

FALL 2013

# Frontiers

The University of Tennessee Medical Center & the University of Tennessee Graduate School of Medicine

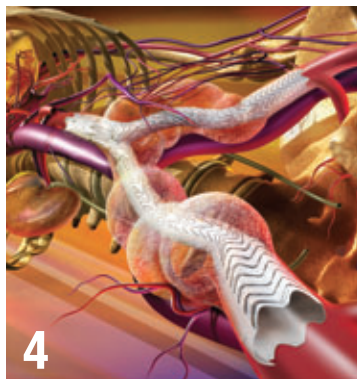


## Chaplains

Providing Comfort and  
Meaning at an Academic  
Medical Center



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

**Fall Issue 2013**

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**UT THE UNIVERSITY OF TENNESSEE  
MEDICAL CENTER**

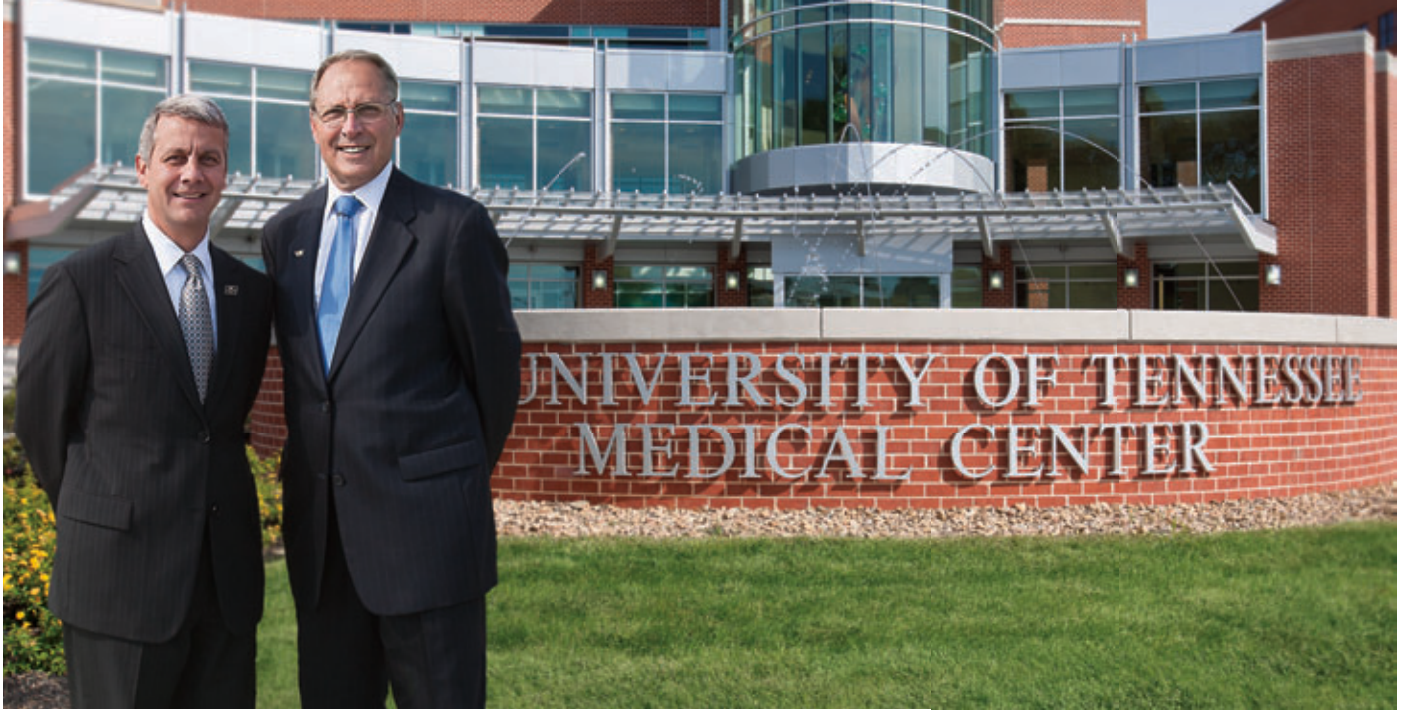
Wisdom for Your Life.

THE UNIVERSITY of  
**TENNESSEE** **UT**  
GRADUATE SCHOOL  
OF MEDICINE



Use your smart phone to scan the QR codes  
throughout *Frontiers* to learn more about The  
University of Tennessee Medical Center.





## Dear Alumni & Friends,

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One of the most exciting and rewarding opportunities we see every day at The University of Tennessee Medical Center revolves around the diversity of skills and expertise the physicians, nurses, support staff, and other health professionals provide to our patients and families. This is a true reflection of the mission of an academic medical center: healing, education and discovery.

As the region's only Level I Trauma Center, and the home of the Regional Perinatal Referral Center and the premier Level III Neonatal Intensive Care Unit, home of truly unique education and research programs, The University of Tennessee Medical Center and the UT Graduate School of Medicine stand ready to serve the citizens of East Tennessee with skill and compassion. In this issue of *Frontiers*, we are pleased to share with you stories of recovery from harrowing accidents and tackling uncommon medical challenges, as well as features on unique and potentially life-changing research and a perspective on educational programs found only in a limited number of academic medical centers in the country. This fall we were happy to announce the opening of University Pharmacy within our facility. With this, our pharmacists can provide more convenience and expert advice to our patients and family members. Also in this issue, you will meet a featured pharmacist and get answers to questions many of you have about medications.

These are the things we see every day at The University of Tennessee Medical Center and the University of Tennessee Graduate School of Medicine. We are happy to share them with you, and even happier to offer these services and programs to you and your family.

Sincerely,

A handwritten signature in black ink that reads "Joe R." followed by a long, sweeping horizontal line.

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

A handwritten signature in black ink that reads "James J. Neutens" in a cursive style.

