



TRAUMA SERVICES

2022 Annual Report

Children's[®]
MINNESOTA

The Kid Experts[™]

Level I Pediatric Trauma Center

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In addition to providing excellent care, we remain the region's leader in pediatric injury prevention, education, and trauma research.

WELCOME

A MESSAGE FROM THE MEDICAL DIRECTOR

In 2022 the trauma service remained dedicated to the mission of providing the highest level of care to our injured children. This report highlights the continued efforts of the dedicated physicians, nurses, therapists, and staff as they guide the recovery of injured children at Children's Minnesota.

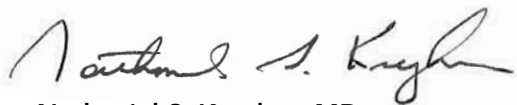
In addition to providing excellent care, we remain the region's leader in pediatric injury prevention, education, and trauma research. Our team actively develops community partnerships to keep children safe and free from injury in their homes and communities.

We continued to offer trauma education both internally to staff and providers and externally to EMS agencies and referring facilities to promote optimal care practices and to improve pediatric health. We continued our virtual trauma speaker series with six presentations featuring speakers from around the country, highlighting best practices in the care of severely injured children. This program serves as a model for future educational opportunities.

Research remains a focus of our service line. Ongoing research projects include the effectiveness of ketogenic diets in severe traumatic brain injury and participation in a multicenter pancreatic injury management study. We also began a qualitative evaluation of the efficacy of animated home safety videos.

Thank you to all of the staff at Children's Minnesota who work tirelessly together to provide outstanding care, education and advocacy for our injured patients.

Sincerely,



Nathaniel S. Kreykes, MD

Medical Director of Trauma Services

CHILDREN'S MINNESOTA OVERVIEW



Children's Minnesota Hospital - Minneapolis



Children's Minnesota Hospital - St. Paul



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.

Children's Minnesota mission statement

Children's Minnesota is one of the ten 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. An independent and not-for-profit system since 1924, Children's Minnesota is one system serving kids throughout the Upper Midwest at two free-standing hospitals, nine primary care clinics, multiple specialty clinics and seven rehabilitation sites. As The Kids Experts™ in our region, Children's Minnesota is regularly ranked by U.S. News & World Report as a top children's hospital.

TRUSTED, NATIONALLY RECOGNIZED CARE

Children's Minnesota is regularly recognized and awarded nationally for excellence in care, quality, innovation and industry leadership.

- In 2018, we were the first and only hospital in Minnesota verified as a Children's Surgery Center by the American College of Surgeons — the highest distinction for health systems that perform complex surgical procedures for newborns, children and teens. We were reverified in November 2022.
- We earned Magnet® recognition from the American Nurses Credentialing Center — the most prestigious distinction a health organization can receive in nursing excellence and high-quality patient care.
- We're consistently ranked among the top hospitals by U.S. News & World Report.
- We are Minnesota's only Level I pediatric trauma center in a hospital dedicated solely to kids.

WE CARE FOR MORE KIDS THAN ANY OTHER HEALTH SYSTEM IN MN

OVER HALF OF BEDS SYSTEM-WIDE DEDICATED TO CRITICAL CARE

2 TRAUMA CENTERS



CHANGE A LIFE. FOREVER.



THE
COMMITTEE
ON **TRAUMA**

VERIFIED
TRAUMA
CENTER



BEST
CHILDREN'S
HOSPITALS
& WORLD REPORT
U.S. News
PULMONOLOGY
2022-23



400,000+
HOSPITAL, SURGICAL
AND CLINIC VISITS



WHEN IT COMES TO TRAUMA, KIDS DO BETTER HERE.

As the busiest pediatric trauma center and the only freestanding Level I pediatric trauma center in the region, Children's Minnesota in Minneapolis provides care for children of all ages with injuries ranging from fractures and concussions to life-threatening head and abdominal injuries in a way no other trauma center can. 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.

As a Level I pediatric trauma center, we're verified by the American College of Surgeons — allowing us to provide the highest level of care for critically injured patients 24 hours a day, 365 days a year. And we have services, resources and staff specializing in pediatric medicine at our fingertips to ensure every child receives the best care, whether they're coming from the scene of an accident or being transferred from another site.

Children's Minnesota in St. Paul is a designated Level 4 trauma center that provides trauma care to stabilize injured children, manage simple injuries, and expedite access to additional resources when a child needs them.

WE TREAT
1,100+
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

A TIMELINE OF TRAUMA SERVICES

★ **2005**

Minnesota legislature establishes a statewide trauma system to be implemented by the Department of Health.

★ **2008**

An initial consultation visit by the American College of Surgeons is conducted to determine the potential for Children's Minnesota to become a Level I Pediatric Trauma Center.

★ **2009**

Licensed ambulance services are required to have triage and transport guidelines in place reflecting compliance with the statewide trauma system criteria.

Children's Minnesota Minneapolis and St. Paul campuses are individually designated as Level 3 trauma centers.

★ **2010**

A grant from UnitedHealthcare is received by Children's Minnesota to develop a Level I trauma program at the Minneapolis campus. This funding supported the construction of state-of-the-art trauma resuscitation bays, a helipad and specialized surgical equipment necessary to provide the highest level trauma care to children.

★ **2012**

A consultative visit by the American College of Surgeons is conducted for Children's Minnesota Minneapolis to become a verified Level I Pediatric Trauma Center.

Children's Minnesota St. Paul is re-designated as a Level 3 trauma center by the Minnesota Department of Health.

★ **2013-2022**

Children's Minnesota Minneapolis is verified as a Level I Pediatric Trauma Center by the American College of Surgeons, and remains as such through 2022.

★ **2015-2022**

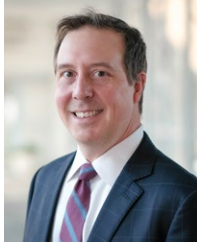
Children's Minnesota St. Paul changes to a state-designated Level 4 trauma center in 2016, and is redesignated in 2018.

★ **2023**

Expected re-designation announcement by the Minnesota Department of Health for the St. Paul campus and expected re-verification site visit by the American College of Surgeons for the Minneapolis campus.

