

Neurotrauma & Critical Care NEWS



Fall 2015

AANS/CNS Section on Neurotrauma & Critical Care

Editor: Martina Stippler, MD, FAANS

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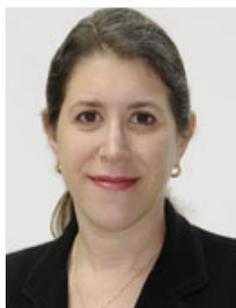
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Chair's Welcome



Jamie S. Ullman, MD,
FAANS, FACS

Welcome to the Fall edition of the American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS) Section on Neurotrauma and Critical Care newsletter. Below we highlight the important Section and Trauma-related events at the upcoming 2015 CNS Meeting in New

Orleans. We look forward to seeing all of you as we witness spirited debate on controversial topics, such as methylprednisolone in spinal cord injury and multimodality monitoring; and honor our past Section Chair, Raj Narayan, MD, FAANS, as the 2015 Anthony Marmarou Lecturer. There are many interesting oral paper presentations and we continue to support resident research through the Depuy Synthes awards. In addition, this newsletter issue provides thoughtful commentary regarding neurosurgical ethics and injury prevention. We look forward to seeing all of you in New Orleans!



Trauma Sessions

Monday, September 28, 2015

Room: 343

SECTION ON NEUROTRAUMA AND CRITICAL CARE

Contentious Issues in Neurotrauma

Moderators: Daniel J. Hob, MD, FAANS; Parham Yashar, MD
Speakers: Randall Matthew Chesnut, MD; Ramon Diaz-Arrastia, MD; R. John Hurlbert, MD, PhD; Geoffrey T. Manley, MD, PhD, FAANS; Raj K. Narayan, MD, FAANS; Jamie S. Ullman, MD, FAANS

7:00–7:25 a.m.

Controversy: Methylprednisolone in Incomplete Spinal Cord Injury: Contraindicated or Helpful?

7:00–7:10 a.m.

Contraindicated, R. John Hurlbert, MD

7:10–7:20 a.m.

Helpful, Michael G. Feblings, MD, PhD, FAANS

7:20–7:25 a.m.

Discussion

7:25–7:50 a.m.

Controversy: Multimodality Monitoring for Severe Traumatic Brain Injury: New Standard or Passing Fad

7:25–7:35 a.m.

Pro, Ramon Diaz-Arrastia, MD

7:35–7:45 a.m.

Con, Randall Matthew Chesnut, MD

7:45–7:50 a.m.

Discussion

7:50–7:55 a.m.

Introduction of the Marmarou Lecturer

Jamie S. Ullman, MD, FAANS

7:55–8:25 a.m.

Marmarou Lecture: Traumatic Brain Injury – Where Next?

Raj K. Narayan, MD, FAANS

8:25–8:30 a.m.

Questions

Tuesday, September 29, 2015

Room: 343

SECTION ON NEUROTRAUMA AND CRITICAL CARE

Oral Presentations

Moderators: Gregory J. Murad, MD, FAANS; Craig H. Rabb, MD, FAANS

DEPUY SYNTHES AWARD FOR RESIDENT RESEARCH ON BRAIN AND CRANIOFACIAL INJURY

7:00–7:09 a.m.

174 Descriptive Epidemiology, Mechanisms and Symptom Resolution of Concussion Sustained by National Collegiate Athletic Association Student-Athletes, 2009/10-2013/14 Academic Years

Scott L. Zuckerman, MD; Erin Wasserman; Aaron M. Yengo-Kahn; Gary Solomon, PhD; Zack Kerr

DEPUY SYNTHES AWARD FOR RESIDENT RESEARCH ON SPINAL CORD AND SPINAL CORD INJURY

7:09–7:18 a.m.

175 Surgical Versus Non-operative Management of Type II Odontoid Process Fractures in Octogenarians

Christopher Salvatore Graffeo, MD; Avital Perry, MD; Ross Puffer, MD; Lucas Carlstrom; Grant William Mallory, MD; Michelle J. Clarke, MD, FAANS (L)

7:18–7:27 a.m.