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

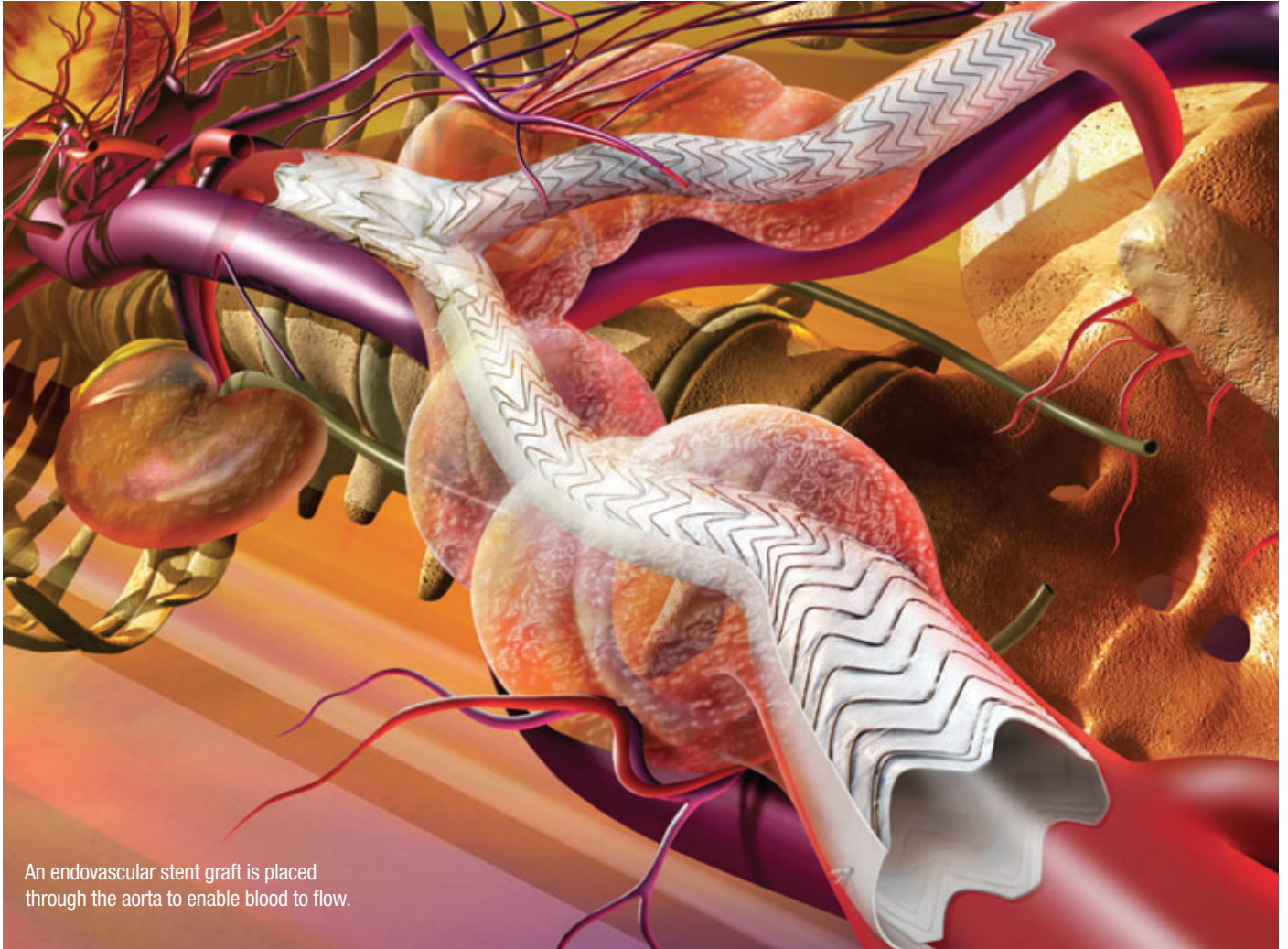
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**Our Mission** | To serve through healing, education and discovery

**We Value** | Integrity • Excellence • Compassion  
Innovation • Collaboration • Dedication

**Our Vision** | To be nationally recognized for excellence in patient care, medical education and biomedical research.

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An endovascular stent graft is placed through the aorta to enable blood to flow.

# The Aortic Center

## Meeting the Challenge of a Life-or-Death Diagnosis

By Scott L. Stevens, MD





Scott L. Stevens, MD

**Y**ou could fill a third of Neyland Stadium with the people whose lives are lost to aortic emergencies every year. Aortic emergencies are prevalent in East Tennessee, and The University of Tennessee Medical Center has responded to this community need.

The Aortic Center was developed to address the extremely high mortality rate among patients experiencing an aortic emergency. Armed with skills, data and technology, the Aortic Center has instituted a comprehensive program that expedites diagnosis and streamlines care coordination.

Using many of the resources available at our Level I Trauma Center, the Aortic Center is uniquely qualified to tackle the challenge of this demanding diagnosis. In-house surgeons, anesthesiologists and a fully staffed operating room stand ready to respond around the clock.

Cardiac and vascular surgeons use groundbreaking technology to repair the damage.

When an aortic emergency is occurring, time is critical. Each minute of delay in diagnosis and treatment dramatically decreases the survival rate for these patients.

A car crash in rural East Tennessee that leaves an injured teenager with a torn aorta triggers the acute aorta protocol. With the first phone call to LIFESTAR, a cascade of responders is activated. Paramedics and EMTs initiate medical care, and a LIFESTAR transport is deployed to the scene. At the hospital, surgeons, anesthesiologists, nurses, operating room, laboratory and radiology staff prepare for the patient's arrival. Electronic images are transferred and quickly analyzed for preoperative planning. The patient placement center

and intensive care unit is notified so that transfer along the recovery path will be seamless. Chaplains and caseworkers are alerted to offer help and support to the families and loved ones faced with this difficult crisis.

The keys to the success of the aortic program include provider and staff education, communication, training and rehearsal for all those involved in the acute aorta protocol. Outcomes analysis is regularly performed and utilized to improve our care delivery.

From diagnosis to treatment, speed, accuracy and coordination are critical. The University of Tennessee Medical Center's Aortic Center demonstrates our commitment to serving the East Tennessee community.

 Visit [UTMEDICALCENTER.ORG](http://UTMEDICALCENTER.ORG) for more information.



# Behind Every Patient, Every Diagnosis, Every Prescription, Is a Pharmacist

By Bonnie Horner

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“I fell in love with hospital pharmacy,” says Jennifer Mendez, medication use specialist at The University of Tennessee Medical Center.

Mendez is an East Tennessean who earned her bachelor of science undergraduate degree at the University of Tennessee in Knoxville. She attended pharmacy school at UT Health Science Center in Memphis and completed her pharmacy rotations at The University of Tennessee Medical Center. While uncertain of what career path to take in pharmacy, it wasn't long after she began her postgraduate pharmacy resident year, in 2003, that she decided being involved with the healthcare team to ensure the selection of the best medications for patients was her passion. Mendez recognized the difference of an academic medical center. “Being part of the pharmacy students’ and medical residents’ professional development during my residency was rewarding to me, because I was helping to shape the future of medicine,” says Mendez.

She still is. “The medical center’s patient-focused environment enables the pharmacist to review a patient’s diagnosis and condition and answer the question ‘What’s the best drug for this patient?’” she says. “This is a culture that fosters a holistic approach to care. Like everyone else on our team, I’ve been able to connect with so many patients and experience pure appreciation from them and their families. That’s what I’ve enjoyed most over the years.”

Mendez has found her passion: providing sensitive, expert pharmaceutical care helping patients every day. Doing this brings her deep satisfaction and furthers the work and mission of The University of Tennessee Medical Center.

Jennifer Mendez,  
PharmD, BCPS



Scan the QR code to learn more  
about the Pharmacy Department.





Pastoral Care director Steve Sexton comforts a staff member, Lisa Hellmann, after a particularly trying patient encounter.



# Healthcare Chaplaincy

## Sources of Comfort and Meaning

By Bonnie Horner

In times of illness, trauma and loss, many people require more than physical care to cope and heal.

