, shape, position, but more importantly, the function of the organs targeted by a particular radionuclide-labeled molecule. The person who captures these images is the nuclear medicine technologist.

Established in 1982, the Nuclear Medicine Technology program at the Medical Center has trained more than 100 nuclear medicine technologists whose work meets the highest professional standards. It is a full-time, 12-month certificate program designed to prepare program participants for certification as nuclear medicine technologists and is professionally accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

The program consists of didactic study and clinical practice. Didactic areas of instruction include clinical nuclear medicine, nuclear physics, radiochemistry, patient care, radiation safety, radiobiology, nuclear imaging instrumentation, and computer applications.

Hands-on clinical training is also emphasized and participants can obtain their clinical experience at the Medical Center (the area's only academic medical center) and six affiliated community sites. Those who successfully complete the program are eligible to take the national certification exams for nuclear medicine technologists. In addition to the certificate program, a four-year BS degree is available through an affiliation with the University of Tennessee, Knoxville and Middle Tennessee State University.

This training, combined with the latest state-of-the-art technology, is the foundation of our nuclear medicine department. And although difficult to thoroughly describe the value of the department's work to the University of Tennessee Medical Center, its doctors, and its patients, the powerful images they provide demonstrate its value every day without the use of words.

Becky Thompson



Prescription for Success

The University of Tennessee Medical Center has long been recognized for its multidisciplinary approach to patient-focused care. Its pharmacists are an integral part of the patient care team, actively consulting and collaborating with physicians and other healthcare professionals to provide safe, optimal drug therapy—a great benefit to the patient. The U.S. Institute of Medicine recommended in 1999 that hospitals integrate their pharmacists into patient care by expanding the pharmacists' presence on patient care units and ensuring their participation in drug-related decisions, a step that increases medication safety. This same practice model has been in place at the Medical Center for more than 20 years!

That innovative, and effective model has made the Medical Center's pharmacy program a place of excellence in education and training. Operating in collaboration with the University of Tennessee College of Pharmacy (UTCOP), the Medical Center's pharmacy program was the first and is now the largest clinical training site outside Memphis for seniors in pharmacy. More than 1,000 of those attending UTCOP have received their clinical training here over the years; many of them still practice pharmacy in East Tennessee.

The first accredited graduate pharmacist residency training program in the region began in 1991 at the Medical Center, again in collaboration with UTCOP. The Medical Center now offers five residency training programs. Besides the first-year (PGY1) pharmacy residency, four second-year (PGY2) specialty programs are available. Residents have the opportunity to gain knowledge from pharmacy experts in specialty areas which include critical care, internal medicine, ambulatory care, and pharmacotherapy.

The PGY1 pharmacy residency prepares pharmacists for generalist practice in a variety of patient care settings. This program enables pharmacists to develop strong foundational pharmacotherapy, operational, and practice-management skills. The PGY2 pharmacy residencies, building on the foundational skills gained during the PGY1 year, prepare pharmacists for advanced practice in their areas of specialty.

The Medical Center's residency training program is the largest of its kind in the state and one of the largest in the nation. Pharmacists who have completed this nationally recognized program practice throughout the region, across the nation, and around the globe. These pharmacists are the experts in their field.

Sherri Ramsey

Bedside to Boardroom:



Ethicists often help families make difficult medical decisions about the health of their loved ones.

Medical decisions are often fraught with emotion and confusion, and sometimes, families need help understanding their options or reconciling their choices. Through the palpable learning environment at the University of Tennessee Medical Center, a unique bioethics educational program, offered by the UT Graduate School of Medicine and UT, Knoxville, offers hope and help to those families.

Some medical dilemmas are simply solved, but others can be complex, involving law and spiritual beliefs, emotions and morals. One thing is common to all: their resolution involves ethics.

Ethics means doing what's right, and the University of Tennessee Graduate School of Medicine, in partnership with the University of Tennessee Medical Center and Department of Philosophy at UT, Knoxville, are working to make doing the right thing easier for patients and physicians. In a unique program, they blend resources to offer education in applied bioethics.

Bioethics is a relatively new term in medicine, replacing medical ethics. Alfred Beasley, MD, UT Graduate School of Medicine emeritus professor of medicine and adjunct professor of philosophy explains, "As recently as 30 years ago, medical ethics actually was more medical etiquette, or how to conduct oneself. We were a leader in emphasizing ethics in the medical field as a way of helping physicians and patients reach conclusions to problems by pursuing wisdom and critical reasoning."

At that time, UT faculty led by Glenn Graber, PhD, and the late David Thomasma, PhD, in consultation with

Ethicists Impact Us All

> "The team identifies problems and ethical issues involved in each consult. They also serve in advisory and supportive roles to assist in resolving the concerns of the ethical dilemmas facing our patients, their families, hospital personnel, and the medical staff."
>
> Tina Dudney, MD



(from back left) Erik Drag, Joel MacClellan, Elizabeth O'Gorman, Greg Bock, and Mike Matteson are trained in bioethics by experts Tina Dudney, MD; Maricarmen Malagon-Rogers, MD; Annette Mendola, PhD; and Alfred Beasley, MD.

