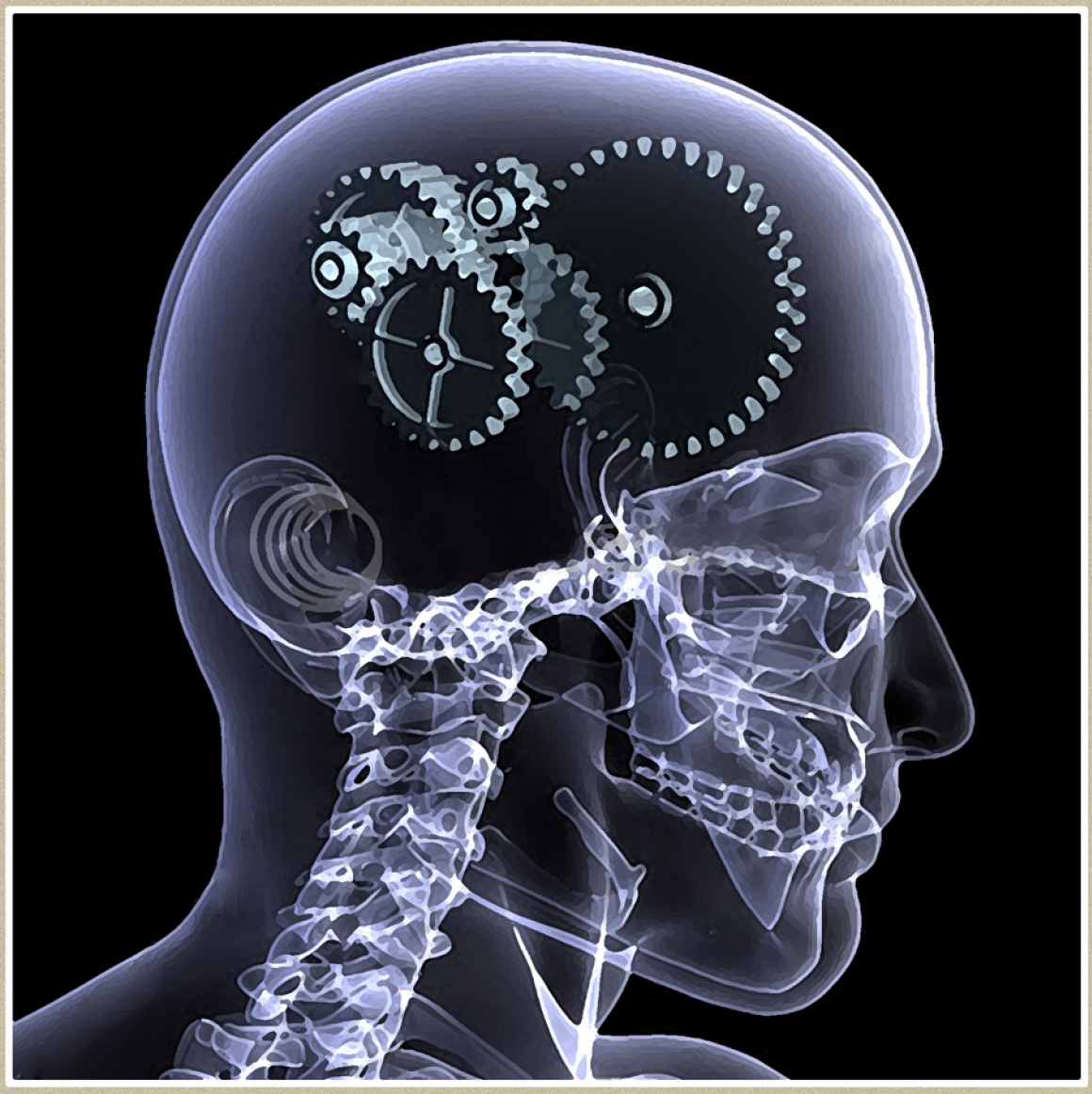
MARYLAND
Traumatic Brain Injury Advisory Board



2018
Annual Report

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EXECUTIVE SUMMARY

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. To examine traumatic brain injury, the state Traumatic Brain Injury Advisory Board (TBIAB) was established in 2005 by Senate Bill 395 (Chapter 306). The TBIAB consists of 36 voting members including individuals who have experienced a brain injury, family members and caregivers, advocates, professionals in the field of brain injury prevention and rehabilitation, and state agency representatives. Board members review available data and publications as well as promising practices from other states. The board 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 policy makers and influence state policy and does 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, facilitating collaboration among organizations and entities 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 address 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 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.

