Hope, Courage & Inspiration

2019 Trauma Report

UT MEDICAL CENTER

EMERGENCY & TRAUMA CENTER

Our Mission | To serve through healing, education and discovery

Acknowledgments

The University of Tennessee Medical Center's Level I Trauma Center works daily to advance trauma care in East Tennessee and beyond. As the only Level I Trauma Center to receive verification from the American College of Surgeons in our region, we are committed to performing at the highest level of care for our patients and their families. We offer comprehensive care, beginning with the first responders and continuing after discharge with physical therapy, support services such as the Trauma Survivors Network, and other vital resources. Our hard-working and humble providers are committed to the best outcomes for our patients, regardless of their ethnic background, gender or social situation. This report acknowledges the Emergency & Trauma staff and their unwavering dedication to their community.

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Austin McGhee suffered a traumatic brain injury in a 2014 car crash. In 2020, he graduated from college and is fulfilling his lifelong dream of becoming a school teacher. Here, he teaches Sunday School at his church in Knoxville, Tennessee.

Be a Warrior Not a Worrier

Austin McGhee experienced a remarkable recovery from a diffuse axonal injury and is now pursuing his dream of teaching.

On September 1, 2014, high school senior, Austin McGhee, waved goodbye to his family and drove to work. "He always texted when he got to work, even though it's only five minutes down the road," said his mom, Jennifer Roach.

"A little while after he left, we were out in the yard, and UT LIFESTAR (the medical center's aeromedical helicopter service) flew over the house. I realized Austin hadn't texted, and I knew in my heart it was for him."

Jennifer and her husband jumped in the car and followed Austin's normal route to work. When they arrived at the scene of the wreck, they found the burnt-out shell of his car smashed against a tree.

"I fell down on the ground, devastated," Jennifer said.

A Grim Diagnosis

After running tests, doctors at the medical center diagnosed Austin with a diffuse axonal injury (DAI). A DAI happens when an impact shakes the brain in the skull, tearing the brain's nerve fibers.

In Austin's case, he also had life-threatening brain bleed, called a subarachnoid hemorrhage. He also suffered an acute respiratory failure, where fluid builds up in your lungs.

Austin's Glasgow Coma Scale (GCS), which grades the level of a patient's consciousness, was at three, which is the lowest possible score. Doctors put him on life support and placed a tube in his throat to help him breathe. They also placed a tube in his stomach to feed him through.

According to the JAMA Network, of people with a GCS score of three, 89 percent die in the first 30 days. But the doctors were still hopeful, in part because of Austin's age. "With brain injuries everyone is so different," said Jennifer. "They couldn't tell us what to expect."

After spending several hours in the Emergency Department, Austin was transferred to the Trauma Surgical Intensive Care Unit (TSICU), where he stayed for 11 days. Jennifer stayed with him the whole time and had a front-row seat for his care. "The nurses in critical care were so good," said Jennifer. "You could tell that they loved and cared for Austin."

A Timely Visit

While Austin was at the medical center, a young woman who'd been in a car crash and had a similar brain injury came by to see him. She was still recovering, but she could walk and talk again and, said Jennifer, "That gave us hope."

During their visit, the young woman mentioned her recovery at the Shepherd Center. Located in Atlanta, Georgia, the

Shepherd Center, specializes in rehabilitation for people with brain and spinal cord injuries.

So, after 11 days in TSICU, Austin transferred to Shepherd. "We had so much support from our family, church and friends," said Jennifer. "I was able to take a leave of absence from my job so I could stay with Austin in Atlanta." Her husband and other family members came down to visit every week, as well.

One Step Forward, One Step Back

When they got to the Shepherd Center, Austin woke up. "What a miracle," Jennifer said. "I thought that meant he'd recovered. But it didn't."

They had a long, emotional road in front of them. Austin would advance in one area – for example, he relearned how to walk. But he'd regress in another. So, even though he could walk, he lost his ability to use his arms.

Neuropsychologist, D. Malcolm Spica, PhD, of The Pat Summitt Clinic, said that people's recovery varies widely as they heal from a diffuse axonal injury. "It's like being a hiker in familiar woods and encountering a new barrier," he said. "You can still get where you're going, but you must find a new path." While at times, it seemed like Austin wasn't improving, his brain's neural pathways were busy making new trails.

Learning to Live Again

After two and a half months, Austin went home. By then, he could recognize what his family was saying and even smiled at their jokes. "I'd say, 'Okay, God, I know he's in there because he's getting these jokes,'" said Jennifer.

Traumatic Brain Injury

The Centers for Disease Control estimates there are 1.5 million reported cases of traumatic brain injury every year. According to brainandspinalcord.org, diffuse axonal injuries (DAIs) occur in about half of those.

Causes of DAIs include car crashes, sports accidents, violence, falls and Shaken Baby Syndrome. For example, early in 2020, Juan Alderete, the bassist for Marilyn Manson suffered a diffuse axonal injury after crashing on his bike. They're also common in football players and soldiers.

When the brain shakes, it can be damaged anywhere. So, DAIs can cause a wide range of effects, like:

- Comas
- Paralysis
- Difficulty speaking
- Impaired social capacity
- Difficulty performing the functions of daily living, like dressing, bathing and eating

Doctors use CT scans, MRIs, EEGs and other tests to decide if someone has a DAI. After diagnosing a patient, they take measures to reduce brain swelling. Then, once the patient is stable, a multidisciplinary team works with the patient to restore them to their maximum level of function.

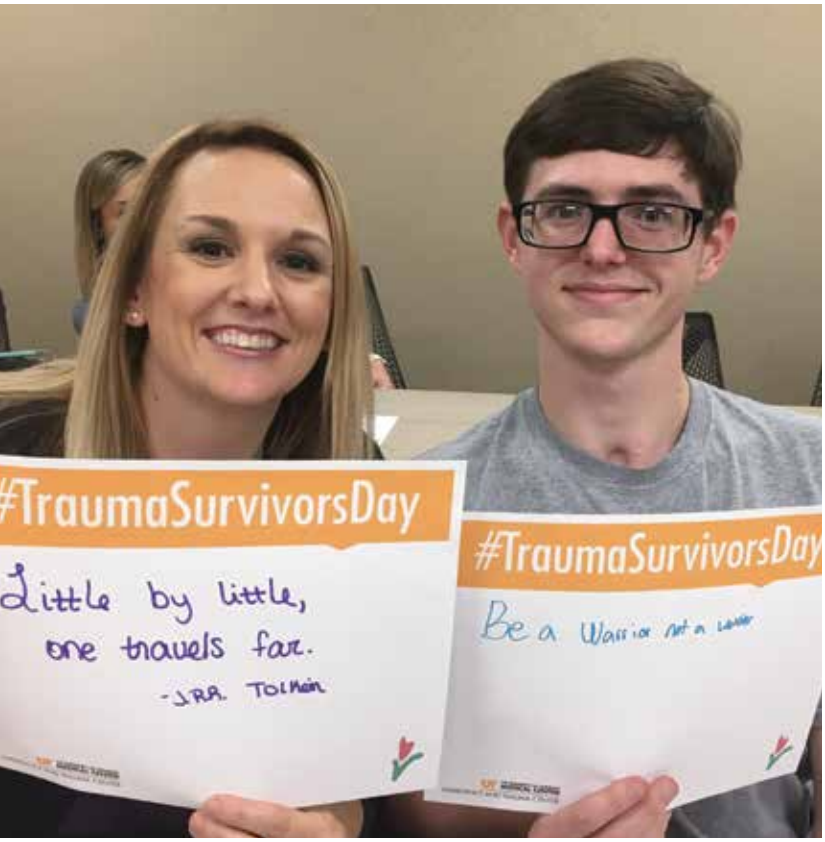
References
https://jamanetwork.com/journals/jamasurgery/fullarticle/770292

In 2014, high school senior Austin McGhee suffered a traumatic brain injury in a car crash (left). Austin spent 11 days in the medical center's TSICU (middle). He spent months relearning basic skills, like eating, walking and talking (right).

After another two months recuperating at home, Austin still couldn't communicate. "I begged him to say 'Mom.' And after four and a half months, he whispered it to me." After that, Austin slowly started talking. His first unprompted sentence was, "Good job, Caleb," when his younger brother did well on a video game.

As soon as he started talking, Austin went back to the Shepherd Center's outpatient program, called Pathways. While he was there, his feeding tube came out and he started eating on his own. He also started relearning all the skills he'd lost as a result of the traumatic brain injury.

"It was a hard and frustrating time for us all," said Jennifer. "His friends were working, going to school and applying for college, and Austin was relearning how to use a butter knife."



Austin's mom, Jennifer Roach, with Austin at a Trauma Survivor Network event at the medical center.

A Dream of Teaching

Luckily, Austin had focused on his academics before the wreck. As a result, he was so far ahead in high school he was able to graduate on time.

And his family made sure he didn't miss out on the fun of his senior year. Since he couldn't attend his school's prom, his church, family and friends threw one for him.

After he graduated, Austin decided to pursue his lifelong dream of becoming a teacher. He started with one class, gradually working up to full time, and he's now a senior. He's also student-teaching at Bean Station Elementary.

> "Becoming a teacher has been a driving force in Austin's recovery," said Jennifer.

Although it now takes him longer to do things than it did before, Jennifer believes that's a good thing. "He had it so easy, academically, before the wreck," she said. "But now, he also understands the kids who are struggling."

Not One Bad Day

Jennifer said that the thing she's most proud of is that Austin never asks, "Why me?"

"You hear about people who've become angry, have outbursts and all that stuff," said Jennifer. "But Austin doesn't. He has his down days, sure. And he gets frustrated at not being able to keep pace with friends. But otherwise he's happy." And, she noted, it's made him more mature because he's been through so much.

Jennifer said her family has seen God's hand in everything. For one thing, this has given their family an opportunity to be on the receiving end of their community's support. "We've always been the givers, but this has allowed us to be on the receiving end, which has been a blessing."

A positive attitude is what gets them through. "If you don't have that," asked Jennifer, "then what do you have?"

Attending a Trauma Survivors Network meeting at the medical center are: Front row: Cheryl Nehls, John Nehls, Emily Gilstorff, Mackenzie (Mack) Johnson; back row: Jimmy Smith, Chonci Houston, Jessica Inscore, Mary Beth Nehls, Julie Gray, KelliAnn Hume, Jeannée Johnson

Trauma Survivors Network

The Trauma Survivor Network (TSN) is a community of patients and families who are looking to connect with one another and rebuild their lives after a serious injury. The TSN website provides a place for trauma patients and their loved ones to connect with others and get the information they need to help rebuild their lives. You can visit the website at traumasurvivorsnetwork.org.

The medical center's Trauma Survivors Network provides these programs:

Peer Visitation - Former trauma patients and caregivers are trained to be peer visitors. Peer visitors volunteer their time to visit patients and their families in the hospital and share experiences from their road to recovery after a serious injury. Peer visitors can answer your questions from the perspective of someone who has been there. This year we started to incorporate phone peer visits to provide support for patients who have been discharged.

Let's CHAT Survivors Support Group - This is a general support group for trauma survivors that is held the first Tuesday of the month from 6-7 pm.