Beasley, developed curricula for advanced degrees in philosophy focused on bioethics. The program, for the most part, took place in a classroom. It became clear early on, however, that if future ethicists were going to be able to help patients and physicians, they needed practical clinical experience to understand the real medical issues faced in society today.

"We cannot teach bioethics from an ivory tower and expect students to graduate with any sense of how to really help people," Beasley says. "They must get inside the medical white coat at the bedside."

This face-to-face observation of real-world medicine is accomplished as doctoral and master's degree candidates in the UT Department of Philosophy join physicians at the University of Tennessee Medical Center for several months to observe and sometimes advise. Only at an academic medical center could such a revolutionary program take place, and it's taking place right here in Knoxville.

"With new technologies and increased patient expectations, new moral controversies develop every day," says Annette Mendola, PhD, UT philosophy instructor. "As a result, ethical problems in medicine have become sufficiently complex to require a clinical specialty in bioethics."

Upon completion of the program, bioethicists often work in hospitals, health centers, or other institutions as ethics consultants, patient advocates, and physician consultants. They provide an invaluable service, helping physicians and patients resolve difficult choices and arrive at decisions suitable for all, allaying the fears of families facing medical decisions, and understanding and explaining medical laws and insurance regulations. They also help shape medical policy by advising Congress and state legislatures.

Members of the University of Tennessee Medical Center's Medical Ethics Committee, an interdisciplinary group of medical professionals, pastoral care professionals, social workers, and ethicists, act as an "ethical triage team" for physicians and patients who have difficult decisions or dilemmas. In cases where physicians are faced with ethically complex situations or patients need guidance, help is there.

"The team identifies problems and ethical issues involved in each consult," says Tina Dudney, MD, past co-chair, Ethics Committee. "They also serve in advisory and supportive roles to assist in resolving the concerns of the ethical dilemmas facing our patients, their families, hospital personnel, and the medical staff."

Amanda Johnson

Building on a Foundation of Excellence in Nursing

Education is a function central to the practice of nursing at the University of Tennessee Medical Center. Excellence in patient care requires constant evaluation and improvement of the knowledge and skills possessed by nursing staff. Indeed, says Chief Nursing Officer Janell Cecil, education is a critical element in the definition of what a nurse is and does. "Part of our role as professional nurses," she says, "is to educate our future nurses."

As Cecil coordinates an ambitious initiative to advance the status and quality of nursing services at the Medical Center, nursing education is more important than ever. Cecil was named chief nursing officer last



year as one of the first steps in a mobilization of resources whose aim is to seek the Medical Center's designation as a Magnet hospital by the American Nurses Credentialing Center (ANCC).

To achieve the designation, says Cecil, "an organization has to show a commitment to nursing excellence. Magnet evidence shows us that hospitals that have these attributes recruit and retain the best and brightest. They actually are a magnet; they draw good people to the organization." That's why the Magnet designation is so important—in an era of nursing shortages, the ability to attract good staff is crucial.

The University of Tennessee Medical Center's pursuit of the Magnet designation will include efforts to maintain and enhance the quality of nursing education and will be building on a record of excellence. Its longstanding commitment to nursing education includes the clinical preparation of new nurses, the training of nurses in specialties such as nurse anesthetist, and the availability of professional development for staff pursuing advanced degrees in nursing.

For example, this spring semester the Medical Center welcomed roughly 350 student nurses from bachelor's and associate's degree programs in registered nursing at six local colleges and community colleges. Clinical training of students is overseen by licensed nurses who also hold appointments on the faculties of participating colleges. While faculty are ultimately accountable for the



Janell Cecil, Chief Nursing Officer

14 Forces of Magnetism Defined by the ANCC

Force 1:
Quality of Nursing Leadership

Force 2:
Organizational Structure

Force 3:
Management Style

Force 4:
Personnel Policies and Programs

Force 5:
Professional Models of Care

Force 6:
Quality of Care

Force 7:
Quality Improvement

Force 8:
Consultation and Resources

Force 9:
Autonomy

Force 10:
Community and the Healthcare Organization

Force 11:
Nurses as Teachers

Force 12:
Image of Nursing

Force 13:
Interdisciplinary Relationships

Force 14:
Professional Development

students, student nurses partner with staff nurses during their day-to-day work on the units.

The Medical Center also serves as the primary clinical training site in Knoxville for students earning a master's degree with a concentration in nurse anesthesia from the University of Tennessee College of Nursing. Applicants for the program must have a bachelor's degree in nursing, satisfactory scores on the Graduate Record Exam, and a minimum GPA of 3.0 on a 4.0 scale.

