Trauma Care Advisory Council

Trauma Care in Tennessee

2022 Report to the 113th General Assembly

Tennessee Health Facilities Commission Trauma Care Advisory Council January 31, 2022

AUTHORSHIP

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State of Tennessee Health Facilities Commission

502 Deaderick Street, 9th Floor, Nashville, TN 37243 **www.tn.gov/hsda** Phone: 615-741-2364

January 31, 2023

Dear Members of the General Assembly,

As required by Tenn. Code Ann §68-59-103, we are pleased to submit our Annual Trauma Report. This report reflects activities and accomplishments of the Trauma Care Advisory Council (TCAC) and Tennessee's designated Trauma Hospitals.

The Trauma Care Advisory Council implemented in 1990 advises the Licensing Health Care Commission and other interested state Boards about the regulatory standards to ensure the adequacy of statewide trauma care. Rule promulgation is guided by national standards.

In 2007, the General Assembly enacted the Trauma Fund Law, providing valuable but limited financial resources to support and maintain Tennessee's statewide Trauma System. We appreciate the legislatures recent recognition of the need to financially bolster our statewide system and offer this report as evidence of not only that need but of our prudent expenditures solely to benefit Tennesseans.

The data in this publication give an overview of patients cared for in Tennessee designated Trauma Centers and Comprehensive Regional Pediatric Centers. With your ongoing support, the TCAC hopes to continue to expand access and quality trauma care for injured Tennesseans.

Respectfully Submitted,

Brian J. Daley, MD, MBA, FACS Professor of Surgery, UTHSC- Knoxville University of Tennessee Medical Center at Knoxville Chair, Trauma Care Advisory Council Chair, Tennessee Committee on Trauma



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January 31, 2023

Cordell Hull Building 425 Rep. John Lewis Way North Nashville, TN 37243

Dear Members of the General Assembly:

The Health Facilities Commission is pleased to distribute the Annual Trauma Report prepared by the Tennessee Trauma Care Advisory Council (TCAC) pursuant to Tennessee Code Annotated § 68-59-103. TCAC is devoted to expanding access and quality trauma care for injured Tennesseans. The Health Facilities Commission is particularly grateful to TCAC Chairman Dr. Brian Daley and HFC Trauma System Director Rob Seesholtz for their report on these efforts.

The Health Facilities Commission administers the Board for Licensing Health Care Facilities, which receives guidance from TCAC on the regulatory standards for adequacy of statewide trauma care. This report accurately details the activities and accomplishments of TCAC and its assistance to Tennessee's designated Trauma Hospitals.

Through the support of the General Assembly, the Health Facilities Commission strives to continually improve the delivery of valuable healthcare services in the state of Tennessee.

Sincerely,

Logan Grant

Executive Director

Logan Grant

Health Facilities Commission

CC: Dr. Brian Daley

Rob Seesholtz

2021 EXECUTIVE SUMMARY

Over calendar year 2021, 42,839 patients received care in a state designated trauma center or a Comprehensive Regional Pediatric Center (CRPC) due to a trauma-related injury. As the COVID epidemic persisted, traumatic injuries and resource consumption grew in Tennessee. The total number of patients managed in centers designed to improve the care of the injured has risen consistently over the last eight years, as has the designation of new centers. The effect of the care to these patients in such institutions reduces potential years of life lost, returns as close to pre-injury health levels and increases return to family, work, and community. While our state-wide system continues to grow, many injuries are underreported as patients are treated in non-trauma hospitals.

Key functions distinguishing Trauma centers are outreach and prevention. In addition, trauma centers are responsible for maintaining trauma center designation and for promoting excellence to ensure optimal care of the injured. Our trauma centers provided care for Tennesseans from every county in the state, as well as patients from nearly every state in the continental US. With the help of the Tennessee Committee on Trauma and other state agencies, the TCAC has been focusing on prevention of both pediatric and adult causes of trauma, teen suicide and seatbelt use, to helmet use, along with fall prevention in the elderly.

The Trauma Care Advisory Council was established in 1990, and now sits under the Health Facilities Commission.to promote trauma care policy and regulation. Currently, Tennessee has 5 Level I trauma centers, 1 Level II center, 8 level III centers, and 2 provisional Level III center, for 16 total adult centers. There are an associated 4 Comprehensive Regional Pediatric Centers (CRPC), treating those injured under the age of 16. TCAC constantly reviews the designation rules and integrates the verification process of the American College of Surgeons Committee on Trauma to assess the programs at the highest national standard for trauma care. TCAC has also provided support to the Council on Pediatric Emergency Care (CoPEC) to update the rules for pediatric trauma. Two of the CPRCs, three of the adult Level 1 centers and the Level 2 center have been verified by the American College of Surgeons Verification Committee of the Committee on Trauma in addition to holding state designation.

Low energy falls in our older citizens is the number one cause of trauma admission and mortality. The admissions and death rates continue to climb as our population ages, accounting for greater than 50% of admissions in several trauma centers. Unfortunately, motor vehicle crashes (MVCs) remain lethal and are the second highest cause fatality rate in the state. Gun-related suicide deaths continues to overshadow homicides at a rate of 2 to 1 at both the state and national level. These are urgent issues we as Tennesseans need desperately to address.

This report provides information on not only injury patterns across the state, referral patterns, but financial statistics. Other key aspects of this report include Injury Prevention actions and statewide research efforts – defining the outreach and prevention missions throughout our system. It is the goal of the TCAC to target future outreach and prevention activities through data from the state registry and to continually strive to improve patient outcomes through an array of performance improvement initiatives, research activities, and outcomes-based evidence research. Many centers have devised programs to educate the elderly on fall risk, "Battle of the Belts" for high school student awareness of seatbelt use and motorcycle and ATV safety education. The 'Stop the Bleed' education continues to be actively taught so bystanders to any traumatic event know a simple method to stop active hemorrhage and alert the trauma system. So far, the efforts of the trauma programs have led to the education of many individuals across the state. This includes school nurses, teachers, Scouts, first responders and many members of the legislature and state offices.