176 The Levels of GFAP and UCH-L1 During the First Week After A Traumatic Brain Injury – Correlations with Clinical and Imaging Findings and Outcome

Jussi Posti; Riikka Takala; Hilikka Runtti, Virginia Newcombe; Joanne Outtrim; Ari Katila; Janek Frantzén, MD; Henna Ala-Seppälä; Jonathan Coles; Iftakher Hossain, MD; Anna Kyllönen; Henna-Riikka Maanpää; Jussi Tallus; Peter J. Hutchinson, MD; David K. Menon; Mark van Gils; Olli Tenovuo, MD, PhD

7:27–7:36 a.m.

177 Monitoring Intraspinal and Spinal Cord Perfusion Pressure in Acute Spinal Cord Injury

Marios Papadopoulos, MD

7:36–7:45 a.m.

178 COMT Val158Met is Associated with Domain-specific Cognitive Impairment Following Mild Traumatic Brain Injury

John K. Yue; Ethan A. Winkler, MD, PhD; Thomas W. McAllister; Nancy Temkin, PhD; Adam Ferguson; Hester F. Lingsma; Esther Yuh, MD, PhD; Phiroz E. Tarapore, MD; Saurabh Sharma; Ava Puccio; Kevin Wang, PhD; Pratik Mukherjee, MD; Alex B. Valadka, MD, FAANS; David O. Okonkwo, MD, PhD, FAANS; Ramon Diaz-Arrastia, MD; Geoffrey T. Manley, MD, PhD, FAANS

7:45–7:54 a.m.

179 Brain Tissue Oxygen Tension and Its Response to Physiological Manipulations is Dependent on Distance from Injury Site in a Swine Model of Traumatic Brain Injury

Gregory W.J. Hawryluk, MD, FAANS; Nicolas Phan, MD; Adam

Ferguson; Diane Morabito; Nikita Derugin; Campbell Stewart; Margaret Knudson, Geoffrey T. Manley, MD, PhD, FAANS; Guy Rosenthal, MD

7:54–8:03 a.m.

180 Comprehensive Study of Post-Traumatic Cerebral Energy Metabolism: Alterations in Oxygen, Glucose & Lactate Metabolism and Their Time Course In 74 Patients Compared to Normal Controls

Joshua Robert Dusick, MD; Thomas C. Glenn, PhD; Paul M. Vespa, MD; Neil A. Martin, MD

8:03–8:12 a.m.

181 Computed Tomography Parameters for Atlanto-occipital Dislocation in Adult Patients: The Occipital Condyle-C1 Interval

Eduardo Martinez del Campo; Samuel Kalb, MD; Hector Soriano Baron; Jay D. Turner, MD, PhD; Matthew Neal, MD; Timothy David Uschold, MD; Nicholas Theodore, MD, FAANS

8:12–8:21 a.m.

182 Acute Putrescine Supplementation with Schwann Cell Transplantation Improves Sensory and Serotonergic Axon Growth and Functional Recovery in Spinal Cord Injury

Bryan Iorgulescu; Samik Patel; Jack Louro; Christian Andrade; Andre Sanchez; Damien Pearse

8:21–8:30 a.m.

183 MEG Identification of Reduced Functional Connectivity Following Concussion

Ahmad Alhourani; Sudhir K. Pathak; Michael J. Randazzo; Tom Wozny; Efstathios Kondylis; Shawn Walls; Michael Ward; Stephen Foldes; Donald Krieger; David O. Okonkwo, MD, PhD, FAANS, R. Mark Richardson, MD, PhD, FAANS; Ajay Niranjani, MD

Saturday, September 26, 2015

12:30–4:00 p.m.

Room: 333/334

PC12: Neurocritical Care and Neurosurgical Emergencies Update

Course Directors: Jack Jallo, MD, PhD, FAANS; Christopher J. Madden, MD, FAANS

Faculty: Kamran Athar; Antonio Belli, MD; Ali Metin Kafadar, MD; Ian E. McCutcheon, MD, FAANS; John K. Ratliff, MD, FAANS

Sunday, September 27, 2015

12:30–4:00 p.m.

