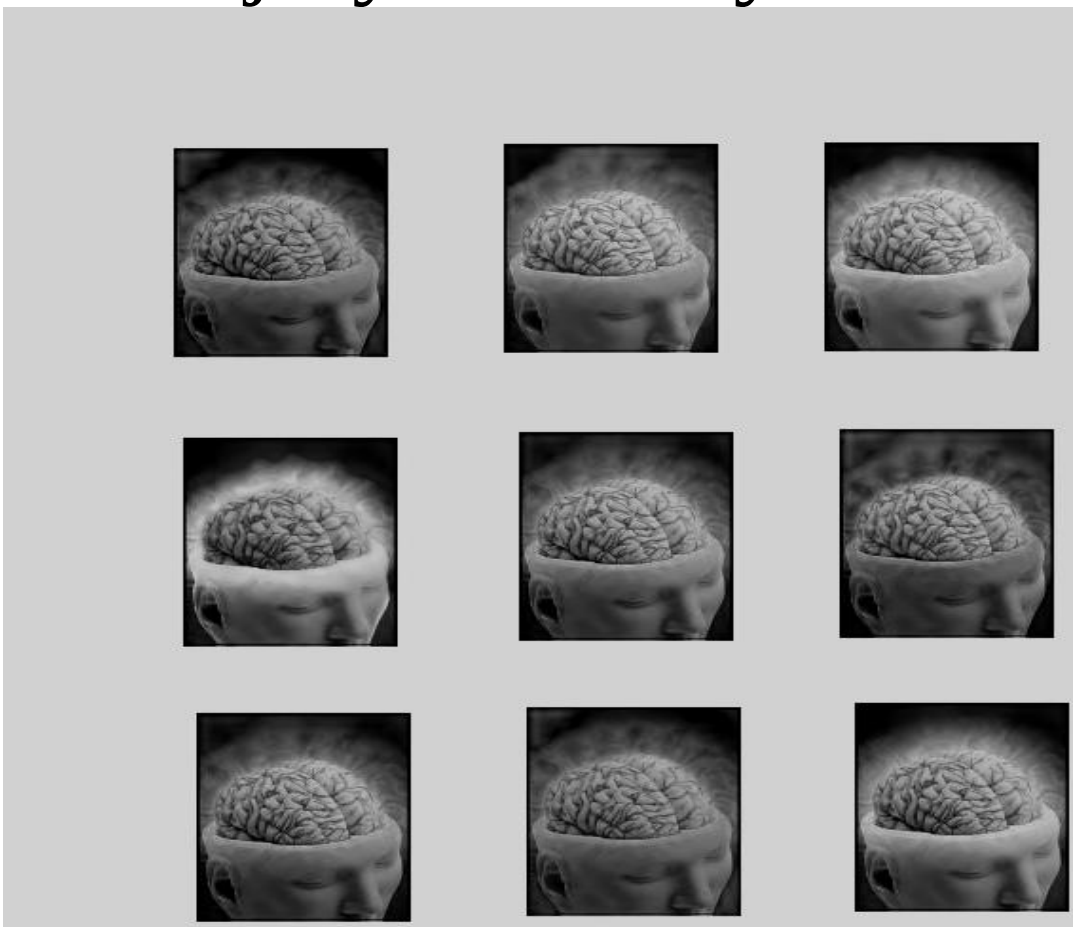
# Maryland Traumatic Brain Injury Advisory Board



# 2009 Annual Report

November 30, 2009

c/o Mental Hygiene Administration
Spring Grove Hospital/ Dix Building
55 Wade Avenue
Catonsville, MD 21228

The Honorable Martin O'Malley, Governor
State House - 100 State Circle
Annapolis, Maryland 21401 - 1925

Thomas V. Mike Miller, Jr., President of Senate
State House, H-107
Annapolis, Maryland 21401 - 1991

Michael Erin Busch, Speaker of House of Delegates
State House, H-101
Annapolis, Maryland 21401 – 1991

Dear Governor O'Malley, Senator Miller, and Delegate Busch:

The Maryland State Traumatic Brain Injury Advisory Board is required to issue an annual report to the Governor and the General Assembly by §13-2105(6) of the Health General Article in accordance with § 2-1246 of the State Government Article. The enclosed report summarizes the actions of the Advisory Board and contains recommendations pertaining to the unmet needs of Marylanders with traumatic brain injury and appropriate services to best meet those needs.

The report contains five recommendations which the Board believes represent the most critical needs of individuals with brain injuries and their families and significant others living in the state of Maryland. The report focuses on the current status of the Board's activities, progress, and plans for the coming year related to the key recommendations.

If you have any questions or require additional information, please contact me through Stefani O'Dea, Chief of Long Term Care, Maryland Mental Hygiene Administration at (410) 402- 8476, or by email to sodea@dhmh.state.md.us

Sincerely,

Martin W. Kerrigan

Martin Kerrigan, Chair

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**Executive Summary**

The Maryland Traumatic Brain Injury (TBI) Advisory Board was established in 2005 by House Bill 309 (Article Health General Section 13-2101 through 13-21-06) and was given the charge of advising the state legislature and the governor on the impact of brain injury on the state of Maryland. The Board is responsible for writing an annual report with recommendations regarding needed services and supports for individuals living with brain injury as well as prevention efforts. The board consists of experts in the field of brain injury, professionals who work with individuals with brain injuries, representatives from state agencies, advocacy organizations, individuals with brain injury and family members and caregivers of individuals with brain injuries. A list of Advisory Board members is attached as Appendix A.

Brain Injuries can be caused by traumatic events, such as motor vehicle accidents or falls, or acquired as a result of a medical condition or problem, such as anoxia or brain tumors. The Maryland TBI Advisory Board feels it is important to address the needs of Marylanders with both traumatic brain injuries (TBI) and other acquired brain injuries (ABI) and the recommendations in this report apply to Marylanders who have sustained any type of brain injury. Brain Injury is a unique injury, its impact measured in terms of severity of injury ranging from mild to moderate to severe. Most individuals who sustain a mild TBI return to their previous level of functioning and previous lifestyle, including work, school, and personal relationships, following the resolution of the mild symptoms of brain injury and concussion. However, the result of a brain injury can be chronic, debilitating and progressive in nature.

For many individuals who experience a moderate to severe TBI and a minority of those who sustain a mild TBI and continue to experience lingering symptoms, the effects of the brain injury can be severe and long lasting. The Centers for Disease Control (CDC) reports 30-50% of individuals with moderate TBI will have difficulties in one or more areas of functioning and 80% of individuals with severe TBI will have long-term difficulties in multiple areas of functioning. Individuals with brain injury, especially those with moderate to severe injuries, are at risk of a wide array of social and health related problems such as unemployment, substance abuse, social isolation, criminal activity, suicide, co-morbid medical and behavioral health conditions and may ultimately require long term services and supports to promote the on-going recovery process. This subset of individuals with brain injury is also likely to utilize public healthcare such as that offered through Medicare and State Medicaid programs.