This report also reflects the ongoing effort of the Trauma Centers as dedicated to caring for the injured patient. As the number of trauma centers and patients continues to increase in the state, we believe the efforts of the trauma care advisory council are important to maintain and improve the outcomes of our citizens across the entire state. We are aware that there are areas of the state that remain outside the contiguous counties of the major metropolitan areas that are not within easy reach of a designated trauma center. We continue to advocate for formal universal system designation of all hospitals as Level I, II, III or IV, ensuring not just to capture data, but assuring the highest possible level of trauma care for all Tennesseans. Combined with the growth of our state and trauma system, additional state dedicated funding remains desperately needed to preserve the infrastructure grow the smaller, rural hospitals in our state and to improve our trauma system beyond that of our neighboring states.

Lastly, the income and disbursement of the Trauma Fund monies is reported. The Trauma Fund, designated by the Trauma Center Funding Law of 2007, continues to drop in revenue, placing our Trauma System at risk. Trauma Funds are allocated for Trauma Center readiness, for uncompensated care for all eligible hospitals, and to support a state-wide, multidisciplinary Trauma Symposium, focusing on the latest improvements in trauma care. The TCAC, state Committee on Trauma and all the participants of the state trauma system appreciate the legislature's recent efforts, but frankly much more is needed. The TCAC realized the responsibility of spending taxpayers' money and has demonstrated a keen concern to spending judiciously.

With your ongoing support and endorsement, we cannot just continue but grow our mission of providing the highest level of care, injury prevention, education, and research to minimize the death and disability occurring because of injury across the state of Tennessee. As the Chair of the TCAC and TN Committee on Trauma and working alongside Rob Seesholtz and the many

other members of the state team, I am awed every day by their selfless dedication to the care of the injured in Tennessee.

Brian J. Daley, MD, MBA, FACS Chair, Trauma Care Advisory Council Chair, Tennessee Committee on Trauma

TRAUMA CENTER FUNDING

With the passage of the Tennessee Trauma Center Funding Law of 2007, the Trauma Care Advisory Council was charged with developing recommendations on how to distribute Trauma System Fund reserves. In keeping with the intent of the statute, three broad categories for disbursement were identified:

- 1. Money to support the **trauma system infrastructure** at the state level:
 - The State Trauma System Director is responsible for providing general oversight for Tennessee's system of trauma care. Responsibilities include oversight of Tennessee's trauma fund, trauma registry, administrative support to the Trauma Care Advisory Council, and the coordination of site visits for new and existing trauma centers. Trauma system infrastructure has been bolstered as monies were approved for the expenditure on trauma education, trauma registry improvements and for a state-wide trauma symposium.
- 2. **Readiness costs** to designated trauma centers and comprehensive regional pediatric centers:
 - Tennessee trauma centers and CRPC's are ready at a moment's notice to treat those suffering from traumatic injury and are required to maintain life critical services 24 hours a day, 7 days a week, 365 days a year. While readiness costs disbursed from the trauma fund cannot realistically compensate centers for all their costs, readiness funds help to ensure that these necessary life critical services are maintained. Readiness cost amounts for state designated trauma centers and CRPC's, are found in appendix III.

3. Money for <u>uncompensated care</u>:

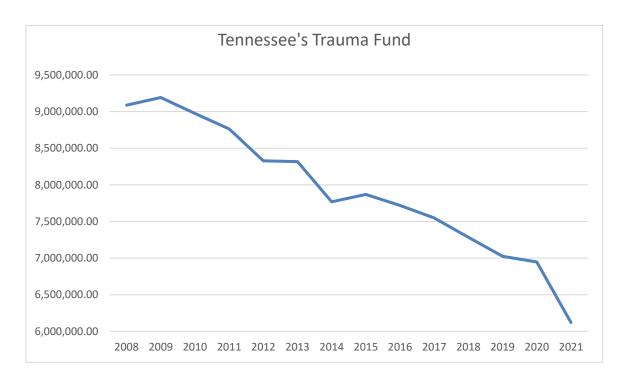
- The trauma funding law provides for uncompensated care funding to be distributed to: 1) designated trauma centers 2) comprehensive regional pediatric centers and 3) other acute care hospitals functioning as a part of the trauma system.
- Distribution to eligible hospitals is based on: 1) the level of funding within the reserve account following infrastructure and readiness costs and 2) the documented level of each hospital's uncompensated trauma cost. Though this amount will vary from year to year, at the end of 2021, trauma fund disbursements totaled \$6,120,234.30 to eligible facilities. **Appendix III** shows quarterly payments made to eligible hospitals for calendar year 2021.

Trauma Fund disbursement totals have seen a steady decline since the fund's inception. Since then, the trauma fund has decreased over 2.9 million dollars making finding alternative sources of funding a priority to ensure the viability of Tennessee's Trauma System.

Trauma Fund Disbursement Totals Since Inception

Calendar Year Trauma Fund Disbursement Totals *Start of Trauma Fund 2008 \$9,086,822.57 2009 \$9,192,013.69 \$8,973,548.13 2010 2011 \$8,762,345.31 2012 \$8,328,132.57 2013 \$8,316,610.13 2014 \$7,768,758.15 2015 \$7,867,741.77 2016 \$7,717,970.86 2017 \$7,548,708.50 2018 \$7,283,384.96 2019 \$7,022,767.11 2020 \$6,946,577.34 2021 \$6,120,234.30

\$2,966,588.27 below initial disbursement when trauma fund started



The Trauma Care Advisory Council is currently in the process of reevaluating how trauma funds are distributed to hospitals that function as part of Tennessee's system of trauma care. In 2022, the General Assembly allocated 5 million dollars in reoccurring monies to Tennessee's trauma

fund. These newly appropriated funds help to bolster funding that have seen a reduction in funding year after year since its inception. This will help to provide greatly needed funding to trauma centers and comprehensive regional pediatric centers that are responsible for treating the most critically injured Tennesseans and visitors to our state.

