

Colorado Traumatic Brain Injury Program Report to the General Assembly

January – December 2008

Program Overview

The Colorado Traumatic Brain Injury (TBI) Program was created by Title 26, Article 1, Part 3 of the Colorado Revised Statutes to improve the lives of Colorado residents who have survived traumatic brain injuries. This statute created the Colorado Traumatic Brain Injury Trust Fund (Trust Fund) to finance program activities, and the Colorado Traumatic Brain Injury Board to oversee the operations of the Trust Fund.

The TBI Trust Fund receives revenue from surcharges assessed for convictions of certain traffic offenses. The Trust Fund receives \$15 for each conviction of driving under the influence of alcohol (DUI) or driving while ability is impaired (DWAI), and \$10 for each conviction of speeding or youth under eighteen years of age riding a motorcycle or motorized bicycle without a helmet. Moneys in the Trust Fund pay for all program services and program administration.

By statute, approximately 65 percent of the funds collected are used to provide services to persons with traumatic brain injuries; 30 percent are used to support research related to the treatment and understanding of traumatic brain injuries; and 5 percent are used to provide education for individuals with traumatic brain injuries and to assist educators, parents, and non-medical professionals in the identification of traumatic brain injuries so as to assist such persons in seeking proper medical intervention or treatment.

The TBI Board is located within the Colorado Department of Human Services (CDHS). Three members are designated in statute and ten members are appointed by the Governor with the consent of the Senate. Attachment A is a list of current Board members. The Board has established four ongoing committees to assist staff in policy-setting of program goals and strategic planning for the Trust Fund: Services, Research, Education and Futures.

The Board is required to submit a report on February 1st of each year to the Joint Budget Committee and to the Health and Human Services Committees of the House of Representatives and the Senate. This report must address the operations of the Trust Fund, the moneys expended, the number of individuals with traumatic brain injuries offered services, the research grants awarded and the progress on such grants, and the educational information provided pursuant to the statute.

TBI Trust Fund Program Operations

Program Administration

The TBI program, consisting of 1.5 FTE, is administered by the Department of Human Services. It is housed within the Division of Vocational Rehabilitation (DVR) in the Office of Adult, Disability and Rehabilitation Services. The emphasis of DVR's mission on independence and its programs regarding rehabilitation services, training, and vocational guidance and counseling provides an environment of highly supportive and complementary services. Further opportunities for program growth, enhancement, and inter-divisional collaboration result from location in the Office of Adult, Disability and Rehabilitation Services.

CDHS staff work closely with the TBI Board and perform the following functions for the program: financial management, policy development, program development and implementation, contract management, program monitoring, administrative support, web site maintenance, public assistance and information, reporting, and marketing and public relations.

Revenue and Expenditures

During calendar year 2008, the Trust Fund received \$2,029,040 and expended \$2,234,576

The Department's budget request for Fiscal Year 2008 included a successful decision item to increase the appropriation by \$400,000 from the Trust Fund reserves. This increase is to provide services to more clients and to fund additional research grants and educational projects. The TBI Board plans to expend most of the current funding reserve over the next several years, and then maintain a modest fund balance in order to responsibly manage the monthly fluctuation that occurs in both revenue and expenditures.

Revenue Study: A 2006-2007 Revenue Study found that the Trust Fund is receiving the revenue that it should be receiving, and there are very few opportunities for improving revenues by improving the collection processes. In late 2008, an additional study was begun to improve the data collection information in order to better future revenue projections. In addition, the study will recommend possible sources of increased revenue for Trust Fund Board and CDHS review in 2009.

Services

Client services began in 2004, accelerated in 2005, and reached full implementation in 2006.

All individuals receiving assistance from the Trust Fund receive care coordination services. Care coordination is designed to provide clients with skills they can use throughout their lifetimes, and to connect clients with resources in their communities that will be available following their participation in the Trust Fund Program. In addition, the Trust Fund may be used to purchase a variety of other services including but not limited to:

- community residential services;
- structured day program services;
- psychological and mental health services for the individual with the traumatic brain injury and the individual's family;
- prevocational services;
- supported employment;
- companion services;
- respite care;
- occupational therapy;
- speech and language therapy;
- cognitive rehabilitation;
- physical rehabilitation; and
- one-time home modifications.

