NOTE: THE TBI ADVISORY BOARD CREATES A COVER PAGE FOR THE REPORT.

TBI Advisory Board Report 2022 COVER PAGE

Maryland
DEPARTMENT OF HEALTH

Wes Moore, Governor · Aruna Miller, Lt. Governor · Laura Herrera Scott, M.D., M.P.H., Secretary

May 13, 2024

The Hon. Wes Moore
Governor
State of Maryland
100 State Circle
Annapolis, MD 21401–1991

The Hon. Bill Ferguson
President of the Senate
Maryland General Assembly
H-107 State House
Annapolis, MD 21401–1991

The Hon. Adrienne Jones
Speaker of the House
Maryland General Assembly
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200 West Baltimore Street
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Secretary
Maryland Department of Health
201 W Preston Street
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Secretary
Maryland Department of Disabilities
217 Redwood Street, Suite 1300
Baltimore, MD 21202

Re: Health-General § 13–2105—State Traumatic Brain Injury Advisory Board Annual Report - 2022 (MSAR # 10380)

Dear Governor Moore, President Ferguson, Speaker Jones, Superintendent Wright, and Secretaries Herrera-Scott and Beatty:

Pursuant to Maryland Health-General §13–2105, the Maryland Traumatic Brain Injury Advisory Board respectfully submits its annual report for 2022.

The views in this report reflect those of an independent group of experts with a broad range of personal and professional experience both in Maryland and nationally. The information and recommendations in this report are intended to educate policy makers and influence state policy and does not necessarily reflect the current views of the state agencies involved.

If you have any questions regarding this report, please contact Stefani O'Dea, Director of the Office of Older Adults and Long Term Services and Supports, Maryland Behavioral Health Administration, at (410) 402-8300 or Stefani.odea@maryland.gov.

Sincerely,

Martin Kerrigan
Chair, Maryland Traumatic Brain Injury Advisory Board

Enclosure

cc: Marie Grant, Assistant Secretary of Health Policy
Alyssa Lord, Deputy Secretary for Behavioral Health,
Sarah Case-Herron, Director, Office of Governmental Affairs
Sarah Albert, DLS (5 copies)

TABLE OF CONTENTS

PREFACE

Every brain is different. Every brain injury is different. Every brain injury recovery is different. Therefore, it is vital to listen to various voices when determining what recommendations should be forwarded to Maryland's Governor and other policymakers. The views in this report reflect a broad range of experiences, including those of individuals with brain injuries, family members of those with brain injuries, professional healthcare providers, educators, lawyers, law enforcement members, state government representatives, and non-profit advocacy groups.

The 36 voting members each volunteer their time, energy, and expertise to the State Traumatic Brain Injury Advisory Board (TBIAB), initially introduced in 2005 by Senate Bill 395, Chapter 306 of the Laws of Maryland. Board members review available data and publications, and promising practices from other states. TBIAB values the input of individuals who are living with a traumatic brain injury (TBI)-related disability and family members who are caring for individuals with TBI. The information and recommendations in this report are intended to educate policymakers and influence state policy. They do not necessarily reflect the current views of the state agencies involved.

The TBIAB is charged with investigating the needs of citizens with TBI, identifying gaps in services to citizens with traumatic brain injuries, facilitating collaboration among Maryland agencies that provide services to individuals with traumatic brain injuries, and encouraging and facilitating community participation in program implementation.

The Maryland Annotated Code's Health-General Article (HG) § 13–2105(6) requires the TBIAB to submit an annual report summarizing the actions of the TBIAB and containing recommendations for:

1. Providing oversight in acquiring and utilizing state and federal funding dedicated to services for individuals with traumatic brain injuries;
2. Building provider-capacity and provider training that addresses the needs of individuals with traumatic brain injuries; and
3. Improving the coordination of services for individuals with traumatic brain injuries.

HG § 13–2105(6) also requires the TBIAB to include information concerning the services provided and the number of individuals served in the preceding fiscal year, which is discussed in the Maryland Department of Health's (Department) report on the State Brain Injury Trust Fund under HG § 13–21A–02.

EXECUTIVE SUMMARY

Brain injury is the leading cause of injury-related death and disability in the United States. Brain injury may occur from a traumatic or a non-traumatic cause. Each year brain injury results in more than 3,000 hospitalizations and 14,000 emergency department visits for Marylanders of all ages.[1]

Maryland has an array of services available to individuals with disabilities; however, few are specialized for the needs of individuals living with brain injury. Service gaps in Maryland largely revolve around the lack of coordination and linkage to available services and supports, limited access to case management, misdiagnosis or under-identification of brain injury by educators and human service professionals, and inadequate clinical services to support individuals who experience neurobehavioral issues following a brain injury.

The TBIAB's recommendations for Maryland are intended to address these service gaps and reduce the public health burden of brain injury through appropriate resource linkage, training, effective screening practices, and availability of specialized services.

I. Appropriately identify children and youth with brain injuries.

II. Implement brain injury screening protocols and offer treatment accommodations to individuals receiving behavioral health services (mental health and substance use disorders) and to those incarcerated in jails and prisons.