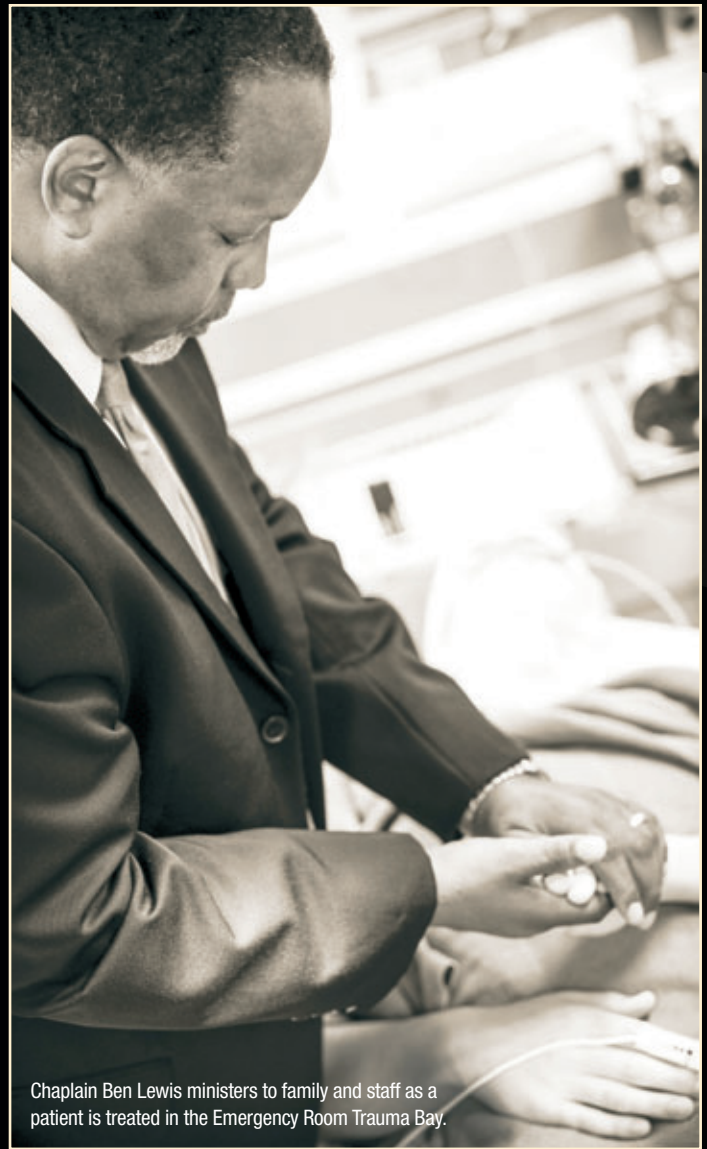
That's why the chaplains at The University of Tennessee Medical Center serve team members, patients and family members 24 hours a day providing emotional and spiritual support. In times of stress and recovery, patients have a fundamental right to considerate care that safeguards their personal dignity and respects their cultural, psychosocial and spiritual values. Miracles happen every day, and chaplains are often on the front lines of triumph as well as despair. Pastoral Care director Steve Sexton says, "Words can be inadequate. So often I am there to just be present and provide spiritual and emotional encouragement."

Being present as people face some of life's most challenging times is what the Pastoral Care staff does on a daily basis. Each day they are prepared to expect the unexpected: offering comfort in times of distress, rejoicing at the birth of a new baby or encouraging test results, journeying alongside patients as they experience the highs and lows of recovering from illness, listening and providing counsel in challenging circumstances.

Offering spiritual care and comfort to patients and families is only part of the ministry Pastoral Care provides – tending to the emotional and spiritual needs of medical staff is also a vital part of their everyday work. The medical staff understands assisting with spiritual and emotional needs is an important part of caring for the whole person. As part of an academic medical center, the Pastoral Care Department helps the hospital fulfill its mission of education by having a full-time chaplain residency program and serving as a resource for pastoral education in the region.



Anne Sprouse, staff chaplain, visits patients throughout the medical center.



Chaplain Ben Lewis ministers to family and staff as a patient is treated in the Emergency Room Trauma Bay.



Chaplain Caroline Vogel and palliative care nurse Teresa Palmer review a patient chart. Palliative care nurses concentrate on preventing and alleviating suffering and improving a patient's quality of life.



Many of the Pastoral Care Department's services, including the chaplain residency program, are supported through philanthropic donations. To contribute, use the enclosed envelope or go to [www.utmedicalcenter.org](http://www.utmedicalcenter.org) and choose Donate Now.



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Our board-certified chaplains, through the Association of Professional Chaplains, help individuals identify and draw upon their own sources of inner strength to find meaning and comfort. Each day chaplains focus on patient and family needs within the context of the healthcare team.

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A lighthearted moment with a cancer patient while she receives her chemo infusion. Chaplains are available as companions on the journey through cancer treatment.



Chaplain George Doebler checks his pager after receiving a message from the intensive care unit. The on-call chaplain responds to all traumas, critical codes and other requests hospital-wide 24/7.

Chaplain residents meet with their supervisor, Randy Shoun to reflect on the day's clinical experiences. Each day begins with morning prayer in the Absher Chapel, followed by a debriefing meeting led by the on-call chaplain to discuss the previous evening's events and plan follow-up visits.

Scan the QR code to learn more about the Pastoral Care Department at The University of Tennessee Medical Center.





# All Roads Lead Us Back Here

## Our Premie Journey!

By Bonnie Horner

From far left: Marcus, 3; McKenzie, 14;  
Niyah, 6, holding Davis, 16 weeks;  
Wes; Lucas, 15 months.





They're tiny and fragile, and if you're the mom or dad, it can be beyond frightening. Premies are also some of the most amazing stories anyone can be a part of—true miracles.

## *Wes and Sarah requested that their son be transferred to The University of Tennessee Medical Center NICU immediately after surgery.*

It was a journey from the beginning for Hardin Valley football coach Wes Jones and his pregnant wife, Sarah, who were on vacation when their trip took an unexpected turn. Sarah's placenta erupted, and she needed immediate surgery.

"We were seven hours away from home on vacation, we have our other child here and they said, 'You're having a baby, your baby is at risk, your wife is at risk,'" says Wes.

Davis Charles Jones was born on July 2—almost eight weeks early—on the second day of the Joneses' vacation in Charleston, South Carolina. He was 16 inches long and weighed just 3 pounds 7 ounces. In his first few days of life, he underwent surgery to repair an abdominal hernia; the doctors weren't sure when he could leave the Charleston Neonatal Intensive Care Unit (NICU).

Wes and Sarah faced a difficult decision. Stay or go?

Their decision was to go. They requested that their son be transferred to The University of Tennessee Medical Center immediately after surgery.

Ten days later the request was granted. On a Saturday morning, Davis and his parents flew home while the medical center prepared for the arrival of the "Charleston baby."

"We knew the medical center's NICU was the best place for Davis," says Sarah. "When your baby is in the NICU it's challenging to find comfort in an unfamiliar place, but with the private rooms it really makes a difference. That extra space helps mom, dad and baby relax and get home faster. As soon as Davis was transferred here, he started to make huge progress and exceeded every expectation the doctors set." Wes adds, "We're beyond blessed to have one of the best NICUs in the region, to have a place that cares for some of the sickest and most fragile children in the state."

Baby Davis traveled in an incubator by air transport, a medical team at his side. "The staff was amazing, the pilots were amazing. It was a very quick and smooth process," says Wes.

Now at home and healthy, Davis weighs 6 pounds 4 ounces, and his parents say he's making remarkable progress. Their little boy has reached important milestones like being able to breathe and eat on his own. Now he's starting to be more like a baby and less like a preemie.

"So far he's been a fighter; he's exceeded every expectation that every single

doctor and nurse could have," says Sarah. "I don't know what his long-term prognosis is, but we're optimistic he'll be playing football for his daddy one day."

The baby's middle name is Charles, in honor of the city where he was born. "Our life got flipped upside-down, but with so many great people, it's been turned right back up," says Wes.

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*While at The University of Tennessee Medical Center's NICU, premies are introduced to the world in rooms that provide the additional comfort and ease such tiny patients need. In the case of the Charleston baby and his parents, that made all the difference.*

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➤ Visit [UTMEDICALCENTER.ORG](http://UTMEDICALCENTER.ORG) for more information.

Scan the QR code to view a 360° tour of the maternity center.