MEET THE TEAM

TRAUMA SURGEONS



Nathan Kreykes, MD
Trauma Medical Director,
Minneapolis



James Fisher, MD



Joseph Lillegard, MD



Brad Linden, MD



David Schmeling, MD



Joshua Short, MD

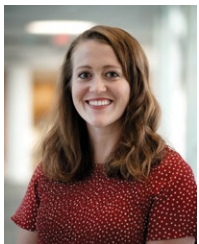


Patricia Valusek, MD



David Wahoff, MD

TRAUMA ADVANCED PRACTICE PROVIDERS (TAPPS)



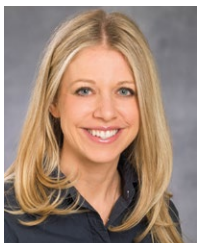
Brittany Bernard, PA-C



Mariya Bowen,
DNP, CPNP-AC/PC



Erica Blake, PA-C



Noelle Noah, PA-C



Anne-Marie Perry,
PA-C; Lead TAPP

Not pictured:
Lynelle Logan, PA-C
Rebecca Rasche, PA-C
Valerie Ross, PA-C

TRAUMA PROGRAM

Alyx Bystrom, MSN, RN, CEN, TCRN
Performance Improvement Coordinator

Mason Davies, MSW, LGSW
Trauma Social Worker

Esther DeLaCruz, CPST-I
Child Passenger Safety Coordinator

Vicky Douglas
Trauma Registrar

Lauren Gravelle, RN, BAN, CPN
Acute Care and Trauma Liaison

David Hirschman, MD
St. Paul Trauma Medical Director

Janet Logid, MAN, RN-BC, CPEN
Clinical Education Specialist

Brandie Martin
Senior Administrative Assistant

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

Dex Tuttle, MEd, CPST-I
Injury Prevention Program Manager

FULL SPECTRUM OF PEDIATRIC AND ADOLESCENT SURGICAL CARE, INCLUDING SPECIALISTS IN:

Neurosurgery • Orthopedics • General surgery • Ear, Nose, Throat (ENT) and Facial Plastic Surgery • Cardiothoracic
Plastic surgery • Vascular • Oral and Maxillofacial Surgery • Ophthalmology • Urology • Gynecology

PARTNERS IN TRAUMA PATIENT CARE

PHYSICIANS AND ADVANCED PRACTICE PROVIDERS

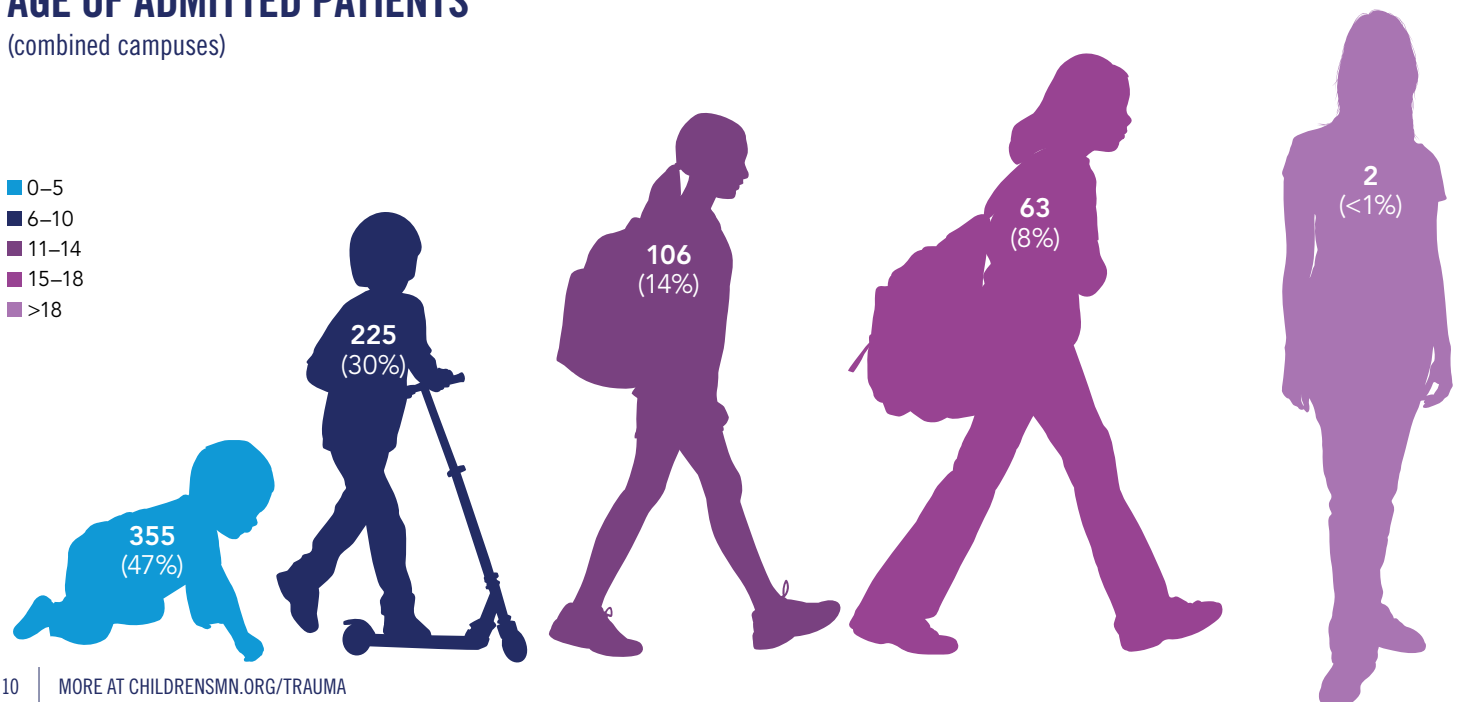
- Adolescent orthopedic surgery
- Anesthesiology
- Child Abuse and Neglect (MCRC)
- Critical Care
- Emergency Medicine
- Gynecology
- Hospital Medicine
- Interventional Radiology
- Neurology
- Neurosurgery
- Ophthalmology
- Oral and Maxillofacial Surgery
- Otolaryngology
- Pain, Palliative Care and Integrative Medicine
- Pediatric Orthopedic Surgery
- Physical Medicine and Rehabilitation
- Plastic and Hand Surgery
- Psychological Services
- Radiology
- Wound Ostomy Care