III. Expand and improve services offered through the Maryland Brain Injury Waiver.

V. Establish a central, publicly available repository of TBI surveillance data to ensure that Marylanders who sustain these injuries and their families are provided information and linkage to available resources and assistance.

[1] Maryland Department of Health Center for Environmental, Occupational, and Injury Epidemiology, Traumatic Brain Injury (TBI)-related Emergency Department (ED) Visits and Hospitalizations: Maryland 2016–2019 (Oct. 16, 2022).. Data Source: Health Services Cost Review Commission

Overview of Brain Injury

Injuries to the human brain occur from traumatic and non-traumatic causes. Traumatic Brain Injuries (TBI) are caused by external forces to the brain. Popularly known causes are contact sports and blast injuries; additional causes include:

- Penetrating gunshot wounds to the head,
- Motor vehicle and bicycle crashes,
- Falls,
- Intimate partner violence,
- Childhood physical abuse,
- Lead poisoning,
- Drug overdose(s), and
- long-term neurocognitive and neuropsychiatric complications from the coronavirus disease 2019

The degree or extent of brain tissue damage determines the severity and classification of the injury into mild, moderate, or severe. In addition, the individual's neurologic signs and symptoms, duration of loss of consciousness and coma, length of amnesia (memory loss), and brain scans facilitate the determination and measurement of the degree of damage. Table 1 shows the classification based on the Degree of Damage to the brain.

Symptoms and recovery

Symptomatic presentation and recovery vary widely among individuals with brain injury despite the severity. Symptoms can include headaches, fatigue, mood disorders, post-traumatic epilepsy, impaired mobility, coordination, dexterity, memory, learning, attention, sleep, and sense of sight, hearing, vision, taste, and smell. In addition, behavioral outcomes are worse in approximately twenty percent of individuals with a history of TBI that developed a post-TBI seizure disorder.

The functional deficits in cognition, physical abilities, and behavioral health vary from person to person and depend on various factors, including; age at the time of injury, appropriate and timely access to medical care, and support and services. In mild traumatic brain injury cases, most individuals recover within two weeks; some individuals, however, experience a difficult recovery course, particularly those with multiple mild brain injuries. Multiple mild brain injuries are common in individuals who served in the armed forces, athletes, victims of intimate partner violence, and children exposed to abuse. Long-term negative outcomes are rare in a single case of mild TBI. However, multiple occurrences can result in increased levels of disability with each mild injury incurred, especially if they occur within close proximity.

Adverse effects of brain injury

History of brain injury is associated with challenges in obtaining and maintaining employment, interpersonal challenges, difficulties in school, the onset of mental illness and substance use disorders, increased risk of incarceration and involvement with the criminal justice system, dementia, and early death.

Research from the TBI Model Systems estimates that individuals living with moderate to severe brain injury have a reduced life span of nine years compared to their uninjured peers.

Caregivers of people with brain injury also report stress, grief, and loss. They may also experience adverse health effects, including stress-related disorders and depression. In addition, in taking on the role of caregiver, family members can experience a loss of income as they may drop out of the workforce to provide unpaid care to their loved ones.

Brain injury incidence data

National incidence data
Brain injury is a preventable public health issue and a leading cause of injury-related death and disability in the United States.
According to the Centers for Disease Control and Prevention:

- There were 223,135 TBI-related hospitalizations in 2019 (611 per day) and
- 64,362 TBI-related deaths in 2020 (176 per day).
- Individuals aged 75+ had the highest rates/numbers of TBI-related hospitalizations and deaths, accounting for 32% and 28% of TBI-related hospitalizations and deaths, respectively.
- Males are twice as likely to be hospitalized and three times more likely to die than females.
- Children (birth to age 17) had 16,070 TBI-related hospitalizations in 2019 and 2,774 TBI-related deaths in 2020.
- The data mentioned above does not include TBIs treated in Emergency Departments (EDs), primary care,urgent care or untreated TBIs.

Maryland incidence data
According to the Maryland Department of Health Center for Environmental, Occupational, and Injury Epidemiology, in 2019, 3,351 TBI-related hospitalizations and 14,705 TBI-related ED visits in Maryland happened. However, the above mentioned data does not contain the TBI-related ED visits and hospitalizations data. In addition, other acquired causes of brain injury that do not fall under the TBI diagnosis data are not represented also.

Although the data are not yet available, the Maryland Department of Health now includes several “state-added” brain injury questions to the annual Behavioral Risk Factor Surveillance System (BRFSS) questionnaire. (BRFSS) Figures I and II are the annual rate of TBI-related ED visits and hospitalizations from 2016–2019, respectively.

Preventing traumatic brain injury

The TBIAB supports the effective treatment, rehabilitation identification, and decreasing risk factors for TBI and its associated disability. Prevention strategies to reduce the likelihood of sustaining a brain injury include:

- The use of seatbelts in motor vehicles,
- wearing of helmets or appropriate headgear in contact sports,
- evaluating fall risk factors for older adults, and
- ensuring play areas are safe for children.