# Creating the Best Setting For a Mighty Beginning at the Neonatal Intensive Care Unit

By Bonnie Horner

When the tiniest, critically ill patients arrive at The University of Tennessee Medical Center, they enter a neonatal care facility specifically designed to speed growth and development and shorten their hospital stay.

At the medical center we are privileged to have the region's only private-room, Level III Neonatal Intensive Care Unit (NICU). It is conveniently connected to Labor and Delivery and located down the hall from the Mother/Baby Unit should a baby need specialized care. It also has the unique designation of being the Regional Perinatal Referral Center for East Tennessee and the surrounding area.

Phase I of the NICU was completed in 2007, transforming half of the nursery into private rooms. Every aspect of the unit was designed around the needs of babies and their families.

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Every inch of the Neonatal Intensive Care Unit supports a critical mission: giving each baby the best fighting chance to thrive while offering comfort and convenience for families.

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The design emulates the warmth, calm and stillness of the womb. It is this healing, stable and secure environment babies need to fully develop. Every environmental condition has been carefully taken into consideration. Lighting and temperature are precisely controlled for each baby.

Noise is minimized, thanks to acoustic design and advanced equipment and communications.

We know the NICU is the first home for many newborns; it also becomes the family's second home. For that reason, comfort and privacy became a priority in the redesign.





Phase II will convert the remaining areas into private rooms including five twin-bed rooms. It will also include the relocation of physician and neonatal sleep rooms, environmental enhancements conducive to optimal health for infants, and the infrastructure to support current and emerging technologies for complex care of at-risk newborns.



The \$4.8 million campaign to convert the entire NICU to private rooms has received \$3.4 million in gifts and pledges. Please use the enclosed envelope or go to [www.utmedicalcenter.org](http://www.utmedicalcenter.org) and choose donate now to support the NICU.



John Sharp and his wife, Gae, visit the medical center to pay tribute to the healthcare professionals who saved his life.

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*“Nowhere in their job description does it say to truly care for patients like they cared for John and our family. They went far beyond their everyday duties and truly gave ‘patient care’ a new meaning for our family.”*  
— Gae Sharp

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# Defeating the Odds

## One Man’s Story of Survival By Bonnie Horner

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**W**hen John Sharp woke up the morning of February 21, 2012, it was an ordinary day. Little did he know that by afternoon his life would hang in the balance, resting in the capable hands of highly trained emergency and trauma professionals at The University of Tennessee Medical Center.

John left work not feeling well. He passed out while driving and hit a concrete utility pole going 78 miles per hour. His car hit the pole with such force it split in half. The severity of John’s injuries should have killed him on impact. He was pinned in his vehicle

and was removed by the Knoxville Fire Department and Rural Metro Emergency Medical Services (EMS), whose personnel arrived three minutes after dispatch time. It was apparent John suffered from massive chest trauma as well as multiple orthopedic injuries. The multi-agency response and teamwork employed multi-system shock and trauma protocol guidelines which were critical first steps in John’s survival.

John was transported to the region’s only Level I Trauma Center at The University of Tennessee Medical Center, where the trauma team immediately began working to save his life. In retrospect, if one little

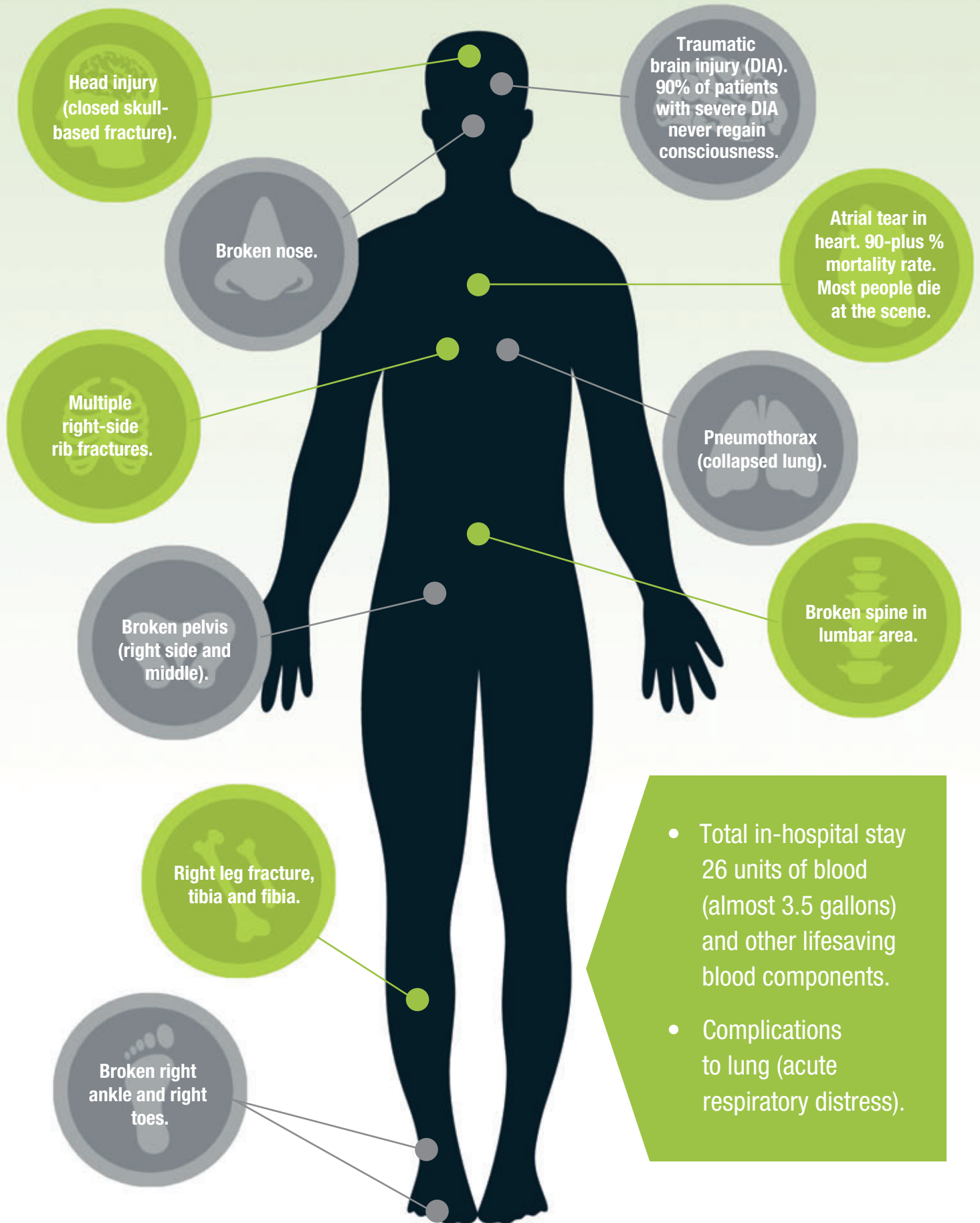
thing had been different, one step a little bit slower, one decision made differently, John might not be alive today.

*John was fortunate to have lived to reach the Emergency Department.*

The CT scan confirmed John’s critical condition including a life-threatening atrial tear. As his CT image displayed on the screen, he went into cardiac arrest. The emergency and trauma team sprang into action to drain the blood away from his heart, quickly place a chest tube and rush him to the operating room.



# A Body Map of John's Injuries



*John was fortunate to have lived to reach the operating room.*

Once there, everyone worked together like an elegant machine to prepare him for surgery. When doctors opened John's chest, they could hear the bleeding. The impact from the accident had made a dime-size hole in his heart, and a unit of blood every 10 seconds was pouring into his chest.

