



# The Long Arm of Childhood Traumatic Brain Injury (TBI): Tools for Prevention and Intervention

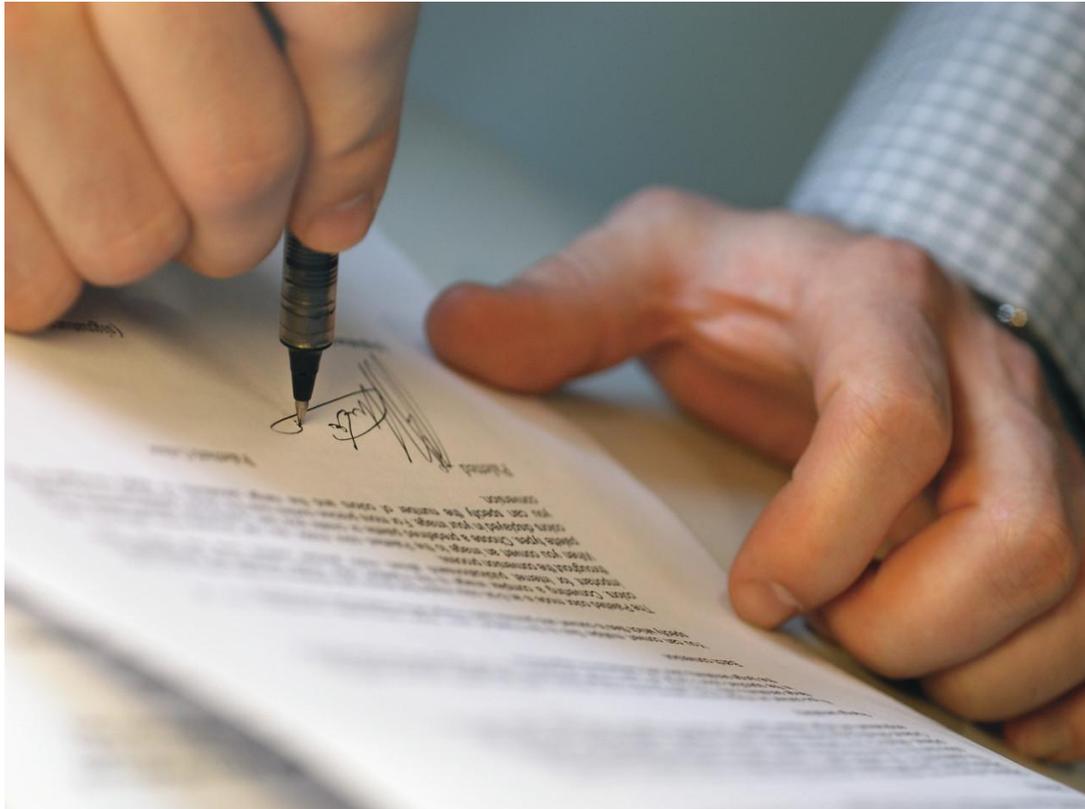
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Behavioral Health Administration



# What Might it Feel Like to Be Living with a Brain Injury?<sub>s</sub>

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Writing and processing exercise



# Introduction: <sup>s</sup>

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## Why is it important for Injury Prevention and other Public Health Professionals to have a working understanding of Brain Injury?

- Traumatic Brain Injury (TBI) is a leading cause of death and disability in the United States and across the globe
- A history of TBI is often hidden (**especially if incurred in childhood/adolescence**) among people with cognitive/intellectual disabilities, spinal cord injury, and those with behavioral health challenges (mental health and addiction)
- Individuals at high risk of incurring TBI(s) include vulnerable and marginalized communities with no or limited access to brain injury specific care, especially post acute care
- Systems and programs designed to support individuals across the service spectrum, including public health and public behavioral health providers may not be brain injury informed

For TBI incurred in Childhood, be thinking of how we can prevent/mitigate the following adverse consequences of TBI

# “Unidentified traumatic brain injury is an unrecognized major source of social and vocational failure.”

Dr. Wayne Gordon, Mount Sinai TBI Model System Program

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## People with TBI are over-represented:

- Among justice involved persons, adults as well as youth
- Among individuals who experience homelessness/housing instability
- In addiction services
- In mental health services
- Among those impacted by Intimate Partner Violence
- In members of the African and Native American and Alaskan Native communities
- Individuals impacted by racial and economic disparities
- Among those who serve/have served in the Armed Forces\*
- Among athletes—professional and amateur
- **A study in Arizona found that native Americans and African Americans are more likely to experience violence imposed TBI than Caucasian Americans**

**“Consequences are particularly related to impulsivity and self-regulation”<sup>s</sup>**

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*John Corrigan Ph.D.*

Remarks at the September 2018 National Association of State Head Injury Administrators conference, Des Moines Iowa, regarding the consequences of childhood brain injury.



# Brain Injury Through the Lifespan <sup>s</sup>

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- **Childhood TBI**
- **Mild and multiple mild TBIs incurred during youth/adolescence**
- Mild to moderate TBIs incurred in adulthood
- Mild to Severe TBIs incurred later in life, 65+
- Aging with Brain injury
- New onset of TBI among Older Adults

# Types of Brain Injury <sup>s</sup>

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- **Traumatic Brain Injury (TBI) Defined**

TBI is an insult to the brain caused by an external physical force, such as a fall, motor vehicle accident, assault, sports related incident, or improvised explosive device (IED) exposure

- **Acquired Brain Injury (ABI) Defined**

ABI is an insult to the brain that has occurred after birth, such as: TBI, stroke, near suffocation, infections in the brain, anoxia, and overdose(s)

# TBI-Mechanisms of Injury (CDC Surveillance report 2018 & 2019)

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## Intentional

- Suicide and homicides account for approximately 40% of TBI related deaths, with suicide responsible for the highest number and the highest rate of TBI related deaths for most states

## Unintentional

- Falls account for approximately 51% of nonfatal TBIs 30% of TBI related deaths
- Motor vehicle crashes
- Being struck by/against an object, animal or human, or force other than a vehicle or machinery
- Unspecified, may include undetermined intent, legal intervention, war, and suicide in 10 and younger

# Continuum of Traumatic Brain Injury (TBI) Severity <sup>s</sup>

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**Mild Traumatic Brain Injury (mTBI).** mTBI is also referred to as a concussion

80% of all TBIs are mild

This means brief or NO loss of consciousness (LOC) and/or post traumatic amnesia (PTA)

**Moderate Traumatic**

10–13% of TBIs are moderate

Loss of consciousness between 30 minutes to 24 hours, post traumatic amnesia of 1 to 24 hours

**Severe Traumatic Brain Injury**

7–10% of TBIs are severe

LOC >24 hours, PTA >24 hours

# TBI-possible root of adverse life outcomes <sup>M</sup>

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According to the Centers for Disease Control (CDC)

Across the life span in this country, at least **2.8 million** people sustain a new traumatic brain injury (TBI) each year. There were about **61,000** TBI related deaths in the US in 2019 -- that works out to roughly **166** related deaths a day

## **Children have the highest rate of emergency department (ED) visits for TBI of all age groups**

For those 14 years old and younger, the leading cause of ED visits, hospitalizations and death were unintentional falls and being struck by or against and object

For those 15-24 years of age, the leading causes were motor vehicle crashes and falls (2013)

Sports and recreational activities accounted for an estimated 325,000 TBI related ED visits among children and teens in 2012

About 15% of all U.S. high school students self-reported 1 or more sports or recreation-related concussions within the preceding 12 months

A review of the epidemiologic characteristics of repetitive TBI in the general population, excluding athletes and service members found that post injury, at least 5.5% of individuals experienced another TBI that required medical attention. Each subsequent injury can magnify disability thus increasing TBI burden, especially if the injuries occurred before the brain had recovered from the earlier injury. Risk factors included; male, alcohol intoxication, epilepsy, lower socioeconomic status  $m$

