



· R E S E A R C H ·



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SUMMER 2014

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FROM MY DESK

Each year, the Brain Injury Association of America (BIAA) dedicates the summer issue of *THE Challenge!* to research. We invite bench scientists who are at the forefront of

brain injury prevention and treatment to submit articles describing the purpose of their work and the progress they've made to-date. As this issue demonstrates, these dedicated professionals are working to identify the important factors that will slow, stop, or reverse damage to brain cells after injury. Much of their focus is on the window of time just after an injury occurs, but there's important work being done to improve rehabilitative medicine too.

As part of our mission to advance research and treatment for people with brain injuries, BIAA announced in July that we have awarded a grant to the Brain Injury Research Center at the Icahn School of Medicine at Mount Sinai to lead a three-year investigation to develop *Guidelines* for the Rehabilitation and Disease Management of Adults with Moderate to Severe Traumatic Brain Injury (TBI).

As *Challenge* readers know, individuals who sustain TBIs rarely have access to rehabilitation of sufficient timing, scope, duration, and intensity that would allow them to recover to the maximum extent possible. This situation exists because insurance companies and public policymakers control treatment decisions instead of doctors, patients, and family caregivers. When a person's care is delayed, discontinued, or denied altogether, the result is often increased re-hospitalization rates and greater levels of disability. This creates a cycle of joblessness, homelessness, and dependence on public programs.

BIAA and Mount Sinai are addressing this problem head-on. During the next three years, 50 of the nation's top rehabilitation researchers and clinicians will review and assess evidence in functional, medical, cognitive, behavioral, and social domains to:

- 1. Identify and fully describe the continuum of care available following TBI;
- Determine the evidence for various rehabilitative treatments and, based on that evidence and/or expert opinion, make recommendations for treatment and management in various settings;
- Produce a document that supports improvements in the quality and consistency of rehabilitation treatment; and
- 4. Broadly disseminate the recommendations to payer, provider, patient, and advocacy communities in an effort to increase access to care.

Ultimately, the goal of our project is to learn how much rehabilitation adult patients with moderate to severe TBI should receive, in what setting, and at what time. BIAA and Mount Sinai have pledged to keep the brain injury community fully informed and invite input and feedback at certain key points along the way. Readers can stay abreast of our progress by visiting www.biausa.org/TBIGuidelines.

In the meantime, we continue to spearhead the National Brain Injury Information Center program through which BIAA and its affiliates respond to 30,000 individual requests for assistance each year. We continue to administer ACBIS (the Academy of Certified Brain Injury Specialists) programs for those employed in the brain injury field who wish to demonstrate their knowledge, experience, and commitment to working with people with brain injury. BIAA also continues its federal public policy work as described in the Advocacy Update article. In addition, we are pleased to showcase the fine work of our affiliates and to publicize the many financial supporters who ensure that BIAA remains the Voice of Brain Injury.

Susan H

Susan H. Connors, President/CEO Brain Injury Association of America

. 2014 Moody Prize Awarded to

Ross Zafonte, D.O.

Ross Zafonte, D.O., is the 2014 recipient of the Robert L. Moody Prize for Distinguished Initiatives in Brain Injury Research and Rehabilitation. Dr. Zafonte is the Earle P. and Ida S. Charlton Professor and Chair of the Department of Physical Medicine and Rehabilitation at Harvard Medical School. He is also Vice President of Medical Affairs, Research, and Education for the Spaulding Rehabilitation Network and Chief of Physical Medicine and Rehabilitation at Massachusetts General Hospital. He moved to Boston after a distinguished career at the University of Pittsburgh.

Dr. Zafonte has devoted his clinical and research career to individuals with traumatic brain injury (TBI). He has published extensively on TBI and other neurological disorders, has developed fellowships in this arena, and has presented on these topics at conferences nationally and internationally. Dr. Zafonte is coeditor of the textbook, *Brain Injury Medicine, Principles and Practice*, which is considered one of the standards in the field of brain injury care.

Dr. Zafonte developed a research program that has been continuously funded since 1997. His long-term goal is to develop novel prognostic tools to guide the clinical care of patients with brain injury. His research spans from bench to bedside as he pursues this goal. He applies clinical observational data to guide his work. Using this approach, he recently identified gender-based differences in the recovery process, population-based recovery differences based on duration of post-traumatic amnesia and imaging data, and gender-based differences with environmental enrichment and oxidative stress. Dr. Zafonte also recently completed an eight-center NIH-funded multi-site clinical trial for the treatment of TBI. This was the largest clinical treatment trial in the history of North America. The work was recently published in the *Journal of the American Medical Association* (JAMA) and is expected to change care paradigms worldwide.

Currently, Dr. Zafonte is working to establish biomarkers that can be employed in the acute and post-acute phases of recovery from TBI. He is currently the principal investigator on a Department of Defense (DOD) grant focused on TBI and deployment/combat-related stress. Through this work, he seeks to develop diagnostic criteria to treat those with similar symptoms after TBI and to delineate the role of pharmacotherapy in people with frontal executive dysfunction.

Dr. Zafonte is also the principal investigator of a clinical trial funded by the DOD to evaluate a novel treatment for pain and cognitive deficits after TBI. Work by Dr. Zafonte's group on this agent has recently been published in the Proceedings of the National Academy of Sciences. He is also working to define the various control systems in the regulation of brain blood flow and how alterations in these systems contribute to the symptoms of TBI. For many years, he has participated in the TBI Model Systems program at Spaulding, which is funded by the National Institute on Disability and Rehabilitation Research (NIDRR) and was part of the multi-site study of Amantadine for post-TBI irritability and aggression.

Despite extensive administrative duties and research activities, Dr. Zafonte maintains an active clinical practice. He was instrumental in the development of the Home Base Program, which is dedicated to improving the lives of veterans who live with combat-related stress and/or TBI. He traveled to Afghanistan to consult with physicians in the field on ways to improve the treatments for soldiers suffering from the effects of blast injuries and other TBI-related diagnoses.

Dr. Zafonte is also a recognized authority in the arena of sports-related concussion. He authored two recent JAMA publications and serves on the American Academy of Neurology's concussion guidelines development committee. He has consulted NFL, NHL, and FIFA players as well as numerous collegiate and youth athletes and is part of the team at Harvard Medical School that was awarded a \$100 million grant from the National Football League Players Association (NFLPA). This 10-year initiative will support the Harvard Integrated Program to Protect and Improve the Health of NFLPA Members. The program will marshal the intellectual, scientific, and medical expertise throughout Harvard University to discover new approaches to diagnosing, treating, and preventing injuries and illnesses in both active and retired players with the ultimate goal of transforming the health of the athletes.

Dr. Zafonte's effort in the rehabilitation research and clinical arenas, his devotion to medical education, and his quest to develop novel therapies for those with TBI represent major contributions to public health and the field of brain injury rehabilitation.