Other equally important prevention efforts include:

- substance abuse and overdose prevention efforts,
- intimate partner violence resources,
- infection prevention,
- pedestrian safety awareness,
- suicide prevention efforts,
- individualizing practices within behavioral health professionals to screen for a lifetime history of brain injury, and
- targeted prevention and outreach to individuals with brain injury would reduce the rate of substance abuse among individuals with brain injury and reduce the chance of overdose-related brain injuries.

Services, supports, and gaps in Maryland

Maryland has an array of services available to individuals with disabilities; however, few are specialized for the needs of individuals with brain injury.
Services and supports currently available to Marylanders with brain injury include:

- trauma and emergency services,
- inpatient and outpatient rehabilitation,
- long-term services and supports (institutional services such as home- and community-based and nursing facility services),
- special education services educational accommodations for students,
- behavioral health services,
- case management, and
- active support from advocacy organizations.

The gaps in services in Maryland include:

- the absence of services in many geographic areas in the State,
- the need for coordination and specialization of services and supports,
- limited access to case management,
- misdiagnosis or under-identification of brain injury by educators and human service professionals, and
- inadequate clinical services to support individuals experiencing neurobehavioral issues following a brain injury.

See Appendix A for additional details related to services and service gaps.

MARYLAND ACCOMPLISHMENTS

Since the establishment of the TBIAB, progress has been made to improve the systems of services available to Marylanders with brain injury. Through active participation in a multitude of committees, workgroups, and task forces, the TBIAB has successfully advocated for policy changes, including the creation of the State Dedicated Brain Injury Trust Fund, the support of the concussion bill, the implementation of meaningful changes to the Brain Injury Waiver, the application of brain injury screening protocol for certain public behavioral health services, and the adoption of ongoing protections for Maryland's motorcycle safety laws.

RECOMMENDATIONS FOR MARYLAND

The following are recommendations to reduce the public health burden of brain injury through appropriate resource linkage, training, effective screening practices, and the availability of specialized services. They include:

1. Explore the implementation of activities to appropriately identify children and youth with brain injuries through collaboration with local education agencies - through the inclusion of questions to capture the incidence of brain injury or loss of consciousness suffered by the student through the special education identification process.
2. Explore the implementation of brain injury screening protocols and treatment accommodations for individuals receiving public behavioral health services and those incarcerated in jails and prisons by
    a. Convert the TBI screening questions currently built into the authorization process for two mental health services to mandatory responses (they are currently optional questions
    b. Expand the questions to additional public behavioral health service authorization workflows.
3. Expand and improve services offered through the Maryland Brain Injury Waiver
    a. Explore options to improve the quality and quantity of resources for people with complex needs resulting from brain injury by:
    b. Modify the eligibility for the Brain Injury Waiver to allow access from private nursing facilities; and
    c. Study the individual support service rate to determine what increase is needed to promote utilization of this waiver service.
4. Support a system of coordinated case management and support services for people with brain injury who are not eligible for Maryland's Brain Injury Waiver Program by:
    a. Allocating appropriate state general funds to the Trust Fund;
    b. Implementing a system to provide services outlined in the statute.
5. Establish a central, publicly available repository of TBI surveillance data and ensure that Marylanders who sustain these injuries and their families are provided information and linkage to available resources and assistance.
6. Facilitate the public availability of TBI surveillance data and resources for prevention efforts, resource allocation, education, resource linkage, and advocacy.
7. Facilitate linkage to available resources for individuals with brain injury and their families

Appendix A

Table1. Degree of Damage to the Brain

Severity of Injury	**Percentage Affected**	**Signs and Symptoms**
Mild TBI	80% of all brain injuries-characterized by no loss of consciousness or a loss of consciousness (LOC) of less than 30 minutes and/or a period of confusion referred to as post traumatic amnesia (PTA) of less than 60 minutes	• Vomiting & dizziness • Lethargy • Memory loss for the period immediately, before and after the injury and difficulty attending to and learning new information during this time period (PTA)
Moderate TBI	10–13% of all brain injuries-characterized by LOC of 30 minutes to 24 hours, and PTA of 1–24 hours	• Signs of brain injury including bleeding, contusions • Period of time (PTA) where memory and learning are impacted is longer than after a mild TBI • Signs of injury to the brain injury evident on a CAT scan or other neuroimaging assessments
Severe TBI	7–10% of all brain injuries-characterized by LOC and PTA greater than 24 hours	• Unconsciousness (coma) for over 24 hours, can last days, weeks, months, or years • No sleep/wake cycle during period of coma • Signs of injury to the brain evident on a CAT scan or other neuroimaging assessments

Figure 1. Mean annual rate of TBI related ED visit by county of residence, Maryland 2016-2019