STATE OF THE STATE IN BRAIN INJURY

Brain injury is a preventable public health issue. It is the leading cause of injury-related death and disability in the United States. The Centers for Disease Control (CDC) defines TBI as "an injury that disrupts the normal function of the brain … caused by a bump, blow, or jolt to the head or a penetrating head injury or explosive blasts." "Acquired brain injury" is defined as an injury to the brain which is not hereditary, congenital, degenerative, or induced by birth trauma. Brain injury may be classified as mild, moderate, or severe depending on the patient's neurologic signs and symptoms. Everyone experiences brain injury differently. Symptoms may include: difficulties with memory, attention, learning, or coordination; headaches; fatigue; sleep disturbances; mood disorders; post-traumatic epilepsy; and increased risk of dementia. Caregivers of people with brain

injury may also experience negative health effects, including stress-related disorders and depression.

I. Understanding TBI Incidence

The CDC reported that, nationally:

- In 2010, 2.5 million emergency department (ED) visits, hospitalizations, or deaths were related to TBI, either alone or in combination with other injuries;
- TBI-related ED visits for sports- and recreation-related injuries increased 62 percent from 153,375 in 2001 to 248,418 in 2009 among persons aged 19 or younger; and
- The total cost of ED visits, hospitalizations, and deaths related to TBI, either alone or in combination with other injuries, exceeds $82 billion annually— this includes medical and work loss costs.

The Department's Center for Injury Epidemiology,[1] found that, in Maryland in 2015, there were:

- more than 600 TBI-related deaths;
- 4,422 TBI-related hospitalizations; and
- almost 40,000 TBI-related ED visits.

Many people who experience a mild brain injury, such as a concussion, receive medical care from a physician's office, urgent care center, or perhaps receive no medical attention at all. These data are not reflected above as reporting is not required for TBI treated in settings other than hospitals. Also, missing from these data are other acquired causes of brain injury that do not fall under the TBI diagnosis. These other causes include near drowning, suffocation, strokes, and opioid-related overdoses and other unintentional poisonings.

The interplay between opiate use and brain injury is also significant. Individuals who have sustained a brain injury are at increased risk accidental poisoning, such as an opiate overdose. Anoxic and hypoxic brain injuries are on the rise due to the high use of opioids. Opiate use depresses the nervous system and affects breathing. In a drug overdose, the brain is deprived of oxygen resulting in brain damage or death.

> *An **overdose** is an injury to the body (poisoning) that happens when a drug is taken in excessive amounts. An overdose can be fatal or nonfatal. Opioid overdose induces respiratory depression that can lead to an anoxic/hypoxic brain injury (NASHIA Fact sheet 2018).*

[1] Maryland Department of Health, Center for Injury Epidemiology, Traumatic Brain Injury (TBI)-related Emergency Department (ED) Visits, Hospitalizations and Deaths: Maryland, 2012–2015, online at https://phpa.health.maryland.gov/ohpetup/Documents/TBI_AdvisoryBoard_data_Sept2017_Final.pdf (all Internet materials as last visited October 22, 2018).

II. Understanding Lifetime History of TBI

Severity of injury is a predictor of disability following the injury. Also, lifetime exposure to brain injury is linked to both immediate and long-term health conditions and disability. Severity of injury is primarily defined by the length of loss of consciousness. Severity of injury, age at injury, and number of exposures or injuries are factors that influence the risk of chronic health problems and disability.[2] Similarly, TBI is correlated with behavioral health conditions, such as mental illness and substance use disorders. The chart below, created by John D. Corrigan, Ph.D., from the Ohio State University, demonstrates the lifetime history of TBI within the general population compared to lifetime history within systems that serve individuals with mental illness, substance use disorders, and co-occurring programs.

Lifetime History of TB[3]	**Any TBI**	**TBI with Loss of Consciousness**	**Moderate/ Severe TBI**
Colorado non-institutionalized adults	43%	24%	6%
Ohio non-institutionalized adults	unknown	22%	3%
SUD treatment	65%	53%	17%
Psychiatric inpatients	68%	36%	20%
Homeless	53%	47%	12%

III. Brain Injury and Social Determinants of Health

Understanding the public health burden of brain injury and its impact on the social determinants of health is also important.

