



Traumatic Brain Injury: Resource Guide



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Traumatic brain injury (TBI), a condition caused by a bump, blow or jolt to the head which disrupts normal brain function, is a major cause of death and disability in the United States. Nearly 700,000 TBI-related emergency department visits, hospitalizations, and deaths occur annually in US children and adolescents ages 0-19 years.^{1 2} From 2006 to 2014, the number of TBI-related emergency department visits, hospitalizations, and deaths increased by 53%. The primary causes of TBI in children and youth include falls, being struck by or against an object, motor vehicle-related crashes, and assaults. While most TBIs are mild (concussions), a TBI can also result in impairments related to thinking, memory, movement, sensation (e.g., vision or hearing), or emotional functioning (e.g., personality changes, depression).³

TBI can be prevented in many cases. This guide divides selected resources on preventing TBI among children and adolescents into seven sections:

- (1) National Organizations;
- (2) Prevention Programs and Interventions;
- (3) Children’s Safety Network Webinars;
- (4) Data Sources;
- (5) Fact Sheets and Infographics;
- (6) Policy and Legislation; and
- (7) Research and Reports.

The list of resources included in this guide is not meant to be comprehensive nor are the listings intended as endorsements.

1 Healthcare Cost and Utilization Project Databases, 2014
2 Multiple Cause of Death, 2014
3 Centers for Disease Control and Prevention, 2019

NATIONAL ORGANIZATIONS

American Academy of Pediatrics

<https://www.aap.org/en-us/Pages/Default.aspx>

Brain Injury Association of America

<https://www.biausa.org/>

Brain Trauma Foundation

<https://www.braintrauma.org/>

Brain Trust Canada

<https://braintrustcanada.com/>

Centers for Disease Control and Prevention (CDC)

<https://www.cdc.gov/headsup/index.html>

Consumer Product Safety Commission (CPSC)

<https://www.cpsc.gov/>

Dana Foundation

<http://dana.org/>

International Brain Injury Association (IBIA)

<https://www.internationalbrain.org/>

National Association of State Head Injury Administrators (NASHIA)

<http://www.nashia.org/default.asp>

National Athletic Trainers' Association

<https://www.nata.org/practice-patient-care/health-issues/concussion>

National Center for Sports Safety

<https://sportssafety.org/>

National Center on Shaken Baby Syndrome

<https://dontshake.org/>

National Council of Youth Sports

<https://www.ncys.org/>

National Highway Traffic Safety Administration (NHTSA)

<https://www.nhtsa.gov/>



National Institute of Neurological Disorders and Stroke

<https://www.ninds.nih.gov/>

National Park and Recreation Association (NPRA)

<https://www.nrpa.org/>

National Program for Playground Safety (NPPS)

<https://www.playgroundsafety.org/>

Prevent Child Abuse America

<https://preventchildabuse.org/>

Safe Kids WorldWide

<https://www.safekids.org/>

PREVENTION PROGRAMS AND INTERVENTIONS

Bicycle Helmet Safety Institute

<http://www.bhsi.org>

Brain 101: The Concussion Playbook

<https://orcasinc.com/products/brain-101/>

BrainLine

<http://www.brainline.org>

Concussion Legacy Foundation

<https://concussionfoundation.org/>

Connecting the Dots: An Overview of the Links Among Multiple Forms of Violence | CDC

https://www.cdc.gov/violenceprevention/pdf/connecting_the_dots-a.pdf

Heads Up: Concussion in Youth Sports | CDC

<https://www.cdc.gov/headsup/youthsports/index.html>

Heads Up Initiative | CDC

<https://www.cdc.gov/headsup/index.html>

Heads Up to Clinicians: Addressing Concussion in Sports Among Kids and Teens | CDC

<https://www.cdc.gov/headsup/providers/training/index.html>

Heads Up to Schools: Know Your Concussion ABCs | CDC

<https://www.cdc.gov/headsup/schools/index.html>

MomsTeam.com

<https://momsteam.com/health-safety/concussion-safety>



National Center on Shaken Baby Syndrome: Period of Purple Crying Program

<http://dontshake.org/purple-crying>

Sport Concussion Library from the Canadian Medical Association: Sport Concussion Education Program

<http://www.sportconcussionlibrary.com>

ThinkFirst

<http://thinkfirst.org/>

CHILDREN'S SAFETY NETWORK (CSN) WEBINARS

Distracted Driving Among Teens (2017)

<https://www.childrencyasetynetwork.org/webinar/distracted-driving-among-teens-what-we-know-about-it-how-prevent-it>

