



Trauma Services

2024 Annual Report

Children's
MINNESOTA

The Kid Experts®

Level I Pediatric Trauma Center



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Our commitment to excellence and community engagement continued to shape our mission and vision, reflecting our role as the leading pediatric trauma center in the region.”



A message from the medical director

In 2024, trauma services at Children's Minnesota achieved significant growth and made impactful strides in patient care, injury prevention, research, and regional collaboration. Our commitment to excellence and community engagement continued to shape our mission and vision, reflecting our role as the leading pediatric trauma center in the region.

In Minneapolis, we saw 1,082 registry patients, marking a 4% increase compared to 2023. Of these, 794 patients were admitted, representing a 2% rise from the previous year. Additionally, 65% of our patients were transferred from other facilities, underscoring our status as a key regional referral center. In St. Paul, we recorded 219 registry patients and 31 admissions, both showing slight increases.

Our injury prevention initiatives reached new heights, enhancing community safety and education. In addition to an impressive number of car seat technician and training courses, both car seats and helmets were distributed in partnership with multiple community organizations, reinforcing our commitment to preventing injuries through education and resource distribution.

Research remains a cornerstone of our commitment to trauma care. We continue to participate in multi-center studies, including one focused on improving outcomes for pancreatic injury patients, another focused on pediatric cervical spine clearance, and a third study looking at the effectiveness of a comprehensive training strategy aimed at increasing protective factors and reducing pediatric firearm injuries and deaths. Additionally, we launched a study evaluating implementation of acute traumatic stress screening tools in patients ages 1-17 years, with the goal of promoting early intervention and better long-term mental health outcomes.

Our team delivered trauma education statewide, enhancing trauma care standards and preparedness across the region. We partnered with Region V for Kids, a federally funded consortium focused on pediatric disaster mitigation, preparedness, response, and recovery, to host the Trauma Speaker Series V, a seven-part series of case-based discussions tailored for frontline pre-hospital and hospital staff. We also played an active role in organizing the Western Pediatric Trauma Conference, collaborating with leading pediatric trauma centers to share best practices, foster knowledge exchange, and explore further opportunities for national collaboration. Additionally, we worked closely with Minnesota Metro Regional Trauma Advisory Council to develop pediatric trauma overview documents designed to support community hospitals caring for low volumes of pediatric patients..

In 2024, trauma services at Children's Minnesota demonstrated a steadfast commitment to advancing patient care, enhancing community safety, and leading in trauma research and regional collaboration. As we look ahead, we are excited to build on this momentum and continue making meaningful impacts in trauma care and injury prevention.



Nathaniel S. Kreykes, MD
Trauma Medical Director

Children's Minnesota trauma services overview



Children's Minnesota Hospital – Minneapolis



Children's Minnesota Hospital – St. Paul

As the busiest pediatric trauma center and the only freestanding Level I pediatric trauma center in the region, Children's Minnesota Hospital in Minneapolis provides care for children of all ages. We see more than 90,000 patients in our two emergency departments. More than 800 patients are admitted with traumatic injuries on our two campuses, ranging from fractures and concussions to life-threatening head and abdominal injuries. From the moment an injured child is met in the emergency department, the trauma team works together to provide the best possible care to promote healing and recovery.

Children's Minnesota Hospital in Minneapolis was re-verified by the American College of Surgeons in 2023 as a Level I pediatric trauma center.

Children's Minnesota Hospital in St. Paul is a designated Level 4 trauma center, and provides trauma care to children in an effort to manage simple injuries and to expedite access to additional resources when necessary. The Children's Minnesota Hospital in St. Paul was re-designated as a Level 4 trauma center in October 2022.

CHILDREN'S MINNESOTA MISSION STATEMENT

We champion the health needs of children and families. We are committed to improving children's health by providing the highest-quality, family-centered care, advanced through research and education.

WE TREAT
1,200+
PEDIATRIC TRAUMA PATIENTS
ANNUALLY FROM AROUND
THE REGION

**DEDICATED
SOLELY TO KIDS**
AS THE ONLY STAND-ALONE
LEVEL I PEDIATRIC TRAUMA
CENTER IN MINNESOTA

**LARGEST PEDIATRIC TRAUMA
TEAM WITH PEDIATRIC
SURGEONS AND CRITICAL
CARE EXPERTS IN HOUSE**

24/7

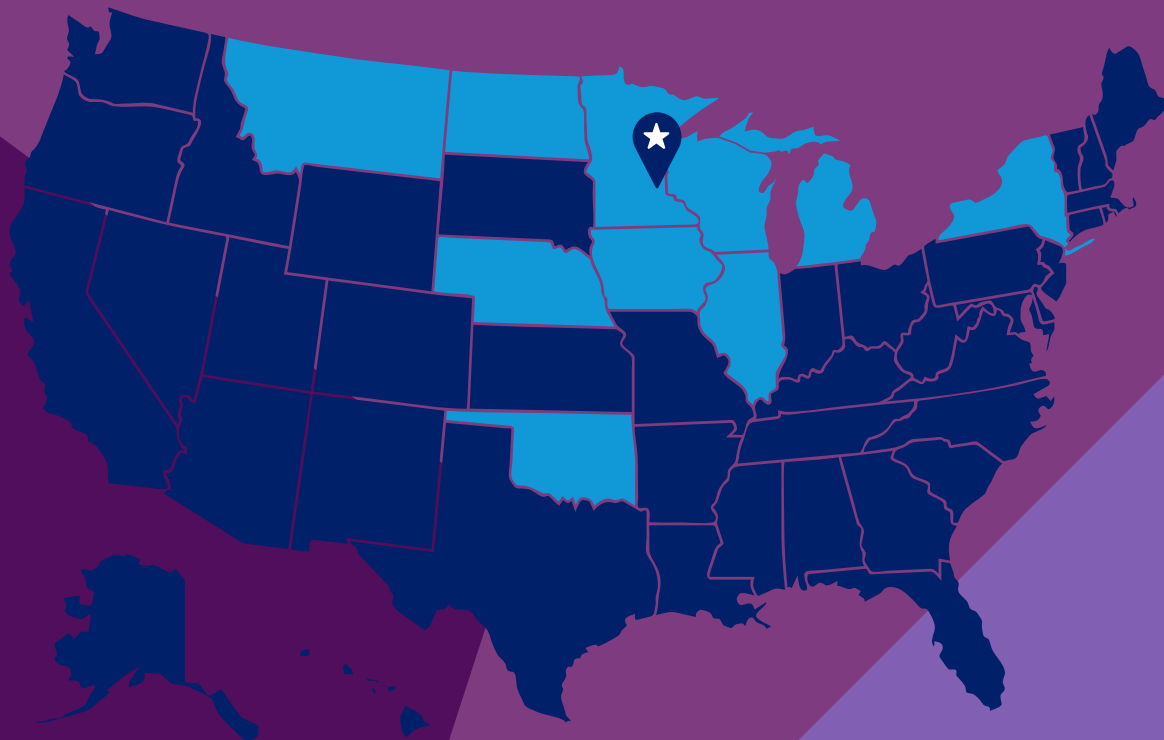


THE
**COMMITTEE
ON TRAUMA**



Minnesota and beyond

Children's Minnesota is one of the largest pediatric health systems in the United States and the only health system in Minnesota to provide care exclusively to children — from before birth through young adulthood. The Children's Minnesota trauma program treats patients from all over the country.* Whether they are visiting family, on vacation or participating in Minnesota sports, we can provide trauma services to any child in need.