- **Employment and Disability**: According to the CDC and the National Institute on Disability, Independent Living, and Rehabilitation Research, 55% of people with moderate to severe TBI, who are still alive five years after injury, do not have a job but were employed at the time of their injury. Of this population, 57% are moderately or severely disabled.

- **Incarceration**: The estimated prevalence of TBI in the overall offender population is 60.25%, according to the Journal of Head Trauma Rehabilitation (2014).

[2] Yi et al., Lifetime History of Traumatic Brain Injury and Current Disability Among Ohio Adults, Journal of Head Trauma Rehabilitation, Vol. 33, Nov. 4, pp. E24–E32 (2018).
[3] Corrigan, Presentation on Connecting Brain Injury and Behavioral Health, National Association of State Head Injury Administrators (NASHIA) State of States Conference (Sep. 24, 2018), online at https://www.nashia.org/pdf/sos2018/presentations/sos-2018-mon_8_45_corrigan_handout.pdf.

- **Homelessness**: According to the literature, almost 50% of individuals experiencing homelessness have a lifetime history of TBI with loss of consciousness. In 2015, Healthcare for the Homeless Maryland screened 170 clients for a history of TBI and found that 67.6% screened positive for brain injury that caused loss of consciousness.

- **Domestic Violence**: Domestic violence is a common cause of brain injury in women, who constitute the vast majority of victims of severe physical violence by an intimate partner. The head and face are common targets of intimate partner assaults, and victims often suffer head, neck, and facial injuries.[4]

- **Veterans**: The Defense and Veteran's Brain Injury Center and the Department of Defense estimate that 22% of all combat casualties from the conflicts in Iraq and Afghanistan are brain injuries with the most common causes being blasts, motor vehicle accidents, and gunshot wounds. Exposure to blasts is unlike other causes of mild TBI and may produce different symptoms and natural history. The comorbidity of post-traumatic stress disorder, history of mild TBI, chronic pain, and substance use is common and may complicate recovery from any single diagnosis.[5]

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 living with brain injury.

- Services and supports that are currently available to Marylanders who sustain a brain injury include: trauma and emergency services, inpatient and outpatient rehabilitation, long-term services and supports (both institutional services such as home- and community-based services and nursing facilities), special education services and educational accommodations for students, behavioral health services, case management, and active advocacy organizations.

- The gaps in Maryland largely revolve around the absence of available services within many geographic areas in the state and lack of coordination and specialization of these services and supports. Further complicating these issues are: limited access to case management and home- and community-based supports, 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.

[4] Jackson, Philp, Nuttall, & Diller, Traumatic Brain Injury: A Hidden Consequence for Battered Women, Professional Psychology: Research and Practice, pp. 33, 39–45 (2002).
[5] Summerall, Traumatic Brain Injury and PTSD: Focus on Veterans, U.S. Department of Veterans Affairs, PTSD: National Center for PTSD, online at https://www.ptsd.va.gov/professional/treat/cooccurring/tbi_ptsd_vets.asp.

I. Trauma Care

Available Services: Emergency care for TBI is provided by Maryland's Emergency Medical Services (EMS) System, a coordinated statewide network that includes volunteer and career EMS providers, medical and nursing personnel, communications, transportation systems, trauma and specialty care centers, and EDs.

Service Gaps: Many individuals who sustain TBI, such as a concussion, do not seek treatment in these settings. They often seek 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.

Current Opportunities: Nationally, there is an effort to support the CDC's plan for a national phone survey to collect better prevalence data. Additionally, the National Association of State Head Injury Administrators is advocating for inclusion of TBI questions within the Behavioral Health Risk Factors Surveillance Survey (BRFSS).

II. Brain Injury Rehabilitation

Available Services: 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.

Service Gaps: 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 or to have little or no access to rehabilitation services. There are no specialized brain injury units within Maryland nursing facilities, and therefore access to rehabilitation services that are designed for individuals with brain injury is more limited than ever before.

Current Opportunities: None available at this time.

III. Case Management

Available Services: 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 are provided under a number of programs, vary in name and scope and are offered by a variety of providers.

Service Gaps: Although case management has been demonstrated to help reduce readmissions to hospitals and improve rehabilitation outcomes, Maryland only offers case management to those enrolled in home- and community-based services, and most Marylanders with brain injury are not enrolled in those Medicaid programs. The lack of case management limits timely access to appropriate services and supports and thereby negatively affects clinical outcomes.

