

**The Texas Brain Injury Advisory Council
2018 Report Presented to the Governor of
Texas, the Lieutenant Governor, the
Speakers of the Texas House of
Representatives, the Texas Legislature and
the Executive Commissioner of the Health
and Human Services Commission**

As required by

**1TAC Part 15, §351.825(d)(2) and Texas Government Code
§531.012**

November 2018

Table of Contents

Disclaimer	1
Executive Summary	1
1. Introduction	4
2. Background	11
3. Legislative Recommendations	14
4. Non-Legislative Recommendations	20
References	22

DRAFT

Disclaimer

This report was not authored by and does not reflect the views and opinions of the Texas Health and Human Services system, its component agencies, or staff.

DRAFT

Executive Summary

WHAT IS AN ACQUIRED BRAIN INJURY?

An acquired brain injury (ABI) is defined as: "Damage to the brain, which occurs after birth and is not related to a congenital or a degenerative disease. These impairments may be temporary or permanent and cause partial or functional disability or psychosocial maladjustment" (World Health Organization – Geneva 1996).

An ABI may occur from a traumatic injury or a non-traumatic injury or disease and affects individuals of all ages. A non-traumatic brain injury or disease may be caused by strokes, infections of the brain such as viral encephalitis, brain tumors, and loss of oxygen to the brain which may be caused from a heart attack, choking, near drowning, drug overdose, carbon monoxide poisoning or other anoxic or hypoxic conditions.

A traumatic brain injury is caused by traumatic forces to the brain including car crashes, falls, sports injuries, explosive blasts, gunshot wounds to the head, objects falling on the head, and sharp objects penetrating the skull.

HOW DOES AN ACQUIRED BRAIN INJURY IMPACT AN INDIVIDUAL?

Just as no two individuals are alike, no two brains are alike. The brain injury may cause the person to have varying levels of impaired functional abilities in some or all areas listed below. Not all symptoms are likely to be present at once and the degree of impairment may range from minimal to severe. Impairments may be short lived or may last a lifetime. These may include physical impairments such as poor mobility, problems speaking or swallowing, headaches, or fatigue; cognitive impairment such as memory loss, confusion about date and time, poor problem solving, limited attention span; or behavioral/emotional impairments such as impulsiveness, irritability, heightened or flattened emotions, and aggressiveness. The changes after an ABI may impact an individual's ability to work, drive, read, write, manage their finances, take care of their children, live independently, or participate in community and social activities. Recovery is dependent upon the nature of the injury or disease, the part of the brain injured, the individual, family support, the availability of resources, and timely access to medical services and rehabilitation.

ACQUIRED BRAIN INJURY INCIDENCE AND FACTS

The American Stroke Association (ASA) reported that stroke is the 5th leading cause of death (nearly 130,000 per year). Stroke is a leading cause of disability and the leading preventable cause of disability (americanstrokeassociation.org). The Brain Injury Association of America (BIAA) reports the total annual national incidence of Traumatic Brain Injury is 2,617,000 (biausa.org).

Recommendations of the Texas Brain Injury Advisory Council

LEGISLATIVE RECOMMENDATIONS

1. Require stop-loss regulation of self-funded employee health benefit plans giving the Texas Department of Insurance rule making authority to establish criteria for stop-loss insurance policies.
2. Add Cognitive Rehabilitation Therapy to the State Medicaid Plan.
3. Require Texas Workforce Commission, in collaboration with the Office of Acquired Brain Injury (OABI) and Texas Brain Injury Advisory Council (TBIAC), to develop a Vocational Rehabilitation plan for individuals with Acquired Brain Injury across all levels of functioning.
4. Adequately fund OABI including travel reimbursement costs for Texas Brain Injury Advisory Council survivor and caregiver members.
5. Provide permanent adequate funding for the Comprehensive Rehabilitation Services Program.
6. Require HHSC, in collaboration with TBIAC and OABI, to submit to the legislature a comprehensive plan to improve long term outcomes, reduce disability, and decrease long term healthcare costs for Texans with acquired brain injuries.
 - a. Evaluate other states' brain injury programs for best practices, including public education for Texans with Acquired Brain Injury.
 - b. Evaluate and develop a system to ensure Acquired Brain Injury data is collected even when not listed as a primary diagnosis.
7. Identify and authorize a credible identification card for Texans with Acquired Brain Injury that is recognized by the Department of Public Safety.
8. Add non-traumatic brain injuries to the Brain Injury Registry maintained by the Department of State Health Services.

NON-LEGISLATIVE RECOMMENDATIONS

1. Recommend OABI pursue the federal Traumatic Brain Injury Act grant to fund the Family Navigator Program.
2. Collaborate with OABI on current and future projects, including fact sheets, brain injury conferences, and brain injury training for first responders.
3. Collaborate with Health and Human Services to create guidelines and best practices for the Veterans Recovery Pilot Program per H.B. 271, 85th Legislature, Regular Session, 2017, regarding Hyperbaric Oxygen Chamber Treatments.
4. Build a network of brain injury focused social media sites, resources, and contacts to promote education and prevention through the OABI website.
5. Strengthen partnerships and communication with state agencies as well as other state and national brain injury organizations.

