Arkansas Children's

HOSPITALS • RESEARCH • FOUNDATION

2024 TRAUMA REPORT

Arkansas Children's

HOSPITALS · RESEARCH · FOUNDATION

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About Our Trauma Program

Arkansas Children's Hospital in Little Rock serves as the only Level I Pediatric Trauma Center in the state. Each year, we treat over 1,600 trauma patients, and more than 98% of these patients are successfully discharged. In addition to treating trauma patients, our comprehensive program offers training for medical professionals on best practices in pediatric trauma treatment as well as injury prevention education for the community. We also conduct important research to advance pediatric trauma care and improve outcomes for children across the state. At Arkansas Children's Hospital, we are committed to providing the best care possible, ensuring that our patients receive the treatment, support, and education they need to thrive.

2024 Highlights

979

ADMISSIONS

1756

TOTAL PATIENTS SERVED

777

NON-ADMISSIONS

Message from Leadership

Reflecting on 2024, we are proud of the many milestones we have achieved. In December 2024, the trauma program was re-designated by the Arkansas Department of Health as a Level I Pediatric Trauma Center and received a full three-year reverification by the American College of Surgeons Committee on Trauma. This recognition represents the highest level of trauma care available and our ability to provide comprehensive care for all types of traumatic injuries. Over the last year, we had a particular focus on recognizing the psychosocial effects traumatic injuries have on our patients and their families. We have expanded and standardized our patients' access to mental health services while inpatient and have developed a process for outpatient referral to our trauma clinic. Our outpatient trauma clinic, which is dedicated to serving patients with high acute stress screening scores following an injury, has grown in volume, and we continue to work with key stakeholders to expand mental health services in this clinic setting.

Integral to our success is our robust Performance Improvement (PI) program, which allows us to identify and intervene on opportunities for improvement in the care of the patients we serve. Our PI process includes capabilities such as trauma video reviews, review by the Central Arkansas Trauma Regional Advisory Council (CATRAC), state-level review by the Arkansas Trauma Advisory Council (TAC), and the Arkansas State Trauma Quality Improvement Program (TQIP) Collaborative. Additionally, we have grown our trauma registry, which allows us to better track outcomes, share data, and benchmark against other pediatric trauma centers throughout the nation.

Members of the trauma program serve on committees and in leadership roles at the state, regional, and national levels. This exposure and collaboration with medical professionals across all domains of trauma care enable us to provide cutting-edge care to the children of the state of Arkansas. Similarly, involvement with our community partners ensures we are meeting the needs of the state with outreach, education, and injury prevention.

In the year ahead, we will continue to build on these successes, with a renewed focus on innovative trauma care, improving patient experiences, and ensuring our community has access to the best care possible. We are grateful for the hard work and dedication of every member of our trauma team and the support of hospital administration. Thank you for your unwavering commitment to saving lives and providing exceptional care to those in need.

Deidre Wyrick, MD, FACS
Trauma Medical Director

Shonda Grappe, MSN, RN, CCRN
Trauma Program Manager

Meet Our Team

Trauma Surgeons

Dr. Deidre Wyrick, MD, FACS
Assistant Professor - Division of Pediatric Surgery and Section of Pediatric Critical Care Medicine
Trauma Medical Director

Dr. R. Todd Maxson, MD, FACS
Professor - Division of Pediatric Surgery – UAMS
Surgeon-in-Chief
Rachel Fuller Endowed Chair
Associate Trauma Medical Director

Dr. Melvin Sidney Dassinger, MD, FACS, FAAP
Professor and Chief - Division of Pediatric Surgery, John Boyd Family Endowed Chair in Pediatric Surgery, Surgical Quality Medical Director

Dr. Jeffery Burford, MD, FACS
Associate Professor - Division of Pediatric Surgery

Meet Our Team

Trauma Surgeons

Dr. Michaela (Mikki) Kollisch, MD, FACS
Associate Professor - Division of Pediatric Surgery

Dr. Robert Vandewalle, MD
Associate Professor - Division of Pediatric Surgery

Dr. Lindsey Wolf, MD, MPH, FACS, FAAP
Assistant Professor - Division of Pediatric Surgery

Meet Our Team

Trauma Nurse Practitioners

Shelby (Jordyn) Earnest-Hastings, APRN, MNSc, CPNP-AC
Certified Nurse Practitioner for Pediatric General Surgery/Trauma

Brianna Gammon,
APRN, MNSc, CPNP-AC
Certified Nurse Practitioner for Pediatric General Surgery/Trauma

Mallory Onarecker,
APRN, MNSc, CPNP-AC
Certified Nurse Practitioner for Pediatric General Surgery/Trauma

Jennifer York,
APRN, MNSc, CPNP-AC
Certified Nurse Practitioner for Pediatric General Surgery/Trauma

Meet Our Team

Office Staff

Shonda Grappe, MSN, RN, CCRN
Trauma Program Manager

Kelli Coatney, MSN, RN, CPN, CAISS
Trauma Nurse Coordinator

Sara Silverman, BSN, RN, CPEN, CAISS
Trauma Nurse Coordinator

Lesa Slaughter, MSN, RN, CPEN, TCRN
Trauma PI Nurse Coordinator

Meet Our Team

Office Staff

Hannah Branton, BS, CHES, CPST
Outreach Specialist

Allison Jones,
Administrative Assistant

Cynthia McHargue,
BSHA, CPC
Trauma Registrar

Katerra Westfall, CPC
Trauma Registrar

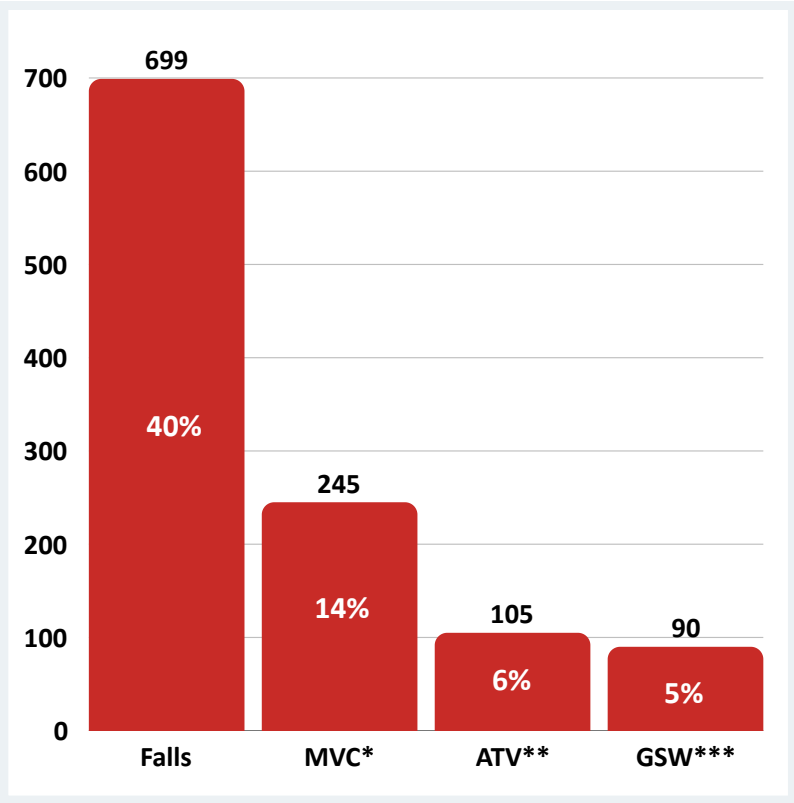
Partnerships

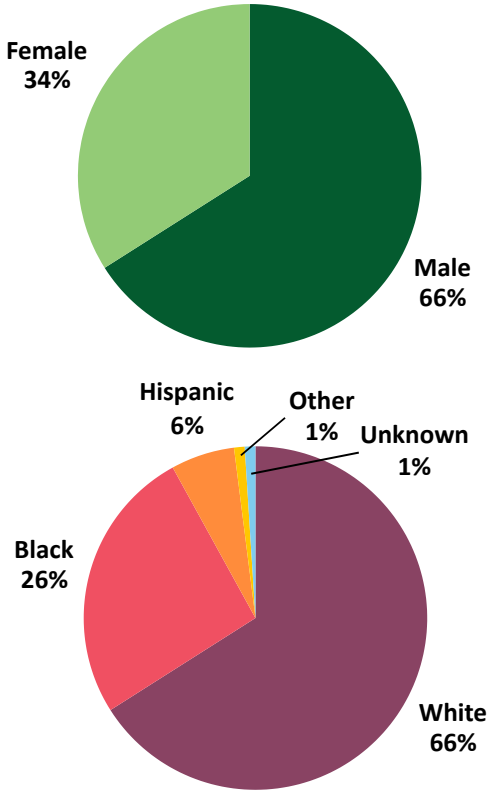
Providing Level I pediatric trauma services demands coordination among many specialties. From the initial, pre-hospital contact with the patient and family all the way to discharge, we strive for the highest-quality interactions and treatment.