Snack & Chat - Family and friends of patients currently admitted to our Trauma Center are invited to take time to relax, have a snack and learn more about the emotional impact of trauma. The group meets once a week in the Trauma Surgical Intensive Care Unit on Tuesdays at 2 pm. Mobile Snack & Chat occurs at 10 am on Thursdays with TSN team members going to 5, 7 and 10 East to serve visiting family and friends.

iPad lending - TSN has iPads available to inpatient trauma patients. They can be checked out for one day at a time.

For more information about TSN programs please contact the TSN Coordinators at 865-305-9970 or TSNCoordinator@utmck.edu .

2019 Stats

TSN's outpatient support group, Let's Chat averaged four participants in each session.

TSN Coordinators supported 1,301 patients with 28 percent receiving follow up visits. During the initial visit patients and their families are given the Trauma Patient Handbook, a brochure about the TSN program and any resources or information the patient may need support with.

Twenty-nine peer visits occurred during 2019. Peer visitors dedicated nearly 25 hours apiece to the TSN program and conducting peer visits.

trauma survivors network provided by ATS

survive. connect. rebuild.

Trauma survivor Emily Gilstorff says, "The love and support we got from the medical center got us through. We've made lifelong friends there."

Emily's Miracle

Emily Gilstorff suffered a traumatic brain injury when the ATV she was riding flipped. Now, five years later, her mom says, "A lot of people don't even know she's had an injury."

It was a gray, rainy day in Tazewell, Tennessee, in October 2014. "We waited for a break in the showers," said Emily Gilstorff, 26, of Ypsilanti, Michigan. Emily, who worked as a patient care tech at Saint Joseph Mercy Health System in Ann Arbor, was vacationing with her family. "When the sky cleared, my parents, cousins and I hopped on the four-wheelers and went for a ride."

On the way back home, Emily's mom, KelliAnn, saw Emily swat something, probably a bee. As she did, Emily overcorrected, and the ATV flipped, landing on top of her.

A Guardian Angel

"I thought she was gone," said KelliAnn. Everyone else in the party had ridden ahead. Alone with her daughter, KelliAnn yelled to get the family's attention.

While she was waiting for them to return, something strange happened. "Out of nowhere, there came this man," said KelliAnn. "A tall, thin man with brown hair and a beard. He said, 'Help is on the way.' The next thing I remember was hearing sirens, and then the rest of the family was there, helping lift the ATV off Emily."

Though they searched for the man, they couldn't find him. And nobody recognized his description, including KelliAnn's uncle, who had lived in Tazewell most of his life. "I know that man was Emily's guardian angel," KelliAnn said.

Beating the Odds

Emily was taken first to the local hospital, then transferred by UT LIFESTAR that same day to The University of Tennessee Medical Center. Because of her diagnosis of traumatic brain injury, doctors gave her a 15-20 percent chance of survival.

But Emily beat the odds. She lived through the trip and was admitted to the Trauma Surgical Intensive Care Unit, where doctors put a hollow device (or bolt) in her head to measure the pressure on her brain. Eventually, the pressure was so high that the doctors did a craniotomy, removing part of Emily's skull to relieve the force.

Emily spent almost a month at The University of Tennessee Medical Center before returning home to Michigan to complete her recovery.

The surgery worked, and Emily began to improve. Once a patient with traumatic brain injury is stabilized, the next step is to start rehab. Emily – whose doctors thought she might never walk or talk again – continued to beat the odds.

"One of the therapists said, 'This girl is ready to walk,'" said KelliAnn. So, over the next few weeks, through focused rehabilitation, Emily slowly got back on her feet.

She went home to Michigan after almost a month at the medical center. There, she became a patient at St. Joseph's, on the very floor where she had worked as a patient care tech.

"She's made a miraculous recovery," said KelliAnn. "She's back at work, she drives – a lot of people don't even know she's had an injury."

She continued to improve and finally went home. For several months, she couldn't be alone because of the craniotomy. "I had to wear a helmet 24/7," Emily said. "My mom would follow me to the bathroom. I felt like I was five all over again."

Coming Full Circle

In February 2015, Emily's skull was replaced, and she was able to be more independent. Over the next couple of years, she rebuilt her life, eventually going back to work at St. Joseph's.

Now she shares her story with other traumatic brain injury patients and families. "I feel especially called to work with young people," she said. "I tell them, 'I was in your position. I know what you're going through.'"

A Story That Doesn't End

The family's life changed forever that day, but that includes changes for the better. "The love and support we got from the medical center got us through," said Emily. "We've made lifelong friends there."

"We wouldn't have gotten through without the kindness and expertise of people at The University of Tennessee Medical Center" said KelliAnn. "They mean so much to us. We go back for Trauma Support Network events, or when we're in town visiting family. It's a story that doesn't end."

Track Emily's story on Facebook at Fight with Emily.

Links

Facebook page
facebook.com/Fight-with-Emily-376156725870375/

The Trauma Survivors Network (TSN) has become an integral part of Emily's life. Here, Emily poses with TSN team members (left). Emily and her mom, KelliAnn Hume, wear their Tennessee orange (middle). On a visit to Knoxville, Emily reunited with some of the team members who helped during her almost month long recovery at the medical center (right).

Leadership

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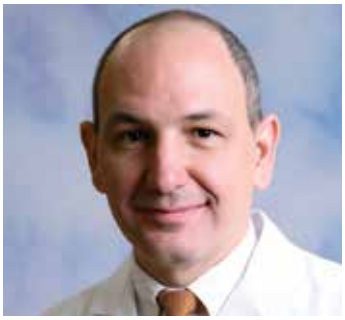

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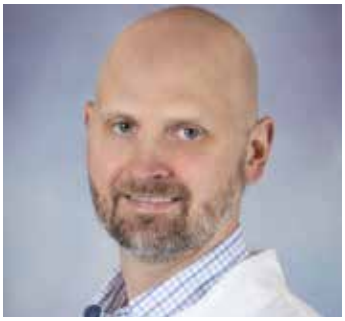

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Acknowledgments

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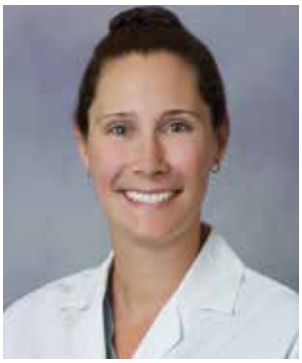

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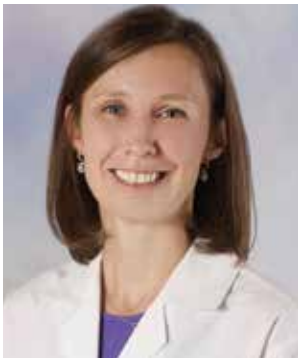


Jessica E. Taylor, MD, FACS, MBA

Trauma Multidisciplinary Liaison Team

A multidisciplinary trauma peer-review committee was formed to include liaisons from all the subspecialty groups that are involved in trauma care. This committee meets monthly to review all aspects of trauma care, including systematic review of all mortalities, significant complications and process variances associated with unanticipated outcomes. Our goal is to improve patient care, including prehospital care, acute care issues, post-discharge requirements as well as outreach and injury prevention.

J. Doug Keller, DO
Trauma Anesthesia Liaison

William E. Snyder, Jr., MD
Trauma Neurosurgeon Liaison

J. Michael McCoy, DDS
Trauma OMFS* Liaison

Brian M. Tonne, MD
Trauma Orthopedic Surgeon Liaison

Anneliese Cuttle, MD
Emergency Department Medical Director and Trauma Liaison

Steven P. Knight, MD
Trauma Radiology Liaison

*Oral and maxillofacial surgery

Brad Hood, medical center chaplain (left), comforts a patient in the Emergency Department, while team members look on.

The Lessons Our Patients Teach Us

By Brad Hood, Chaplain

As staff chaplains, we oversee the region's only Clinical Pastoral Education program. In this program, ministers from around the country come to the medical center to have an interfaith, hybrid-learning experience — one that blends time in the classroom with time in the hospital. While we can teach the theory of being a staff chaplain in the classroom, though, we can only learn some lessons from our patients.

I'm reminded of a patient named John, who — while driving his new sports car though the Smoky Mountains — lost control, skidded down a hill and out of sight of the road. He was injured, unable to move and without cell coverage.

John spent the night lying beside his wrecked car. With the remaining battery life on his phone, he recorded video messages for his wife and children.

"That was the loneliest I have ever felt. I was sure I would never see them again," he said.

Another motorist found John the day after his accident. UT LIFESTAR flew John to the medical center, where he was treated by the trauma team.

Reunited with his grateful family, John showed them the videos he made. "I wanted them to know I was thinking about them on what I thought would be the last day of my life."

John learned the helplessness, fear and resolve that only come through near-death experiences. Through his videos, his family gained a new understanding of the love they have for each other. And I was reminded that, no matter how fragile life is, love always prevails.

About Pastoral Care

The University of Tennessee Medical Center's Pastoral Care Department is home to the region's only Clinical Pastoral Education program. The CPE residents and students train in a robust clinical environment, rich with learning opportunities and surrounded by experienced staff chaplains and supervisors. Learning in the classroom is complemented with visits to patients and families. A chaplain staffs the hospital 24/7/365.

A student in a Stop the Bleed class learns to apply a tourniquet.

Stop the Bleed

By Gigi Taylor, Trauma Outreach Coordinator and Debi Tuggle, Injury Prevention/Pediatric Trauma Coordinator

The Stop the Bleed campaign efforts, launched by the medical center in 2017, continue to make an impact in the East Tennessee region. The campaign was officially launched by the White House in October 2015, as part of the Presidential Policy for National Preparedness to build national resilience through public awareness, education and training. To date, the medical center has held 202 courses, training over 4,700 individuals. We have also trained 250 additional instructors from health care, EMS services and law enforcement. The Stop the Bleed campaign is a one-time course designed to teach the lay public learner to recognize life threatening bleeding and how to perform proper bleeding control techniques, including applying direct pressure, packing wounds and applying tourniquets. This simple one-hour course empowers the civilian to become confident in their ability to help in a life-threatening situation, as well as be assured they are not going to cause harm.

A secondary goal of the campaign is to place bleeding control kits in public locations, such as schools, churches and businesses. Through different grants, Trauma Services has been able to purchase individual bleeding control kits and has been able to give out 100 free kits to different groups and businesses where courses have been requested. Several medical center Stop the Bleed instructors have reported sightings of bleeding control kits alongside public AEDs in airports and on college campuses, further supporting that the campaign is working and making a difference. The University of Tennessee Medical Center has also placed individual bleeding control kits at the two main entrances to the hospital for quick access to bleeding control supplies by medical center team members in a life-threatening bleeding situation. Through efforts like these, we are striving to bring this life-saving training to everyone in our region.

As part of the Stop the Bleed program, the medical center placed bleeding control kits at the two main hospital entrances. to the hospital.

For more information: UTMedicalCenter.org/stopthebleed

SBIRT Program

Trauma Services levels up with its Screening, Brief, Intervention, Referral and Treatment program, through patient interventions and community partnerships.

