



Children's Hospital Colorado

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Level I Regional Pediatric  
Trauma & Burn Center

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# 2016 Annual Report





# **Children's Hospital Colorado Level I Regional Pediatric Trauma and Burn Center 2016 Annual Report**

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## FROM THE DESK OF THE MEDICAL DIRECTOR

Dear Colleague,

The Children's Hospital Colorado Trauma and Burn Center 2016 Annual Report highlights some of the extraordinary work that is carried out everyday by our pre-hospital partners, physicians, nurses, therapists and staff. We work together, in a coordinated fashion, to restore health and provide optimal outcomes for our patients and yours.

As always, we look forward to hearing from you! Whether you need a quick phone consult about an ill or injured child, or immediate referral for a severely injured patient from infancy through adolescence, we are always available to assist you. You may reach the on-call, in-house pediatric surgeon at any time, day or night, by dialing One Call (720-777-3999) or the Transfer Center (720-777-8838). You may reach me, or any of the other physicians or services highlighted in this report, by calling the Trauma/Burn Program (720-777-6282) Monday – Friday, 7 a.m. – 5 p.m. You can also find us at [www.childrenscolorado.org/trauma](http://www.childrenscolorado.org/trauma) or [www.childrenscolorado.org/burn](http://www.childrenscolorado.org/burn). Your questions, comments and suggestions are always welcome.

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Director, Trauma and Burn Program  
Children's Hospital Colorado, B-323  
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Aurora, CO 80045

Office: 720-777-3625  
Email: [steven.moulton@childrenscolorado.org](mailto:steven.moulton@childrenscolorado.org)

WELCOME



The Level I Regional Pediatric Trauma and Burn Center at Children's Hospital Colorado is a large, multi-disciplinary program. We provide timely, comprehensive, cost-effective care for children with single or complex multi-system trauma and burn-related injuries.

We are the only American College of Surgeons Level I Pediatric Trauma Center and the only pediatric burn center in Colorado and the seven-state Rocky Mountain region. As a regional resource center, we aim to set the standard for pediatric trauma and burn care.

We treat children with traumatic injuries such as:

- Epidural/subdural hematoma
- Thoracic/cardiac injuries
- Solid organ Injuries
- Pelvis/femur fractures
- Non-accidental trauma
- Burn injuries

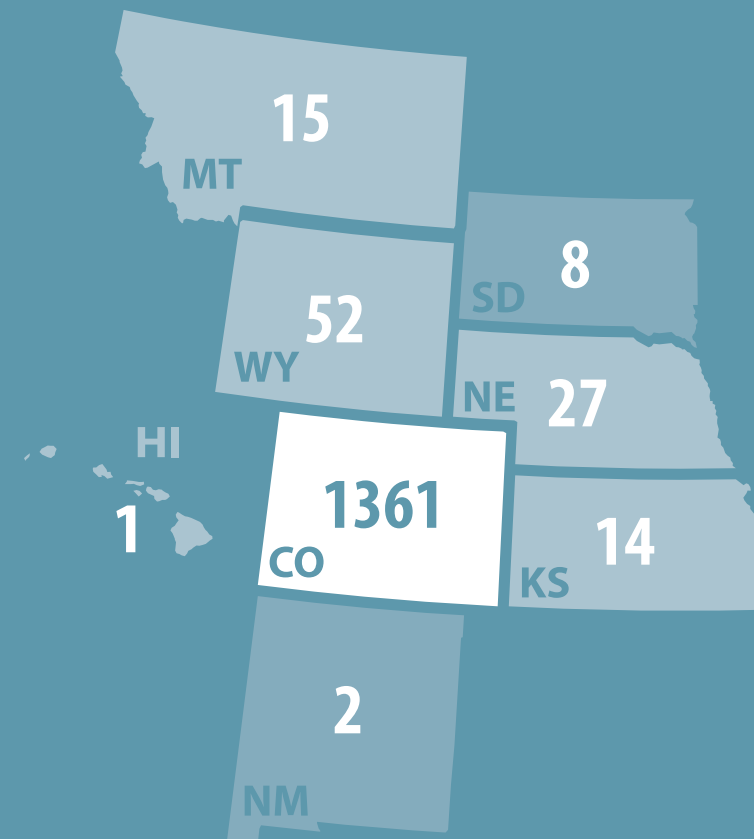
We coordinate pediatric transport within our statewide and regional-referral trauma systems. We staff a dedicated 24/7- pediatric specialty transport team with a critical care ground ambulance. We have a nurse/respiratory/emergency medicine technician team that serves the entire multi-state region. This team is the only one in the region that offers high frequency ventilation and nitric oxide therapies.

Children's Colorado also operates emergency and urgent care services at its South Campus in Highlands Ranch, North Campus in Broomfield, and its locations at Briargate in Colorado Springs, Uptown Denver, Wheat Ridge and Parker Adventist Hospital. The trauma service provides care 24 hours/day, seven days/week throughout the year. The administrative hours of operation are: 7:00 a.m. – 5:00 p.m., Monday through Friday.