Pre-hospital Providers
Otolaryngology
Critical Care Medicine
Pediatrics
Social Work
Team for Children at Risk
Physical/Occupational/Speech Therapy

2024 Trauma Data

Top Four Mechanisms of Injury



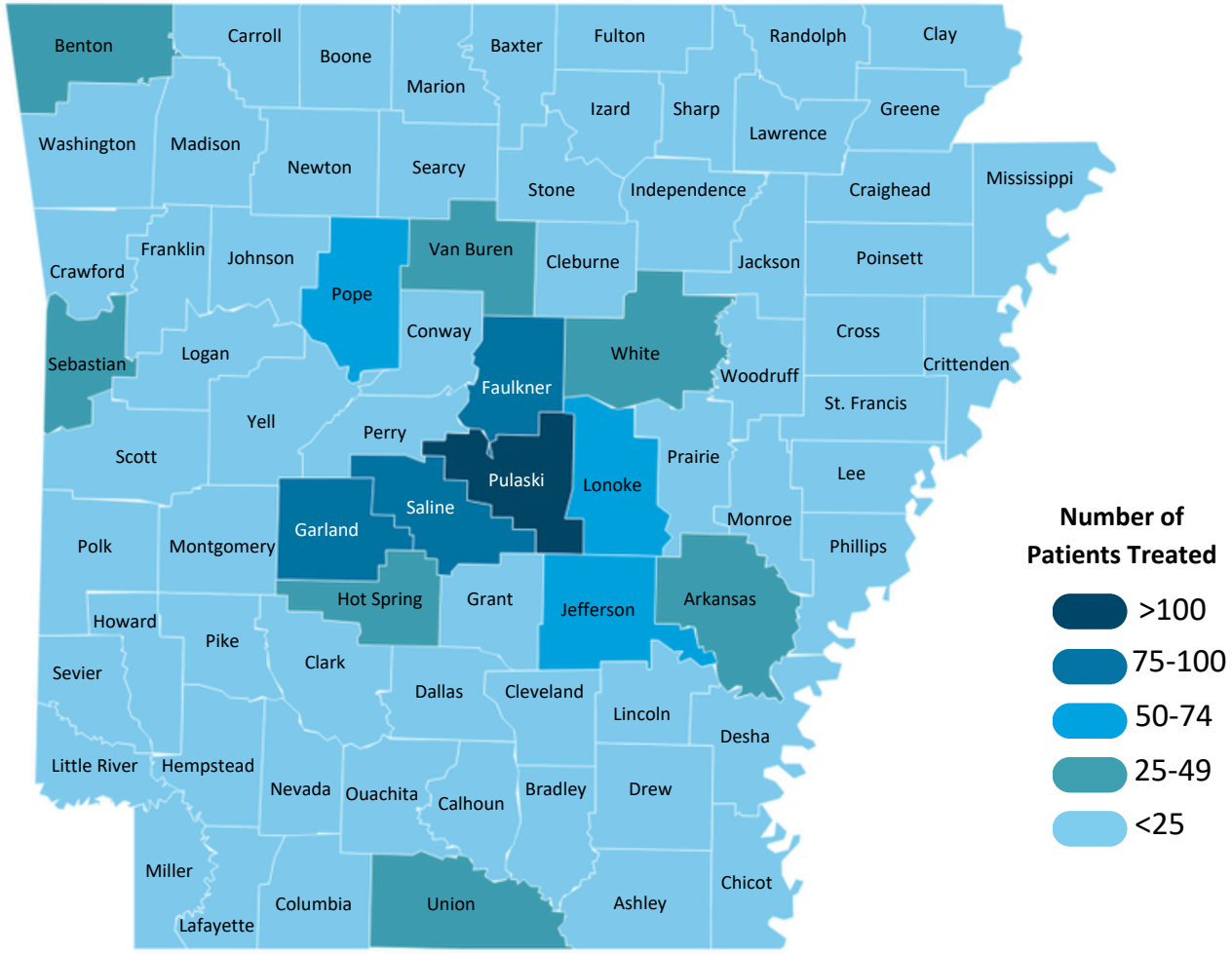


*Motor Vehicle Collision
**All-Terrain Vehicle
***Gun Shot Wound (Does not include suicide attempts)

Disclaimer: It is important to note that the data presented in this report reflects the Arkansas Children's Hospital trauma patient population specifically. This data does not reflect all injuries to pediatric patients in the state of Arkansas, nor does it represent all injured patients treated at Arkansas Children's Hospital. This data represents the patients who presented to our hospital and met specific inclusion criteria for our trauma registry.

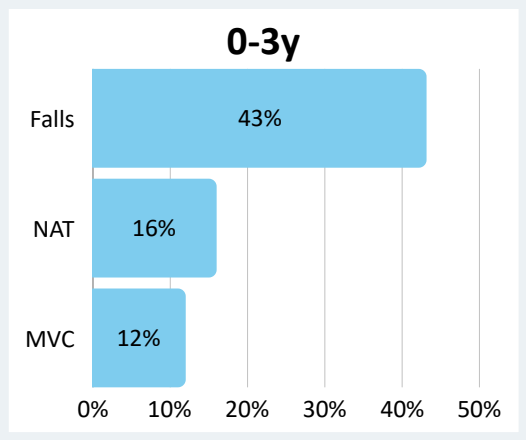
2024 Data by County

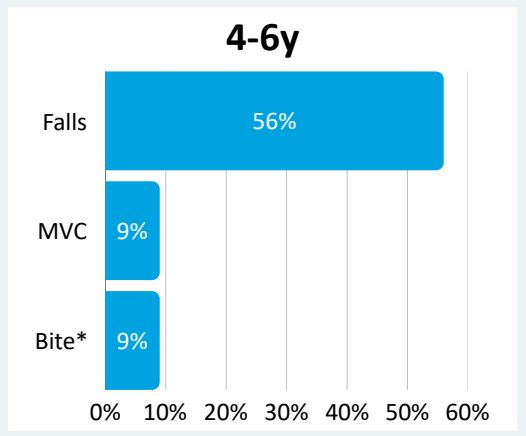
In 2024, the Arkansas Children's Hospital Trauma Program served patients from all counties in Arkansas. We also served families from 43 counties out of state.

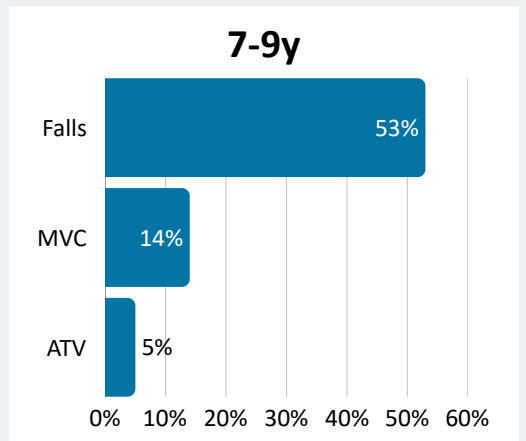


2024 Data by Age

Dividing our patient population into age groups allows us to gain more insight into the needs of each group. For example, one of the top three mechanisms of injury for our infant and toddler population is non-accidental trauma (**NAT**), otherwise known as physical child abuse. However, as we look at teenage groups and into early adulthood, we see fewer NAT cases and more injuries caused by motor vehicle crashes and firearms. The charts below show the top three mechanisms of injury for each age group.