Keeping Children 8-14 Years Old Safe as Motor Vehicle Occupants (2017)

<https://www.childrencyasetynetwork.org/webinar/keeping-children-8-14-years-old-safe-motor-vehicle-occupants>

Reducing the Risks to Child Pedestrians (2018)

<https://www.childrencyasetynetwork.org/webinar/reducing-risks-child-pedestrians>

Traumatic Brain Injury among Children and Youth: Understanding TBI and One Model State Program (2019)

<https://www.childrencyasetynetwork.org/webinar/traumatic-brain-injury-among-children-youth-understanding-tbi-one-model-state-program>

Working "Upstream" to Prevent Adverse Childhood Experiences (ACEs) (2018)

<https://www.childrencyasetynetwork.org/webinar/working-upstream-prevent-adverse-childhood-experiences-aces>

DATA SOURCES

CDC WONDER | CDC

<https://wonder.cdc.gov/>

Consumer Product Safety Commission | CPSC

<https://www.cpsc.gov/Research-Statistics/Injury-Statistics>



Healthcare Cost and Utilization Project (HCUP) Databases

<https://www.ahrq.gov/data/hcup/index.html>

National Center for Catastrophic Sport Injury Research

<http://nccsir.unc.edu/>

National Center for Child Fatality Review and Prevention

<https://www.ncfrp.org/>

National Electronic Injury Surveillance System (NEISS) | CPSC

<https://www.cpsc.gov/Research-Statistics/NEISS-Injury-Data>

National Electronic Injury Surveillance System – All Injury Program (NEISS-AIP)

<https://www.icpsr.umich.edu/icpsrweb/NACJD/series/198>

TBI Data and Statistics | CDC

<https://www.cdc.gov/traumaticbraininjury/data/>

Youth Risk Behavior Surveillance System (YRBSS)

<https://nccd.cdc.gov/youthonline/App/Default.aspx>

FACT SHEETS AND INFOGRAPHICS

A Journalist’s Guide to Shaken Baby Syndrome:

A Preventable Tragedy – Part of CDC’s “Heads Up” Series | CDC

<https://www.cdc.gov/violenceprevention/pdf/SBSMediaGuide.pdf>

Facts about Concussion and Brain Injury | CDC

https://www.cdc.gov/traumaticbraininjury/pdf/Fact_Sheet_ConcussTBI-a.pdf

Falls Prevention Tip Sheet (Safe Kids WorldWide)

<https://www.safekids.org/tip/falls-prevention-tips>

National Institute of Neurological Disorders and Stroke

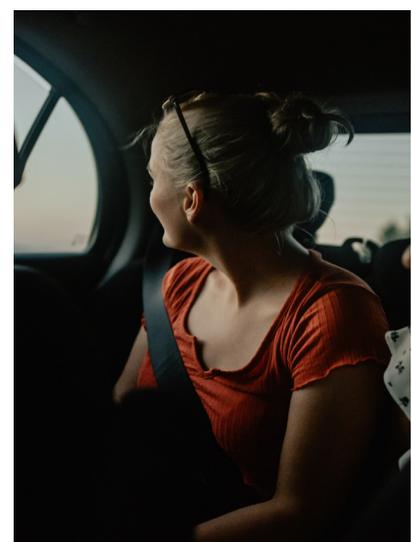
<https://www.ninds.nih.gov/Disorders/All-Disorders/Traumatic-Brain-Injury-Information-Page>

North American Brain Injury Society (NABIS)

www.internationalbrain.org

Pediatric Traumatic Brain Injury | ASHA

<https://www.asha.org/practice-portal/clinical-topics/pediatric-traumatic-brain-injury/>



Preventing Abusive Head Trauma in Children | CDC

<https://www.cdc.gov/violenceprevention/childabuseandneglect/Abusive-Head-Trauma.html>

Preventing Child Abuse and Neglect | CDC

<https://www.cdc.gov/violenceprevention/pdf/CAN-factsheet.pdf>

TBI: Get the Facts | CDC

https://www.cdc.gov/traumaticbraininjury/get_the_facts.html

TBIs and Injuries | CDC

<https://www.cdc.gov/features/traumatic-brain-injury/index.html>



The Medical Costs of Childhood Injuries: Deaths | CSN

<https://www.childrenssafetynetwork.org/infographics/cost-deaths>

The Medical Costs of Childhood Injuries: Emergency Department Visits | CSN

<https://www.childrenssafetynetwork.org/infographics/cost-edvisits>

The Medical Costs of Childhood Injuries: Hospitalizations | CSN

<https://www.childrenssafetynetwork.org/infographics/cost-hospitalizations>

Traumatic Brain Injury in the United States: A Fact Sheet for Public Health Professionals | CDC

