

Preliminary Program

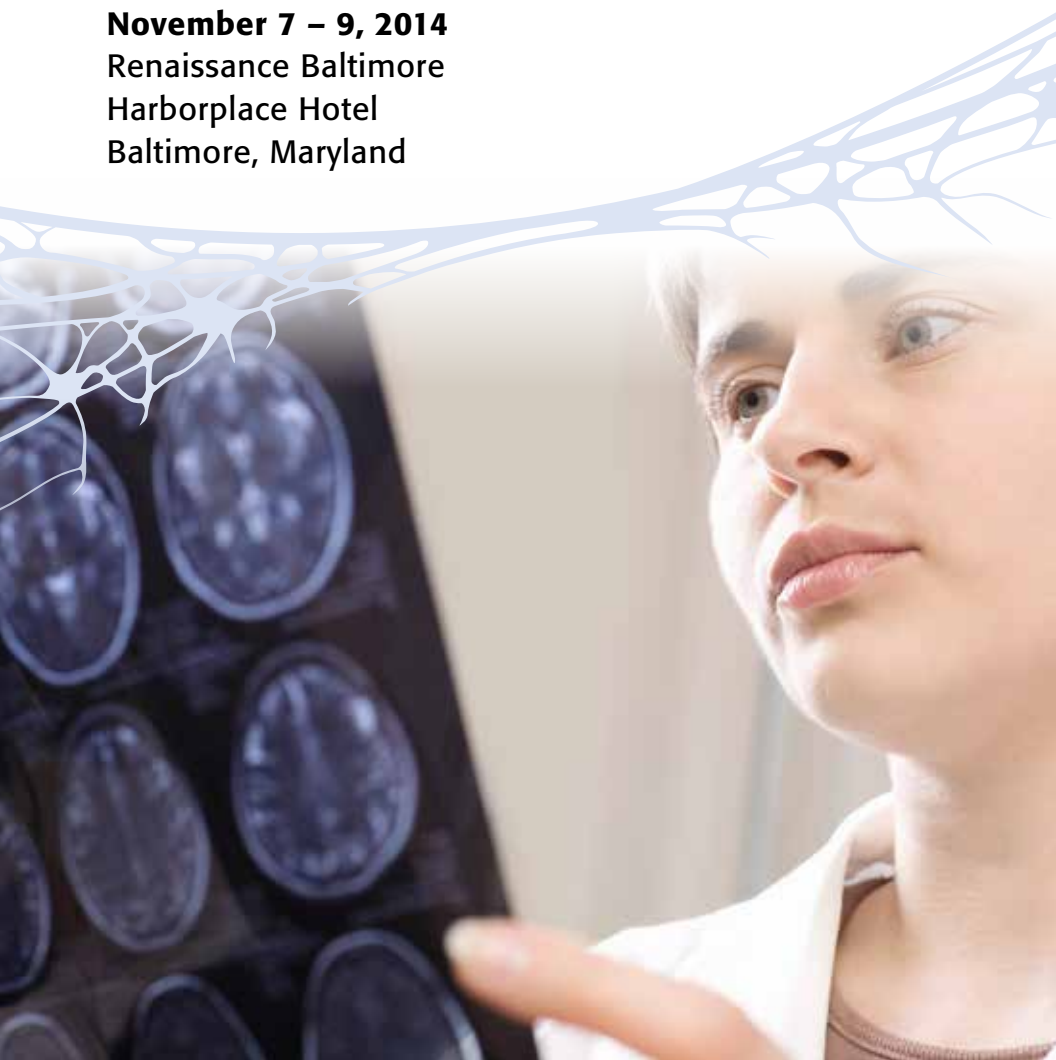
# Controversies in Neurotrauma: Brain and Spinal Cord

**November 7 – 9, 2014**

Renaissance Baltimore

Harborplace Hotel

Baltimore, Maryland



# Welcome

Welcome to AONeuro! In AO North America’s continued commitment to surgeon education, it is our distinct pleasure to announce a special educational offering for Neurotrauma which represents a collaborative effort between AOSpine North America and AONeuro North America. This unique course will provide residents with an outstanding opportunity to advance their knowledge and surgical skills in brain, spine and spinal cord trauma through didactic lectures and case-based discussions. Faculty selection includes recognized Neurotrauma leaders who are eager to share their knowledge and experience with you. We hope that you will consider registering for this course and sharing this opportunity with your colleagues.