*His heart stopped pumping for seven minutes.*

In a truly collaborative effort, he was given 19 units of red blood cells, 17 units of fresh frozen plasma, 12 units of platelets and 4 liters of crystalloid (fluid resuscitation). Epinephrine was injected into his heart and internal defibrillators were used twice. John's devastating injury made it seem impossible he would survive, but his heart started beating again.

*John was fortunate to have lived to reach the intensive care unit (ICU).*

Not only did John have the sort of injury that normally kills patients within the first few minutes after trauma, but he was suffering from pelvic fractures, multiple orthopedic fractures that would necessitate complete reconstruction of the left side of his face, and severe trauma to his chest wall. John's prognosis was grim, and physicians were uncertain whether he would ever wake up. For a month he was unconscious and struggling in the medical center's intensive care unit, but his family and friends were there every step of the way. From the moment John arrived, the halls were lined with family and friends. They waited patiently in the surgery waiting room and kept their hope and faith through every procedure that John would live.

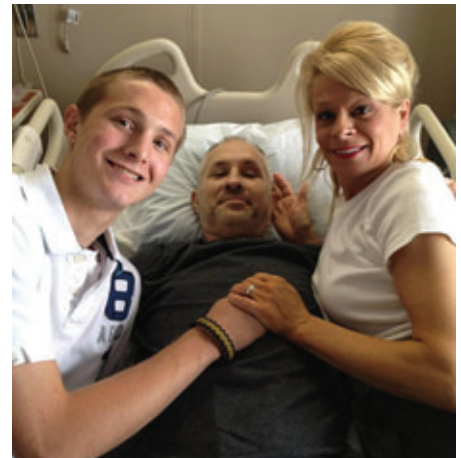


John Sharp won the Closest to the Pin contest at our Tee Up for Trauma Golf Tournament May 20, which raised almost \$60,000 for our Emergency and Trauma Services.

*Not only did he live, but he is well on his way to full recovery one year after his accident.*

John has returned to his life as a husband, a father, a brother and a son. He returned to work six months after his hospital release and is recuperating well, with the help of ongoing rehabilitation. Looking back on that day, everything lined up perfectly to save his life. His rapid transport to a Level I Trauma Center, the seamless skill of the EMS team that worked on him first, the tireless efforts of the operating room and anesthesia staff, the remarkable care of the Intensive Care nurses, the love and prayers of his family and friends—all these factors together helped John miraculously recover.

John and his family take comfort in knowing what may seem to be impossible cases, put in the right hands, can have incredible outcomes. His story began with a horrific, near-fatal accident, and it is only in complete awe that, through skill, training and many prayers, John is here today.



Above: John and his family during his stay at the medical center.  
Below: John's car after the accident.



Upcoming

# Continuing Education Course Calendar

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



**December**

**5-6, 2013**

**Sixth Fall Psychiatric  
Symposium**

Knoxville Marriott  
Knoxville, Tennessee  
[www.tennessee.edu/cme](http://www.tennessee.edu/cme)

**January**

**11, 2014**

**10th Annual Hematology  
Conference: An ASH  
Update**

University of Tennessee  
Conference Center  
Knoxville, Tennessee  
[www.tennessee.edu/cme](http://www.tennessee.edu/cme)

**February 28-**

**March 1, 2014**

**Second Annual Medicine  
Conference**

University of Tennessee  
Conference Center  
Knoxville, Tennessee  
[www.tennessee.edu/cme](http://www.tennessee.edu/cme)

**March**

**15-19, 2014**

**24th Annual National  
Interdisciplinary Breast  
Center Conference**

Caesars Palace  
Las Vegas, NV

# Healthcare

## Access for East Tennessee

Under the Federal Affordable Care Act, new health insurance changes are kicking into high gear now through 2014. The changes mean health insurance is now required and more insurance options will be available to many Tennesseans. These changes impact everyone, so it's the medical center's mission to educate people and help them make healthcare choices.

In Tennessee, individuals can get health coverage through their places of work if it is offered by their employers, or shop for insurance online in the new health insurance marketplace. They can shop during the open enrollment period that started October 1 for coverage beginning January 2014. Depending on a person's or a family's income, new tax credits or other assistance may be available to help make health insurance more affordable.

This year, open enrollment in the marketplace goes until March 31, 2014. To meet the federal coverage requirement, health insurance, bought by individuals in the marketplace, must be purchased by the end of March 2014. The next open enrollment period starts October 15, 2014. The University of Tennessee Medical Center participates in two of the available marketplace insurance plans: BlueCross Blue Shield of Tennessee and Humana.

### Types of Health Insurance Plans:

All plan levels cover the same types of care and services, like doctor visits and hospital stays. The difference is in how much you'll pay each month for your insurance (the premium) versus how much out-of-pocket expense you'll pay when you get care. Here's how it works:

Choosing a Bronze plan, for example, will generally mean you'll have a lower premium cost, but when you get care, you'll pay more of the out-of-pocket expense. And if you choose a Platinum plan, the premium goes up, but your share of the expenses when you get care goes down.

### Levels of Coverage



If you do not have insurance, or if you have questions about how to enroll, call **Financial Counseling at 1-865-305-9016** or our **Customer Service Business Office at 1-865-251-4400** to help you start the process. Visit [utmedicalcenter.org](http://utmedicalcenter.org) for more information.



## December 15, 2013

The date by which you must purchase coverage in order to have health insurance that starts on January 1, 2014.

All plan levels will cover the same types of care and services, like doctor visits and hospital stays.

Apply for federal tax credit to help with the cost of health insurance.

Shop and compare health insurance plans offered by different companies.

Depending on an individual or family income, new tax credits or other assistance may be available to help make health insurance more affordable.

The new system brings many changes to health insurance and gives individuals new choices, protections and ways to control healthcare costs.

# HEALTHCARE ACCESS



In Tennessee, individuals can get health coverage through their places of work if it is offered by their employer, or shop for insurance online in the new health insurance marketplace.



The healthcare law requires almost all Americans to have health insurance starting January 1, 2014. If you don't have coverage, you may have to pay a tax penalty.

The University of Tennessee Medical Center participates in two of the available marketplace insurance plans: BlueCross BlueShield of Tennessee and Humana.

# ASK THE EXPERT

Our Experts Answer Your Important Medical Questions



Erinn Morgan, OB/GYN

## Pregnancy and Flu

**Q: Why should pregnant women get the seasonal flu shot?**

**A:** Annual flu vaccination is especially critical during pregnancy because it protects both pregnant women and their fetuses. Babies cannot be vaccinated against flu until they are 6 months old, but they receive antibodies from their mothers that help protect them until they can be vaccinated. Maternal immunity is the only effective strategy in newborns because the vaccine is not approved for use in infants younger than 6 months.

**Q: Is the flu vaccine safe in pregnancy?**

**A:** YES. All women who will be pregnant during influenza season (October-May) need a flu shot. Vaccination early in the flu season is optimal, but it can be given at any time during the flu season and at any stage of pregnancy.

**Q: During which trimester is it safe to have the flu shot?**

**A:** It is safe to get the flu vaccination at any point in your pregnancy. Flu vaccination is recommended for all pregnant women, regardless of trimester.

