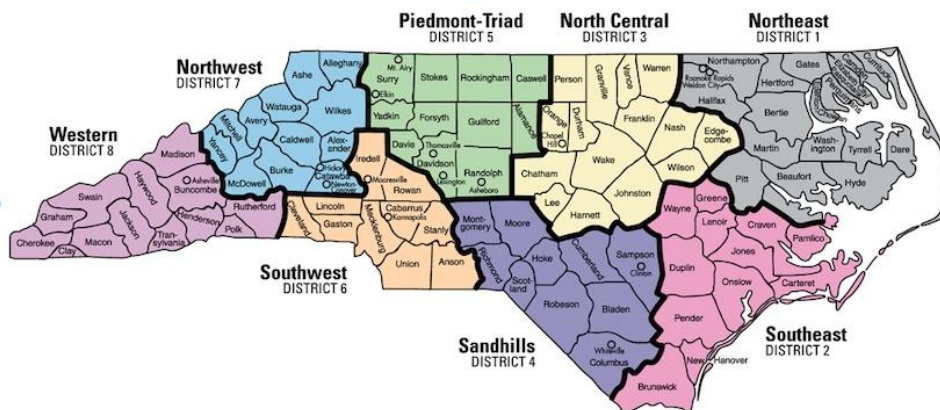


# Brain Waves:

Quarterly Practice Brief for  
NCDPI TBI Approved Providers

December 2019



## Communities of Practice (CoP)

Use the links below to access your CoP. You can submit a question/topic on the forum or create an "event" to get live support from your colleagues via Google Hangout.

[North Central/Northeast](#)

[Piedmont-Triad/Southwest](#)

[Northwest/Western](#)

[Sandhill/Southeast](#)

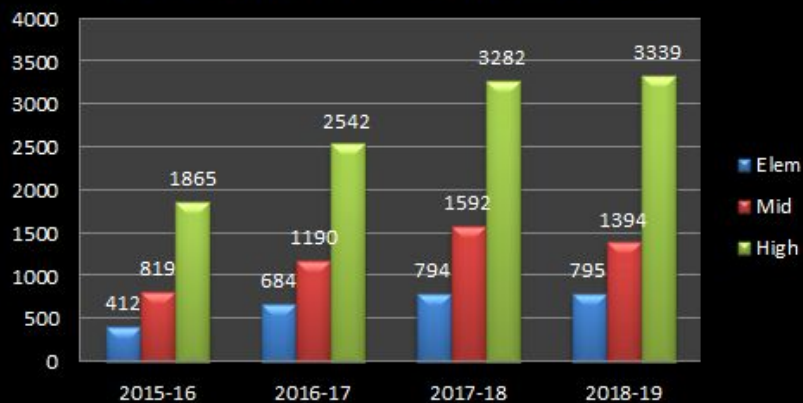
## Connections Between Concussions and Academic Impairment Among U.S. High School Students

A new CDC report, [Concussion and Academic Impairment Among US High School Students](#), is the first to examine the relationship between sports- and physical activity-related concussion and indicators of academic impairment among a nationally representative sample of US high school students.

Key findings include:

- Nearly 1 in 6 high school students reported experiencing a concussion in the past 12 months while participating in sports or physical activity.
- Students who reported a sports- or physical activity-related concussion in the past 12 months were more likely to report symptoms of cognitive impairment.
- Students' self-reported GPA was significantly lower among those who reported one or more sports- or physical activity-related concussions in the past 12 months.

## NC Public Schools Concussion Data



Information about these types of concussions and their associations with cognitive impairment and academic grades, may help school-based programs implement strategies to prevent sports- and physical activity-related concussions and mitigate their potential for adverse impact on academic achievement.

North Carolina's concussion data is shown in the chart above. What trends do you see? Is it alarming in any way? Is the relative plateau due to prevention efforts? Or is the momentum to support implementation of the return to learn policy losing steam? Share your thoughts with your Community of Practice!

# Research Summary:

Trends of ED visits, admissions, and deaths for pediatric traumatic brain injury comparing sport and non-sport mechanisms

Hanson, H. R., Gittelman, M. A., & Pomerantz, W. J. (2019). Trends of ED visits, admissions, and deaths for pediatric traumatic brain injury comparing sport and non-sport mechanisms. *Injury Epidemiology*, 6(1), 1-7. doi:<http://dx.doi.org/10.1186/s40621-019-0207-x>

## Purpose:

The objective of this study was to evaluate ED visits, admissions, and deaths for non-sport TBI compared to those caused by sports.