These additional services (beyond care coordination) are referred to as "purchased services." The Trust Fund may not be used to pay for institutionalization, hospitalization, medications, rent, utilities, vehicles or appliances.

Intake, Eligibility and Referral Services - The Department of Human Services contracts with the Brain Injury Association of Colorado (BIAC) for client intake, eligibility and referral services. To be eligible, applicants must be a legal Colorado resident, and a US citizen (except children under 18 years of age), and have a traumatic brain injury (caused by external force) that has caused on-going impairments. In 2008, BIAC reviewed 73 applications for children's services and 384 applications for adult services. Ninety-nine percent of applicants under age 21 were determined eligible for Trust Fund services, and 91% percent of adults were determined eligible for Trust

Fund services. Veterans and military personnel constituted 7% of the adult applications in 2008, but are expected to rise in coming years.

Revised Evaluation - During 2008, the client survey was revised to provide consistency between children and adult services feedback, and to improve evaluation opportunities of the Services Program. The revised form was put into use at the start of Fiscal Year 2009; formal results will be evaluated beginning July 2009.

Children's Services - Denver Options, Inc. provides purchased services, and subcontracts with the Colorado Department of Public Health and Environment (CDPHE) to provide care coordination services to children under age 21 and their families. In 2008, Denver Options and CDPHE provided services to 144 children and their families. The children's services program has maintained a fairly consistent number of clients. More outreach is anticipated in 2009 which will likely create a wait list for services.

Adult Services - In 2008, Denver Options provided services to 605 adults with traumatic brain injuries. With purchased services dollars left unspent by some clients, Denver Options was able to serve additional new clients, beyond the number required by their contract. Six percent of those served were veterans.

Adult Wait List for Services - At the end of 2008, there were 246 adults on a wait list for services, with an anticipated wait of 7 months. Thirteen percent are veterans of the current wars. (By statute, 65 percent of Trust Fund moneys are designated for client services, 30 percent for research, and 5 percent for education. Therefore, it is possible to have a wait list for services, even though total program expenditures may be less than the appropriation for the fiscal year). Newly eligible clients are placed on a wait list when the demand for program services exceeds the funds available for services. The length of wait time to begin services at the end of 2007 was 4 months; 171 adults were waitlisted. The increase in wait list time is largely due to new marketing efforts of TBI Trust Fund services and a program rule change allowing clients to re-apply for additional years of services if needed. An earlier, repealed rule limited clients to one year of service in a person's lifetime.

Research

The TBI Trust Fund Board awards grants to support research in Colorado related to the treatment and understanding of traumatic brain injuries. The Research Program has established the following three research priorities for the research program: basic science, clinical science and health services and outcome research.

After significant revisions to the Research Program in 2006-7 and targeted marketing efforts in 2008, there has been strong interest generated in the Program. In 2008, the Program received six letters of intent, five new proposals and seven revised applications. The following two projects, totaling \$821,006, were approved for funding:

Title: The Role of Eicosanoids in Traumatic Brain Injury

Principal Investigator: Kim Heidenreich, Ph.D.

Institution: University of Colorado Health Sciences Center

Award: \$415,762

Status: 2 year active project

Description: Traumatic brain injury results in two types of neuronal damage: the primary injury, or mechanical damage from impact; and the secondary injury resulting from a complex cascade of physiological reactions leading to inflammation, swelling, lack of oxygen in tissue, and additional neuronal death. Eicosanoids detected in brain tissue after TBI are thought to play a role in the secondary injury processes. The goal of this study is to determine if pharmacological manipulation of eicosanoid production or function can prevent or minimize secondary brain injury after TBI.

Title: Improving Neurobehavioral Outcomes in Adult TBI

Principal Investigator: Theresa Hernandez, Ph.D.