Rocco A. Armonda, MD  
Co-Chairman

Randall M. Chesnut, MD, FCCM, FACS  
Co-Chairman

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## Message from the Program Coordinator

On behalf of AO Foundation and your local and international faculty, I would like to welcome you to this AONeuro educational event.

AONeuro is a unique worldwide multi-specialty community that includes cranial Neurosurgeons, Neurologists, Neurointensivists, Neuro anesthesiologists, Neuro Traumatologists and Neurological professionals who are involved in cranial neurological trauma, cranial oncologic and cerebrovascular surgery, cranial reconstruction and cranial congenital anomalies surgery.

Our organization creates a forum for specialists from all over the world who have common interests and enthusiasm in these fields. It is our goal to encourage and inspire residents, fellows, and experienced practitioners by means of education, academic stimulation instruction and international communication to pursue more fulfilling, rewarding and productive careers in these fields.

Education has always been a major pillar in the AO Foundation. Currently, more than 46,000 surgeons participate in over 750 AO educational events worldwide per year. AONeuro is committed to communicating the latest advances, treatment information, protocols in education, equipment and new developments as we strive to improve your educational experience by providing you education at the forefront of your specialty.

Your cranial neurological colleagues are working diligently to bring you the latest in cranial neurological education, and most specifically have initiated programs in the area of traumatic brain injury. Cranial AO Neurosurgeons collaborate with their AOSpine colleagues to bring you the latest developments in combined brain and spinal cord trauma. For years, cranial neurological surgeons have cooperated with craniomaxillofacial colleagues in the areas of facial and cranial trauma, congenital craniofacial anomalies, and skull base trauma and surgery to provide the multidisciplinary perspective necessary to manage these areas.

AONeuro is a project of the AO Foundation, established to learn the needs and educational structure which cranial neurologists require to improve their worldwide educational efforts. AONeuro cooperates with AOSpine and AOCMF (Craniomaxillofacial) to provide multidisciplinary course education, and seeks to add a cranial dimension to existing AO Education in the present specialty areas of Orthopedics, Spine, Craniomaxillofacial and Veterinary surgery.

We hope that your experience with us over the next few days will result in the acquisition of new knowledge, skills and understanding that can directly translate into improved care for your patients.

We also hope that, as a result of this educational event, you will develop a longer term relationship with AOSpine and AONeuro, become a member of our communities, take advantage of our website [www.AOFoundation.org](http://www.AOFoundation.org), explore our comprehensive online medical reference tool and phone app AO Surgery Reference ([www.AOSurgery.org](http://www.AOSurgery.org)), take up AO Membership, and participate in AONeuro and AOSpine courses and educational opportunities. You may also even wish to acquaint yourself with AOCMF educational events in the areas of congenital anomalies surgery, craniofacial trauma and skull base surgery.

Make these organizations yours by bringing your opinions, ideas and contributions. Enjoy the camaraderie of our unique network, and help us maintain and expand the preeminent educational position that the AO Foundation enjoys worldwide.

Yours sincerely,



Paul Manson, MD  
Coordinator, AONeuro Pilot Program

## CME Mission Statement

The Continuing Medical Education (CME) mission of AO North America (AONA®) is to provide comprehensive multidisciplinary needs based education to surgeons, fellows, and residents in the specialties of orthopedic, hand, craniomaxillofacial, spine, and veterinary surgery in the areas of trauma (i.e., operative reduction and fixation), degenerative disorders, deformities, tumors, and reconstruction.