"You also have to have a year's experience in adult intensive care nursing," Cecil says. "You can't come out of school and go straight into it. It may take several tries to get into the program."

The Medical Center helps working nurses prepare for clinical certifications or advanced degrees. "We've always had an excellent tuition-reimbursement program," Cecil says. If you're an employee, you can get a graduate degree, a bachelor's degree, even go from being a nursing tech to an RN.

"This past year we've spent a lot of time facilitating study groups for certifications," she adds. "We place a high value on these certifications, because they show you have a knowledge base that is evidence-based and in-depth in that specialty." In addition, new nurses undergo a thorough orientation in the procedures and practices of their floor and the hospital.

The Medical Center is revamping its training and development function as it mobilizes for the effort to achieve Magnet status and ensure continuing quality leadership in the years to come. To become a Magnet status hospital, the Medical Center must demonstrate its compliance with the 14 Forces of Magnetism defined by the ANCC (an



affiliate of the American Nurses Association). Included in the 14 Forces are affirmations that the Medical Center "has programs for improving the quality of care and services" (Force 6: Quality of Care); that "professional nurses are involved in educational activities within the organization and community" (Force 11: Nurses as Teachers); and that "emphasis is placed on career development services" through "programs that promote formal education, professional certification, and career development" (Force 14: Professional Development).

Compliance with the Magnet designation's 14 Forces focuses an organization's attention on nursing education. By serving as both teachers and students, nurses in a Magnet hospital help prepare the next generation of caregivers, improve their own career status and value to the hospital, and contribute to an atmosphere of empowerment and excellence that attracts nursing talent from outside the organization.

Magnet status will certify the Medical Center as a leader in nursing excellence. Only two hospitals in Tennessee now hold the Magnet designation. Achieving the designation is a three- to five-year process involving documentation of an organizational structure that is participatory and responsive, a management dedication to nursing education, and more.

"It's very comprehensive," says Cecil. "It's as broad as nursing practice models and as specific as requiring that the chief nursing officer have a master's degree."

The Medical Center is in the process of accumulating documentation to support its application for Magnet status and will undergo a gap analysis to determine where it falls short of the ANCC's standards. The initial documentation may total more than 1,500 pages of evidence. Successful applicants undergo on-site inspections by ANCC officials; the Medical Center intends to secure a site visit and a successful award of Magnet status in 2009.



Lucy Reynolds, RN discusses a patient with Dr. Brian Daley.

Achieving the Magnet designation, Cecil says, is a transformative process that will benefit everyone in the hospital community. "It focuses everybody's attention on those 14 Forces, which have been proven over time to improve patient care and outcomes."

Heather Grieve





Clinical trainee Courtney Wilson is supervised as she performs a modified barium swallow study.

Physical Therapy

Beyond What You Normally See or Hear

At the University of Tennessee Medical Center, patients recovering from surgery or stroke benefit not only from physical and occupational therapy provided on an inpatient and outpatient basis, but from audiology and speech therapy services as well. And as the area's only academic medical center, individuals from therapy programs across the region come here for clinical training.

Those attending the University of Tennessee to study audiology and speech pathology obtain clinical experience at the Medical Center.



For example, once at the master's-level, speech pathology scholars receive clinical training alongside a licensed speech pathologist. They learn how to perform clinical assessments and write medical reports as part of the requirements for graduation. The same is true at the clinical doctorate-level in audiology where participants work with a licensed audiologist in the course of their clinical training.

After receiving their degree, speech pathology graduates must complete a clinical fellowship to obtain a certificate of clinical competence in speech pathology, which is their license to practice. At the Medical Center they gain additional clinical experience in critical and acute care situations, inpatient and outpatient therapies, making evaluations and recommendations, and consulting with other specialists such as nutritionists. Graduates can also choose to specialize in pediatrics or adult therapies. Those in audiology have an opportunity to do an externship similar to a clinical fellowship during their fourth year of study.

In addition to these programs, the University of Tennessee Medical Center provides excellent clinical experience in physical and occupational therapy. As a Level I Trauma Center, it attracts from therapy programs across the U.S. those who want to accumulate more clinical experience in an acute care facility. Accepting about 30 people per year for anywhere from four to 20 weeks of clinical training, the Medical Center offers an opportunity to work beside a physical or occupational therapist and learn more about patient evaluations and recommendations. The trainees can also expand their skills in an inpatient or outpatient setting and in specialty areas like women's health.

Heather Grieve

Pastoral Care Residency

Education for the Soul

When you walk the halls of the University of Tennessee Medical Center, you expect to encounter physicians, nurses, medical technicians, and social workers. One valued member of the patient care staff whom you might not think of is a chaplain. Providing spiritual care to patients, families, and staff, the chaplain reaches across faith-group boundaries to offer protection and comfort by listening to and demonstrating an understanding of those in distress. Professional chaplains, as members of the patient care team, take part in medical rounds and patient care conferences, participate in interdisciplinary education and the medical ethics committee, and provide spiritual care intervention.