TRAUMA REGISTRY

The Tennessee Trauma Registry is the data repository for patients presenting for care at Tennessee's 16 participating trauma centers and 4 CRPC's. The registry allows for an in-depth review of injury related codes, comorbidities and complications to better determine the consequences of trauma in Tennessee. This report is based on registry abstractions completed through 2021. Contained registry reports represent injuries sustained and related hospital admissions in 2021 with additional volume trend reporting that includes the 10 years prior.

RESEARCH

Level 1 trauma centers are charged with performing research. These endeavors allow ongoing improvements in trauma care on a continuous basis. **Appendix IV** represents a sample of these state-wide research publication efforts.

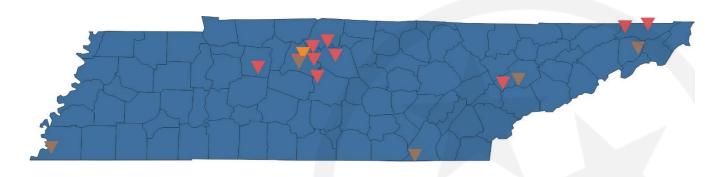
OUTREACH & INJURY PREVENTION EFFORTS

Tennessee's trauma centers and CRPC's provide many different outreach and injury prevention opportunities for both the public and for those who are responsible for the specialized care of injured Tennesseans and visitors in our state. These outreach and injury prevention efforts are in part targeted to injury trends seen by trauma centers and CRPC's with the ultimate goal of reducing the incidence of traumatic injury through targeted outreach and education. Examples of outreach conducted include:

- Child passenger safety
- Fall Prevention
- Gun Safety & Suicide Prevention
- Stop the Bleed
- Traumatic Brain Injury Prevention
- Trauma Nurse Core Course
- Summer Safety
- YMCA Kids Camp
- Community Walk Against Gun Violence
- Advanced Trauma Life Support

- Burn Care & Fire Safety
- Trauma Survivor Day
- Advanced Trauma Operative Management
- Advanced Surgical Skills for Exposure in Trauma
- Car Seat Safety
- Safe Sleep
- Advance Trauma Care Nurse
- Distracted Driving
- Rural Trauma Team Development Course
- Disaster Management & Disaster Preparedness

Appendix I: Current Adult Trauma Center Location & Level of Designation



Trauma Care Level	Facility Name	Address	
1	Erlanger Medical Center	975 E 3rd St Chattanooga TN 37403	
1	Johnson City Medical Center	400 N State of Franklin Rd Johnson City TN 37604	
1	Regional One Health	877 Jefferson Ave Memphis TN 38103	
1	University of Tennessee Medical Center	1924 Alcoa Hwy Knoxville TN 37920	
1	Vanderbilt University Medical Center	1211 Medical Center Dr Nashville TN 37232	
II	TriStar Skyline Medical Center	3441 Dickerson Pike Nashville TN 37207	
III	Bristol Regional Medical Center	1 Medical Park Blvd Bristol TN 37620	
III	Holston Valley Medical Center	130 W Ravine Rd Kingsport TN 37660	
III	Sumner Regional Medical Center	555 Hartsville Pike Gallatin TN 37066	
III	TriStar Stonecrest Medical Center	200 StoneCrest Boulevard Smyrna TN 37167	
III	TriStar Horizon Medical Center	111 U.S.70 Dickson TN 37055	
III	TriStar Summit Medical Center	5655 Frist Blvd Hermitage TN 37076	
III	TriStar Hendersonville Medical Center	355 New Shackle Island Rd Hendersonville TN 37075	
III	Tennova Healthcare - Turkey Creek Medical Center	10820 Parkside Dr Knoxville TN 37934	
III	Vanderbilt Wilson County Hospital	1411 W Baddour Pkwy Lebanon TN 37087	
III	Metropolitan Nashville General Hospital	1818 Albion St Nashville TN 37208	

Provisionally Designated

The following facilities have also been verified as a Level I Trauma Center through the American College of Surgeons:

- Erlanger Medical Center
- University of Tennessee Medical Center
- Vanderbilt University Medical Center

The following facilities have also been verified as a Level II Trauma Center through the American College of Surgeons:

• Skyline Medical Center

Appendix I: Comprehensive Regional Pediatric Centers Location



Facility Name

Monroe Carell Jr. Children's Hospital

East Tennessee Children's Hospital LeBonheur Children's Hospital

Children's Hospital at Erlanger Medical Center

Address

2200 Children's Way Nashville TN 37232

2018 W Clinch Ave Knoxville TN 37916

848 Adams Ave Memphis TN 38103

910 Blackford St Chattanooga TN 37403

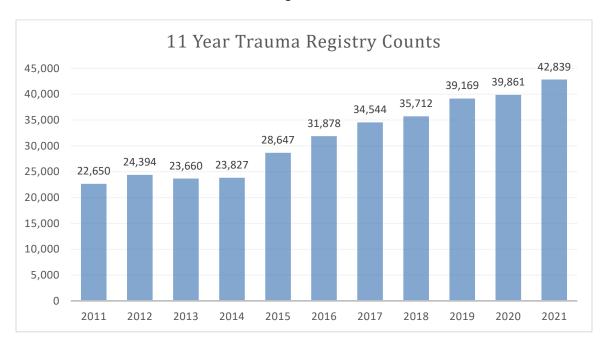
The following facilities have also been verified as a Level I Pediatric Trauma Center through the American College of Surgeons:

- Le Bonheur Children's Hospital
- Monroe Carell Jr. Children's Hospital at Vanderbilt

Appendix II: 2021 Trauma Registry Reports

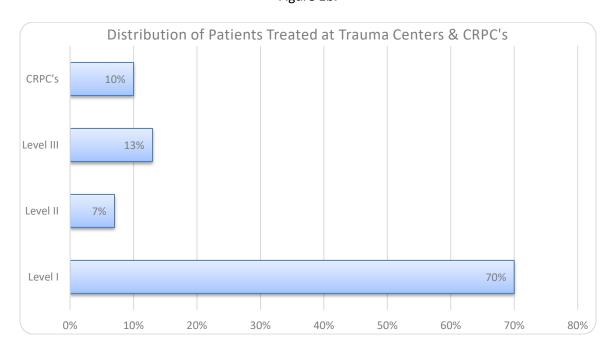
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Figure	8:	Motorcycle Rider Injured	22