## Staffing

Trauma/Burn Medical Director  
Trauma/Burn Program Manager  
Trauma Coordinators  
Trauma Registrars  
Staff Assistant  
Trauma Outreach Coordinator

## 2015 Regional Referral Map





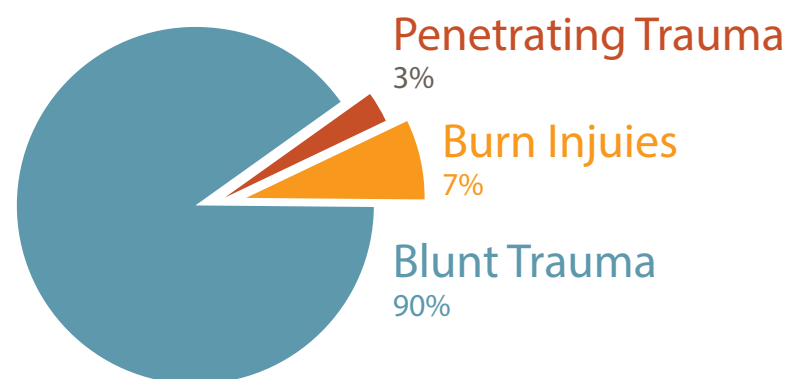
In 2015...

91  
Highest  
level trauma  
activations



1,479  
Injured children met  
criteria for entry  
into our trauma  
registry

## Mechanism of Injury



## Physician Demographics



PEDIATRIC SURGEONS



## Children's and the NTDB

The following data set compares Children's Hospital Colorado with pediatric data from the National Trauma Data Bank® (NTDB). The NTDB is the largest aggregation of trauma registry data ever assembled.

## Mean Age in Years

CHCO

8.2

10.4

NTDB

The mean age of children treated at Children's Hospital Colorado is younger than comparative hospitals reporting to the NTDB.

## Mortality Rate (%)

The overall rate of death for injured children (aged 0-18) is lower at Children's Hospital Colorado than at other hospitals across the nation who treat children and contribute data to the NTDB.

CHCO 1.3  
NTDB 1.9

## Ventilator Days

CHCO

3.0

4.6

NTDB

The mean number of days an injured child (aged 0-18) is on a ventilator at Children's Hospital Colorado is lower than at other hospitals who treat children and contribute data to the NTDB







Children's Hospital Colorado is consistently ranked among the top pediatric hospitals in the country and offers several nationally recognized surgical procedures and programs for young patients. Children's Colorado is the only dedicated Level I Pediatric Trauma Center in the Rocky Mountain region, where twelve pediatric trauma surgeons provide 24/7 in-house coverage for trauma and burn care.

# PEDIATRIC SURGERY

## Pediatric Surgeons

**Steve Moulton, MD**

Medical Director, Trauma and Burn Program

**John Bealer, MD**

**Denis Bensard, MD**

**Jennifer Bruny, MD**

**Timothy Crombleholme, MD**

**Frederick Karrer, MD**

**Ann Kulungowski, MD**

**Kenneth Liechty, MD**

**Ahmed Marwan, MD**

**David Partrick, MD**

**Jonathan Roach, MD**

**Stig Somme, MD**

## Pediatric Mid-Levels

**Brianne Hall, PA-C**

**Erin Herhold, PA-C**

**Becky Hill, NP**

**Richele Koehler, PA-C**

**Lauren Wilson, PA-C**



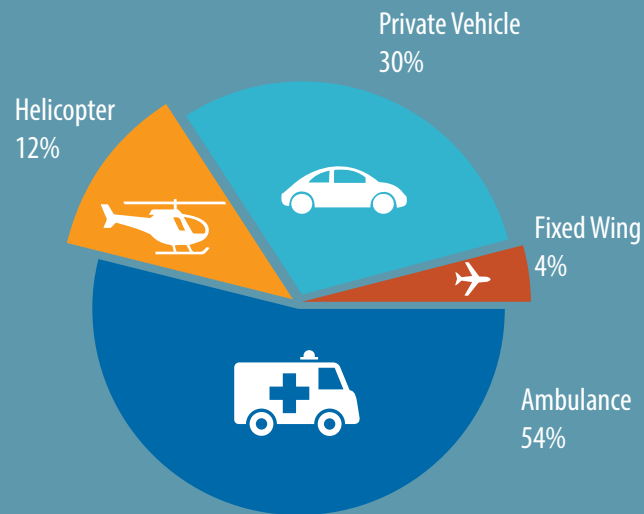
# EMERGENCY MEDICAL SERVICES

## Pre-Hospital Partners

Our Level I Regional Pediatric Trauma and Burn Center serves a large geographic area, which extends from the Canadian border south, through Montana, Wyoming, North and South Dakota, Western Nebraska, Kansas and the entire state of Colorado.

Children's Hospital Colorado builds relationships with emergency medical services (EMS) providers to ensure the best outcomes in pediatric trauma care. The Transfer Center (720-777-8838) facilitates communication between pre-hospital providers, emergency medicine physicians and trauma surgeons, so that we can anticipate each patient's unique needs prior to arrival.