To become a professional chaplain, you must have a four-year college degree, plus a master's degree of divinity or the equivalent, among other requirements. Another component is the completion of four units of clinical pastoral education (CPE), interfaith professional education for people practicing ministry in clinical settings.

The University of Tennessee Medical Center has the only clinical pastoral care program in the city of Knoxville and accepts up to nine CPE residents per year. Accredited by the Association for Clinical Pastoral Education, the CPE program enables residents to interact with a variety of healthcare professionals, including nurses, physician residents, radiology technicians, and staff physicians.

Each pastoral care resident functions as a chaplain in an assigned area, accumulating a broad range of pastoral experience. They also work in emergency and trauma situations to practice ministry in the midst of crisis.

Not only do they gain practical ministry experience, CPE residents also learn how to evaluate and report situations and how to incorporate theological and psychological insights into practice. The trademarks of clinical pastoral education at the Medical Center include an integration of divinity and the behavioral sciences, as well as an ability to assess situations accurately and provide appropriate spiritual care. Pastoral care residents gain a new understanding of ministry, and through the interdisciplinary team process of helping others, they develop the interpersonal and professional skills that will make them effective, compassionate chaplains.

Heather Grieve

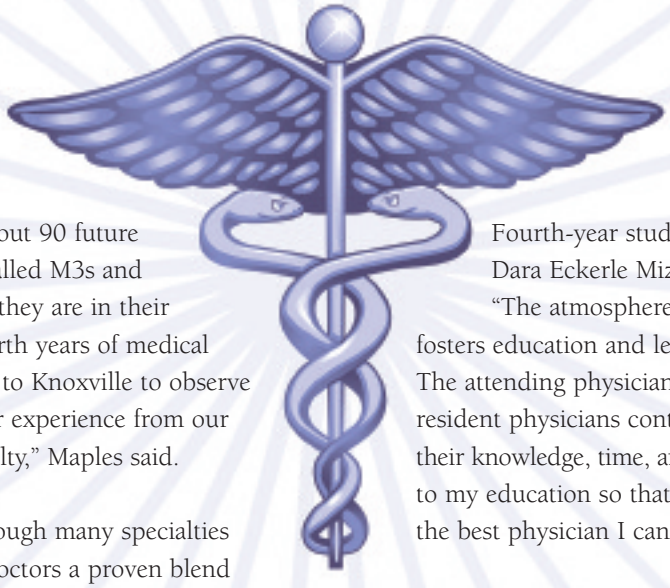


Chaplains Ron Russell and Sheryl Wurl discuss a patient case with a resident.

Future Physicians Observing Excellence

Inside Medical School:

The Clinical Years



On the path to becoming physicians, future doctors must first finish an undergraduate program then four years of medical school. When they graduate from medical school, they have a medical doctor, or MD, degree and begin specialization in residency and fellowship programs.

But what about those years in medical school? What do these future doctors do to secure that "MD" after their names?

"In the first two years of medical school, they concentrate on basic science classes," says Missy Maples, student affairs coordinator. "The third and fourth years are called their clinical years, when they start to see how and where their medical education will be put to good use for the benefit of patients."

The University of Tennessee is one of only 129 medical schools in the nation. Partnering with the University of Tennessee Medical Center, the UT Graduate School of Medicine provides educational opportunities for medical students during their clinical years.

"Annually, about 90 future physicians, called M3s and M4s because they are in their third and fourth years of medical school, come to Knoxville to observe and gain their experience from our excellent faculty," Maples said.

Rotations through many specialties offer future doctors a proven blend of direct patient evaluation and management, mirroring the demands of clinical practice, and teaching rounds offer exposure to a variety of areas of faculty and staff expertise, methodology, and technology.

"There are highly educated doctors here, and I feel fortunate to be under their instruction," says M3 Matthew Zak. "The resident physicians are also terrific teachers."

"When I first began the clinical portion of my medical school education, I felt as if I was just an observer," says M4 Brad Davis. "Here I am learning from the healthcare team."

Fourth-year student Dara Eckerle Mize agrees: "The atmosphere here truly fosters education and learning. The attending physicians and resident physicians contribute their knowledge, time, and patience to my education so that I can be the best physician I can be."

Education is an ongoing process for all of our physicians, whether it be with patients or young learners. "Teaching future doctors requires critical thinking and genuine understanding of your subject matter in order to translate concepts," explains Craig Swafford, MD, a fifth-year resident physician in general surgery. "Teaching others also reminds us of our humble beginnings."

Third-year internal medicine resident Cherra Pumphrey, MD, agrees. "Future doctors are a valuable part of the healthcare team," she says. "I enjoy having the opportunity to contribute to their education."

"When I first began the clinical portion of my medical school education, I felt as if I was just an observer…Here I am learning from the healthcare team."