The Moody Prize is presented annually by the University of Texas Medical Branch School of Health Professions and the Transitional Learning Center of Galveston. The prize, named for Robert L. Moody, is administered by a board of governors. Candidates are considered by a panel of experts. Criteria include the total impact of a candidate's work and recognition by peers. Dr. Zafonte was nominated for the award by Lee M Nadler, M.D., Dean for Clinical and Translational Research at Harvard. His nomination was supported by Dr. Ross Bullock of The Miami Project to Cure Paralysis, Dr. Joseph H. Ricker of the University of Pittsburgh School of Medicine, and Dr. Nathan D. Zasler of the Concussion Care Centre of Virginia. Dr. Zafonte received the Brain Injury Association of America's Young Investigator Award in 1994 and is a former member of BIAA's Board of Directors.



DEVELOPING THERAPIES TO IMPROVE COGNITIVE RECOVERY AFTER TRAUMATIC BRAIN INJURY

By Coleen M. Atkins, Ph.D., Department of Neurological Surgery, University of Miami Miller School of Medicine

Many people who sustain a traumatic brain injury (TBI) experience difficulties with learning and memory. Most recovery from learning and memory difficulties occurs during the first six months after injury, but this recovery often plateaus or declines between 6 and 12 months after the initial injury. Although therapies have been developed to treat attention, concentration, and speed of processing, developing therapies specifically for learning and memory has not yet been successful because we are still discovering the changes in the brain that cause learning and memory difficulties after TBI.

In the laboratory we use rats to study learning and memory impairments afterTBI so that we and other researchers can reliably observe longterm learning deficits in animals when tested on memory tasks.¹ These learning deficits are due, in part, to the unique vulnerability of one part of the brain, called the hippocampus, to trauma. The hippocampus is a structure deep within the brain that is critical for learning of events, facts, and spatial relationships. Shrinkage of the hippocampus is common among people with TBI and observed in our rats in the laboratory. Not only does the hippocampus shrink, but it also undergoes progressive neuronal loss. Consequently, the number of synaptic connections between neurons in the hippocampus also decreases.

During normal learning and memory, the number of synaptic connections between neurons increases and these connections also become stronger. We have recently found that the ability of these synaptic connections to strengthen is impaired in animals with brain injury.² Researchers in our laboratory study the molecules within neurons that are important for strengthening synaptic connections, and determine how these molecules change after brain injury. Understanding these changes is important so that we can eventually develop drug therapies that target these specific molecules to boost the strength of neuronal connections during learning and memory.

The strength of the synapses that connect between neurons is regulated by molecules within the neurons. These molecules are important for the growth of new synapses during learning. One of these molecules, CREB, initiates changes in the nucleus of neurons at the DNA level to increase genes for synaptic growth. During learning, CREB is activated and stimulates genes to synthesize more molecules to increase the number of synapses. However, we have found that after TBI, neurons are unable to activate CREB during learning.² We suspect that drugs that target CREB could improve learning and memory after TBI by promoting the strengthening of synaptic connections.

CREB activity is tightly regulated in neurons. CREB is activated by the molecules cAMP and PKA and is shut off by molecules called phosphodiesterases that break down cAMP. We can boost CREB activation by inhibiting the phosphodiesterase molecules that break down cAMP. Several drugs that inhibit phosphodiesterases have been approved by the Food and Drug Administration and increase cAMP levels within neurons. When we treat animals that have received a TBI with a drug to inhibit phosphodiesterases, CREB is activated during learning and their learning and memory ability also improves.²

Treating chronic TBI survivors with drugs that target phosphodiesterases may be a promising treatment strategy to improve learning and memory ability.

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NIH SUPPORTS NEW Approaches to Traumatic Brain Injury Research

By Ramona Hicks, Ph.D., Program Director, Repair and Plasticity NIH/NINDS

The brain is the most complex organ in the body. Injuries to the brain add to that complexity, and much remains unknown about the best ways to reduce damage and promote repair and recovery. To advance knowledge about brain function and how to restore it after injury, the National **Institutes of Health (NIH)** launched several new projects and research studies last year.



Following are a few studies with particular relevance to traumatic brain injury (TBI):

The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative •

Advances in science are often made possible because of better tools and instruments. The BRAIN Initiative is aiming to do just that - develop dramatically better tools to learn how the brain's billions of nerve cells work together. Although the focus of the BRAIN Initiative is on technology, there is good reason to expect there will ultimately be substantial benefits for people with neurological disorders. Many disorders, including TBI, are the result of disruptions in brain cells and circuits. Even with our limited understanding of brain circuits and imprecise technologies for altering them, interventions that compensate for malfunctioning brain circuits already produce remarkable results. For example, deep brain stimulation reverses symptoms for many people with Parkinson's disease, dystonia, and other diseases. Cutting edge methods from basic neuroscience research will help us to understand TBI and better ways to diagnose and treat it.

Approaches and Decisions in Acute Pediatric TBI Trial (ADAPT) -

Developing better therapies for children with TBI is hampered by the wide variation in supportive care, which can mask the effects of a new, experimental treatment. The ADAPT study aims to reduce the variability by determining which treatments are most the effective and for which children. The study will compare outcomes of 1,000 children with severe TBI, and use advanced statistical analyses to evaluate intensive care unit (ICU) management for brain swelling, oxygen levels, and energy requirements. The knowledge gained from this study will inform clinical practice guidelines about the most effective ways to reduce mortality and improve recovery. This will also decrease the variability of standard treatments, making clinical trials of novel therapies more likely to succeed in the future.

Transforming Research and Clinical Knowledge in TBI (TRACK-TBI) •

This ambitious project aims to provide more personalized medicine for people with TBI by developing a better classification system. Rather than use functional outcomes to describe the injury as "mild," "moderate," or "severe," researchers propose to classify the injury on how it actually affects the brain. The rationale is that TBI can cause lots of different types of damage to the brain and effective treatments need to target those specific problems. The team will study 3,000 children and adults with TBI and use multiple diagnostic tools and tests to determine the relationship between patient characteristics, injury characteristics, and outcomes as a foundation for developing more effective and precise treatments. The TRACK-TBI multi-center consortium also provides an excellent network for evaluating new diagnostic tools that can detect subtle injuries or monitor changes in the brain because of the large number of subjects and very detailed data that they are collecting.

The Sports Health Research Program -

This collaboration among the NIH, the National Football League (NFL), and the Foundation for NIH made it possible to fund two major neuropathology studies, as well as six pilot projects in 2013. The neuropathology studies investigate the long-term effects of TBI, a major health concern with many unanswered questions. One of the studies, "CTE and Posttraumatic Neurodegeneration: Neuropathology and Ex Vivo Imaging," focuses on describing the neuropathology of chronic traumatic encephalopathy (CTE), a condition associated with multiple or repetitive impacts to the head. The other study, "Neuropathology of CTE and Delayed Effects of TBI: Toward In-Vivo Diagnostics," focuses primarily on describing the neurodegeneration following a single TBI. Because of the willingness of the investigators to collaborate and standardize protocols across the two studies when possible, they will be able to compare the neuropathology of CTE and chronic phases of TBI to determine their similarities and differences. This collaboration will set the stage for better ways to diagnose, treat, and prevent neurotraumarelated neurodegeneration in the future.