1. Introduction

WHAT IS AN ACQUIRED BRAIN INJURY?

An acquired brain injury (ABI) is defined as: "Damage to the brain, which occurs after birth and is not related to a congenital or a degenerative disease. These impairments may be temporary or permanent and cause partial or functional disability or psychosocial maladjustment" (World Health Organization –Geneva 1996).

An ABI may occur from a traumatic injury or a non-traumatic injury or disease and affects individuals of all ages. For example, The Center for Disease Control and Prevention (CDC) reports, the age groups of 0-5 and above 65 have the highest number of ABIs from falls and the age group of 16-25 from motor vehicle crashes (cdc.gov). Strokes generally occur among people older than 65. However, recently 34% of individuals hospitalized from a stroke are younger than 65 (cdc.gov). A non-traumatic brain injury or disease may be caused by strokes, infections of the brain such as viral encephalitis, brain tumors, and loss of oxygen to the brain which may be caused from a heart attack, choking, near drowning, drug overdose, carbon monoxide poisoning or other anoxic or hypoxic conditions.

The CDC defines a traumatic brain injury (TBI) as "a disruption in the normal function of the brain that can be caused by a bump, blow or jolt to the head or a penetrating injury" (CDC, 2015 Report to Congress). Traumatic forces to the brain may be caused by car crashes, falls, sports injuries, explosive blasts, gunshot wounds to the head, objects falling on the head, and sharp objects penetrating the skull.

How does an Acquired Brain Injury Impact an Individual?

Just as no two individuals are alike, no two brains are alike. The brain injury may cause the person to have impaired functional abilities in some or all areas listed below. Not all symptoms are likely to be present at once and the degree of impairment may range from minimal to severe. Impairments may be short lived or may last a lifetime. Examples of impairments are listed below.

Physical impairments may include: problems walking, motor weakness or paralysis, loss of coordination, tremors, poor balance, chronic pain, headaches, dizziness, mental or physical fatigue, loss of

sensation, difficulty swallowing, unclear speech and inability to speak words.

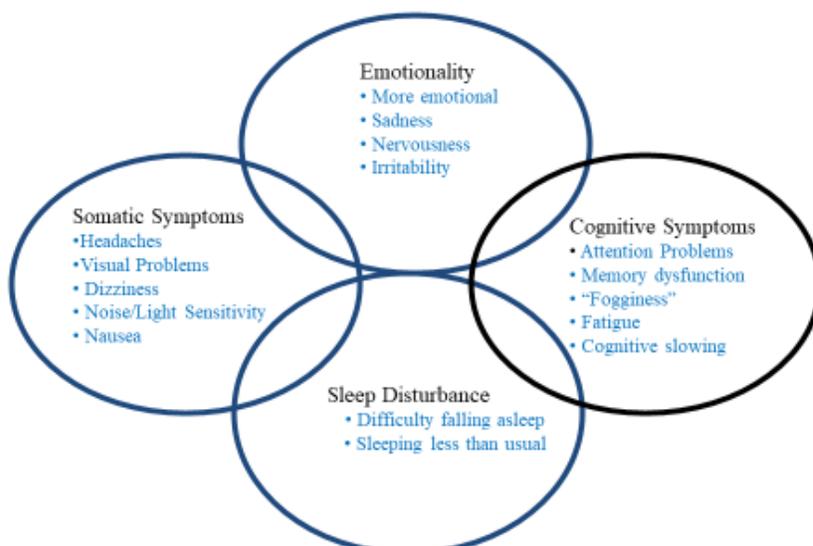
Cognitive/Communication impairments may include: disoriented to time, place or situation, difficulty processing information, shortened attention span, impaired decision making and problem solving abilities, difficulty understanding abstract concepts or following directions with multiple steps, memory loss, understanding others, difficulty or inability to express thoughts.

Perceptual impairments may include: a change in any of the senses, however, most likely vision and disorders of taste or smell.

Behavioral/Emotional impairments may include: irritability, impatience, lack of initiative, impulsive, denial of impairments, reduced tolerance for stress, inflexibility, flattened or heightened emotional response and reactions, and loss of impulse control that may result in physical or verbal aggression, or inappropriate sexual behavior.

Research indicates that a brain injury is not an “event”, it is a disease condition that causes the development of other diseases. Individuals with a brain injury are at an increased risk of developing other neurological, neurodegenerative and neuroendocrine disorders, psychological and psychiatric diseases, and non-neurological disease (Masel et al, 2010).

Factor Analysis, Post-Concussion Symptom Scale (Pardini, Lovell, Collins et al. 2004)
N=327, High School and University Athletes Within 7 Days of Concussion



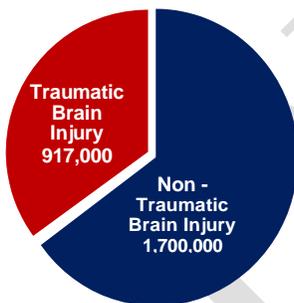
The above Venn diagram demonstrates symptoms seen in individuals with athletic concussions.