Lasry, O., Liu, E. Y., Powell, G. A., Ruel-Laliberté, J., Marcoux, J., & Buckeridge, D. L. (2017). Epidemiology of recurrent traumatic brain injury in the general population: A systematic review. *Neurology*, 89(21), 2198–2209. <https://doi.org/10.1212/WNL.0000000000004671>

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## Repetitive Traumatic Brain Injury

# Kids Living With a Mild Traumatic Brain (mTBI) Injury <sup>M</sup>

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Kids with mTBI were followed up to age 16 as part of a large behavioral health study. The researchers found, based on self and parent report, the students with a history of mTBI were more likely to:

- have hazardous alcohol use
- have problematic use of tobacco and cannabis
- be in trouble with the police
- having more parent-reported conduct problems

*These were young people KNOWN to have had a TBI. What about those whose mTBIs are unknown and are experiencing challenges that are not linked to an earlier brain injury?*

# Brain Injury by the Numbers, Maryland <sup>M</sup>

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According to the Maryland Department of Health Center for Environmental, Occupational, and Injury Epidemiology in 2018:

There were 4,221 TBI related hospitalizations and 15,205 TBI related emergency department visits, with some rural counties and Baltimore City especially hard hit.

# Traumatic Brain Injury mortality among U.S. Children and Adolescents 1999-2017 (1 of 2) <sup>M</sup>

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## The Good News

“TBI mortality from unintentional transportation crashes fell between 1999-2013 for children and adolescents (due to improved car and road engineering, better trauma care, child restraint device laws, graduated driver-licensing programs and the 2007-09 recession)” Journal of Safety Research, Chen et. al 2019

# Traumatic Brain Injury mortality among US Children and Adolescents 1999-2017 (2 of 2) <sup>M</sup>

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## The not so good news

- Since 2013, a gradual increase in pediatric TBI mortality
- TBI mortality rates were found to be higher among; boys, older children, and children in rural areas
- **This trend primarily driven by rise in suicide and homicide by firearm among those 10-19 years old, with 96% of suicide mortality related to firearms**

# Common Challenges After Brain Injury<sup>s</sup>

COGNITIVE/THINKING	EMOTIONAL	PHYSICAL
Memory and Attention	Depression and anxiety	Unsteady gait, poor coordination
Comprehension of what is being read or heard	Reduced or lack of awareness of functional impact of injury-imposed challenges	Slow or slurred speech
Communicating thoughts verbally or in writing	Disinhibition and impulsivity	Sensitivity to noise or light
Problem solving difficulties, impulse control and difficulty organizing thoughts, words and actions (aka executive skills)	Reduced frustration tolerance and irritability	Fatigue

# How cognitive challenges play out within a criminal/juvenile justice context <sup>M</sup>

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# Childhood/Adolescent TBI-language impairments and impact on interaction with the Criminal Justice System

Wszalek, Joseph A. BS; Turkstra, Lyn S. PhD. Language Impairments in

Youths With Traumatic Brain Injury: Implications for Participation in Criminal Proceedings. Journal of Head Trauma Rehabilitation 30(2):p 86-93, March/April 2015. | DOI: 10.1097/HTR.000000000000130 M

Common areas of challenge include:

- 1) understanding spoken and written language and
- 2) problems in expression (communicating via speaking and writing)

Leading to misunderstanding of verbal and nonverbal communication

Inability to take another person's perspective

Reduced ability to use language to meet the needs of your listener (how you would speak to your friend vs. how you would respond to an officer who approaches you in the community who asks, "What are you kids up to")

These challenges can have significant repercussions during an **initial encounter** with law enforcement, (can't follow a line of questioning), during **interrogation and communication of Miranda Rights** (language is abstract, youth may answer impulsively/risk incriminating themselves, as well as **competence to undergo trial proceedings** (language assessments are commonly not included in the battery of competency assessments)

# The Long Arm of Childhood TBI (1 of 2) <sup>M</sup>

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- More than 61% of children with moderate to severe TBI experience a disability
- In contrast, 14% of children with mild TBI experience a disability

Contributing factors that influence outcomes include:

- Age, pre-injury functioning
- Co-occurring conditions
- Socioeconomic status and family functioning

# The Long Arm of Childhood TBI (2 of 2) <sup>M</sup>

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According to a Christchurch, New Zealand study:

- Early childhood TBI, even if mild, may predispose people to later having **behavioral problems and/or involvement with law enforcement**
- People with an early childhood TBI, that resulted in at least one night in hospital, were found to be **three times more** likely as young adults to have alcohol or drug dependency

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# Adverse Childhood Experiences (ACES) & Brain Injury <sup>s</sup>

Guinn AS, Ports KA, Ford DC, Breiding M, Merrick MT. Associations between adverse childhood experiences and acquired brain injury, including traumatic brain injuries, among adults: 2014 BRFSS North Carolina. *Inj Prev*. 2019 Dec;25(6):514-520. doi: 10.1136/injuryprev-2018-042927. Epub 2018 Oct 13. PMID: 30317219; PMCID: PMC6462254.

# Adapted from Guinn et. al (1 of 2) <sup>s</sup>

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Adverse Childhood Experiences may represent a **step along a pathway that increases risk for Brain Injury via:**

Neglect by a parent that could lead to drowning, bicycle crash, physical abuse including strangulation and eventual health risk behaviors, such as substance use, which may cause a stroke, drug overdose or heart attack/failure

Four of the eight ACE types as well as cumulative ACE score, were significantly associated with TBI after adjusting for age, race/ethnicity, gender and self-reported income

These are: **Sexual abuse, physical abuse, household mental illness and an incarcerated household member**

# Adapted from Guinn et. al (2 of 2) <sup>s</sup>

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ACEs that were significantly associated with Acquired Brain Injury but not Traumatic Brain Injury include:

Emotional abuse

Household substance use

Compared with individuals with **0 ACEs**, the odds of reporting TBI by individuals with **3 or more ACEs increased by 416%**, and those reporting **4 or more ACEs, increased by 339%**

The authors state that, **“The findings from this study highlight the potential impact of preventing ACEs to reduce ABI, including traumatic brain injury.”**

# Looking at Consequences of TBI through a different lens <sup>M</sup>

Thank you to Judy Dettmer and our colleagues at the National Association of Head Injury Administrators [www.nashia.org](http://www.nashia.org)

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## Can't vs Won't

is it a willful dismissal of school and community rules and expectations or impaired cognitive ability to operationalize intent?

## Skill vs Will?

If we believe children have the skills but *choose* not to use it, might we be more likely to think punishment?

If we think they don't *have* the skills, might we be more likely to think of engagement and retention strategies and teaching the skill or skills *and* consider the implications of a known or unknown history of brain injury?

# “The only cure for Traumatic Brain is Prevention” at the risk of stating the obvious <sup>M</sup>

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Youth and Adults:

- Helmets
- Seatbelts
- Properly restraining children in motor vehicles
- Don't drive OR walk while under the influence
- Wear reflective garb at night while walking/jogging
- Follow concussion protocols for return to play and return to learn “when in doubt, sit it out”

# Prevention and Mitigation strategies for children and youth (1 of 2)<sub>s</sub>

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- Non-contact or flag football programs may be a safer alternative for reducing head impacts and concussion risk for youth football athletes under age 14
- Use of child safety seat or seat belt
- Helmets appropriate to the activity, e.g., bike helmet
- Children should not sit in the front seat of a vehicle till they are at least 13
- Children should not “head the ball” when playing soccer recommended safe age range from 12-18 years old

# Prevention and Mitigation strategies for children and youth (2 of 2)<sub>s</sub>

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- Follow return to play and return to learn guidance (see resources)
- As children with a history of brain injury age, check in at the point of major developmental milestones, e.g., elementary to middle, middle to high school.
- Be mindful of co-occurring behavioral health issues that may emerge, depression, self-harm/suicidal ideation, problematic substance use