## Methods:

- retrospective study between 2002 and 2012
- children 5–19 years of age
- primary or secondary diagnosis of TBI
- mechanism of injury, disposition, injury severity score, and length of stay were recorded.
- Frequencies were used to characterize the population,
- Chi-square analysis was used to determine differences between groups
- linear trend lines were calculated for sport-related and non-sport TBI by year

The definition of sport, both organized and unorganized, included football, basketball, soccer, baseball/softball, skating/blading, swimming, sledding, hockey, gymnastics, and volleyball. .

The definition of non-sport included all other mechanisms of TBI not included in the definition of sport – including, but not limited to falls, abuse, struck by or against mechanism, bicycle crashes, MVCs, and MPCs. MVC refers to any person injured as a driver or passenger of a vehicle, and MPC refers to any person struck by a vehicle while operating as a pedestrian outside the vehicle.

The final study cohort included 13,291 patients. This represented 2.6% of all patients seen during the same time period in the Emergency Department

Children with non-sport TBI were

- younger
- female
- more likely to be African American
- had a higher percentage of Medicare/Medicaid
- were admitted to the hospital.
- died

Of all mechanisms causing TBI, firearm injuries, MPC, MVC, and bicycle crash were the most likely to require admission.

Visits to the ED between 2002 and 2012 for sport-related TBI increased 92% and non-sport TBI increased 22%

# Results:

## Discussion:

This study evaluated trends in non-sport mechanisms. We showed that there was an increase in ED visits for non-sport TBI, and these mechanisms result in greater numbers of admissions, longer LOS, higher ISS, and more deaths, when compare to sport-related TBI.is warranted.

Those TBIs that are secondary to high velocity mechanisms are still responsible for the injuries that have the greatest morbidity and mortality.

Since non-sport mechanisms are still responsible for the most severe injuries in children, a renewed emphasis on education and prevention is warranted.

**Table 1** Demographics for children with sport versus non-sport traumatic brain injury

	Sport (n = 3763)	Non-Sport (n = 9528)
<b>Age</b>		
5–9 years	644 (17.1%)	4335 (45.5%)
10–14 years	1832 (48.7%)	3276 (34.4%)
15–18 years	1287 (34.2%)	1917 (20.1%)
<b>Gender</b>		
Male	2746 (73.0%)	5951 (62.5%)
<b>Race</b>		
African American	596 (15.8%)	2612 (27.4%)
Caucasian	2934 (78.0%)	6282 (65.9%)
Other	226 (6.0%)	620 (6.5%)
Unknown	7 (0.2%)	14 (0.1%)
<b>Insurance</b>		
Medicare/Medicaid	407 (10.8%)	2672 (28.0%)
Private	3183 (84.6%)	6102 (64.0%)
Self-Pay	68 (1.8%)	198 (2.1%)
Other/Unknown	105 (2.8%)	556 (5.9%)
<b>Emergency Department Disposition</b>		
Admission	361 (9.6%)	1409 (14.8%)
Death	0 (0.0%)	29 (0.3%)
Home	3402 (90.4%)	8090 (84.9%)
<b>Hospital Disposition</b>		
	(n = 361)	(n = 1438)
Death	0 (0.0%)	29 (2.0%)
Home	361 (100%)	1409 (98.0%)

## How can you lead non-sport injury prevention efforts in your area?

### *Share your ideas with your TBI Community of Practice*

- **April** = Child Abuse Prevention Month
- **May** = Bicycle Safety Month
- **June** = Gun Violence Awareness Month
- **September** = National Child Passenger Safety Month
- **October** = Pedestrian Safety Month



2019 Brain Injury Association of North Carolina (BIANC) TBI Conference:

## BACK TO BASICS AND MOVING FORWARD

Friday, December 6, 2019 and Saturday, December 7, 2019

The Brain Injury Association of NC (BIANC), in collaboration with the Mountain Area Health Education Center (MAHEC), is offering this interprofessional conference on December 6 & 7, 2019, at MAHEC in Asheville, NC. This conference will enable healthcare providers to review the basics of TBI care while moving forward with new approaches to assist TBI survivors and their families in life after TBI. Topics will be addressed by expert speakers and a TBI survivor.

### More Information

Register here

## Upcoming Events



- **December 6-7** - BIANC Conference (more information above)
- **December 11** @ 10am-3pm - [Brain Injury Advisory Council](#) Meeting - open to public
- **December 17** @ 12:00 - 1:00 pm - BIANC [Webinar](#): Owning your Rehabilitation after Brain Injury
- **March 2020** - Brain Injury Awareness Month [#ChangeYourMind](#)

• **SAVE THE DATE**



# 2020 TBI INSTITUTES



## MARCH 13, 2020

CENTRAL CAROLINA COMMUNITY COLLEGE  
PITTSBORO CAMPUS