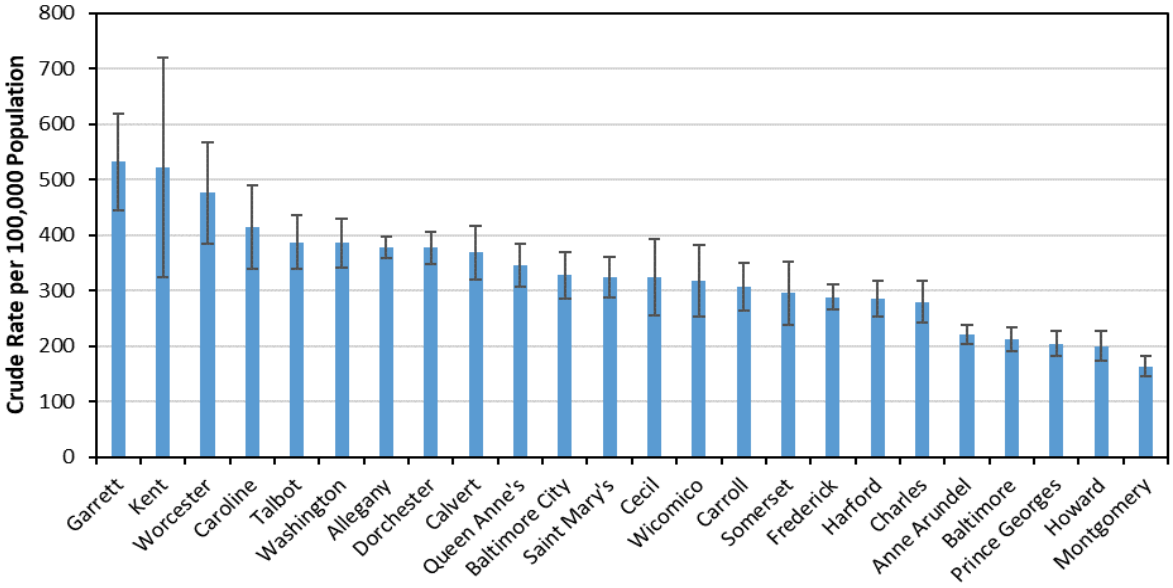
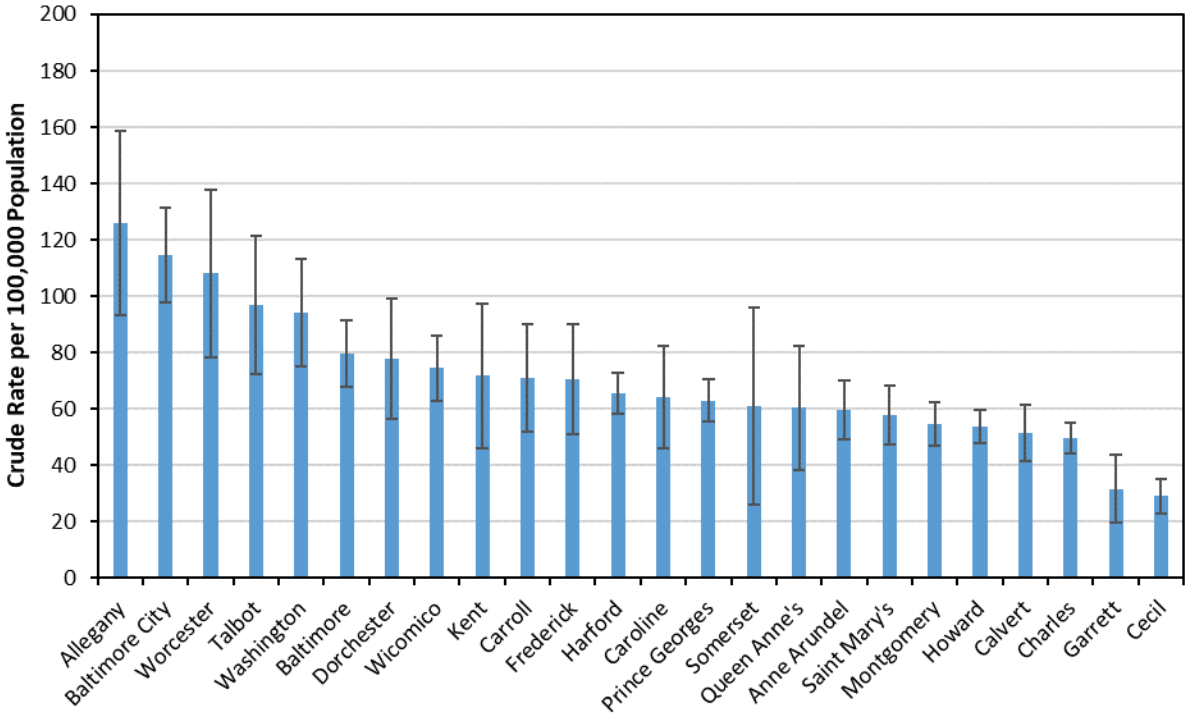


Figure 2. Mean annual rate of TBI related hospitalizations by county of residence, Maryland 2016–2019