# Adapted from the Behavioral Health Guide: Considerations for Best Practices for Children & Adults

<https://tinyurl.com/48vdmww8>

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- Return to learn/play post brain injury is monitored by appropriate professionals
- Prolonged exposure treatment for children with post-TBI post-traumatic stress disorder
- Problem-solving treatment for post-TBI psychosocial functioning (adolescent internalizing behavior and depressive symptoms)
- Positive parenting skills program for post-TBI child behavior and parenting skills
- Cognitive Behavioral Therapy for post-TBI psychological adjustment (self-management and compliance)- Dr. Shari Wade and colleagues have been studying a problem-solving approach to reduce adolescent behavioral morbidity post injury. A recent study of utilizing in an online format found, “results support the utility of problem-solving in improving functional outcomes after TBI, particularly for youth of lower socioeconomic status [tinyurl.com/mp2765un](https://tinyurl.com/mp2765un)

# Think about potential cracks that a child living with a known or unknown history of brain injury might fall through<sub>M</sub>

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The loss of structure that can lead to adverse consequences because of brain injury related behavioral dysregulation

- Vacations
- Summers
- After school programs that don't have the knowledge of accommodations and supports that are provided during a child's school day (much thanks to Amanda Tower, Massachusetts Rehabilitation Commission, TBI Project Director for this observation)

# Be Brain Injury Informed: Childhood and Beyond <sup>M</sup>

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- Screen for a history of Brain Injury across all programs and systems
- Look for signs and symptoms of brain injury
- Don't assume poor follow through and/or engagement in services is volitional
- Educate program participants about the risk of acquired brain injury secondary to opioid use as well as the increased risk of traumatic brain injury secondary to alcohol use related falls, fights and motor vehicle/pedestrian accidents
- Offer and model simple strategies
- “When you think you are done, you are not” individuals living with brain injury and co-occurring substance use related disorders benefit from long term follow up and supports
- Make appropriate referrals for specific brain injury related supports and services when indicated

# Resilience, TBI and Children (1 of 2)

M Jessica N. Holland, Adam T.

Schmidt, "Static and Dynamic Factors Promoting Resilience following Traumatic Brain Injury: A Brief Review", *Neural Plasticity*, vol. 2015, Article ID 902802, 8 pages, 2015.  
<https://doi.org/10.1155/2015/902802>

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## Static Protective Factors

- Age: older children tend to recover better over time
- Sex: females, in general show a more accelerated trajectory of recovery (presence of progesterone?)
- Intellectual Abilities/Education: individuals with higher preinjury intelligence/cognitive abilities have a better recovery trajectory
- Preinjury Psychiatric History: is a risk factor for post injury psychiatric disorders, both preinjury and novel disorders- addressing common pre and post injury depression and/or anxiety can play a part in promoting resilience

# Resilience, TBI and Children (2 of 2)

M Jessica N. Holland, Adam T. Schmidt,

"Static and Dynamic Factors Promoting Resilience following Traumatic Brain Injury: A Brief Review", *Neural Plasticity*, vol. 2015, Article ID 902802, 8 pages, 2015.  
<https://doi.org/10.1155/2015/902802>

## Dynamic Protective Factors

- Socioeconomic Status: impacts post injury access to appropriate medical/rehabilitation care
- Family resources can be related to better recovery of emotional processing skills
- Family Functioning/Social Support: research suggests family stress impacted academic recovery, and that warm parental style may reduce TBI related behavioral problems
- Nutrition: currently most studies that look at nutrition and brain injury recovery have been conducted with animals. The authors recommend this area be addressed as the brain is “highly metabolic” and the benefits of such things as omega-3 fatty acids and micronutrients may prove beneficial to the recovering brain
- Exercise: again animal studies predominate in this area of study, however there have been some studies that suggest that low-intensity aerobic exercise has a positive impact on recovery post mild TBI. In both animals and humans, exercise has been shown to increase neurogenesis in the hippocampus, a part of the brain that is responsible for consolidation of new learning and is negatively impacted by both traumatic and acquired brain injury. Exercise may facilitate the health/functioning of the hippocampus