## Transport Type



The most common transport method for referred patients is ground ambulance.







## Pediatric Emergency Medicine Physicians

Kathleen Adelgais, MD  
Trauma Liaison

Michelle Alletag, MD  
Lalit Bajaj, MD  
Cortney Braund, MD  
Alison Brent, MD  
Kevin Carney, MD  
Micheal DiStefano, MD  
Kathryn Emery, MD  
Julia Freeman, MD

Angelique Ferayorni, MD  
Timothy Givens, MD  
Joe Grubenhoff, MD  
Sarah Halstead, MD  
Bernadette Johnson, MD  
Ian Kane, MD  
Jill Keyes, MD  
Roxanna Lefort, MD  
Patrick Mahar, MD  
Maria Mandt, MD

Sarah Mellion, MD  
Rakesh Mistry, MD  
Tara Neubrand, MD  
Arleta Rewers, MD  
Kelley Roswell, MD  
Mary Saunders, MD  
Jessica Schnell, MD  
Halden Scott, MD  
Erika Sidney, MD  
Marion Sills, MD

Summer Smith, MD  
Irina Topoz, MD  
Tien Vu, MD  
George Wang, MD  
Joe Wathen, MD  
Keith Weisz, MD

In 2015...

70,134

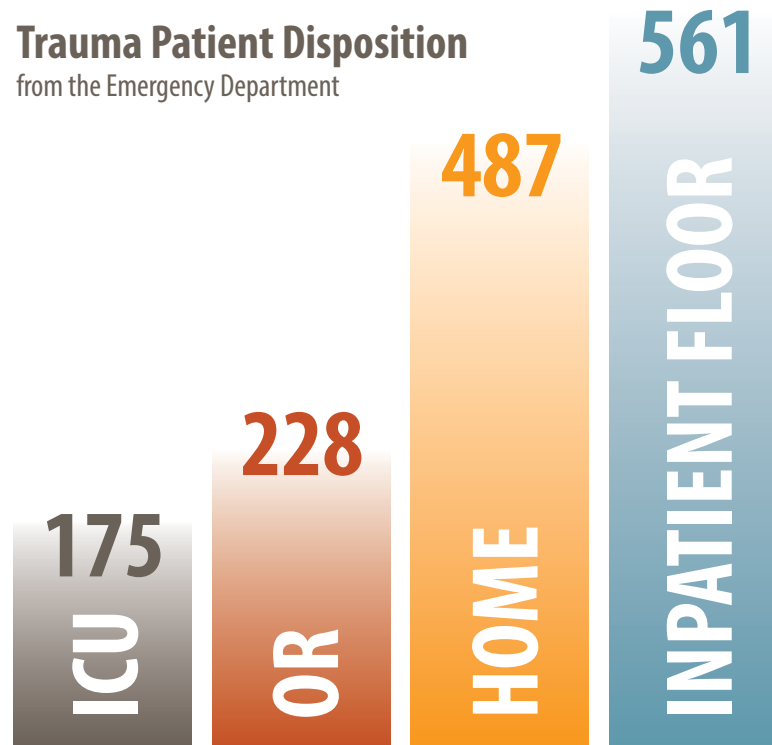
Children seen in the emergency department at Children's  
Colorado on the Anschutz Medical Campus.

12,518

Children treated with an injury



### Trauma Patient Disposition from the Emergency Department





# NEUROSURGERY PROGRAM

## % Cases with Head Abbreviated Injury Score (AIS) >3

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CHCO

17%



15%

NTDB

Children's Hospital Colorado cares for a higher percentage of children with a severe head injury than the national aggregate.

## Pediatric Neurosurgery Program

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The Pediatric Neurosurgery Program at Children's Hospital Colorado offers integrated, comprehensive care for all types of disorders affecting the nervous system and skull, including traumatic injury, epilepsy, hydrocephalus, brain tumors and facial and skull deformities.

Children's Hospital Colorado has the most comprehensive pediatric neurosurgical program in the Rocky Mountain region. Our fellowship-trained and board-certified pediatric neurosurgeons have more than 50 years of combined experience and focus solely on children.



## Pediatric Neurosurgeons

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Brent O'Neill, MD  
Trauma Liaison

Michael Handler, MD  
Todd Hankinson, MD  
Charles Corbett Wilkinson, MD

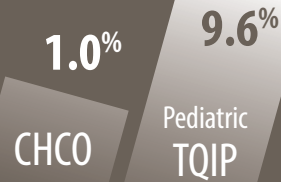




## Orthopedics Institute

The Orthopedic Institute at Children's Hospital Colorado is ranked seventh on U.S. News and World Report's national ranking of pediatric orthopedics programs. Below are 2015 data points that compare Children's Hospital Colorado Orthopedic Institute and other hospitals across the nation that treat children and contribute data to the American College of Surgeons Pediatric Trauma Quality Improvement Program (ACS Pediatric TQIP®).