Acquired Brain Injury Incidence and Facts

United States and Texas ABI data on the incidence and related disability is limited. The 2015 CDC Report on TBI to the Congress made several recommendations related to improved incidence estimates. One recommendation is to include data on individuals with TBI who are not receiving medical care and identify non-hospital incidence data. Another recommendation is to generate state specific TBI estimates through the collection and compilation of health care administrative data in all states.

At a national level, incidence of persons living with TBI disability is estimated to be between 3.2 million and 5.3 million. The 2015 CDC Report to Congress on TBI stated that these estimates are based upon extrapolations of state level data from South Carolina and Colorado (cdc.gov).

The Brain Injury Association of America (BIAA) reports the total annual national incidence ABI is 2,617,000. The table below breaks down non-traumatic brain injury incidence by diagnosis. Anoxia/hypoxia is unknown and not included in the chart (biaa.org).



Type of non-traumatic brain	Estimated annual
Stroke	795,000
Tumor	64,530
Aneurysm	27,000
Viral Encephalitis	20,000
Multiple Sclerosis	10,400

The following data is provided by the Texas Emergency Medical Services (EMS) Trauma Registry and is generated by hospital patient records submitted as of August 1, 2014. About 59% of the hospitals had reported to the registry resulting in a total of 22,635 reported TBI's in Texas.

Top 5 Causes of Injury Resulting in a TBI, Texas 2013			
Rank	External Cause of Injury	# of Hospitalizations	Case Fatality
1	Fall	11,696	4.75%
2	Motor vehicle/ traffic	7,285	9.10%
3	Struck by, against	2,748	2.07%
4	Transport, other	1,201	3.16%
5	Unspecified	500	5.40%

Stroke:

- There are 795,000 strokes annually in the US, killing 140,000 (5th leading US cause of death) (2018 Heart Disease and Stroke Statistics)
- Leading cause of disability, but most preventable
- Annual costs are an estimated \$34 billion
- In Texas, there were 50,933 stroke hospitalizations with total charges of \$3,322,893,867 (2017 Texas Stroke System of Care Report)
- Stroke is the sixth leading cause of death in children
- Pediatric stroke affects 25 in 100,000 newborns and 12 in 100,000 children under 18 years of age
- 60% of children who survive a stroke will have permanent neurological problems

Unintentional Drowning:

- From 2014-2016, 5,900 drowning events per year in children under 15 years old; 75% of victims under 5 years old
- More than 50% of drowning victims treated in emergency departments
- Nonfatal drowning injuries can cause severe brain damage that may result in long-term disabilities
- In 2017, there were 77 fatal drownings in Texas
- In 2017, approximately 385 submersion injuries in Texas
- In 2017, 80 drownings have occurred in Texas

Carbon monoxide poisoning:

- Carbon monoxide (CO) poisoning results in delayed neurologic problems in 2.75% of the total victims
- Symptoms include concentration problems, cognitive disturbances, emotional liability, personality changes, amnesia, dementia, psychosis, gait disturbances, and movement disorders
- The Texas Poison Center Network estimates 15,000 annual emergency room visits for unintentional CO poisoning; subacute cases make for many more as medical care not sought
- Equates to 412 delayed neurologic cases per year in Texas

Traumatic brain injury (TBI):

- Falls are the most common cause of traumatic brain injuries (47%) (TBI get the facts) mainly in ages 0-14 and 65 and older
- By or against an object (15%)
- Motor vehicle accidents (14%)
- Intentional self-harm (33% of TBI related deaths)
- From 2000 to March 2018, the US Military has had 383,947 TBIs (Numbers for TBI)
 - 82.3% were mild, 9.7% moderate
 - 1.1% severe
 - 1.4% penetrating
 - 5.6% not classified
- University Interscholastic League and UT Southwestern athletic concussion data collection
 - From 2017 to June 2018, 3058 concussions reported to the registry
 - Only 27.4% of UIL districts are enrolled thus far

Hypoxic and anoxic conditions are when the brain is without oxygen resulting in decreased aerobic metabolism (hypoxic) or anaerobic (no available oxygen or anoxic) metabolism. Both conditions can cause severe brain damage that may result in long-term disabilities such as memory problems, learning disabilities, and permanent loss of basic functioning (e.g., permanent vegetative state) (Submersion NBI). All age groups and sexes are vulnerable with causes such as carbon monoxide poisoning, near drowning, opioid drug overdoses, strangulation, cerebral edema from direct trauma or infection, to name a few. Some causes are more frequent with certain age groups.

Unintentional US drowning in pools and spas from 2014-2016 resulted in an average of 5900 events per year in children under 15 years old with 75% of

the victims under 5 years old (Nonfatal Drowning Injuries). More than 50% of drowning victims treated in emergency departments (EDs) require hospitalization or transfer for further care. In 2017, there were 77 drownings in Texas (Child Drowning). As there are 5 nonfatal submersion injuries for every fatal drowning (Texas Drownings) there were approximately 385 submersion injuries in 2017. There have been 80 drownings in Texas thus far in 2018!