CLINICAL SERVICES

- Case Management
- Child Life
- Interpreter Services
- Laboratory Services and Blood Bank
- Music Therapy
- Nursing
- Nutrition Services
- Occupational Therapy
- Patient Registration
- Pharmacy
- Physical Therapy
- Quality and Patient Safety
- Respiratory Therapy
- Radiology
- Security
- Simulation
- Social Work
- Speech Language Therapy
- Spiritual Care
- Transport Services
- Vascular Access

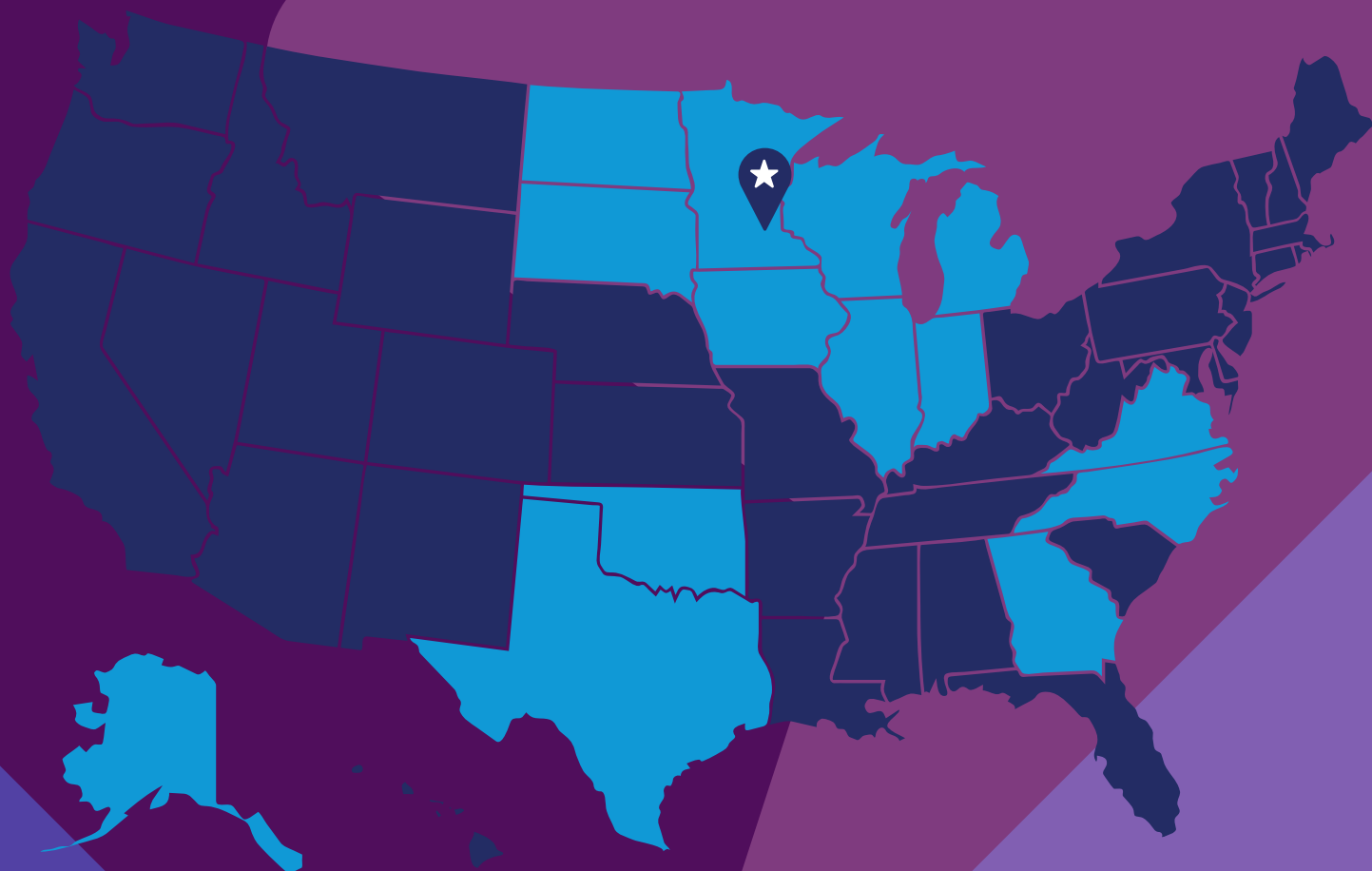
AGE OF ADMITTED PATIENTS

(combined campuses)



MINNESOTA & BEYOND

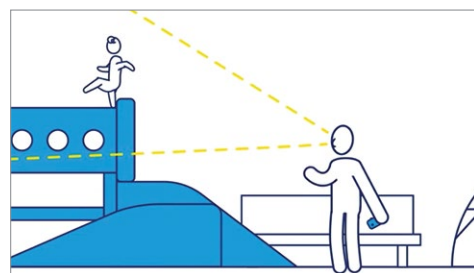
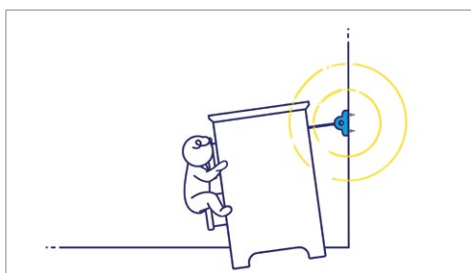
Children’s Minnesota is one of the largest pediatric health systems in the United States and the only health system in Minnesota to provide care exclusively to children — from before birth through young adulthood. The Children’s Minnesota trauma program treats patients from all over the country.* Whether 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 2022.

INJURY PREVENTION

The Injury Prevention program under Trauma Services consists of both community-facing education and training programs. According to our most recent Community Health Needs Assessment, families in our communities speak up to 210 different languages in the home. Although some resources exist in a few languages from various national organizations, injury prevention material is inaccessible to many of our families locally. In an attempt to remove that barrier, the Injury Prevention Program, with the help of local animation company Crash+Sue's and the Marketing and Communications team, has created a series of animated videos that rely on visual storytelling rather than written or spoken word to convey safety messaging. Characters in the videos are intended to be race- and gender-neutral in environments stripped of as much cultural bias as possible given the intended message. Special consideration has been given to socioeconomic constraints when depicting safety interventions when possible. Current videos exist on furniture tip-over hazards, burns from hot foods and liquids, falls in the home, playground safety, and caregiver wellbeing. A new video on the proper, age-appropriate use of car seats is currently in production. The existing videos are the subject of a current community study funded by an internal grant program to measure how effectively the messaging is relayed to families participating in focus groups.