Despite the potential cognitive, physical, and behavioral issues that often prevent maximum recovery from happening, individuals who sustain a brain injury, regardless of the severity of the injury, are usually very motivated to return to work, sustain meaningful relationships, and to contribute significantly to their communities. This common intrinsic level of motivation evident in most survivors of brain injury is possibly due to the nature of the onset of the brain injury disability, which happens suddenly, without warning, and is almost always a life-changing event. This combination of factors, the potential high cost of care and services for individuals utilizing public healthcare systems along with the intrinsic desire of this population to recover, regain independence, and contribute significantly to society, presents

the State of Maryland with an opportunity to implement programs and opportunities that will promote recovery and reduce the long term financial burden on other public programs.

Thirty years ago, only 50% of all people who sustained a brain injury survived. That number has now been increased to 78%. Trauma centers continue to save more individuals with brain injury, and advances in emergency medicine and improvements in diagnostic procedures, monitoring devices, and treatment methods have increased the survival rates from catastrophic injuries including brain injuries.

Maryland has a fragmented system of high quality services and programs. Valuable resources exist in the state but the complexity of the system and the lack of coordination between public and private programs often precludes Marylanders from receiving the optimum care and support to promote recovery from TBI.

Data:

*Every 21 seconds in the United States a brain injury occurs, and* there are currently *3.17 million* Americans living with a disability as a result of a Traumatic Brain Injury (TBI). In Maryland, an estimated *112,672 individuals*, or 2% of the state's population, are living with a disability as a result of a brain injury.

The Maryland Department of Health and Mental Hygiene, Family Health Administration, collects TBI hospital discharge data and injury related death data and recently completed an analysis of this data for the years 2003-2007. The available figures describe an escalating public health issue. The number of TBI related Maryland Hospital Discharges [of Maryland residents] rose from 5,466 in 2003 to 7,382 in 2007 - a 35% increase over the five years studied. During this same period, TBI related Maryland Emergency Department Visits [by Maryland residents] increased 31% from 22,368 to 29,380. Fortunately, despite the evidence of rapidly increasing, medically significant TBI, the number of TBI-related deaths of Maryland residents has not risen as dramatically. 2003 TBI-related deaths numbered 692 while 2007 saw the loss of 730 Maryland lives, a comparatively small increase of 5.5%.

**Maryland Accomplishments**

Since the establishment of the Maryland TBI Advisory Board in 2005, progress has been made in Maryland 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 Board has been able to promote public and private collaborations that have significant benefits, even in these harsh economic times. Some of the efforts in which the Board, and its partners, have had the most influence and success are listed below:

*Governor's Employment Initiative for People with Acquired Brain Injury (ABI)*

The ABI Employment Program was initiated in July 2006, the goal being provision of intensive vocational rehabilitation services to individuals with acquired brain injuries who require long-term, ongoing support services to assure success in employment.

The Division of Rehabilitation Services (DORS) is the lead agency for the ABI Employment Program. The Program, in partnership with community rehabilitation programs and other organizations has the responsibility to provide necessary services, including job coaching, to eligible individuals to support successful employment. Funding for the long term job coaching is provided through DORS. The University of Maryland continues to provide the research and evaluation component to examine the efficacy of a specialized service delivery system. Maryland data through September 30, 2009 demonstrates a successful employment rate of 79% in contrast to the national success rates of 54% and 64.5% for non-supported employment and supported employment outcomes respectively. To date, 150 individuals living with significant effects from their brain injuries have participated in the program with the Division maintaining a census of 135 active participants. For the successfully employed individuals, data indicates average hourly earnings of approximately $11.00 per hour with an average of 26 work hours per week. The University of Maryland is preparing a full analysis of the accumulated data in conjunction with DORS to further examine service delivery and employment implications.

The TBI Advisory Board advocated to preserve and maintain funding for this successful program and to recognize it as an essential component of the continuum of brain injury care. The Board recognizes the Maryland State Department of Education/ Division of Rehab Services, the Brain Injury Association of Maryland, the Maryland Mental Hygiene Administration and the Maryland Department of Disabilities for insight, collaboration and resourcefulness in creating this project. Additionally, the Board continues to recommend to the Governor to preserve this program and to increase funding so more Marylanders can successfully return to work and contribute to the financial health of Maryland rather than contribute to financial burden on Maryland taxpayers.

*Maryland Insurance Administration*

Maryland families and the provider community continually advised the Board about the lack of insurance coverage for medical and rehabilitative services for both acute and long-term care needs.

In response to these concerns, the Board requested that the Maryland Insurance Administration (MIA) conduct a market analysis in accordance with articles 2-205 of the insurance article and the MIA acceded to that request. Through this market analysis the MIA sought to identify patterns and practices of insurers, health maintenance organizations and non-profit health service plans offering health benefit plans in the State regarding coverage for rehabilitation services and adjudication of claims.

While the MIA survey did not find a pattern of inappropriate denials of care for this population, it did uncover problems with prompt payment to providers of rehabilitation services. It also underscored the need for carriers and providers to work together to assist families coping with brain injury to understand coverage limitations and to explore other options for coverage.

The TBI Advisory Board will continue to work with all the stakeholders and the MIA to address these issues. The Board thanks Delegate Kumar Barve for his responsiveness to the TBI Advisory Board and his leadership in this initiative.

*Maryland's Motorcycle Helmet Law*

Brain injuries can be prevented, and the Board is committed to brain injury prevention and minimizing the severity of injury after an accident. The Board applauds the many sound and practical policies implemented at the state and federal levels – seat belts, improved highway construction, air bags and helmet laws.

The repeal of helmet laws in other states offers an important lesson for Maryland. Louisiana's all-rider helmet repeal in 1999 caused motorcycle deaths to double (*National Highway Traffic Safety Administration [NHTSA] 2003*). This resulted in reinstatement of Louisiana's helmet law in 2004. Texas repealed its all-rider helmet law in 1997. The number of motorcycle fatalities increased by 31 percent. Arkansas also repealed its all-rider helmet law in 1997 and experienced a 21 percent increase in motorcycle deaths (NHTSA 2000). An evaluation of data collected for the Florida Department of Transportation demonstrates that since its all helmet law repeal in 2000, motorcycle deaths have risen almost 42 percent (NHTSA).

The Board thanks the brain injury community for ardently advocating for the current Motorcycle Helmet Law year after year and the Maryland Legislature for its insight into the rationale for maintaining the current law and preventing needless brain injuries and additional costs to Maryland taxpayers.