Carbon monoxide poisoning results in delayed neurologic sequelae or problems diagnosed in 2.75% of the total victims (CO Neurologic Sequelae). The sequelae may vary from mild to severe headache, seizures, alteration in consciousness, lethargy, concentration problems, cognitive disturbances, emotional lability, personality changes, amnesic syndromes, dementia, psychosis, gait disturbances, movement disorders (e.g., parkinsonism), chorea, apraxia, agnosia, inaction, peripheral neuropathy, urinary incontinence, and even vegetative state (Neurologic Sequelae Symptoms). The Texas Poison Center Network estimates 15,000 annual emergency room visits for unintentional CO poisoning. This equates to 412 delayed neurologic cases per year (Texas Poison Control CO).

In July 2015, the Texas Legislature's Sunset Advisory Commission adopted a management action (non-statutory) directing collaboration between the University Interscholastic League and UT Southwestern (TEX-CON). Data collection started in 2016 as voluntary from the UIL school districts with 27.4% of districts enrolled and 6% reporting. As of June 2018, there were 3058 concussions reported to the registry (SWATA). This consisted of the first aim to establish a dataset relating to concussion. The second aim is to create a centralized database to upload concussion events and a third to analyze and report data results.

Impact of ABI

The cognitive, emotional, physical, behavioral, and perceptual changes after an ABI may impact an individual's ability to work, drive, read, write, manage their finances, take care of their children, live independently, or participate in community and social activities. Improvements may come as a result of hard work and rehabilitation. Recovery is dependent upon the nature of the injury or disease, the individual, family support, the availability of resources, and, access to appropriate rehabilitation at the appropriate time(s) and for the appropriate amount of time.

Texans with ABI are fortunate to have access to a large number of acute and post-acute rehabilitation providers throughout the state. Texas is the only

state to require insurance companies to provide coverage for the spectrum of rehabilitation services needed after a brain injury, including cognitive rehabilitation and post-acute brain injury rehabilitation. Because of the acquired brain injury law, Texans have greater access to acute and post-acute rehabilitation than any other state. In addition, Texas partially fills a rehabilitation gap by providing Comprehensive Rehabilitation Services (CRS) to individuals with TBI or traumatic spinal cord injury (SCI) without adequate insurance. While Texas leads the way in these two key areas, Texas does not currently offer programs and funding to help meet the long term needs of individuals living with brain injury. Other states have long term brain injury residential programs, structured brain injury day activity programs and more robust brain injury vocational rehabilitation programs. Access to all of these programs help individuals increase their ability to return to work and reduce disability and medical complications.

The estimated national economic cost of TBI in 2010, including direct and indirect medical costs, is estimated to be approximately \$76.5 billion. Additionally, approximately 90% of the total TBI medical costs are from fatal TBI's and TBIs requiring hospitalization, many of which are severe (cdc.gov).

According to the CDC, acute care and rehabilitation of brain injury patients in the United States costs about \$9 billion to \$10 billion per year. This does not include indirect costs to society as well as to families, including costs associated with lost earnings, work time, and productivity, as well as the costs linked to providing social services. Although the long term costs of a TBI vary according to many factors such as the severity of the injury and the impairments associated with the injury, it is estimated that the cost of caring for a survivor of severe traumatic brain injury is between \$600,000 and \$1,875,000 over a lifetime (brainandspinalcord.org).

Falls in individuals over 65 years of age are the most common cause of TBIs. In 2015, the total medical costs for falls totaled more than \$50 billion. Medicare and Medicaid shouldered 75% of these costs (Fall Costs).

2. Background

WHAT IS THE TEXAS BRAIN INJURY ADVISORY COUNCIL (TBIAC)?

The TBIAC was established as the Texas Traumatic Brain Injury Advisory Board in 1997 by former Governor George Bush to give brain injury survivors, their families and caregivers, service providers and state agencies a voice in identifying and meeting the needs of people with brain injury. In 2003, the Texas Traumatic Brain Injury Advisory Council was established in statute by the 78th Texas Legislature. In 2015, the 84th Texas Legislature removed most health and human services advisory councils from statute and authorized the Health and Human Services Commission (HHSC) to reestablish the TBIAC in rule. With advocacy from the TBIAC, the scope of the Council was expanded to include all acquired brain injuries and the name was changed to the Texas Brain Injury Advisory Council.

The Texas Brain Injury Advisory Council advises HHSC and state leaders on the prevention of brain injury and improving the quality of life of individuals who have survived brain injuries and their families and caregivers. The TBIAC:

- Informs state leadership (the Governor and Legislature) of the needs of people with brain injuries and their families;
- Recommends policies and practices to meet those needs;
- Encourages research into the causes, prevention, treatment of brain injuries;
- Provides long-term services and supports for people with a brain injuries;
- Promotes brain injury prevention and awareness throughout the state;
- Facilitates the development and implementation of sustainable supports and services to meet the complex needs of persons who have survived a brain injury.