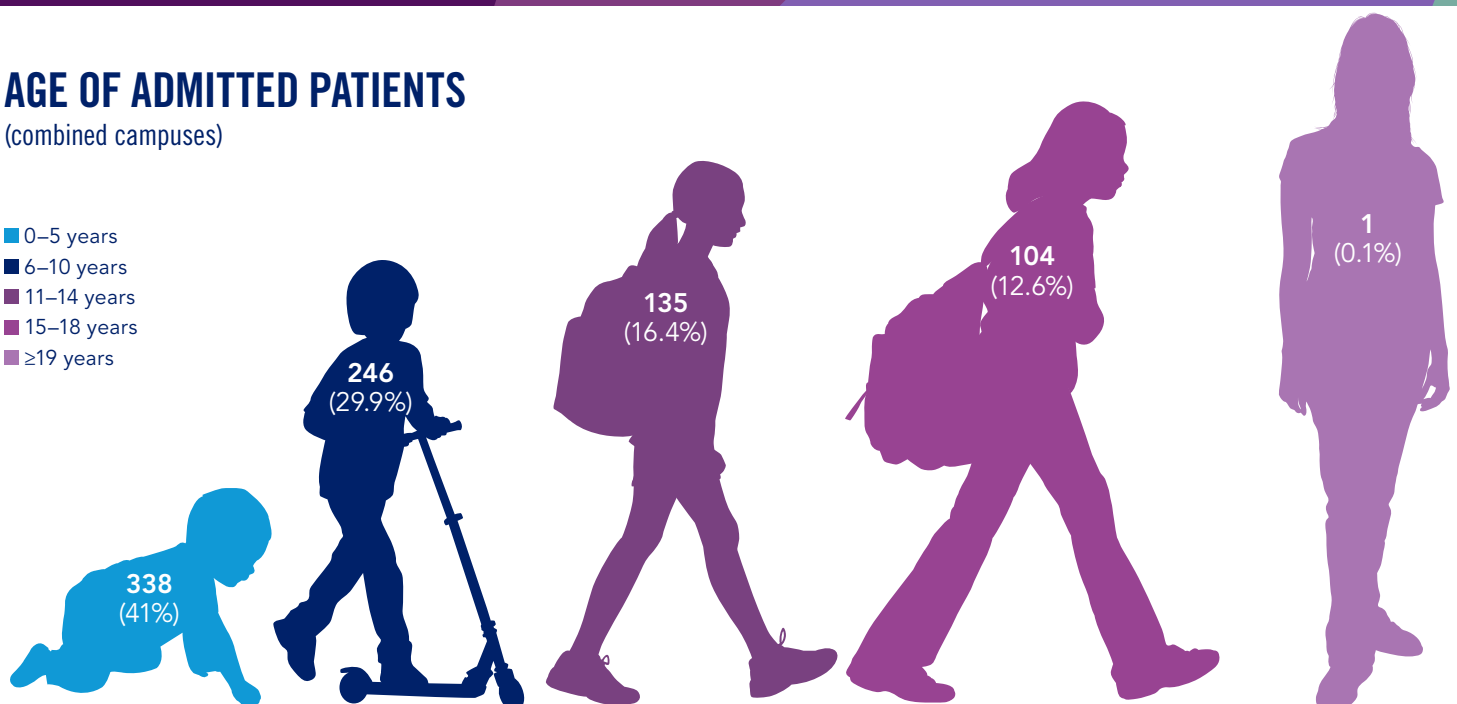


*States pictured in light blue represent the residence of at least one trauma patient treated at Children's Minnesota in 2024.

AGE OF ADMITTED PATIENTS

(combined campuses)

- 0–5 years
- 6–10 years
- 11–14 years
- 15–18 years
- ≥19 years



Trauma care is a team effort

■ PHYSICIANS AND ADVANCED PRACTICE PROVIDERS
■ CLINICAL SERVICES

CASE MANAGEMENT	ADOLESCENT ORTHOPEDIC SURGERY	CHILD LIFE	ANESTHESIOLOGY	INTERPRETER SERVICES	CHILD ABUSE AND NEGLECT (MIDWEST CHILDREN'S RESOURCE CENTER)
CRITICAL CARE	LABORATORY SERVICES AND BLOOD BANK	EMERGENCY MEDICINE	MUSIC THERAPY	GYNECOLOGY	NURSING
NUTRITION SERVICES	HOSPITAL MEDICINE	OCCUPATIONAL THERAPY	INTERVENTIONAL RADIOLOGY	PATIENT REGISTRATION	NEUROLOGY
NEUROSURGERY	PHARMACY	OPHTHALMOLOGY	PHYSICAL THERAPY	ORAL AND MAXILLOFACIAL SURGERY	QUALITY AND PATIENT SAFETY
RESPIRATORY THERAPY	OTOLARYNGOLOGY	RADIOLOGY	PAIN, PALLIATIVE CARE AND INTEGRATIVE MEDICINE	SECURITY	PEDIATRIC ORTHOPEDIC SURGERY
PHYSICAL MEDICINE AND REHABILITATION	SIMULATION	PLASTIC AND HAND SURGERY	SOCIAL WORK	PSYCHOLOGICAL SERVICES	SPEECH LANGUAGE THERAPY
SPIRITUAL CARE	RADIOLOGY	TRANSPORT SERVICES	WOUND OSTOMY CARE	VASCULAR ACCESS	TRAUMA SERVICES

Meet the team

TRAUMA SURGEONS*



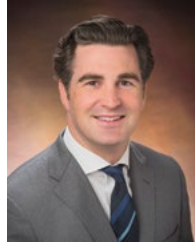
Nathan Kreykes, MD
Trauma Medical Director,
Minneapolis



Bethany Farr, MD



James Fisher, MD



Joseph Lillegard, MD



Brad Linden, MD



Joshua Short, MD



Patricia Valusek, MD



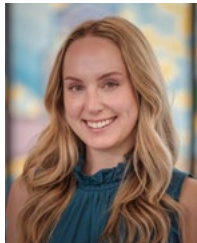
David Wahoff, MD

* These providers are independent providers who provide some services at Children's Minnesota.
These providers are not employees of Children's Minnesota.

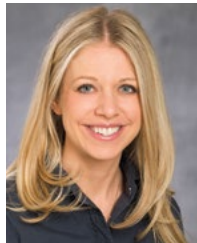
TRAUMA ADVANCED PRACTICE PROVIDERS (TAPPS)



Mariya Bowen,
DNP, CPNP-AC/PC



Ari Elfenbein, PA-C



Noelle Noah, PA-C



Anne-Marie Perry,
PA-C; Lead TAPP

NOT PICTURED

Samantha Johnson, APRN, FNP-BC
Lynelle Logan, PA-C
Krista Renschen, PA-C
Valerie Ross, PA-C