Appendix B

Causes of Brain Injury

The human brain can be injured in many ways such as contact sports, or blast injuries during military conflict. When brain injuries are discussed, professional football players and Veterans come to mind as high risk groups, however, other groups impacted include residents of urban areas, particularly those of color, who experience brain injury from penetrating gunshot wounds to the head[2],motor vehicle and bicycle crashes. Falls causing brain injury are a significant problem among our growing aging population. Some of the underrecognized causes of brain injury include intimate partner violence, childhood physical abuse, lead poisoning, drug overdose(s), and most recently, long-term

[2] The Center For Injury Prevention And Policy, R Adams Cowley Shock Trauma Center, University Of Maryland, Prevention Matters: Violence Prevention, available at https://www.umms.org/ummc/-/media/files/ummc/health-services/shock-trauma/center-injury-prevention-policy/violence-prevention/center-for-injury-prevention-and-policy-violence-prevention-fact-sheet.pdf?upd=20180517192532&la=en&hash=0972CD6C6947AE0D744E0EB90F9D3102662EC0D1 (all Internet materials as last visited October 23, 2020).

neurocognitive and neuropsychiatric complications from the coronavirus disease 2019 (COVID-19) outbreak, or Long Covid[3].

What is an Acquired Brain Injury?

An Acquired Brain Injury (ABI) is defined as damage to the brain, which occurs after birth not related to a congenital or a degenerative disease.[4] ABI may occur from a traumatic injury or a non-traumatic injury or disease and affects individuals of all ages. Causes include strokes, infections of the brain such as viral encephalitis, brain tumors, and loss of oxygen to the brain caused from a heart attack, choking, near drowning, drug overdose, carbon monoxide poisoning or other anoxic or hypoxic conditions.

What is a Traumatic Brain Injury?

A Traumatic Brain Injury (TBI) is caused by external forces to the brain including motor vehicle crashes, motorcycle and scooter crashes, falls, assaults, sports injuries, explosive blasts, gunshot wounds to the head, objects falling on the head, and sharp objects penetrating the skull.

Severity of injury
"Severity of injury" refers to the degree or extent of brain tissue damage. Brain injury may be classified as mild, moderate, or severe, depending on the individual's neurologic signs and symptoms.[5] The degree of damage is estimated by measuring the duration of loss of consciousness and coma, length of amnesia (memory loss), and brain scans.[6]

SYMPTOMS & RECOVERY
Each individual's presentation of symptoms and recovery varies widely despite the severity of brain injury. Therefore, it is essential to note that the functional deficits in the areas of cognition, physical abilities, and behavioral health vary from person to person depending on a variety of factors, including; age at the time of injury, appropriate and timely access to medical care, and access to support and services. Brain injury symptoms can consist of impaired mobility, coordination, dexterity, memory, learning, attention, sleep, and sense of sight, hearing, vision, taste, and/or smell. Additional reported symptoms are headaches, fatigue, mood disorders, and post-traumatic epilepsy. Approximately twenty percent of

[3] Manukyan P, Deviaterikova A, Velichkovsky BB, Kasatkin V. The Impact of Mild COVID-19 on Executive Functioning and Mental Health Outcomes in Young Adults. Healthcare (Basel). 2022 Sep 28;10(10):1891. doi: 10.3390/healthcare10101891. PMID: 36292338; PMCID: PMC9601355.
Monje M, Iwasaki A. The neurobiology of long COVID. Neuron. 2022 Nov 2;110(21):3484-3496. doi: 10.1016/j.neuron.2022.10.006. Epub 2022 Oct 7. PMID: 36288726; PMCID: PMC9537254.
[4] Kamalakannan, Gudlavalleti, Gudlavalleti, Goenka, and Kuper, Challenges in understanding the epidemiology of acquired brain injury in India. Ann Indian Acad Neurol. 2015 Jan-Mar; 18(1): 66–70, online at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4350218/.
[5] Model System Knowledge Translation Center, online at https://msktc.org/.
[6] Brain Injury Association of America, online at https://www.biausa.org/brain-injury/about-brain-injury/basics/injury-severity.

individuals with a history of TBI develop a post TBI seizure disorder, which in turn worsens behavioral outcomes.[7]

The majority of individuals who present with a "mild" traumatic brain injury or concussion recover within two weeks. However, some individuals with mild brain injury experience a complicated course of recovery. A complicated recovery is especially true when individuals have incurred multiple mild brain injuries. The populations where multiple mild brain injuries are common include those who have served in the armed forces, athletes, victims of intimate partner violence,[8] and children who are exposed to abuse. Although it is rare for individuals to have long term negative consequences of a single mild TBI, multiple mild traumatic brain injuries can result in increased levels of disability with each mild injury incurred, especially if they occur within close proximity to each other.[9]

History of brain injury is associated with challenges in obtaining and maintaining employment, interpersonal challenges, difficulties in school, the onset of mental illness and substance use disorders , increased risk of incarceration and involvement with the criminal justice system, dementia, and early death. Research from the TBI Model Systems estimates individuals living with moderate to severe brain injury have a reduced life span of nine years compared to their uninjured peers.[10]

The adverse effects of an acquired brain injury are not just limited to the individual. Caregivers of people with brain injury report stress, grief, and loss[11] and may also experience adverse health effects, including stress-related disorders and depression.[12] In addition, in taking on the role of caregiver, family members can experience a loss of income as they may drop out of the workforce in order to provide unpaid care to their loved one[13].