Historically, the TBIAC has advocated for or supported:

- Full funding for the Comprehensive Rehabilitation Service (CRS) program, a Texas state program which funds rehabilitation for individuals with traumatic brain injury or spinal cord injury;
- The creation of and funding for the Office of Acquired Brain Injury;
- Implementation and improvement of the TBI Registry by the Department of State Health Services;

- Providing training of 2-1-1 staff in acquired brain injury needs and resources;
- Requiring insurers to provide acute and post-acute rehabilitation services to individuals with acquired brain injury including cognitive rehabilitation therapy;
- Adding cognitive rehabilitation therapy to the services available under Texas' Medicaid home and community based services waiver programs;
- Requiring children to wear helmets when bicycling or participating in bull riding and other rodeo events;
- Educating school personnel regarding sports concussions;
- Educating law enforcement personnel in effectively interacting with individuals with brain injuries;
- Identifying youth in the Juvenile Justice System with brain injuries and implementing testing approaches to improve management of, and outcomes for, juvenile offenders with brain injuries; and
- Educating the public through brochures, public service announcements, appearing on media broadcasts, and speaking at community events.

The TBIAC will continue to advocate for persons with brain injury and their families and to depend on input from all persons involved with brain injury and brain injury care and treatment.

TBIAC Accomplishments:

- 85th Texas Legislation creation and initial funding of the Office of Acquired Brain Injury
 - 2016 TBIAC recommendation
- Provided feedback to the Office of Acquired Brain Injury on the Texas Brain Injury Resource Guide scheduled for publication in 2018
- Acquired Brain Injury Family Navigator pilot study established (TBIAC 2016 recommendation)
 - Active coordination with the Family Navigator pilot study
 - Coordination with Texas Cerebral Palsy on navigating state systems
 - Conducting qualitative and quantitative research
- Volunteer TBIAC members attended the 4th Federal Interagency Conference on Traumatic Brain Injury and the Annual Congressional Brain Fair in Washington, DC

- Up-to-date brain injury knowledge provided to the Office of Acquired Brain Injury and other Health and Human Services Commission offices.
- Request from the Texas Workers Compensation Department of Insurance regarding workers compensation for individuals with brain injury
 - Plan initiated to gather information from physicians and case managers regarding brain injury compensation claims.
- Routine stakeholder meetings with Texas Workforce Commission Vocational Rehabilitation Services for outreach efforts
- Interfaced with HHS Medicaid Managed Care Services
 - Consider adding neurologists, neuropsychologists, psychotherapists, developmental pediatricians, and physical medicine and rehabilitation to the physician specialties monitored
- Provided member panel experts for the Texas Brain Injuries Conference on 3 August 2018. The conference was sponsored by the Office of Acquired Brain Injury for individuals with brain injuries and their caregivers.

3. Legislative Recommendations

Access to Care

1. **Require stop-loss regulation of self-funded employee health benefit plans by the Texas Department of Insurance.**

Problem Legislation Addresses:

Employers with self-funded employee health benefit plans are excluded by federal law from all state mandates including Texas Insurance Code 1352 which applies to benefit coverage for brain injury rehabilitation. A self-insured employer may assume full or partial responsibility for all medical claims. The employer may reduce its risk for large claims by purchasing stop-loss insurance coverage. If the aggregate losses get above a certain "attachment" point, the stop-loss insurance kicks in and starts to pay benefits for the employer.

It is not widely recognized that stop loss insurance policies that cover self-funded health plans are subject to state insurance laws, as pointed out in an article by Rhonda D. Orin, managing partner for a Washington, D.C. law firm. She stated, that "employers, - not Employee Retirement Income Security Act (ERISA) beneficiaries - are insured by stop-loss policies and therefore fall outside of ERISA" (andersonkill.com).

The Employee Benefit Research Institute (EBRI) noted that stop-loss insurance is a direct insurance they states are permitted to regulate (ebri.org). Many states, such as Louisiana and Minnesota, have passed legislation that all stop-loss policies are regulated by the state department of insurance as a direct insurance (andersonkill.com). Similarly, in a Texas Court Case, the Texas Supreme Court ruled in favor of stop-loss reinsurance as a direct insurance (caselaw.findlaw.com).

Very low attachment points by some self-funded plans enables employers to take advantage of ERISA and exclusion from state mandates providing patient and provider protection. Some states are addressing the issue of a low attachment point even though the carrier takes virtually all the risks for loss and the plan acts like a regular health insurance.

In Texas, stop-loss insurance is unregulated and, due to such innovations as low attachment products, the self-funded market has grown to be much larger than the regulated insurance market. As a result, federal law is largely preempting application of important patient and provider protections enacted by the Legislature. The insurance department should be directed to regulate stop-loss insurance, protect employers purchasing the coverage, and protect the group health insurance market by ensuring that self-funded plans truly are self-funded, not insured.

2. Add Cognitive Rehabilitation Therapy to the State Medicaid Plan.

Problem Legislation Addresses:

Currently the Texas Medicaid state plan does not cover Cognitive Rehabilitation Therapy (CRT).

It is common for individuals with brain injury to have cognitive deficits which impact their ability to make choices, understand, remember and use information. Cognition includes attention and concentration, processing and understanding information, memory, communication, planning and organizing, reasoning, problem solving, decision making, judgment, and impulse control.