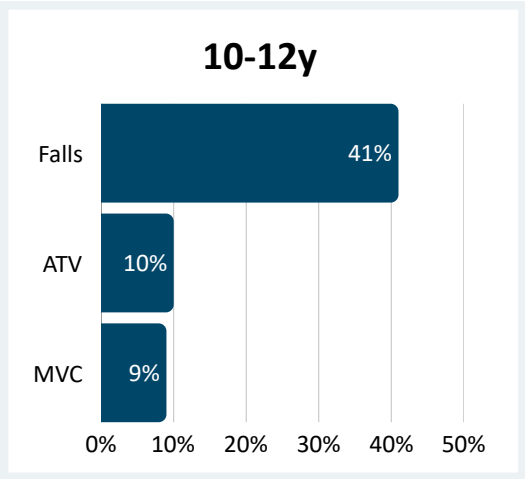


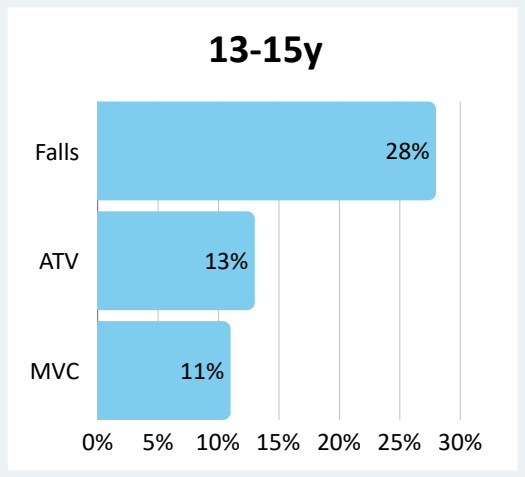


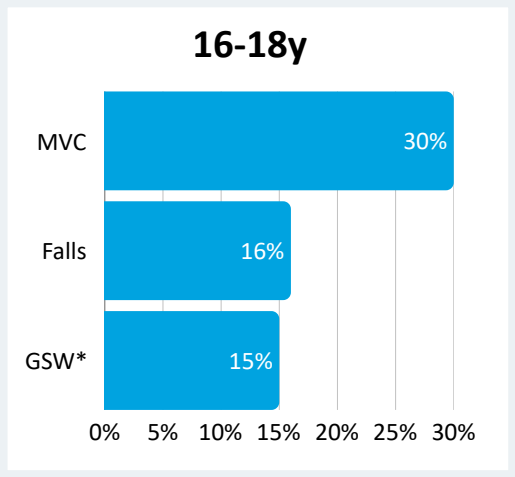


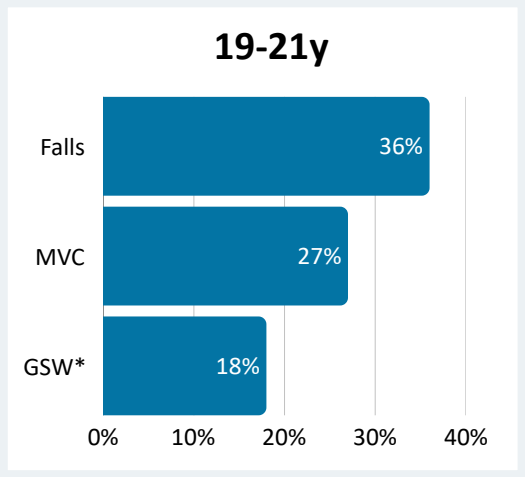
* Includes human, animal, or reptile bite

2024 Data by Age
Cont.





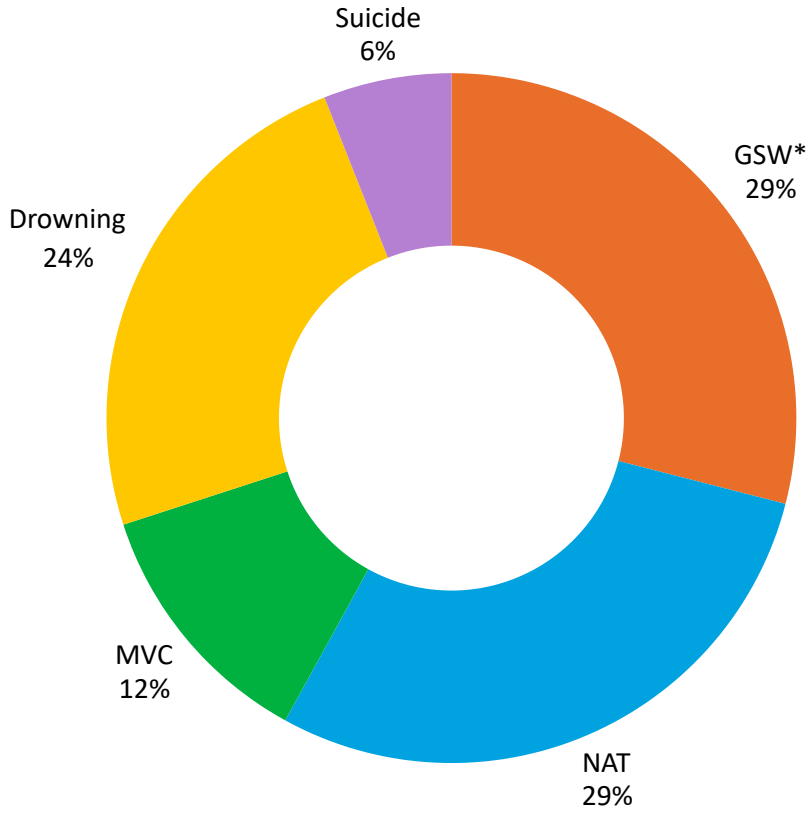




*Does not include suicide attempts

2024 Mortality Data

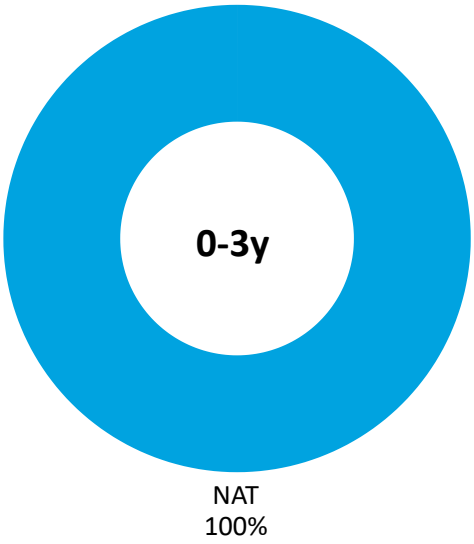
It is important to note that the top mechanisms of injury are not necessarily the same as the top mechanisms of death for our trauma patients. Gunshot wounds, for example, are ranked overall as the fourth most common mechanism of injury in 2024. However, these injuries are actually one of the most fatal for our trauma patients. In addition, NAT (non-accidental trauma; child abuse) and drowning are not listed in the overall top mechanisms of injury; however, they are each one of the leading causes of death. The chart below shows the breakdown of our trauma deaths for 2024 by mechanism.

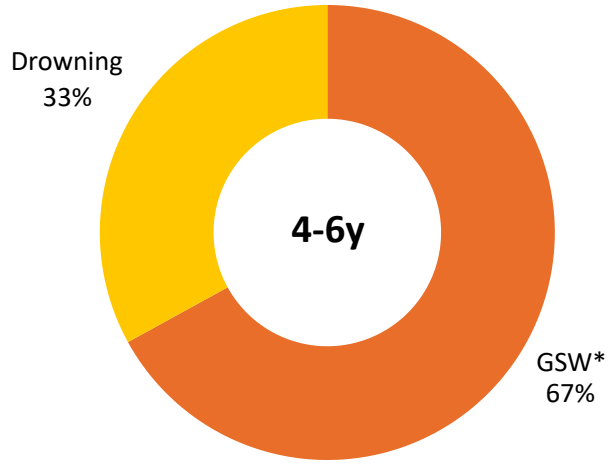


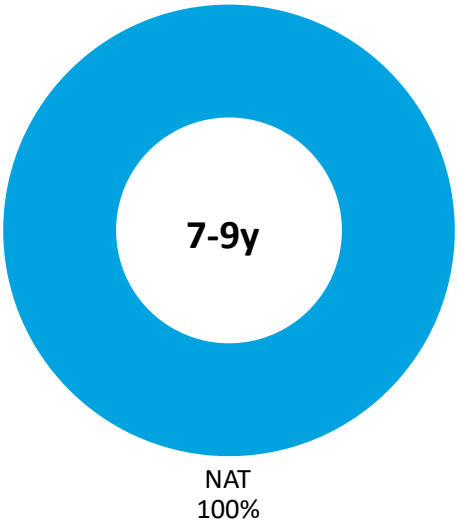
*Does not include suicide attempts

2024 Mortality Data
by age

The charts below show the total mortality data for each age group. If only one mechanism is shown for an age group, this means any trauma death(s) within that age group were a result of the same mechanism. If an age group is not shown, this means there were no applicable deaths.