**Unmet Needs**

The Maryland Traumatic Brain Injury Advisory Board has five recommendations that it wants to focus on for the upcoming year. Though there are many issues affecting Marylanders living with brain injury and their families and caregivers, the Advisory Board feels that these five recommendations are crucial to the continued improvements in successful outcomes for residents of Maryland living with brain injury.

*Recommendations*

1. Establish the State of Maryland Brain Injury Dedicated Trust Fund;
2. Expand eligibility for the Home and Community-Based Waiver for Individuals with Traumatic Brain Injury to include individuals in private nursing homes;
3. Develop a continuum of care to meet the complex neurobehavioral and medical needs of individuals with more moderate to severe brain injuries;
4. Expand and fully fund brain injury resource coordination services statewide; and
5. Properly identify, place, and provide services for students with Traumatic Brain Injury (TBI).

*Basis for Recommendations*

Community-based services and supports such as resource coordination, housing, day treatment, employment, neuropsychological evaluations, school re-entry, caregiver respite, and other assistance and accommodations are critical to avoid unnecessary placement in

long-term care settings, maximize independence, ease stress on peer and family relationships, and enhance performance in school and at work **(Recommendation 1, 2, 4).**

Though the State of Maryland has had several long-term care initiatives in recent years, these initiatives continue to lack the full continuum of care needed to assist people with brain injury. Maryland must continue to include the needs of individuals with brain injury in future initiatives and programs especially as the State explores long-term care reform **(Recommendations 1, 2, 3)**.

Maryland's existing community service system is complex and difficult to navigate**.** People with brain injuries may receive services from programs designed for other targeted populations with limited to no specialized services for their particular injury and resulting disability. Individuals with acquired brain injuries who have significant neurobehavioral issues and/or complex co-morbid medical conditions are getting stuck in emergency departments and hospitals (general and psychiatric), and are being denied care or involuntarily discharged from nursing facilities. Costs to the State of Maryland are high for this population. Resource Coordination is critical to linking people with brain injury to available local, State, and community services and supports **(Recommendation 1, 3 & 4)**.

Maryland lacks adequate data necessary to provide a comprehensive assessment of the number of individuals with brain injury currently served by providers, state agencies, hospitals, and school systems, their service utilization and related costs to the State of Maryland. Maryland state agencies providing services to individuals with disabilities do not currently disaggregate data to track individuals with brain injury, making it difficult to measure the effectiveness of the programs for this population or to plan for its growing needs. The lack of data in our school systems impacts Maryland's ability to provide the necessary service and supports to maximize the success of our students. Data reported by hospitals regarding children with a traumatic brain injury does not match data from local school systems for students with brain injuries **(Recommendation 5)**

Please consider these recommendations, which are essential to improving the lives of individuals with brain injuries and their families living in the state of Maryland. The recommended actions will lead to better outcomes for individuals with brain injuries, and can ultimately save the state of Maryland money.

*Survivors and Families Empowered*

The Board has established one standing committee, SAFE (Survivors and Families Empowered). The SAFE committee was created as a place for the members of the Maryland Traumatic Brain Injury Advisory Board who are living with a brain injury or who are family members of individuals with brain injuries, to feel support and to foster a sense of unity in board matters.

Prior to each Advisory Board, the SAFE Committee meets for an hour to review issues and allows survivors and family members to work together to be able to "speak" for individuals and families living with brain injury. One of the main goals of the committee is to ensure that individuals with brain injury and family members are active participants in Advisory Board meetings and activities. The "meetings before the meeting" allow members to clarify

any misunderstandings as well as provide members the opportunity to join together and to discuss issues with which they are living as survivors of brain injury and as family members. It is this sense of camaraderie that is one of the most valued aspects of the SAFE subcommittee. The Board is truly fortunate to have the SAFE committee and Maryland is fortunate to have this consumer led advisory board.

# Recommendations

## RECOMMENDATION # 1

## Establish the State of Maryland Dedicated Brain Injury Trust Fund

### Current Status

The Maryland Traumatic Brain Injury Advisory Board recommends the creation of a state dedicated brain injury trust fund to expand and enhance services and supports that are needed for the increasing number of Marylanders who sustain a brain injury each year.

Based on review of the other 21 State Brain Injury Trust Funds, the Trust Fund subcommittee, in conjunction with members of the Legislature, developed legislation for creating the trust fund, administration of the fund, eligibility criteria, benefit caps, and services and supports that would be funded through trust fund revenue. Some of the services/supports recommended are: individual case management services, rehabilitation services, assistive technology assessment and equipment, neurobehavioral health services, neuropsychological evaluations, nursing home transition services, community re-entry services, educational needs, housing/residential, transportation services, and supporting prevention, education, and awareness programs.

Revenue sources appear to be the most crucial political consideration. The Board recommends the main source of funding be a 25% additional charge to persons fined under the Maryland Vehicle Law, which would also include convictions for speed cameras and red-light cameras in all Maryland jurisdictions. A review of other states currently with trust funds indicates the need for a grass-roots approach for support, as well as advocating and educating the public and the legislature. In today's budget climate, passage is even more critical. A strong supportive coalition will be necessary to ensure establishment of the Fund.

### 2010 Plans

- The Board will educate Legislators, Executive Branch officials, Judicial Branch officials, community partners and the public to build a strong coalition in support of the Trust Fund recommendation, which should be in Bill form in the 2010 legislative session.
- Board members will develop tools to illustrate the urgent need for the fund, including personal face-to-face meetings with legislators and officials from the judicial and executive branches of government, to gain their support for the Bill.
- The Board will work with the Governor to support the Bill.

## RECOMMENDATION # 2

# Expand eligibility for the Home and Community-Based Waiver for Individuals with Traumatic Brain Injury to include individuals in private nursing facilities.

## Current Status

The Medicaid Home and community Based Services Waiver for Adults with Traumatic Brain Injury (TBI Waiver) was established in July of 2003 and renewed by the Center for Medicare and Medicaid Services (CMS) for an additional 5 years in July of 2006.

Through the Money Follows the Individual policy instituted by the Department of Health and Mental Hygiene (DHMH), the TBI waiver expanded in August of 2008. In accordance with this policy, individuals with brain injury who are in chronic hospitals or state owned and operated nursing facilities are able to enroll in the TBI Waiver program if Medicaid has paid for their long term care stay for at least 30 days. However, the TBI waiver remains closed to individuals in private nursing facilities, institutions where over 2000 Marylanders with TBI currently reside and receive long term care services according to results from a study conducted by The Hilltop Institute at the University of Maryland, Baltimore Campus (UMBC). The study also found that the longer a person with TBI stays in a nursing facility, the higher the costs over time. Additionally, the average costs to Medicaid for a long stay (over 300 days) is $101,064 for Medicaid beneficiaries with brain injury and a few individuals have costs as high as $423,006.