Unhealthy alcohol use is one of the many reasons that traumatic injuries occur. In 2017, the medical center started the Screening, Brief, Intervention, Referral and Treatment (SBIRT) program. The American College of Surgeons' Committee on Trauma requires that Level I and Level II trauma centers have a mechanism to identify problem drinkers and that Level I centers have the capability to provide brief interventions for patients who screen positive. About 25 percent of adults in the United States drink too much, which leads to a higher percentage of injuries each year. The SBIRT program was developed to help identify the 25 percent of risky or hazardous alcohol users. Approaching patients during the "teachable moment" of their traumatic incident provides a higher chance to bring awareness to their alcohol use and refer them to treatment.

Research shows that SBIRT can reduce DUI arrests, health care costs and alcohol-related trauma incidents by up to 50 percent. Universal screening helps Trauma Services identify drinkers that are often missed by other medical practitioners because they do not exhibit the symptoms of dependence.

The implementation of the SBIRT program has been beneficial to the trauma patient population at The University of Tennessee Medical Center. All admitted trauma patients are screened for risky alcohol or drug use and those who screen positive receive a brief intervention. The brief intervention evaluates the patient's readiness to change, if they want to cut back on their use or if they plan to abstain. If the patient is interested in treatment upon discharge, they are then referred to an external treatment facility that is best suited for their substance use.

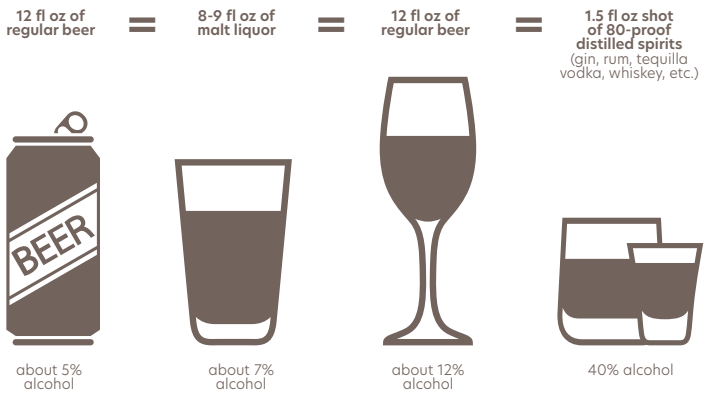
As the program has grown, so have the medical center's numbers in helping those who truly need it. In 2017, the medical center completed 1,095 SBIRT screens, placed seven referrals for trauma patients that committed to substance use treatment post-discharge and provided nine educational resources to trauma patients and their families.

In 2018, the medical center completed 1,214 SBIRT screens, placed 24 referrals for trauma patients that committed to substance use treatment post-discharge, and provided 355 educational resources to trauma patients and their families.

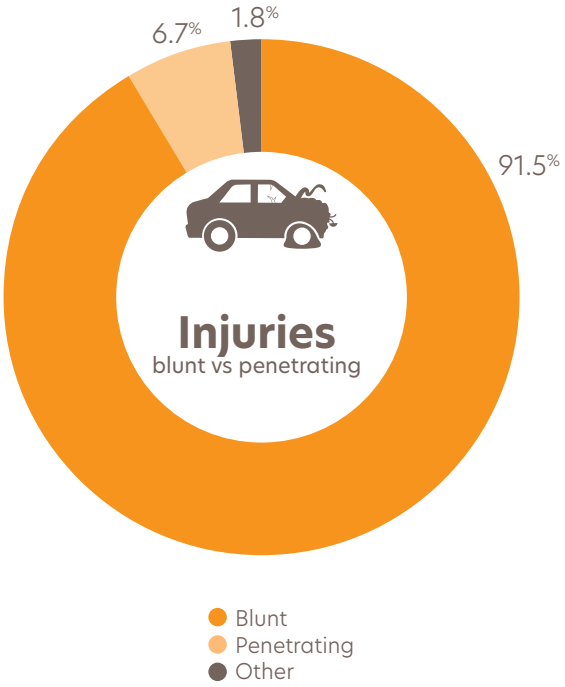
Low-Risk Drinking Limits		Men	Women
	On any single *Day*	No more than **4** drinks on any **day**	No more than **3** drinks on any **day**
		AND	***AND***
	Per *Week*	No more than **14** drinks on per **week**	No more than **7** drinks on per **week**
To stay low risk, keep within BOTH the single-day AND weekly limits.			

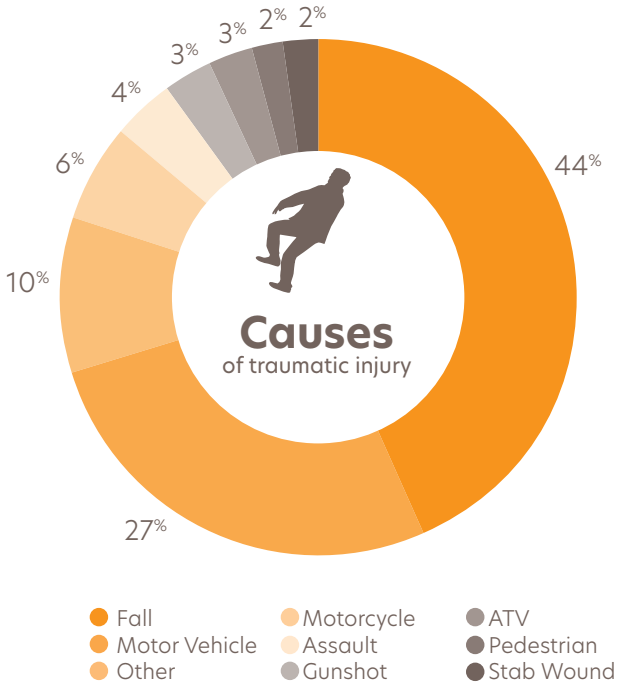
Then in 2019, the medical center completed 1,616 SBIRT screens, placed 27 referrals for trauma patients that committed to substance use treatment post-discharge and provided 651 educational resources to trauma patients and their families.

It is our goal to provide the best care to our patients and that means being aware that emotional trauma is just as important as physical trauma. The SBIRT program and the external partnerships that have been made help provide another chance to those who are often impacted by the negative stigma associated with substance use.



Causes of Traumatic Injury





Top 3 Mechanisms of Injury by Age Group

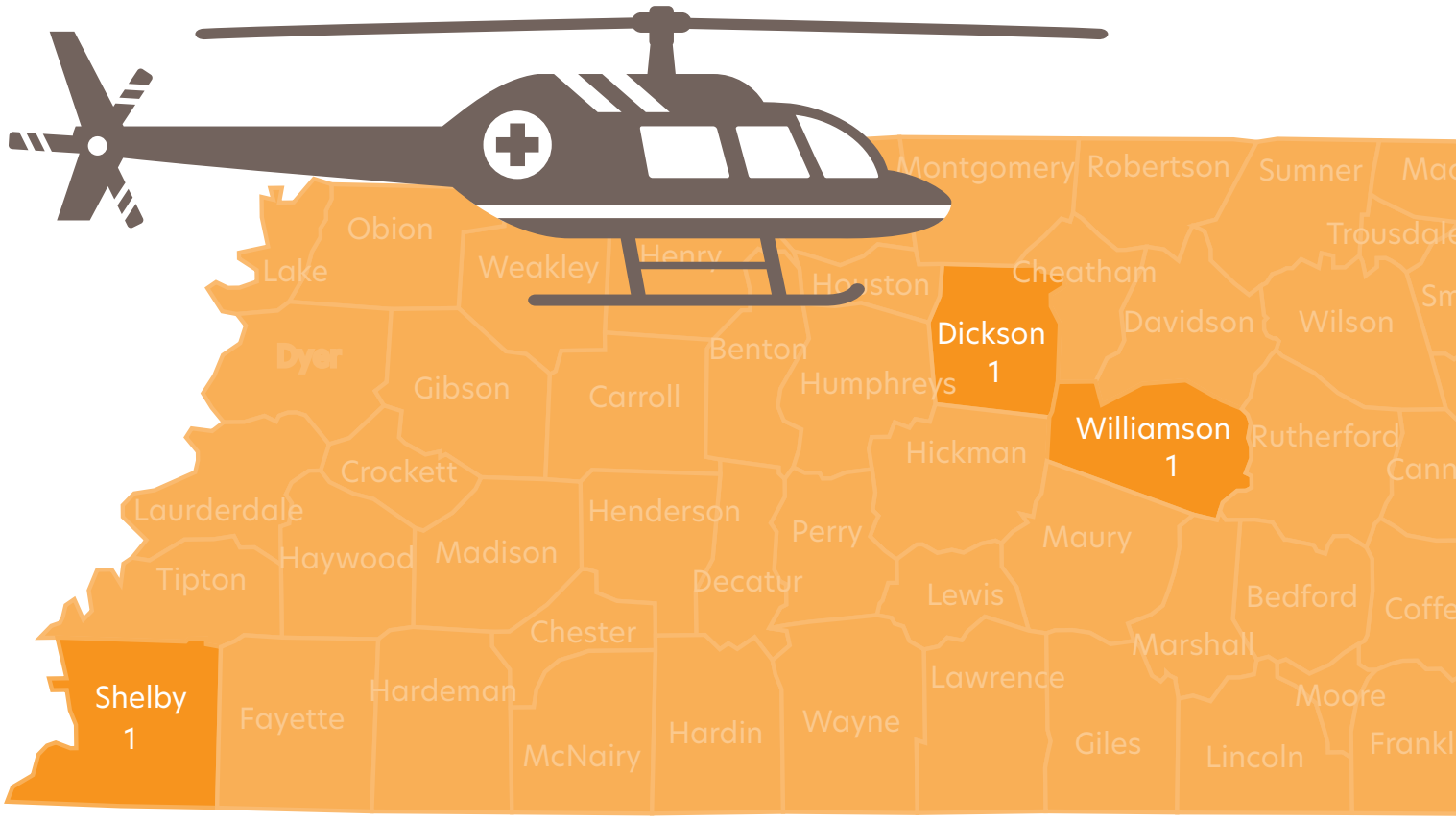
Age	1	2	3
0-13	Motor Vehicle Crash	Falls	All-Terrain Vehicle
14-17	Motor Vehicle Crash	Falls	All-Terrain Vehicle
18-25	Motor Vehicle Crash	Falls	Motorcycle Crash
26-45	Motor Vehicle Crash	Falls	Motorcycle Crash
46-65	Falls	Motor Vehicle Crash	Motorcycle Crash
>65	Falls	Motor Vehicle Crash	Motorcycle Crash

Injury Severity Score

A Level I Trauma Center is required to admit at least 1,200 trauma patients yearly or have 240 admissions with an Injury Severity Score (ISS) of more than 15. The scoring system that applies a numerical value to a patient's anatomical injuries.

In 2019, the Trauma Service at The University of Tennessee Medical Center admitted 1,118 patients with Injury Severity Scores greater than 15, which is almost five times the national requirement for a Level I Trauma Center.