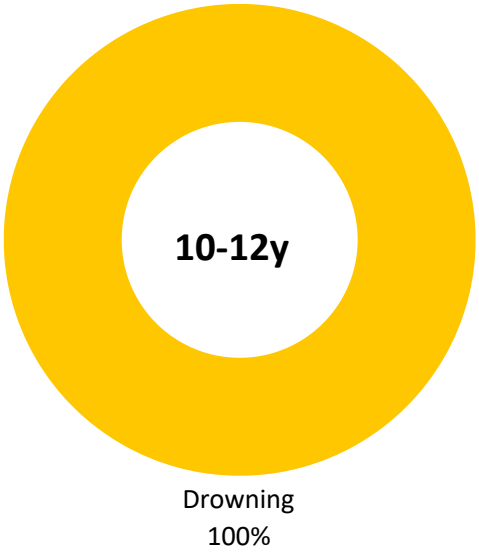


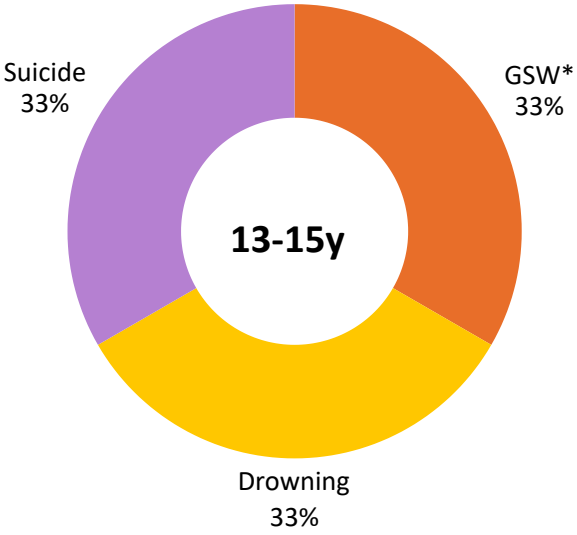


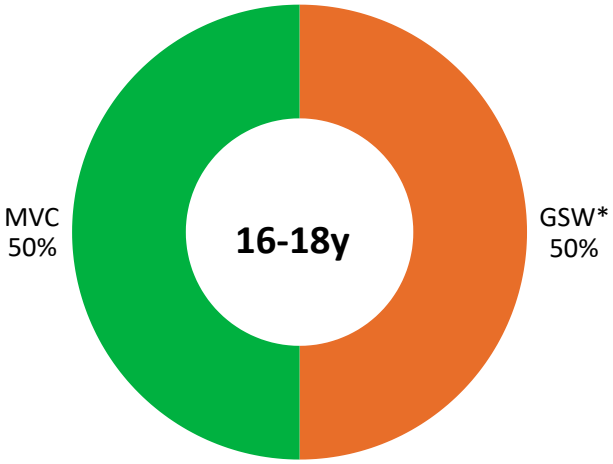


*Does not include suicide attempts

2024 Mortality Data
by age

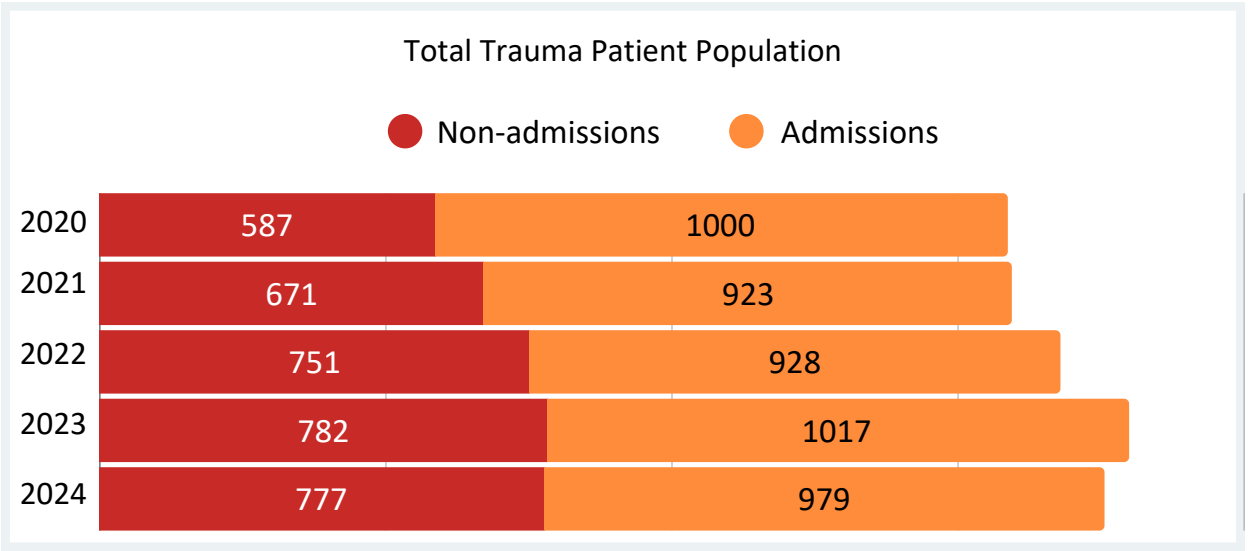


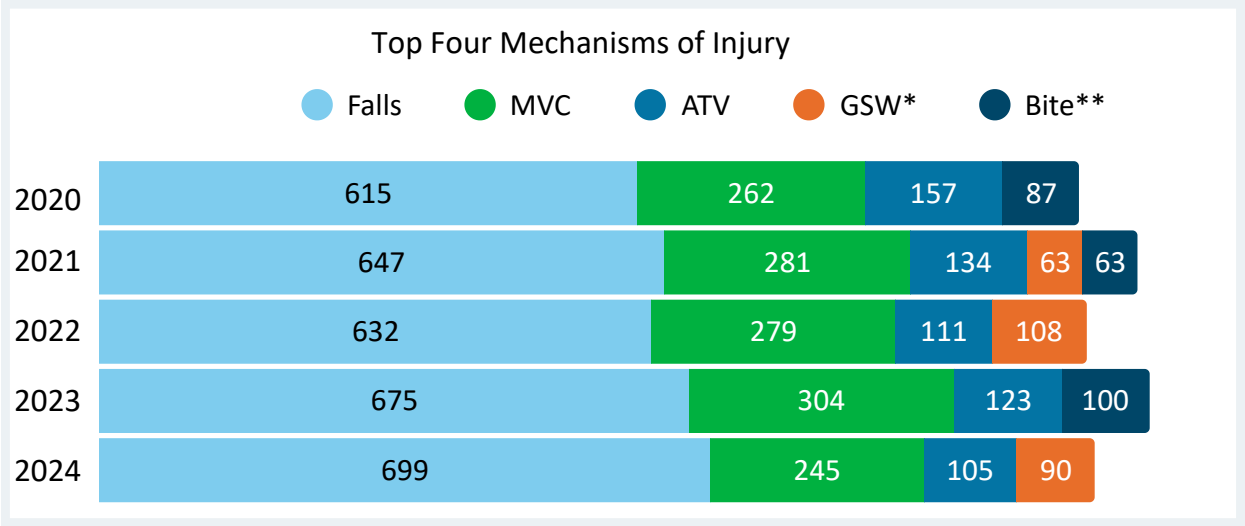




*Does not include suicide attempts

Five-Year Trends



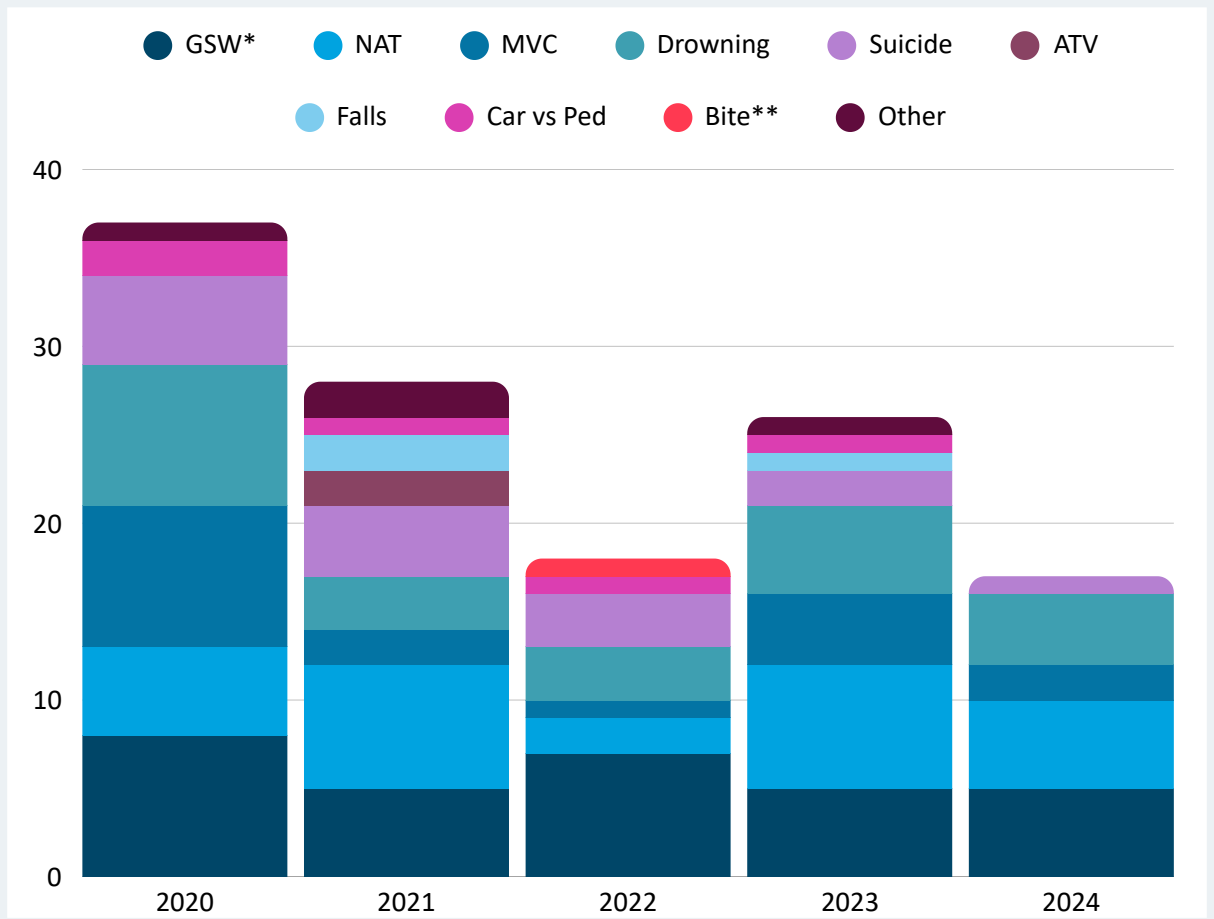


*Does not include suicide attempts

** Includes human, animal, and reptile bite

Mortality Trends

Mortality among our trauma patients at Arkansas Children's Hospital has decreased significantly in the last five years. We consistently see deaths caused by GSWs, NAT, drowning, and MVCs every year. While we saw a decrease in most of our mechanisms of death in 2024 when compared to 2023, deaths caused by GSWs remained the same. Deaths considered "other" were the result of uncommon causes and therefore did not fall into the named categories.



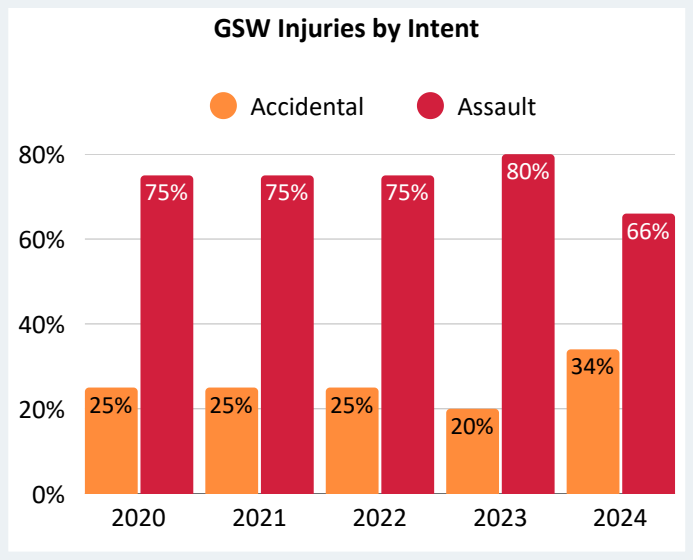
*Does not include suicide attempts

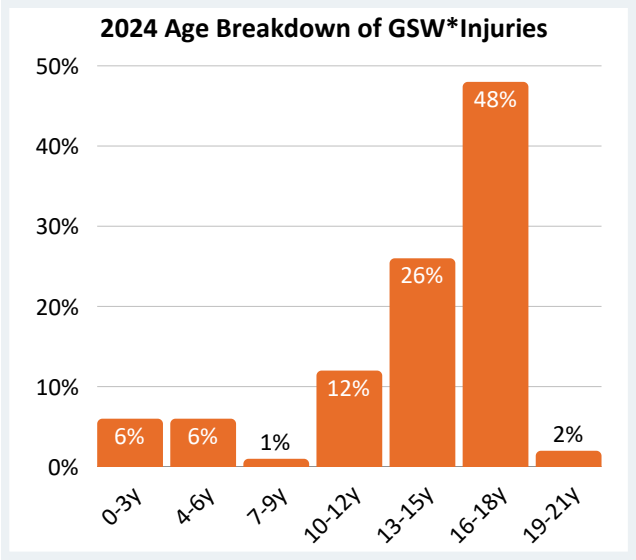
** Includes human, animal, and reptile bite

Notable Data