Institution: University of Colorado at Boulder

Award: \$405,244

Status: 2 year active project

Description: There is a great need for effective neurobehavioral intervention following TBI, as current drug therapy treatments are often disappointing. Ideally, such interventions would be low cost, highly accessible, self-administered, without side effects and would effectively improve neurobehavioral function, even when initiated months after injury. Jin Shin, a type of acupressure which fulfills many of these requirements, is shown to be effective in chronic stroke patients. This study aims to determine the potential of Jin Shin to improve neurobehavioral outcome after TBI.

Three previously funded projects were approved for no cost extensions, including:

Title: Survival After TBI in Colorado: A Population-Based Study

Principal Investigator: Cynthia Harrison-Felix, Ph.D.

Institution: Craig Hospital, Englewood, CO

Award: \$100,000

Status: 2 year project funded in 2006 approved for no cost extension

Description: Increased risk of death and a greater rate of death from some causes are indicated after TBI. The goal of this study was to investigate mortality, life expectancy, causes and risk factors for death in individuals with TBI in Colorado, and to use the results to develop strategies for preventing such premature death. The analyses for this study and final progress report are complete. Results were presented at the annual meeting of the American Congress of Rehabilitation Medicine in October, 2008 and a manuscript for the Archives of Physical Medicine and Rehabilitation is in the final completion process. A dissemination plan of study results will be implemented in the coming months.

Title: Social Communication Skills Training for Persons with Traumatic Brain Injury

Principal Investigator: Cynthia Dahlberg

Institution: Craig Hospital, Englewood, CO

Award: \$100,000

Status: 2 year project funded in 2006 approved for no cost extension

Description: The ability to effectively communicate is a critical skill in our society. TBI affects both the expressive and receptive aspects of communication. Problems with social communication result in the breakdown of interpersonal relationships and lower ratings of community integration and life satisfaction. This study investigated the effectiveness of a standardized group treatment for improving social communication skills after TBI. Data analysis for the first two groups and preliminary data analysis for the second two groups is complete. Final conclusions for the project are due March 31, 2009. Manuscript preparation is scheduled for June, 2009.

Title: Comparison of Female Endocrine Function after Traumatic Brain Injury

Principal Investigator: David L. Ripley, M.D.

Institution: Craig Hospital, Englewood, CO

Award: \$100,000

Status: 2 year project funded in 2006 approved for no cost extension

Description: Clinical evidence suggests that amenorrhea (absence of menstruation) following traumatic brain injury is of longer duration than for other critical illnesses or injuries, and may be a result of direct pituitary injury. This study is investigating whether the return of normal menstrual functioning is associated with resolution of the stress response, and whether the duration of amenorrhea, estrogen or progesterone levels are correlated with outcomes following TBI. Data has been collected from ten participants; ten more women will be studied. Completion of data analysis is scheduled for May 2009. A presentation was made at the Brain Injury Association of

Colorado's 2008 Conference. Completed findings will be disseminated through peer-reviewed journals and national conferences.

Updates on research grants are available on the Trust Fund website under Research at www.tbicolorado.org. In addition to these successful grant applications, the Program currently has eight pending applications in various stages of the review processes totaling \$4,919,949.

The Research Committee of the Trust Fund Board will be developing new categories of smaller projects to encourage new researchers to the field of TBI. In addition, the awards process will be reviewed to manage a program that has become more competitive.

Education

In 2005, the TBI Trust Fund Board established an education grants program to educate people throughout Colorado about traumatic brain injury via funding a variety of grassroots community education projects. Response to the education grants program has been very positive with numbers of successful projects. For Fiscal Year 2009, a total of 28 grants for a total of \$113,566 were awarded, with individual awards ranging from \$924 to \$10,000. Emphasis was placed on geographic and ethnic diversity, underserved populations, sharing and distribution of project materials and results. Education grants were awarded for the following projects:

Organization: Denver CIRCLE Group - BIAC
Amount: \$5,000
Geographic Area: Statewide
Description: Develop and distribute TBI educational card to hospitals, clinics and community organizations