PARTNERSHIP HIGHLIGHT

Starting in late 2021, we started working with Indian Health Services to help deliver their Safe Native American Passengers (SNAP) training virtually. SNAP is a culturally appropriate one-day course introducing child passenger safety (CPS) for anyone who works with families and children in tribal communities. Through that work, we were introduced to the staff at the Great Plains Tribal Leaders Health Board (GPTLHB), an organization that serves and supports 18 tribes in North Dakota, South Dakota, Iowa and Nebraska. They asked if we would help them build their CPS program, which we happily agreed. To date, we've hosted three CPS technician courses training people who work directly with Native citizens and conducted 5 car seat checkup events with a focus on reaching those living on tribal lands. GPTLHB has supported all of the costs of this training in addition to offering Children's Minnesota's Injury Prevention Program a small donation to support work with tribal families in our local communities.

PARTNERSHIPS

Allina Health, Art is My Weapon, Autism Society of Minnesota, Avivo, Bloomington PD, Burnsville Police and Fire, Camden Cycles, Carver County Public Health, Carver Fire Department, C.E.O. Basketball, Chaska Police and Fire, Community Care Clinics of Minnesota, Crash + Sue's, Dakota County Public Health, Dakota Family Child Care Association, Division of Indian Work - Ninde Douglas, ECFE Wayzata, Echo Park Elementary, Family Wise, Fridley Fire, Gaylord Police Department, Great Plains Tribal Leaders' Health Board, Hemophilia Foundation, Hennepin County Health and Human Services, Hennepin County Sheriff, Hennepin Health Care, Howard Pulley Basketball, Injury Free Coalition for Kids, Isanti Lion's Club, Mayo Clinic IP Program, Milk Moms, Mille Lacs Band of Ojibwe Urban Office, Minnesota Association of Pupil Transport, Minnesota Doctors for Health Equity, Minnesota Safety Council, My Very Own Bed, NAACP Minneapolis, New Brighton Fire, Next Steps, North Memorial IP Program, North States, Owatonna Public Health, PICA Head Start, Primrose Child Care Woodbury, Regions Hospital Car Seat Program, Richfield Fire, Rotary Club North Minneapolis, Sisseton Whapeton Oyate Tribe, St. Francis Police Department, St. Paul Police Department Bike Cops, SW MN CPS Program, TCAA, Turning Point, Inc., Union Gospel Mission, V3, Wellspring Second Chance Center, West St. Paul Community, YWCA-Minneapolis

675

HELMITS DONATED TO SEVEN LOCAL ORGANIZATIONS AND TWO HOSPITAL DEPARTMENTS TO GIVE TO FAMILIES IN NEED



PARTNERED WITH
**CAMDEN
CYCLES**

IN NORTH MINNEAPOLIS
SO EVERYONE WHO COMES INTO THE
SHOP WILL BE GIVEN A HELMET

INJURY PREVENTION BY THE NUMBERS

Car seat, helmet and home safety



HOSTED

22

CAR SEAT CHECKUP EVENTS

CHECKING 277 CAR SEATS

IN ADDITION,
130 INDIVIDUAL (1:1) CAR SEAT
CHECK APPOINTMENTS



51

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

TRAINED AT FIVE IN-PERSON COURSES,
INCLUDING TWO IN PARTNERSHIP WITH
GREAT PLAINS TRIBAL LEADERS HEALTH
BOARD IN SOUTH DAKOTA



APPROXIMATELY

475

COMMUNITY MEMBERS REACHED
AT 7 CHILD PASSENGER SAFETY
PRESENTATIONS

2022 AT A GLANCE

Patient volumes remained consistent with previous years, in terms of both trauma registry volumes and admissions. Trauma activation criteria is reviewed each year, ensuring that the most critically injured patients receive optimal care the moment they arrive. We continue to partner with referring hospitals and EMS agencies to provide a smooth transfer experience and confidence that children will receive the best possible care at Children’s Minnesota.

	MINNEAPOLIS	ST. PAUL
Trauma registry patients	933	199
Admitted trauma patients	704	48

TRAUMA TEAM ACTIVATIONS (TTAs)

	MINNEAPOLIS	ST. PAUL
Level 1 TTAs	46	2
Level 2 TTAs	170	63

WHERE OUR PATIENTS COME FROM

	MINNEAPOLIS	ST. PAUL
Referrals from other facilities	596	12
From the scene by EMS	90	24
Private vehicle/walk-in	237	160
Direct admits	11	3

LENGTH OF STAY (BOTH CAMPUSES)

Median	24 hours
Range	3 hours to 90 days

1,132
trauma registry patients

752
admitted trauma patients

395
OR cases

48
Level 1 TTAs

233
Level 2 TTAs

MECHANISMS OF INJURY

(combined campuses)

FALL ON PLAYGROUND
 GYMNASTICS BICYCLE
 MOTOR VEHICLE COLLISION FALL BEING CARRIED
 ANIMAL BITES/CONTACT TRAMPOLINING
FALL FROM FURNITURE
 PEDESTRIAN VS. MOTOR VEHICLE TEAM SPORTS
 NON-ACCIDENTAL TRAUMA
 FALL FROM STRUCTURE
WINTER/SNOW ACTIVITIES
 FALL ON STAIRS
 MOTORCYCLE/ATV/OFF-ROAD

TYPES OF INJURY

(combined campuses)



FATAL MECHANISMS OF INJURY

(combined campuses)

GUNSHOT WOUND
 PHYSICAL CHILD ABUSE
 DROWNING
 MOTOR VEHICLE COLLISION
 ASPHYXIATION
 BICYCLIST STRUCK BY VEHICLE



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.