Firearm Injuries

On average, GSWs make up 5% of our trauma patients every year (approximately 86 cases per year). While we see GSWs in every age group, we typically see an increase as children get older, with our largest number of these injuries affecting teenagers. In 2024, patients 0-3 years of age made up 6% of our GSW cases, while patients 16-18 years accounted for 48%. This distribution is comparable to previous years. In addition, the majority of GSWs in our patient population result from assault (average of 76%). The younger the patients, the more likely they are to sustain an accidental GSW when compared to older patients, who are more likely to experience a GSW caused by assault.



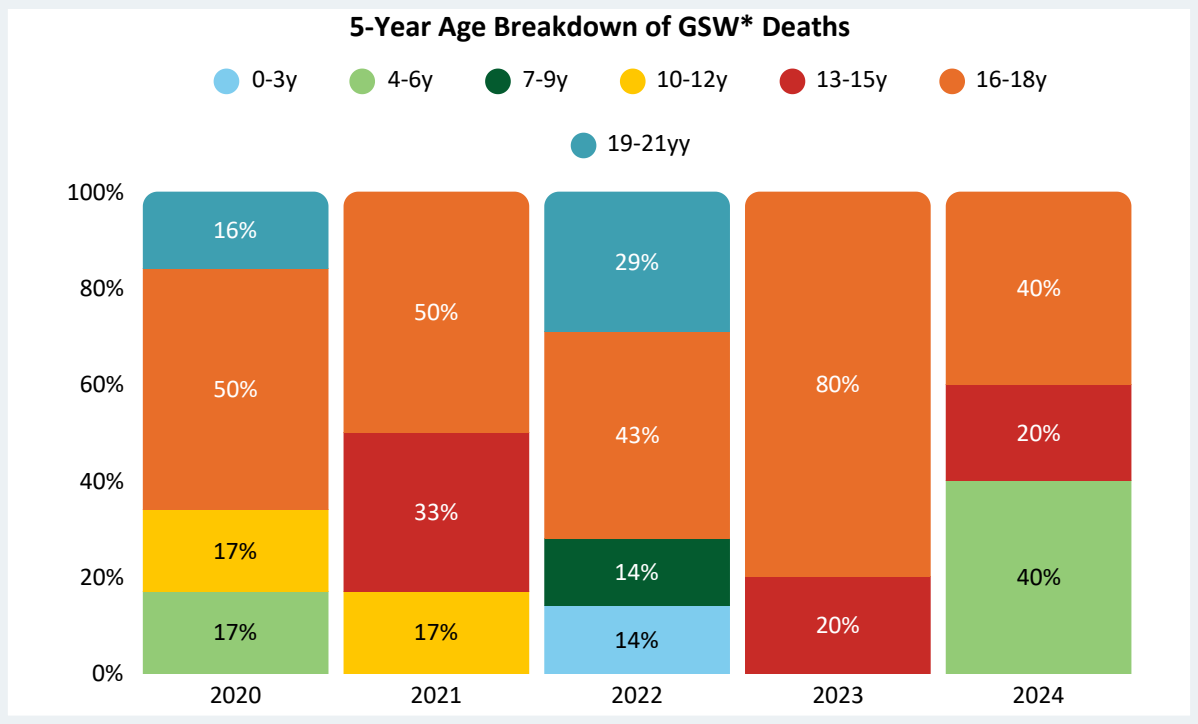


*Does not include suicide attempts

Notable Data

Firearm Injuries

Firearm injuries are the leading cause of death for children and teens ages 1-19 years in Arkansas (CDC, 2024). In our trauma program, we see an average of six deaths from GSWs every year with a varying age range. The chart below shows the age distribution of our GSW deaths from 2020 to 2024.