Room: 342

PC27: Trauma Update: Traumatic Brain Injury

Course Directors: Nancy Carney, PhD; Shelly D. Timmons, MD, PhD, FAANS

Faculty: Rocco Armonda; Asim Mahmood, MD, FAANS; Gregory J. Murad, MD, FAANS; David O. Okonkwo, MD, PhD, FAANS; Roland A. Torres, MD, FAANS; Tanju Ucar, MD; Jamie S. Ullman, MD, FAANS

Monday, September 28, 2015

Time?

Room: 215/216

M02: Athletic Head Injuries: Return to Play

This Lunch Seminar is utilizing a “Flipped-Classroom” format. Attendees are encouraged to attend the online webinar of the faculty presentations prior to coming to the session, thus permitting more time for interactive discussion with the faculty and attendees during the in-person session.

Moderator: Richard G. Ellenbogen, MD, FAANS

Faculty: Julian E. Bailes, MD, FAANS; Tanvir Choudhri,

MD; James M. Johnston, MD, FAANS; Russell R. Lonser, MD, FAANS

Tuesday, September 29, 2015

Time?

Room: 231/232

T17: Guidelines for Neurocritical Care Management

Moderator: Shelly D. Timmons, MD, PhD, FAANS; Faculty: Gokhan Akdemir; Leon Levi, MD; Joshua E. Medow, MD, FAANS; Patricia B. Raksin, MD, FAANS; Jamie S. Ullman, MD, FAANS



A Biomedical Ethics Primer for the Neuro-ICU

Daniel B. Michael, MD, PhD, FAANS

A few years ago, I attended the following case. A 56-year-old woman was found unresponsive and brought to the hospital. On examination, she was able to follow commands. She had a left hemiplegia. A CT scan demonstrated a large right-side intracerebral hemorrhage, subarachnoid hemorrhage and hydrocephalus. A ventriculostomy was performed, and she was transferred to our tertiary care center.

When she arrived, her Glasgow Coma Scale was 4, and she had pinpoint pupils. The ventricle was repositioned. An arteriogram failed to demonstrate any obvious source of bleeding. A family discussion was held, and the family raised the issue of possibly withdrawing non-beneficial treatment. Her family ultimately decided to pursue a craniotomy for the patient, and her intracerebral hemorrhage was evacuated.

In the post-op period, she was thrombocytopenic. She had a stormy course in the ICU, remaining on the ventilator. By day four, the patient was able to follow commands. She could not be weaned from the ventilator because of multiple medical comorbidities. Her intracranial pressure (ICP) was controlled, and the ventriculostomy was discontinued. On the following day, she suffered a gastrointestinal hemorrhage and went into septic shock. On the seventh post-operative day, another family discussion was held. At this time, it was revealed that the patient had a living will and would not want to bear the burdens of continued aggressive ICU treatment. The family refused consent for Greenfield filter, tracheostomy or any other aggressive care. She was transferred to the palliative care service and ultimately expired.

This case illustrates the challenging decisions that a neurocritical care team faces nearly every day. Questions raised include “What is the right thing to do?”, “What is the wrong thing to do?” and “What should we do?” All of these involve the discipline of biomedical ethics. “Ethics” comes from the Greek word “ethos,” meaning character. It is the philosophical study of standards of conduct and moral judgment. Clearly, it involves morality (from the Latin “moralis,” meaning manners). Morality means making the distinction between right and wrong. It is value-based, but over the course of Western thought, there has been a great deal of debate regarding what constitutes a “moral act.” In the Middle Ages, Thomas Aquinas wrote that the moral act includes the act itself, the intention and the circumstances surrounding the act. Much of the thinking behind culpability in English common law derives from



this concept; however, ethical analysis is more than adherence to the law.

An ethical analysis involves a person’s values (from the Latin “valeo,” meaning to be strong or of worth). Values are considered to be acts, customs, institutions or beliefs regarded as especially favorable. Ethical systems have evolved over time in an effort to try to determine right from wrong. In the Western tradition of philosophy, there are two ways of determining moral choices: the ontologic and the teleologic.

The ontologic (or “obligation”) method teaches that one determines what is right by following certain codes of behavior. These codes may be legal, religious or even humanistic codes. Immanuel Kant’s categorical imperative would be an example of the ontological method of moral distinction, i.e. act only according to that maxim whereby you can, at the

same time, will it to become a universal law.