Trauma Patient Distribution by Injury Severity Score		
	ISS	Number of Patients
Minor	<8	1631
Moderate	8-15	2120
Serious	16-24	755
Severe	25-40	329
Critical-Maximum	41-75	34

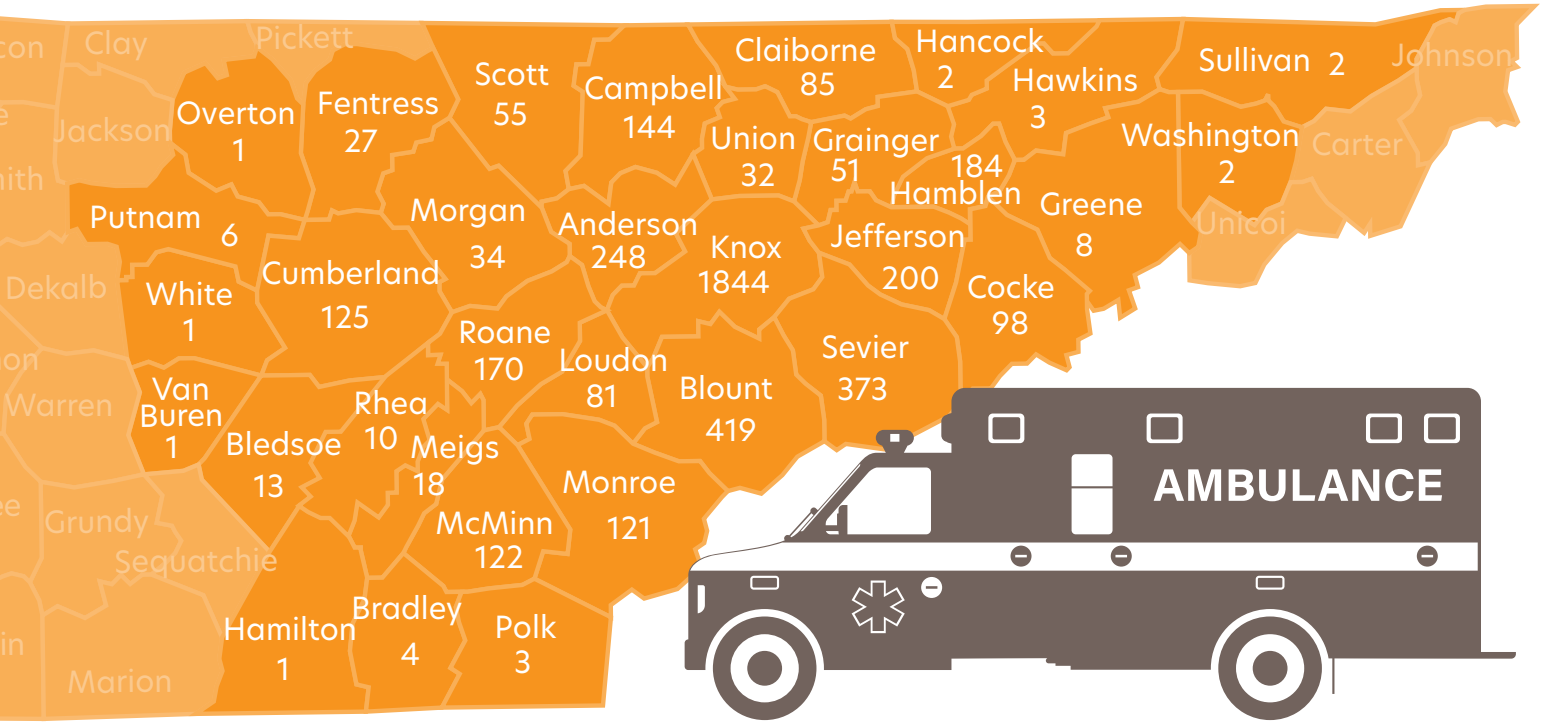


Referring Hospitals

Big South Fork Medical Center	72
Blount Memorial Hospital	260
Claiborne Medical Center	71
Cumberland Medical Center	246
East Tennessee Children's Hospital	3
Fort Loudon Medical Center	86
Fort Sanders Regional Medical Center	135
Hancock County Hospital	2
Hawkins Co. Memorial Hospital	1
Jamestown Regional Medical Center	18
Jefferson Memorial Hospital	106
Jellico Medical Center	54
Johnson City Medical Center *	5
LaFollette Medical Center	133
Laughlin Memorial *	4
LeConte Medical Center	217
Methodist Medical Center	156
Morristown-Hamblen Healthcare System	149
Newport Medical Center	96
North Knoxville Medical Center	116
Parkwest Medical Center	159
Rhea Medical Center *	3
Roane Medical Center	113
Tennova Healthcare (Cleveland) *	3
Starr Regional Medical Center (Athens)	94
Starr Regional Medical Center (Etowah)	16
Sweetwater Hospital	141
Turkey Creek Medical Center	18
Bristol Regional Medical Center*	4
Holston Valley Medical Center*	5
Cookeville Regional Medical Center*	7
Kentucky hospitals	102

* Outside of Region

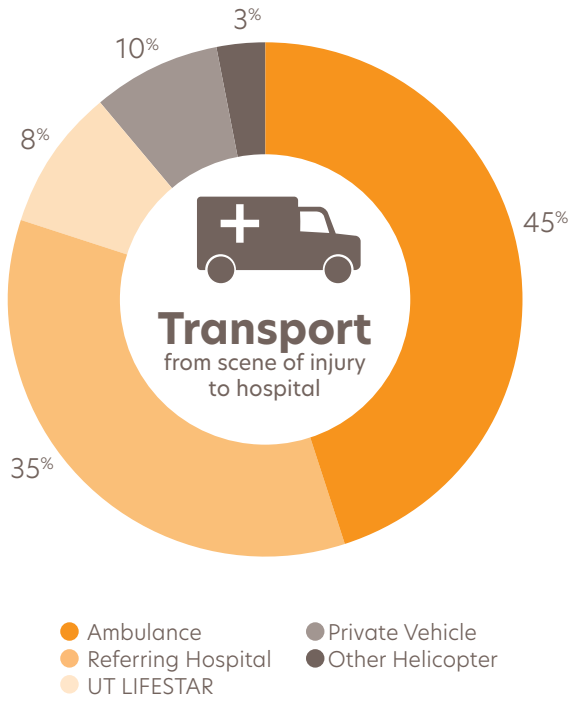
Trauma Patients by County of Residence

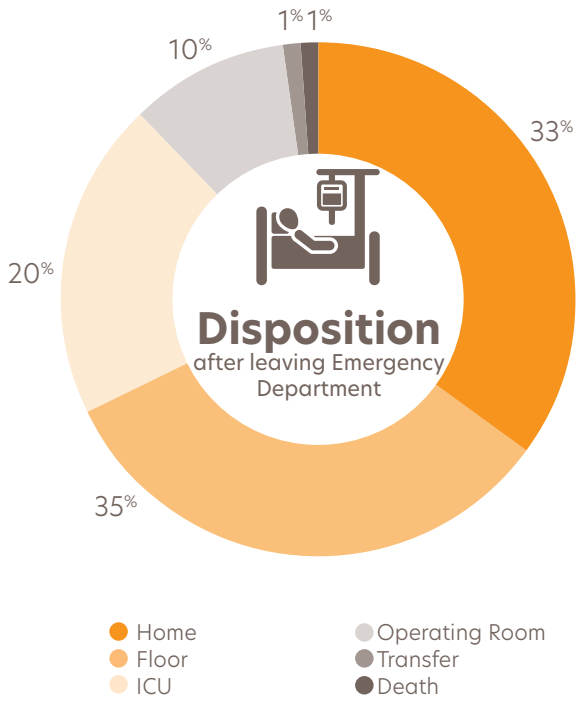


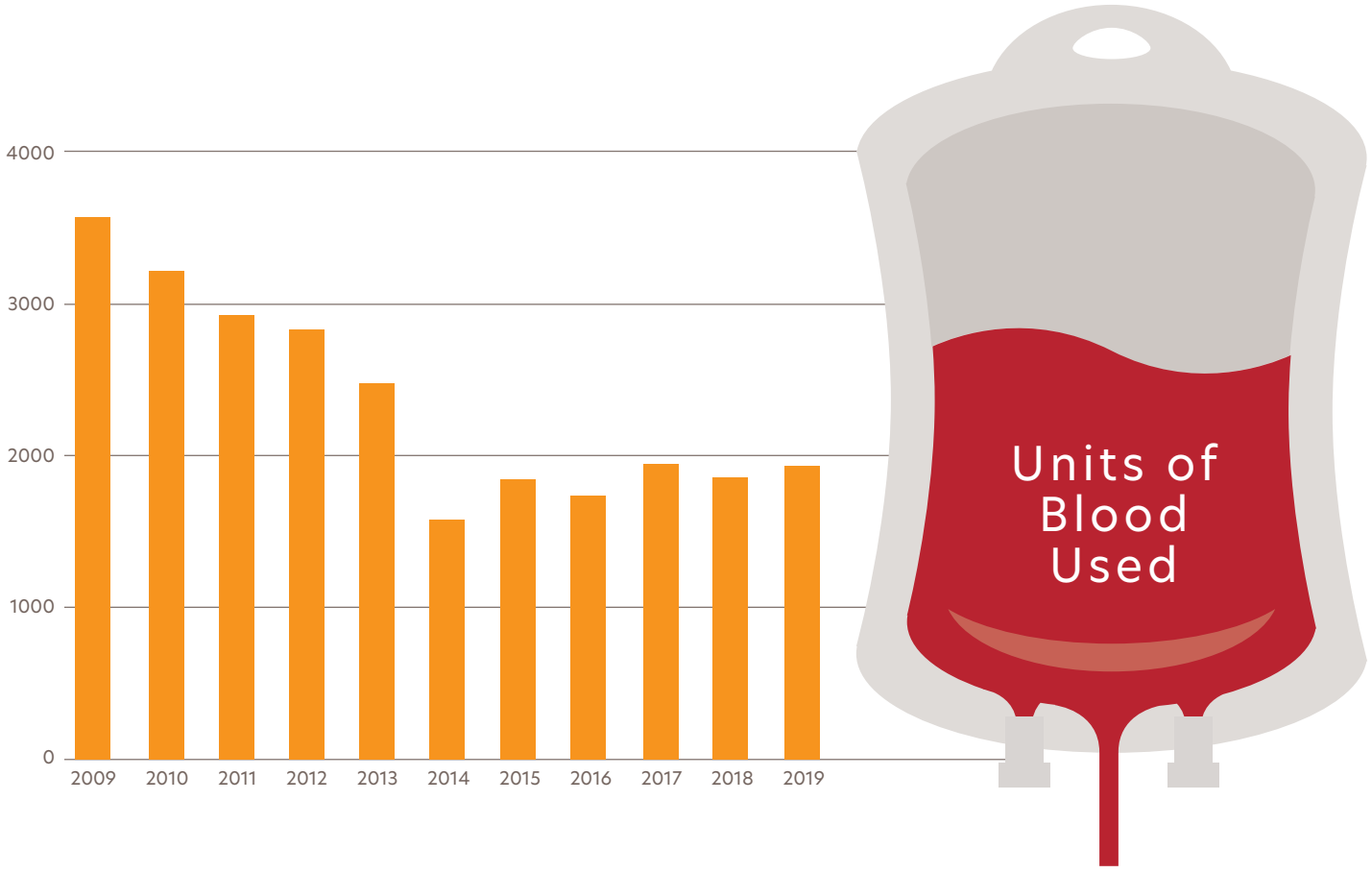
Trauma Patients' Home States

Alabama	37
Arkansas	2
Arizona	1
California	3
Colorado	1
Connecticut	4
Florida	60
Georgia	53
Iowa	4
Illinois	18
Indiana	26
Kansas	2
Kentucky	294
Louisiana	8
Massachusetts	2
Maryland	10
Michigan	23
Minnesota	2
Mississippi	9
Missouri	5
North Carolina	76
New Jersey	10
New York	10
Ohio	43
Oklahoma	1
Pennsylvania	5
Rhode Island	1
South Carolina	21
South Dakota	1
Tennessee	6,719
Texas	16
Utah	1
Virginia	42
Wisconsin	2
West Virginia	4
Outside U.S. Territory	28