TRAUMA PROGRAM

Esther DeLaCruz, CPST-I

Child Passenger Safety Coordinator

Vicky Douglas

Trauma Registrar and Senior
Administrative Assistant

David Hirschman, MD

Emergency Medicine Physician
St. Paul Trauma Medical Director

Kati Kiely, LGSW

Trauma Social Worker

Allisyn Maley, CPST-I

Child Passenger Safety Coordinator

Laura Plasencia, MPH, RN, TCRN

Trauma Services Manager, Minneapolis

Lyndsey Reece, DHA, NBC-HWC, CPSTI

Child Passenger Safety Coordinator

Michael Rhodes, CSTR, CAISS

Trauma Registrar

Megan Schultz, MBA, RRT-NPS, CPHQ

Trauma Performance Improvement
Coordinator

Laura Sietsema, RHIT

Trauma Registrar

**Meghan Simpson, BA, EMT, CHSOS,
EMS DOT-I**

Trauma Program Lead

Dex Tuttle, MEd, CPST-I

Injury Prevention Program Manager

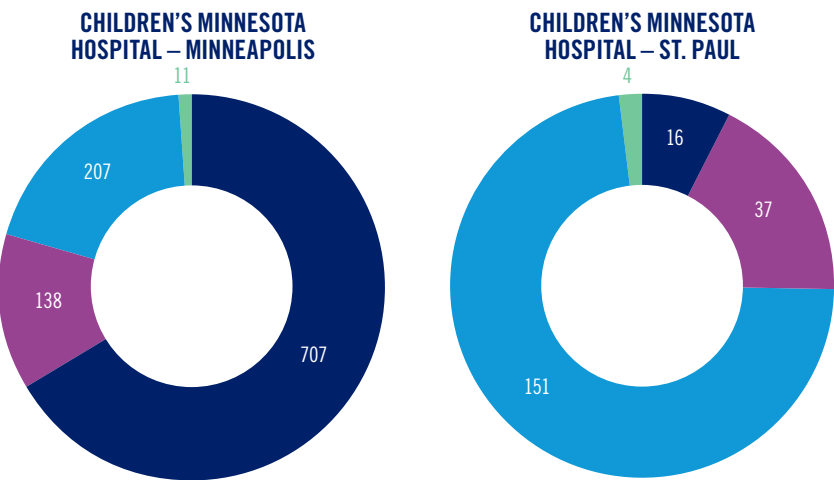
Providing a full spectrum of pediatric and adolescent surgical care.

2024 at a glance

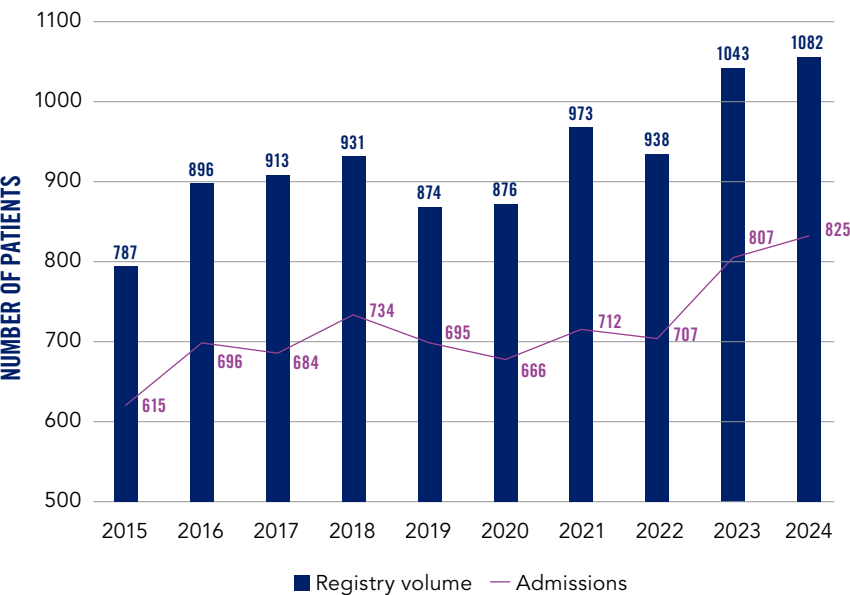
Children’s Minnesota finished 2024 by caring for the highest number of injured children in its 11 years of having the Children’s Minnesota Hospital in Minneapolis be verified as a Level I Pediatric Trauma Center. Collaboration with EMS and referring hospitals ensures a smooth transition of care for patients and their caregivers. The Children’s Minnesota Hospital in St. Paul remains a Level 4 trauma center, and plays an important role in the care of children in the East Metro.

WHERE OUR PATIENTS COME FROM

- Transfers from another hospital
- Private vehicle/walk-in
- From scene by EMS
- Direct admission



CHILDREN’S MINNESOTA HOSPITAL – MINNEAPOLIS ANNUAL VOLUME TREND (10-YEAR)



1,301

TRAUMA REGISTRY PATIENTS

Minneapolis: 1082 | St. Paul: 219

825

ADMITTED TRAUMA PATIENTS

Minneapolis: 794 | St. Paul: 31

458

OR CASES

Minneapolis: 448 | St. Paul: 10

51

LEVEL 1 TTAS

Minneapolis: 48 | St. Paul: 3

243

LEVEL 2 TTAS

Minneapolis: 168 | St. Paul: 75

MECHANISMS OF INJURY

(combined campuses)

BASKETBALL
DOG BITES
TRAMPOLINE
PLAYGROUND
MOTOR VEHICLE COLLISION
BURN
SNOW ACTIVITIES
COLLISION WITH FURNITURE
POWERED DIRT BIKES/MOTORBIKES
HOCKEY
FALL WHILE BEING CARRIED
PHYSICAL ASSAULT
SLIP AND TRIP WHILE MOVING
PHYSICAL CHILD ABUSE
GROCERY CART
BICYCLE
DROWNING
GYM EQUIPMENT
FALL FROM CHAIR
FALL FROM BED
FINGER IN DOOR
FALL DOWN STAIRS
FALL FROM DECK/WINDOW/TREE
FOOTBALL
CUTS FROM SHARP OBJECTS
PEDESTRIAN
ELECTRIC SCOOTER



TYPES OF INJURY

(combined campuses)

91.2%
BLUNT TRAUMA

5.5%
PENETRATING
TRAUMA

1.6%
OTHER

(drowning, asphyxiation)

1.6%
THERMAL

FATAL MECHANISMS OF INJURY

(combined campuses)

COLLISION BETWEEN ATV AND VEHICLE
PHYSICAL CHILD ABUSE
DROWNING IN A POND
DROWNING IN A POOL
ASPHYXIATION WHILE CO-SLEEPING



MORE THAN

TWO MILLION

EMERGENCY DEPARTMENT VISITS

A YEAR ARE RELATED TO

CHILDHOOD FALLS.

THANKFULLY, MANY FALLS CAN BE PREVENTED.

SUPERVISION

IS THE MOST IMPORTANT WAY TO
PREVENT CHILDHOOD INJURIES.

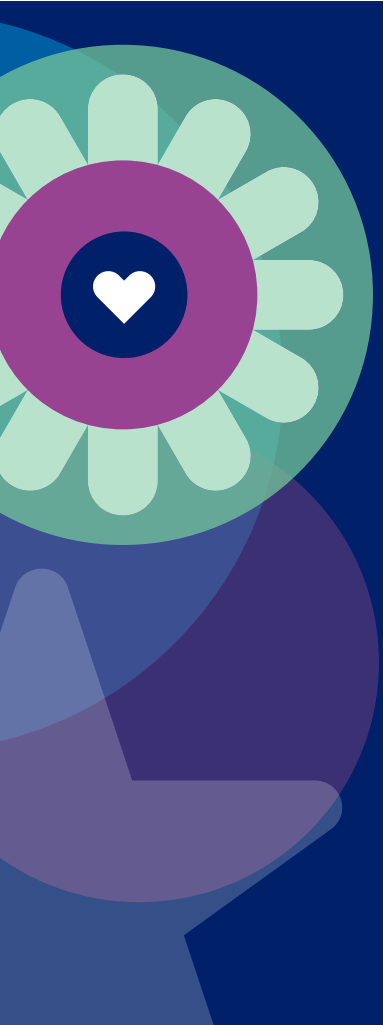
VIEW OUR FALL PREVENTION RESOURCES AT
CHILDRENSMN.ORG/MAKINGSAFESIMPLE.

Injury prevention highlights

As our injury prevention program continues to grow, we celebrate new partnerships and milestones. In 2024, we distributed 564 helmets to community partners and hospital departments to give kids with limited resources or clinical needs a chance at protecting themselves from significant head injury. In addition, we attended community events reaching more than 500 people to share head injury prevention messaging, partnering with Katie Slifko, APRN, CPNC-PC, in our concussion clinic. Additionally, our “spot the proper fit” helmet station and printed helmet fit guides were seen by hundreds of families, thanks to our new partner, Free Bikes 4 Kids.