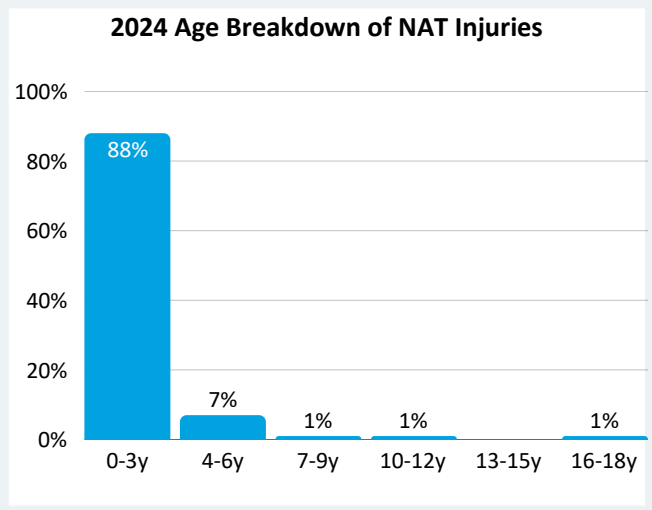
*Does not include suicide attempts

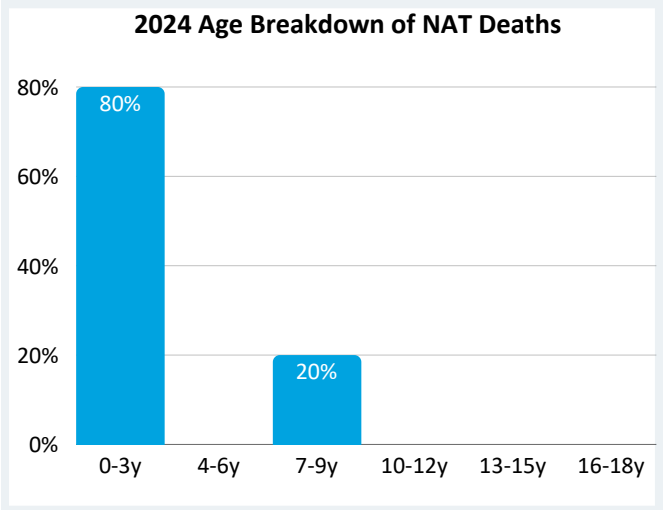
Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 2018-2023 on CDC WONDER Online Database, released in 2024. Data are from the Multiple Cause of Death Files, 2018-2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at http://wonder.cdc.gov/ucd-icd10-expanded.html on Feb 17, 2025 4:59:17 PM

Notable Data

Non-Accidental Trauma (NAT)

As already mentioned, non-accidental trauma (NAT), or child abuse, is one of the leading mechanisms of death for our trauma patients. The total number of NAT cases treated annually by our department has stayed fairly consistent over the last five years, with an average of 65 cases per year. In 2024, 88% of our total NAT patients were in the 0-3 year age group. In addition, the vast majority (80%) of the NAT deaths we saw in 2024 were in the 0-3 year age group.



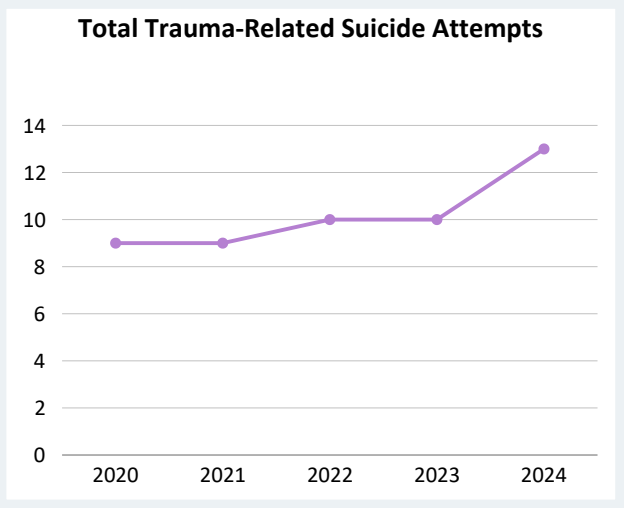


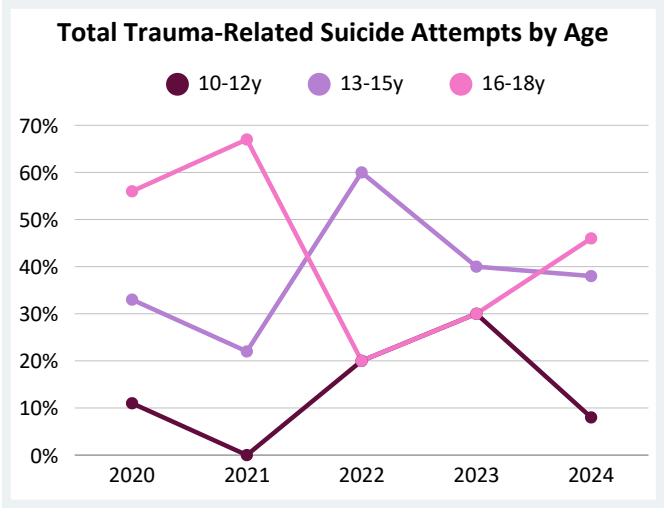
Notable Data

Suicide

Suicide and mental health among youth continue to be a public health concern nationwide. At Arkansas Children's Hospital, patients 10 years and older are screened for suicidality. If a patient screens positive, they are reassessed every 24-36 hours and followed appropriately by mental health professionals.

While suicide attempts only make up less than 1% of our trauma patient population, we are seeing notable trends. To start, we have seen an increase in the number of suicide attempts from 2023 to 2024. Our trauma program does not typically see suicide attempts until the age of 10 years, and we have had a steady increase in the proportion of cases for the 16-18-year-old age group since 2022 (20% to 46%). It is important to understand that suicide cases treated by our trauma team are those attempted by physical injury. This means our data will not include attempts involving actions such as ingestion of substances unless there is also a physical injury involved.

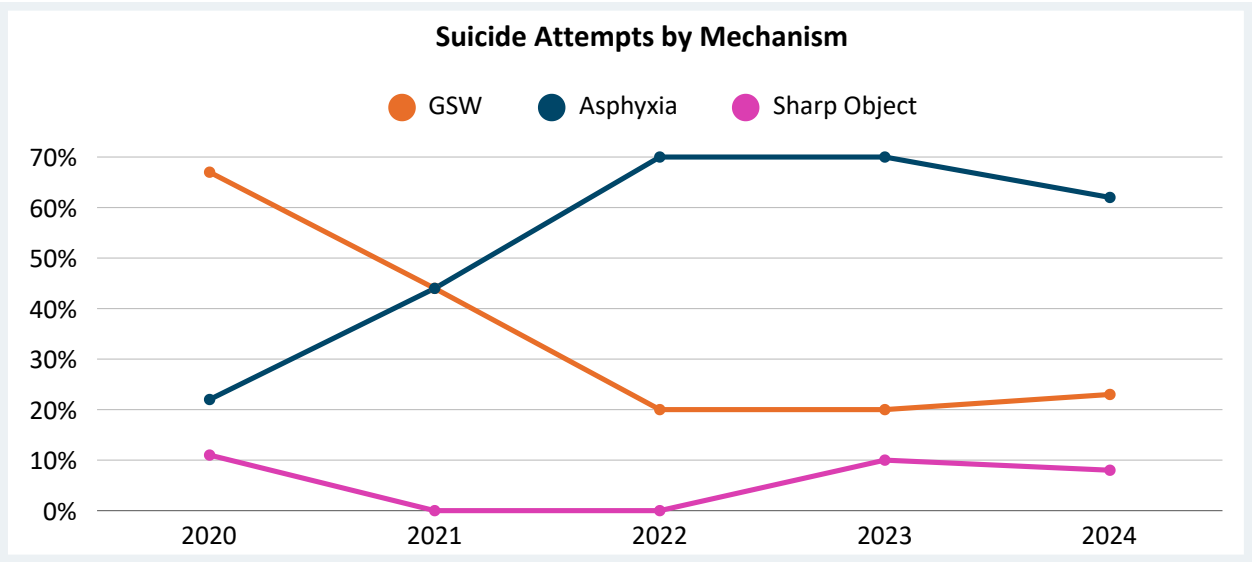




Notable Data

Suicide

Another notable trend among our trauma patients is the increase in the number of suicide attempts involving asphyxiation or strangulation. In 2020, the proportion of suicide attempts treated by our trauma team involving asphyxiation was 22%. In 2024, that proportion grew to 62%. On the other hand, in 2020 the proportion of suicide attempts involving firearms was 67%, but in 2024 that proportion reduced to 23%. However, suicide attempts involving firearms continue to be more likely to result in the death of the patient when compared to other mechanisms. In the past five years, 86% of completed suicides in our patient population have involved firearms.