All of these projects are pioneering new approaches to neuroscience. and the work is challenging. However, success is likely because of the commitment, collaboration, and courage of the investigators, patients, and their families to meet the challenges.

WE HOPE TO IMPROVE CARE FOR INDIVIDUALS WHO SUSTAIN A TBI.

INFLAMMATION: A New Biological Paradigm for Understanding TBI As a Chronic Condition

> By Amy K. Wagner, Shannon B. Juengst, Raj G. Kumar, Anne C. Ritter, Matthew L. Diamond, and Michelle D. Failla, University of Pittsburgh

WHILE INFLAMMATION IS NECESSARY FOR RECOVERY, TOO LITTLE OR TOO MUCH INFLAMMATION CAN BE HARMFUL

10 THE CHALLENGE!

Every traumatic brain injury (TBI) is unique, so predicting immediate and long-term effects of an injury is difficult. We developed a biopsychosocial Rehabilomics Model^{1,2} to research how genetics and other biological markers explain this wide variation in the effects of TBI. One promising research area for our group is inflammation.

After a TBI, the body works to repair damage to the brain and fight infections that may be acquired while in the hospital. Much like inflammation needed to fight an infection, a well-controlled inflammatory response is vital to recovery after injury. The inflammatory response after TBI varies and can be affected by many things, such as previous illness or injury, severity of injury, or individual genetic differences. While inflammation is necessary for recovery, too little or too much inflammation can be harmful. By measuring different biological markers of inflammation, we may be able to predict risk for some adverse outcomes after injury.

To date, our published research in severe TBI suggests that those with either a very low or very high inflammatory response to stress, measured by biomarkers (cortisol) found in cerebrospinal fluid (CSF) that bathes the brain, are more likely to experience severe disability or die within six months after injury.³ In another study, we measured different inflammation biomarkers (cytokines) in blood and found that they were elevated for up to a year after injury, well above the levels found in the blood of individuals without TBI. Importantly, individuals with TBI who had the highest inflammation biomarkers across the first three months after severe TBI were more likely to experience severe disability or die during the first year after TBI.⁴

In the absence of TBI, the body's immune system does not typically react to certain proteins that are found only in the brain. Working with Dr. Kevin Wang (University of Florida), we found that the body's immune system does react to these proteins in some individuals with TBI, resulting in an inflammatory response.⁵ This is referred to as an autoimmune response, in which the body's immune system attacks the body's own molecules. We are investigating how this autoimmune response is affected by other inflammatory biomarkers,⁶ by complications such as infections, and by previous injuries or illnesses. In the future we hope to learn how this autoimmune response affects risk for complications and poor long-term outcomes.

Of individuals with TBI of any severity, 15-20 percent go on to develop seizures in the brain, called post-traumatic epilepsy (PTE). To help clinicians identify those at risk, we are investigating how the likelihood of developing PTE changes based on differences in the inflammatory response early after injury and variation in the genes responsible for producing inflammatory biomarkers. To date, we have identified that a biomarker called interleukin- 1β , measured through levels in CSF and blood levels early after injury and through genetic variation, contributes to increased risk for developing PTE.⁷

At some point after injury, more than half of individuals with a TBI will experience depression. In the general population, depression is associated with inflammation, but it is unclear whether inflammation that occurs after TBI contributes to the development of depression. Our recent research found that higher inflammatory protein levels in CSF early after injury were a risk factor for depression at six months after injury.8 Related to depression, the rate of suicidal thoughts and behaviors after TBI is much higher than in the general population. Individuals who have a TBI often demonstrate disinhibition, or impulsive behavior, which may include reacting suddenly to emotions without first considering the consequences of a behavior. These individuals may be unable to suppress or cope with negative thoughts and emotions. Our work demonstrates a strong association between disinhibited behavior and suicidal thoughts. We also determined that levels of one particular inflammatory protein, TNF- α , in the blood and CSF predicted these behaviors and suicidal thoughts within the first year after injury.9

(continued on page 21)



By Teena Shetty, M.D., M.Phil., Department of Neurology, Hospital for Special Surgery, New York, N.Y.

Our work at the Hospital for Special Surgery focuses on mild traumatic brain injuries (mTBI), more commonly known as concussions. A concussion is a trauma induced short-term disturbance of brain function. A concussion can be caused by a blow to the head or by any impact that causes the brain to shake inside the skull.

Many people associate concussions with sports injuries but concussions often occur from biking accidents, car accidents, falls, and many other types of collisions. If concussions are not treated carefully, symptoms can persist for a longer duration of time. Further, if left untreated or even mistreated, people with concussions are at a greater risk of repeat concussions, which can make the intensity and duration of symptoms worse.

Unfortunately, concussions often go undiagnosed and untreated. One reason for this is that concussions are hard to diagnose. No proven method of diagnosing concussions through imaging exists. Concussions are diagnosed almost entirely based on reported symptoms and neuropsychological tests. Imagine if a patient broke his arm but could not have an X-Ray. A doctor might incorrectly conclude that the patient did not have a broken arm. Even if the doctor did correctly decide that the arm was broken, he would have trouble determining how severe a fracture had occurred and how long the healing may take. A similar type of problem exists in concussion treatment today. The absence of precise imaging makes it much harder to definitely determine the presence and scale of a mTBI.

We have recently partnered with General Electric (GE) and the National Football League (NFL) to fix this very problem. With their help, we are conducting a research study called "Advanced MRI Applications for Traumatic Brain Injury (TBI)," which investigates the way that magnetic resonance imaging (MRI) is used to examine concussions. The study is focused on finding associations between clinical concussion symptoms and data generated by MRI machines using new and unique software from GE. If we do find a significant association, this will offer a potential breakthrough toward understanding, diagnosing, and protecting against concussions.

Another reason why concussions are often mistreated is because there is a lack of evidence to support how concussions are treated. Physicians tend to agree that cognitive and physical rest is the most effective kind of treatment but struggle to define what that prescription of "rest" really entails. Both clinicians and patients are faced with a lack of understanding of how to define rest and what the consequences of compliance with this prescription are. Patients are confused and lack evidencebased guidelines to guide their activities and often do too much due to a vague understanding of how they should be recovering.

There is no clear evidence on which activities may lengthen the duration of a concussion, which means patients are not receiving the most effective care.

To address this problem we are conducting a study called "Barrier to Recovery in Post Concussive Syndrome." Through a patient questionnaire, we hope to establish a correlation between the type and duration of quality rest and the recovery time following a concussion. So far we have discovered many interesting correlations, which will help define more clearly what "rest" should consist of for a person with a concussion.



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For example, we have found that regular reading and playing video games are associated with longer recovery times after a concussion. With the knowledge we gain from this study, we can better ensure that concussion patients return to normal health as quickly as possible.

With these two studies we are addressing two very important questions. First, how can we easily confirm the diagnosis and severity of a concussion with imaging? Second, how can we make sure that a concussion is treated as effectively as possible? Hopefully, by answering these two questions, we can ensure that future patients suffering from mTBI will receive better, safer care than is given today.

I would like to thank Maxwell Singer for his assistance in this work.