M4 Brad Davis

Additionally, when M3 and M4 future doctors complete their clinical training years here, they often choose to undergo their residency training here as well. This familiarity benefits them, our faculty, and in the end, the patients.

"Our job is to educate doctors. The better we do, the better healthcare our graduates provide their patients," Maples concludes. Only medical professionals who are true experts in their specialties could provide such valuable education to future physicians, and only an academic medical center offers this level of expertise. It's this blend of academics and medicine that brings the best medical care to the patients at the University of Tennessee Medical Center.

Amanda Johnson



Future physicians, Dara Eckerle Mize and Brad Davis learn from Craig Swafford, MD, fifth-year resident physician and Cherra Pumphrey, MD, third-year resident physician.

Medical Explorations Program
Desire for Knowledge at an Early Age

A 17-year-old taking medical courses? You bet. In fact, there are many of them observing how physicians at the University of Tennessee Medical Center reach excellence in medicine and provide the best in patient care.

Mitchell Goldman, MD, chair of the UT Graduate School of Medicine Department of Surgery, had just finished a presentation to a high school science class when he received a curious proposal from a 17-year-old: Be my mentor. The student making the proposal knew she wouldn't be allowed to treat patients; she just wanted to start learning medicine by seeing physicians at work. And it didn't stop there. Next the 17-year-old asked Goldman to start a medical education program for high school students. The student was Brooks Davis, a then-high school junior at West High School in Knoxville.

"At first I didn't want to do it," Goldman says. "Why would I or other medical professionals want high school students observing us, asking questions about our professions, asking how to do what we do? They wouldn't treat patients, so what would they do? What about confidentiality? What if they get in the way? How can we possibly teach high school seniors?

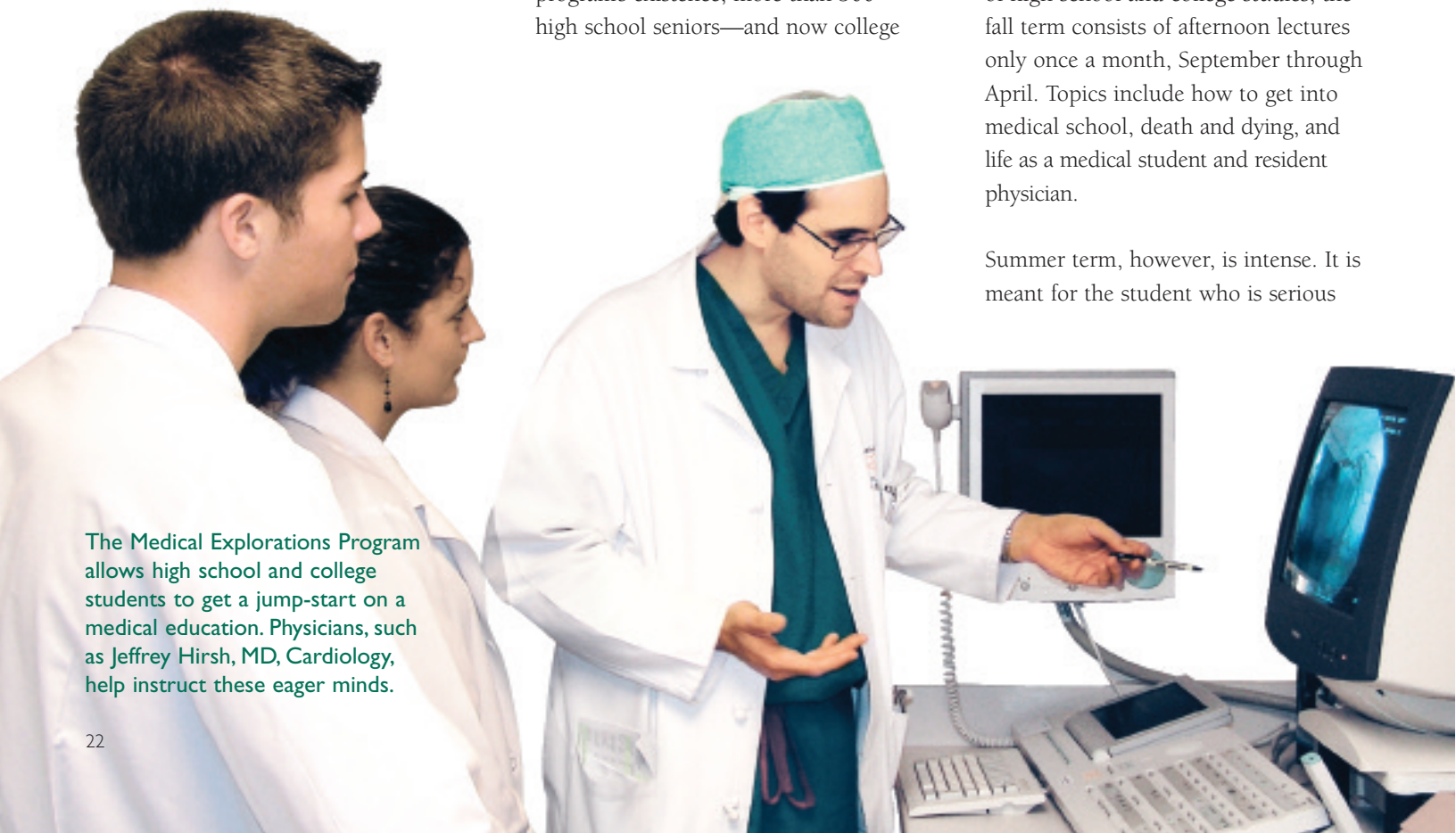
"But then I thought, how can we not?"