EDUCATION

UPPER EXTREMITY FRACTURES

Coaptation Splint

Indications
Midshaft humerus fracture (not generally used in kids <10)

Purpose
Provide stability and immobilization for midshaft humerus fractures in older children and adults

Patient positioning
Upright, seated

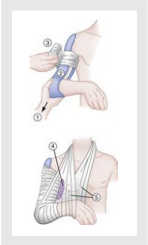
Measuring guide
Axilla down around elbow, up over shoulder to base of neck

Application tips

- Ensure all edges of most proximal splint are covered to ensure no free sharp edges
- Add ABD pad into axilla

Next steps

- Reassess color, sensation, motion, pulses
- Consult with orthopedics
- Transfer for definitive management, if recommended by orthopedic surgeon



Children's Minnesota • Pediatric Orthopedic Splinting Guide 6

LOWER EXTREMITY FRACTURES

Short Leg Splint
(Defined as posterior slab with stirrup)

Indications

- Distal tibia/fibula, foot or ankle fractures.
- May or may not be definitive treatment.

Purpose
Immobilization of the foot and ankle.

Patient positioning
Sitting on edge of bed with leg hanging down or lying down.

Measuring guide
From base of the toes to three finger-widths distal to the knee.

Application tips

- Compression of the peroneal nerve may occur with pressure at fibular neck.
- Pad bony prominences.

Next steps

- If post-reduction, X-rays.
- Reassess color, sensation, motion, pulses.
- Consult with orthopedics.
- Transfer for definitive management, if recommended by orthopedic surgeon.



Children's Minnesota • Pediatric Orthopedic Splinting Guide 7

ORTHOPEDIC SPLINTING GUIDE

Many of our patients are transferred from outside facilities for ongoing management of their injuries. A pediatric splinting guide was developed in collaboration with Lauren Gravelle, Acute Care and Trauma Outreach Liaison, and APPs from our pediatric and adolescent orthopedics groups. This guide outlines the most common fracture types, the best splint for the injury and tips and tricks for measuring and applying the splint. There is also a step-by-step “splinting basics” guide and contact information for Children’s Physician Access. This guide will be available internally and will also be used in feedback to outside hospitals and distributed at events and conferences.

PATIENT AND FAMILY EDUCATION

Caring for a child who is discharged home requiring the use of a cervical collar or soft helmet can be challenging. Improper management of either device can lead to complications like re-injury and pressure injuries. In order to provide the best support to families, in collaboration with RNs from M-6th Floor, M-PICU, M-ED and Wound/Ostomy Care nurse practitioners, two new patient and family education documents were created: Cervical Collar Use and Care Guide & Soft Helmet Use and Care Guide. These are able to be printed from the A-Z Library and used to guide family education prior to discharge. These documents can be included in the patient’s discharge paperwork so family has reference material at home.



TRAUMATIC BRAIN INJURIES

A PARIETAL LOBE

- Interpreting sensory information from the rest of the body
- Controlling fine sensation interpretation: judgment of texture, weight, size, and shape
- Influencing mathematical skills and language comprehension
- Storing spatial memories that enable people to orient themselves in space (know where they are) and to maintain a sense of direction (know where they are going)
- Processing information that helps people know the position of their body parts

INJURY

- Inability to discriminate between sight, smell, taste, touch, and sound
- Inability to locate and recognize parts of the body (neglect)
- Difficulty or inability to complete simple skilled tasks (apraxia)
- Severe Injury: inability to recognize self
- Disorientation to environment/surroundings
- Inability to write

D OCCIPITAL LOBE

- Processing and interpreting vision
- Enabling people to form visual memories
- Integrating visual perceptions with the spatial information provided by the adjacent parietal lobes

INJURY

- **Primary Visual Cortex:** loss of vision in the opposite visual field
- **Visual Association Cortex:** loss of ability to recognize object seen in opposite field of vision

E CEREBELLUM

- Fine motor movements
- Posture and equilibrium
- Balance
- Help perform rapid and repetitive actions

INJURY

- Injury to one side of the cerebellum impacts the same side of the body
- Tremors
- Abnormal, involuntary eye movements
- Lack of coordination
- Abnormal and difficulty with walking

G SPINAL CORD

- Nerve impulses travel to and from the brain through the spinal cord to a specific location in the body
- Nerves branch off from the spinal nerve roots and travel outside of the spinal canal to the upper extremities, to the muscles of the trunk, to the upper and lower extremities, and to the organs of the body
- Center for operating and coordinating reflex actions

INJURY

- **Complete spinal cord injury (SCI):** produces total loss of all motor and sensory function below the level of injury
- **Incomplete SCI:** some function remains below the level of the injury; the patient may be able to move one arm or leg more than the other or may have more functioning on one side of the body than the other
- **Depending on the location of injury:** inability or impaired interpretation of pain, light touch sensation, positional awareness, vibration sense or impaired motor function

B FRONTAL LOBE

- Initiating many actions
- Controlling learned motor skills, such as writing, playing musical instruments, and tying shoelaces
- Controlling complex intellectual processes, such as speech, thought, concentration, problem-solving, and planning for the future
- Controlling facial expressions and hand and arm gestures
- Coordinating expressions and gestures with mood and feelings

INJURY

- Arm paralysis on the opposite side
- Facial paralysis on the opposite side
- Difficulty speaking (expressive aphasia)
- Impairment of recent memory, inattentiveness, difficulty in learning new information and concentrating
- Lack of inhibition, behavioral disorders
- Emotional lability
- “Flat” affect
- Urinary incontinence

C TEMPORAL LOBE

- Generating memory and emotions
- Processing immediate events into recent and long-term memory
- Storing and retrieving long-term memories
- Comprehending sounds and images, enabling people to recognize other people and objects and to integrate hearing and speech

INJURY

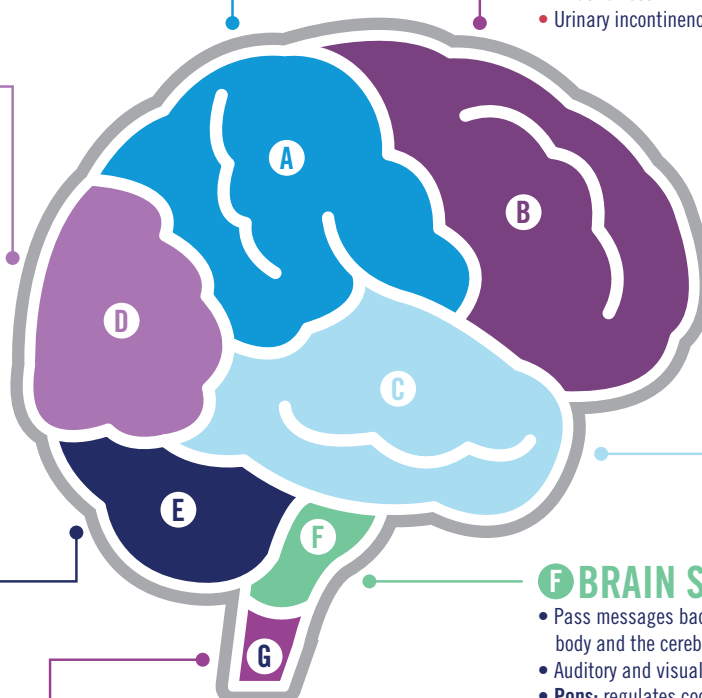
- Hearing deficits
- Agitation, irritability, childish behavior
- Difficulty speaking (receptive aphasia)
- Difficulty interpreting language and other people’s emotions and reactions