In contrast, the teleologic method (from the Greek word, meaning end), is a consequentialist way to determine right from wrong. It argues that one should always choose the greatest good for the greatest number of people. The reader may recall the end of the 1982 movie, “Star Trek II: Wrath of Khan,” when Mr. Spock sacrifices himself, stating that the needs of the many outweighs the needs of the few. Taken to its extreme, teleological rationale could lead to the common and often misused justification, the end justifies the means, a concept first attributed to Saint Jerome who used it to provide a negative example of moral thinking.

Why are the ethical dilemmas physicians face today seemingly so much more difficult than in the days of Hippocrates? One could take the oath that has been sworn by graduating physicians for nearly 2,000 years and apply it to determine the right choice in bioethical dilemmas. The words of Hippocrates are no longer sufficient to guide us in the complex decisions we have to make in the neurocritical care unit.

Some of the ethical challenges stem from the fact that we are no longer in the relatively homogeneous society of fourth century Greece where only free, white men were accorded the rights of citizenship. Today in our ICUs, we treat people from different religious, cultural and ethical traditions, each with different and sometimes conflicting values. Advances in technology have also brought about ethical challenges. Today, physicians carry out routine procedures in ICUs, saving patients with techniques undreamt

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of 50 years ago, let alone 2,000 years ago.

Our Western values have also changed with time. The Enlightenment of the 16th and 17th centuries brought to the fore the notion of individual freedom or autonomy. The respect for individual rights was one of the founding principles of the United States. Rights, however, must be balanced with responsibility and other values, including duty, honor and religion.

When confronted with a complex ethical question, it is reasonable to consider a formal ethical analysis, which is not the same as obtaining a legal opinion. A legal opinion discusses whether or not an act violates given code or hospital regulation, whereas an ethical analysis seeks a deeper answer to the question of what is the right thing to do.

In carrying out the ethical analysis, one should be mindful of the major ethical principles: Non-maleficence, beneficence, respect for autonomy and justice.

Non-maleficence means that at the very least one should not inflict harm. It is clearly stated in the original Hippocratic Oath: First, do no harm (“primum non nocere”). Some moral traditions hold that some acts have intrinsic evil and therefore are never justifiable. For example, the Catholic teaching regarding abortion.

The second major principle is beneficence, or the notion that one ought to remove or prevent harm and promote or do good. It is never a simple question to decide what is good. For whom should the individual physician be responsible, the individual patient, the health-care system or society as a whole? “Cui bono?” (Who benefits?) When a physician places his or her notion of what is good over that of the patient or the patient’s family, this can be considered paternalism.

The third major ethical principle is respect for autonomy. This principle stems from the belief that individuals have inalienable rights. One must respect the individual’s right to self-determination in so far as that individual is capable of making such determination. Obtaining informed consent when carrying out surgical treatment and consulting with the patient’s family regarding substituted judgment are acts that demonstrate respect for patient autonomy. The trend recently is that autonomy seems to trump everything in the ICU, e.g. “It’s my life; I can do what I want with it.”

The fourth major ethical principle is justice or balance. There are many balances to be struck in ethical analysis, e.g. the balance between burdens versus benefits of intensive care; the balance between resource allocation on single patient versus a population of patients and the balance between a beneficent paternalism and the notion that autonomy trumps everything.

If one is practicing in a Catholic hospital, an ethical analysis also must take into consideration the religious directives for Catholic health-care institutions. One of the interesting moral analyses addressed here is the principle of double effect. Catholics teach that a moral act may have two effects, a good intended effect and an evil effect, which is permitted. Such an act may be justified if the following conditions exist:

1. The act is not intrinsically evil. It may be morally neutral or good.
2. The intention is only good.

3. The good is not achieved by means of the evil.
4. The good must outweigh the bad, bringing in the concept of proportionality.