### Femur Fractures

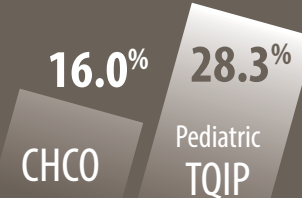


Percentage of cases with time to operative fixation greater than 24 hours



Percentage of cases with time to operative fixation greater than 12 hours

### Tibia/Fibula Fractures



## Pediatric Orthopedic Surgeons

Gaia Georgopoulos, MD  
Jason Stoneback, MD  
Trauma Liaisons

Jay Albright, MD  
Nathan Donaldson, DO  
Mark Erickson, MD

Sumeet Garg, MD  
Nancy Hadley- Miller, MD  
Travis Heare, MD  
Stephanie Mayer, MD  
Jason Rhodes, MD

### Outpatient Clinic Visits



ORTHOPEDIC INSTITUTE



## Pediatric Otolaryngology Surgeons

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The Department of Otolaryngology at Children's Hospital Colorado provides comprehensive ear, nose and throat care for children in the Rocky Mountain region. The department has one of the largest groups of fellowship-trained pediatric otolaryngologists in the western United States.

## Pediatric Otolaryngists

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Peggy Kelley, MD  
Trauma Liaison

Gregory C. Allen, MD  
Kenny H. Chan, MD  
Norman R. Friedman, MD  
Jeremy Prager, MD  
Melissa Scholes, MD  
Sven-Olrik Streubel, MD  
Patrica J. Yoon, MD







## PICU Days



Injured patients who are cared for at Children's Hospital Colorado have **shorter stays** in the PICU compared to other hospitals who treat children and contribute to the NTDB.

## Pediatric Intensive Care Unit (PICU)

Children's Hospital Colorado houses the largest and most technologically advanced pediatric intensive care unit (PICU) in the region. Private intensive care rooms offer patients and families more privacy and state-of-the-art monitoring and critical care equipment. Nursing stations allow critical care staff to remain just a few feet from each patient's bed.

The PICU staff provide comprehensive services for children with single or multi-organ system failure, severe chronic illness, those recovering from complex cardiac, orthopedic, neurologic and general surgeries, and patients undergoing solid organ transplantation.

## Pediatric Intensivists

Todd Carpenter, MD  
Trauma Liaison

Joe Albietz, MD  
Kim Bennett, MD  
Tell Bennett, MD  
Amy Clevenger, MD  
Angela Czaja, MD  
Gina DeMasellis, MD

Eva Grayck, MD  
Cam Gunville, DO  
Brian Jackson, MD  
Claudia Kunrath, MD  
Aline Maddux, MD  
Pete Mourani, MD  
Carol Okada, MD  
Leslie Ridall, MD

Kurt Stenmark, MD  
Tiim Stidham, MD  
Christine Vohwinkel, MD  
Carleen Zebuhr, MD

CRITICAL CARE



## Child Advocacy and Protection Team

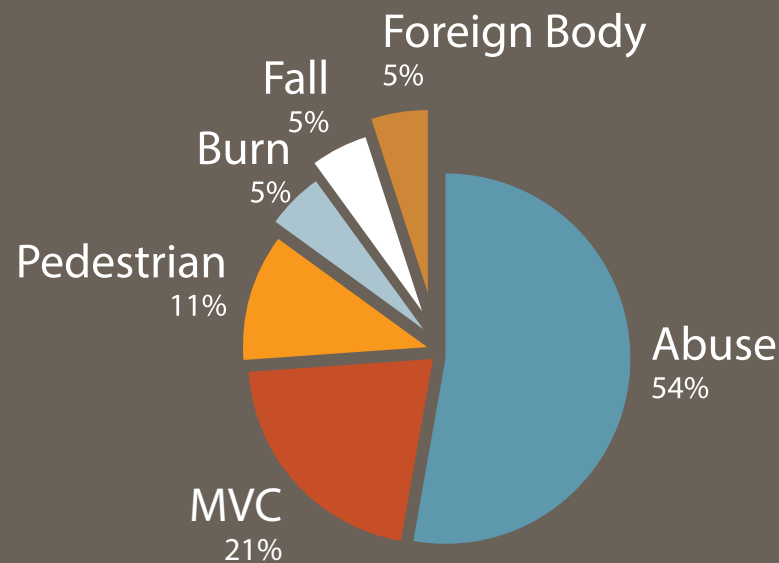
Our physicians were among the first in the country and are among the only ones in Colorado to be board certified in the field of Child Abuse Pediatrics by the American Board of Pediatrics.

Evaluation for suspected child maltreatment includes evidence gathering, family support and education covering the behavioral and emotional impacts of child maltreatment. Best practice care and treatment is offered in the most sensitive and family centered manner.

### Child Protection Team Services

The Child Protection Team provides comprehensive medical evaluations in our weekly outpatient clinic and through inpatient and emergency department consultations at Children's Hospital Colorado.

## 2015 Leading Mechanisms of Fatal Injury at Children Colorado



Abuse continues to be the **leading cause of trauma-related death** at Children's Hospital Colorado.