F BRAIN STEM

- Pass messages back and forth between various parts of the body and the cerebral cortex
- Auditory and visual reflex and ocular movement centers
- **Pons:** regulates coordinating eye and facial movements, facial sensation, hearing and balance
- **Medulla oblongata:** regulates breathing, blood pressure, heart rhythms and swallowing
- Reticular system regulates wakefulness, attention to the surroundings/environments, and sleep patterns
- 10 out of 12 cranial nerves originate in the brainstem and control hearing, eye movement, facial sensations, taste, swallowing and movements of the face, neck, shoulder and tongue muscles

INJURY

- Coma state
- Abnormal breathing
- Pupil abnormality
- Cranial nerve dysfunction
- Movement abnormalities



TRAUMA EDUCATION AND CONFERENCES



HealthPartners Orthopedic Group

Nurses were introduced to the HealthPartners Orthopedic group and provided information regarding types of orthopedic diagnoses and related nursing care considerations of the 15-18 year old orthopedic patient via a webinar on February 22, 2022. The webinar was presented by Erik Lund, MD, Nicole Hicks, PA-C, Jacqueline Tonojiro, PA-C from HealthPartners Orthopedics and Megan Schenian, BSN, RN, Allina Orthopedic Clinical Practice Coordinator, and facilitated by Melanie Kuelbs, NPN, APRN, PCNS-BC, CCRN-K, Children's Minnesota PICU Clinical Nurse Specialist. The recorded webinar was completed by 234 staff through Self Service.

Essentials of Critical Care (ECC): Trauma Workshop

This course is designed to prepare the critical care RN to care for trauma patients according to MDH and ACS requirements. Children's Minnesota instructors led 4 courses for 45 nurses during 2022.

Trauma Nursing Core Course (TNCC)

This course is a 1.5 day course designed to provide core-level trauma knowledge and psychomotor skills associated with the delivery of emergency nursing care to the trauma patient. Children's Minnesota hosted four TNCC Courses for 29 nurses in 2022 to ensure TNCC certified RNs care for patients in the ED.

CHILDREN'S MINNESOTA TRAUMA SPEAKER SERIES II: YOUR WORST DAY EVER

Children's Trauma Speakers Series: "Your Worst Day Ever" is designed to strengthen the trauma assessment skills of frontline care giver's ability to recognize signs of life-threatening injuries and facilitate early intervention for positive outcomes of the pediatric patient while incorporating key components of recognition of complications and care for the whole trauma care team. Through use of case scenario discussions of critical life-threatening scenarios, the learner will engage in early identification of injury and anticipation of needed treatments and on-going care from stabilization through recovery. A series of seven presentations strengthens the components of the primary assessment and head to toe assessment through the continuum of care through discussion of the more critically complex scenarios encountered in pediatric trauma care.

455

TOTAL ATTENDEES
303 EXTERNAL
152 INTERNAL

427

**RECORDED
PRESENTATION
VIEWERS**

2022 CONFERENCE PARTICIPATION

Children's Minnesota participates in the planning of the Western Pediatric Trauma Conference each year along with other leading pediatric trauma centers from around the country. In 2022, it was held in Sonoma, CA, and Children's Minnesota had 3 presentations as part of the event:

- James Burroughs, JD, Developing Awareness of Our Own Bias
- Laura Plasencia, MPH, RN, on behalf of Dex Tuttle and the Autism Steering Committee, Serving Patients on the Autism Spectrum: Models for Community Collaboration
- Nathaniel Kreykes, MD, Corey Matthews, MD, and Laura Plasencia, Trauma Case Study Review

Children's Minnesota was also represented as an exhibitor at the following events:

- North Dakota State Trauma Conference
- Toward Zero Deaths

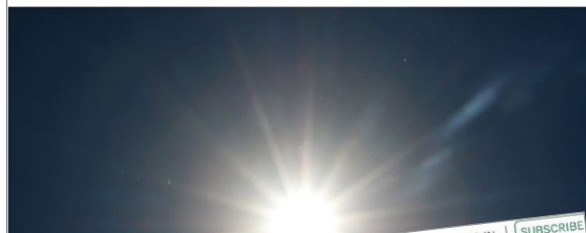
Trauma Services also donated a silent auction item at the Cornerstones in Emergency Nursing conference hosted by the Greater Twin Cities Chapter Emergency Nurses Association.

In 2021-2022, the Acute Pediatric Wound Management and Suturing Workshop was converted into a hybrid learning opportunity, with pre-recorded lectures on suture selection, laceration repair, hand injury, and more available on the Children's Minnesota website followed by an in-person workshop where learners can practice suturing under the guidance of surgeons and emergency medicine providers. Lauren Gravelle, RN, Acute Care and Trauma Outreach Liaison, presented this new model as a Best Practice at the Trauma Center Association of America conference in 2022.



INJURY PREVENTION IN THE MEDIA

Children’s Minnesota reaches large regional audiences by promoting messages about safe play, travel and injury prevention.