**Q: Are the preservatives in the Influenza vaccines safe for my body?**

**A:** Thimerosal, a mercury-containing preservative used in multidose vials, has not been shown to cause any adverse effects except for occasional local skin reactions. There is no scientific evidence that thimerosal-containing vaccines cause adverse effects in children born to women who received vaccines with thimerosal.

**Q: Should I get the flu shot or the nasal spray?**

**A:** Pregnant women should receive the inactivated influenza shot. Because the flu shot is an inactivated vaccine and contains

no live virus, it is extremely safe for pregnant women. The live attenuated version of the flu vaccine (the nasal spray) should NOT be given to pregnant women.

**Q: What are the risks of flu during pregnancy?**

**A:** Certain groups—including pregnant women, young children and the elderly—are at increased risk for serious complications from flu, such as pneumonia, various infections and dehydration.

**Q: When do I need to seek medical care?**

**A:** If you experience flulike symptoms, including fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue, you should contact your doctor. Some people also may have vomiting and diarrhea. People can be infected with the flu and have respiratory symptoms without a fever. If you are pregnant and have been in close contact with someone who has flu, call your doctor as well.

**Q: What else can I do to protect my baby against flu?**

**A:** Take preventive action to stop the spread of germs. Try to avoid close contact with sick people. Wash your hands often with soap and water, or use an alcohol-based hand rub. Avoid touching your eyes, nose and mouth; germs spread this way. Clean and disinfect surfaces and objects that may be contaminated with germs like flu.

**Q: I am breastfeeding. Is it safe to get vaccinated?**

**A:** YES. It is safe to get the flu vaccine while you are breastfeeding.

Speak with your primary care physician if you have questions related to your health. If you need a primary care physician, call 865-305-6970.



# Enhancing Community Health

By Deanene Catani

UT Graduate School of Medicine's Preston Medical Library is partnering with Alcoa Inc. to demonstrate how resources available through a medical library can be used to enhance corporate wellness programs and help companies reduce their healthcare costs. The partnership began with funds awarded by the U.S. National Library of Medicine (NLM). Preston Medical Library was selected for this national pilot project based on the success of past efforts funded by the NLM and implemented by Preston.

A leader in employee health programs and industrial accident prevention, Alcoa offers a variety of wellness programs in cooperation with The University of Tennessee Medical Center's network development team. That relationship, combined with Alcoa's proximity to Preston Medical Library, made the company an ideal partner for the NLM pilot.

Preston librarians, including medical librarian Ann Gonzalez and director Sandy Oelschlegel, are currently working with wellness staff at Alcoa to identify employees' needs. The librarians have provided newsletter content and brief videos on a range of health topics, especially those related to the top ailments in Tennessee—cancer, Alzheimer's, stroke, diabetes and lung disease. This past August they were at the first of two Alcoa health fairs,



Pam Nichols (left), Alcoa's wellness coordinator, discusses the health information services Preston Medical Library offers Alcoa employees with Preston Librarian Ann Gonzalez (right) at a recent Alcoa health fair.

promoting Preston's Consumer and Patient Health Information Service, which makes library resources available to medical patients and area residents.

During the seven-month NLM pilot project, says Oelschlegel, the Preston librarians will develop a toolkit of best practices and resources that can be used by other medical libraries partnering with businesses across the country. "Our goal is to be the premier academic medical center library in the southeastern region of the United States," she says. "We're very excited about this project, because it has the potential to impact employee health nationwide."

## Health Information Center Campaign

We are currently raising \$4.1 million to provide a facility within the hospital where patients and their families can research information on their health with the assistance of Preston medical librarians. To contribute, use the enclosed envelope or go to [www.utmedicalcenter.org](http://www.utmedicalcenter.org) and choose **Donate Now**.

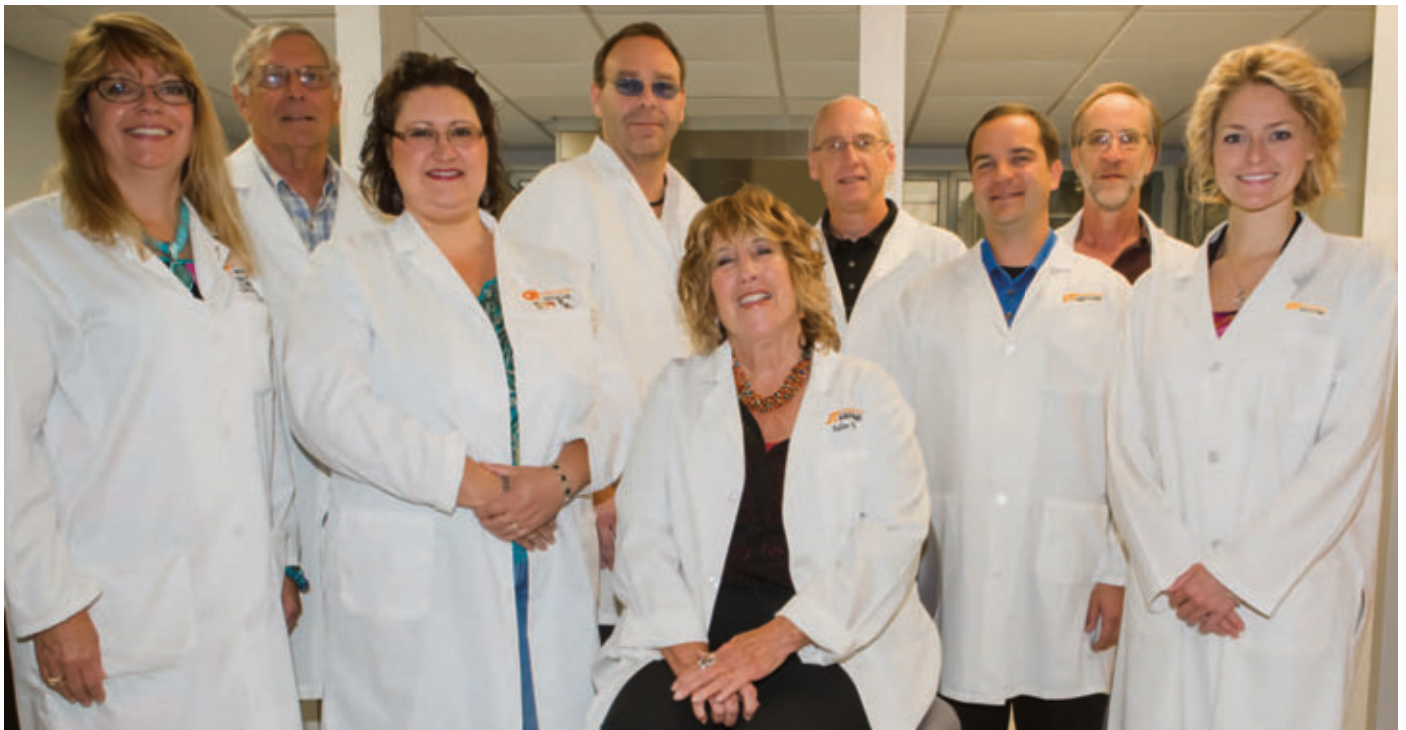
Scan the QR code to learn more about the Health Information Center Campaign.



# Amyloid Testing

Researchers Take  
Giant Step Toward  
Understanding Alzheimer's

By Kandi Hodges



From left: Tina Richey, MS; Stephen Kennel, PhD; Angela Williams, MS; Jonathan Wall, PhD; Sallie Macy, BS, MLT, ASCP; Craig Wooliver, MLT; Alan Stuckey, BA, CNMT; Steve Foster, MS; and Emily Martin, BS, are researchers in the preclinical amyloid research group at The University of Tennessee Medical Center and UT Graduate School of Medicine.