That was in 1991. The program, called Medical Explorations, reaches young students considering medical professions as a career. During the 17 years of the program's existence, more than 300 high school seniors—and now college students—have participated in the program. And as the state of Tennessee faces a physician shortage in the future, Medical Explorations nurtures a cohort of potential medical students who are at a critical decision point in their lives.

"I'm not sure when I started thinking about a career in medicine," says Brooks Davis-Hagee, the wise high school student who now is a practicing pediatrician, "but during the Medical Explorations program, I knew I wanted to become a physician. The program gave me a chance to learn about the demands of a medical career, much earlier than your average college student."

The program accepts about 40 students each term. Because they are in the rigors of high school and college studies, the fall term consists of afternoon lectures only once a month, September through April. Topics include how to get into medical school, death and dying, and life as a medical student and resident physician.

Summer term, however, is intense. It is meant for the student who is serious



The Medical Explorations Program allows high school and college students to get a jump-start on a medical education. Physicians, such as Jeffrey Hirsh, MD, Cardiology, help instruct these eager minds.

about pursuing medicine as a career. The program requires students to be on site from 8:00 a.m. to 4:30 p.m., Monday through Friday, for six weeks during the summer. Students juggle homework, lectures, observing different medical specialties, and almost 20 reading assignments, including books on topics such as end-of-life decisions, becoming a doctor, and confidentiality.

"I will never forget walking out after the first lecture wondering who would be crazy enough to spend that much time and money on becoming a doctor," says Sara Warfield, a current medical student and former Medical Explorations participant. "The next thing I knew, I was walking out thinking, 'This is what I want to do for the rest of my life.' By the end of summer, I had fallen in love with medicine. Every doctor I encountered was so willing to answer my questions and showed me what being a good physician really means. I would come in early and leave when the doctor I was shadowing left. I didn't want to miss a thing."

A typical summer schedule might have a student learning about careers in anesthesia, general surgery, orthopedics, nursing, physical therapy, and OB/GYN while another student observes experts in pharmacy, hematology, vascular surgery, radiology, nephrology, and family medicine.



Medical Explorations participants learn about careers in a variety of medical fields.

"Students pick their top three areas of interest, and we try to match them," Goldman says. "The Medical Explorations program includes information about 26 areas of medicine."

Lectures for the summer students run the gamut of medicine: from medical missionaries to malpractice, from indigent care to medical ethics from doctor-patient relationships to multiculturalism, and more.

"The program helps students make their decision, and they don't always go into medicine," Goldman says. "Sometimes they realize their calling is somewhere else. And this is a good thing."

Why can't 17-year-olds learn medicine? At the University of Tennessee Medical Center, they can. They don't get in the way. They don't disrupt the clinic. They don't jeopardize confidentiality. Instead, they choose career paths that point them toward becoming surgeons, pediatricians, EMTs, nurses, medical case managers, anesthesiologists, researchers, and hospital administrators…or English teachers, lawyers, accountants, and musicians.

And when their six weeks are up? Students leave with a certificate. And a clearer path to their futures.

Amanda Johnson

So You Want to Work in Medicine

Criteria for applying for admission to the Medical Explorations program include:

- High school rising senior or above
- Interest in a medical career
- GPA of 3.5 or higher
- Parent or guardian permission
- Confidentiality training

Students receive a stipend, but only if funding from the community continues to be available.

"If we required tuition for the program, then only the kids who could afford it could apply," says Mitchell Goldman, MD, chair of the UT Graduate School of Medicine Department of Surgery. "We want anyone who is interested in a career in medicine to be able to apply."

Applications for summer term are accepted in mid-January each year, and students interested in participating in the fall should call **865-305-9244.** More information is available at **http://gsm.utmck.edu/medexp.**

You Can Help Fund This Program

Providing students with an opportunity to observe medical professions through the Medical Explorations program costs about $25,000 each year. No student should have to pay to participate, and many students need summer incomes. Stipends for students satisfy these needs, but funding is crucial to continuing the program. Currently Medical Explorations is funded by the UT Graduate School of Medicine Office of the Dean, the Physicians Medical Education and Research Foundation, the I. Reid Collman Foundation, the Cole Foundation, and individual donors. Additionally, the State of Tennessee recently awarded a $5,000 grant to the program in recognition of it as a significant local educational initiative. If you'd like to contribute to the Medical Explorations program, please send your gift of support to the University of Tennessee Medical Center Office of Development, Attn: Medical Explorations Program, 1520 Cherokee Trail, Suite 110, Knoxville, TN 37920. Or for more information, contact Development at 865-544-6611 or development@mc.utmck.edu.