Appendix C

MARYLAND BRAIN INJURY RESOURCES

1. Governor TBI Advisory Board

[7] Semple, Zamani, Rayner, Shultz, Jones, Affective, neurocognitive and psychosocial disorders associated with traumatic brain injury and post-traumatic epilepsy (2019), online at https://research.monash.edu/en/publications/affective-neurocognitive-and-psychosocial-disorders-associated-wi.
[8] Clendenen, Partner-inflicted brain injury: recognizing invisible injuries and finding hope for healing (March 19, 2020), online at https://www.futureswithoutviolence.org/Partner-Inflicted+Brain+Injury.
[9] Vynorius, Paquin, Seichepine, Lifetime Multiple Mild Traumatic Brain Injuries Are Associated with Cognitive and Mood Symptoms in Young Healthy College Students (October 31, 2016), online at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5086577/.
[10] Harrison-Felix et al., Life Expectancy after Inpatient Rehabilitation for Traumatic Brain Injury in the United States (November 4, 2014), online at https://pubmed.ncbi.nlm.nih.gov/25057965/.
[11] Kratz et al., Traumatic brain injury caregivers: A qualitative analysis of spouse and parent perspectives on quality of life (June 8, 2015), online at https://pubmed.ncbi.nlm.nih.gov/26052805/.
[12] Brickell, French, Lippa, and Lange, Burden among caregivers of service members and veterans following traumatic brain injury, vol. 32:12 (August 27, 2018), online at https://www.tandfonline.com/doi/abs/10.1080/02699052.2018.1503328?journalCode=ibij20.
[13] Humphreys I, Wood RL, Phillips CJ, Macey S. The costs of traumatic brain injury: a literature review. Clinicoecon Outcomes Res. 2013 Jun 26;5:281-7. doi: 10.2147/CEOR.S44625. PMID: 23836998; PMCID: PMC3699059.

Website for TBIAB reports, meeting minutes, and manual- https://bha.health.maryland.gov/Pages/mdtbiadvisoryboard.aspx

2. **Advocacy, Information, and Assistance**
   Brain Injury Association of Maryland - www.biamd.org
3. **Maryland Lead Agency of Brain Injury**
   Maryland BHA -https://bha.health.maryland.gov/Pages/Traumatic-Brain-Injury.aspx
4. **Legal**
   Disability Rights Maryland https://disabilityrightsmd.org

Appendix D

MARYLAND TBIAB MEMBERSHIP

Membership of the Maryland TBIAB is set forth in HG §§ 13–2101 through 13–2105. Membership consists of individuals who have sustained a brain injury, family members and caregivers, advocacy organizations, professionals working in the field of brain injury treatment and rehabilitation, Maryland state agencies, and two members of the Maryland state legislature. Half of the membership is appointed by the Governor, and half is appointed by the directors of the agencies that are required by statute to serve on the board.

TBIAB has established Survivors and Families Empowered (SAFE), a standing committee. The SAFE committee was created as a place for the members of the Maryland TBIAB who are living with a brain injury or who are family members of individuals with brain injuries to obtain support and a sense of unity in board matters. One of the main goals of the committee is to ensure that individuals with brain injury and family members are active participants in board meetings and activities. This committee has served as a national best practice for incorporating lived experience into the work of the TBI advisory Boards and Councils.

Board Membership

Gil Abramson, Esq Baltimore, MD	**Jeronica Baldwin** Office of Health Services, Baltimore City	**Sandra Bastinelli** Representing Individuals with Brain Injury Carroll County
Joyce Dantzler Office of Healthy Homes and Communities, Maryland Department of Health Baltimore City	**Norma Eisenberg** Representing Families and Caregivers of Individuals with Brain Injury Howard County	**Laurie Elinoff** Representing Individuals with Brain Injury, Statewide Independent Living Council Anne Arundel County

Janet Furman
Developmental Disabilities Administration, Maryland Department of Health
Baltimore City

Thomas Gallup
Representing Families and Caregivers of Individuals with Brain Injury
Montgomery County, MD

Amanda Gallagher, MA CCC-SLP
Professional
Baltimore City

Andrew (Drew) H Gantt III
Brain Injury Association of Maryland
Baltimore county, MD

Marny Helfrich, M.Ed.
Maryland State Department of Education, Division of Special Education, Early Intervention Services
Baltimore City

Lorri Irrgang
Representing Individuals with Brain Injury
Anne Arundel County, MD

Martin Kerrigan, Chair
Brain Injury Association of Maryland
Howard County

Norda Kittrie
Representing Families and Caregivers of Individuals with Brain Injury
Montgomery County, MD

Cory Kovacik, OTR/L
Sinai Hospital
Baltimore City

Carole A. Mays, RN, MS, CEN
Maryland Institute for Emergency Medical Services Systems
Baltimore City

Claudette Mathews, RN
Office of Genetics and People with Special Health Care Needs