Current Opportunities: A revenue source has been created for Maryland's Brain Injury Trust fund. The Maryland Department of Transportation has created a voluntary donation option for

vehicle registration transactions completed via kiosk or online, projected to go live in January 2019.

Donations will be transferred to Maryland's Brain Injury Trust fund. Projected revenue is unknown but may be able to be used to fund case-management services among an array of other service options. More will be known after one year of revenue is accrued.

IV. TBI Registry

Available Services: 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 shall establish a central registry to compile information about disabled individuals with reportable conditions. Within 15 days of receiving a report of an individual with a reportable condition, the Department shall 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.

Service Gaps: 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. It limits individuals and family members from receiving timely information and resources at the most vulnerable time of this family crisis. It negatively impacts public health efforts to prevent brain injury and address the needs of Marylanders with brain injury.

Current Opportunities: The Maryland Behavioral Health Administration (BHA) was awarded a three-year federal grant in June 2018. Among other grant-related activities, the project is intended to identify an implementation strategy for Maryland's TBI Registry.

V. Home- and Community-Based Services

Available Service: 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 seven Medicaid-funded home- and community-based waiver programs, including one designed for individuals with brain injury and three state-plan programs that offer personal care and other supports.

Service Gap(s): 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 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.

More current utilization data is needed to ensure that Maryland's enhancement of community-based services and supports has increased access for individuals with brain injury.

Current Opportunities: Not at this time.

VI. Brain Injury Waiver

Available Service: 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.

Service Gaps: 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.

Current Opportunities: Not at this time.

VII. Behavioral Health Services

Available Service: 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.

Service Gap(s): 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.

Current Opportunities: BHA implemented a brain injury screening protocol into the authorization process for certain behavioral health services in 2017. While initial implementation did not require responses to these questions, BHA plans to make the responses mandatory within the next two years. BHA is working with national experts to review and analyze data. This work will be supported through a three-year federal TBI grant awarded to BHA in June 2018.

VIII. Special Education Services

Available Service: The Individuals with Disabilities Education Act (IDEA)[6] 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.

Service Gap(s): There is a significant discrepancy between the number of school-age children being treated in Maryland hospitals who are diagnosed with TBI and the number of Maryland

[6] 104 Stat. 1142.

students receiving special education services with a diagnosis of TBI. In 2014 alone, there were 620 TBI-related hospitalizations and 17,932 ED visits for youth ages < 1 to 24. Yet, there are only 221 Maryland students receiving special education services under the IDEA classification code 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 with emotional disturbance or specific learning disability while 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.

Current Opportunities: In 2018, the CDC released a report to Congress regarding the management of TBI in children.[7] The report summarizes the public health burden associated with childhood TBI and identifies opportunities for action related to acute medical care, return to school, and long-term supports.

In 2018, legislation designed to improve the screening process was introduced in the Maryland House of Delegates, where it passed unanimously. The proposed legislation did not receive a vote in the Senate.

RECOMMENDATIONS FOR MARYLAND

The TBIAB's recommendations for Maryland have not changed from the 2017 TBIAB annual report.

The recommendations in this report are intended to reduce the public health burden of brain injury through appropriate resource linkage, training, effective screening practices, and availability of specialized services. Brain injuries often occur in conjunction with other injuries and medical events. Patient care and discharge plans tend to focus on the most life-threatening condition present without regard for the long-term implication of the injury to the brain. For example, following a serious car crash resulting in internal injuries, broken bones, and brief loss of consciousness, the emergency medical care and discharge recommendations will be focused on the most life-threatening internal injuries, while the patient and family may have little understanding or awareness of the more subtle but significant impact of the mild brain injury. Diagnosis of the brain injury can be missed altogether, and, therefore, the importance of appropriate screening mechanisms within school systems, healthcare, behavioral health, corrections, and long-term care services. Recognizing a history of brain injury is the first step in understanding functional ability and health risks. Accessible treatment accommodations are often needed to ensure successful outcomes at school and/or work as well as successful clinical outcomes for somatic health and behavioral health treatment.