# Back to Life...

One person's return to "the real world" after a Traumatic Brain Injury



# Headline (1 of 2)

## INDEX

Commentary .....4  
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Comics/Crossword/Horoscope .....6

## WEATHER

Today: Sunny/low 80s  
Tonight: Clear/50s  
Tomorrow: Sunny/mid 70s

89<sup>th</sup> YEAR

MONDAY, SEPTEMBER 28, 1998

NO. 20

# The Diamondback

YOUR INDEPENDENT STUDENT NEWSPAPER ♦ UNIVERSITY OF MARYLAND, COLLEGE PARK

## SPORTS

The unranked Terrapin men's soccer team grabs a 3-2 overtime victory against No. 1 Duke at Ludwig Field. Page 8.



# Man is killed crossing Route 1



**ACCIDENT SCENE**  
Between 10 and 11 p.m. Friday, a man was hit by a car and killed while crossing the street at the intersection of Route 1, Regent Drive and College Avenue, Prince George's County Police said. Witnesses said the man and a group of people were crossing Route 1 against a green light when a silver Honda Prelude struck the man in the northbound lane.

## Accident: Witnesses say the victim and a group of people crossed the street against a green light.

By LISA PHELAN  
Diamondback staff writer

A man was killed Friday night when a silver Honda Prelude traveling north on Route 1 struck him between 10 and 11 p.m., said Prince George's County Police spokesman Cpl. Duane Richardson. Witnesses said the victim was crossing Route 1 against a green light with a group of men from near Planet X in the area in front of the Bagel Place. Richardson said there was no

official police report on the accident yesterday afternoon, but did confirm the victim had died. She did not know if the man was a student. The Prince George's County Police Collision Analysis Unit is handling the investigation. No one from that unit could be reached for comment. "If we have a serious accident where we suspect someone may die, we call in the unit," Lt. Ed Burke said Friday night. "It's not handled by a regular beat officer."

Jamie King-Morris, a freshman

chemistry major at Prince George's Community College, was sitting on the stone wall near Planet X when the accident occurred. "I will never get that sound out of my head," she said. "It sounded like two cars hitting each other." King-Morris said she heard the screech of brakes before the impact. She said the driver of the vehicle then got out of the car, started screaming for help and waving his hands, then yelled for someone to call 911.

A Terrapin Station bartender

who saw the incident called 911 immediately. George DeGennaro, a Terrapin Station bouncer who was working the bar's outside door when the accident happened, said he went over to where the victim lay after he was hit. "There was blood coming out of his mouth, his face ... there was blood everywhere," DeGennaro said. Another Terrapin Station employee said he heard one of the people the

Please See ACCIDENT, Page 2

## Accident: Man is killed while crossing Route 1

Continued from Page 1

victim was crossing the intersection with say, "Oh my god! ... He just got hit," then the group ran away from the scene. He said the car that struck the man seemed to be traveling the same speed as the rest of traffic.

Witnesses said an ambulance and police arrived within minutes after the incident. King-Morris and Shilo Lillis, a junior at Greenbelt's Eleanor Roosevelt High School who also saw the incident, said "There was a lot of commotion, a lot of fire

trucks." "It looked like he [the victim] saw the car coming at the last minute, and by that time, he couldn't really do anything," said Mike Samuels, a sophomore undecided major at Montgomery College who was sitting outside the

Bagel Place when the accident happened. "It looked like his left leg was pretty much just hanging there when he was on the ground." Police closed off the surrounding areas with flares and police tape.

# Headline (2 of 2)

## INDEX

Commentary .....4  
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## WEATHER

Today: Sunny/high 70s  
Tonight: Cloudy/low 60s  
Tomorrow: Showers/mid 70s

89<sup>TH</sup> YEAR

TUESDAY, SEPTEMBER 29, 1998

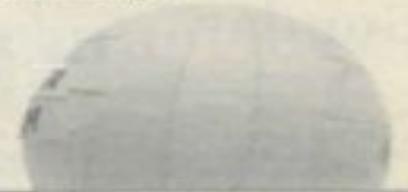
NO.21

# The Diamondback

YOUR INDEPENDENT STUDENT NEWSPAPER ♦ UNIVERSITY OF MARYLAND, COLLEGE PARK

## SPORTS

The Terrapin volleyball team defeats American, 3-0, last night at Ritchie Coliseum. Page 9



# Student struck on Rt. 1 not dead

## Accident: A sophomore is in critical condition with head injuries.

BY DANIELLE NEWMAN  
*Diamondback staff writer*

The campus student who was hit by a car Friday night on Route 1 is not dead, contrary to information released Sunday by Prince George's County Police, said Cpl. Steven Markley.