NOVEL NEUROSTEROIDS FOR THE TREATMENT OF TRAUMATIC BRAIN INJURY

By Jacob VanLandingham, Ph.D., Mike Lewandowski, and Nicholas Dey, Ph.D., Prevacus, Inc., Tallahassee, Fla.

According to recent statistical data. approximately 1.6 to 3.8 million people sustain traumatic brain injuries (TBI) each year in the United States alone.



Recent scientific studies have suggested that participation in sports involving contact or collisions may cause long-term changes in metabolic processes. Sports collisions may also increase the risk of catastrophic neurodegenerative diseases such as Alzheimer's Disease and a newly diagnosed syndrome called chronic traumatic encephalopathy (CTE) which has been linked to repetitive brain injuries. Interestingly, the common steroid hormone progesterone (PROG) that circulates in the blood in both men and women can influence brain function. Specific receptors for PROG have been found throughout the brain that allows the hormone to bind to brain tissue. PROG exerts a number of important effects including stimulation of the release of chemicals called trophic factors that stabilize the environment



surrounding nerve cells and help them to grow and connect to one-another. Other beneficial effects of PROG in the brain include the stimulation of the synthesis of myelin, a protein that wraps nerve cells and improves the speed of their functioning and improves the ability to learn and remember. Evidence is also emerging that, during the development of Alzheimer's Disease, changes in the production of PROG occur that may affect the progression of the disease.

Since PROG is a reproductive hormone that affects fertility and other reproductive processes, we have developed a novel PROG-like drug that has the beneficial protective effects of PROG in the brain without the hormonal side effects. We have recently demonstrated that this drug, when given via injection over the first 24 hours post-injury, will improve both motor function and memory during the first few days in rats subjected to TBI. Experimental animals with prolonged behavioral dysfunction following TBI showed improvement when our novel neurosteroid was administered beginning 15 minutes post-injury. Our next goal is to evaluate the ability of this drug, when given as a nasal spray immediately following the injury, to penetrate the brain and reduce behavioral dysfunction that occurs after TBI. Analysis of brain protein expression after TBI and drug treatment will also allow us to determine how our new neurosteroid compound is protecting the brain from further damage associated with TBI.

There are a number of clinical settings in which intranasal administration of the drug may be effective in reducing the damage caused by TBI, including immediate administration following a suspected concussion or brain injury in the setting of motor vehicle accidents, competitive contact sports, or on the battlefield. Another important application is to mitigate the long-term effects of TBI in children. A growing body of literature suggests that TBI in children may predispose these individuals to the development of subsequent and long-term behavioral changes associated with neurodegenerative disease each year.

Each day 30 children in the U.S. die from brain injuries, and many more are left with lifelong disabilities in learning, development, and behavior.

(continued on page 34)

MODEL SYSTEMS Play Critical Role in Improving Systems of Care

By Susan L. Vaughn, S.L. Vaughn & Associates, LLC

OVERVIEW

The Traumatic Brain Injury Model Systems (TBIMS), sponsored by the National Institute of Disability Rehabilitation and Research (NIDRR), supports innovative projects and research in the delivery, demonstration, and evaluation of medical, rehabilitation, and community re-entry services. Established in 1987 with funding for five Model System Centers, the TBIMS has expanded to 16 centers, three follow up centers, and the Model Systems National Statistical and Data Center administered by Craig Hospital in Englewood, Colo. Their mission is to generate knowledge about the short- and long-term outcomes for people with traumatic brain injury (TBI).

NDIRR also funds the Model Systems Knowledge Translation Center, operated by the American Institutes for Research in collaboration with WETA/BrainLine and George Mason University, to communicate TBIMS research to stakeholders and policymakers. TBI fact sheets are available on an array of issues for people with TBI, including cognitive, balance, sleep, emotional problems, substance abuse, driving, returning to school, and fatigue. Each center also contributes information on one or more measures to the Center on **Outcome Measurement in Brain Injury (COMBI)** coordinated by the Santa Clara Valley Medical Center. COMBI is an online resource on outcome measures for brain injury rehabilitation and assessment.

NIDRR requires that all model systems centers provide a multidisciplinary system of rehabilitation care including emergency medical services (EMS), Level 1 trauma care, comprehensive inpatient rehabilitation services, long-term interdisciplinary follow-up, and rehabilitation services. The centers are to conduct one or two center-specific studies and participate in a least one multicenter study. They are also required to collect and submit longitudinal data for inclusion in the TBIMS National Database and may participate with other TBIMS Centers in separately funded NIDRR collaborative research grants.

In 2012, nearly \$7 million was awarded to fund 16 TBIMS centers to conduct research for five years that falls largely under the categories of rehabilitation intervention trials, pharmacological intervention trials, and diagnostic/prognostic studies. The overwhelming majority of these studies are randomized controlled trials (RCT). Among the NIDRR funded research are drug intervention studies to treat post-traumatic headache and post-traumatic irritability/aggression.

OTHER INTERVENTIONS AREAS BEING STUDIED INCLUDE:

- Brief intervention for substance misuse;
- Acceptance and commitment therapy to decrease distress and improve participation;
- Connecting patients, families, and providers to each other and to TBI resources (remotely);
- Processing speed training to improve cognition;
- Promoting survivor resilience and adjustment couples skill-building, support, and education training;
- Home-based virtual reality treatment for balance problems;
- Volunteer activity to improve psychological well being;
- Rewarding activity to promote emotional health;
- Light therapy for post-TBI fatigue;

Contact information:

- The Center for Outcome Measurement in Brain Injury: www.tbims.org/combi/
- Model Systems Knowledge Transition Center: www.msktc.org/
- National Data and Statistical Center: www.tbindsc.org/
- TBIMS Centers: www.tbindsc.org/Centers.aspx

- Online emotional regulation group treatment;
- Treatment of sleep disordered breathing; and
- Evaluation of a tele-health weight management treatment program.

Center projects also include developing instruments for aggression and irritability impact measure, observational pain scale, and assessing responsiveness and sensitivity of TBI quality of life computerized adaptive testing. Multi-research projects are studying interventions for sleep, cognitive testing, weight, long-term medical co-morbidities, and functional decline following TBI.

In summary, the TBI Model Systems Program demonstrates a system of care and performs several types of research to further define and identify best practices for interventions and treatment for the many types of problems often associated with brain injury.

TBIMS Funded Sept. 2012 - 2017 •

Craig Hospital	Englewood, Colo.	\$441,000
Kessler Foundation Inc.	West Orange, N.J.	\$441,000
Albert Einstein Healthcare Network	Philadelphia, Pa.	\$447,500
The Ohio State University	Columbus, Ohio	\$447,500
University of Washington	Seattle, Wash.	\$441,000
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Rehabilitation Hospital of Indiana	Indianapolis, Ind.	\$427,500
The Institute for Rehabilitation and Research	Houston, Texas	\$447,500
Spaulding Rehabilitation Hospital	Boston, Mass.	\$430,100
New York University School of Medicine	New York, N.Y.	\$427,500
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/irginia Commonwealth University	Richmond, Va.	\$436,200
Mount Sinai School of Medicine	New York, N.Y.	\$430,100
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(continued from page 19)

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THANK YOU!