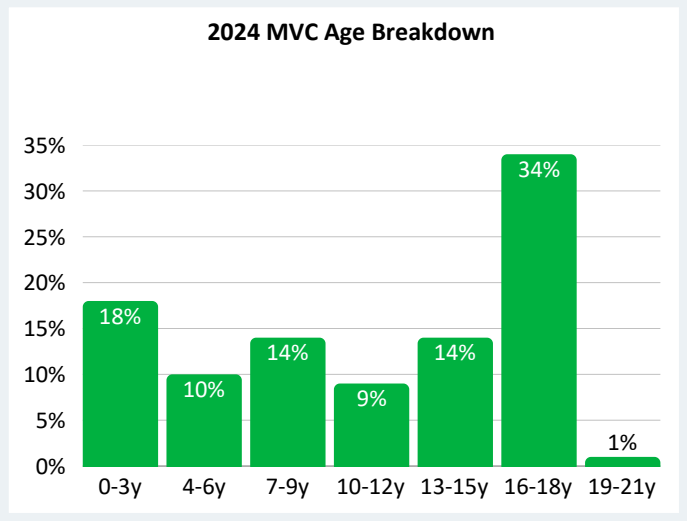


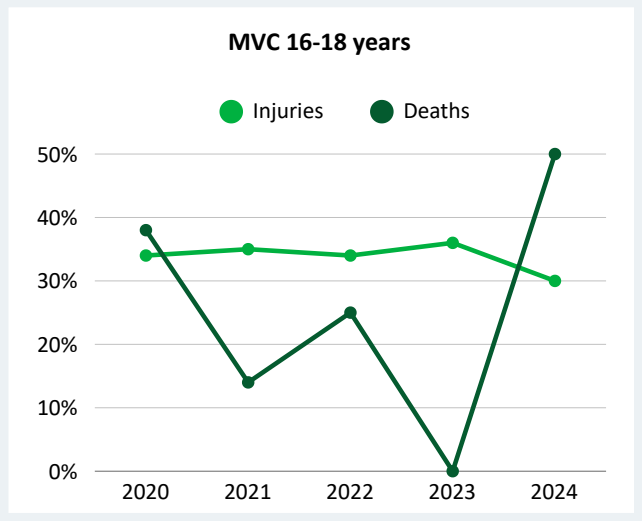
Notable Data

Teen Driving

Motor vehicle collisions (MVC) consistently rank as one of the top three mechanisms of injury for all ages in our trauma population. Notably, the 16-18-year-old age group has the highest number of MVC trauma cases compared to the other age groups; this is the only age group in which MVCs are the number one mechanism of injury. In 2024, 63% of MVC trauma cases within this age group were drivers, while 37% were passengers.

In 2024, patients in the 16-18 year age group made up 34% of all of our MVC trauma cases. Notably, we saw zero MVC deaths for this age group in 2023, but in 2024, 50% of the trauma deaths for this age group were due to MVCs.





Outreach/Education

STOP THE BLEED®

The #1 cause of death after injury is bleeding. STOP THE BLEED® is a national campaign prepared by the American College of Surgeons to encourage bystanders to become trained, equipped, and empowered to help in a bleeding emergency before professional help arrives on the scene. In Arkansas, 6.5% of the population lives in an ambulance desert, which means it typically takes about 25 minutes for an ambulance to arrive (Jonk, Y., Milkowski, C., Croll, Z., & Pearson, K., 2023).

In 2024, our trauma department conducted 13 STOP THE BLEED training courses, certifying 277 individuals in these life-saving skills. We train both children and adults and have been able to reach new populations, including the deaf community and incarcerated minors. Organizations can contact us directly to request a training session.

Jonk, Y., Milkowski, C., Croll, Z., & Pearson, K. (2023). Ambulance Deserts: Geographic Disparities in the Provision of Ambulance Services [Chartbook]. University of Southern Maine, Muskie School, Maine Rural Health Research Center.

Outreach/Education

EMS Education

Pediatric trauma education for statewide EMS providers is crucial as children have unique anatomical and physiological differences compared to adults, requiring specialized care during trauma situations. This type of education ensures consistent, high-quality patient care across the entire state by guaranteeing that all EMS personnel have the necessary knowledge and skills to handle pediatric emergencies effectively. Ensuring all EMS providers across the state are equipped to properly assess, stabilize, and transport injured children significantly improves patient outcomes and helps reduce mortality rates. The Trauma Department coordinated nine different education opportunities around the state for EMS providers in 2024.

Outreach/Education

Trauma Nursing Core Course

Trauma Nursing Core Course (TNCC) is a class designed to educate nurses on how to effectively assess and manage trauma patients. This course provides them with the knowledge and skills needed to deliver high-quality care in emergency situations involving traumatic injuries; it is considered the premier course for trauma nursing worldwide, overseen by the Emergency Nurses Association (ENA). The course teaches a systematic approach to trauma patient assessment, including rapid identification of life-threatening injuries and appropriate interventions. TNCC incorporates practical skill stations to practice key procedures such as airway management, spinal immobilization, and wound care in simulated trauma scenarios. This course is primarily intended for emergency nurses that frequently encounter trauma patients. As of September 2024, 93% of eligible emergency department nurses were TNCC certified. Two TNCC classes were held at ACH in 2024 with a total of 33 participants.

TNCC®
TRAUMA NURSING CORE COURSE

Outreach/Education

Pediatric Trauma Across the Care Continuum

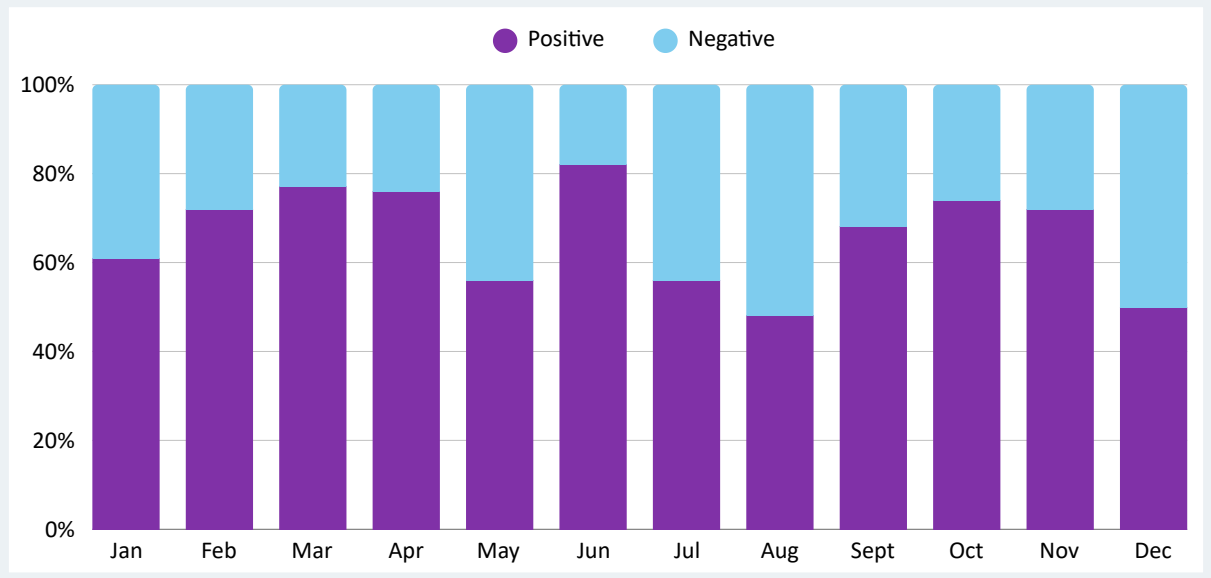
The "Pediatric Trauma Across the Care Continuum" (PTACC) class is a training program designed specifically for nurses who care for admitted pediatric trauma patients. This course focuses on the full spectrum of care from post-initial resuscitation through discharge of the injured child, covering topics like trauma assessment, shock management, and addressing potential impacts on different bodily systems across various trauma scenarios. This training essentially fills the educational gap for nurses managing pediatric trauma patients beyond the initial emergency phase.