The CDC report to Congress[8] includes information and tools for healthcare providers, educators, parents, and students to assist with acute medical management of the injury in children as well as

[7] Center for Disease Control and Prevention, Report to Congress: Management of Traumatic Brain Injury in Children (2018), online at https://www.cdc.gov/traumaticbraininjury/pdf/reportstocongress/managementoftbiinchildren/TBI-ReporttoCongress-508.pdf.
[8] *Ibid.*

recommendations for long-term monitoring and transition to school. The report demonstrates increasing evidence of the relationship between long-term disability and behavioral health conditions that impact functional achievements in adulthood, highlighting the importance of timely, appropriate intervention with children.

I. Appropriately screen for and identify children and youth with brain injuries.

The State of Maryland shall improve identification of students with brain injuries by:

- requiring local education agencies to add three questions, designed to capture incidents of brain injury or loss of consciousness suffered at any time by the student, to existing annual school health forms and special education screenings; and
- increasing dissemination of concussion prevention, awareness materials, and brain injury training to: school psychologists, pupil personnel works, counselors, teachers, administrators, specialists, health room staff, athletic departments, coaches, trainers, students, parents, and any other stakeholders.

A specific protocol for responding positively should be developed as part of the screening process for special education services.

Progress made since last report

In 2018, legislation designed to improve the screening process was introduced in the Maryland House of Delegates, where it passed unanimously. The proposed legislation did not receive a vote in the Senate.

Analysis

Brain injury can, and often does, have a significant impact on the development and functioning of an individual. This is especially true in the developing brains of children and adolescents. Difficulties with problem solving, impulsivity, memory, new learning, and self-regulation are some of the common sequelae of brain injury and represent just some of the serious and potential lifelong consequences of TBI.

In 2014 alone, there were 620 TBI-related hospitalizations and 17,932 ED visits for youth ages < 1 to 24.[9] This total does not capture the full extent of brain injury among this age population, as it does not include those seen by private practitioners, in urgent care facilities, or not seen at all. Yet, in spite of the large number of severe brain injuries reported among school-aged children in Maryland, there are currently only 221 Maryland students receiving special education services with their primary disability (under the IDEA) determined to be TBI, according to the October 1, 2017, Special Education Census. This is .2% of the total population of students currently receiving special education services in Maryland schools.

[9] Unpublished data retrieved by the Maryland Violence and Injury Prevention Program from the Health Services Cost Review Commission data sets, October 2016.

Under-identification of brain injury may occur because TBI symptoms can be misinterpreted as other disabilities, such as emotional disability and learning disability. The inappropriate diagnosis of TBI leads to incorrectly identifying students as having an emotional or learning disability, while failing to recognize the underlying TBI may lead to inappropriate individualized education plans with goals and objectives that do not fully address the student's actual needs. Without proper identification and assessment, students with a diagnosis of TBI cannot be identified or served appropriately and their ability to be successful in school and transition to adulthood is compromised, and the likelihood of accessing state resources in the future is limited.

II. Implement brain injury screening protocols and offer appropriate accommodations to treatment for participants in Maryland's public health and corrections systems, including behavioral health services, veterans' initiatives, jails and prisons, and home- and community-based services.

The Department's human service agencies as well as state correctional facilities should improve services offered to Marylanders with brain injury by requiring state-funded programs designed to support incarcerated individuals, veterans, and individuals experiencing homelessness and substance abuse to screen consumers for a history of TBI and accommodate treatment as needed.

Progress made since the Last Report

BHA implemented a brief brain injury screening into the online authorization process for certain behavioral health services, *e.g.*, psychiatric rehab and mobile treatment, in early 2017. The screening questions are based on the Ohio State University TBI Identification Method (OSU TBI-ID) quick screen.

OSU TBI-ID Quick Screen Questions:

Ever knocked out or lost consciousness?
Yes, No, Not screened

Longest time knocked out?

Less than 30 minutes, 30 minutes–24 hours, > 24 hours

Age (1–99) when first knocked out or lost consciousness? ___

Training is being provided statewide to behavioral health providers on brain injury screening and accommodations to behavioral health treatment. BHA intends to mandate the TBI quick screen in the next phase of implementation within the next couple of years as part of a newly-awarded federal grant that is focused on improving behavioral health care and access for individuals with TBI. Preliminary data for the first few months of implementation showed:

- only 12,000 of the possible 21,000 consumers were screened for TBI;
- of the 12,000 screened, approximately 800 had responded yes to being knocked out or losing consciousness; and

- of the 800 yes responses, approximately 700 experienced less than 24-hour loss of consciousness.

2018 has been requested and will be available at the time of the next report. Additionally, BHA is exploring options for capturing data related to brain injury incurred secondary to an overdose.