Jonathan Wall, PhD, a professor at UT Graduate School of Medicine and the director of the Preclinical and Diagnostic Molecular Imaging Laboratory, and his research team have developed a new imaging agent to advance the treatment of patients with Alzheimer's disease, as well as those who suffer from other amyloid-related diseases such as type 2 diabetes, light chain amyloidosis and rheumatoid arthritis.

In a person with Alzheimer's or a related disease, amyloid, a substance composed of sticky protein fibers and sugar molecules, builds up relentlessly in the brain or other body organs. Doctors do not know whether this plaque causes Alzheimer's disease and type 2 diabetes, or whether these diseases lead to amyloid formation. But there is an urgent need to "see" the sticky substance in order to accurately diagnose and stage the diseases and monitor the therapies used to treat patients. Now, through the research of Wall and his team, it's possible to do this.

Wall's new imaging agent is a peptide, a tiny protein he's named p5. In preclinical testing, radioactive p5 has been shown to bind to amyloid in the brain and other organs, making the amyloid visible through PET imaging and other techniques. Wall expects that with appropriate modifications, p5 may eventually be used in the clinical setting to image amyloid in the brains of people with Alzheimer's disease, as well as in other body organs. The peptide performs better than other imaging agents because it specifically seeks out amyloid, producing clearer images.

The peptide is turning heads in Europe. Every day, doctors in the U.S. send their patients with amyloid disease to Great Britain, the Netherlands and Italy for an imaging test not approved for use stateside. The European test relies on a protein that is isolated from

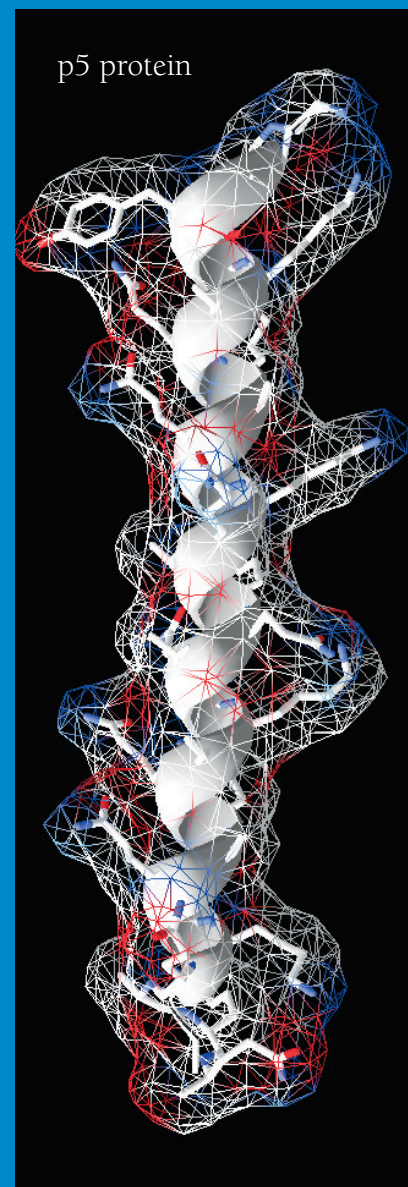
human blood, so the U.S. Food and Drug Administration will not approve its use. Wall's peptide, however, is synthesized, so he and his team believe the p5 peptide imaged with PET/CT is the combination that will bring this life-changing test to America

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**"In the U.S., our ability to detect amyloid deposits is limited," says Wall. "We've made amazing progress, but we need to move faster. The peptide p5 is the next generation of amyloid-imaging agents, and it holds much promise for helping people with amyloid-related diseases."**

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The peptide amyloid-imaging technique is currently undergoing review by the U.S. Patent Office, and Wall hopes a patent will be issued in the next six months. Meanwhile, he and his team are seeking funding and partnerships with the pharmaceutical industry to prepare for a clinical trial of p5 in people with amyloid-related diseases. They'll test whether p5 can be used to image disease by employing the PET scanners at The University of Tennessee Medical Center. What does the future hold? In addition to the clinical trial, \$1.5 million of additional support has recently come from the National Institutes of Health to help Wall and his team turn the p5 peptide and similar molecules into therapeutic agents for patients with Alzheimer's and other amyloid diseases. The University of Tennessee Medical Center and UT Graduate School of Medicine has a rich heritage in amyloid research, and with continued support, a cure for Alzheimer's and other amyloid diseases is closer within reach.



### **Why This Matters:**

While p5 does not destroy amyloid plaque, it does bind to every type of amyloid. It brings us one giant leap closer to understanding Alzheimer's disease and developing rapid methods for accurate diagnosis and treatment strategies, leading ultimately to a cure for Alzheimer's and other amyloid diseases.

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**T**he incidence of melanoma has risen over the last several decades, and the disease is now estimated to be the sixth most common form of cancer in the U.S. Increased awareness and education have shed light on this as well as other potentially devastating consequences of excessive sun exposure. Now pathologists at The University of Tennessee Medical Center are conducting a study designed to produce more accurate diagnoses and staging information, and thus better patient outcomes.

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When melanoma is a possibility, the suspicious skin lesion (often an abnormal mole) is typically biopsied by a dermatologist or primary care physician. If the biopsy shows that melanoma is present, how deeply the tumor extends into the skin is the most important factor in deciding the next step. Under current guidelines, a tumor deeper than 1 millimeter calls for a biopsy of the sentinel lymph nodes to find out whether the cancer has spread.

Lymph nodes play an important role in the immune system. These small oval organs are distributed all over the body, clearing lymph fluid of pathogens and potentially malignant cells, and can be used to stage cancers. Sentinel lymph nodes are the nodes closest to a tumor—typically the first ones to harbor malignant cells from a cancer that is spreading.

# MELANOMA

## Improving Diagnosis and Staging Through Research

By Kandi Hodges



A sentinel lymph node biopsy involves the injection of a radioactive substance or a blue dye near the tumor. This makes it possible to track the flow of lymph fluid in the area of concern and to identify the sentinel lymph nodes that should be examined for melanoma cells. The surgeon removes these sentinel nodes, and the pathologist evaluates them to see if malignant cells are present.

Led by Karyn DeSouza, MD, a pathology resident at The University of Tennessee Graduate School of Medicine, the current study focuses on the pathologic evaluation of sentinel lymph nodes. “Diagnosis of a positive or negative sentinel lymph node has tremendous patient-care implications,” says DeSouza. “Occasionally benign nevus cell rests, which consist of clusters of benign

melanocytes, the cells responsible for making melanin, can be found within the outer layer, or capsule, of a sentinel lymph node removed for melanoma staging. It’s sometimes challenging to distinguish those benign nevus cell rests from malignant cells with an unconventional presentation.”