Figure 1a:



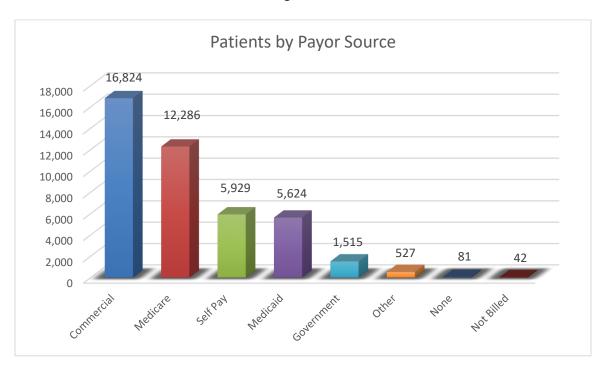
In 2021, 42,839 patients were entered in the state trauma registry as a result of meeting inclusion criteria related to traumatic injury. The growth pattern of traumatic injury patient totals recorded in the registry since 2011 is shown above.

Figure 1b:



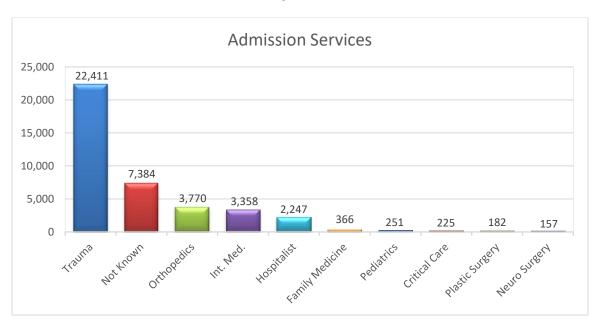
The chart above reflects the distribution of patients who received care at trauma centers and CRPC's for calendar year 2021.

Figure 2a:



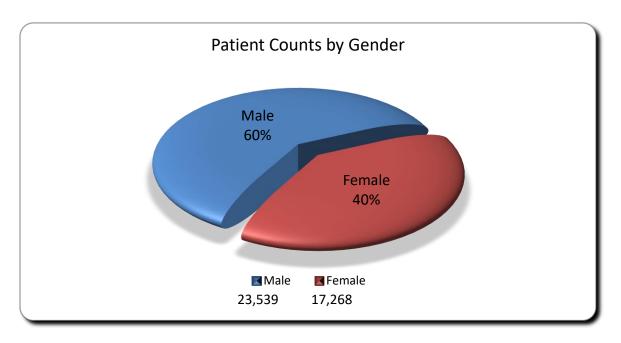
Commercial Insurance continues as the number one payor source for those receiving care at a trauma center or CRPC in 2021.

Figure 2b:



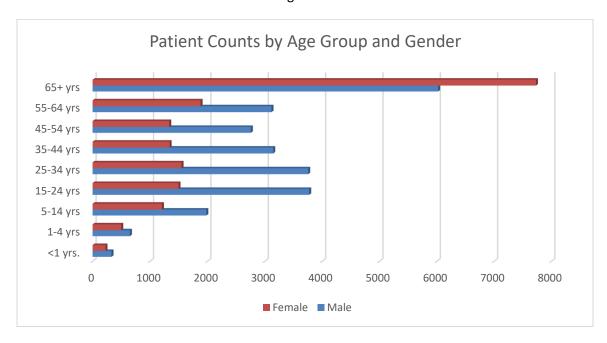
The graph above reflects the top 10 admission services utilized when being admitted for a traumatic injury.

Figure 3a:

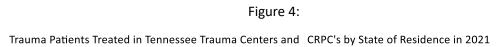


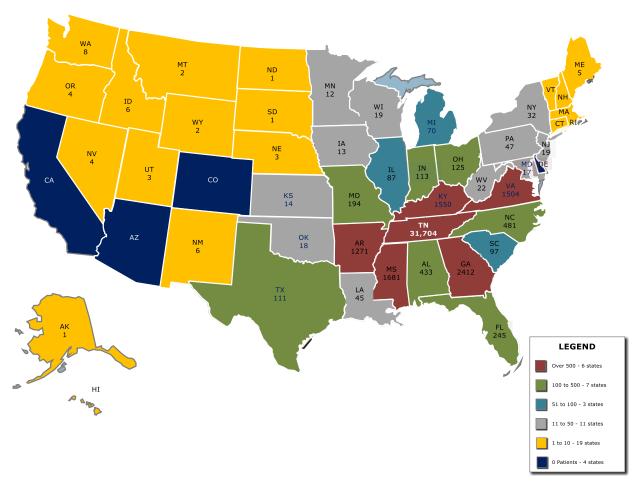
60% of all patients treated at a Tennessee trauma center or CRPC were male. This 2021 data reflects a zero-point percentage change in the injury gender distribution from 2020.

Figure 3b



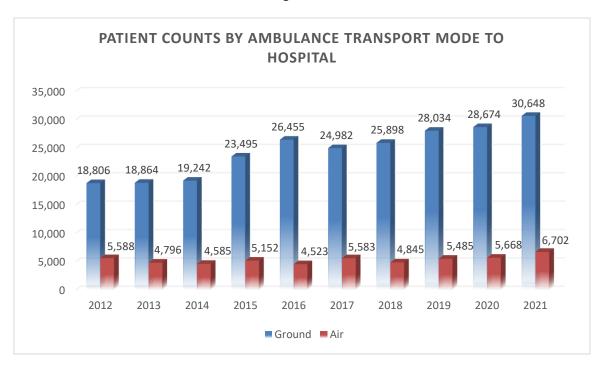
The information above is reflective of traumatic injury patient counts by age and gender for 2021.