Analysis

Many people who seek services through Maryland's public behavioral health system, home- and community-based services, and veterans' initiatives have undiagnosed brain injury. It is crucial that these programs implement a brain injury screening protocol in order to identify individuals with a history of brain injury and provide accommodations as needed to ensure that the services are adequately provided and meet the individual's needs.

Brain injury is often not a visible disability, and yet a history of a brain injury can result in significant deficits that can impact clinical outcomes, social functioning, employment, and mental health. Many individuals who have sustained brain injury are often not aware of the impact of their injuries and may not know the importance of reporting their brain injury or seeking aftercare or supports. By encouraging agencies that provide human service programs to spread brain injury awareness, they may help educate consumers of their health needs. BHA has taken the initiative to implement both brain injury screening and accommodations training for certain mental health services and providers. It is important to expand these efforts to other behavioral health services as well as services provided to individuals experiencing homelessness, victims of domestic violence, and recipients of all home- and community-based services.

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

The Department should improve the quality and quantity of resources for people with complex needs resulting from TBI by:

- changing the eligibility for the Brain Injury Waiver to a neurobehavioral-needs-based set of criteria rather than facility-based access; and
- assessing the Brain Injury Waiver's supported employment and individual support services definitions and rate structures to determine whether there are structural or financial barriers to improving employment or independent living outcomes for waiver participants.

Progress made since the Last Report

In 2018, changes were made to the individual support services related to increment of time. Originally an hourly service, individual support services may now be provided in 15-minute increments, increasing flexibility for the provision for the service.

Analysis

Approximately 3,000 Medicaid beneficiaries with brain injury receive services in a Maryland nursing facility each year. Fewer than 800 of those beneficiaries are enrolled in Medicaid home- and community-based services, and 124 of those people have been served through the Maryland

Brain Injury Waiver. Two hundred eighty-two people have inquired about brain injury waiver services since 2005, according to available reports generated through the web-based waiver administrative system called Long Term Services and Supports Maryland. One hundred twenty-four of those individuals have received brain injury waiver services, and 15 people were denied services.

Despite the prevalence of brain injury among Medicaid beneficiaries who require long-term care services, there is a low cap on enrollment in the Brain Injury Waiver. Narrow technical eligibility further limits access to this program. The Brain Injury Waiver is currently based on facility-based access, meaning that it is limited to individuals transitioning out of four state-operated chronic hospital or nursing facility settings and five state psychiatric hospital settings. However, access to the Brain Injury Waiver should be based on the actual neurobehavioral needs of people who have experienced brain injuries. The Brain Injury Waiver Program is designed to support individuals with significant behavioral and cognitive issues that result from their injury and who have identifiable, practical goals focusing on independent living, supervised living, work readiness, and recovery from mental illness or substance-related disorders. However, only individuals in certain hospital settings meet technical eligibility for the program. Individuals living in the community or nursing facilities who are struggling with these issues are not eligible. Expanding access to this valuable program can reduce rates of institutionalization, incarceration, hospitalizations, and overall costs to the state for individuals in need of these specialized services.

Employment and housing drive recovery, improve quality of life, and result in significant reductions in the cost of waiver services. The Department should review service descriptions and complete a rate study to ensure that the supported employment and individual support service rates promote providing an effective employment service and supports in independent housing.

IV. Fund the State of Maryland Dedicated Brain Injury Trust Fund to support care coordination and cognitive supports.

The state should support a system of coordinated case management for people with brain injury by:

- Estimating annual revenue to be generated through new voluntary donation program for vehicle registrations;
- Identifying additional revenue streams to ensure adequate funding for service to be administered through trust fund; and
- Implementing a system to provide services set forth in statute

Progress made since the Last Report

A revenue source has been created for Maryland's Brain Injury Trust fund. The Maryland Department of Transportation has created a voluntary donation option for vehicle registration transactions completed via kiosk or online, projected to go live in January 2019. Donations will be transferred to Maryland's Brain Injury Trust fund, managed by BHA. Annual revenue projections are unknown but will be used to fund awareness and prevention services established in HG § 13–21A–02(i). The type and scope of services that will be available through this fund will be better known by the 2019 report, when revenue projections have been established.