Expected results of AONA's CME activities for surgeons, fellows, and residents are to:

- Increase their knowledge base and surgical skill level
- Apply and document competencies in areas of relevant advances in knowledge in the areas of trauma, degenerative disorders, deformities, tumors, and reconstructive surgical techniques into patient care resulting in improved competence
- Address practice performance gaps by improving management of all aspects of musculoskeletal injuries and disorders (i.e., pre-operative planning to post-operative care)





## Course Overview

Managing neurotrauma patients is challenging for even the most experienced practitioner. Choosing the best operative and nonoperative treatment options requires balancing numerous parameters and coordinating care between multiple disciplines. Formulating optimized, cooperative treatment plans requires understanding of the complex underlying pathophysiology, limitations of current monitoring systems, evolution of the injury over time and with treatment, and limitations in the available literature.

This course is designed to provide participants with a unique opportunity to advance their knowledge and surgical skills in brain and spinal cord trauma through didactic lectures and case-based discussions with renowned neurotrauma thought leaders. Systematic, surgical, and critical care considerations in managing patients with traumatic brain and spinal cord injuries will be addressed.

## Target Audience

Orthopedic spine, neurosurgeons, intensivists, and other specialists involved in the care of the neurotrauma patient will benefit from attending this course. Residents and Fellows will also find this course to be of interest.

## Learner Objectives

At the conclusion of this Course, the participant should be able to:

- Apply evidence-based decision making to the management of the neurotrauma patient
- Recognize the clinically relevant pathophysiology underlying traumatic brain and spinal cord injuries
- Discuss the utility and limitations of currently available neurological monitoring systems and their interactions
- Recognize indications and opportunities for individualizing and fine tuning treatment of traumatic brain and spinal cord injuries
- Describe the utility and limitations of current guidelines in directing neurotrauma management
- Coordinate the acute management of neurological trauma with the overall care of the polytrauma patient.
- Outline the available methods and distinguish the advantages, and disadvantages of various methods of managing traumatic cerebrospinal fluid leaks
- Identify the priorities and techniques that influence coordination of the surgical management of cranial neurological and maxillofacial injuries

## Accreditation



AO North America is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

## Designation Statement

AO North America designates this *live* educational activity for a maximum of 16 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## Faculty

### Course Chairmen

#### **Rocco A. Armonda, MD**

Director, Neurointerventional Surgery  
Department of Neurosurgery  
MedStar-Georgetown University and Washington  
Hospital Center  
Washington, District of Columbia

#### **Randall M. Chesnut, MD, FCCM, FACS**

Professor  
Chief, Neurosurgical Brain & Spine Injury  
Department of Neurological Surgery  
Department of Orthopaedic Surgery  
Harborview Medical Centre  
University of Washington  
Seattle, Washington

### Invited Faculty

#### **Bizhan Aarabi, MD, FACS, FRCS(C)**

Professor  
Director of Neurotrauma  
Department of Neurosurgery  
University of Maryland  
Baltimore, Maryland

#### **Neeraj Badjatia, MD, MS**

R. Adams Cowley Shock Trauma Center University  
of Maryland Medical Center  
Baltimore, Maryland

#### **Randy S. Bell, MD**

Director, Cerebrovascular Neurosurgery and  
Interventional Neuroradiology  
Walter Reed National Military Medical Center  
Assistant Professor of Surgery  
Uniformed Services University of Health Sciences  
Bethesda, Maryland

### Education Advisor

#### **Joseph Cheng, MD, MS**

Associate Professor, Department of Neurosurgery  
Director, Neurosurgery Spine Program  
Vanderbilt University Medical Center  
Nashville, Tennessee

#### **Mark Bowyer, MD, FACS**

Ben Eiseman Professor of Surgery  
Chief, Division of Trauma and Combat Surgery  
Surgical Director of Simulation  
The Norman M. Rich Dept. of Surgery, USUHS  
Fairfax, Virginia