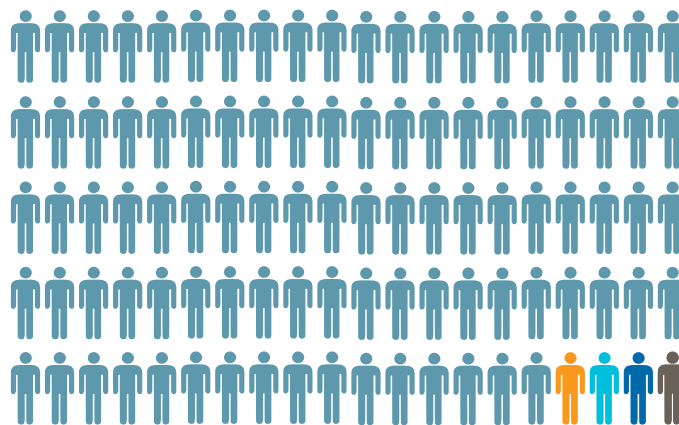


## Rehabilitation and Therapy

The primary goal of the rehabilitation program at Children's Hospital Colorado is to optimize each child's abilities to adapt to the environment, to ease the effects of disability on the child's development, and to allow the child to be fully included in community living. A child's success in the program results from the collaboration of the family with our highly trained team of pediatric specialists. At Children's Hospital Colorado, the rehabilitation staff, the child's family and the child's primary care physician comprise each child's rehabilitation team.

## Discharge Disposition

In 2015, more than 96% of pediatric patients admitted for injury were discharged to a home environment.



96% - Home



1% - Death



1% - Social Services



1% - Other



1% - Rehabilitation



REHABILITATION



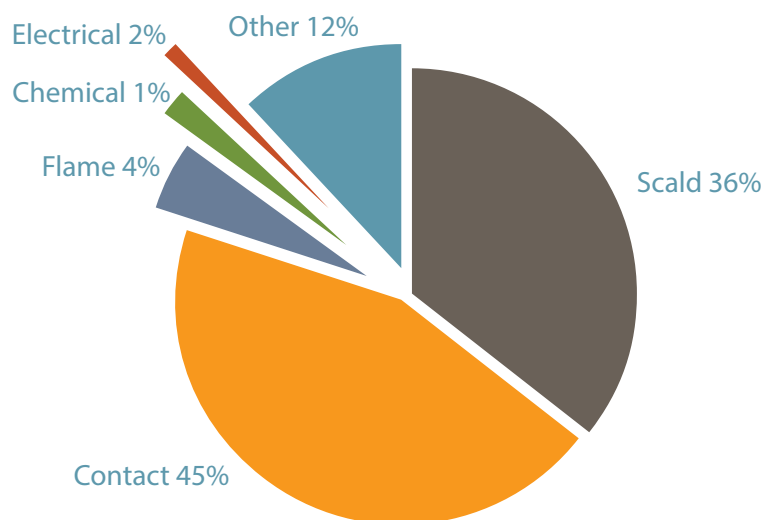
## Regional Pediatric Burn Center

The Children's Hospital Colorado Regional Burn Center is the only burn center in the Rocky Mountain region that is dedicated to providing consultation and treatment for burn-injured children of all ages. The Burn Center was established in 1974 and continues to provide the highest standard of burn care for children.

Our multi-disciplinary burn team manages patients from acute care through the outpatient and rehabilitative settings. The burn team also consult for skin injuries including, but not limited to: exfoliative dermatoses (e.g. Stevens Johnson Syndrome, toxic epidermal necrolysis), IV infiltrates and traumatic abrasions. The program has placed an emphasis on burn education throughout Children's network and within the pediatric community in the Rocky Mountain region.

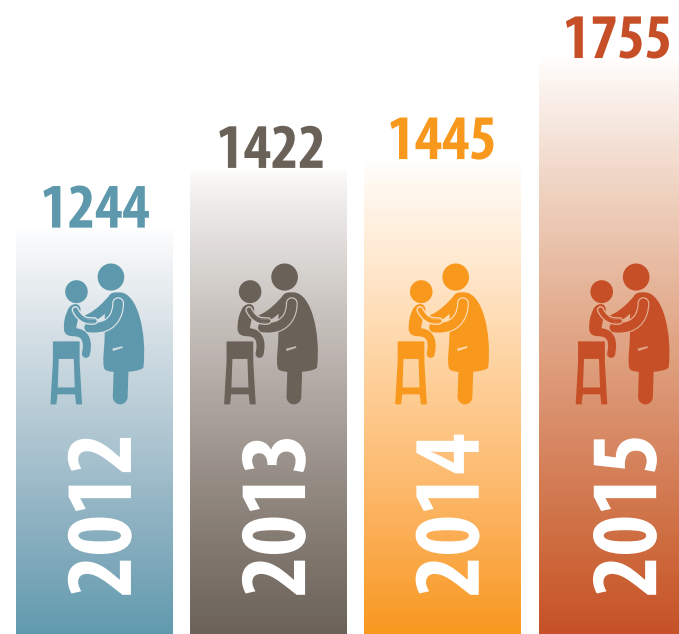


## 2015 Inpatient Burn Mechanisms



## Outpatient Burn Clinic Visits

The Children's Hospital Colorado Burn Center Outpatient Clinic saw a significant increase in visits in 2015.