The Children’s Minnesota team was (and continues to be) highly sought out as car seat experts in Minnesota and surrounding communities. Dex Tuttle, injury prevention program manager, was invited to teach two out-of-state Safe Travel for All Children courses, a national curriculum designed to teach advocates how to transport children with unique medical needs in a safer manner when retail car seat options are not ideal. We now have three casual Child Passenger Safety Technicians (CPST) on our team, which has helped us expand our car seat education programs in the metro area and allowed us to complete 11 CPST training courses — six in-person and five hybrid — adding 108 new CPSTs in the region. Our team helped educate local families with the installation of 286 car seats across all events and community interactions.

In addition to 50 car seats donated from Toyota’s Buckle Up for Life program, Children’s Minnesota received a generous grant from the Mdewakanton Sioux tribe in 2024, a portion of which was directed for car seat education in the community. We were able to use these funds to distribute 306 car seats to 12 different community partners serving families living in areas of high Social Vulnerability Index (SVI). With this work, we showed we are able to make a significant community impact with a relatively small amount of funding.



Award at Toward Zero Deaths conference

The Toward Zero Deaths Star Awards are given to recognize excellence in enforcement, emergency medical and trauma services, education, engineering, child passenger safety, and judicial/court systems. Award recipients have demonstrated exceptional creativity, leadership, organizational skills and the ability to successfully motivate and collaborate with others in efforts to reduce traffic-related fatalities.

Dex Tuttle, injury prevention program manager, was recognized for his commitment to safeguarding children’s well-being regardless of language or cultural barriers. Dex directed an initiative to create an animated video series which shows families how to properly install car seats and secure children to help prevent injuries from motor vehicle collisions. The “Making Safe Simple” video series uses digital animation, art and positive messaging to share injury prevention information across cultures and language groups. At the Minneapolis campus, 41% of children have a preferred household language other than English, while the same is true for 20% of children at the St Paul campus. The families in surrounding communities speak more than 210 different languages in the home. Most safety messages are available in a limited number of languages, leaving many people unable to access the information. Dex also teaches CPS Technician, CARS/BEST, and Safe Native American Passengers courses and is the only instructor in Minnesota who teaches the Safe Travel for All Children course.



564

**HELMETS
DISTRIBUTED**

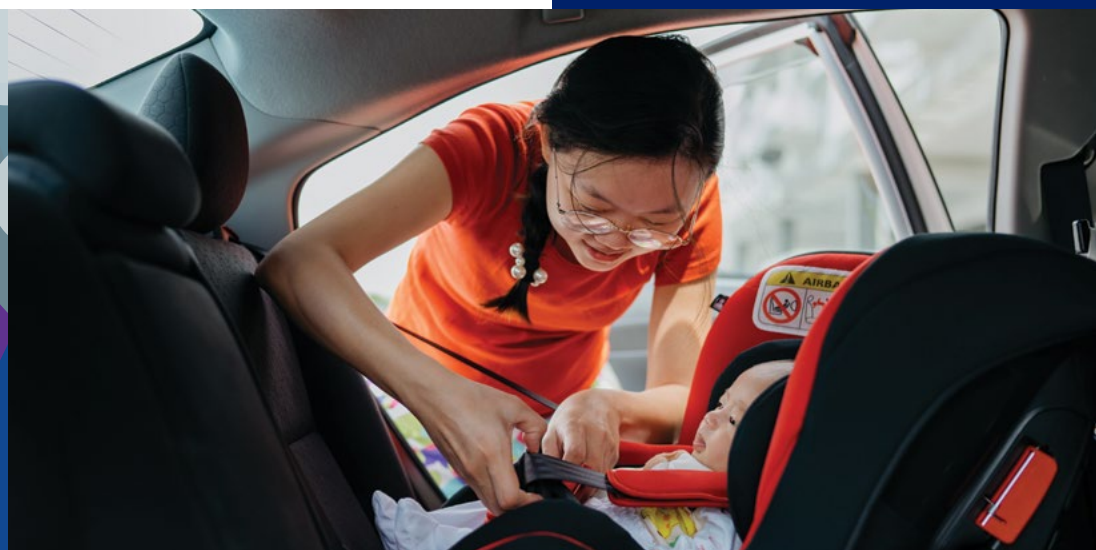
Injury prevention **BY THE NUMBERS**

Car seat, helmet and home safety



286

**CAR SEATS
CHECKED**



108

**NEW CHILD PASSENGER
SAFETY TECHNICIANS
(CPSTs) CERTIFIED**

11

**CPSTs CLASSES
CONDUCTED
5 HYBRID, 6 IN-PERSON**

Tips for working with children in a trauma setting

1. Introduce yourself. Explain who you are and what you are going to do.

Introducing yourself reduces anxiety by allowing the child to know about you and what is going to happen. Ask what the child likes to be called.

2. Place yourself at the child's eye level when possible.

This is important to limit the intimidation a child feels when working with adults.

3. Respect a child's sense of space.

Avoid touching a child until necessary. Offering a handshake or high five can help them feel involved and respected. Tell them why you are touching them and for what purpose.

4. Be sensitive to the privacy needs of children.

If there is a need for the child to change clothes, provide privacy for this. Keep "private areas" covered during procedures whenever possible.

5. Children do not need to have eye contact to be listening.

Be cautious of what you are saying to parents and other co-workers even if it appears the patient is not listening.

6. Use minimally threatening, age-appropriate language.

Only tell the child information that pertains to his or her experiences. What will the child feel, touch, taste, see, hear, and smell? Simple and brief explanations are generally most effective. Children usually do not understand the dual meaning of words (e.g., immunization shot vs. gun shot).

7. Determine the child's perspective.

Ask children what they believe is going to happen and why. Always start from their reality in order to be more effective. This is a great opportunity to clear up misconceptions they may have.

8. Demonstrate what you are going to do before you do it, whenever possible.

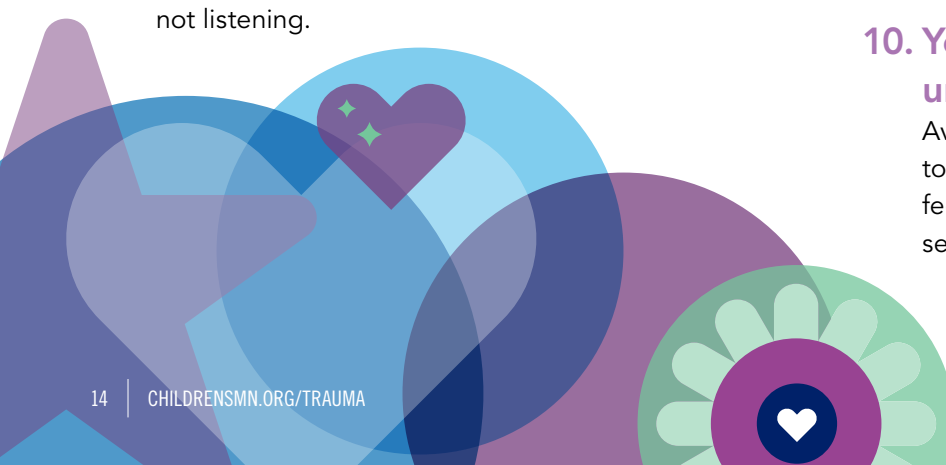
Children assimilate best when the information is presented by concrete demonstration. You can show a procedure using a doll, parents, or yourself.

9. Give the child opportunities to choose.

The ability to choose increases sense of control and reduces feelings of helplessness. For example, say, "Would you like me to check your temperature first or your blood pressure?"

10. Young children do not understand teasing.

Avoid comments such as, "Maybe we'll be able to see what you ate for breakfast." Most kids feel vulnerable in the hospital, so they are highly sensitive and don't understand some adult humor.