Arrivals and Hospitalizations

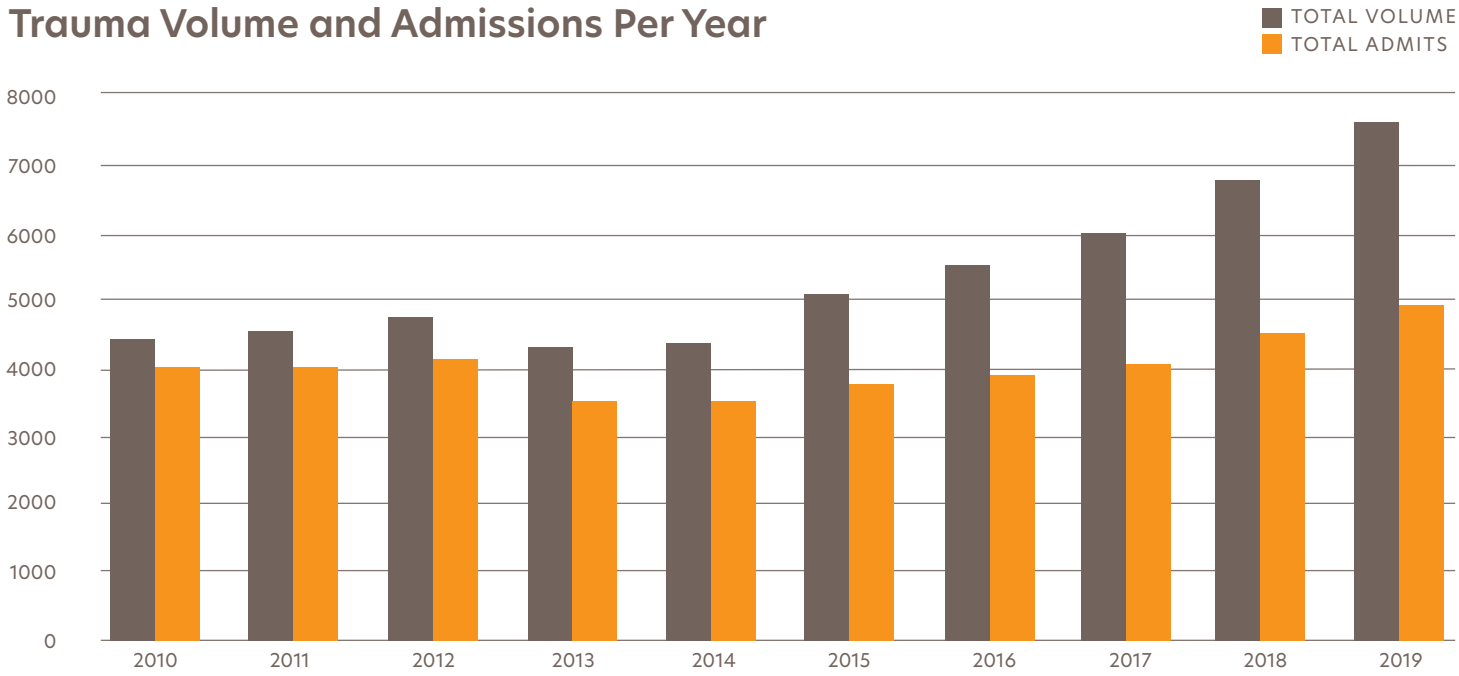




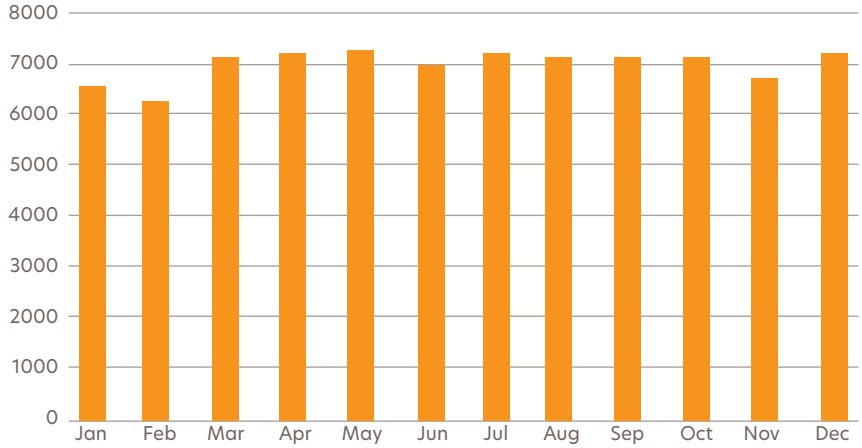


Admissions and Visits

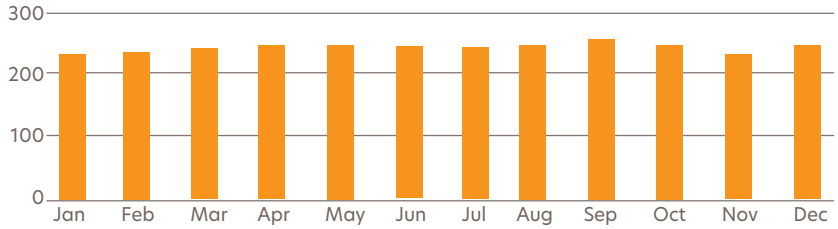
Trauma Volume and Admissions Per Year



Emergency Department Patient Volumes by Month



Emergency Department Patient Daily Volumes by Month



On-Call Specialists

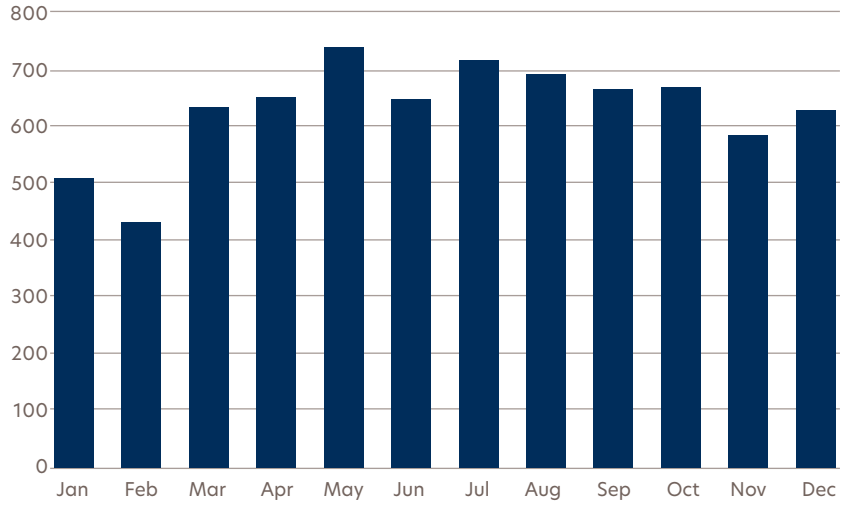
Top 3 Groups Receiving the Most Consults		
Specialty	Consultations	Operations
OMFS*	1,072	668
Neurosurgery	1,931	315
Orthopedics	3,211	1,965

*Oral and maxillofacial surgery

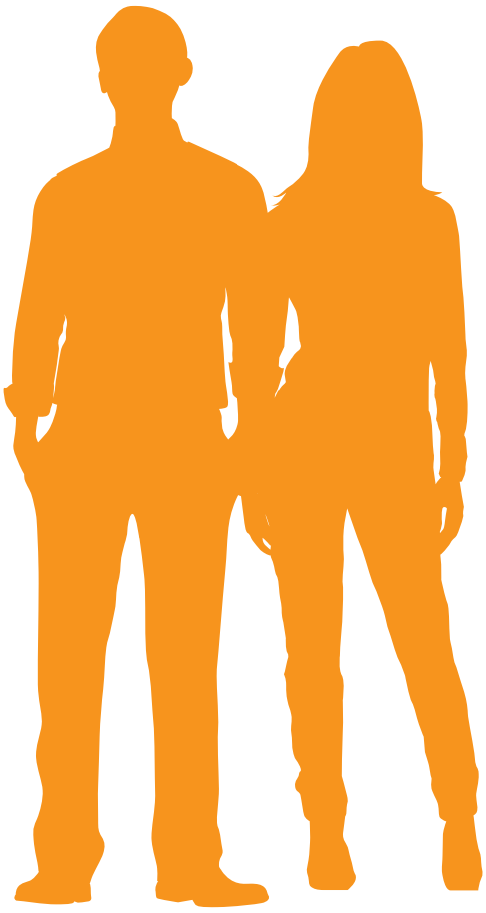
As a Level I Trauma Center, the University of Tennessee Medical Center is required to have general surgeons, Emergency Medicine physicians, Intensive Care physicians and anesthesiologists in-house at all times. Other specialists and a full range of equipment must also be available 24 hours a day, 7 days a week, 365 days a year.