INFLAMMATION: A NEW BIOLOGICAL PARADIGM FOR Understanding TBI as a Chronic Condition

(continued from page 11)

Through further investigation, we hope to improve care for individuals who sustain aTBI. If we can identify patterns of inflammatory genes and proteins that increase an individual's risk for poor outcomes, we will be able to

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ADVOCACY UPDATE

By Amy C. Colberg, M.A., Director of Government Affairs, Brain Injury Association of America

The summer has passed quickly at the Brain Injury Association of America (BIAA) as staff and advocates worked on a variety of projects. In the past few months we have worked to move the TBI Act Reauthorization through the House of Representatives, extend the Department of Veterans Affairs Assisted Living TBI Pilot Program, protect students with disabilities from being tested unfairly, and protect access to care. With these successes behind us, BIAA looks forward to the end of August recess so Congress can send the TBI Reauthorization Act to the President for his signature.

TBI ACT REAUTHORIZATION

The Senate Committee on Health, Education, Labor, and Pensions (HELP), lead by Chairman Tom Harkin (D-Iowa) and Ranking Member Lamar Alexander (R-Tenn.), approved the Traumatic Brain Injury (TBI) Reauthorization Act of 2014 as part of a package of bipartisan bills. Sens. Robert Casey, Jr. (D-Penn.) and Orrin Hatch (R-Utah) introduced S.2539 on the Senate floor in July.

First enacted in 1996, the TBI Act is the only federal law that authorizes agencies within the U.S. Department of Health and Human Services (HHS) to conduct research and public education programs and to administer grants to states and protection and advocacy organizations to improve service system access and coordination for the 2.4 million civilians who sustain TBIs in the U.S. each year.

The authorization bill includes an increased focus on brain injury management in children and gives the HHS Secretary discretion to determine which agency within the department will administer the grant program for states and protection and advocacy organizations.

The Senate planned to vote on the bill on July 31 before Congress left for August recess but will consider it when lawmakers return in September. The House of Representatives voted to reauthorize the TBI Act in a floor vote on June 24, 2014. BIAA thanks Sens. Harkin, Alexander, Casey and Hatch for their leadership in working to reauthorize the TBI Act.

PATIENT PROTECTION AND THE AFFORDABLE CARE ACT

In July, BIAA staff attended an event at the Department of Health and Human Services (HHS) with the new HHS Secretary, Sylvia Burwell. The event marked the kick-off of the administration's efforts to sign up millions of additional uninsured Americans under the Patient Protection and Affordable Care Act (ACA). HHS leaders appealed to all organizations in attendance to become involved in promoting ACA coverage for those without insurance. BIAA will continue to be a Champion for Coverage and will provide stakeholders with information during the next year. The next ACA enrollment period begins in November 2014. You can always visit the Healtcare.gov website for additional information www.healthcare.gov.

Assisted Living TBI Pilot Program Extension

The Senate overwhelmingly passed a \$16 billion overhaul to the Department of Veterans Affairs on July 31, 2014 that included a threeyear extension to the Assisted Living TBI Pilot Program (AL-TBI). Sens. Corey Booker (D-N.J.) and Dean Heller (R-Nev.) introduced the Assisted Living Pilot Program for Veterans with Traumatic Brain Injury Extension Act, S.2607. The AL-TBI Extension Act authorizes the continuation of a critical VA program that provides intensive care and rehabilitation to veterans with complex brain injuries. AL-TBI consists of communitybased residential/transitional rehabilitation programs around the country in which veterans are immersed in therapies for movement, memory, speech, and gradual community reintegration. This model of care allows veterans facing similar challenges to live together while receiving 24/7 care, which has yielded impressive results and helped rehabilitate hundreds of veterans from severe injuries that are notoriously difficult to treat. BIAA thanks Sens. Booker and Heller for their leadership and to Congress on extending this vital program to our Veterans with TBI.

APPROPRIATIONS

On June 10, 2014, the Senate Appropriations Subcommittee on the Departments of Labor, Health and Human Services, and Education and Related Agencies (Labor-HHS-Ed) approved the fiscal year (FY) 2015 appropriations bill that provides \$156.733 billion in base discretionary budget authority, the same as the FY 2014 level. In addition, the bill includes \$1.484 billion in cap adjustment funding, an increase of \$560 million, to prevent waste, fraud, abuse, and improper payments in Medicare, Medicaid, and Social Security programs.

For the National Institutes of Health (NIH), the Committee bill provides \$30.459 billion, an increase of \$605.6 million, to fund biomedical research at the 27 Institutes and Centers that constitute NIH. This level is sufficient, when combined with the \$1 billion increase appropriated in FY 2014, to fully replace the FY 2013 sequester cut to NIH. Further, this level will allow NIH to allocate \$100 million for the second year of the Brain Research through Application of Innovative Neurotechnologies (BRAIN) Initiative, an increase of \$60 million. BIAA submitted testimony to the Subcommittee on Labor-HHS-Ed. To read BIAA's testimony, visit the Government Affairs section of www.biausa.org.

CONGRESS INTRODUCES THE IMPACT ACT

On June 26, 2014, Sens. Ron Wyden (D-Ore.) and Orrin Hatch (R-Utah), as well as Congressmen Dave Camp (R-Mich.) and Sandy Levin (D-Mich.), introduced the Improving Medicare Post-Acute Care Transformation (IMPACT) Act. They introduced the bill almost three months after releasing a bipartisan discussion draft. During the past few months, Senate and House committee staff have been meeting with a series of stakeholders on the bill including the Brain Injury Association of America.

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ADVOCACY UPDATE

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The IMPACT Act lays out a framework for collecting standardized assessment data across post acute care (PAC) settings, which could then be used to transition Medicare's current silos of PAC payments from a fee for service payment structure to pay for performance reimbursement structure. This payment structure would be prospective, unified across settings, and based on patient assessment data, as opposed to being dependent on the PAC setting where patient is treated. The approach is referred to as "site neutral" payment.

BIAA PRESENTS AT Congressional Briefing Highlighting Study on Outcomes for People with TBI

Susan Connors, president/CEO of BIAA, presented at a Congressional briefing hosted by Sens. Tim Johnson (D-S.D.) and Mark Kirk (R-III.) on July 10, 2014. The briefing was held to announce the results of a study conducted by Dobson DaVanzo & Associates, LLC. on outcomes for people with TBI and stroke.

The study, Assessment of Patient Outcomes of Rehabilitative Care Provided in Inpatient Rehabilitation Facilities and After Discharge, is the most comprehensive national analysis to date examining the long-term outcomes of clinically similar patient populations treated in inpatient rehabilitation settings and skilled nursing facilities. The research shows that people with TBI and stroke treated in inpatient rehabilitation settings had better long-term outcomes than those who received care in a skilled nursing facility.