Cognitive rehabilitation has been proven to be an effective treatment to address cognitive deficits resulting from an acquired brain injury (ABI). The Cognitive Rehabilitation Task Force of the American Congress of Rehabilitation Medicine reviewed 370 studies and concluded there is sufficient evidence that support cognitive rehabilitation clinical protocols as effective for cognitive deficits as a result of an ABI. Early intervention yields improved vocational/productivity outcomes, social integration, and independence.

Legislative History

Texas added CRT to the STAR+PLUS, Home and Community-based Services (HCS), and Community Living Assistance and Support Services (CLASS) Medicaid waiver programs in 2014 through Rider 66. This is an improvement for waiver participants with brain injuries; however, a significant number of individuals with acquired brain injuries do not have timely access to these waivers. Additionally, many

individuals with an ABI cannot access services because they do not meet the disability-onset age requirements or medical condition requirements.

Texas passed legislation requiring insurance companies to cover cognitive rehabilitation under Texas Insurance Code Chapter 1352 which was established in 2001 when the 77th Legislature passed House Bill (HB) 1676, effective September 1, 2002. Rules to implement the statute were adopted August 26, 2002 (28 Texas Administrative Code §§ 21.3101-21.3107).

- 3. Require Texas Workforce Commission, in collaboration with the Office of Acquired Brain Injury and Texas Brain Injury Advisory Council, to develop a Vocational Rehabilitation plan for individuals with Acquired Brain Injury across all levels of functioning.**

Problem Legislation Addresses:

Currently, individuals with an Acquired Brain Injury (ABI) are inadequately served through Texas Workforce Commission, Vocational Rehabilitation Program. While it is often difficult to predict Vocational outcomes for some individuals with an Acquired Brain Injury, many individuals have the capability of returning to gainful employment. In some instances, ongoing supports may be required to assure vocational success. However, there are individuals who may be able to work without supports. Other states across in the US are successful in providing Vocational Rehabilitation services to individuals with ABI. By addressing this issue, individuals with an ABI will have the opportunity to become gainfully employed and contribute to our state economy. They will also have the opportunity to become more engaged and active, increasing their opportunity to live a healthier life style and potentially reducing health care costs to the state.

Support for Services

- 4. Adequately fund the Office of Acquired Brain Injury including travel reimbursement costs for Texas Brain Injury Advisory Council survivor and caregiver members.**

The Office of Acquired Brain Injury provides guidance, referrals and service coordination for survivors of brain injuries and their families, including returning combat veterans, by arranging a comprehensive

system of care through federal, state and local resources. Full funding will enable the OABI to carry out its mission including support of the Texas Brain Injury Advisory Council (TBIAC).

Funding will support:

- 3 full time employees (FTEs)
- Travel reimbursement funds for TBIAC consumer members for council meetings, outreach and education activities, and other activities to prevent brain injuries and improve lives. (HHSC Legislative Appropriations Request, Rider Revisions and Additions Request, 3C Page 15)

5. Provide permanent adequate funding for the Comprehensive Rehabilitation Program.

The Comprehensive Rehabilitation Services (CRS) Program provides services needed to help Texans with a traumatic brain injury or traumatic spinal cord injury live independently in their home and community. The program focuses on three primary areas that affect both function and quality of life: mobility, self-care, and communication skills. Services are provided in the person's home, a hospital, a residential facility, or an outpatient clinic or in a combination of settings to encourage the maximum flexibility in service and gain toward independence.

CRS services include inpatient comprehensive medical rehabilitation services, post-acute brain injury rehabilitation services, and outpatient therapies. The services are time-limited and designed to assist the consumer with daily living skills and to prevent secondary medical conditions, thereby increasing the consumer's ability to function independently and reduce the need for ongoing state services (HHSC LAR 3.A. Page 229 of 491).

The CRS program was first funded in 1991 with the establishment of dedicated funding to aid the recovery process of Texans who have experienced TBIs and/or traumatic SCIs. Part of the funding for the CRS program came from surcharges on convictions of felonies and misdemeanors. Other money has come from General Revenue Funds appropriated by the Texas Legislature.

Address Unmet Needs

- 6. Require The Texas Health and Human Services Commission, in collaboration with TBIAC and the HHSC Office of Acquired Brain Injury, to submit to the legislature by November 2020 a comprehensive plan to improve long term outcomes, reduce disability, and decrease long term healthcare costs for Texans with acquired brain injuries.**

People with acquired brain injury may experience a host of disabling conditions, from physical to cognitive to mental illness. Coordination of services, appropriate long term community living supports, mental health counseling, and behavioral modification services are all available to some populations with disabilities in Texas, but, for the most part, not for individuals with acquired brain injury.

Recommendation: Under the leadership of the Texas Health and Human Services Commission, in collaboration with TBIAC and the HHSC Office of Acquired Brain Injury, will submit a comprehensive plan to the legislature by November 30, 2020 that will:

1. Address long-term residential services and community services including day habilitation, supported living and supported work
 - Assess current services with regard to what is available.
 - Identify gaps and barriers to access services
 2. Ensure that providers have the knowledge and skills to meet the needs of this population
 3. Develop the tools, protocols, and reporting procedures for use by hospitals, emergency systems, school districts, state agencies and others for identifying individuals with an acquired brain injury
 4. Develop a uniform screening and assessment tool to identify the services and supports needed by individuals who have an acquired brain injury
- 7. Identify and authorize a credible identification card for Texans with Acquired Brain Injury that is recognized by the Department of Public Safety.**

Texans with acquired brain injury can experience symptoms similar to mental illness and substance abuse. However, brain injury survivors must be treated differently. The Department of Public Safety needs a credible identification source for brain injury survivors.