## Children's Hospital Colorado Burn Camps

The Children's Hospital Colorado Burn Camps Program is a therapeutic, medical specialty camp for burn survivors, ages 8 to 24 years old. It is open to burn survivors from Children's Hospital Colorado and other international and national pediatric burn centers. The program is led by medical staff and camp professionals, who provide social and emotional support for children and young adult burn survivors through developmentally appropriate activities. The program includes summer camp, winter teen camp, family camp and a young adult retreat.

### Areas of Focus:

- Skill development - social and emotional
- Body image
- Challenging negative and limiting beliefs
- Appropriate risk taking
- Life skills

The program is accredited by the American Camping Association and is a member of the International Association of Burn Camps (Director Trudy Boulter is president).

## Juvenile Fire Setting Program

The Juvenile Fire Setting Program at Children's Colorado evaluates and treats children with risk factors for continued fire setting. The program also provides group counseling to the child and parents regarding identification of behaviors and interventions for behavior changes.

70

Campers (8-18) discovered confidence, strength and courage at Cheley/Children's Colorado Summer Burn Camp

12

Teenagers learned to lead in the Campers in Leadership Training Program (CILT)

26

Teenagers learned to "Expect Greatness" at Winter Burn Camp in Steamboat Springs, CO

34

Participants united at Family Burn Camp in Estes Park, CO

4653

Volunteer hours donated in 2015



### Summer Camp Fun Facts:

15

Gallons of marinara



60

Pounds of spaghetti



412 Cookies

15

Training workshops for first responders and professionals working with youth

70

Children, siblings, and caregivers participated in fire setting prevention

80  
Referrals

40

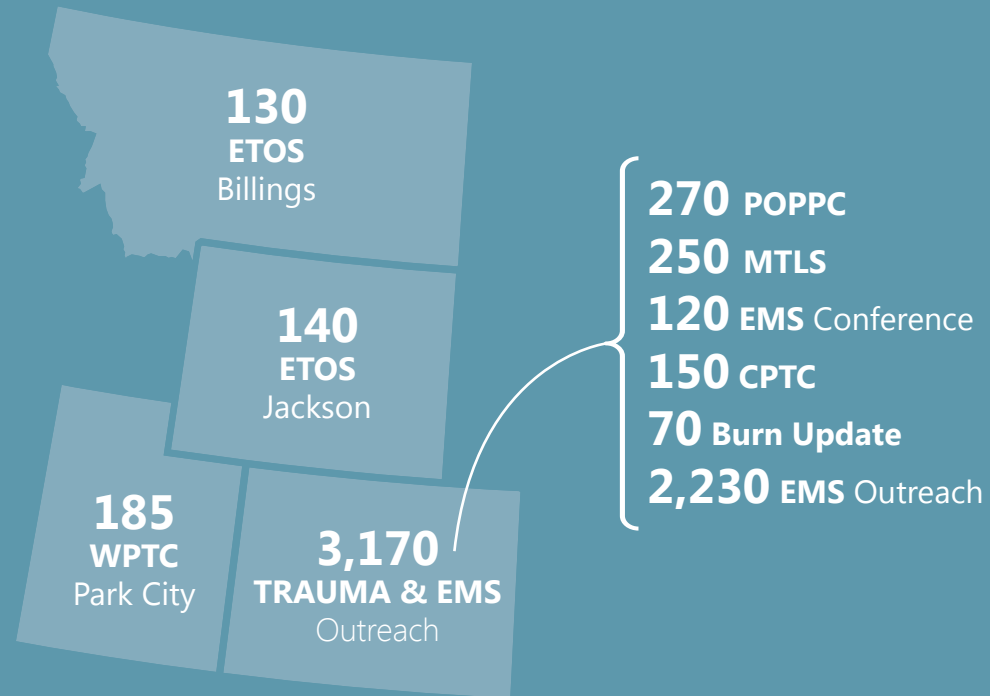
Evaluations for high risk fire setting youth.



In 2015, we reached over

# 3,625

EMS providers, nurses, mid-level providers and physicians in the Rocky Mountain Region with educational conferences and lectures.



## Outreach and Education

Our multi-disciplinary trauma, burn and EMS outreach team is engaged in outreach activities targeting a broad range of medical providers. The following outreach and educational events were provided in 2015:

### Emergency and Trauma Outreach Symposia (ETOS)

*Jackson, WY: April 29-30, 2015*

*Billings, MT: August 27-28, 2015*

*Grand Junction, CO: September 10-11, 2015*

ETOS events provide education for physicians, nurses and pre-hospital professionals in Colorado and the surrounding region. In 2015 our trauma, burn, and EMS programs partnered with local agencies to sponsor three events.

### Colorado Pediatric Trauma Conference (CPTC)

*Aurora, Colorado: November 18-19, 2015*

The annual pediatric trauma conference provides education on state-of-the-art care of the pediatric trauma patient. The conference is held at Children's Hospital Colorado and is attended by local staff, as well as regional and national physicians, nurses and ancillary providers.