For many years, advocates for brain injury survivors have suspected that nursing facility care for individuals with brain injury costs Medicaid: 1) more than nursing facility care for typical nursing facility residents, and 2) more than appropriate community services. Now, the Hilltop Study, has confirmed this funding imbalance. Maryland can serve individuals with TBI better and for less cost in their communities. Maryland has an obligation to provide critical Medicaid services to individuals in the most integrated setting consistent with the person's needs and preferences.

## 2010 Plans

- The Mental Hygiene Administration (MHA) has applied for a federal grant to support an expanded study of the needs of individuals with brain injury in Maryland nursing homes. If funded, the study will assist MHA and the State of Maryland with understanding the care needs of individuals with brain injury in nursing homes so that the State can plan for the eventual transition of these individuals to home and community based services.
- MHA is in the process of expanding the capacity of the TBI Waiver Program through recruitment of new providers and expansion of existing waiver programs.
- MHA and the DHMH Office of Health Services have begun the renewal process for the TBI Waiver Program, which is due to CMS by 2011.

## RECOMMENDATION # 3

# Develop a continuum of care to meet the complex neurobehavioral and medical needs of individuals with moderate to severe brain injuries.

## Current Status

Individuals with brain injuries who have significant neurobehavioral issues and/or complex co-morbid medical conditions are getting stuck in Emergency Departments and Hospitals (General and Psychiatric), and are being denied care or discharged from nursing facilities. Costs to the State of Maryland are high for this population. The Hilltop Institute at UMBC is working with DHMH to identify trends for Medicaid beneficiaries with brain injury who have high utilization of Medicaid services.

There are gaps in Maryland's system of care for treating individuals who sustain a brain injury. The system of care currently consists of emergent care and trauma centers followed by acute hospital care and inpatient and/or outpatient rehabilitation. Long-term care services include nursing facilities, assisted living programs, or home and community based services (HCBS) waiver programs. The TBI Waiver is the only long term care program designed specifically for individuals with brain injury but TBI Waiver Program eligibility and capacity is limited. Few resources exist for non-traumatic brain injuries. Other long term care services (nursing facilities, assisted living and other waiver programs) are provided by agencies that do not have expertise in brain injury, do not have staff trained in brain injury needs and strategies, and often refuse to admit and/or quickly discharge individuals with brain injury who exhibit difficult behaviors. Maryland's continuum of care for this population needs to be improved to include inpatient specialty units, expansion of the TBI Waiver, consultative services to prevent institutionalization, and expansion of resource coordination or case management services. The latter services are essential to help individuals access the care they need, promote opportunities for recovery, and assist individuals when they have set-backs, decompensate, or when additional medical and behavioral health issues arise following the injury.

## 2010 Plans:

- The Department of Health and Mental Hygiene has begun exploring needs and gaps for this population including improvement to the continuum of care for this population that may include expansion of the TBI waiver program, case management, establishment of inpatient neurobehavioral care options as well as outpatient consultative service that will prevent or reduce the for institutional care.
- MHA has applied for a federal grant to conduct a needs and resources assessment geared towards individuals with moderate to severe brain injuries to assist the state with planning for this population.

## RECOMMENDATION # 4

# Expand and Fully Fund Brain Injury Resource Coordination Services Statewide

## Current Status

Individuals who sustain a brain injury are often unable to navigate Maryland's human service system in order to access the services and supports they need. Additionally, human service professionals are not familiar with brain injury and the type of supports this population needs in order to regain functioning and have good recovery outcomes. A Brain Injury Resource Coordination and Training Project was developed by the Mental Hygiene Administration (MHA) in 2003 and is currently available in 5 Maryland counties: Montgomery, Baltimore, Howard, Frederick, and Washington. In addition to resource coordination services provided to individuals with brain injury, training is provided to human service professionals in the participating counties so that they can better support and interact with individuals with brain injury.

Since its inception, MHA's Brain Injury Resource Coordination and Training Program has been funded through a federal grant from the Health Resources and Services Administration/ Maternal and Child Health Bureau. This federal funding ended in June 2009 and the future of the program was unclear for some time. Fortunately, MHA was able to utilize funding from Maryland's Money Follows the Person Demonstration project (MFP) to support the program. Unfortunately MFP ends in 2011 yet expansion of the services statewide remains a high priority to the Advisory Board and to the MHA. Additional sources of funding are necessary in order to sustain the program and expand the much-needed services statewide. Program outcomes to date include:

- 182 individuals with brain injury received services through the Brain Injury Resource Coordination and Training Project since 2003.
- 85% were able to obtain the services and supports they needed related to housing, entitlements, and therapeutic or medical services
- Individuals who received resource coordination services were, on average, 11 years post injury.
- On average, 75 hours of resource coordination services were provided per individual served, in order to achieve the goals identified by the individuals served.
- 110 trainings (for over 1700 human service professionals) were conducted during the course of the project on topics such as: Brain Injury Overview, Substance Abuse and Brain Injury, Domestic Violence and Brain Injury, and Compensatory Strategies for Individuals with Brain Injury.

## 2010 Plans:

- MHA has applied for a federal grant to sustain the existing Resource Coordination program. If funded, resource coordination efforts will focus on individuals with brain injury who are institutionalized and those who are incarcerated. Opportunities to expand the services statewide are not available without a commitment of State funds.

## RECOMMENDATION # 5

# Properly identify, place, and provide services for students with Traumatic Brain Injury (TBI).

## Current Status

In order to properly identify, place, and provide services for students with TBI, the Board recommends the following; the facilitation of effective transition of school aged children from medical settings returning to their educational placement, the proper identification of students with TBI currently within the school system, and training for school personnel to provide appropriate education services. In 2007, Maryland had approximately 1,700 documented hospital admissions, and 15,354 emergency room visits for individuals aged 0 - 24 years who received a diagnosis of TBI [see appendix B]. Even with a conservative estimate and the acknowledgement that not all individuals who sustain a TBI have the onset of a disability there is still a tremendous discrepancy between this data and the school system data. In 2007, MSDE identified a total of 306 students statewide with TBI that were receiving special education services. If students are not identified, or not identified correctly, their ability to be successful in school and when they transition to adult hood is limited and they will likely end up unnecessarily consuming valuable state resources both now and in the future

The Maryland Traumatic Brain Injury Advisory Board, in conjunction with the Brain Injury Association of Maryland (BIAM), continues to work with school officials at both the local and state level to educate school personnel about brain injury, its frequency, and its impact on students. Several trainings and models have been created and last year a number of educators and school personnel attended the BIAM's Annual Brain Injury Conference. These individuals were able to attend the conference on scholarships that resulted from collaboration between the BIAM and the Maryland State Department of Education (MSDE).