<https://www.cdc.gov/traumaticbraininjury/pdf/TBIInTheUnitedStates-PublicHealthProfessionals.pdf>

Understanding Abusive Head Trauma in Infants and Children: Answers from America's Pediatrics | American Academy of Pediatrics (2015)

http://www.ncsl.org/Portals/1/Documents/fsl/Understanding_AHT_Infants_Children_AAP_FINAL_6-15.pdf

POLICY AND LEGISLATION

Governor's Highway Safety Association: Helmet Laws

http://www.ghsa.org/html/stateinfo/laws/helmet_laws.html

National Conference of State Legislatures: Shaken Baby Syndrome Prevention

http://www.ncsl.org/documents/cyf/childabuse_prevention_programs_strategies.pdf

National Conference of State Legislatures: TBI

<http://www.ncsl.org/issues-research/health/traumatic-brain-injury-legislation.aspx>

The Network for Public Health Law: Sports Concussion Laws

<https://networkforphl.org/wp-content/uploads/2019/11/Summary-of-State-Laws-Addressing-Concussions-in-Youth-Sports-5-28-19.pdf>



RESEARCH AND REPORTS

Reviews and Epidemiology of TBI

CDC's Efforts to Improve Traumatic Brain Injury Surveillance | Journal of Safety Research (2017)

Bell JM, Breiding MJ, DePadilla L

<https://doi.org/10.1016/j.jsr.2017.04.002>

Evidence-Based Strategies and Readings in Five Injury Topics | CSN (2017)

Children's Safety Network

https://www.childreissafetynetwork.org/sites/childreissafetynetwork.org/files/Evidence-Based%20Strategies%20and%20Readings%20in%205%20topic%20areas_0.pdf

Home Safety Education and Provision of Safety Equipment for Injury Prevention (Review) | A Cochrane Review (2013)

Kendrick D, Young B, Mason-Jones AJ, Ilyas N, Achana FA, Cooper NJ, et al

<https://www.ncbi.nlm.nih.gov/pubmed/23877910>

Prevalence of Parent-Reported Traumatic Brain Injury in Children and Associated Health Conditions | JAMA Pediatrics (2018)

Haarbauer-Krupa J, Lee AH, Bitsko RH, Zhang X, Kresnow-Sedacca MJ

<https://doi.org/10.1001/jamapediatrics.2018.2740>

Products and Activities Associated with Non-fatal Traumatic Brain Injuries in Children and Adolescents – United States 2010-2013 | Brain Injury (2019)

Ali B, Lawrence B, Miller T, Allison J

<https://www.tandfonline.com/doi/full/10.1080/02699052.2019.1631483>

Report to Congress on Traumatic Brain Injury Epidemiology and Rehabilitation: Recommendations for Addressing Critical Gaps | CDC (2015)

Frieden TR, Houry D, Baldwin G

https://www.cdc.gov/traumaticbraininjury/pubs/congress_epi_rehab.html

Report to Congress – The Management of Traumatic Brain Injury in Children: Opportunities for Action | CDC (2019)

Schuchat A, Houra D, Baldwin G

<https://www.cdc.gov/traumaticbraininjury/pdf/reportstocongress/managementoftbiinchildren/TBI-ReporttoCongress-508.pdf>



The Effect of Pediatric Traumatic Brain Injury on Behavioral Outcomes: A Systematic Review | Developmental Medicine and Child Neurology (2013)

Li L, Liu J

<https://www.ncbi.nlm.nih.gov/pubmed/22998525>

Traumatic Brain Injury–Related Emergency Department Visits, Hospitalizations, and Deaths – United States, 2007 and 2013 | CDC MMWR (2017)

Taylor CA, Bell JM, Breiding MJ, Likang X

<http://dx.doi.org/10.15585/mmwr.ss6609a1>

Variations in Mechanisms of Injury for Children with Concussion | Journal of Pediatrics (2018)

Haarbauer-Krupa J, Arbogast KB, Metzger KB, Greenspan AI, Kessler R, Curry AE, Bell JM, DePadilla L, Pfeiffer MR, Zonfrillo MR, Master CL

<https://doi.org/10.1016/j.jpeds.2018.01.075>

Abusive Head Trauma (Shaken Baby Syndrome)

Do We Get the Message Through? Difficulties in the Prevention of Abusive Head Trauma | European Journal of Pediatrics (2019)