Analysis

Pursuant to HG § 13–21A–02(i), the Department is required to submit a report on the State Brain Injury Trust Fund, including the number of individuals served and the services provided in the preceding fiscal year using the fund. The Trust has not received any new funds since the passage of Senate Bill 632, Chapter 511 of the Acts of 2013. Therefore, the Department was unable to provide services to any individuals with a brain injury through this fund since its inception. In planning to accept future funds through a dedicated funding source or private donation, the Department did establish an account (PSA Code M258S) for this purpose and has the capacity to allocate funding for services if monies are received.

Additionally, the Department has established a Trust Fund Advisory Committee and obtained two independent reports. The first reports on brain injury trust funds across the country, and the second describes insurance coverage and case management utilization in Maryland and evidence-based practices.

If adequately funded, this fund would provide services to individuals with a medically documented brain injury with incomes ≤ 300% of the federal poverty level who are in need of case management in order to navigate Maryland's service delivery system. BHA has been tasked with identifying the services to be covered under the fund and the costs of providing those services, as well as developing the policies and procedures for administration of the fund.

Case management or care coordination is the highest priority service to be covered through this fund for the following reasons:

- it significantly improves timely access to available services and supports, which potentially reduces costs over time;
- it is considered a best practice among state brain injury programs as well as the workman's compensation industry and the Department of Defense;
- only a small percentage of Marylanders with brain injury are able to access Medicaid-funded case-management services, and private insurance does not cover case-management; and
- the existence of an established brain injury case-management or care-coordination program will help identify the other gaps and priorities that may need to be covered through the fund.

V. Comply with HG § 20–108 by establishing and administering a central registry of individuals living with a disability as a result of a brain injury and ensure that these individuals and their families are provided information about appropriate resources and assistance.

The state should improve screening for individuals with disabilities as a result of brain injury by establishing and administering a central registry to compile information about individuals with brain injuries ("head injuries") and ensure that those individuals and their families are provided information about appropriate resources and assistance.

Progress made since the Last Report

BHA was awarded a three-year federal grant in June 2018. Among other grant activities, BHA will use these grant funds to establish an implementation strategy for the Maryland TBI Registry.

Analysis

Under HG § 20–108, each hospital is required to report to the Department within seven days of the occurrence of a "reportable condition." Within 15 days of receiving a report of an individual with a reportable condition, the Department shall 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.

As far as the TBIAB is aware, hospitals are not reporting the occurrences of individuals with disabilities in their institutions with "head injuries" within seven days. In addition, as far as the TBIAB is aware, the Department has not implemented the statutorily required central registry to compile information about individuals with disabilities with reportable conditions. Furthermore, as far as the TBIAB is aware, the Department is not notifying 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 within 15 days.

This gap in reporting, compiling, and notification is negatively affecting the lives of every Maryland family, particularly those dealing with brain injury. It impairs data collection and analysis for purposes of legislative and policy initiatives. It limits the number of individuals and family members receiving timely information and resources at the most vulnerable time of this family crisis. It restricts the ability of state agencies and advocacy groups to present accurate pictures of the severity and breadth of impact of brain injury in Maryland. It leaves many families without the critical information and contacts, and more importantly, the hope they need to address the myriad of issues created when a loved one has a brain injury. The failure to implement this statute also negatively impacts individuals with the other listed "reportable conditions," including spinal cord injury, stroke, and amputation. With this recommendation, the TBIAB is merely asking for the Department to do what they are required to do and should have already been doing for over three decades.

MARYLAND ACCOMPLISHMENTS

Since the establishment of the TBIAB, some progress has been made to improve the system of services and supports 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 concussion bill, meaningful changes to the Brain Injury Waiver, implementation of brain injury screening protocol for certain public behavioral health services, and ongoing protections for Maryland's motorcycle safety laws.

I. 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.

II. Brain Injury Trust Fund

The Maryland Brain Injury Trust Fund was created during the 2013 Legislative Session. In order for the fund to be able to cover needed services for Marylanders with brain injury, a sustainable revenue source is needed.

III. 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.

IV. 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.

In Calendar Year 2018:

- The TBIAB has created several subcommittees to promote the work of the board, consisting of advisory board members and nonmembers, including: Survivors and Families Empowered (SAFE), the Brain Injury Waiver and Long Term Services Advisory subcommittee, and the Education subcommittee. Additional ad hoc committees are formed as needed.

- One of the consistent TBIAB recommendations has involved the creation and funding of a dedicated Brain Injury Trust Fund. In 2018, the Maryland Department of Transportation announced its plans to establish a revenue source through a voluntary donation box that will be included in online and kiosk vehicle registrations beginning in calendar year 2019.