## 2010 Plans

- The Return To School subcommittee of the Maryland Traumatic Brain Injury Advisory Board in collaboration with the BIAM will convene a meeting with MSDE and the local education agencies (LEA) to educate them on the prevalence of brain injury to:
    - improve collaboration between service providers, families, and LEAs;
    - emphasize moderate and mild Acquired Brain Injuries and its prevalence in school aged children;
    - continue to support the BIAMs efforts to sponsor school personnel attending trainings and conferences;
    - improve dissemination of the concussion (mild brain injury) awareness and identification trainings to school personnel;
    - increase the identification of and awareness of students with concussions; and
    - assist in the identification of students with brain injuries and strategies and resources to support them.

# APPENDIX A

## State Traumatic Brain Injury Advisory Board Members

**Stefani O'Dea**
Department of Health and Mental Hygiene
Mental Hygiene Administration
Catonsville, Maryland

**Greg Ayotte**
Brain Injury Association of Maryland
Towson, Maryland

**Janice Barrett**
Statewide Independent Living Council
Silver Spring, Maryland

**Mary Beachley**
Maryland Institute for Emergency Medicaid Services Systems
Baltimore, Maryland

**Diane Bolger**
Department of Health and Mental Hygiene
Developmental Disabilities Administration
Baltimore, Maryland

**Teresa Ingle**
Representing Individuals with Brain Injury
Annapolis, Maryland

**Christine Rowley**
Department of Health and Mental Hygiene
Alcohol and Drug Abuse Administration
Catonsville, Maryland

**Mary Lou Coppinger**
Representing Families/Caregivers of Individuals with Brain Injury
Baltimore, Maryland

**Debra Fulton- Clark**
Representing Professionals Working with Individuals with Brain Injury
Columbia, Maryland

**Sandy Davis**
Brain Injury Association of Maryland
Owings Mills, Maryland

**Sue Ferris**
Representing Individuals with Brain Injury
Annapolis, Maryland

**Nathaniel Fick**
Brain Injury Association of Maryland
Fick & Petty
Towson, Maryland

**Gayle Hafner**
Maryland Disability Law Center
Baltimore, Maryland

**Paul Hartman**
Representing Individuals with Brain Injury
Frederick, Maryland

**Martin Kerrigan**
Representing Individuals with Brain Injury
Columbia, Maryland

**Vassilis Koliatsos, MD**
Representing Professionals Working with Individuals with Brain Injury
Baltimore, Maryland

**Karen McQuillan**
Representing Professionals Working with Individuals with Brain Injury
R Adams Cowley Shock Trauma Center
Baltimore, Maryland

**Lee Murphy**
Maryland State Department of Education
Baltimore, Maryland

**Lt. William Powell**
Representing Local Police Enforcement
Annapolis City Police
Annapolis, Maryland

**Laurie Elinoff**
Representing Individuals with Brain Injury
Germantown, Maryland

**Sherria Owens**
Representing Families/Caregivers of Individuals with Brain Injury
Skyesville, Maryland

**Sharon Sauls**
Representing Professionals Working with Individuals with Brain Injury

SKY Neuro Rehab
Laurel, Maryland

**Jo Anne Materkowski**
Maryland State Department of Education
Baltimore, Maryland

**Diane Triplett**
Brain Injury Association of Maryland
Baltimore, Maryland

**George Thorpe**
Center for Preventive Health Services/
Family Health Administration
Department of Health and Mental Hygiene
Baltimore, Maryland

**Robert Vacin**
Representing Families & Caregivers
LaPlata, Maryland

**Cari Watrous**
Maryland Department of Disabilities
Baltimore, Maryland

**Michael Weinrick, PhD**
National Institute of Health
Bethesda, Maryland

**Denise White**
Department of Health and Mental Hygiene
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**Sean Westley**
Representing Families/Caregivers of Individuals with Brain Injury
Baltimore, Maryland

**Richard Zeidman**
Representing Families/Caregivers of Individuals with Brain Injury
Rockville, Maryland

Staff To The Board
**Nikisha Marion**
Department of Health and Mental Hygiene
Mental Hygiene Administration
Catonsville, Maryland

**James Reinsel**
Maryland Department of Disabilities
Baltimore, Maryland

# APPENDIX B

Maryland Data

## Traumatic Brain Injury (TBI-related) Deaths, Hospitalizations, and Emergency Department Visits – Five Year Experience, 2003 – 2007, Family Health Administration, Maryland Department of Health and Mental Hygiene

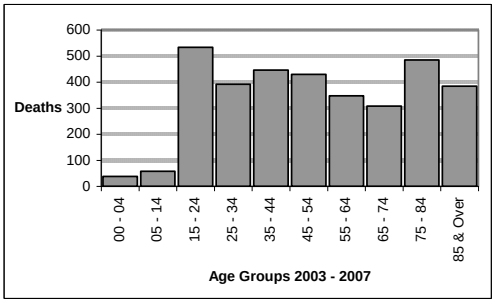
See data tables and charts prepared by Family Health Administration on pages 19 to 21.

## TBI- related Deaths, Maryland Residents, 5-year experience: 2003-2007 inclusive

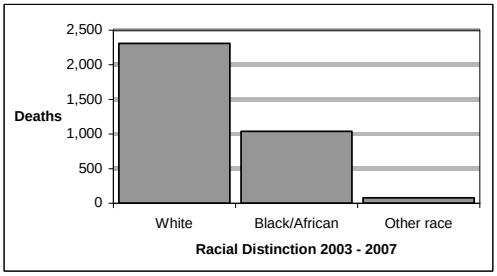
Department of Health and Mental Hygiene/ Family Health Administration

| | Years | | | | | |
|---|---|---|---|---|---|---|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 03-07 |
| **No. of Deaths** | *692* | *667* | *661* | *675* | *730* | ***3,425*** |
| **Age of decedents** | | | | | | |
| 00 - 04 | **XX** | **XX** | **XX** | **XX** | **XX** | ***38*** |
| 05 - 14 | 16 | 18 | 7 | 6 | 11 | ***58*** |
| 15 - 24 | 107 | 103 | 112 | 107 | 104 | ***533*** |
| 25 - 34 | 85 | 77 | 73 | 79 | 78 | ***392*** |
| 35 - 44 | 81 | 94 | 86 | 86 | 99 | ***446*** |
| 45 - 54 | 79 | 88 | 89 | 90 | 84 | ***430*** |
| 55 - 64 | 60 | 62 | 67 | 79 | 79 | ***347*** |
| 65 - 74 | 72 | 58 | 61 | 58 | 59 | ***308*** |
| 75 - 84 | 92 | 90 | 101 | 85 | 117 | ***485*** |
| 85 & Over | 87 | 72 | 60 | 75 | 90 | ***384*** |
| Unspecified | 2 | 1 | 1 | 0 | 0 | 4 |