Martin Kerrigan, an 18-year-old sophomore letters and sciences major from New Jersey, was in critical condition last night at Prince George's Hospital Center, a hospital employee said over the telephone. Markley said the man was

crossing at Route 1 and College Avenue against a green light at 10:30 p.m. A car in the left northbound lane braked to avoid hitting Kerrigan, and a silver Honda Prelude swerved to the right lane, where there were no cars, to avoid hitting the first car.

The Honda hit Kerrigan in the right northbound lane traveling about 40 miles per hour, Markley said. Kerrigan sustained serious head injuries from the accident after colliding with the Honda's hood and windshield.

The driver of the Honda, James Bochnock, was charged with violations not related to the accident, Markley said, including driving with a suspended license and registration.

Markley said the driver was not under the influence of alcohol and has no campus affiliation. Markley did not know if Kerrigan had been drinking.

Witnesses saw Kerrigan and a group of people walking across Route 1 toward the Bagel Place.

Jamie King-Morris, a Prince George's County Community

College student who saw the accident, said she heard the screech of brakes before the car hit Kerrigan.

She said the driver of the Honda got out of the car after he hit Kerrigan, began screaming and waving his hands and yelled for someone to call 911.

Witnesses said the ambulance arrived within minutes and took Kerrigan to the hospital.

George DeGennaro, a Terrapin Station bouncer who was working the bar's outside door when the accident happened, said he went over to where the

victim lay after he was hit.

"There was blood coming out of his mouth, his face ... there was blood everywhere," DeGennaro said.

Members of the Kappa Sigma fraternity, where Kerrigan is a boarder, said although they didn't get a chance to "really know Marty," their prayers are with him.

"We're all extremely sad about this," said Mike Margolius, an acquaintance of Kerrigan and Kappa Sigma president. "We hope everything works out for the best."

**PHOTO**  
Sophomore letters and sciences major Martin Kerrigan was hit by a car Friday night on Route 1.

**FACT:** A silver Honda Prelude hit Kerrigan in the right northbound lane of Route 1 as he crossed toward the Bagel Place.

**FACT:** Police said alcohol was not a factor and did not charge the driver with anything related to the accident.

**FACT:** Kerrigan was in critical condition last night at the Prince George's Hospital Center.

# Early prognosis

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- Diagnosis of a severe Traumatic Brain Injury
- Minimally conscious state, coma, for approximately 8 days
- Also sustained orthopedic injuries, fractured humerus and cracked ribs, as well broken teeth, vision damage, and severe lacerations to hand
- Medical personnel were hesitant to make any long term prognosis but did their best to prepare the family for what life could possibly look like following an injury of this magnitude

# Return to the “real world”

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- Returned to college 4 months following TBI
  - **2 months post inpatient hospitalization**
- Started off by taking 1 class at the local community college
- 6 months post injury started working again, first part time then full time
- Got driver’s license back, 7 months after accident
- The following fall, 11 months after injury, returned to college as full time student

# Looking Good

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- Return to Division 1 athletics
- Dean's list every semester
- Accepted into graduate school
- Began dating again
- Living independently
- Working a full time job

# What was really going on

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- Trying to establish a new identity
- Pride/ego played a huge role
- Difficulties with memory were a huge challenge
- Thinking they could do life the way they always had and still get the same results
- Struggles were just as much, if not more, from **adjusting to life with a brain injury** as they were being a student with a brain injury!