Patient Distribution

Patient Distribution by Month



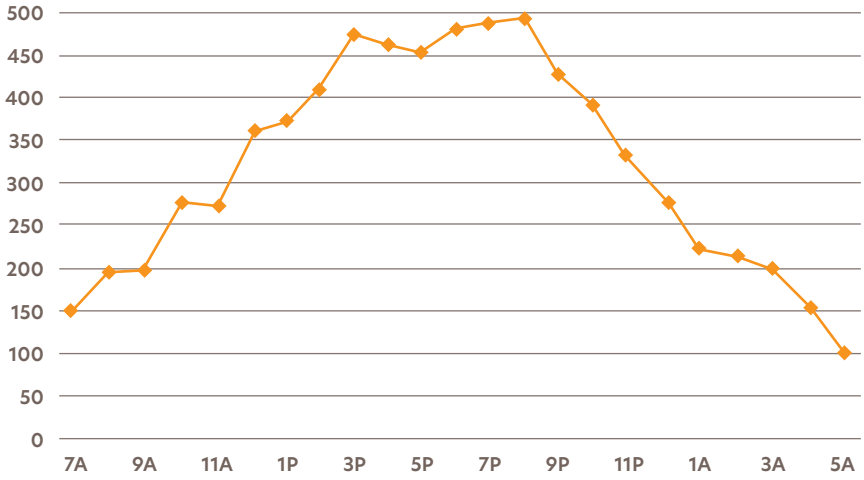
Gender Distribution



58% Male

42% Female

Patient Distribution by Hour of Day



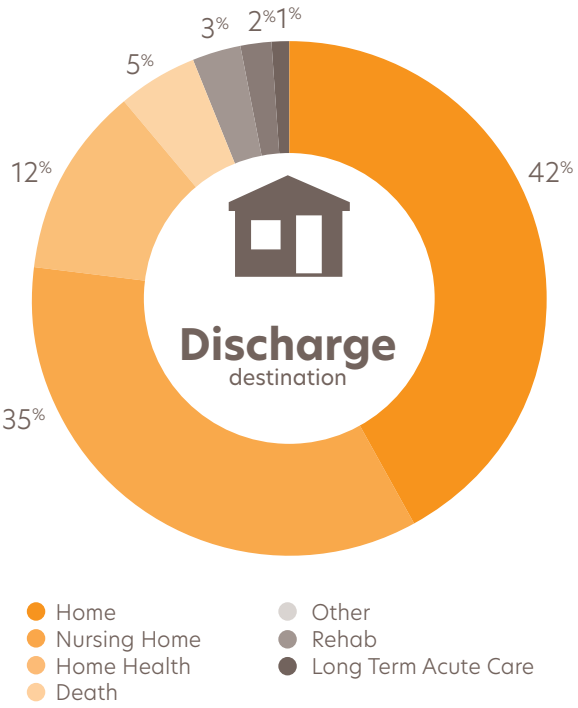
Patient Distribution By Day of the Week

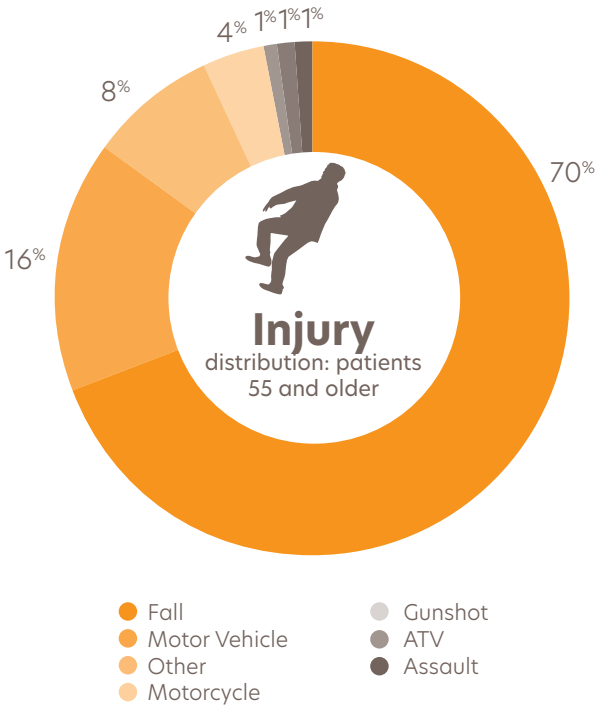
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
940	1017	1052	1107	1133	1230	1066

Patients 55 and Older

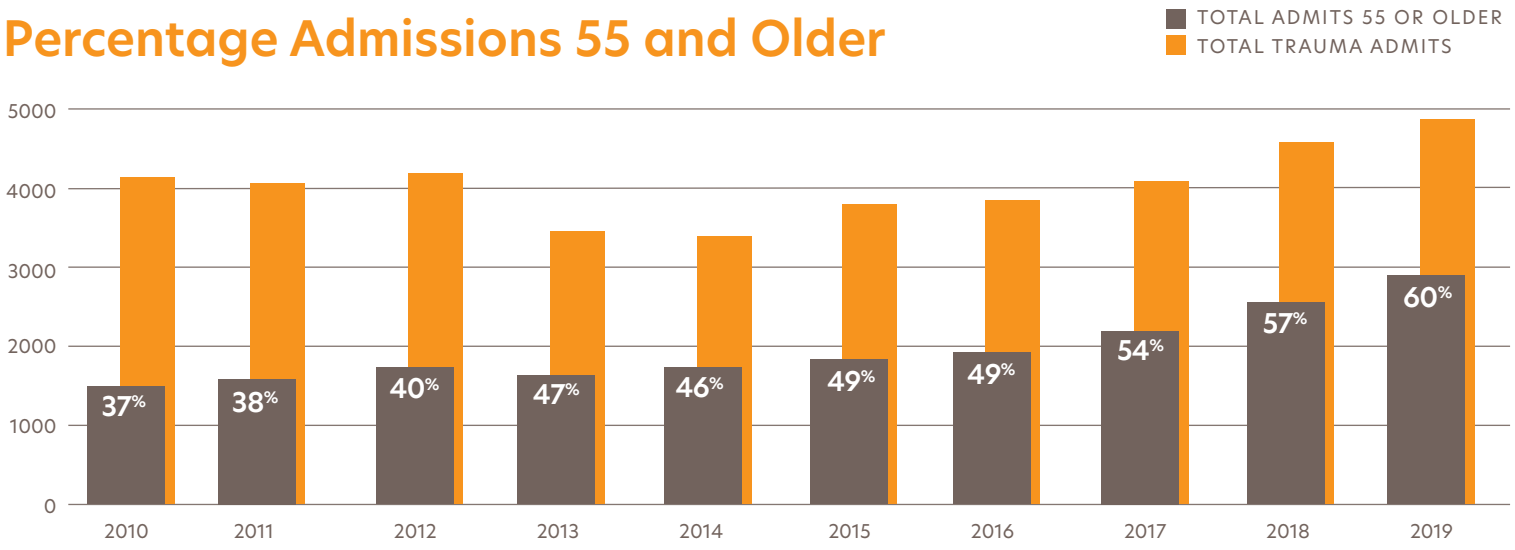
People aged 55 and older are the fastest-growing segment of the population as the baby-boomer generation ages and enters their "golden years." This has resulted in a steady increase in trauma-related admissions in this population. Consistent with patterns across the nation, at The University of Tennessee Medical Center, falls are now the leading cause of unintentional injury in the older adult population, accounting for 70 percent of the admissions. Numerous studies show an increased death and disability in older adult trauma patients when compared to a younger population; therefore, it is imperative for older adults to be rapidly transported to a trauma center—ideally during the first hour.

Injury Severity Score Age 55 and Older		
	ISS	Number of Patients
Minor	<8	898
Moderate	9-15	1,376
Serious	16-24	407
Severe	25-40	182
Critical-Maximum	41-75	16

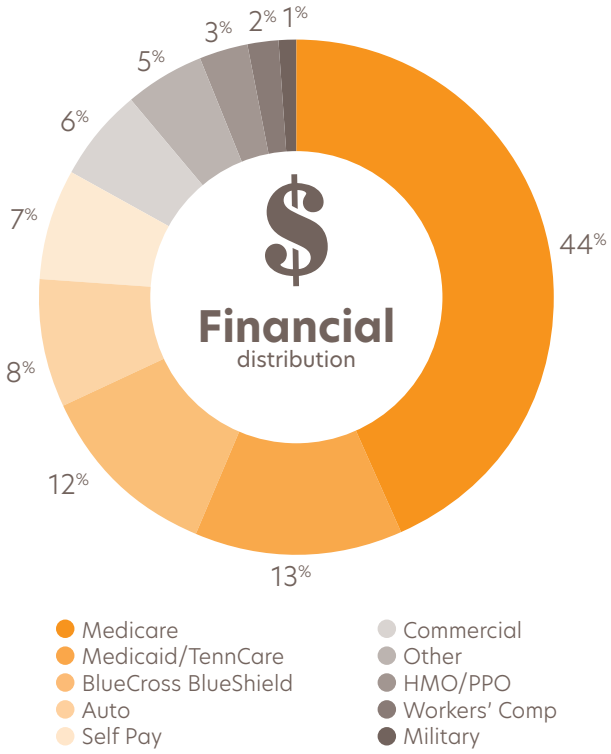


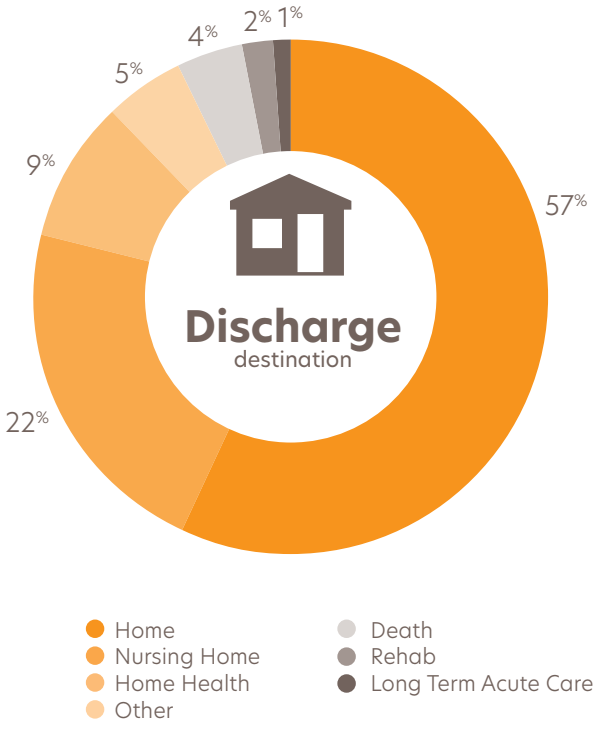


Percentage Admissions 55 and Older



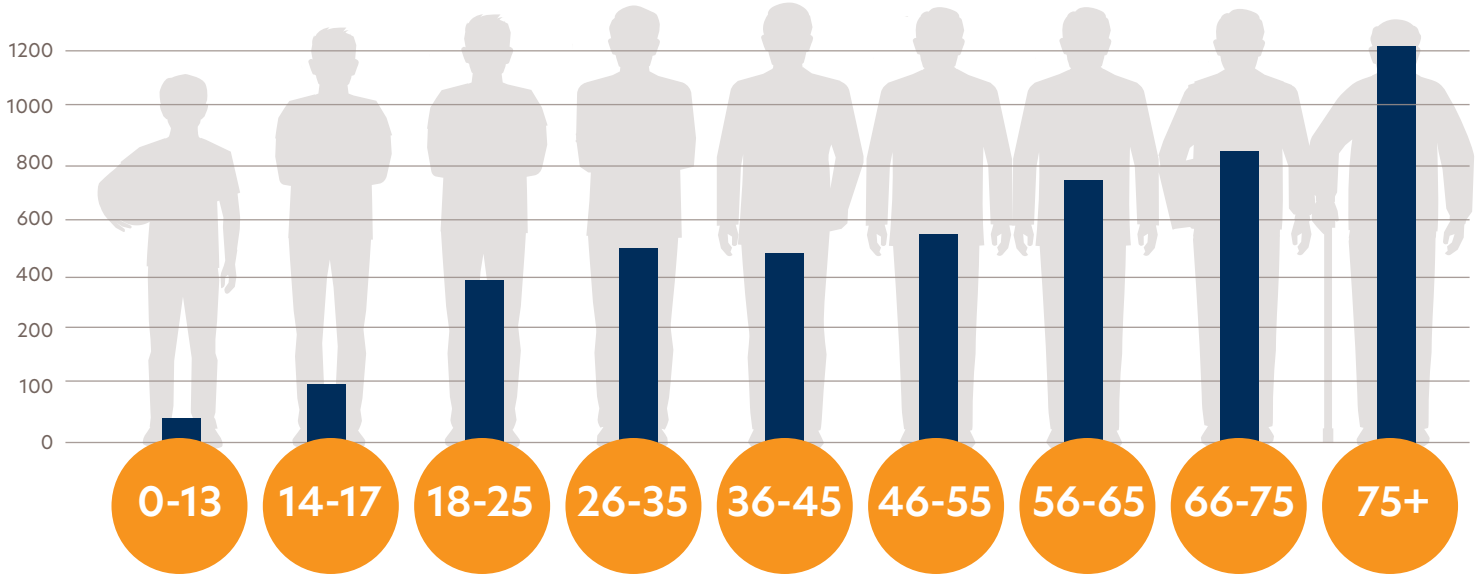
Trauma Center Statistics





Trauma Services, at The University of Tennessee Medical Center, provided uncompensated care to over 1,120 severely injured patients in 2019. The average gross charge for each of these cases was $37,500.