11. Only give choices you can truly act on.

For example, refrain from saying, "Do you want to take your medicine now?" Instead you could say, "It's time to take your medicine now. Do you want it in a cup or a squirter?"

12. Do not promise the things you cannot control or are not true.

For example, do not say, "This will be your last poke" or "We're almost done," when there is much more to complete. Such statements make it harder to deal with when these things don't happen.

13. Allow parents to remain with their child during procedures.

Children might appear to be more relaxed when parents are not in the room because they are often too frightened to show their true feelings. However, those feelings will eventually need to be addressed. Discuss with parents and family members how they can support their child during and after the procedure.

14. Let the child and family know they can ask questions and share or express their feelings.

Engaging the family throughout all stages of care assures them you are considering their thoughts and opinions.

15. Be honest in your answers.

If something might hurt, avoid saying it won't, and be careful of qualifying the amount of type of pain. You might say, "Some kids think this feels like ____, other tell me it feels like _____. You can tell us how it feels for you."

16. Talk with the child about how they might cope during the procedure.

Discuss what can be done to make it easier. For example, say, "Some kids like to take a deep breath and blow away the feeling. Others like to imagine they are in their favorite place. Others like to watch what is happening." Instead of saying "Relax," say, "Relax by wiggling your toes."

17. Whenever possible, involve the child in the process of the procedure.

Let the child hold a piece of the equipment or push a button to see how something works. This takes some of the mystery out of what is happening and gives the child an increased sense of control.

18. It is okay for children to watch procedures.

Watching a procedure can increase understanding, provide a sense of control, and allow the child to feel more prepared for the sensory experience.

19. Be careful to avoid statements that make the child feel ashamed or embarrassed.

Saying things like, "That wasn't so hard now, was it?" or "You've done this before, so what's the problem?" can make a child feel like their feelings aren't valid. Instead, recognize preparation is a continuous process. It's more helpful to ask, "How was that for you?" or "Was that harder or easier than you thought?" to let the child share their thoughts.

20. Praise the child's behavior, not the child.

Tell the child, "You did a great job holding still," rather than "You're a good kid." This reinforces the action they chose was positive, and yet it's separate from the kind of kid they are.

Tips for working with children in a trauma setting by age groups

AGE	TYPICAL DEVELOPMENT	TIPS	TRICKS
INFANT (0-12 MO)	• Use sensory exploration to learn, may self-soothe by using pacifier or thumb • Separation and stranger anxiety • Recognize familiar faces, voices	• Keep infant with or as close to parent as possible • Encourage them to interact with infant • Examine infant while parent is holding the baby	• If parent is unable to participate or to calm the infant, and infant is distressed, try singing to them, rocking them, or pacing • Try facing infant outward or inward while cradling, rather than flat on their backs if able
TODDLER (12-36 MO)	• Attachment to security objects • Often perceive pain as punishment • Strong sense of self • Think in the here and now (short attention span)	• Have parents present if possible • Physically get down to their level while interacting • Try to avoid laying them down flat on their backs, as it tends to make them feel vulnerable	• Try singing toddler tunes, playing peek-a-boo or animal noises • If parent present, examine them in a parents lap or turned into parent on lap
PRE-SCHOOL (3-5 YRS)	• Magical thinking, imaginative play • Think concretely/literally/why questions • Fear of injury, restraint, loss of control, being alone • Responsive to immediate reinforcement	• Parents present, get to their level, avoid laying child down on their back • Show them the tools and demonstrate on yourself • Use simple words and tell them what you are doing when doing it	• Make a balloon out of a glove, draw a face on it • Squirt water out of syringe • Sing songs if they have favorites • Let them use your medical tools to play on you, such as Band-Aids, tape
SCHOOL-AGE (5-10 YRS)	• Understand time, space and causality • Black and white thinkers/rule followers • Successes contribute to positive self-esteem	• Tell them what, why, when you are doing a procedure, no surprises • Ask them if it helps if they watch or look away, give choices when possible	• Find out their interests, engage in conversation • Play games such as I Spy • Simple coping strategies, such as wiggle toes, blow out candles, squeeze hand or stuffed animal
PRE-ADOLESCENCE AND ADOLESCENCE (11-18 YRS)	• Balancing independence and dependence • Intense self-focus • Sense of invincibility • Strong peer influence, worry about what others think of them • Ability to use abstract thought/logic	• Explain what you are doing • Provide more in-depth information IF they want to know more • Include them in decisions • May be worried about body image and who might see their body. Help them be more comfortable by providing privacy, covering them when possible, and limiting people around them when changing clothing, etc.	• Engage in conversation. Topics might include favorite shows, music, movies, sports • Use breathing techniques for coping, have them close their eyes and imagine their favorite place, have them tell you what it feels like, smells like, looks like



Education and conferences

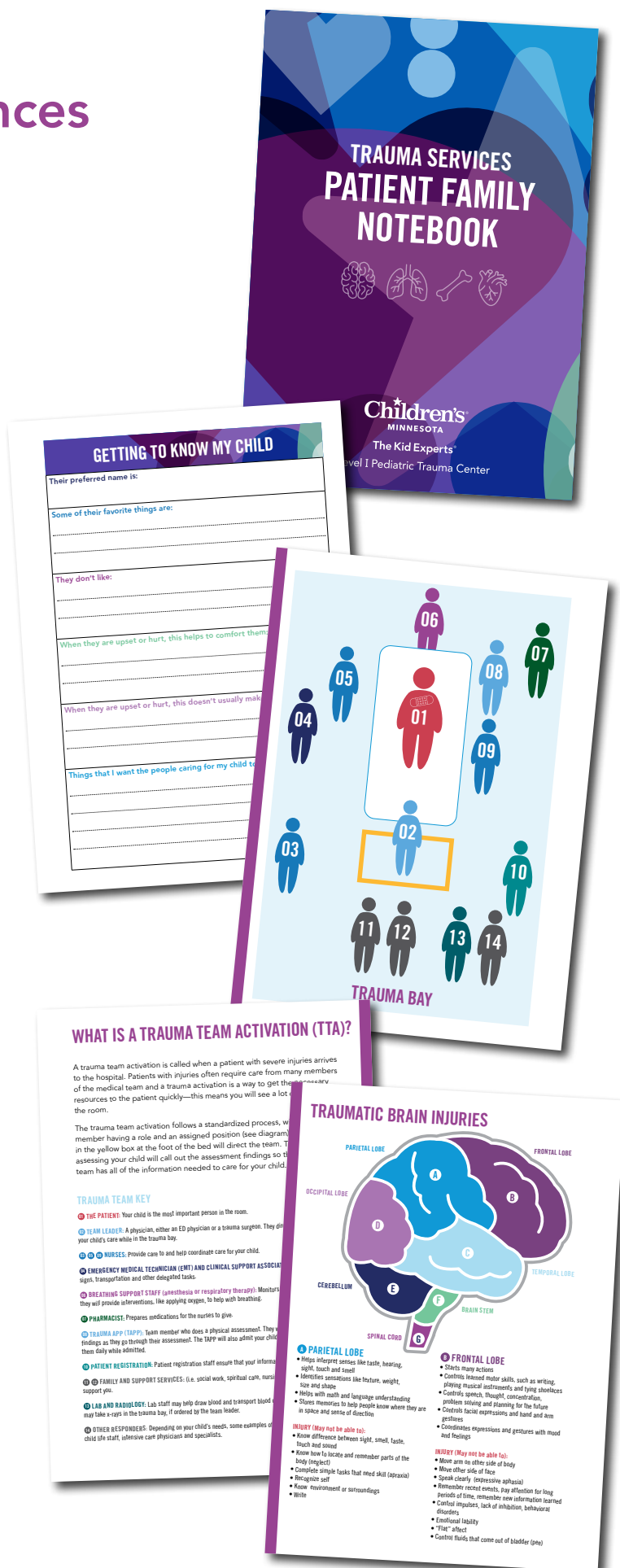
WESTERN PEDIATRIC TRAUMA CONFERENCE

Best Practice Award

Feedback from social workers and nursing staff who provide support to families during trauma team activations led to the development of a patient family notebook. Families staying in the Pediatric Intensive Care Unit (PICU) expressed being overwhelmed by the trauma activation process, let alone having a child be injured. They had questions regarding the trauma activation team and its purpose, and wanted somewhere to document the names and roles of individuals providing their child care.