During her remarks, Ms. Connors said, "This study proves there is no such thing as 'site neutral' when it comes to rehabilitation for individuals with brain injury. The different settings in the continuum of care have different licenses and regulations. They have different treatment plans and staffing patterns. The intensity of rehabilitation provided and the outcomes achieved are different. The settings are not neutral and should not be paid as such."

THE WORKFORCE INNOVATION AND OPPORTUNITY ACT (WIOA) OF 2014.

In July President Obama signed the Workforce Innovation and Opportunity Act (WIOA), which replaces the outdated Workforce Investment Act of 1998. This new law represents a renewed commitment to workforce development with an eye to the future through innovation and support for individual and national economic growth. It is designed to increase opportunities for those facing barriers to employment and invests in the important connection between education and career preparation. The WIOA looks to the prosperity of workers and employers and focuses on economic growth within communities and states to enhance our global competitiveness as a nation. While some research services and resources for those with disabilities will be transferred from the U.S. Department of Education (ED) to the U.S. Department of Health and Human Services (HHS), a seamless transition is expected with minimal disruption.

SENATE SPECIAL COMMITTEE ON AGING

On June 25, 2014, at the invitation of BIAA, Joseph Cammarata, president of the BIA of Washington, D.C., moderated the briefing of Senate Special Committee on Aging, Sports Related Head Injuries, and Concussions. Speakers included: Rep. Bill Pascrell, Jr. (D-N.J.), chair of the Congressional Brain Injury Task Force; former NFL athlete Kevin Turner; Dr. Grant Baldwin, Centers for Disease Control and Prevention; Dr. Jeff Cummings, Cleveland Clinic; and Bill Ditto, National Association of State



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Head Injury Administrators. That afternoon, the Senate Special Committee on Aging, chaired by Senator Bill Nelson (D-Fla.) and Ranking Member Susan Collins (R-Maine), held a hearing entitled State of Play: Brain Injuries and Diseases of Aging.

U.S. DEPARTMENT OF EDUCATION

In July, BIAA staff attended a meeting with Michael Yudin, Assistant Secretary of Special Education and Rehabilitation Services, and other senior leaders, to discuss New York State's Elementary and Secondary Education Act (ESEA) waiver extension application. The waiver extension included a provision to test students with disabilities at two grades below their enrolled grade level. On July 31, 2014, the Department approved New York's ESEA Waiver Extension without the provision, which means that thousands of students with disabilities. including brain injury, won't be taken off the track to graduation.

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STATE AFFILIATE NEWS

GEORGIA

The Brain Injury Association of Georgia has been preparing for camp and community involvement. Our camp was impacted by a reduction in funding, and we were concerned about the many campers and their loved ones for whom camp is the only social and recreational activity they experience. Watkins, Lourie, Roll & Chance law firm works with individuals and families impacted by brain injury and understands the lifetime of challenges they face. The firm wanted to support the only adult brain injury and caregiver respite camps in Georgia and presented BIA of Georgia with a generous donation ensuring the camp would continue this September.

BIA of Georgia is the only non-profit providing programs that offer help, hope, and support statewide. Restore Neurobehavioral Center works with and understands the challenges in personality and behavior after a brain injury. We were very grateful to receive a generous donation from Restore Health Group, who wanted to support our mutual efforts in providing support services.

We partnered with our Riverdale Support group hosting a conference with guest speaker Kit Cummings. Support Groups, community members, and health care professionals were invited to an Evening of Hope where the crowd left feeling inspired to never give up!



Watkins, Lourie, Roll & Chance PC law firm



Jane presenting plaque to Restore Health Group, Inc.



An Evening of Hope with Kit Cummings

MICHIGAN

This summer was busy for the Brain Injury Association of Michigan. May began with our Annual Meeting and Spring Fling in Frankenmuth, where more than 100 survivors and their families gathered to recognize individual achievements and to enjoy an afternoon of activities followed by a chicken dinner feast at Zehnders Restaurant. Two weeks later we partnered with the Michigan Brain Injury Provider Council to conduct our Capital Day in Lansing. This year more than 190 brain injury survivors, family members, providers, and advocates (our largest attendance ever) met with 125 state legislators to discuss the current status of the Auto No Fault as well as the Michigan TBI Act.

June brought warmer weather and our first annual "Lids For Kids" bike helmet-fitting event in Grand Rapids. With our partner, Sina Dramis Law Firm, and 30 volunteers from our brain injury community, our goal was to distribute 200 helmets for this inaugural event. Thanks to the tremendous pre-event publicity and our strategic partnerships with the Grand Rapids Fire Dept. and Grand Rapids Public Schools, we fitted and distributed 423 helmets in 90 minutes before exhausting our supply. Needless to say, we're doing this again next year!

July featured another inaugural and highly successful event, our Legal Conference, followed by our East Region Golf Outing, where we raised more than \$200,000. The West Region Golf Outing was held in early August and will be followed by our annual Fall Conference in September, which will draw more than 1,400 people and 150 exhibitors.

MISSOURI

The week of camping at the Brain Injury Association of Missouri (BIA-MO) Donald Danforth Jr. Wilderness Camp was another memorable week for the campers. The water activities, consisting of swimming in the pool, boat rides, and fishing, were again some of the favorite activities - next to the dance. While meeting new friends, catching up with old ones,

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and simply enjoying activities adapted to their abilities is the main focus, individuals also like to accomplish new goals during their stay at camp.

Bowling for Brain Injury on Saturday, June 21, 2014 was another success! More than 200 individuals enjoyed bowling and cheering on their favorite teams in St. Louis and Springfield. Thank you to all of the bowlers and teams that raised more than \$17,000 to support the services of BIA-MO. Mark your calendars for the 2015 Bowling for Brain Injury on Saturday, June 20, 2015.

The BIA-MO 27th Annual Charity Golf Tournament will be different this year. While we all enjoyed playing golf and bidding on auction items, this year we are choosing to emphasize our mission costs over event expenses. It's About the Mission of BIA-MO to help survivors of brain injury and their families. Become a sponsor or make a donation today by visiting www.biamo.org.

(continued on page 28)

STATE AFFILIATE NEWS

(continued from page 27)

Mark your calendars today and participate in the Brain Injury Association of Missouri 10th Annual Statewide Conference – the premier educational opportunity for professionals and those caring for persons with brain injury – October 16-18, 2014. For more details, visit our Events page at www.biamo.org.

NEBRASKA

Abusive head trauma (shaken baby syndrome-SBS) it is a preventable public health problem. We know never to shake a baby. But what happens after a baby has suffered abusive head trauma? What are the life-long challenges? What do their disabilities look like? How do their caregivers cope? How do we prevent abusive head trauma?

The Brain Injury Association of Nebraska and its sponsors have taken the lead in reframing the issue and engaging all members of a community to take part in the prevention of AHT. Through a new, powerful 30-minute documentary, "Forever Shaken," producers Brandon and Tiffany Verzal take a unique look into the lives of four Nebraska children who survived abusive head trauma, as well as interview some of the Nation's leading child abuse experts. The 30-minute program is available for viewing on the Brain Injury of Nebraska website, www.biane.org, along with additional information on abusive head trauma.