**XX** = suppressed cell counts to preserve confidentiality

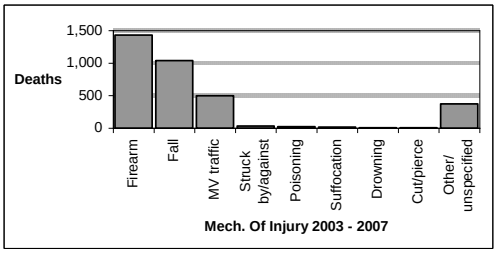



| | | | | | | |
|---|---|---|---|---|---|---|
| **Gender of decedents** | | | | | | |
| Female | 182 | 149 | 152 | 171 | 194 | ***848*** |
| Male | 510 | 518 | 509 | 504 | 536 | ***2,577*** |
| **Race of decedents** | | | | | | |
| White | 454 | 450 | 447 | 449 | 508 | ***2,308*** |
| Black/African | 223 | 200 | 197 | 213 | 205 | ***1,038*** |
| Other race | 12 | 17 | 17 | 13 | 17 | ***76*** |
| Unspecified | 3 | 0 | 0 | 0 | 0 | 3 |

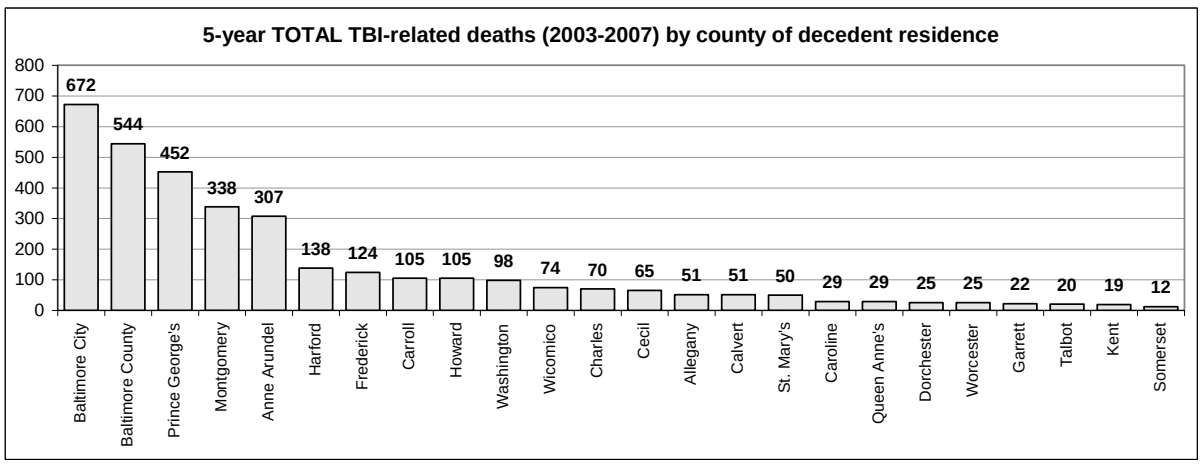



| | | | | | | |
|---|---|---|---|---|---|---|
| **Mechanism [or agent] of injury** | | | | | | |
| Firearm | 284 | 274 | 298 | 295 | 280 | ***1,431*** |
| Fall | 206 | 185 | 193 | 209 | 244 | ***1,037*** |
| MV traffic | 108 | 108 | 78 | 95 | 108 | ***497*** |
| Struck by/against | 5 | 12 | 5 | 5 | 6 | ***33*** |
| Poisoning | **XX** | **XX** | **XX** | **XX** | **XX** | ***22*** |
| Suffocation | **XX** | **XX** | **XX** | **XX** | **XX** | ***16*** |
| Drowning | **XX** | **XX** | **XX** | **XX** | **XX** | ***8*** |
| Cut/pierce | **XX** | **XX** | **XX** | **XX** | **XX** | ***7*** |
| Other/ unspecified | 73 | 76 | 72 | 66 | 87 | ***374*** |

**XX** = suppressed cell counts to preserve confidentiality



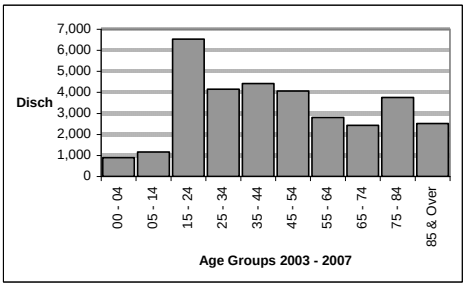

**Geography: Decedent's County of Residence**

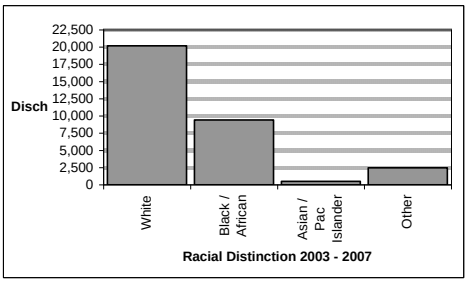


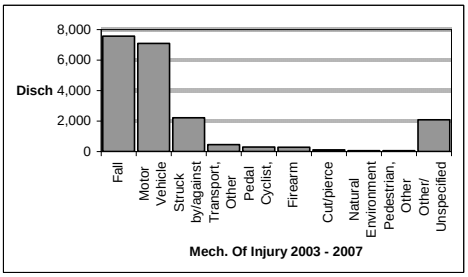
**TBI- related Inpatient Hospital Discharges (non-fatal), Maryland Residents/Maryland Hospitals**
**5-year experience: 2003-2007 inclusive**
Department of Health and Mental Hygiene/ Family Health Administration