Kara Melcavage
Representing Individuals with Brain Injury
Baltimore City

Stefani O'Dea
Behavioral Health Administration, Maryland Department of Health
Baltimore County

Bryan Pugh
Brain Injury Association of Maryland
Baltimore City

Gabriel H. Rubinstein, Esq.
Disability Rights Maryland
Baltimore Maryland

Mellissa Ruff, LCSW
Representing Families and Caregivers of Individuals with Brain Injury
Baltimore City

Lisa Schoenbrodt
Loyola University of Maryland Speech Language Hearing Science Baltimore City

Lt. Stephen Thomas
Law Enforcement
Anne Arundel County

Adrienne Walker-Pittman
Representing Individuals with Brain Injury
Baltimore City

Heather Wheeler, PT, DPT
University of Maryland Rehabilitation and Orthopedic Institute

Baltimore County

Maryland Legislative Appointments (ex-officio)

Senator Nancy J. King
Democrat, District 39,
Montgomery County

House of Delegates,
Vacant

Staff to the TBIAB

Mawada Hassan, MHS
Brain Injury Association of
Maryland

Appendix E

DESCRIPTION OF MARYLAND SERVICE SYSTEMS

SERVICE AREA	AVAILABLE SERVICES	SERVICE GAPS
Trauma Care[14]	Emergency care for TBI is provided by Maryland's Institute for Emergency Medical Services System (MIEMSS), a coordinated statewide network that includes volunteer and career emergency medical system providers, medical and nursing personnel, communications, transportation systems, trauma and specialty care centers, and EDs.	Many individuals who sustain TBI, such as a concussion, do not seek treatment in these settings. They often see treatment in a physician's office or an urgent care center or seek no treatment at all. As a result, a TBI can be undiagnosed or misdiagnosed and the impact of the injury and resulting deficits underestimated, leading to lack of adequate follow up and supports. *See recommendation #4 Trust Fund.*
Brain Injury Rehabilitation	Maryland offers inpatient and outpatient rehabilitation services, accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF), for inpatient and outpatient rehabilitation facilities and programs.	The length of stays in inpatient facilities has decreased significantly over the years, and it is now increasingly more common for individuals with brain injury to receive rehabilitation in a nursing facility (no nursing facilities have specialized brain injury programs) or to have little or no access to rehabilitation services. *See recommendation #4 Trust Fund and #3 Brain Injury Waiver.*
Case Management	Case management is defined by the Centers for Medicare and Medicaid Services as a service that helps eligible people gain access to needed medical, social, educational, and other services. Maryland's Medicaid case-management services, which	Maryland only offers case management to those enrolled in home- and community-based services, including targeted case management for individuals with mental illness. Most Marylanders with brain injury are not enrolled in those

[14] MIEMSS, 2018–2019 Annual Report, online at https://www.miemss.org/home/Portals/0/Docs/AnnualReports/Annual-Report-2019.pdf?ver=2020-10-07-145042-713.

	are provided under a number of programs, vary in name and scope and are offered by a variety of providers. Case management has been demonstrated to help reduce readmissions to hospitals and improve rehabilitation outcomes.	Medicaid programs. The lack of case management limits timely access to appropriate services and supports and thereby negatively affects clinical outcomes. *See recommendation #4 Trust Fund*.
TBI Registry	Maryland law, set forth in HG § 20–108, makes "head injury" a "reportable condition." Each hospital is required to report to the Department within seven days of the occurrence of a reportable condition. The Department is required to establish a central registry to compile information about disabled individuals with reportable conditions and within 15 days of receiving a report of an individual with a reportable condition, notify the individual or the individual's parent or guardian of any assistance or services that may be available from the State and of the eligibility requirements for such assistance or services. Upon request from the individual, the Department shall refer the individual to appropriate divisions of the Department and other agencies, public or private, which provide rehabilitation services for persons with reportable conditions.	This statute was not implemented, and hospitals are not currently reporting "head injuries" to the Department. This gap in reporting, compiling, and notification is negatively affecting the lives of every Maryland family dealing with brain injury. As a result, individuals and family members receive limited to no information and resources when the opportunity for recovery afforded by access to appropriate care is most critical. The long-term negative impact affects public health at the systemic level as well as the lives of individuals with brain injury and their families. *See recommendation #5 TBI Registry*.
Home- and Community-Based Services	Services are provided in an individual's home or in the community as an alternative to care in an institutional setting, such as a nursing facility. Maryland operates eight Medicaid-funded home- and	Private or commercial insurance does not cover home- and community-based supports that assist individuals with remaining at home and also prevents admission to nursing facilities for long-term care. Medicaid does