A survey was completed with social workers, spiritual care providers, trauma advanced practice providers, and PICU nurses. That feedback was incorporated into the notebook that was created in partnership with the marketing and communications team. Spaces were created for families to take notes, learn about the trauma team activation process, and the potential impacts of trauma on a child's behavior and mental health. An infographic on traumatic brain injuries was converted into family-friendly language and included in the notebook as well, since many of our PICU families have children who have experienced traumatic brain injuries.

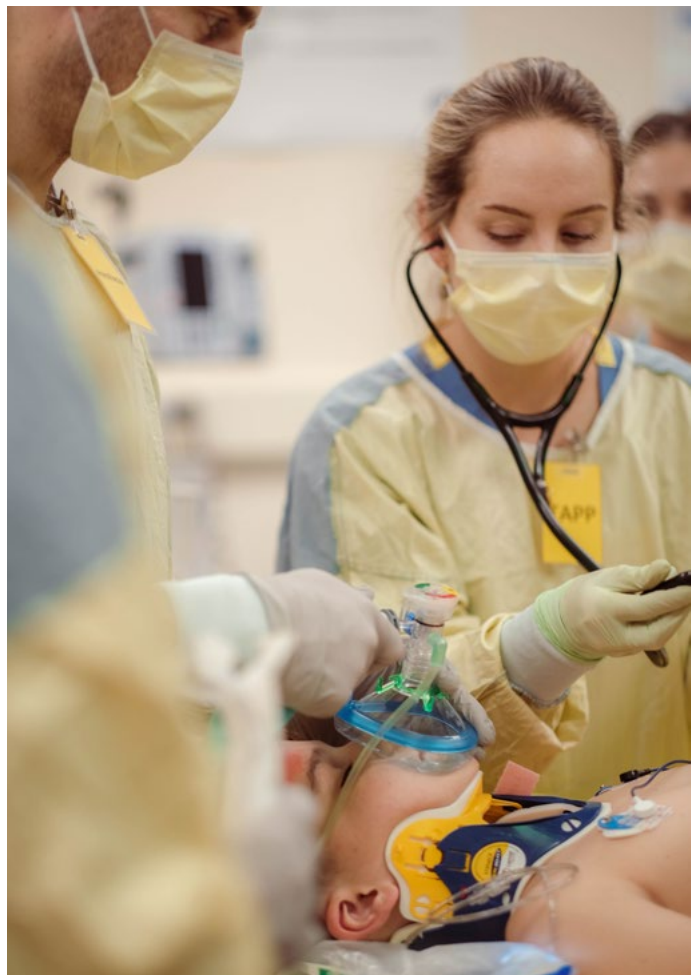
After using the notebook with several families, edits were made. The pain and palliative care team was consulted, and a page was created for families to think through what they'd like the care team to know about their child – e.g., their favorite things, things that help comfort them, things to avoid, and any other special notes about their child. A follow-up survey to social workers, spiritual care providers, trauma advanced practice providers, and PICU nurses was overwhelmingly supportive of the use of the notebook with families, and several suggestions were submitted to improve it further. An abstract citing this effort as a trauma center best practice was honored with the Best Practice Award at the Western Pediatric Trauma Conference, a national pediatric trauma conference, held in July 2024.



Sharing Children's Minnesota expertise across the region

Trauma services represented Children's Minnesota at several events throughout the region, sharing resources to improve the care of injured children in those communities and fostering collaboration for children needing a higher level of care. Events in 2024 included:

- 43rd annual Arrowhead EMS conference, which is Minnesota's largest gathering of EMS providers, held each year in January in Duluth, Minnesota.
- Minnesota EMS Medical Directors conference, held in Duluth, Minnesota in October. This event brings together leaders of EMS agencies throughout the state to discuss emerging trends and share best practices.
- North Dakota Trauma Foundation annual conference, held in Bismarck, North Dakota. This is a collaborative effort between the four verified Level I and II trauma centers, and provides an educational opportunity for EMS and hospital personnel focused on trauma care of both adults and children.
- Toward Zero Deaths annual conference, held each year in October in Minnesota. Led by the Department of Traffic Safety, this event brings together law enforcement personnel, EMS agencies, and child passenger safety professionals to identify opportunities and celebrate successes in eliminating traffic-related injuries and fatalities.
- Central Trauma Regional Advisory Council (CENTRAC) Education Days, held in three cities in the central region of Minnesota. Nathan Kreykes, MD, and Laura Plasencia, MPH, RN, TCRN, from Children's Minnesota provided pediatric trauma provided pediatric trauma education and resources to first responders and EMS providers that serve their communities, highlighting tips and tricks to care for children.



Trauma and medical simulations in the emergency department

To ensure continued preparedness for any patient that arrives to the emergency departments at Children's Minnesota, clinicians from the trauma service, emergency departments, critical care services, anesthesiology, respiratory therapy, social work, radiology, laboratory services, child life and many more disciplines joined together in 2024 for multiple high-fidelity, interdisciplinary simulations in collaboration with the simulation team.

Seven unique trauma scenarios based on real patient cases were simulated in both Minneapolis and St. Paul throughout the year. These simulated scenarios provide staff opportunities to practice specific clinical skills as well as strengthen teamwork and communication. Topics covered in the simulations included solid organ injuries, head injuries, spinal trauma, sports-related injuries, accidental falls, and physical child abuse, among others. More than 185 providers and staff participated in these simulations throughout the year.

Learning opportunities

TRAUMA SPEAKER SERIES

Trauma Speaker Series IV: “Caring for the Whole Patient”

In 2024, trauma services completed the fourth speaker series highlighting the care of injured children. This series focused on the psychosocial and cultural aspects that play an important role in providing holistic and patient-centered care. Moderated session topics included:

- “Ethical principles in pediatric trauma care,” presented by **Ian Wolfe, PhD, MA, RN, HEC-C**, senior clinical ethicist at Children’s Minnesota.
- “The role of Child Protective Services,” presented by Dr. KJ Schmitt, Hennepin County CPS.
- “Supporting patients who have experienced violence-based injuries,” presented by Rico Amos, Nicole Smith, MDiv, and Theress Williams from the Next Step Program.
- “Adapting care for patients with autism or sensory needs,” presented by Ellie Wilson, executive director of the Autism Society of Minnesota.
- “Honoring Hmong beliefs and traditions in trauma care,” presented by **Song Khang, RN**, Children’s Minnesota.
- “Being an ally in Native American communities,” presented by Thomas Wyatt, MD, senior medical director of emergency services at Hennepin Healthcare and associate professor of emergency medicine at the University of Minnesota Medical School.
- “Death of the injured pediatric patient,” presented by Andrew Baker, MD, chief medical examiner, Hennepin County.
- “Respecting the practices and beliefs of injured Muslim patients,” presented by **Zahraa Al-Lawati, MD**, critical care physician at Children’s Minnesota.