Trauma Patients Distribution by Age

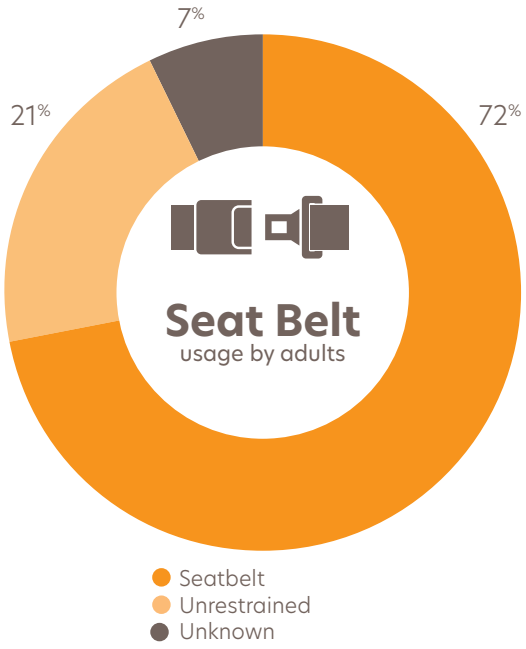


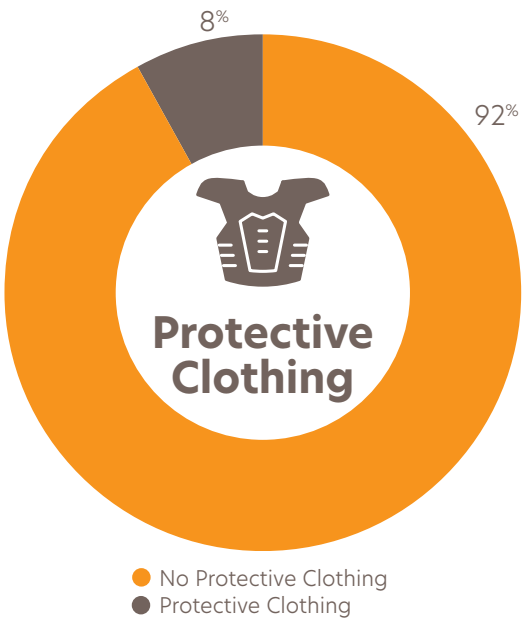
Injury Prevention

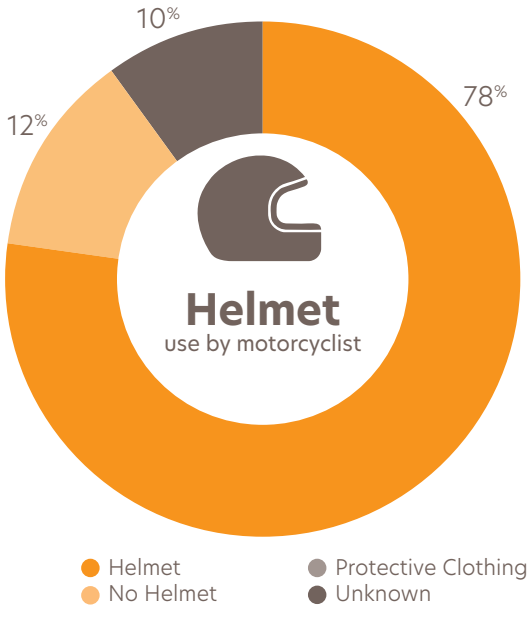
Injury Does Not Occur by Accident

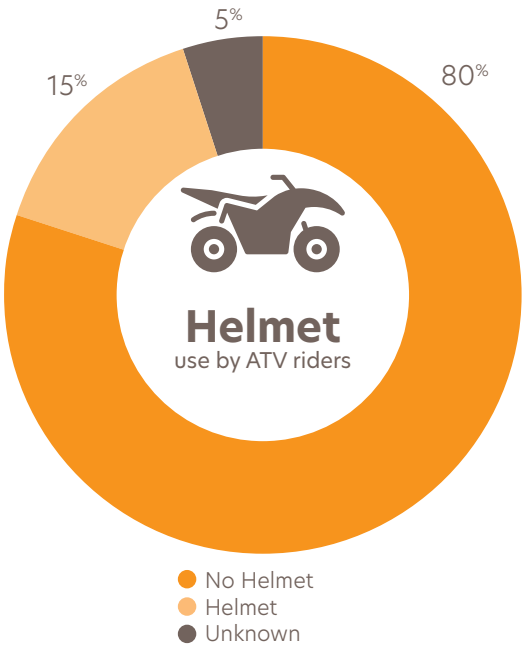
Though it may be unintentional, injury does not occur by accident. Trauma Centers play an important role in identifying injury patterns and risk factors in patients, families and communities. For many injuries, prevention is the best means of dealing with a public health problem.

Use of protective equipment has been proven to increase survivability if you are involved in a crash. At the medical center, we treat many patients that do not use protective equipment when driving or participating in recreational activities. Only 72 percent of the patients involved in motor vehicle crashes were wearing seat belts at the time of their accident. An alarming number of ATV enthusiasts do not wear a helmet while riding; approximately 15 percent of the riders admitted to the Trauma Center were wearing a helmet when their accident occurred. Motorcyclists are more likely to wear a helmet when they are involved in a collision; after all it is the law. However only 78 percent of the motorcyclists were helmeted, leaving room for improvement.



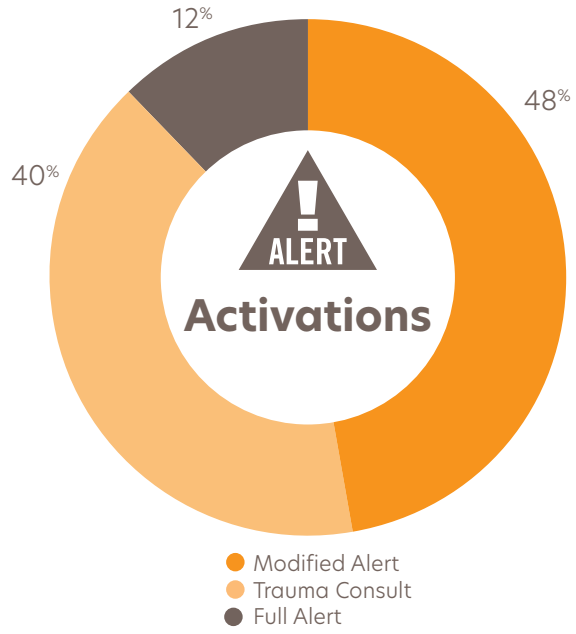






Trauma Alert Activation

Trauma alert activation is assessed as emergency medical service crews transport patients to the Trauma Center and they communicate patient information to the Emergency Department. This vital on-scene information allows the activation of one of our three-tiered trauma team responses. Levels of activation are determined by the local, state or American College of Surgeons field triage criteria, and applied based on the medical condition of the patient. Once the trauma team is activated, a multidisciplinary team unites and awaits the injured patient's arrival to ensure rapid evaluation and treatment.



TRAUMA ACTIVATION CHART

Call per EMS radio or UT LIFESTAR of incoming trauma

TRAUMA ALERT?

YES

Full Alert/Modified Alert/Trauma Consult activation per trauma pagers

FULL ALERT	MODIFIED ALERT	TRAUMA CONSULT
Trauma Team Activation • Attending surgeon • Trauma residents • RNs • Lab • ED tech • Pastoral Care • Pharmacy • CT scan/X-ray ready • Respiratory therapy • 4 units emergency release blood at bedside	**Trauma Team Activation** • Attending surgeon • Trauma residents • RNs • Lab • ED tech • Pastoral Care • Pharmacy • CT scan/X-ray ready	**Resident Paged** Resident on call paged to evaluate patient transferred from outside facility with single-system injuries

Decision made: admit/operating room/discharge

NO

EDE – Emergency Department Evaluation
Emergency physician evaluates and determines need for trauma consult or appropriate service consult. May discharge patient after evaluation if minor or no injuries sustained.

Trauma Consult
Resident on call paged to evaluate patient in ED

DISCHARGE

Decision made: admit/operating room/discharge

Auto-Acceptance Guidelines

This summary is intended to help emergency doctors and staff in understanding which patients can be automatically accepted, and when an attending physician must be involved in making the decision to accept or deny a transfer.

Adult Trauma

(age 14 and older)

Auto-accepted through UT LIFESTAR

Full Alert

- Confirmed BP <90 at any time
- Significant deterioration of previously stable patient
- UT LIFESTAR patients requiring blood products to maintain vital signs
- Respiratory rate <10 or >29, or intubated due to respiratory distress
- Penetrating wounds in head, neck, chest or abdomen
- Glasgow Coma Scale < 8, due to trauma
- Bilateral femur fracture

Modified Trauma Alert Criteria

All modified trauma alerts should be called for patients with objective evidence of injury. Examples include:

- Obvious long-bone fractures (open or closed) excluding injuries distal to wrist and ankle
- Flail chest
- Pelvic fractures
- Paralysis
- Penetrating extremity injuries due to gunshot (GSW) excluding injuries distal to wrist and ankle
- Suspected C-spine fracture
- Burns > 15 % BSA
- Obvious vascular injuries (excluding injuries distal to wrist and ankle)
- Traumatic pneumothorax
- Traumatic amputation (excluding injuries distal to wrist and ankle)
- GCS <13, but > than or = to 8 (history of loss of consciousness does not apply)
- Sustained pulse rate greater than 120
- >20 weeks gestation with objective evidence of injury related to a mechanism attributable to trauma
- Any injury proximal to the wrist or ankle requiring potential admission or observation (i.e. hip or knee dislocation, extensive wounds requiring surgical debridement)

Mechanism can be an additional consideration for modified alerts when accompanied by objective evidence of injury

- Fall >10 Feet
- Auto-pedestrian crash >5 mph
- High-speed motorcycle crash estimated speed >40 mph
- High-risk auto or motor vehicle crash with co-occupant death or ejection
- High rate of estimated speed >40mph
- Ejection from automobile/motorcycle/ATV (without self-extrication)
- Long extrication >20 minutes

Geriatric patients 65 years and older with traumatic mechanism and objective evidence of acute traumatic injury for modified alerts

- Taking anticoagulants (does NOT include ASA & Plavix) at the time of injury
- Sustained pulse rate of greater than 110
- Sustained blood pressure under 110

Trauma Consult

Single-system injuries including but not limited to:

- Fractures from a ground-level fall
- Rib fractures
- Closed head injury with Glasgow Coma Scale 14 or greater
- Spinal fractures without signs and symptoms of paralysis, radiographic evidence of retropulsion or cord involvement
- Distal long-bone fractures, appropriately splinted and no neurovascular compromise
- Facial fractures (patient can protect airway and there is no active bleeding)
- Snakebite with envenomation

NOTE

- All acceptance criteria are affected by and may differ when medical center in-patient beds are at capacity.
- Trauma patients can be auto-accepted with partial workups when a major life-threatening injury is identified (e.g., head bleed) and/or with obvious injury (e.g., obvious fractures, paralysis on clinical exam) and/or with hemodynamic instability identified early in the initial resuscitation at the referring facility. Patient should be stabilized according to transfer requirements as capable at referring facility.
- Call UT LIFESTAR at 865-305-9112 for connection to appropriate admitting service or referral to Patient Placement Center.