TRAUMA AND INJURY PREVENTION ON THE MEDIA

29

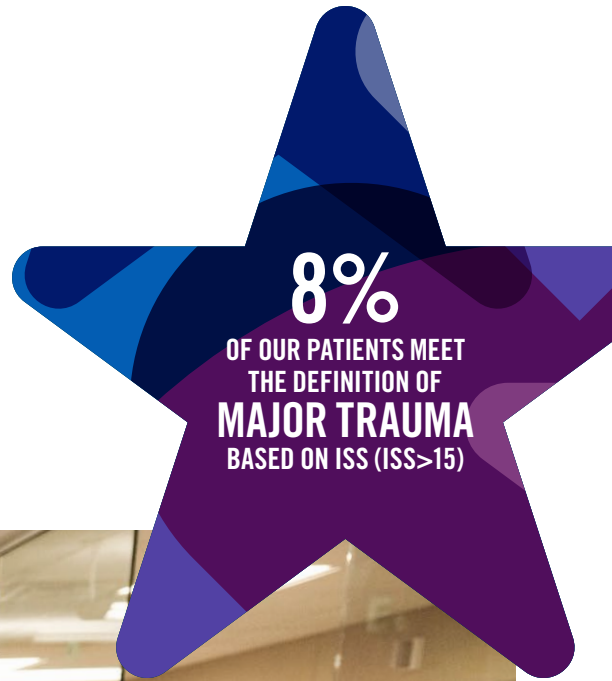
Trauma media stories in 2022

504.7 MILLION

Impressions

TRAUMA REGISTRY

The American College of Surgeons (ACS) and Minnesota Department of Health (MDH) require trauma centers to maintain a registry of patients who seek care for acute traumatic injuries. Over 275 fields per patient are reviewed and abstracted from the EMR into the registry. De-identified data is then submitted to the ACS and MDH for review and benchmarking in their larger national or statewide data banks, respectively. This data can then be used for quality improvement projects, research, and to inform operational and financial decision making.



PUBLICATIONS IN 2022 RELATED TO THE CARE OF INJURED CHILDREN

Names listed in bold indicate a Children's Minnesota professional staff member or employee.

1. Lee LK, Chaudhary S, Kemal S, **Kiragu A**, Sheehan K, Fleegler EW. Addressing the void: firearm injury prevention in the USA. *Lancet Child Adolesc Health*. 2022 Aug;6(8):515-516. doi: 10.1016/S2352-4642(22)00158-4. Epub 2022 May 27. PMID: 35644160; PMCID: PMC9135492.
2. **Scribner-O'Pray, M., Taylor, E. D., Krause, E., Nickel, A., & Bergmann, K. R.** (2022). Factors Associated With Low Procedural Pain Scores Among 1- to 5-Year-Old Patients Undergoing Facial Laceration Repair. *Pediatr Emerg Care*. doi:10.1097/PEC.0000000000002744
3. Snelling PJ, Shefrin AE, Moake MM, **Bergmann KR**, Constantine E, Deanehan JK, Dessie AS, Elkhunovich MA, Gold DL, Kornblith AE, Lin-Martore M, Nti B, Pade KH, Parri N, Sivitz A, Lam SHF. Establishing the international research priorities for pediatric emergency medicine point-of-care ultrasound: A modified Delphi study. *Acad Emerg Med*. 2022 Nov;29(11):1338-1346. doi: 10.1111/acem.14588. Epub 2022 Sep 13. PMID: 36043227; PMCID: PMC9826219.
4. Starling, S. P., **Martinez, K. A.**, & Frasier, L. D. (2022). A Standardized Peer Review Program Improves Assessment and Documentation of Child Sexual Abuse. *Pediatr Qual Saf*, 7(1), e522. doi:10.1097/pq9.0000000000000522
5. Zhang, A. L., Louie, J. P., & **Ortega, H. W.** (2023). Pediatric Glue-Related Injuries in U.S. Emergency Departments: A 10-Year Overview. *Clin Pediatr (Phila)*, 62(1), 17-23. doi:10.1177/00099228221108532
6. **Zier, J. L.**, & Newman, N. A. (2022). Unassisted Return of Spontaneous Circulation Following Withdrawal of Life-Sustaining Therapy During Donation After Circulatory Determination of Death in a Child. *Crit Care Med*, 50(2), e183-e188. doi:10.1097/CCM.00000000000005273
7. Bowden CF, Worsley D, Esposito JM, **Cutler GJ**, Douppnik SK. Pediatric emergency departments' readiness for change toward improving suicide prevention: A mixed-methods study with US leaders. *J Am Coll Emerg Physicians Open*. 2022 Oct 25;3(5):e12839.
8. Batten JN, Blythe JA, Wieten SE, Dzung E, **Kruse KE**, Cotler MP, Porter-Williamson K, Kayser JB, Harman SM, Magnus D. "No Escalation of Treatment" Designations: A Multi-institutional Exploratory Qualitative Study. *Chest*. 2023 Jan;163(1):192-201. doi: 10.1016/j.chest.2022.08.2211. Epub 2022 Aug 23. PMID: 36007596.
9. Boley, S., Sidebottom, A., Vacquier, M., **Watson, D.**, Olsen, J., Echols, K., & Friedman, S. (2022). Investigating racial disparities within an emergency department rapid-triage system. *Am J Emerg Med*, 60, 65-72. PMID: 35907271
10. Bowden, C. F., Worsley, D., Esposito, J. M., **Cutler, G. J.**, & Douppnik, S. K. (2022). Pediatric emergency departments' readiness for change toward improving suicide prevention: A mixed-methods study with US leaders. *J Am Coll Emerg Physicians Open*, 3(5), e12839. doi:10.1002/emp2.12839
11. Capone CA, Emerson B, Sweberg T, Polikoff L, Turner DA ,... **Orioles A**, Jung P, Shlomovich M, Nadkarni V, Nishisaki A; National Emergency Airway Registry for Children (NEAR4KIDS) Investigators, Pediatric Acute Lung Injury, Sepsis Investigators (PALISI). Intubation practice and outcomes among pediatric emergency departments: A report from National Emergency Airway Registry for Children (NEAR4KIDS). *Acad Emerg Med*. 2022 Apr;29(4):406-414. doi: 10.1111/acem.14431. Epub 2022 Jan 12. PMID: 34923705.
12. **Cutler GJ, Bergmann KR**, Douppnik SK, Hoffmann JA, Neuman MI, Rodean J, Zagel AL, Zima BT. Pediatric Mental Health Emergency Department Visits and Access to Inpatient Care: A Crisis Worsened by the COVID-19 Pandemic. *Acad Pediatr*. 2022 Aug;22(6):889-891. doi: 10.1016/j.acap.2022.03.015. Epub 2022 Mar 26. PMID: 35351651; PMCID: PMC8957359.
13. **Fisher EH**, Claudius I, Kaji AH, Shaban A, McGlynn N, Cicero MX, Santillanes G, Gausche-Hill M, Chang TP, Donofrio-Odmann JJ. Inter-Rater Reliability and Agreement Among Mass-Casualty Incident Algorithms Using a Pediatric Trauma Dataset: A Pilot Study. *Prehosp Disaster Med*. 2022 Jun;37(3):306-313. doi: 10.1017/S1049023X22000632. Epub 2022 Apr 20. PMID: 35441588.
14. Jewett, P. I., Gangnon, R. E., Borowsky, I. W., Peterson, J., Areba, E. M., **Kiragu, A.**, & Densley, J. (2022). US Mass public shootings since Columbine: victims per incident by race and ethnicity of the perpetrator. *Prev Med*, 162, 107176. doi:10.1016/j.jpmed.2022.107176
15. Koenigsberg, C., Van Heest, T., **Zavala, H., Chinnadurai, S., & Roby, B. B.** (2022). Cost Analysis of Follow-Up Care for Pediatric Facial Dog Bites. *Facial Plast Surg Aesthet Med*. doi:10.1089/fpsam.2021.0121