Thanks to our sponsors, Children's Hospital and Medical Center, Omaha, Neb.; Madonna Rehabilitation Hospital; and Department of Health & Human Services, Injury Prevention office, in Lincoln, Neb., copies of the documentary are being sent to Nebraska groups who provide training to parents or teen parents, early childhood education/ training or license child care professionals. Nebraska Educational Television has indicated an interest in airing the documentary statewide.

For more information on this project, contact Peggy Reisher, Brain Injury Association of Nebraska executive director, at peggy@biane.org.



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NEW HAMPSHIRE

The Brain Injury Association of New Hampshire will be hosting its 31st Annual GolfTournament on Wednesday, September 3, 2014, in Gilford, New Hampshire, at the scenic Pheasant Ridge Golf Club. The tournament raises monies to support vital programs for New Hampshire brain injury and stroke survivors and their families.

On Sunday, September 28, BIANH will be hosting its 28th Annual Walk by the Sea at the beautiful Hampton Beach in New Hampshire. This year teams and individual walkers will be able to choose either a one-mile walk or threemile walk. Lunch will be served. The walk is the one time during the year where the whole brain injury community comes together to celebrate its accomplishments and enjoy the beauty of the New Hampshire coastline. It is also a wonderful way to spend the day with family and friends, and to help make a difference in the fight against brain injury.

On Wednesday, November 12, 2014, BIANH will be hosting a Caregivers Conference in Concord, N.H. This yearly conference is tailored specifically for family and professional caregivers, with Motivational Keynote Speaker, Ellen Rogers.

NEW YORK

The Brain Injury Association of New York State (BIANYS) Annual Conference featured former boxer and passionate concussion prevention advocate Ray Ciancaglini, who kicked off the program with a compelling and deeply personal account of his experience as a direct result of not properly addressing multiple concussions before resuming training and subsequent fights. Conference attendees enjoyed a broad range of workshops and networking. Plans are underway for the 4th annual Brain Injury/ Concussion Awareness Day at Citi Field, where several hundred BIANYS members and friends come together for an afternoon of baseball and educating the public about brain injury. The highlight of the fall will be the 7th annual Journey of Hope Gala in New York City which

will honor Dr. Wayne Gordon, Champion of Hope; Dr. Joseph Sandford, Corporate Citizen of Hope; Steven Miller, Victory Award; and retiring Executive Director Judith Avner, Leadership Award. Check out www.bianys.org for more details.

SOUTH CAROLINA

The Brain Injury Association of South Carolina (BIASC) has had a very busy summer. On June 27, 2014, the University of South Carolina School of Medicine-Palmetto Health CME Organization, in joint partnership with the Brain Injury Association of South Carolina hosted its first one-hour webinar and live activity on concussion diagnosis and treatment for more than 100 Emergency Department physicians, physician assistants and nurses. We presented this webinar through an education grant provided by the Carolina Panthers Charities and the South Carolina Developmental Disabilities Council.

BIASC and the South Carolina **Brain Injury** Leadership Council (SCBILC) hosted its 2014 Statewide Life with Brain **Injury Conference** on July 24, 2014 in Columbia, S.C. We had a full house of over 250 attendees including brain injury survivors, caregivers, and professionals. Our Keynote Speaker was BIAA's Board Chair, Mr. Daniel Chamberlain, J.D. He provided our audience with a wonderful presentation on the Voice of Brain Injury, highlighting BIAA's and BIASC's



BIASC Executive Director, Joyce Davis and SC Senator Thomas Alexander



BIASC Board President-Elect, Carolann Newton, SC Senator Michael Fair and Ceceli Newton

(continued on page 31)

If you have had a traumatic brain injury (TBI)

Uncontrollable crying?

Uncontrollable laughing?

It could be PseudoBulbarAffect: PBA

PBA is a neurologic condition that triggers sudden outbursts of crying or laughing in people with neurologic conditions or brain injuries such as a TBI.

52% of TBI patients had symptoms of **PBA** in a recent national study of more than 5,000 patients with a variety of underlying neurologic conditions.* **'PBA** FACTS' is a FREE kit that explains the science of this treatable condition, how it's different from depression and includes a simple test that can help you and your doctor determine if you have **PBA**.

For your FREE 'PBA FACTS' kit, call 1-800-779-7709 or go to pbafacts.com

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*PRISM was a nationwide study of patients 18+ with brain injuries or certain neurologic conditions, including 590 who had a TBI. Assessed PBA symptoms were measured by the Center for Neurologic Study-Lability Scale (CNS-LS) scores. A CNS-LS score ≥13 may suggest PBA symptoms and merits further diagnostic assessment. Patients or caregivers completed the assessment.

STATE AFFILIATE NEWS

(continued from page 29)



State Director for SC Department of Disabilities and Special Needs, Dr. Beverly Buscemi, BIASC Executive Director, Joyce Davis, Tate Mikell, SC Representative Peter McCoy and Dr. Anbesaw Selassie

achievements. BIASC also honored three South Carolina State Legislators for their support of the South Carolina Student Athlete Concussion Law and SCBILC legislation. Representative Peter McCoy, Senator Michael Fair, and Senator Thomas Alexander were present to receive their awards and expressed their appreciation of BIASC and its members and supporters.

VERMONT



The 12th Walk For Thought on May 31st was very successful. Pictured is the largest team at 74 members. The online, team-based focus has worked very well. There was music, massages, great food, prizes, and camaraderie. Our next event is the 26th Annual Brain Injury Conference. Rosemary Rawlins will be the keynote speaker and a great cast of presenters will educate and entertain us all. Check out the schedule at www.biavt.org.

Get Your FREE PBA FACTS Kit.

Learn about this treatable neurologic condition.

- Read how PBA differs from depression
- Learn what doctors have to say
- Hear stories from patients and their caregivers



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NEWS & NOTES

Results of the International Brain Bee

Future neuroscientists from around the world met in Washington, D.C. to compete in the sixteenth International Brain Bee Championship, August 6–11, 2014. The Brain Bee is a neuroscience competition for students ages 13 to 19. Its goal is to inspire young men and women to pursue careers in brain-related professions.

The new 2014 World Brain Bee Champion is Gayathri Muthukumar of India. She won a decisive victory scoring 95 out of 100 points. Gayathri lives in Bangalore and is also a classical Indian vocalist and dancer, a piano player, and a sprinter on her track team.

Gyathri received \$3000, a trophy, and the right to represent the Brain Bee around the world. She is also awarded a summer internship in a neuroscience laboratory provided by the Society for Neuroscience.



Goldman Completes Trans-America Run for Brain Injury Awareness



Jessica Goldman and "Thingamabob" at the finish in Manhattan

On July 15, 2014 Jessica Goldman became the second woman to run solo and self-supported across the United States. Goldman ran nearly 3,400 miles in 90 days and raised more than \$27,000 for the Brain Injury Association of America (BIAA).

Goldman left City Hall in San Francisco on the morning of April 16 after a sendoff from city officials, including San Francisco Mayor Edwin M. Lee, and representatives from BIAA. She averaged 50 miles each day for most of her journey – nearly the equivalent of two marathons each day. This is all the more impressive considering she carried all of her supplies with her in a modified jogging stroller she affectionately calls "Thingamabob."