Organization: The Children's Hospital – Department of Rehabilitation
Amount: \$10,000
Geographic Area: Statewide
Description: Provide BrainSTARS resource manual to each child admitted with a TBI

Organization: Denver Options - CTAT
Amount: \$7,000
Geographic Area: Durango/Cortez and Sterling/Fort Morgan
Description: Provide the best of TBI Survivor Series trainings in 2 rural areas

Organization: Denver Options - CTAT
Amount: \$5,000
Geographic Area: Statewide
Description: Use E-connections technology to bring TBI stakeholders together to share resources and stories

Organization: Denver Options - CTAT
Amount: \$5,000
Geographic Area: Denver Metro
Description: Provide Survivor Series trainings

Organization: Larimer County
Amount: \$3,500
Geographic Area: Larimer County
Description: Conference attendance for TBI survivors, family members and two care coordinators

Organization: Safe Kids Denver Metro Area Coalition
Amount: \$9,280
Geographic Area: Denver Metro
Description: Develop and present brain injury empathy exercises in elementary and middle schools

Organization: Denver Veterans Administration
Amount: \$5,000
Geographic Area: Statewide and national
Description: Host consensus conference of national experts on suicide risk in relation to TBI

Organization: BIAC – Brain Injury Association of Colorado
Amount: \$10,000
Geographic Area: Statewide
Description: Provide self advocacy workshops to increase independence of those with TBI

Organization: Douglas County School District
Amount: \$5,000
Geographic Area: Douglas County
Description: Presentation: Educational implications of TBI and interventions in schools for parents, educators, coaches

Organization: Beth Kahmann
Amount: \$5,000
Geographic Area: Statewide
Description: Create user-friendly DVD for use by survivors and caregivers of Colorado TBI resources

Organization: Greeley/Evans Weld School District 6
Amount: \$7,160
Geographic Area: Weld County
Description: Training for school personnel to address students with TBI

Organization: Brain Injury Association of Colorado
Amount: \$2,000
Geographic Area: Statewide
Description: Add materials to resource library for families

Organization: Aurora Public Schools/Pitkin Tech
Amount: \$3,910
Geographic Area: Aurora
Description: Fund BrainSTARS manuals, educational DVDs, brochures and 2 conference registrations

Organization: Cherry Creek School District
Amount: \$3,592
Geographic Area: Cherry Creek and Littleton Public School Districts
Description: Training of signs, symptoms and strategies of working with students with TBI

Organization: Tri-County Health Department
Amount: \$924
Geographic Area: Adams, Arapahoe and Douglas Counties
Description: Provide BrainSTARS manuals to families of children with TBI

Organization:	Dr. Negron
Amount:	\$10,000
Geographic Area:	Statewide
Description:	Translate the BrainSTARS manual into Spanish
Organization:	Pikes Peak First Choice
Amount:	\$6,400
Geographic Area:	El Paso County and beyond
Description:	Education sessions for military service members and veterans with TBI and their families
Organization:	Pikes Peak First Choice
Amount:	\$2,500
Geographic Area:	El Paso County and beyond
Description:	Educate First Responders about TBI in combat service members
Organization:	Colorado Department of Public Health & Environment
Amount:	\$4,800
Geographic Area:	Statewide
Description:	Provide national brain injury certification to care coordinators working with children with TBI
Organization:	Denver University
Amount:	\$2,500
Geographic Area:	Denver Metro Area
Description:	Provide TBI Seminar on TBI treatment and assessment

Other educational efforts in 2008 include the following:

TBI Marketing Plan – The Education Committee of the Trust Fund Board developed a marketing plan with targeted audiences and organizations. A new logo, marketing materials and display board were developed.