PTACC is a new educational program from the Society of Trauma Nurses. Jennifer York, one of our trauma nurse practitioners, and our program manager, Shonda Grappe, traveled to complete the necessary requirements to host the course at our hospital. ACH is one of the few select hospitals in the nation to begin offering this course. In 2024, we hosted two classes with 32 nurse participants.

Screenings

Acute Stress

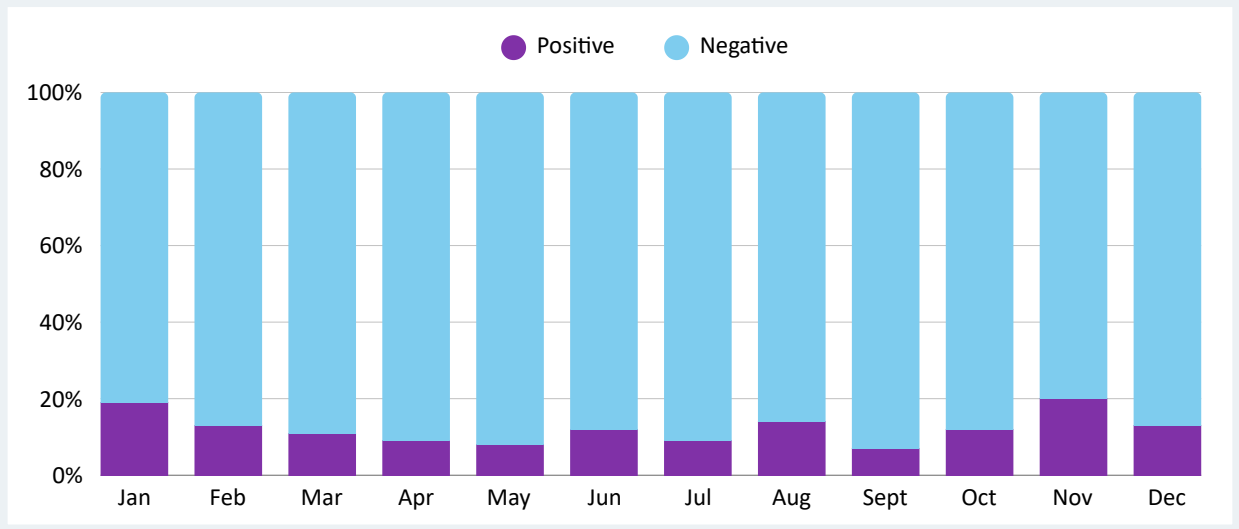
Injuries can be very distressing experiences for children and families. Screening patients for acute stress is extremely important in identifying those who may need mental health resources after an injury. At Arkansas Children's Hospital, trauma patients between the ages of 8 and 17 years who are admitted for at least 24 hours are screened using the Screening Tool for Early Predictors of PTSD (STEPP). This tool contains separate sections for patient responses, parent responses, and objective data from the patient chart. If either the patient or parent screens positive, an order is placed in the chart for a social worker to visit with them and provide mental health resources. As mentioned before, these patients are also scheduled in our trauma clinic. The chart below shows the screening results for eligible patients in 2024.



Screenings

Substance Abuse

Substance abuse among children and youth continues to be a focus in public health and the medical field in Arkansas and nationwide. At Arkansas Children's Hospital, all admitted patients 12 years of age and older are screened for substance abuse utilizing the "Car, Relax, Alone, Forget, Friends, Trouble" (CRAFFT) screening tool. This tool not only asks about substance use but also about behavior related to that substance use. For example, it not only asks about a patient's current and historical use of alcohol, but also if they have ever driven a vehicle under the influence or if they have ever ridden in a vehicle with someone under the influence. If the patient screens positive, an order is placed in the chart for a social worker to visit with the patient and provide substance abuse treatment resources. The chart below shows the results of the CRAFFT screenings for our trauma patients in 2024.



Research

2024 Manuscripts

York JK, Krinock DJ, Onarecker M, Walker S, Wolf LL, Wyrick DL. Evaluating the process of arranging follow up care for trauma patients at risk for acute stress. Journal of Trauma Nursing. November 2024. Accepted/In-press

Krinock DJ, Edington M, Walker S, Grappe S, Wolf LL, Wyrick DL. Preventable pediatric trauma transfers in a rural state. Journal of Trauma and Acute Care Surgery. Under review.

Jaggers B, Krinock DJ, Le N, Nolte J, Wyrick DL, Schoenleber S. Pediatric injuries by off-road recreational vehicle accidents in a rural state. Journal of Pediatric Orthopedics. Under review.

2024 Presentations

Krinock DJ, Arnold T, Branton H, Schoenleber S, Wyrick DL. Pediatric Trauma Society Annual Meeting. Poster presented: Help, I've fallen and I can't giddy up: characterizing pediatric rodeo injuries. Charlotte, NC, United States of America; 11/08/2024.

Krinock DJ, Jaggers B, Le N, Nolte J, Schoenleber S, Wyrick DL. Pediatric Trauma Society Annual Meeting. Poster presented: Pediatric injuries by off-road recreational vehicle accidents in a rural state. Charlotte, NC, United States of America; 11/08/2024.

Krinock DJ, McVay-Gillam M, Ocal E, Siddiqui S. Global Initiative for Children's Surgery. Poster presented: Management of mild traumatic brain injuries at a rural United States pediatric trauma center. Manila, Philippines; 02/26/2024.

Krinock DJ, Edington M, Walker S, Grappe S, Wolf LL, Wyrick DL. Preventable pediatric trauma transfers in a rural state. Oral presentation: Pediatric Trauma Society Annual Meeting; 11/09/2024. Charlotte, NC, United States of America.

Krinock DJ, Seymore J, Wells A, Vandewalle R, Siddiqui S, Wyrick DL. An investigation into surgeon presence in the pediatric intensive care unit on traumatic brain injury pathway compliance. Oral presentation: Southwestern Surgical Congress; 04/23/2024. Santa Ana Pueblo, NM, United States of America.

Research

2024 Presentations cont.

Krinock DJ, Siddiqui S, Wyrick D, Vandewalle R. Anticoagulation in Traumatic Brain Injury. Oral presentation: American Pediatric Surgical Association Critical Care Case Conference [virtual]; 02/07/2024. Little Rock, AR, United States of America.

Krinock DJ, York JK, Walker S, Coatney K, Grappe S, Wolf LL, Wyrick DL. Patient factors impacting access to trauma clinic follow-up. Oral presentation: Pediatric Trauma Society Annual Meeting; 11/08/2024. Charlotte, NC, United States of America.

York JK [presenting author], Krinock DJ, Grappe S, Wyrick DL. Utilizing standardized order sets and documentation to improve communication among multidisciplinary teams: a quality improvement project. Oral presentation: Western Pediatric Trauma Conference Annual Meeting; 07/11/2024. Sundance, UT, United States of America.

York JK [presenting author], Krinock DJ, Slaughter L, Grappe S, Wyrick DL. Creation of a trauma follow-up clinic at a level 1 pediatric trauma center. Oral presentation: Western Pediatric Trauma Conference Annual Meeting; 07/11/2024. Sundance, UT, United States of America.

York JK [presenting author], Krinock DJ, Onarecker M, Walker S, Wolf LL, Wyrick DL. Evaluating the process of arranging follow up care for trauma patients at risk for acute stress. Oral presentation: Pediatric Trauma Society Annual Meeting; 11/08/2024. Charlotte, NC, United States of America.

Initiated in 2024

Participant in Massive Transfusion in Children-2 Study

Founding member of A+PTRN Pediatric Research Network

"Efficacy of Prehospital Antibiotics in Reduction of Infection in Open Fractures In Pediatric Patients"

"Pediatric Cervical Spine Clearance: A Multicenter Prospective Observational Study."

Resources

ACH Family Resource Center

ACH Motor Vehicle Safety

ACH Safe Firearm Storage

ACH Recreational Safety

ACH Fall Prevention

Safekids

Find Help (free and reduced price resources in your area)

National Highway Traffic Safety Administration

Journal of Trauma Nursing

PTACC Courses (Nationwide)

Society of Trauma Nurses

American Trauma Society

American College of Surgeons - Committee on Trauma

The American Association for the Surgery of Trauma

Pediatric Trauma Society

Trauma Survivors Network

Children's Hospital Association

Arkansas Children's

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