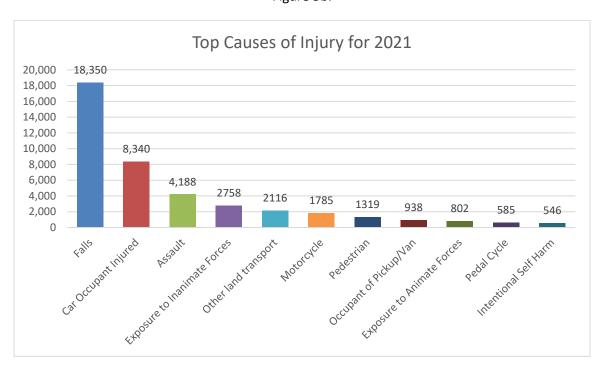
74% of all trauma cases treated in Tennessee trauma centers or CRPC's were Tennesseans (31,704); 26% of all cases (11,135) were residents of other states.

Figure 5a:



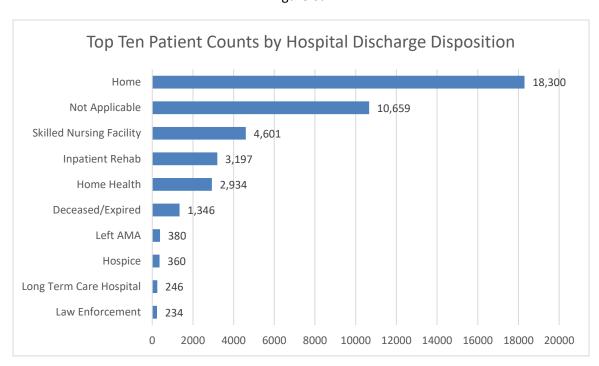
Patient transports by ground and air travel to a trauma center or CRPC have again shown a year-to-year increase.

Figure 5b:



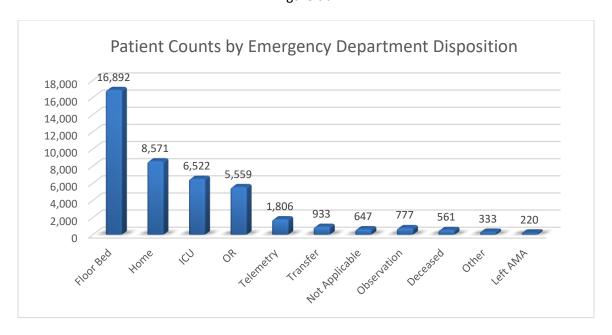
The graph above reflects the top causes of injury for seeking care at a trauma center or CRPC in 2021.

Figure 6a:



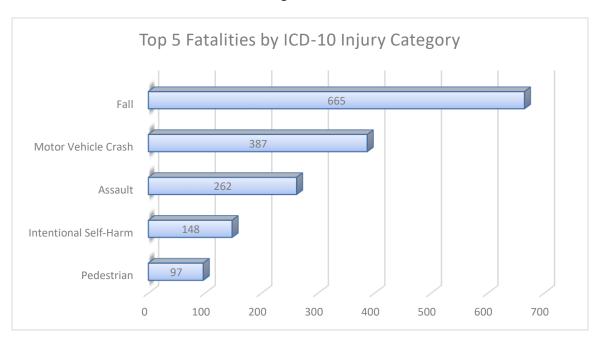
57% of patients admitted to a trauma facility in 2021 were discharged back to their home after hospital admission. 14% were admitted into a skilled nursing facility upon hospital discharge and approximately 4% of patients had an outcome of death.

Figure 6b:



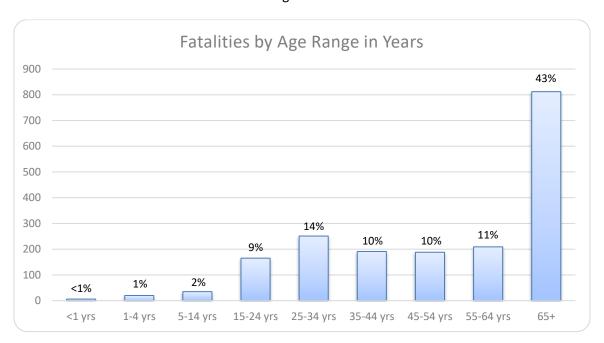
Most patients who met inclusion criteria for trauma registry submissions for 2021 were admitted to a floor bed based on their Emergency Department discharge disposition.

Figure 7a:



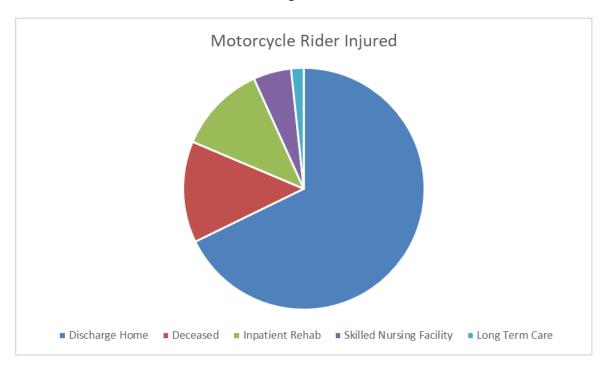
Fatalities from falls, motor vehicle crashes, assaults, intentional self-harm, and pedestrian are the top 5 mechanisms for injury that lead to death in 2021 trauma registry submissions.

Figure 7b:



The chart above is reflective of 2021 trauma registry fatalities separated into their respective age groups.

Figure 8:



In 2021, there were 210 ICD 10 registry entries for "Motorcycle Rider Injured". Of these, 59 were listed as having "none" as safety device used. Of the 59 patients with no safety device used, 14% died and 14% were not able to go directly home.