Data Info

8. Add non-traumatic brain injuries to the Brain Injury Registry maintained by the Department of State Health Services.

The Department of State Health Services has maintained a traumatic brain injury registry since 1998. Texas needs a registry of all acquired brain injuries to better inform policy making.

9. Evaluate other states' brain injury programs for best practices, including public education for Texans with Acquired Brain Injury.

Texas must evaluate and review other state's brain injury programs, taking into consideration the programs and best practices for Texas. Additionally, concussion treatment especially within the public education system needs to be evaluated for consistency and efficacy.

10. Require Health and Human Services to evaluate and develop a system to ensure Acquired Brain Injury data is collected even when ABI is not listed as a primary diagnosis.

Currently data is collected solely on the primary diagnosis. Brain injury survivors have many diagnoses such as heart attack, collapsed lung, seizures, cerebral palsy, and mental disorders. Therefore, the Acquired Brain Injury diagnosis is not considered in data collection. Health and Human Services must create a system to collect all diagnoses.

4. Non-Legislative Recommendations

1. The Office of Acquired Brain Injury pursue a federal Traumatic Brain Injury Act grant to fund the Family Navigator Program.

The Family Navigator Program (FNP) will connect the family of a Texan with an acquired brain injury with a trained volunteer, who is either an experienced caregiver or survivor of a brain-injury. As much as possible, the FNP will be present to listen and help families gain access to needed services and resources, from the onset of the diagnosis throughout the recovery process and the return of functional living. Likely, a successful FNP will create a lasting dependable relationship with the survivor and family.

**(sidenote: The FNP has been initiated by Patti Foster, a current TBIAC member and committee chairperson who personally suffered a severe traumatic brain injury in 2002. Patti was inspired by her mother's (Judy Foster) continual frustrations with the medical profession, and this is when she began her liaison-based mission to develop the Family Navigator Program.)*

2. Collaborate with the Office of Acquired Brain Injury on current and future projects, including fact sheets, brain injury conferences, promoting Brain Injury Awareness Month and brain injury training for first responders and law enforcement personnel.

Committee members and volunteers will help plan, create, research, organize, serve, emcee, and participate in the Texas Brain Injury Awareness Month Celebration (which is in March of each year), Texas Brain Injury Conference each year (which was in August of 2018); annual update for OABI's "Texas Brain Injury Resource Guide" to help individuals with brain injuries and families; develop brain injury fact sheets to clarify and improve brain injury awareness; and develop and promote training of first responders and law enforcement to better treat and recognize the brain injury population.

3. Collaborate with Health and Human Services to create guidelines and best practices for the Veterans Recovery Pilot Program per H.B. 271, 85th Legislature, Regular Session, 2017, regarding Hyperbaric Oxygen Chamber Treatments.

More research will be done to support the efficacy of Hyperbaric Oxygen treatment in order to provide this service to our Texas veterans.

4. Build a network of brain injury focused social media sites, resources, and contacts to promote education and prevention through the Office of Acquired Brain Injury website.

We acknowledge that social media in today's mobile-ready world is one of the primary means of communication between individuals and generations. Thus, we are recommending Texas brain injury services to create user-friendly, easily-accessible web-paths to find the services they need. Instead of "reinventing the wheel," we want to choose and establish a non-expensive "center-cog" website on the internet where people can find links that can answer the 2 most prominent questions:

- 1) *What services are available?*
- 2) *How do I get them?*

Include contacts and information available on a 24/7 basis.

5. Strengthen partnerships and communication with state agencies as well as other state and national brain injury organizations.

We hold to this bottom-line truth: *We can help each other.* Now, it is time to start building relationships with, not only, other agencies within the State of Texas, but also the hundreds of non-profit organizations whose aim is to assist the brain injury community. Strengthening our service to other Texans who experience life after brain injury is one of our fundamental goals.

References

2017 Texas Stroke System of Care Report, Texas HHS

2018 Heart Disease and Stroke Statistics. Accessed 8 Oct 18.

<https://healthmetrics.heart.org/heart-disease-and-stroke-statistics-2018-update/> p e211

American Stroke Association. "Impact of Stroke (Stroke statistics)." Updated June 6, 2016, accessed October 31, 2016.

<http://www.strokeassociation.org>.

Brain Injury Association of America. "Brain Injury Statistics." Updated May 1, 2012, accessed October 31, 2016. <http://www.biausa.org>.

Brain and Spinal Cord.org. "Brain Injury Cost." Accessed on November 3, 2016. <http://www.brainandspinalcord.org/cost-traumatic-brain-injury>.