Trauma Speaker Series V: “Caring for Children in Disasters”

Series V began in the fall of 2024, and will continue through spring of 2025. In this series, Nathan Kreykes, MD, moderates discussions on the care of injured children during a disaster situation. Series V is held in partnership with Region V for Kids, a federally funded consortium of pediatric hospitals and other public and private entities within Ohio, Michigan, Illinois, Indiana, Minnesota, and Wisconsin. Using case-based scenarios, presenters highlight best practices and considerations for caring for injured children on scene, during transport, and upon arrival at an emergency department following a disaster. Presentations include:

- “Pre-hospital scene safety and triage,” presented by Jeffrey Luk, MD, director of prehospital and disaster medicine, UH Cleveland Medical Center.
- “Arrival of patients and walking wounded during a disaster,” presented by Marie Lozon, MD, clinical professor emeritus, pediatric emergency medicine, University of Michigan Health.
- “Decontamination of pediatric patients during a mass casualty incident,” presented by Cullen Clark, MD, pediatric emergency medicine physician and director of disaster preparedness, Nationwide Children’s Hospital and Irfan Husain, MD, associate professor of emergency medicine, Emory University School of Medicine.
- “Emergency care of children during a disaster,” presented by Nathan Timm, MD, medical director of emergency medicine at Cincinnati Children’s Hospital and Ronald Ruffing, MD, pediatric emergency physician at Children’s Hospital of Michigan.
- “Family reunification during a disaster,” presented by Nina Gupta, MD, pediatric emergency medicine physician at Children’s Minnesota.
- “Strategies for assisting children with special needs during a disaster,” presented by Kara Kowalczyk, MD, pediatric emergency medicine physician, Indiana University Health and Patricia Frost, RN, PHN, MS, PNP, vice chair of the National Pediatric Disaster Coalition.
- “Recovery of first responders and hospital clinicians following a mass casualty incident,” presented by Kimble Richardson, MS, LMHC, LCSW, LMFT, LCAC.

WORKSHOPS AND COURSES

Hybrid acute wound management and suturing workshop

Every year, Children's Minnesota hosts an acute wound management and suturing workshop series for our providers and other external health care professionals. The series has evolved into a hybrid course that consists of virtual presentations by Children's Minnesota specialists covering topics like laceration repair, tools and techniques for repairs, pain management, and caring for children in this setting. The other part of the training is an optional in-person class that is offered twice per year by **Erin Taylor, DPN, APRN, CPNP-PC**, and others from the emergency medicine nursing team. During the in-person sessions, participants practice suture techniques using simulated skin.



Trauma Nursing Core Course

The Trauma Nursing Core Course (TNCC) is a 1.5 day course designed to provide core-level trauma knowledge and to develop psychomotor skills necessary to deliver emergent nursing care to injured patients. Nurses certified in TNCC are available to care for injured children in the St. Paul and Minneapolis emergency departments.

Essentials of Critical Care: Trauma Workshop

This course is designed to prepare critical care nurses to care for injured children in the Pediatric Intensive Care Unit (PICU) setting. Course topics include those set forth by the American College of Surgeons and Minnesota Department of Health, and content is taught by clinical educators of the Minneapolis PICU, staff from the Center for Professional Development and Practice, and trauma services.

Continuing educational credits are offered in partnership with the interprofessional continuing education team at Children's Minnesota.



2024 publications

All studies listed have at least one professional staff member or employee from Children's Minnesota (in bold) included.

1. **Jonsson B, Madhok M, Lammers S, Reimche P, McClure M, Kiragu AW, Kebriyai MA, Bergmann KR.** External Validation of the Surgical Intervention for Traumatic Injuries Scale in Children. *Pediatr Emerg Care.* 2024 Dec 9. doi: 10.1097/PEC.0000000000003309. Epub ahead of print. PMID: 39642249.
2. Batra EK, Quinlan K, Palusci VJ, Needelman H, Collier A; AAP SECTION ON CHILD DEATH REVIEW AND PREVENTION; COUNCIL ON INJURY, VIOLENCE, AND POISON PREVENTION; COUNCIL ON CHILD ABUSE AND NEGLECT. Child Fatality Review. *Pediatrics.* 2024 Mar 1;153(3):e2023065481. doi: 10.1542/peds.2023-065481. PMID: 38374813.
3. Naik-Mathuria B, Ehrlich PF, Escobar MA Jr, Falcone R, Gosain A, Vogel AM, Jafri M, Thakkar RK, Slater BJ, Russell RT, Campbell B, Beaudin M, St Peter SD, Russell KW, **Kreykes N**, Gaines B, Notrica DM, Hamner C, Renaud E, Gourlay D, DeJesus J; Pediatric Trauma Society Pancreatic Trauma Study Consortium. Prospective Outcomes of Standardized Non-operative Management of Pancreatic Trauma With Ductal Injury in Children: Less is More. *J Pediatr Surg.* 2025 Jan;60(1):161976. doi: 10.1016/j.jpedsurg.2024.161976. Epub 2024 Oct 10. PMID: 39442331.
4. Koenig KD, Hall MJ, Gormley C, Kaleta M, Munger M, **Laine J**, Morgan SJ. Clinical outcomes measurement in pediatric lower limb prosthetics: A scoping review. *J Pediatr Rehabil Med.* 2024;17(2):147-165. doi: 10.3233/PRM-230014. PMID: 38427511; PMCID: PMC11307020.
5. Mattice T, Schnaith A, **Ortega HW**, Segura B, Kaila R, Amoni I, Shanley R, Louie JP. A Pediatric Level III Trauma Center Experience With Dog Bite Injuries. *Clin Pediatr (Phila).* 2024 Jul;63(7):914-920. doi: 10.1177/00099228231200097. Epub 2023 Sep 13. PMID: 37705176.
6. Swarup I, Pearce R, Sanborn R, Shore BJ; Children's Orthopaedic Trauma and Infection Consortium for Evidence Based Studies (CORTICES). Variations in the Management of Closed Salter-Harris II Distal Tibia Fractures. *J Pediatr Orthop.* 2023 Oct 1;43(9):e742-e746. doi: 10.1097/BPO.0000000000002488. Epub 2023 Aug 22. PMID: 37606098.
7. **Archibald H, Tibesar M, Thacker J, Masters T, Chinnadurai S, Tibesar R.** Primary Repair of Ear Avulsion with Adjuvant Hyperbaric Therapy and Nitroglycerin Ointment. *Facial Plast Surg Aesthet Med.* 2024 Jul-Aug;26(4):507-509. doi: 10.1089/fpsam.2023.0166. Epub 2024 Feb 1. PMID: 38301129.
8. Dezfulian C, McCallin TE, Bierens J, Dunne CL, Idris AH, **Kiragu A**, Mahgoub M, Sheno RP, Szpilman D, Terry M, Tijssen JA, Tobin JM, Topjian AA. 2024 American Heart Association and American Academy of Pediatrics Focused Update on Special Circumstances: Resuscitation Following Drowning: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2024 Dec 3;150(23):e501-e516. doi: 10.1161/CIR.0000000000001274. Epub 2024 Nov 12. PMID: 39530204.
9. Haasz M, Doh KF, Hanson HR, Pomerantz WJ, Agrawal N, Beckworth K, Chaudhary S, Clukies L, Fleegler EW, Formica MK, Gallardo A, **Kiragu A**, Laraque-Arena D, Levas MN, Levine MC, McKay S, McFadden T, Monroe K, Lee LK. Pediatric firearm injuries and socioeconomic vulnerability before and during the COVID-19 pandemic. *Am J Emerg Med.* 2025 Feb;88:84-90. doi: 10.1016/j.ajem.2024.11.028. Epub 2024 Nov 18. PMID: 39608312.
10. **Lefchak B, Bergmann KR, Lammers S, Hester GZ.** Piloting a Mobile Clinical Decision Support Application for Pediatric Clinical Guidelines. *Clin Pediatr (Phila).* 2024 Jun;63(6):822-830. doi: 10.1177/00099228231197078. Epub 2023 Aug 30. PMID: 37649259.
11. Mello MJ, Baird J, Spirito A, Lee LK, **Kiragu A**, Scott K, Zonfrillo MR, Christison-Lagay E, Bromberg J, Ruest S, Pruitt C, Lawson KA, Nasr IW, Aidlen JT, Maxson RT, Becker S. Implementing Screening, Brief Interventions, and Referral to Treatment at Pediatric Trauma Centers: A Step Wedge Cluster Randomized Trial. *J Pediatr Surg.* 2024 Nov;59(11):161618. doi: 10.1016/j.jpedsurg.2024.07.003. Epub 2024 Jul 14. PMID: 39097494; PMCID: PMC11486576.
12. Mello MJ, Baird J, Spirito A, Scott K, Zonfrillo MR, Lee LK, **Kiragu A**, Christison-Lagay E, Bromberg J, Ruest S, Pruitt C, Lawson KA, Nasr IW, Aidlen JT, Maxson RT, Becker S. Adolescents' Perceptions of Screening, Brief Intervention, and Referral to Treatment Service at Pediatric Trauma Centers. *Subst Use.* 2024 Aug 21;18:29768357241272356. doi: 10.1177/29768357241272356. PMID: 39175910; PMCID: PMC11339738.
13. Quanbeck Z, Bhatt E, Quanbeck D, **Schiffert A.** The Impact of a Resident, Fellow, or Physician Assistant on Operative Time and Complication Rate in Closed Reduction and Percutaneous Pin Fixation of Pediatric Distal Humerus Supracondylar Fractures. *J Surg Educ.* 2025 Jan;82(1):103353. doi: 10.1016/j.jsurg.2024.103353. Epub 2024 Nov 30. PMID: 39616973.