Appendix III: 2021 Trauma Fund Distribution

FUNDS DISTRIBUTED TO TRAUMA CENTERS AND NON-TRAUMA CENTERS FROM TENNESSEE TRAUMA FUND - 2021 - 1st QUARTER DISTRIBUTION

Level	Hospital Name	Hospital Specific Pool Payment	Readiness Costs	Total Hospital Distribution Payment
	TOTAL	\$990,195.35	\$862,250.00	\$1,852,445.35
Lev 1	Regional One Health	\$336,942.46	\$97,250.00	\$434,192.46
Lev 1	Vanderbilt University Hospital	\$280,866.39	\$153,250.00	\$434,116.39
Lev 1	Erlanger Medical Center - Baroness	\$90,477.40	\$153,250.00	\$243,727.40
Lev 1	The University of Tennessee Medical Center	\$86,097.56	\$102,250.00	\$188,347.56
Lev 2	TriStar Skyline Medical Center	\$68,293.49	\$37,750.00	\$106,043.49
Lev 1	Johnson City Medical Center	\$15,046.88	\$72,500.00	\$87,546.88
CRPC	LeBonheur Children Medical Center	\$10,007.64	\$64,250.00	\$74,257.64
CRPC	East Tennessee Children's Hospital	\$730.98	\$51,000.00	\$51,730.98
Lev 2	Bristol Regional Medical Center	\$6,081.55	\$37,750.00	\$43,831.55
Lev 3	Holston Valley Medical Center	\$18,604.73	\$15,500.00	\$34,104.73
Lev 3	TriStar Summit Medical Center	\$2,378.01	\$15,500.00	\$17,878.01
Lev 3	TriStar Stonecrest Medical Center	\$1,991.77	\$15,500.00	\$17,491.77
Lev 3	TriStar Horizon Medical Center	\$1,298.22	\$15,500.00	\$16,798.22
Lev 3	Sumner Regional Medical Center	\$1,268.84	\$15,500.00	\$16,768.84
Lev 3	TriStar Hendersonville Medical Center	\$177.02	\$15,500.00	\$15,677.02
	Methodist University Hospital	\$15,677.02		\$15,677.02
	Tennova Healthcare Regional Jackson	\$9,460.01		\$9,460.01
	Erlanger North Hospital	\$5,610.04		\$5,610.04
	Saint Thomas West Hospital	\$4,656.50		\$4,656.50
	St. Thomas Rutherford Hospital	\$3,632.88		\$3,632.88
	Baptist Memorial Hospital-Memphis	\$3,338.51		\$3,338.51
	Cookeville Regional Medical Center	\$3,311.43		\$3,311.43
	LeConte Medical Center	\$3,164.18		\$3,164.18
	Parkridge Medical Center	\$2,947.60		\$2,947.60
	TriStar Southern Hills Medical Center	\$2,282.92		\$2,282.92
	Vanderbilt Wilson County Hospital (Lebanon)	\$2,082.32		\$2,082.32
	Tennova Healthcare - Clarksville	\$2,081.63		\$2,081.63
	Williamson Medical Center	\$1,805.43		\$1,805.43
	Methodist Medical Center of Oak Ridge	\$1,710.22		\$1,710.22
	Tennova Healthcare-Jefferson Mem Hosp	\$1,542.62		\$1,542.62
	Methodist North Hospital	\$1,478.86		\$1,478.86
	CHI Memorial Hospital Hixon	\$1,146.09		\$1,146.09
	Saint Francis Hospital-Bartlett	\$1,076.52		\$1,076.52
	Southern TN Reg Health Sys Pulaski	\$1,045.24		\$1,045.24
	Blount Memorial Hospital	\$904.15		\$904.15
	Maury Regional Medical Center	\$367.96		\$367.96
	Morristown-Hamblen Healthcare System	\$267.12		\$267.12
	Parkwest Medical Center	\$117.06		\$117.06

Sweetwater Hospital Association	\$113.32	\$113.32
Baptist Memorial Hospital-Collierville	\$112.80	\$112.80

FUNDS DISTRIBUTED TO TRAUMA CENTERS AND NON-TRAUMA CENTERS FROM TENNESSEE TRAUMA FUND - 2021 - 2nd QUARTER DISTRIBUTION

Level	Hospital Name	Hospital Specific Pool Payment	Readiness Costs	Total Hospital Distribution Payment
	TOTAL	\$778,790.04	\$862,250.00	\$862,250.00
Lev 1	Regional One Health	\$266,243.41	\$97,250.00	\$363,493.41
Lev 1	Vanderbilt University Hospital	\$180,213.30	\$153,250.00	\$333,463.30
Lev 1	Erlanger Medical Center - Baroness	\$92,796.56	\$153,250.00	\$246,046.56
Lev 1	The University of Tennessee Medical Center	\$71,186.94	\$102,250.00	\$173,436.94
Lev 1	Johnson City Medical Center	\$23,541.90	\$72,500.00	\$96,041.90
Lev 2	TriStar Skyline Medical Center	\$47,493.71	\$37,750.00	\$85,243.71
CRPC	LeBonheur Children Medical Center	\$12,153.36	\$64,250.00	\$76,403.36
CRPC	East Tennessee Children's Hospital	\$1,018.66	\$51,000.00	\$52,018.66
Lev 2	Bristol Regional Medical Center	\$7,544.20	\$37,750.00	\$45,294.20
Lev 3	Holston Valley Medical Center	\$21,282.33	\$15,500.00	\$36,782.33
Lev 3	TriStar Horizon Medical Center	\$4,462.19	\$15,500.00	\$19,962.19
Lev 3	TriStar Summit Medical Center	\$3,371.50	\$15,500.00	\$18,871.50
Lev 3	Sumner Regional Medical Center	\$2,000.11	\$15,500.00	\$17,500.11
Lev 3	TriStar Stonecrest Medical Center	\$1,753.55	\$15,500.00	\$17,253.55
Lev 3	TriStar Hendersonville Medical Center	\$297.48	\$15,500.00	\$15,797.48
	Methodist University Hospital	\$9,723.44		\$9,723.44
	Erlanger North Hospital	\$6,439.31		\$6,439.31
	Baptist Memorial Hospital-Memphis	\$5,482.51		\$5,482.51
	Ascension Saint Thomas West Hospital	\$4,352.96		\$4,352.96
	Blount Memorial Hospital	\$2,553.89		\$2,553.89
	Methodist North Hospital	\$2,496.26		\$2,496.26
	Parkridge Medical Center	\$2,069.01		\$2,069.01
	TriStar Southern Hills Medical Center	\$1,933.17		\$1,933.17
	Jackson-Madison County General Hospital	\$1,804.08		\$1,804.08
	Cookeville Regional Medical Center	\$1,773.55		\$1,773.55
	Parkwest Medical Center	\$1,007.96		\$1,007.96
	Morristown-Hamblen Healthcare System	\$854.67		\$854.67
	Methodist Medical Center of Oak Ridge	\$850.84		\$850.84
	Williamson Medical Center	\$765.27		\$765.27
	Baptist Memorial Hospital-Collierville	\$402.73		\$402.73
	Maury Regional Medical Center	\$391.29		\$391.29
	CHI Memorial Hospital Chattanooga	\$290.48		\$290.48
	Tennova Healthcare North Knoxville M C	\$239.42		\$239.42