A 41-year old native of New Hampshire, Goldman made her run across the country entirely self-supported, which means she did not have a support vehicle following her with gear and supplies. She carried her own food, water, and clothing as well as spare parts and tires for her stroller, which needed occasional repair.

To make a donation in support of Goldman's accomplishment, visit www.biausa.org/goldman

2014 Walk for Brain Injury to be Held October 4

Team up with the Brain Injury Association of America - Texas Division (BIAA-TX) by participating in the largest grassroots brain injury awareness event in the Lone Star State.



The Third Annual Texas Walk for Brain Injury will be held at Addison Circle Park at 9:00 a.m. on Saturday, October 4. The walk is a staple for TBI survivors in the DFW Metro-area. Your participation provides us the opportunity to continue our mission to advance brain injury prevention, research, treatment, and education and to improve the quality of life for all Texans impacted by brain injury.

We hope you will join us on October 4 as we celebrate the achievements of those living with brain injury, their families, friends, caregivers, and care providers. Your support is imperative to their success in the daily battle against brain injury. For more information, visit www.biausa.org/Texas.

You Can Support BIAA When You Shop on amazon Smile

AmazonSmile is a simple and automatic way for you to support the Brain Injury Association of America every time you shop, at no cost to you. When you shop at smile.amazon. com, you'll find the exact same low prices, vast selection and convenient shopping experience as Amazon.com, with the added bonus that Amazon will donate a portion of the purchase price to BIAA. On your first visit to AmazonSmile, you need to select a BIAA as the charitable organization to receive donations from eligible purchases before you begin shopping. Amazon will remember your selection, and then every eligible purchase you make on AmazonSmile will result in a donation.

Beaumont Making Strides on Appalachian Trail

Sarah Beaumont has passed the unofficial halfway point of the Appalachian Trail in Harpers Ferry, W.Va. and is continuing on her way to Mt. Katahdin in Maine. She started her journey at the trailhead in Springer, Ga. on Aug 5, 2014. Sarah's goal is to raise \$15,000 – \$7 for every mile she hikes – for brain injury awareness and research. To help support Sarah's fundraising goal, visit www.biausa.org/beaumont.

Santa Clara Valley Brain Injury Conference, California – Feb. 5-7, 2015

This conference is the updated continuation of the Coma to Community Conference hosted by Santa Clara Valley Medical Center from 1977 through 1995. An audience of 500 rehabilitation professionals representing a variety of disciplines as well as individuals with brain injury, family members, and caregivers. is expected Our previous conferences were endorsed by the American Congress of Rehabilitation Medicine, the Brain Injury Association of America, and the International Brain Injury Association.

The 2015 conference will includes two days of multi-disciplinary state of the art educational sessions focusing on issues related to acquired brain injury treatment and research in both a military and civilian population and multiple half-day pre-conference workshops as an optional add-on.

The conference curriculum will appeal to social workers, therapists, psychologists, physiatrists, nurses, researchers, administrators, advocates, individuals with brain injury, and family members affected by brain injury. In addition to faculty, comprising of nationally and internationally recognized leaders in the field of brain injury and rehabilitation, there will be exhibitors sharing the latest innovations and information regarding services for individuals with brain injury and their families. For more information visit www.braininjuryconference.org.

BIAA UPCOMING WEBINARS & LECTURES

To register for BIAA webinars, visit **www.biausa.org**/ **webinars** and click the link for the webinar you would like to attend.

September 10, 2014 (3:00 p.m. Eastern, 12:00 Pacific)

Working with Students with Brain Injury: A Best Practices Review (David Strass Memorial Webinar) Jennifer Silber, Ph.D., BCBA-D

September 24, 2014 (3:00 p.m. Eastern, 12:00 Pacific)

Accommodations for Brain Injury in the Workplace (BIAA Caregiver Webinar) Melanie Whetzel, M.A. Senior Consultant,

Job Accommodation Network

October 9, 2014 (3:00 p.m. Eastern, 12:00 Pacific)

Applying for Social Security Disability Benefits (Butch Alterman Memorial Webinar) Sharon Maynard of Bennett, Hartman, Morris & Kaplan

November 5, 2014 (3:00 p.m. Eastern, 12:00 Pacific)

Practical Strategies for Managing Awareness Issues in the Community (Caregiver Webinar)

Dr. Jennifer Schwartz-Mitchell, Director of Clinical Services, Cognitive Assessment and Solution, Humanim

November 9, 2014 (3:00 p.m. Eastern, 12:00 Pacific)

Quantification of Behavioral and Pharmacological Treatment Effects After Brain Injury

(Business of Brain Injury Webinar) Jeff Kupfer, Ph.D., and Dixie Eastridge, M.A.

BIAA Webinars offer practical information for families of people with brain injuries and the professionals who serve them.

Some webinars offer opportunities for continuing education credits for professionals and these webinars are offered at two levels: one that includes a certificate of attendance and one that does not.

If you are a family member/caregiver and do not need any type of credit for a professional license or certification, register for the non-credit option. If you are a professional and need a record of your participation, register for the version of the webinar that provides a certificate of attendance.

Registration for upcoming webinars, as they become available, can be filled out online in the Marketplace of the Brain Injury Association of America's website at: www.biausa.org. Recordings of most webinars are available for purchase in the Marketplace as well.

VISIT **WWW.BIAUSA.ORG** For more information

NOVEL NEUROSTEROIDS FOR THE TREATMENT OF TRAUMATIC BRAIN INJURY

(continued from page 15)

Each day 30 children in the U.S. die from brain injuries and many more are left with lifelong disabilities in learning, development, and behavior. Although TBI is the leading cause of death and disability in children, few treatments exist. We are currently working with worldrenowned investigators at the University of Pennsylvania to take advantage of their clinically relevant large animal model of TBI in juvenile/ immature animals. The collaboration will allow us to evaluate the potential therapeutic efficacy of protective neurosteroid administration, including sophisticated neurobehavioral testing.

Working with colleagues at Charles River Discovery Research Services in Kuopio, Finland, we are also evaluating the effects of our novel neurosteroid in altering brain biomarkers for damage and recovery. Using MRI, we can assess the ability of our experimental compound to improve brain function and stimulate markers of neuroplasticity and regeneration.

We are extraordinarily excited about the future clinical potential of this novel class of neurosteroids in the treatment of TBI and associated neurodegenerative diseases.

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The Corporate Sponsors Program gives rehabilitation providers, longterm care facilities, attorneys, and other leaders in the field a variety of opportunities to support the Brain Injury Association of America's advocacy, awareness, information, and education programs. BIAA is grateful to the Corporate Sponsors for their financial contributions and the many volunteer hours their companies devote to spreading help, hope, and healing nationwide.

For more information on how to become part of Brain Injury Association of America Corporate Sponsors Program, please visit the sponsorship and advertising page at www.biausa.org or contact Susan H. Connors at 703-761-0750 or shconnors@biausa.org.