Berthold O, Witt A, Clemens V, Brähler E, Plener PL, Fegert JM

<https://doi.org/10.1007/s00431-018-3273-0>

Effectiveness of a Pediatric Abusive Head Trauma Prevention Program Among Spanish-Speaking Mothers | Hispanic Health Care International (2018)

Duzinski SV, Guevara LM, Barczyk AN, Garcia NM, Cassel JL, Lawson KA

<https://doi.org/10.1177/1540415318756859>

Eight-year Outcome of Implementation of Abusive Head Trauma Prevention | Child Abuse and Neglect (2018)

Barr RG, Barr M, Rajabali F, Humphreys C, Pike I, Brant R, Hlady J, Colbourne M, Fujiwara T, Singhal A

<https://doi.org/10.1016/j.chiabu.2018.07.004>

Feasibility Study of the Calm Baby Gently Program: An Educational Baby Book Intervention on Safe Practices Related to Infant Crying | Child Abuse and Neglect (2019)

Eismann EA, Pearl ES, Theuerling J, Folger AT, Hutton JS, Makoroff K

<https://doi.org/10.1016/j.chiabu.2018.12.011>

Lifetime Cost of Abusive Head Trauma at Ages 0-4, USA | Prevention Sciences (2018)

Miller TR, Steinbeigle R, Lawrence BA, Peterson C, Florence C, Barr M, Barr RG

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5756522/>

Pediatric Abusive Head Trauma: Recommended Definitions for Public Health Surveillance and Research | CDC (2012)

Parks SE, Annest JL, Hill HA, Karch DL

<https://www.cdc.gov/violenceprevention/pdf/PedHeadTrauma-a.pdf>

Preventing Child Abuse and Neglect: A Technical Package for Policy, Norm, and Programmatic Activities | CDC (2016)

Fortson B, Klevens J, Merrick M, Gilbert L, Alexander S

<https://www.cdc.gov/violenceprevention/pdf/CAN-Prevention-Technical-Package.pdf>

When Soothing Succeeds: Simulating a Risk for Repeated Shaking in Abusive Head Trauma in Infants | Infant Behavior and Development (2018)

Chen M, Barr RG, Miller E, Fairbrother N, Antle A, Brant R

<https://doi.org/10.1016/j.infbeh.2018.02.004>





Falls

Consumer Products Contributing to Fall Injuries in Children Aged <1 to 19 Years Treated in US Emergency Departments, 2010 to 2013: An Observational Study | Global Pediatric Health (2019)

Ali B, Lawrence B, Miller T, Swedler D, Allison J

<https://journals.sagepub.com/doi/10.1177/2333794X18821941>

Injuries Associated With Infant Walkers | Pediatrics (2001)

<https://pediatrics.aappublications.org/content/108/3/790>

Preventing Childhood Falls within The Home: Overview of Systematic Reviews and A Systematic Review of Primary Studies | Accident Analysis and Prevention (2013)

Young B, Wynn PM, He Z, Kendrick D

<https://www.ncbi.nlm.nih.gov/pubmed/24080473>

Preventing Newborn Falls and Drops | The Joint Commission, Division of Healthcare Improvement (2018)

https://www.jointcommission.org/assets/1/23/Quick_Safety_Issue_40_2018_Newborn_falls_drops.pdf

Protecting Children By Preventing Falls (2012)

Messmer P, Williams A

<https://www.americannursetoday.com/protecting-children-by-preventing-falls/>

Sports and Recreation

A Description and Evaluation of the Concussion Education Application HEADS UP Rocket Blades | Health Promotion Practice (2019)

Daugherty J, Miles I, Sarmiento K, Sansone C, Kroshus E, Bethea B

<https://doi.org/10.1177/1524839918764670>

Concussion Attitudes, Behaviors, and Education among Youth Ages 12-17: Results from the 2014 YouthStyles Survey | Journal of Safety Research (2018)

Donnell Z, Hoffman R, Sarmiento K, Hays C

<https://doi.org/10.1016/j.jsr.2017.12.001>

Emergency Department Visits for Sports- and Recreation-Related Traumatic Brain Injuries among Children – United States, 2010–2016 | CDC MMWR (2019)

Sarmiento K, Thomas KE, Daugherty J, Waltzman D, Haarbauer-Krupa JK, Peterson AB, Haileyesus T, Breiding MJ

<http://dx.doi.org/10.15585/mmwr.mm6810a2>

Head Impact Exposure in Youth Soccer and Variation by Age and Sex | Clinical Journal of Sport Medicine (2019)