FUNDS DISTRIBUTED TO TRAUMA CENTERS AND NON-TRAUMA CENTERS FROM TENNESSEE TRAUMA FUND - 2021 – 3rd QUARTER DISTRIBUTION

Level	Hospital Name	Hospital Specific Pool Payment	Readiness Costs	Total Hospital Distribution Payment
	TOTAL	\$667,336.59	\$862,250.00	\$1,529,586.59
Lev 1	Vanderbilt University Hospital	\$194,246.94	\$153,250.00	\$347,496.94
Lev 1	Regional One Health	\$206,093.88	\$97,250.00	\$303,343.88
Lev 1	Erlanger Medical Center - Baroness	\$79,743.54	\$153,250.00	\$232,993.54
Lev 1	The University of Tennessee Medical Center	\$62,539.21	\$102,250.00	\$164,789.21
Lev 1	Johnson City Medical Center	\$15,069.70	\$72,500.00	\$87,569.70
CRPC	LeBonheur Children Medical Center	\$9,177.23	\$64,250.00	\$73,427.23
Lev 2	TriStar Skyline Medical Center	\$35,384.39	\$37,750.00	\$73,134.39
CRPC	East Tennessee Children's Hospital	\$342.81	\$51,000.00	\$51,342.81
Lev 2	Bristol Regional Medical Center	\$6,265.54	\$37,750.00	\$44,015.54
Lev 3	Holston Valley Medical Center	\$7,283.20	\$15,500.00	\$22,783.20
Lev 3	TriStar Summit Medical Center	\$2,481.70	\$15,500.00	\$17,981.70
Lev 3	TriStar Horizon Medical Center	\$2,272.31	\$15,500.00	\$17,772.31
Lev 3	TriStar Hendersonville Medical Center	\$577.94	\$15,500.00	\$16,077.94
Lev 3	Sumner Regional Medical Center	\$559.71	\$15,500.00	\$16,059.71
Lev 3	TriStar Stonecrest Medical Center	\$184.40	\$15,500.00	\$15,684.40
	Methodist University Hospital	\$10,291.80		\$10,291.80
	Jackson-Madison County General Hospital	\$7,105.56		\$7,105.56
	Baptist Memorial Hospital-Memphis	\$6,853.46		\$6,853.46
	CHI Memorial Hospital Chattanooga	\$3,145.98		\$3,145.98
	TriStar Southern Hills Medical Center	\$2,742.48		\$2,742.48
	Erlanger North Hospital	\$2,383.55		\$2,383.55
	Williamson Medical Center	\$1,834.13		\$1,834.13
	Saint Francis Hospital-Bartlett	\$1,732.34		\$1,732.34
	Ascension Saint Thomas West Hospital	\$1,659.43		\$1,659.43
	Parkwest Medical Center	\$1,303.38		\$1,303.38
	Starr Regional Medical Center-Athens	\$922.88		\$922.88
	Blount Memorial Hospital	\$908.69		\$908.69
	Cookeville Regional Medical Center	\$878.72		\$878.72
	Maury Regional Medical Center	\$796.97		\$796.97
	Vanderbilt Wilson County Hospital (Lebanon)	\$688.26		\$688.26
	Morristown-Hamblen Healthcare System	\$425.14		\$425.14
	Tennova Healthcare North Knoxville M C	\$361.68		\$361.68
	Methodist Medical Center of Oak Ridge	\$223.75		\$223.75
	LeConte Medical Center	\$211.97		\$211.97
	Cumberland Medical Center	\$205.74		\$205.74
	Henry County Medical Center	\$173.21		\$173.21
	Parkridge Medical Center	\$152.74		\$152.74
	West Tennessee Healthcare Dyersburg Regional	\$98.09		\$98.09
	CHI Memorial Hospital Hixon	\$14.13		\$14.13