Acknowledging Constant Support for the

Changing Face of Medicine

Technological advances are changing the way we practice medicine. They have reshaped patient care, modernized medical education, and facilitated innovative research. Like many health care systems, the University of Tennessee Medical Center and UT Graduate School of Medicine are facing a number of decisions about how to incorporate and embrace these technological developments. One way we have chosen to integrate these advancements is through the establishment of a medical simulation center for medical residents and healthcare professionals throughout East Tennessee.

Medical simulation is a training and feedback method in which users practice tasks and processes in lifelike circumstances using full-patient mannequins and/or virtual reality simulators. In addition to feedback from observers, peers, and video, simulators also provide numerous performance metrics to assist in the assessment and improvement of skills.

Medical simulators are increasingly being developed and deployed to teach therapeutic and diagnostic procedures as well as medical concepts and decision making skills. These training procedures range from basics such as blood draw, to more sophisticated procedures such as endovascular surgery and trauma care. Medical simulation is utilized across the entire spectrum of caregivers, from first responders to established physicians undergoing maintenance of certification training. The benefits of medical simulation are numerous and include improved patient safety, increased successful patient outcomes, efficient and effective resident training and assessment, and improved clinical research techniques and procedures.

At the University of Tennessee Medical Center and UT Graduate School of Medicine, we are committed to establishing the premiere medical simulation center in East Tennessee. Members of the community have joined us in this undertaking through their support of An Evening in Orange Gala and Benefit Auction. Held on October 13, 2007 under the leadership of co-chairs Mrs. Beverly Bell and Mrs. Leslie Klein, An Evening in Orange raised more than $280,000 for the development of a medical simulation center. The corporate sponsors who joined us in recognition of the important impact medical simulation will have on the health of our community were BESCO Electrical Contractors, Delta Dental of Tennessee, Asen Strategic Advertising and Marketing, Morgan Stanley, J.D. and Ashleigh Jenkins, SunTrust Bank, W.L. Gore, Revenue Recovery Group, Cerner, and Pilot Corporation.

The University of Tennessee Medical Center and UT Graduate School of Medicine would like to extend their great appreciation to these sponsors and all patrons of An Evening in Orange for their support of the medical simulation initiative and the practice of exceptional healthcare in East Tennessee.



Anesthesiologists train on a medical simulator at the University of Tennessee Medical Center.

UT CME

Course Calendar

THE 2008 PATTERSON LECTURE: VICTIMIZATION AND YOUR PATIENT'S HEALTH

Friday, June 13, 2008
8:30–11:45 a.m.

Endowed Guest Lecturer:
F. David Schneider, MD, MSPH
Associate Professor and Residency Program Director, University of Texas

Recent studies show that people victimized by abuse, such as rape, childhood physical or sexual abuse or domestic violence, are more likely to be diagnosed with serious health problems in the future. While they seek a solution to the immediate problem from their primary care provider, they may not be aware that it is tied to their past abuse.

Victimization, especially over a lifespan, often results in chronic health conditions presented to primary care physicians. This conference will provide physicians with knowledge needed to recognize many of the health consequences of violence and understand how this underlying cause can affect the physical and mental health of their patients.



Reaching Milestones...