| | Years | | | | | |
|---|---|---|---|---|---|---|
| | **2003** | **2004** | **2005** | **2006** | **2007** | 03-07 |
| **Hospital Discharges** | *5,466* | *5,945* | *6,793* | *7,135* | *7,382* | ***32,721*** |
| **Age of Injured** | | | | | | |
| 00 - 04 | 168 | 139 | 193 | 190 | 200 | ***890*** |
| 05 - 14 | 206 | 234 | 243 | 230 | 253 | ***1,166*** |
| 15 - 24 | 1,104 | 1,277 | 1,337 | 1,443 | 1,369 | ***6,530*** |
| 25 - 34 | 704 | 750 | 878 | 922 | 893 | ***4,147*** |
| 35 - 44 | 816 | 803 | 963 | 929 | 905 | ***4,416*** |
| 45 - 54 | 627 | 764 | 860 | 904 | 909 | ***4,064*** |
| 55 - 64 | 426 | 470 | 588 | 655 | 667 | ***2,806*** |
| 65 - 74 | 420 | 436 | 491 | 481 | 602 | ***2,430*** |
| 75 - 84 | 626 | 674 | 735 | 807 | 912 | ***3,754*** |
| 85 & Over | 367 | 397 | 503 | 574 | 672 | ***2,513*** |
| Unspecified | 2 | 1 | 2 | 0 | 0 | 5 |
| **Gender of Injured** | | | | | | |
| Male | 3,504 | 3,829 | 4,355 | 4,561 | 4,640 | ***20,889*** |
| Female | 1,954 | 2,110 | 2,433 | 2,574 | 2,739 | ***11,810*** |
| Not Specified | 8 | 6 | 5 | 0 | 3 | 22 |
| **Race of Injured** | | | | | | |
| White | 3,325 | 3,764 | 4,108 | 4,344 | 4,636 | ***20,177*** |
| Black / African | 1,604 | 1,639 | 1,991 | 2,120 | 2,073 | ***9,427*** |
| Asian / Pac Islander | 94 | 97 | 90 | 96 | 116 | ***493*** |
| Other | 391 | 417 | 543 | 568 | 536 | ***2,455*** |
| Unspecified | 52 | 28 | 61 | 7 | 21 | 169 |
| **Mechanism of injury - based on 20,169 discharges w/ *Principal Dx* of TBI** | | | | | | |
| Fall | 1,287 | 1,332 | 1,491 | 1,566 | 1,891 | ***7,567*** |
| Motor Vehicle Traffic | 1,282 | 1,295 | 1,407 | 1,620 | 1,477 | ***7,081*** |
| Struck by/against | 365 | 376 | 481 | 547 | 447 | ***2,216*** |
| Transport, Other | 81 | 72 | 108 | 99 | 96 | ***456*** |
| Pedal Cyclist, Other | 48 | 57 | 65 | 56 | 68 | ***294*** |
| Firearm | 29 | 37 | 54 | 90 | 67 | ***277*** |
| Cut/pierce | 11 | 12 | 21 | 30 | 32 | ***106*** |
| Natural Environment | **XX** | **XX** | **XX** | **XX** | **XX** | ***48*** |
| Pedestrian, Other | **XX** | **XX** | **XX** | **XX** | **XX** | ***47*** |
| Other/ Unspecified | 357 | 375 | 487 | 405 | 453 | ***2,077*** |

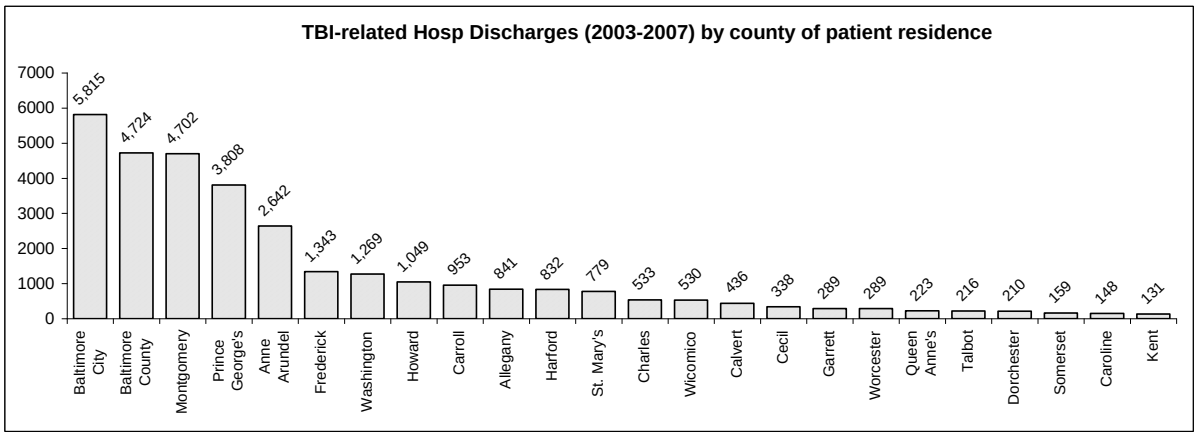
**XX** = small and statistically unstable counts



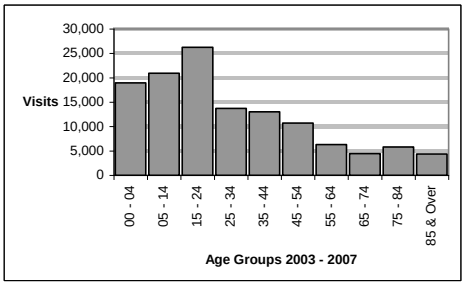

**Geography: Discharged patient's County of Residence - not including 462 Maryland residents whose resident county was not specified**

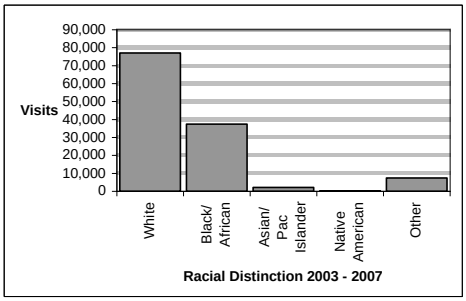


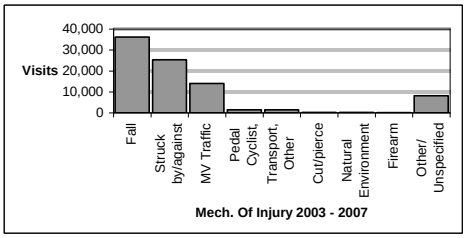
## TBI- related Emergency Department Contacts, Maryland Residents/Maryland Hospitals
## 5-year experience: 2003-2007 inclusive