Participation at Professional Conferences and Community Events – Program staff and Board members staffed exhibit booths and spoke at a number of professional conferences and community events during 2008. The program’s exhibit booth featured a display board on the TBI Program, flyers with information on the children’s services, adult services, research opportunities and education efforts of the program, and a traumatic brain injury “fact sheet” from the Center for Disease Control. An increased effort was made to publicize the Trust Fund Program to other state agencies. Presentations and exhibits were held at conferences and meetings focused on rural health, homeless youth, Latino health issues, school nursing, TBI in the schools, mild TBI, substance abuse, counseling those with TBI, family needs of children with TBI, employment and social needs for those with brain injury, as well as at the annual Brain Injury Association of Colorado’s Conference in Vail. During Brain Injury Awareness Month in March, program contractor staff distributed materials and answered questions in the lobby of the State Human Services building.

Program Website – The TBI Program website at www.tbicolorado.org is continually updated. The website includes the program vision and mission, information on client services and how to access services, information on the research and education programs, Board meeting minutes, annual reports, State rules, the State statute creating the Trust Fund and Board, and more

Futures Committee

In 2008, the Trust Fund Board added a fourth committee to its structure. The Futures Committee is charged with visioning the broader future needs of the programs of the Trust Fund and implementing strategies and actions to develop needed statute changes, revenues, and partnerships.

Other 2008 Accomplishments

Brain Injury Collaborative – In February 2008, Board members from the four leading brain injury organizations were invited to discuss common goals and interests. The Brain Injury Collaborative was formed and continues to meet bi-monthly. Board members from the TBI Trust Fund and the Brain Injury Advisory Board, both staffed by the TBI Program, attend.

Governor's Executive Order – On December 8, 2008, Governor Bill Ritter signed an Executive Order requiring collaborative efforts across state agencies to assist in the coordination of services for those affected by a traumatic brain injury. Eleven agencies were named and public-private efforts beyond state government will be encouraged to work together in more stream-lined ways. A report of possible future efforts will be presented in October 2009.

Federal TBI Program – Colorado's TBI Program was approved for second year funding of its 3-year grant, totaling \$118,600 per year. Funds are being used to enhance and build professional support groups for providers of TBI across Colorado. Two new groups focus specifically on the veterans and Latino populations. In addition, funds are dedicated to finalizing the results of a statewide needs and resources assessment on TBI and to researching the possibility of a pilot TBI screening and assessment tool for CDHS clients. Colorado received praise during a federal site visit for the collaborative efforts taking place within the state on behalf of individuals with brain injury.

Veterans and Military Service Members – The TBI Program participates in a Division of Vocational Rehabilitation Veterans Initiative focused on providing employment opportunities to returning veterans suffering from disabilities. Over 25 organizations have been involved; a website of linked resources is under development to assist veterans dealing with multiple needs.

Expectations for 2009

During the past five years, the TBI Board and program staff have directed their efforts towards developing and implementing the client services, research and education components of the Trust Fund Program. Each of these program areas provided opportunities and presented challenges.

During the next year, the TBI Trust Fund Board and staff will be monitoring results from the new evaluations of the Services Program, developing and refining Research Program award opportunities, reviewing revenue sources and considering possible increases, and working on the next stage of the marketing plan, including the design of a more user-friendly website. In addition, staff will be directing efforts outlined in the Governor's Executive Order, building new collaborative efforts across state agencies in the streamlining of services for those affected by TBI. A pilot screening and assessment process is under consideration to be used in conjunction with several CDHS agencies, including the Office of Behavioral Health and Housing and the Division of Youth Corrections.

A five year State Action Plan for TBI will be finalized in early 2009. It will be used as the foundation for a larger federal grant application due at the end of 2009 and to provide direction regarding initiatives shared by the Brain Injury Collaborative. In conjunction with other brain injury organizations, a resource database will be developed by and of providers, researchers, educators, hospital and rehabilitation center staff, and related agencies.

Also, the Trust Fund Board will be looking towards the future and exploring long-term opportunities for the program to increase its revenue to better meet the needs of people of all ages for care coordination and other rehabilitation services and supports.

Additional Information

For additional information on the Traumatic Brain Injury Program, please visit the program website at www.tbicolorado.org or contact: Nancy Smith at 303-866-4886 or by email at Nancy.Smith@state.co.us

Attachment A

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