### **Western Pediatric Trauma Conference (WPTC)**

*Park City, Utah: July 15-17, 2015*

The Western Pediatric Trauma Conference (WPTC) is a nationally renowned pediatric trauma conference led by Children's Hospital Colorado, Phoenix Children's Hospital, and Primary Children's Hospital with the aim to improve outcomes in pediatric trauma care. The 2015 conference was held in Park City, Utah.

### **Annual Pediatric EMS Conference**

This non-profit two-day pediatric EMS conference is the largest in the region and is hosted at Children's Hospital Colorado.

### **Burn Update**

*October 15, 2015*

In 2015, our burn center partnered with the University of Colorado Hospital Burn Center to host the 2015 Burn Update. The Update focused on initial management of the burn injured child. Discussion centered on basic wound care guidelines and the multi-disciplinary nature of both the Children's Burn Center and the University of Colorado Hospital Burn Center.

### **Multi-disciplinary Trauma Lecture Series (MTLS)**

This lecture series supports our multi-disciplinary trauma providers by highlighting recent advances in specialty care, including plastic surgery, critical care, orthopedics and other sub-specialties using case-based discussions, care protocols, and patient outcomes.

### **Partnership In Outstanding Pediatric Pre-Hospital Care (POPPC)**

POPPC offers free pediatric education to pre-hospital professionals on a monthly basis.



**WPTC**  
**VICEROY**  
ASPEN/SNOWMASS  
CO



JULY 20-22, 2016

## WESTERN PEDIATRIC TRAUMA CONFERENCE

[www.pedtrauma.org](http://www.pedtrauma.org)







# COMMUNITY EVENTS

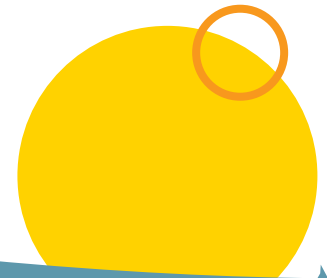
## 2015 Community Events



Being a positive part of our community is important to us at the Children's Hospital Colorado Regional Pediatric Trauma and Burn Center. That's why we provide and participate in a wide range of events for parents, families and healthcare professionals - from community events and fundraising activities, to conferences and continuing education for medical professionals. We also partner with community based organizations to keep kids out of the hospital. Our injury prevention program has a long history of advocating to improve the health and safety of children.

In 2015, we hosted community support activities at the Children's Museum in Denver, CO, Active Athletics in Littleton, CO and Winter Skate in Louisville, CO.

Our team also participated in safety events with the Evergreen Fire Department and the Denver Zoo.





## Philanthropic Support

Our work would not be possible without the philanthropic support of multiple partner organizations, including CoBank, QEP Resources, Denver Firefighters Burn Foundation, BCER Engineering, Inc., Hot Times Kool Cars, Ralph Schomp Automotive, and the Colorado Firefighter Calendar. We greatly appreciate their volunteer efforts and financial contributions, both of which contribute to the growth and development of our trauma and burn centers.



PHILANTHROPIC SUPPORT





## Injury Prevention Program - 2015 Highlights

In 2015, the Injury Prevention Program continued making great strides in preventing injuries through the cooperative efforts of government agencies, voluntary and professional organizations, the faith community, and numerous other community partners. By leveraging our resources to join the best knowledge and practices with strong partnerships to effectively prevent injuries, we are improving the quality of life for our state's children and their families, while saving our state millions of dollars each year. Our work is accomplished by raising public awareness, building community capacity for injury prevention efforts, making changes to the physical environment, and forwarding public policy and organizational practices that prevent injuries. These highlights build on previous efforts, and are the result of a variety of internal and external collaborations designed to achieve a common goal: keeping Colorado kids safe.

### Protecting Kids from Off-Highway Vehicle Injuries:

We worked to defeat a bill that would have expanded the use of Off-Highway Vehicles (also known as All-Terrain Vehicles or ATVs) on county roads by children as young as 10 years old, even though most of these vehicles are specifically designed not to be driven on roads, and 10 year olds are not proficient drivers.

### Public Policy



### Protecting Kids from Liquid Nicotine:

We worked to lobby the Colorado Congressional delegation to support S.142, the Child Nicotine Poisoning Prevention Act of 2015. This important legislation would require liquid nicotine containers to be sold with child-resistant packaging, just like all other medications.

### 2015 Child Passenger Safety

**408**

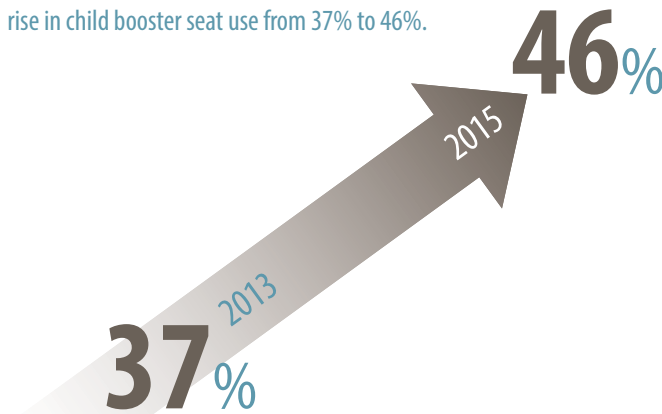
Car seats provided to families in need.