Chrisman SPD, Ebel BE, Stein E, Lowry SJ, Rivara FP

<https://doi.org/10.1097/JSM.0000000000000497>

Healthcare Professional Involvement and RTP Compliance in High School Athletes with Concussion | Brain Injury (2018)

Haarbauer-Krupa J, Comstock RD, Lionbarger MR, Hirsch S, Kavee A, Lowe B

<https://doi.org/10.1080/02699052.2018.1482426>

Scoping Review to Address the Culture of Concussion in Youth and High School Sports | Journal of School Health (2017)

Sarmiento K, Donnell Z, Hoffman RA

<https://doi.org/10.1111/josh.12552>



Self-Reported Concussions from Playing a Sport or Being Physically Active Among High School Students – United States, 2017 | CDC MMWR (2018)

DePadilla L, Miller GF, Jones SE, Peterson AB, Breiding MJ

<http://dx.doi.org/10.15585/mmwr.mm6724a3>

Sport-Related Traumatic Brain Injury with and without Helmets in Children | World Neurosurgery (2018)

Bandte A, Fritzsche FS, Emami P, Kammler G, Püschel K, Krajewski K

<https://doi.org/10.1016/j.wneu.2017.12.094>

The Spectrum of Pediatric Injuries Sustained in Snow Sports | Journal of Pediatric Surgery (2017)

Summers Z, Teague WJ, Hutson JM, Palmer CS, Jowett HE, King SK

<https://doi.org/10.1016/j.jpedsurg.2017.08.038>

Threat, Pressure, and Communication About Concussion Safety: Implications for Parent Concussion Education | Health Education and Behavior (2017)

Kroshus E, Babkes Stellino M, Chrisman SPD, Rivara FP

<https://doi.org/10.1177/1090198117715669>

Traumatic Brain and Spinal Cord Fatalities Among High School and College Football Players – United States, 2005–2014 | CDC MMWR (2017)

Kucera KL, Yau RK, Register-Mihalik J, Marshall SW, Thomas LC, Wolf S, Cantu RC, Mueller FO, Guskiewicz KM

<http://dx.doi.org/10.15585/mmwr.mm6552a2>

Using Opinion Leaders to Address Intervention Gaps in Concussion Prevention in Youth Sports: Key Concepts and Foundational Theory | Injury Epidemiology (2018)

Kerr ZY, Register-Mihalik JK, Haarbauer-Krupa J, Kroshus E, Go V, Gildner P, Byrd KH, Marshall SW

<https://doi.org/10.1186/s40621-018-0158-7>

Variations in Mechanisms of Injury for Children with Concussion | Journal of Pediatrics (2018)

Haarbauer-Krupa J, Arbogast KB, Metzger KB, Greenspan AI, Kessler R, Curry AE, Bell JM, DePadilla L, Pfeiffer MR, Zonfrillo MR, Master CL

<https://doi.org/10.1016/j.jpeds.2018.01.075>

What the Research Says about Concussion Risk Factors and Prevention Strategies for Youth Sports: A Scoping Review of Six Commonly Played Sports | Journal of Safety Research (2019)

Waltzman, D, Sarmiento, K

<https://doi.org/10.1016/j.jsr.2018.11.005>



Traffic (Pedestrian, Bicycle, Motor Vehicle, ETC.)

Head Injuries (TBI) to Adults and Children in Motor Vehicle Crashes | Injury Prevention (2017)

Viano DC, Parenteau CS, Xu L, Faul M

<https://doi.org/10.1080/15389588.2017.1285023>

Helmet Use in Preventing Acute Concussive Symptoms in Recreational Vehicle Related Head Trauma | Brain Injury (2018)

Daverio M, Babl FE, Barker R, Gregori D, Da Dalt L, Bressan S

<https://doi.org/10.1080/02699052.2018.1426107>

Pediatric Bicycle Helmet Legislation and Crash-related Traumatic Brain Injury in Illinois, 1999-2009 | Journal of Surgical Research (2018)

Williams C, Weston R, Feinglass J, Crandall M

<https://doi.org/10.1016/j.jss.2017.11.006>

Pediatric Emergency Department Visits for Pedestrian and Bicyclist Injuries in the US | Injury Epidemiology (2017)

Wheeler-Martin K, Mooney SJ, Lee DC, Rundle A, DiMaggio C

<https://injepijournal.biomedcentral.com/articles/10.1186/s40621-017-0128-5>



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Newsletter: go.edc.org/csn-newsletter