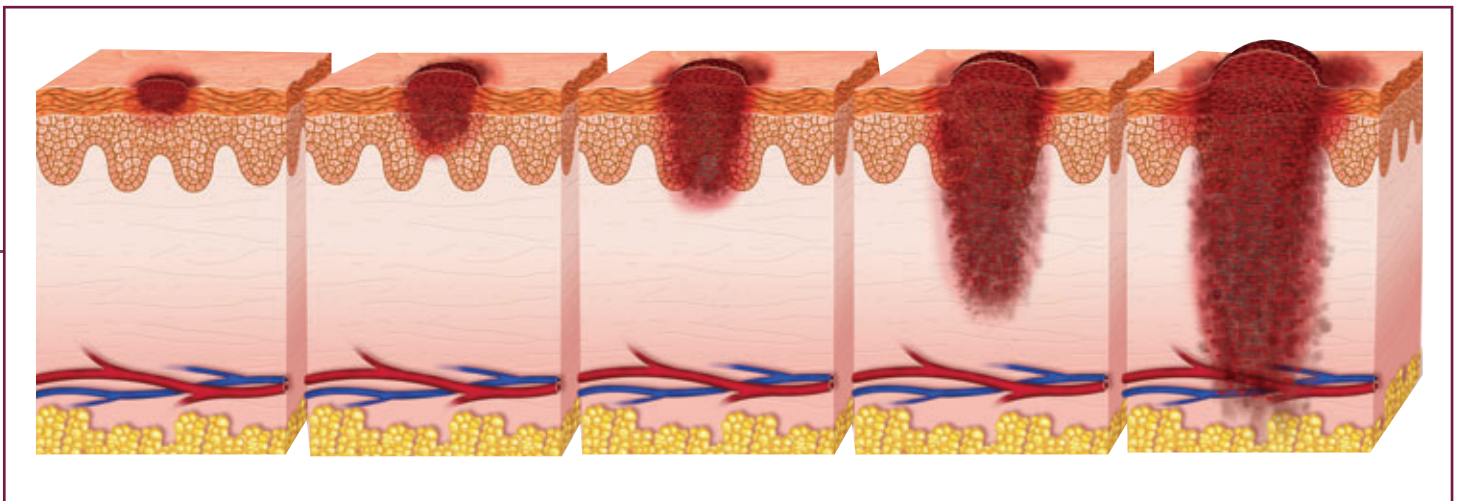
DeSouza and her team, including Lisa Duncan, MD, an associate professor and the chair of the Department of Pathology, and James Lewis, MD, an assistant professor and the associate residency program director in the Department of Surgery, have developed a reference base outlining the characteristics of benign melanocytes to help distinguish them from malignant melanoma cells. The researchers’ goal is to provide a reliable reference source for pathologists to use

in examining sentinel lymph nodes with potential melanoma cells.

The study has found benign nevus cell rests often occur in clusters within a lymph node’s capsule, have a slightly more elongated appearance than tumor cells, and typically don’t display a single cell pattern.

DeSouza says the next step in the team’s research is a follow-up study. “We’re interested in the disease course of patients we studied who had benign nevus cell rests without evidence of metastatic melanoma,” she says. “With a complete study of patient outcome, we hope to prove our findings are beneficial to pathologists facing this diagnostic challenge, and thereby improve patient care.”

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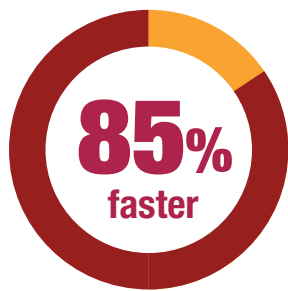


This illustration features a cut section of the skin with a melanoma as it progresses from stage 0 to stage IV.

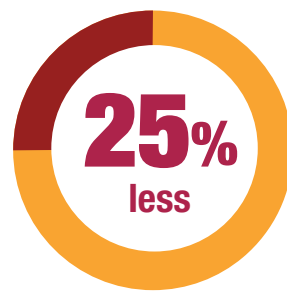
# Expanding Cancer Treatment Options

TrueBeam™ Technology Now at The University of Tennessee Medical Center By Bonnie Horner

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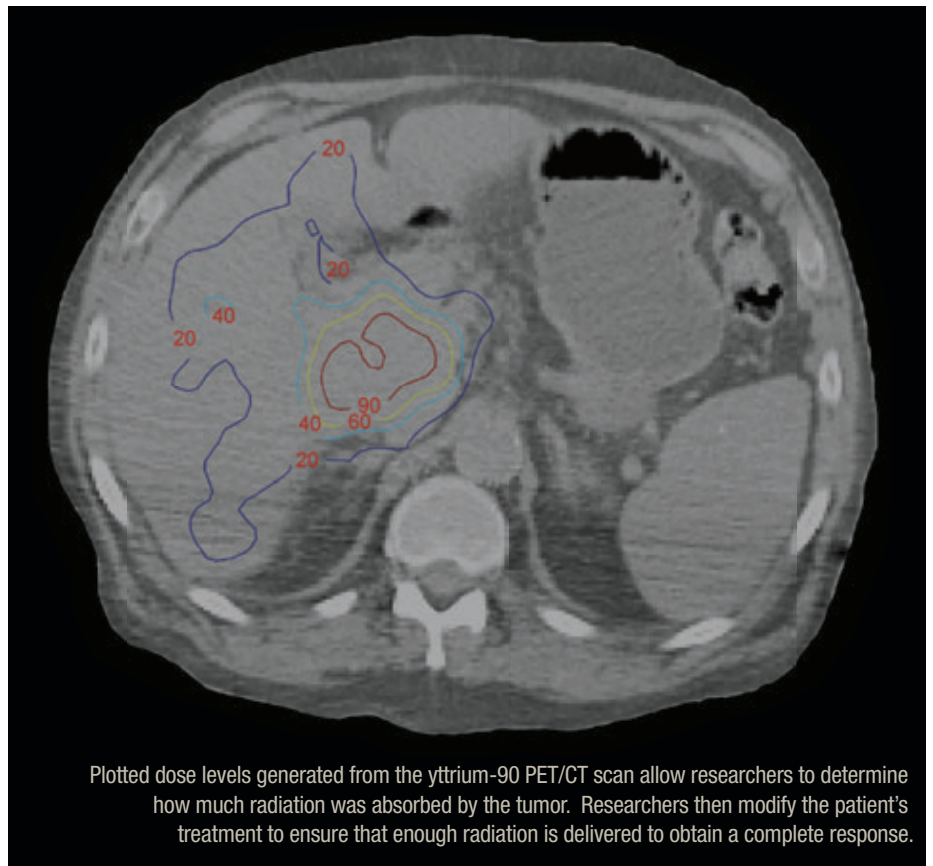


# Targeted

## Liver Cancer Treatment on the Horizon Through PET/CT

By Alexander Pasciak, PhD

Investigators in the Radiology Department at The University of Tennessee Medical Center are testing a modification to an existing liver cancer treatment called yttrium-90 radioembolization, with the goal of providing more accurate treatment and greater success for liver cancer patients. The treatment currently in use is an outpatient procedure that involves the delivery of microscopic radioactive particles directly to the liver, using a minimally invasive interventional-radiology approach. The investigative team has modified the typical radioembolization treatment protocol by using advanced PET/CT imaging while the radioactive particles are being delivered to the liver. This imaging is important because without it, doctors can't be certain that enough radiation is reaching the tumor to kill it. Imaging the radioactive particles during the treatment allows the team, which includes Austin Bourgeois, MD, radiology resident; Ted Chang, MD, assistant professor of radiology; Yong Bradley, MD, associate professor of radiology and chief of nuclear medicine; and Shelley Wilson, CNMT, to optimize the treatment for each individual patient's physiology, ensuring that enough radiation reaches the tumor to achieve a therapeutic effect.



Plotted dose levels generated from the yttrium-90 PET/CT scan allow researchers to determine how much radiation was absorbed by the tumor. Researchers then modify the patient's treatment to ensure that enough radiation is delivered to obtain a complete response.

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is the thing which gives life  
its deepest significance.”*

*– Pablo Casals*