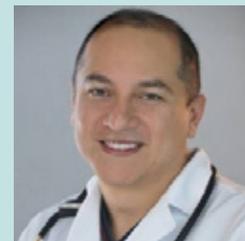
Neurosurgeons will continue to be confronted with complex moral decisions. We may look to our own religious or humanistic values for guidance in dealing with these complex questions. A strong ethics committee at your institution can be a valuable resource. As part of the neurointensive care team, we should never be afraid to seek consultation from those whom I have found to be both knowledgeable and people of goodwill.

Useful References

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International Committee Update

The section will be collaborating in several activities at the international level. Raj Narayan, MD, FAANS; and Shekar Kurpad, MD, PhD, FAANS, are working with academic groups from India in order to improve the neurotrauma care system. Section members will be participating in educational activities organized by the Neurotrauma Society of India and the Neurotrauma Committee of the Asian Australasian Society of Neurological Surgeons. In Latin America, two academic activities, hosted by the Colombian Association of Neurosurgery and the Mexican Association of Neurological Surgeons, will have official, integrated activities with the American Association of Neurological Surgeons. Andrés Rubiano, MD; P David Adelson, MD, FAANS; and Shelly Timmons, MD, PhD, FAANS, will be participating in these events.



Members of the section are encouraged to participate and bring ideas into global health initiatives focused on capacity-building for neurotrauma education and research, especially in low- and middle-income countries. Some projects are already in discussion, including neurotrauma registries and clinical practice guidelines development. In order to participate, contact the committee chair, Dr. Rubiano (rubianoam@upmc.edu).

Fall Prevention in the Elderly

Martina Stippler M.D

Traumatic Brain Injury (TBI) in the elderly is a major public health problem. The young and the elderly are most at risk. The elderly are especially vulnerable and suffer worse consequences after TBI. Domestic accidents account for most of the TBI in this population. Moreover elderly TBI victims also have co-morbidities and are susceptible to complications. Although those aged 65 years and over account for only 10 percent of TBI patients, they account for 50 percent of TBI-related deaths.

Hospitalization rates and fatality rates in the elderly in combination with an aging population make it clear that TBI in the elderly is becoming a major health care concern in the medical and neurosurgical community. Here are the facts: Hospitalization rates more than doubles in the 65-74 age groups compared to the 75-85 age and doubles again in patients older than 85 years of age. Fatality rates in TBI patients over 65 years of age increases by 114 percent from 18 per 100,000 population to 44 per 100,000 population compared to younger patients with TBI. Additionally it is estimated the population of individuals over the age of 65 will be 35 million by the end of this decade, and 86 million by the year 2050. As the world population ages one can expect an escalation of TBI-related admissions and fatalities. This will make TBI in the elderly a considerable medical and social problem in the very near future.

This discussion begs the questions: What is old age? TBI in the elderly has been surprisingly neglected in the research arena. Only 1.05 percent of all abstracts presented at the National Neurotrauma Symposia in one specific year addressed the effects of age on TBI. Of these 41 studies, 24 were animal and 17 clinical research. All studies investigating the aging and TBI correlation described the adverse effects of age on outcome after TBI. Biologically, aging begins at twenty years of age. However, no one would consider a 20-year-old individual "old." So when does age become an independently negative predictive factor for outcome after TBI? Using a database of 2,664 TBI patients, Mass et al. calculated the threshold age for increasing mortality to be 39 years of age, using univariate analysis, and 66 years of age, using multivariate analysis. For every 10 years beyond the threshold age, mortality after TBI

Three Questions to Ask Your Elderly Patients

When you see patients 65 and older, make these three questions a routine part of your exam:

1. Have you fallen in the past year?

2. Do you feel unsteady when standing or walking?

3. Do you worry about falling?

If your patient answers "yes" to any of these key screening questions, they are considered at increased risk of falling. Further assessment is recommended.

increases by 10 percent.

Others identified an age group on the "edge" with more potential for recovery after TBI than older poor-prognosis patients. The edge age group, patients between 65 and 74 years of age, appear to have an improved outcome and a significantly lower mortality than those 75 years and older. Even with maximal medical and surgical care those above 75 years of age did poorly.