16. Kornblith AE, Addo N, Plasencia M, Shaahinfar A, Lin-Martore M, Sabbineni N, Gold D, Bellman L, Berant R, **Bergmann KR**, Brenkert TE, Chen A, Constantine E, Deanehan JK, Dessie A, Elkhunovich M, Fischer J, Gravel CA, Kharasch S, Kwan CW, Lam SHF, Neal JT, Pade KH, Rempell R, Shefrin AE, Sivitz A, Snelling PJ, Tessaro MO, White W. Development of a Consensus-Based Definition of Focused Assessment With Sonography for Trauma in Children. *JAMA Netw Open*. 2022 Mar 1;5(3):e222922. doi: 10.1001/jamanetworkopen.2022.2922. PMID: 35302632; PMCID: PMC8933745.
17. **Lee, D. B.**, Schmidt, C. J., Heinze, J. E., Carter, P. M., Cunningham, R. M., Walton, M. A., & Zimmerman, M. A. (2022). Retaliatory attitudes as mediator of exposure to violence and firearm aggression among youth: The protective role of organized activity involvement. *Dev Psychol*, 58(5), 990-1002. doi:10.1037/dev0001339
18. **Martin AK**, Petersen AJ, **Sesma HW**, **Koolmo MB**, **Ingram KM**, **Slifko KB**, **Nguyen VN**, **Doss RC**, **Linabery AM**. Learning and Attention Deficit/Hyperactivity Disorders as Risk Factors for Prolonged Concussion Recovery in Children and Adolescents. *J Intl Neuropsych Soc*. 2021; 1-14. doi:10.1017/S1355617721000229.
19. Munoz, N., Litchford, M., Cox, J., Nelson, J. L., **Nie, A. M.**, & Delmore, B. (2022). Malnutrition and Pressure Injury Risk in Vulnerable Populations: Application of the 2019 International Clinical Practice Guideline. *Adv Skin Wound Care*, 35(3), 156-165. doi:10.1097/01.ASW.0000816332.60024.05
20. Scheurer JM, Norbie E, Bye JK, Villacis-Calderon D, Heith C, Woll A, Shu D, McManimon K, **Kamrath H**, Goloff N. Pediatric End-of-Life Care Skills Workshop: A novel, deliberate practice approach. *Acad Pediatr*. 2022 Nov 18:S1876-2859(22)00566-6. doi: 10.1016/j.acap.2022.11.006. Epub ahead of print. PMID: 36410600.

OPEN IRB STUDIES RELATED TO TRAUMA CARE

1. Dex Tuttle: A qualitative evaluation of culturally competent home safety injury prevention videos. IRB# 2022-012
2. Henry Ortega, MD: Potential disparities in time to opiate administration for long bone fractures in the Emergency Department. IRB#1809-113
3. Henry Ortega, MD: Psychological sequelae following traumatic injury: the role of perceived resiliency and psychological factors. IRB#1907-085
4. Joanna Ekstrom, MD: Fellow led debriefs after resuscitations in the Emergency Department. IRB#2020-65
5. Manu Madhok, MD: Arnica and the management of pain in acute musculoskeletal extremity injuries. IRB#1812-139
6. Nathan Kreykes, MD: Prospective longitudinal trial evaluating operative vs non-operative management of pancreatic injuries in the pediatric population. IRB#1906-060
7. Nathan Kreykes, MD: Prospective pediatric cervical spine clearance study. IRB in progress.
8. Amy Linabery, PhD. Combined clinical research/concussion database. IRB#1806-067
9. Amy Linabery, PhD. Caring for Adolescents with Concussion through Yoga Study (CACTYS). IRB#2022-033
10. Amy Linabery, PhD. Brief RCT for elevated anxiety sensitivity after trauma to the head (BREATHe) study. IRB#2022-028
11. Amy Linabery, PhD. Objective measurement of sleep and physical activity as predictors of recovery after a concussion (ReCESS Study). IRB#1708-116
12. Kyle Halvorson, MD. Evaluating a novel MRI biomarker to identify retinal hemorrhage: a pediatric chart review study. IRB#1812-140
13. Kara Seaton, MD. Early Prediction of Prolonged Post-Concussive Syndrome in Pediatric Concussion Patients. IRB#1304-035
14. Andrew Kiragu, MD. Ketogenic Diet Following Moderate to Severe Pediatric Traumatic Brain Injury. IRB#2022-041

LOCATIONS



MINNEAPOLIS

2525 Chicago Avenue South | Minneapolis, MN 55404
612-813-6000

Our pediatric emergency department and 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

345 North Smith Avenue | St. Paul, MN 55102
651-220-6000

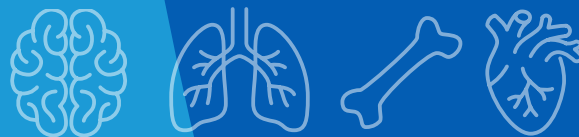
The Peter J. King Emergency Department in St. Paul is a Level 4 trauma center, with resources for emergency resuscitation and care of injured patients. Patients may require transfer to the Minneapolis campus for care by the trauma care team and other specialists.

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

Children's
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Level I Pediatric Trauma Center



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