# Struggles

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- Learning who the “new you” is
- Coming to terms with the loss of old life
- Partying like they had prior to their injury
  - Substance abuse
  - Multiple arrests, legal trouble, damaged relationships



# What happened

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- Life was a mess and hit “rock bottom”
- Consequences included legal system and substance abuse rehabilitation
- Admitting when they needed help and then reaching out and getting that help
- Long term sobriety has included 12 step program
- Long term success has been as much the result of awareness of the impact of the TBI on my life as has **educating others** about brain injury and how it impacts me

# **Resilience following TBI-case study of a 17 year and with a severe TBI and her family <sup>M</sup>**

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## **Characteristics related to this Family's Resilience**

1. “Fighter personality”
2. Cultural and spiritual beliefs
3. Practicing sports and leisure activities
4. Back to school support and
5. Feeling helpful to the injured family member

Gauvin-Lepage J. Traumatic Brain Injury in Adolescence and the Family Resilience Process: A Case Study. SAGE Open Nurs. 2019 May 8;5:2377960819848231. doi: 10.1177/2377960819848231. PMID: 33415241; PMCID: PMC7774431.

# Screening and Assessment Tools <sub>s</sub>

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- The Brain Check Survey: [tinyurl.com/2p9yxjhw](https://tinyurl.com/2p9yxjhw)
- The Brain Check Survey Scoring Instructions: [tinyurl.com/2p8vsfjf](https://tinyurl.com/2p8vsfjf)

These two tools were developed by the Colorado State University Department of Occupational Therapy Life Outcomes after Brain Injury Program. [tinyurl.com/4nvi8bjj](https://tinyurl.com/4nvi8bjj)

# Additional Resources to Support Children at Home, School and Community after experiencing a TBI s

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- The National Association of State Head Injury Administrators (NASHIA) offers a number of resources on their website, [nashia.org/resources-list?category=Children%20and%20Youth](https://nashia.org/resources-list?category=Children%20and%20Youth) including guides to returning to learn, the Office of Special Education Programs new Fast Facts regarding children identified with a TBI as well as materials from the National Collaborative on Children's Brain Injury
- On May 31, 2023, the Traumatic Brain Injury Technical Assistance and Resource Center (TBI TARC) offered a webinar on the topic of Brain Injury and Child Welfare: An Introduction to the Best Practice Guide, a recording of the webinar can be found here: [https://us06web.zoom.us/rec/share/-Kfy80HJY1dnEumLGpT-\\_gevH\\_F4xxwljZgrNG9u6ZIt86WIk4Avv7B1P9lqb6U7.5KXsvXToYwT8\\_I-S](https://us06web.zoom.us/rec/share/-Kfy80HJY1dnEumLGpT-_gevH_F4xxwljZgrNG9u6ZIt86WIk4Avv7B1P9lqb6U7.5KXsvXToYwT8_I-S), the slides, that contain many resources can be downloaded here: <https://www.hsri.org/publication/brain-injury-and-child-welfare-best-practice-a-guide-and-tools-for-state-ag>

# TBI Research and Prevention efforts at the CDC <sup>s</sup>

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- National Concussion Surveillance System-bill signed into law in 2018
- TBI Surveillance Report for 2018-2019  
[cdc.gov/traumaticbraininjury/pdf/TBI-surveillance-report-2018-2019-508.pdf](https://www.cdc.gov/traumaticbraininjury/pdf/TBI-surveillance-report-2018-2019-508.pdf)
- Education and outreach initiatives such as HEADS UP trainings and materials  
[cdc.gov/headsup/about/index.html](https://www.cdc.gov/headsup/about/index.html)

# Brain injury in youth: Great short video <sup>M</sup>

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# Questions?

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# Sources:

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- [https://www.cdc.gov/traumaticbraininjury/pdf/tbi\\_report\\_to\\_congress\\_epi\\_and\\_rehab-a.pdf](https://www.cdc.gov/traumaticbraininjury/pdf/tbi_report_to_congress_epi_and_rehab-a.pdf)  
Traumatic Brain Injury in the United States: Epidemiology & Rehabilitation
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# Thank you!

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