Domestic accidents, especially falls, account for the majority of TBI in the elderly. The propensity to falls in this age group is increased because of certain co-morbidities associated with advanced age, such as poor eyesight, impaired balance, postural hypotension and cerebrovascular accidents. Contradicting literature exists on whether or not co-morbidities play a role in outcome; some studies report a direct correlation between outcome and comorbidities, others did not.

Iatrogenic coagulopathy with aspirin, plavix or coumadin increases the likelihood of death by 14.7 times when compared with those who are not on anticoagulation therapy.

The negative impact of depression on the recovery process is an important fact to consider in any TBI patient, but especially in the elderly. Depression is more frequent in the elderly after TBI and can significantly interfere with their rehabilitation potential. Prevalence of depression in the elderly after TBI can range from 21-37 percent compared to 1.8-8.9 percent in elderly without TBI.

Although the outcome after TBI has improved in the last 50 years with the advent of an organized trauma system and critical care, the outcome for elderly patients remains poor. In fact, over the last 10 years there has been an overall increase in TBI mortality attributed to the increasingly elderly population. Both operative and non-operative outcome for elderly patients after head trauma cannot ameliorate poor outcomes. TBI care in the elderly can be intensive with questionable benefits and often results in increased emotional burden to the families. The decision to treat or not to treat involves consideration of many ethical questions.

The best approach for TBI is prevention and it might not be as difficult as one thinks. As falls are one of the most common reasons for the elderly to sustain a TBI, fall prevention can make a difference. The first step in this direction would be to start screening



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patients older than 65 years to assess their fall risk. The Centers for Disease Control offers an easily implemented evidence-based fall prevention and screening program: STEADI which stands for Stopping Elderly Accidents, Deaths and Injuries. STEADI is comprised of tools and educational materials for health care providers that are based on an algorithm adapted from the American and British Geriatric Societies' Clinical Practice Guidelines²⁴. Using STEADI one can identify patients with a high fall risk, modify risk factors and offer effective interventions.

According to Kannus et al., fall prevention in elderly people consists of regular strength and balance training, vitamin D and calcium supplementation, reduction of the number and doses of psychotropic medication, cataract surgery, and professional home-hazard assessment. The CDC postulates if an evidence-based fall prevention program, like STEADI would be adopted by 5,000 healthcare providers, 1.4 million falls could be prevented and \$3.6 million in medical costs could be saved. If you are interested, you can find algorithm and screening tools and patient information on the CDC website, <http://www.cdc.gov/homeandrecreationalafety/Falls/steady/index.html>

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Message from ThinkFirst Liaison

Rocco Armonda, MD, FAANS

As the new AANS/CNS Section on Neurotrauma & Critical Care liaison to ThinkFirst, my introduction came with a bang! Out of nowhere, there was a loud clash of metal-on-metal, glass breaking and my bike hitting the ground; I was in the middle of a car versus bike collision. It was mid-day, clear skies and dry conditions on a usually quiet neighborhood street with frequent cars and cyclists. The oncoming car flew through a red light after our light had turned green and a second car in our lane was crossing the intersection. Caught between a car coming from my left and the crossing car on my right, I was incredibly lucky to have missed the point of impact in the collision. My helmet was intact — I had no headache, dizziness or neck pain; no clavicle fracture; my bike was fine. More importantly, the two ladies in the car that was struck were also without serious injuries. I commended the driver behind us, a former Army combat medic, for taking control of the entire scene, contacting the police and clearing the intersection. Fortunately for all of us, no one was seriously injured.

Not everyone is so lucky. As the weather warms up, crashes like this happen far too often in our communities. It is what brings us into the crossroads of a patient with emergent cranial-spinal injuries and polytrauma — knowing most of these injuries could have been prevented. Distracted driving, driving over the speed limit and not observing traffic signals all lead to life-threatening collisions. What saved my life was a combination of my wearing a helmet (at all times on a bike) and a split-second of time.