**481**

Inspections of child restraints for proper use, installation and recall histories.

Over the past three years, we have documented a rise in child booster seat use from 37% to 46%.



### Safety Store

Children's Hospital Colorado opened a Safety Store at our South Campus in



Highlands Ranch on February 28, 2015. A wide selection of products are available for transportation safety (including car seats), bike and pedestrian safety, infant safe sleep, fire, and home safety.





## Safe Kids Colorado

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Our injury data mapping project has been able to identify days and times when kids are most likely to be injured, and by what mechanism they are injured, in a particular neighborhood. We have shared these findings with neighborhood gatekeeper to tailor community-based interventions and prevent injuries from occurring.

### Awards

- Local Community Prevention Program Award by the Safe States Alliance
- "Pitch Your Project" by Safe Kids Worldwide
- Excellence in Advocacy Award by Safe Kids Worldwide

## Safe Kids Colorado Springs

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The Safe Kids Colorado Springs coalition and its partners conducted 57 programs, reaching over 1,200 adults and more than 4,600 children with evidence-based safety interventions in targeted schools and neighborhoods. Additionally, the coalition's signature Safety Day event at Chapel Hills Mall drew more than 8,500 participants.

## Safe Kids Denver Metro

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In 2015, the coalition and its community partners invested more than 1600 volunteer hours in prevention-focused activities. Our pedestrian safety events educated over 3400 students in pedestrian safety. A drowning prevention program provided swim lessons for 23 children in an at-risk community in Thornton. The Fire & Life Safety Educators of Colorado recognized Safe Kids with their "Friends of Fire & Life Safety Award."



## Pediatric Orthopedic Surgery

1. Ngo KD, Pain P, Hanfland R, Nichols CS, Merritt GR, Campbell D, Ing RJ. Cardiac Injury After All-Terrain Vehicle Accidents in 2 Children and Review of the Literature. *Pediatr Emerg Care*. 2015 Oct 13. [Epub ahead of print]
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5. Chaus GW, Carry PM, Pishkenari AK, Hadley-Miller N. Operative versus Nonoperative Treatment of Displaced Proximal Humeral Physeal Fractures: a Matched Cohort. *J Pediatr Orthop*. 2015 Apr-May;35(3):234-9. doi: 10.1097/BPO.0000000000000265.

## Pediatric Neurosurgery

1. O'Neill BR, Handler MH, Tong S, Chapman KE. Incidence of Seizures on Continuous EEG Monitoring Following Traumatic Brain Injury in Children. *J Neurosurg Pediatr*. 2015 Aug;16(2):167-76. doi: 10.3171/2014.12.PEDS14263. Epub 2015 May 8.
2. Hymel KP, Herman BE, Narang SK, Graf JM, Frazier TN, Stoiko M, Christie LM, Harper NS, Carroll CL, Boos SC, Dias M, Pullin DA, Wang M; Pediatric Brain Injury Research Network (PediBIRN) Investigators; Pediatric Brain Injury Research Network PediBIRN Investigators. Potential Impact of a Validated Screening Tool for Pediatric Abusive Head Trauma. *J Pediatr*. 2015 Dec;167(6):1375-81.e1. doi: 10.1016/j.jpeds.2015.09.018. Epub 2015 Oct 23.

## Child Protection Team

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2. Hymel KP, Herman BE, Narang SK, Graf JM, Frazier TN, Stoiko M, Christie LM, Harper NS, Carroll CL, Boos SC, Dias M, Pullin DA, Wang M; Pediatric Brain Injury Research Network (PediBIRN) Investigators; Pediatric Brain Injury Research Network PediBIRN Investigators. Potential Impact of a Validated Screening Tool for Pediatric Abusive Head Trauma. *J Pediatr*. 2015 Dec;167(6):1375-81.e1. doi: 10.1016/j.jpeds.2015.09.018. Epub 2015 Oct 23.

## Pediatric Emergency Medicine

1. Freeman JF, Ciarallo C, Rappaport L, Mandt M, Bajaj L. Use of Capnographs to Assess Quality of Pediatric Ventilation with 3 Different Airway Modalities. *Am J Emerg Med*. 2016 Jan;34(1):69-74. doi: 10.1016/j.ajem.2015.09.012. Epub 2015 Sep 21.
2. Mahajan P, Kuppermann N, Tunik M, Yen K, Atabaki SM, Lee LK, Ellison AM, Bonsu BK, Olsen CS, Cook L, Kwok MY, Lillis K, Holmes JF; Intra-abdominal Injury Study Group of the Pediatric Emergency Care Applied Research Network (PECARN). Comparison of Clinician Suspicion Versus a Clinical Prediction Rule in Identifying Children at Risk for Intra-abdominal Injuries After Blunt Torso Trauma. *Acad Emerg Med*. 2015 Sep;22(9):1034-41. doi: 10.1111/acem.12739. Epub 2015 Aug 20.
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