	community-based waiver programs, including one designed for individuals with brain injury, and five additional programs that offer personal care and other supports.	cover these home- and community-based services. However, in a 2012 study conducted by the Hilltop Institute at University of Maryland Baltimore County, of the approximate 7,000 Maryland Medicaid beneficiaries who had sustained a TBI, only 11% were enrolled in home- and community-based services. *See recommendation #3 Brain Injury Waiver*.
Brain Injury Waiver	There is one home- and community-based program in Maryland designed specifically for individuals with brain injury. It is a small specialty program designed to support individuals with moderate to severe deficits resulting from their injuries, who meet the financial, medical, and technical eligibility for the program.	Eligibility for the Brain Injury Waiver currently is based on "facility-based access," meaning it is limited to individuals transitioning out of four state-operated chronic hospital or nursing facility settings and five state psychiatric hospital settings. This limits access to the program for individuals who are in need of this level of support but do not reside in one of those institutional settings. *See recommendation #3 Brain Injury Waiver*.
Behavioral Health Services	Maryland has integrated mental health services and substance-related disorder services. These conditions frequently occur in conjunction with, or as a result of, a brain injury. The cognitive, emotional, and behavioral symptoms that result from brain injury can impact the effectiveness of traditional behavioral health services.	Behavioral health providers do not routinely screen the individuals they serve for a history of a brain injury. This often leads to misdiagnosis, under-identification, and insufficient supports and services for both children and adults. *See recommendation #2 Screening*.

Special Education Services	The Individuals with Disabilities Education Act (IDEA) requires schools to protect the rights of children with disabilities and ensure these students have access to free and appropriate education. IDEA covers children with specific disabilities, including TBI.	There is a significant discrepancy between the number of school-age children being treated in Maryland hospitals for a TBI and the number of Maryland students receiving special education services with a diagnosis of TBI. This under-identification or misidentification may occur because TBI symptoms overlap with symptoms of other disabilities, including emotional disturbance and learning disability as defined by the IDEA. Incorrectly diagnosing students and failing to recognize TBI is likely to lead to inappropriate individualized education programs because the goals and objectives do not address the student's unique needs. *See recommendation #1 Students*.

Appendix F

MARYLAND ACCOMPLISHMENTS

Advocacy

The Brain Injury Association of Maryland is the only advocacy organization geared specifically to individuals with brain injury. Two additional advocacy organizations, the Centers for Independent Living and Disability Rights Maryland, the State's protection and advocacy organization, provide assistance to individuals with disabilities, including brain injury. All three of these organizations are represented on the TBIAB. The Brain Injury Association in conjunction with TBIAB hosted a brain injury awareness day event in March 2019 in Annapolis to educate legislators about brain injury in honor of Brain Injury Awareness Month (March). A press conference was held announcing the creation of the new Brain Injury Trust Fund donation program. Additionally, over 60 masks and stories were placed on display in the House Office Building to bring awareness to the struggles and successes of Marylanders with brain injury.

Brain Injury Trust Fund

The Maryland Brain Injury Trust Fund was created during the 2013 Legislative Session without a revenue stream but, in December 2018, a voluntary donation program was created at the Maryland Department of Transportation. Now Marylanders renewing their vehicle registration online or at a kiosk can donate to Maryland's Brain Injury Trust Fund. This is a notable accomplishment; however, it is also important to note that the revenues generated through this program are too low to support the initiation of services.

Concussion Law

On May 19, 2011, the concussion bill was signed into law, mandating the implementation of concussion awareness programs throughout the State, and requiring student athletes who demonstrate signs of a concussion to be removed from practice or play.

Helmet Law

Board members have successfully advocated against the repeal of Maryland's motorcycle helmet law. Multiple states (*e.g.*, Louisiana, Texas, Arkansas, and Florida) have repealed only to reinstate all-rider helmet laws due to the significant increase in motorcycle deaths.

Federal Grant Funding

BHA was awarded a three-year federal TBI grant creating the STAR model: (1) **Screen** individuals receiving behavioral health services for a history brain injury; (2) **Train** behavioral health/ human service to provide cognitively accessible services and interventions utilizing person centered practices; (3) **Activate/Support** stakeholders; and (4) **Reduce** the risk of overdose for Marylanders who have sustained a brain injury.

Appendix G

The Maryland Traumatic Brain Injury Advisory Board is partnering with the Brain Injury Association of Maryland (BIAMD) to highlight Marylanders with brain injuries the Board was created to represent. As part of BIAMD's Unmasking Brain Injury 2.0 project, Marylanders with brain injuries and their caregivers were asked to create masks to help us put a face on this "invisible epidemic". The individuals created masks to represent their journey and then were asked to tell their story and describe their masks.

Please scan the QR codes with your smartphone or tablet with your camera app to see a brief YouTube video and let the individual personally tell you their story and describe their mask.

Laurie E.
Motor Vehicle Accident

SCAN ME

Steve S.
Bicycle Accident

SCAN ME

Terrence W.
Motorcycle Accident

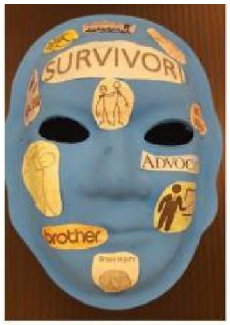
SCAN ME

Sandra B.
Skiing Accident

SCAN ME

George O.
Caregiver

SCAN ME



Martin K.
Hit by a Car

SCAN ME

Teth
Motor Vehicle Accident

SCAN ME