Educating Physicians

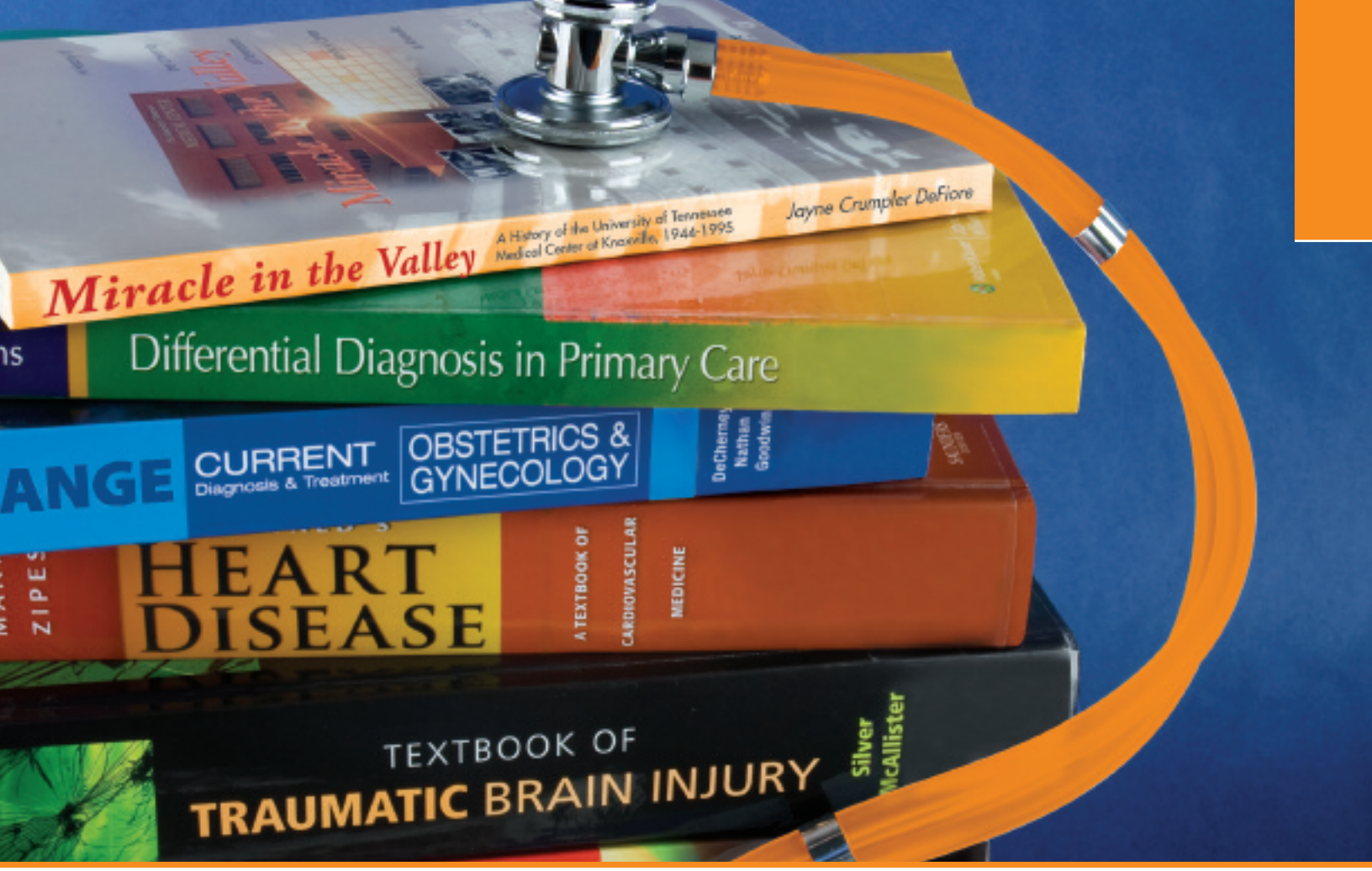
2007 Milestones

The University of Tennessee Medical Center and UT Graduate School of Medicine set milestones in 2007 and surpassed previous levels of excellence in education, research and patient care. Here are just a few:

- Educated record numbers of residents and fellows in the most training programs ever offered in our history.
- Implemented a new fellowship program focusing on cardiovascular disease.
- Identified in a preliminary study a way to predict how well patients fighting certain lung cancers respond to chemotherapy.
- Discovered through breakthrough research a link between foie gras prepared from goose or duck liver and the type of amyloid found in rheumatoid arthritis or tuberculosis.
- Issued more than 2,800 continuing education credits to practicing physicians, dental professionals and other healthcare professionals in the region, state, and nation.
- Offered the only genetics center in the 16 counties of middle East Tennessee and the metabolic center for the 34 counties of East Tennessee.
- Offered the area's only free Consumer and Patient Health Information Service available to the public.
- With support from Delta Dental and others, renovated General Dentistry department exam rooms with technologically advanced equipment, including digital X-ray systems.
- Published almost 40 articles in professional journals to help others understand what we have learned through research and teaching.
- Educated other medical and dental professionals through more than 60 scholarly presentations and lectures at regional, national, and international conferences.
- Earned approval as a beta test site for the Accreditation Council for Graduate Medical Education Learning Portfolio to influence how resident physicians track their progress against and receive feedback on professional competencies.

And through it all, we never forgot that we are educational scholars. In 2007, we worked toward establishing an Academy of Distinguished Teaching Scholars. This academy will nurture scholarly teaching by being a community committed to promoting and celebrating teaching and learning. It will seek to promote faculty leadership and advocate for effective educational environments. This atmosphere will improve the education we offer to resident physicians and fellows and elevate the position of the teacher.

THE UNIVERSITY of TENNESSEE UT
GRADUATE SCHOOL OF MEDICINE



THE UNIVERSITY OF TENNESSEE MEDICAL CENTER

1924 Alcoa Highway
Knoxville, Tennessee 37920-6999

www.utmedicalcenter.org

Non-Profit Org.
U.S. POSTAGE
PAID
Permit No. 575
Knoxville, TN