Centers for Disease Control and Prevention. (2015) *Report to Congress on Traumatic Brain Injury in the United States: Epidemiology and Rehabilitation*. National Center for Injury Prevention and Control: Division of Unintentional Injury Prevention. Atlanta, GA.

Center for Disease Control and Prevention. "Stroke Facts." Updated March 24, 2015, accessed November 1, 2016.

<http://www.cdc.gov/stroke/facts.html>.

Center for Disease Control and Prevention. "TBI: Get the Facts." Updated September 20, 2016, accessed October 31, 2016.

https://www.cdc.gov/traumaticbraininjury/get_the_facts.html.

Children's Hemiplegic and Stroke Association. "Pediatric Stroke". Accessed October 15, 2018.

<https://chasa.org/medical/pediatric-stroke/>

Children's Hospital of Philadelphia. "Pediatric Stroke". Accessed October 15, 2018.

<https://www.chop.edu/conditions-diseases/pediatric-stroke>

Child Drowning. Accessed 30 Sep 18.

http://www.helpandhope.org/Water_Safety/Child_Drownings/2017.asp

CO Neurologic Sequelae. Accessed 30 Sep 18. [Choi IS](#). Delayed neurologic sequelae in carbon monoxide intoxication. [Arch Neurol](#). 1983 Jul; 40(7):433-5

Employee Benefit Research Institute, Special Report Brief Number167. (November, 1995). Accessed on November 2, 2016. <https://www.ebri.org/pdf/briefspdf/1195ib.pdf>

Fall Costs. Accessed 30 Sep 18. [Falls and Fall Injuries among Adults Aged ≥65 Years — United States, 2014](#).

Find Law.com for Legal Professionals. "Texas Supreme Court Ruling: Texas Department of Insurance vs American National Insurance Company." May 18, 2012. Accessed on October 30, 2016. <http://caselaw.findlaw.com/tx-supreme-court/1601266.html>

Fortune N & Wen X 1999. The definition, incidence and prevalence of acquired brain injury in Australia. AIHW cat. no. DIS 15. Canberra: AIHW.

Glasgow coma score. TraumaticBrainInjury.com, Accessed 26 Sep 18. <http://www.traumaticbraininjury.com/symptoms-of-tbi/glasgow-coma-scale/>

Masel, Brent E., De Witt, Douglas S., (2010). *Traumatic Brain Injury: A Disease Process, Not sep 19an Event*, Journal of Neurotrauma, 27: 1529-1540.

Neurologic Sequelae Symptoms. Accessed 30 Sep 18. Bedriye Müge Sonmez, Murat Dogan Iscanlı, Selçuk Parlak, et al. Delayed neurologic sequelae of carbon monoxide intoxication. Turkish Journal of Emergency Medicine April (2018) 1-3

Nonfatal Drowning Injuries. Accessed 30 Sep 18/ [https://www.cpsc.gov/s3fs-public/Pool Spa Submersion Estimated nonfatal drowning injuries and reported drownings 2017 report 2017H004.pdf?QHeFc9 Ibfj4uRXB0B 5zfcKsAvN1LhP](https://www.cpsc.gov/s3fs-public/Pool%20Spa%20Submersion%20Estimated%20nonfatal%20drowning%20injuries%20and%20reported%20drownings%202017%20report%202017H004.pdf?QHeFc9Ibfj4uRXB0B5zfcKsAvN1LhP)

Numbers for TBI. Accessed 26 Sep 18. http://dvbic.dcoe.mil/files/tbi-numbers/worldwide-totals-2000-2018Q1-total_jun-21-2018_v1.0_2018-07-26_0.pdf

Orin, Rhonda D., (2007). "Self-administering, Insuring, and Funding Benefit Plan", Human Resources: Chapter 21. Accessed on October 28, 2016.
<http://www.andersonkill.com/webpdfext/21-FundingBenefitPlans.pdf>

Submersion NBI. Accessed 30 Sep 18.
<https://www.cdc.gov/HomeandRecreationalSafety/Water-Safety/Waterinjuries-factsheet.html>

[SWATA. Accessed 30 Sep 18.](#) SWATA Annual Symposium, 19-21 Jul 18, Arlington TX

[Texas Drownings. Accessed 30 Sep 18. http://www.txdpa.com/drowning-statistics](http://www.txdpa.com/drowning-statistics)

Texas Poison Control CO. Accessed 1 Oct 18.
<https://www.poisoncontrol.org/january-is-the-deadliest-month-for-carbon-monoxide-poisoning/>

TEX-CON. Accessed 30 Sep 18.
<https://www.utsouthwestern.edu/research/brain-injury/research/context.html>

The Office of Acquired Brain Injury Feasibility Study for Providing Community Supports and Residential Services for Individuals with Acquired Brain Injury, 2009, Report to the 81st Legislature, Regular Session.

TBI get the facts. Accessed 28 Sep 18.
https://www.cdc.gov/traumaticbraininjury/get_the_facts.html

Traumatic Brain Injury.com. "Symptoms of a TBI: Severe TBI Symptoms." Accessed on November 3, 2016.
<http://www.traumaticbraininjury.com/symptoms-of-tbi/severe-tbi-symptoms>