Trauma Services Program Staff

Trauma Program Manager

Niki Rasnake, BSN, RN, CEN

The trauma program manager is fundamental to the development, implementation and evaluation of the Trauma Program. In addition to administrative responsibilities, the trauma program manager must show evidence of educational preparation, certification and clinical experience in the field of trauma care. Key responsibilities include: organization of performance improvement activities; management of the trauma registry; and coordination of outreach education and injury prevention activities at the community, state and national levels. The trauma program manager is also involved with research, analysis and facilitating protocol development within the trauma program. The trauma program manager represents the trauma program on hospital and state committees to enhance trauma care delivery and management for our patients.

Injury Prevention/Pediatric Trauma Coordinator

Debi Tuggle, RN, CEN

The injury prevention/pediatric trauma coordinator is instrumental in the development, implementation and evaluation of the pediatric trauma service and injury prevention in our community. Key responsibilities include: coordinating pediatric trauma performance improvement programs and participating in education and outreach programs, including injury-prevention programs. The injury prevention/pediatric trauma coordinator represents the pediatric trauma service on hospital committees and represents the medical center on community and state committees.

Trauma Performance Improvement Coordinator

Kelly McNutt, BS, RN, CEN, TCRN

The trauma performance improvement coordinator's primary responsibility is to monitor and continually improve structures, processes and outcomes within the institution in collaboration with the trauma medical director and trauma program manager. Other duties include trauma registry data validation and generation of performance reports. The reports generated support a number of functions, including performance improvement activities; development of research projects for publication and presentations at national meetings; and providing information to support legislative and educational initiatives, which impact the safety of our community. The trauma performance improvement coordinator collaborates with the multidisciplinary team in the daily care of trauma patients to enhance continuous quality improvement for the trauma program.

Trauma Outreach Coordinator

Gigi Taylor, MSN, RN, TCRN, CEN

The trauma outreach coordinator plays a significant role in assuring that the Trauma Center serves as a community and regional resource. Outreach programs are an integral part of Trauma Center services. These programs are designed to help improve outcomes from trauma and prevent injury through public and professional dissemination of information, and the facilitation of access to the clinical and educational resources of the Trauma Center. The components of an outreach program may include public awareness, injury prevention education or professional education. The scope of education and outreach programs depends on a variety of factors for the region, including the needs of the region as well as available resources.

Brief Intervention Coordinator

Kayla Aloisi, LMSW

The brief intervention coordinator is the newest position in Trauma Services. The brief intervention coordinator is responsible for the Screening Brief Intervention and Referral to Treatment program. Key responsibilities include: conducting drug and alcohol assessments and providing brief interventions to trauma patients that screen positive for risky behavior; building and maintaining partnerships with area treatment programs; and following up with trauma patients who were referred to a treatment program. The brief intervention coordinator also works with the trauma clinic to collect post-traumatic stress disorder screens and follows up with those who screen in a high range to provide information and resources.

Trauma Registrars

The trauma registrar is an integral member of the Trauma Center. Trauma registry data is abstracted and entered by the trauma registrar. Trauma registry data is used internally in the continuous performance improvement process at the medical center. Data is reported to the National Trauma Data Bank and the Tennessee State Trauma Registry. High-quality data begins with high-quality data abstraction and entry — it is the trauma registrar who performs this task and then analyzes the data and prepares it for distribution in its most useful format.

Becky A. Kali, RHIT, CPC, CSTR
Lead Registrar

Mandi Finchum, RHIT

Jennifer King

Linda Bushong, RHIT

Jan Ely

Karen Jenkins

Vicki Harness

Traonna Smith, RHIT

Tiffany Garrison, RHIT, CPC

Ellie McCammon, RHIT

Trauma Survivors Network

The Trauma Survivors Network (TSN) is a national program developed by the American Trauma Society. It helps trauma patients and their families connect with one another and rebuild their lives after a serious injury. The TSN coordinators at the medical center act as a liaison for patients and their families, introducing them to the program and giving them access to resources aimed at helping them rebuild their lives. The TSN is a free service to trauma survivors and their families.

TSN Clinical Coordinator

Haley Carver, BSSW

The TSN clinical coordinator serves as a point of contact for program participants and office and clinical support personnel. Key responsibilities include: facilitating educational and support groups, coordinating outreach and educational efforts, and educating the hospital staff about the program. The clinical coordinator trains and manages TSN volunteers as peer visitors and community educators. The clinical coordinator recruits trauma survivors for support group and the peer visitation program.

TSN Development Coordinator

Elizabeth Waters, LAPSW

The TSN development coordinator is responsible for submitting and managing grant proposals for foundation and corporate sources. Key responsibilities include: coordinating day-to-day operations of the TSN program with the clinical coordinator; creating and maintaining database information for program evaluation and reporting; and co-facilitating the Survivor Support Group with the clinical coordinator. The TSN development coordinator also serves as a field instructor for social work students who provide support to the TSN and other Trauma Center initiatives.

Every month, The University of Tennessee Medical Center honors those who gave and received the gift of life, with a flag raising in Flag Circle. Donor families, recipients and recipient families are invited to attend.

Organ Donation. Give the Gift of Life.

The need for organ donors is high. But there is hope.

39,717
organ transplants occurred in the United States last year

lives that can be saved through one person's organ donation

1 PERSON
added to the waiting list every

10 minutes

95
transplants take place each day in the United States, on average

20
patients die every day waiting for a lifesaving transplant

An Extraordinary Commitment to Science, Health and Hope

Tennessee Donor Services (TDS) serves nearly 5.5 million people in Tennessee and Southwest Virginia. We are a team of professionals dedicated to saving and improving lives by connecting organ and tissue donors with patients who need them. We strive to extend the reach of each generous donor's gift to those who are profoundly grateful for them.

Core Values

Our performance is measured by the impact we have on the lives of families who make transplantation possible, and the patients whose lives are saved and improved by their gifts. Each TDS employee commits every day to be selfless, hardworking, passionate and dependable.

Our Work

We are proud of our partnership with The University of Tennessee Medical Center. Our work together in 2019, resulted in 44 organ donors with 163 lifesaving organ transplants. In addition, the medical center also had 112 tissue donors in 2019.

3,200

in Tennessee are on the donor list

45

patients received kidney transplants at The University of Tennessee Medical Center in 2019

272

patients are currently waiting for a kidney transplant at The University of Tennessee Medical Center

Be a hero. Become an organ donor.

DONATE LIFE Tennessee

donatelifetn.org
877-552-5050

Tennessee Donor Services

tds.dcids.org
877-401-2517

Jenna McCue's husband, Ben, walks through the crowded hospital hallway with Jenna one last time, as team members roll her bed down the hall from the Trauma Surgical Intensive Care Unit to the operating room. Shanell Bledsoe Photography

A Ritual of Honor for Organ Donors

The medical center holds Honor Walks, so that team members, family and the community can show their respect for patients who, at the end of life, are donating organs to others.

In The University of Tennessee Medical Center's hospital hallways, nurses usually roll patients' beds quickly, the whir of their wheels accompanied by focused conversation and the beeps of monitors.

But in an Honor Walk—where medical center team members line the halls with family members to honor the last trip an organ donor will take—the pace is slow, stately.

In early January 2019, the medical center held its first Honor Walk in honor of Jenna McCue, a 34-year-old nurse, fatally injured in a car wreck. Nearly 200 people in street clothes and business suits lined the hallway alongside doctors and nurses wearing their daily work attire.

Jenna's husband, Ben, walked through the crowded hallway with Jenna one last time, as team members rolled her bed down the hall from the Trauma Surgical Intensive Care Unit to the operating room.

With the family's consent, and the doctors standing ready to begin organ donation surgery, the Honor Walk occurs at a sad, yet hopeful pause between life and death. An organ donor is either already brain dead or in the final stages of the dying process. This will be the family's final walk together with their loved one.

But, even in death, miracles can still happen. And those miracles are sorely needed. In Tennessee, 3,200 people are waiting for organ transplants and in the United States there are more than 112,500. According to Tennessee Donor Services, more than 20 people die each day while waiting on a transplant.

Organ donors, living and deceased, are the heroes who give life to others. Jenna—a beloved sister, daughter, wife and aunt; a dancer from the age of three; a nurse who saved lives while working in a hospital—saved six people through organ donation.

An Honor Walk is a solemn but sacred community act that brings us together.

We wait silently to honor a great sacrifice.

We give thanks for the life of the one taken from us and the ones being saved. We join with a grieving family in a moment of immeasurable loss.

"In her short life, Jenna taught us all how to truly love people and she devoted her life to that," Jenna's brother, Justin Petrowski said.

"She cherished every person she ever served and showed them unconditional, unceasing love. It's fitting that she was able to do that even in her death."

THE UNIVERSITY OF TENNESSEE MEDICAL CENTER

GUARDIAN ANGEL

Who's Touched Your Life Today?

Make a gift in honor of a physician, faculty member, nurse, housekeeper or another caregiver who made a difference in your stay.

WHO made a difference?

"I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel."
– Maya Angelou

Our team members are dedicated to serving our patients and their families with care and compassion. If a doctor, faculty member, volunteer or other caregiver has made a difference in the care you or a loved one received, we encourage you to recognize and honor that compassion through our Guardian Angel program.

HOW to say thank you?

Our patients often express their gratitude for the excellent care they received in a variety of ways—through kind words, smiles, letters of thanks and financial contributions.

By donating a minimum of $10, the team member that you choose to acknowledge will receive a notification of your honor and a custom-crafted guardian angel lapel pin to wear proudly throughout the medical center.

WHY is your support important?

Acknowledging an individual for a job well done is one of the most meaningful forms of support you can offer. Your donation demonstrates an understanding of the important role our team members play in enabling us to continue fulfilling our mission of excellence in patient care, education and research.

THANK YOU!

Make A Donation

Visit UTMedicalCenter.org to learn more ways to donate, or contact the Development Office at 865-305-6611 or development@utmck.edu.

UTMedicalCenter.org/give-now/

TEE UP FOR TRAUMA

Presented By: UGS University General Surgeons

2019 Golf Tournament

Benefiting the Trauma Survivors Network at The University of Tennessee Medical Center

Thank you to the event chair, Dan Wilbanks, our corporate sponsors and more than 115 golfers in the community for supporting the region's only Level I Trauma Center.

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TEAMHealth

CART SPONSOR

University Radiology

LUNCH SPONSOR

Pilot Company

BEVERAGE SPONSOR

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PAR 3 SPONSORS

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Phillips & Jordan – A Proven Solution

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- Truist
- University Orthopedic Surgeons
- Wakefield & Associates

For more information regarding sponsorship opportunities, how you can get involved, or if you would like to donate in support of our Emergency and Trauma Center, please contact the Development Office at 865-305-6611 or by email at development@utmck.edu.