The ThinkFirst National Injury Prevention Foundation is approaching its 30th year anniversary this coming year and will hold its national conference in Chicago during the 2016 AANS Annual Scientific Meeting. The group recently held its 2015 conference in Washington, D.C., May 1-4, 2015, in conjunction with the AANS Annual Scientific Meeting. Highlights of the meeting included National Highway Traffic Safety Administration (NHTSA) Administrator Mark Rosekind, PhD, a renowned expert on human fatigue and drowsy driving, and Sandy Sinclair, NHTSA, who spoke on distracted driving. Driver fatigue and distraction, along with speeding and driving under the influence of alcohol, drugs and even prescription drugs, make our roadways hazardous for everyone. Inexperienced teen drivers are in more crashes than other age groups, but long commutes and driving while sleep-deprived make a deadly combination of which we as neurosurgeons, parents, friends and colleagues need to be aware. Summer's increase in bicyclists and pedestrians sharing the road with vehicles also increases the risk for crashes.

ThinkFirst chapters, based in hospitals, medical universities and physician practices, are focused on helping people learn to reduce their risk for injury, especially our children and teens. Consistent theory-based programs that explain the importance of our brain and spinal cord, how injuries affect our body and how we can take simple steps to protect ourselves and others are provided free of charge to schools and at community events throughout the U.S., Canada and many other countries. The focus is on the leading

causes of injury: vehicle safety, sports, falls and violence. ThinkFirst For Kids, ThinkFirst For Youth and ThinkFirst For Teens provide programs for specific age groups and are complete with videos, presentations materials, curricula and evaluation tools. ThinkFirst About Concussion is the latest program to help youth and teens recognize and react appropriately when a concussion is suspected.

While nurses, therapists and physicians present the facts, ThinkFirst Voices for Injury Prevention (VIP) speakers share their personal experiences during youth and teen presentations. There are currently 240 VIP speakers who speak with ThinkFirst chapters in the U.S., explaining what led to their brain or spinal cord injury, how it affected their lives and how it could have been prevented. Student evaluations have shown that hearing from someone who was injured motivates attendees to start making safer choices.

How often have we walked through our ICU thinking how much better it is to prevent injuries than to treat the life-altering sequelae of a traumatic brain or spinal cord injury? Is there a ThinkFirst chapter in your hospital or in the vicinity, conducting these evidence-based prevention programs? While ThinkFirst provides more than 6,000 presentations each year in the United States, there are many areas in each state without a nearby chapter. Currently, there are 154 U.S. chapters and 36 international chapters. While several states have developed chapters strategically, such as Michigan, which has 20 chapters, seven U.S. states (Maine, Utah, North and South Dakota, Vermont, Iowa and Alaska) have no chapters. Most states fall somewhere in the middle, with one or more chapters providing programs to a hospital's surrounding communities. For a full list, see the chapter directory at www.thinkfirst.org.

As neurosurgeons we have an obligation to serve our community, not just as physicians, but also as citizens. How better to serve our communities than by engaging our hospitals in supporting a ThinkFirst chapter? Level I and II trauma centers are required to have a designated injury prevention coordinator providing injury prevention education, and ThinkFirst provides the training and program materials for trauma centers or any health organization to use. Each chapter is required to also have a sponsoring physician who serves as an advocate and medical advisor.

Visit the ThinkFirst website to see what chapters are available in your area. Ask how you can start supporting ThinkFirst locally with a chapter and nationally with an annual donation to assure ThinkFirst provides programs for our use for another 30 years. Stay safe while enjoying the outdoors this summer and make it a point to become involved with ThinkFirst.



AANS/CNS Section on Neurotrauma and Critical Care Committee 2014-2016

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AANS BOD: Jamie Ullman, MD, FAANS

Joint WC: Shelly Timmons, MD, PhD, FAANS

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ACS/COT: Jamie Ullman, MD, FAANS (Chair, COT Neurosurgery Subspecialty Group)

National Neurotrauma Society: Geoff Manley, MD, PhD, FAANS

Spine Section: Paul Arnold, MD, FAANS

Neurocritical Care Society: Chris Zacko, MD, FAANS

YNS Committee: Maya Babu, MD, MBA

Pediatric Section: Pending

CV Section: Sharon Webb, MD, FAANS

Physician Extenders: Pending

SNS: James Ecklund, MD, FAANS (2012-14)

CSNS: J. Adair Prall, MD, FAANS

ThinkFirst: Rocco Armonda, MD, FAANS

Brain Trauma Foundation: Gregory Hawryluk, MD, FAANS