- Members of the TBIAB also participate in the Maryland Public Secondary Schools Athletic Association's (MPSSAA) Traumatic Brain Injury/Sports-Related Concussions Task Force, which meets annually. This year, the task force was included as part of MPSSAA's Medical Advisory Committee on October 25, 2016, to discuss updates to both the parent and student acknowledgement, medical clearance forms, and review progress.

- BHA was awarded a three-year federal TBI grant which aims to create a new screen, train, activate/support, and reduce (STAR) model:

    1. **Screen** individuals receiving behavioral health services for a history brain injury;
    2. **Train** behavioral health professionals, paraprofessionals, and Aging and Disability Resource Center personnel to provide cognitively accessible services and interventions utilizing person centered practices;
    3. **Activate/Support** stakeholders at the state and local levels to enhance the infrastructure of current systems and procedures and ensure the highest competencies in the delivery of care to individuals with brain injury; and
    4. **Reduce** the risk of overdose for Marylanders who have sustained a brain injury.

- The Brain Injury Association in conjunction with TBIAB hosted a brain injury awareness conference in Annapolis to educate legislators about brain injury in honor of Brain Injury Awareness Month (March).

- In the spring of 2018, members of the TBIAB in association with the Brain Injury Association of Maryland participated in the national Unmasking Brain Injury initiative by providing masks and craft supplies to individuals with brain injuries to tell their stories and express their feelings about brain injury through art. On March 7, 2018, during Brain Injury Awareness Day in Annapolis, 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.

MARYLAND BRAIN INJURY RESOURCES

Governor TBI Advisory Board

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

Advocacy, Information, and Assistance

Brain Injury Association of Maryland
www.biamd.org

Maryland Lead Agency of Brain Injury

Maryland BHA
https://bha.health.maryland.gov/Pages/Traumatic-Brain-Injury.aspx

Maryland Injury Data

The Department's Violence and Injury Program
https://phpa.health.maryland.gov/ohpetup/Documents/TBI_AdvisoryBoard_data_Sept2017_Final.pdf\

Legal

Disability Rights Maryland
https://disabilityrightsmd.org/

MARYLAND TBIAB MEMBERSHIP

Thirty-six members constitute the Maryland TBIAB, as 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 appointment 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 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.

The ***Vision*** of the TBIAB is to prevent brain injury and maximize the quality of life for every Marylander affected by brain injury.

The ***Mission*** of the TBAIB is to identify needs, gaps in services, and potential funding resources by building relationships and collaborating with elected officials and heads of state agencies that will influence policy and promote prevention, education, and effective interventions in order to support recovery and quality of life for every Marylander affected by brain injury.

Board Membership

Jeronica Baldwin Office of Health Services, Baltimore City	**Sandra Bastinelli** Representing Individuals with Brain Injury Carroll County	**Bob Berlow** Disability Rights Maryland, Baltimore City
Jody Boone Division of Rehabilitation Services Baltimore City	**Alison Cernich, Ph.D.** ABPP-Cn (ex-officio) National Institutes of Health, Montgomery County	**Joan Carney, Ed.D.** Brain Injury Association of Maryland Baltimore City
Larry Cadenhead Representing Families and Caregivers of Individuals with Brain Injury Howard County	**Joyce Dantzler** Center for Injury and Sexual Assault Prevention, Maryland Department of Health Baltimore City	**Christine Deeley Wood** Representing Families and Caregivers of Individuals with Brain Injury Montgomery County
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

Pamela Harman
Veteran's Health Administration, U.S. Dept. of Veteran's Affairs
Washington, DC

Paul Hartman
Representing Individuals with Brain Injury, Center for Independent Living
Frederick County

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

Linda Hutchinson-Troyer
Brain Injury Association of Maryland
Baltimore City

Martin Kerrigan, Chair
Brain Injury Association of Maryland
Baltimore City

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

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

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

Adrienne Walker-Pittman
Representing Individuals with Brain Injury
Baltimore City

Maryland Legislative Appointments (ex-officio)

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

Delegate Jeffrey D. Waldstreicher
Democrat, District 18,
Montgomery County

Staff to the TBIAB

Kirsten Robb-McGrath
Maryland Department of Disabilities
Baltimore City

Nikisha Marion
Behavioral Health Administration, Maryland Department of Health
Baltimore County