FUNDS DISTRIBUTED TO TRAUMA CENTERS AND NON-TRAUMA CENTERS FROM TENNESSEE TRAUMA FUND - 2021 – 4th QUARTER DISTRIBUTION

Level	Hospital Name	Hospital Specific Pool Payment	Readiness Costs	Total Hospital Distribution Payment
	TOTAL	\$1,013,702.36	\$862,250.00	\$1,875,952.36
Lev 1	Regional One Health	\$350,436.22	\$97,250.00	\$447,686.22
Lev 1	Vanderbilt University Hospital	\$273,571.98	\$153,250.00	\$426,821.98
Lev 1	Erlanger Medical Center - Baroness	\$117,501.44	\$153,250.00	\$270,751.44
Lev 1	The University of Tennessee Medical Center	\$90,436.81	\$102,250.00	\$192,686.81
Lev 2	TriStar Skyline Medical Center	\$83,858.43	\$37,750.00	\$121,608.43
Lev 1	Johnson City Medical Center	\$36,575.36	\$72,500.00	\$109,075.36
CRPC	LeBonheur Children Medical Center	\$7,859.76	\$64,250.00	\$72,109.76
CRPC	East Tennessee Children's Hospital		\$51,000.00	\$51,000.00
Lev 2	Bristol Regional Medical Center	\$5,753.50	\$37,750.00	\$43,503.50
Lev 3	Holston Valley Medical Center	\$4,034.14	\$15,500.00	\$19,534.14
Lev 3	TriStar Summit Medical Center	\$2,722.52	\$15,500.00	\$18,222.52
Lev 3	TriStar Horizon Medical Center	\$2,585.60	\$15,500.00	\$18,085.60
Lev 3	TriStar Stonecrest Medical Center	\$2,092.41	\$15,500.00	\$17,592.41
Lev 3	TriStar Hendersonville Medical Center	\$1,396.45	\$15,500.00	\$16,896.45
Lev 3	Sumner Regional Medical Center	\$602.44	\$15,500.00	\$16,102.44
	Methodist University Hospital	\$11,152.97		\$11,152.97
	Baptist Memorial Hospital-Memphis	\$6,212.84		\$6,212.84
	TriStar Southern Hills Medical Center	\$4,846.48		\$4,846.48
	Saint Thomas West Hospital	\$3,997.21		\$3,997.21
	Erlanger North Hospital	\$2,720.46		\$2,720.46
	Cookeville Regional Medical Center	\$1,188.76		\$1,188.76
	Williamson Medical Center	\$1,090.52		\$1,090.52
	CHI Memorial Hospital Chattanooga	\$964.97		\$964.97
	Tennova Healthcare-Jefferson Mem Hosp	\$471.82		\$471.82
	Methodist Medical Center of Oak Ridge	\$405.60		\$405.60
	Tennova Healthcare North Knoxville M C	\$305.89		\$305.89
	Greeneville Community Hospital East	\$304.07		\$304.07
	LeConte Medical Center	\$237.45		\$237.45
	Cumberland Medical Center	\$158.33		\$158.33
	Henry County Medical Center	\$153.97		\$153.97
	CHI Memorial Hospital Hixon	\$63.96		\$63.96

Appendix IV: Research Publications

- 1. Artificial intelligence in trauma systems. Stonko DP, Guillamondegui OD, Fischer PE, Dennis BM. Surgery. 2021 Jun;169(6):1295-1299. doi: 10.1016/j.surg.2020.07.038. Epub 2020 Sep 10. PMID: 32921479
- 2. Traumatic Brain Injury Recovery Trajectories in Patients With Disorders of Consciousness. Smith MC, Patel MB, Guillamondegui OD. JAMA Neurol. 2021 Nov 1;78(11):1411. doi: 10.1001/jamaneurol.2021.3433. PMID: 34605869
- 3. Regional ethics of surgeon resuscitation for organ transplantation after lethal injury. Peetz AB, Kuzemchak MD, Streams JR, Patel MB, Guillamondegui OD, Dennis BM, Betzold RD, Gunter OL, Karp SJ, Beskow LM. Surgery. 2021 Jun;169(6):1532-1535. doi: 10.1016/j.surg.2020.11.037. Epub 2021 Jan 9. PMID: 33436273
- 4. Antibiotic Exposure Is Not Associated With Clearance of Bronchoalveolar Growth: Results From a Prospective Ventilator-Associated Pneumonia Study. Betzold RD, Dennis BM, Bellister SA, Guidry CA, Guillamondegui OD, Drake W, May AK. Am Surg. 2021 Aug;87(8):1347-1351. doi: 10.1177/0003134820966281. Epub 2020 Dec 19. PMID: 33345582
- 5. Complication to consider: delayed traumatic hemothorax in older adults. Choi J, Anand A, Sborov KD, Walton W, Chow L, Guillamondegui O, Dennis BM, Spain D, Staudenmayer K. Trauma Surg Acute Care Open. 2021 Mar 8;6(1):e000626. doi: 10.1136/tsaco-2020-000626. eCollection 2021. PMID: 33768165
- The Impact of Delayed-Phase Imaging at Admission on the Management of Urinary Extravasation in High-Grade Renal Trauma. Koch GE, Huang JJ, Walton WJ, Dennis BM, Guillamondegui OD, Johnsen NV. J Urol. 2021 Dec;206(6):1373-1379. doi: 10.1097/JU.000000000002116. Epub 2021 Jul 21. PMID: 34288717
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- Management of blunt traumatic abdominal wall hernias: A Western Trauma Association multicenter study. Harrell KN, Grimes AD, Albrecht RM, Reynolds JK, Ueland WR, Sciarretta JD, Todd SR, Trust MD, Ngoue M, Thomas BW, Ayuso SA, LaRiccia A, Spalding MC, Collins MJ, Collier BR, Karam BS, de Moya MA, Lieser MJ, Chipko JM Jr, Haan JM, Lightwine KL, Cullinane DC, Falank CR, Phillips RC, Kemp MT, Alam HB, Udekwu PO, Sanin GD, Hildreth AN, Biffl WL, Schaffer KB, Marshall G, Muttalib O, Nahmias J, Shahi N, Moulton SL, Maxwell RA. J Trauma Acute Care Surg. 2021 Nov 1;91(5):834-840. doi: 10.1097/TA.000000000003250. PMID: 34695060.
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- 12. A multicenter trial of current trends in the diagnosis and management of high-grade pancreatic injuries. Biffl WL, Zhao FZ, Morse B, McNutt M, Lees J, Byerly S, Weaver J, Callcut R, Ball CG, Nahmias J, West M, Jurkovich GJ, Todd SR, Bala M, Spalding C, Kornblith L, Castelo M, Schaffer KB, Moore EE; WTA Multicenter Trials Group on Pancreatic Injuries (Harrell, Maxwell). J Trauma Acute Care Surg. 2021 May 1;90(5):776-786. doi: 10.1097/TA.00000000000003080. PMID: 33797499.
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- 35. Traumatic Arthrotomies: Do They All Need the Operating Room? McKnight RR, Ruffolo M, Wally MK, Seymour RB, Jeray K, E Matuszewski P, Weinlein J, Hsu JR; Southeast Fracture Consortium. J Orthop Trauma. 2021 Nov 1;35(11):612-618. doi: 10.1097/BOT.000000000000002093. PMID: 34387570

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