Department of Health and Mental Hygiene/ Family Health Administration

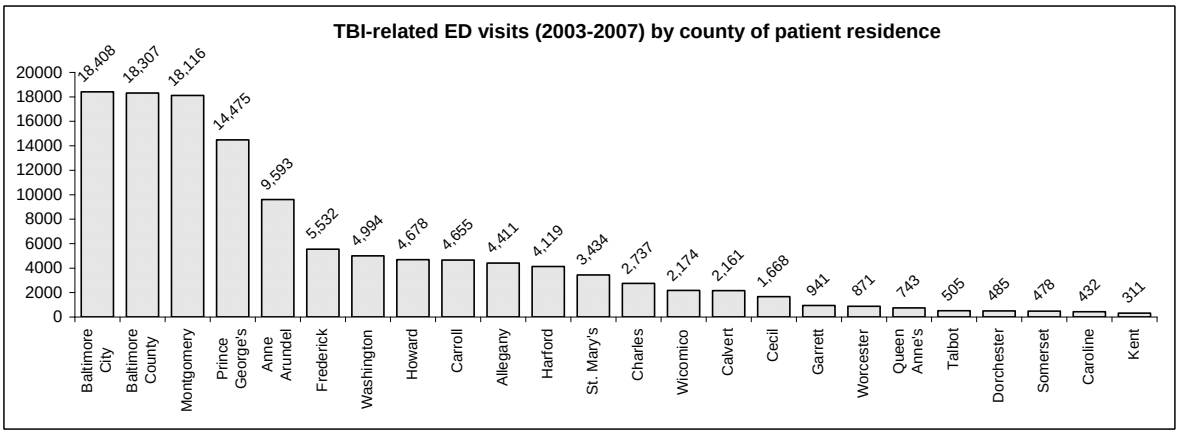
| | Years | | | | | |
|---|---|---|---|---|---|---|
| | **2003** | **2004** | **2005** | **2006** | **2007** | 03-07 |
| **Emerg. Dept. Visits** | *22,368* | *23,474* | *24,323* | *25,001* | *29,380* | ***124,546*** |
| **Age of Injured** | | | | | | |
| 00 - 04 | 3,290 | 3,603 | 3,720 | 3,898 | 4,448 | ***18,959*** |
| 05 - 14 | 3,956 | 4,134 | 4,077 | 4,054 | 4,708 | ***20,929*** |
| 15 - 24 | 4,612 | 4,866 | 5,101 | 5,481 | 6,198 | ***26,258*** |
| 25 - 34 | 2,534 | 2,541 | 2,750 | 2,689 | 3,191 | ***13,705*** |
| 35 - 44 | 2,551 | 2,557 | 2,498 | 2,532 | 2,904 | ***13,042*** |
| 45 - 54 | 1,901 | 1,899 | 2,142 | 2,152 | 2,612 | ***10,706*** |
| 55 - 64 | 1,083 | 1,169 | 1,214 | 1,261 | 1,589 | ***6,316*** |
| 65 - 74 | 745 | 854 | 829 | 866 | 1,143 | ***4,437*** |
| 75 - 84 | 995 | 1,094 | 1,125 | 1,162 | 1,434 | ***5,810*** |
| 85 & Over | 699 | 757 | 867 | 905 | 1,153 | ***4,381*** |
| Unspecified | 2 | 0 | 0 | 1 | 0 | 3 |
| **Gender of Injured** | | | | | | |
| Male | 12,599 | 13,051 | 13,625 | 13,959 | 16,386 | ***69,620*** |
| Female | 9,765 | 10,422 | 10,697 | 11,041 | 12,993 | ***54,918*** |
| Not Specified | 4 | 1 | 1 | 1 | 1 | 8 |
| **Race of Injured** | | | | | | |
| White | 14,135 | 14,731 | 14,696 | 15,469 | 17,952 | ***76,983*** |
| Black/ African | 6,588 | 6,921 | 7,552 | 7,393 | 8,925 | ***37,379*** |
| Asian/ Pac Islander | 367 | 397 | 407 | 449 | 508 | ***2,128*** |
| Native American | 44 | 41 | 53 | 52 | 75 | ***265*** |
| Other | 1,157 | 1,324 | 1,527 | 1,564 | 1,835 | ***7,407*** |
| Unspecified | 77 | 60 | 88 | 74 | 85 | 384 |
| **Mechanism [or agent] of injury - based on 87,002 visits w/ *Principal Dx* of TBI** | | | | | | |
| Fall | 6,454 | 6,951 | 6,987 | 7,061 | 8,693 | ***36,146*** |
| Struck by/against | 4,513 | 4,670 | 4,933 | 5,395 | 5,783 | ***25,294*** |
| MV Traffic | 2,759 | 2,863 | 2,654 | 2,730 | 3,008 | ***14,014*** |
| Pedal Cyclist, Other | 279 | 359 | 279 | 248 | 292 | ***1,457*** |
| Transport, Other | 242 | 283 | 284 | 324 | 345 | ***1,478*** |
| Cut/pierce | 50 | 39 | 45 | 50 | 46 | ***230*** |
| Natural Environment | 27 | 29 | 24 | 30 | 34 | ***144*** |
| Firearm | 14 | 20 | 19 | 39 | 37 | ***129*** |
| Other/ Unspecified | 1,584 | 1,342 | 1,532 | 1,741 | 1,911 | 8,110 |




**Geography: Decedent's County of Residence - not including 318 Maryland residents whose resident county was not specified**



# APPENDIX C

## Trust Fund Development At A Glance

"A Look at TBI Trust Fund Programs" 2006. Department of Health and Human Services Health Resource and Services Administration, Child and Health Bureau.

### TRUST FUND DEVELOPMENT AT-A-GLANCE

| Date Ratified | State | Revenue Sources | Estimated Revenue | Program Focus |
|---|---|---|---|---|
| 1985 | PA | All traffic violations | $3 million | Assessment, short-term community-based rehabilitation services, transition case management |
| 1988 | CA | .066 of state penalty fund | $1 million | 7 regionally based projects addressing community support needs |
| 1988 | FL | DUI, BUI, moving viol, motorcycle tag, temp license tag | $17 million | Acute care, rehabilitation, community integration, nursing home transition, case management, Medicaid match, prevention, registry, special project grants |
| 1991 | MA | speeding, DUI | $6.8 million | Non-recurring, short-term community support services |
| 1991 | MN | DUI | $1 million | Registry, resource and service coordination |
| 1991 | TX | felonies and misdemeanor | $10.5 million | Inpatient, outpatient, and post-acute rehabilitation services |
| 1992 | AZ | civil & criminal | $2 million | Public information, prevention, education, community rehabilitation, transitional living, surveillance |
| 1993 | AL | DUI | $1.5 million | Registry, resource coordination |
| 1993 | LA | DUI, speeding | $1.5 million | Community-based services and supports |
| 1993 | TN | speeding, reck. op., DUI, rev. license. | $750-950,000 | Registry, grants for 10 community-based projects |
| 1996 | MS | DUI moving viol. | $3.5 million | Registry, waiver match, services, transitional living, prevention, education, recreation |
| 1997 | NM | moving violations | $1.5 million | Service coordination, life skills training, crisis interim services |
| 1997 | VA | license reinst. fee | $1.2 million | Grants for community-based rehabilitation projects, applied research projects |
| 1998 | GA | DUI | $2.3 million | Community-based services and supports, support groups, AT |
| 1998 | KY | percent of court costs | $3.3 million | Community-based services and supports, surveillance registry |
| 2002 | CO | speeding DUI | $1.5 million | Care coordination, services, research, education |
| 2002 | HI | traffic offenses | $600,000 | Service coordination, education, public awareness, registry |
| 2002 | MO | Cost of court | $800,000 | Counseling, mentoring, education |
| 2002 | NJ | car registration | $3.8 million | Community-based services and supports, public awareness, education |
| 2003 | MT | car registration | $8,117 | Advisory Council, grants for public awareness, prevention education |
| 2004 | CT | reckless driv., speeding DUI | $300,000 | Undetermined – may focus on resource coordination |