14. Radomski MV, Carroll G, Davidson L, Eakman A, Kath K, Kreiger R, Meyers A, **Rabusch S**, Smith L, Tripp C, Wolf T. Development and Evaluation of the Maintenance Office Duty Test: An Alternate Form of the Charge of Quarters Duty Test for Assessing Executive Function After Mild Traumatic Brain Injury to Inform Duty-Readiness After Concussion. *Mil Med*. 2024 Aug 14;usae391. doi: 10.1093/milmed/usae391. Epub ahead of print. PMID: 39141414.
15. Ruest SM, Hanson HR, **Kiragu A**, Lee LK, Zonfrillo MR, Pomerantz WJ. The Impact of COVID-19 on Patterns of Fractures Presenting to Pediatric Emergency Departments. *Pediatr Emerg Care*. 2025 Jan 1;41(1):17-23. doi: 10.1097/PEC.0000000000003294. Epub 2024 Nov 6. PMID: 39499116; PMCID: PMC11693463.

Open IRB studies related to trauma care

1. Robert Doss: The Use of Magnetoencephalography & Magnetic Resonance Spectroscopy to Investigate Potential Biomarkers of Pediatric Concussion: A Multi-Modal Imaging Pilot Project. IRB #1411-109
2. Robert Doss: Differences in Rate of Recovery from Concussion in Children Injured During the School Year vs. Summer Months. IRB #1057-082.
3. Robert Doss: Characteristics of Vision Deficits in Pediatric Concussion Patients. IRB #1063-033.
4. Amy Linabery: Objective Measurement of Sleep and Physical Activity as Predictors of Recovery After Concussion: A Prospective Pilot Study. IRB #1708-116.
5. Amy Linabery: Combined Clinical/Research Concussion Database. IRB #1806-067.
6. Amy Linabery: Examining Microhemorrhages in Pediatric and Adolescent Concussion Patients with Extended Symptoms. IRB #1807-082.
7. Kyle Halvorson: Evaluating a Novel MRI Biomarker to Identify Retinal Hemorrhage: A Pediatric Chart Review Study. IRB #1812-140.
8. Kelly Bergmann: The Pediatric Submersion Score. IRB #1812-143.
9. Nathaniel Kreykes: Prospective Longitudinal Trial Evaluating Operative vs. Non-Operative Management of Pancreatic Injuries in the Pediatric Population. IRB #1906-060.
10. Brianne Roby: Children's Minnesota ENT and Facial Plastic Surgery Program Patient Registry. IRB #2020-54.
11. Andrew Kiragu: Pediatric Injuries During COVID Epidemic. IRB #2020-91
12. Siva Chinnadurai: Pediatric Facial Scarring: An evaluation of the most visually noticeable locations of facial scarring and validation of a caregiver reported scar assessment scale for pediatric facial scars. IRB #2021-016.
13. Jennifer Laine: Pediatric Orthopedic Trauma and Infection (CORTICES) Registry. IRB #2021-030.
14. Amy Linabery: Brief RCT for Elevated Anxiety Sensitivity after Trauma to the Head (BREATHe) Study. Also: A brief psychological intervention following concussion for children and adolescents with heightened anxiety sensitivity: A pilot randomized controlled trial. IRB #2022-028.
15. Amy Linabery: Yoga-based intervention following concussion in youth: A pilot randomized controlled trial. IRB #2022-033.
16. Kelly Bergmann: Distal Radius Interventions for Fracture Treatment (DRIFT) Trial. IRB #2023-029.
17. Kelly Bergmann: Cast or Operation for Medial Epicondyle Fracture Treatment in Children (COMET Trial). IRB #2023-030.
18. Laura Plasencia: Pediatric Cervical Spine Clearance: A Multi-Center Prospective Observational Study. IRB #2023-071.
19. Amy Linabery: Use of an Electronic Eye Tracking Device to Predict Concussion in the Pediatric Emergency and Specialty Clinic Setting after Traumatic Brain Injury. IRB #2023-088.
20. Shea Lammers: Evaluating the Feasibility of Administering an Acute Stress Screener among Children Who Experience Traumatic Injuries. IRB #2024-025.
21. Andrew Kiragu: Adopting Comprehensive Training for FireArm Safety in Trauma Centers (ACTFAST). IRB #2024-064.
22. Rachel Weigert: Implementing Firearm Screening in the Pediatric Emergency Department: A Nested Randomized Controlled Trial within a Quality Improvement Initiative. IRB #2024-100.
23. Nathaniel Kreykes: Prehospital Procedures in Pediatric Trauma Patients: 3PT Multi-Center Study. IRB #2024-102.
24. Saydi Chahla: Social Media Preferences for Caregivers during a Mass Casualty Incident. IRB #2024-129.
25. Tyler Ellis: Pediatric vs Adult Vascular Trauma: An Update to a National Trauma Databank Review. IRB #2024-130.
26. Meghan Simpson: Efficacy of Deliberate Practice and Enhancement of Pediatric Trauma Preparedness in Low Volume Healthcare Settings by Utilizing Mobile Simulation. IRB #1908-103.

Locations



MINNEAPOLIS

Children's Minnesota Hospital – Minneapolis:
UnitedHealthcare Pediatric Emergency Department
2525 Chicago Avenue South | Minneapolis, MN 55404
612-813-6000

Our pediatric emergency department with Level I Trauma Center in Minneapolis is Minnesota's only Level I pediatric trauma center in a hospital dedicated solely to kids.

Drop-off and pick-up is located on E. 25th Street.



ST. PAUL

Children's Minnesota Hospital – St. Paul:
Peter J. King Pediatric Emergency Department
345 North Smith Avenue | St. Paul, MN 55102
651-220-6000

The Peter J. King Emergency Department in St. Paul is a Level 4 trauma center, with resources for emergency resuscitation and care of injured patients. Patients may require transfer to the Minneapolis campus for care by the trauma care team and other specialists.

Drop-off and pick-up is located on Smith Avenue.

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Level I Pediatric Trauma Center



childrensMN.org/Trauma

866-755-2121

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