#### **Gretchen M. Brophy, Pharm.D., FCCM**

Professor  
Departments of Pharmacotherapy & Outcomes  
Science and Neurosurgery  
Virginia Commonwealth University  
Medical College of Virginia Campus  
Richmond, Virginia

#### **Daniel J. Donovan, MD, MBA, MHA**

Assistant Professor  
Department of Surgery  
University of Hawaii  
John A. Burns School of Medicine  
Honolulu, Hawaii

## Faculty (continued)

### Invited Faculty (continued)

#### **Chad Gordon, DO**

Adult Craniomaxillofacial Surgery  
Department of Plastic and Reconstructive Surgery  
The Johns Hopkins Hospital  
Assistant Professor  
Johns Hopkins University School of Medicine  
Baltimore, Maryland

#### **James Harrop, MD**

Professor  
Division Director, Spine and  
Peripheral Nerve Surgery  
Departments of Neurological and  
Orthopedic Surgery  
Jefferson Medical College  
Philadelphia, Pennsylvania

#### **Peter Hutchinson, BSC (Hons), MBBS, PhD, FRCS**

Professor of Neurosurgery  
Addenbrooke Hospital  
Cambridge, Cambridgeshire

#### **Anand Kumar, MD, FACS, FAAP**

Associate Professor of Plastic Surgery & Pediatrics  
Director, Center for Pediatric Craniofacial Surgery  
The Johns Hopkins Hospital  
Baltimore, Maryland

#### **Jeffrey C. Mai, MD, PhD**

Inova Regional Neurosurgical Services  
Fairfax, Virginia

#### **Geoffrey T. Manley, MD, PhD**

Professor and Vice-Chairman of  
Neurological Surgery  
Chief of Neurosurgery, San Francisco  
General Hospital  
Co-Director, UCSF Brain & Spinal Injury Center  
San Francisco, California

#### **Paul N. Manson, MD**

Distinguished Service Professor  
Plastic, Reconstructive and Maxillofacial Surgery  
Johns Hopkins University School of Medicine  
Professor of Surgery  
University of Maryland Shock Trauma Unit  
Baltimore, Maryland

#### **Christian W. Matula, MD, PhD**

Professor of Neurosurgery  
Neurosurgical Department  
Medical University of Vienna  
Vienna, Austria

#### **M. Nathan Nair, MD, MPH**

Assistant Professor  
Department of Neurosurgery  
Georgetown University Hospital  
Washington, District of Columbia

#### **David O. Okonkwo, MD, PhD**

Director, Neurotrauma  
Director, Spinal Deformity  
University of Pittsburgh Medical Center  
Department of Neurological Surgery  
Pittsburgh, Pennsylvania

*Faculty list subject to change.*

# Preliminary Program

## Friday, November 7, 2014

| Time          | Agenda Item                                |
|---------------|--------------------------------------------|
| 18:30 – 18:45 | Welcome and Introduction to AONeuro Course |
| 18:45 – 19:15 | Neurotrauma in Austere Environments        |
| 19:15 – 21:00 | Participant Case Based Presentations       |
| <b>21:00</b>  | <b>Adjourn for the Evening</b>             |

## Preliminary Program

Saturday, November 8, 2014

| Time                 | Agenda Item                                                                                                        |
|----------------------|--------------------------------------------------------------------------------------------------------------------|
| 08:00 – 08:15        | Welcome and Course Objectives                                                                                      |
| 08:15 – 08:30        | AOCMF and Neurotrauma Initiatives                                                                                  |
| 08:30 – 08:50        | Definitions of Traumatic Brain Injuries (TBI)                                                                      |
| 08:50 – 09:10        | Pathologic Mechanisms of TBI                                                                                       |
| 09:10 – 09:30        | Intracranial Pressure (ICP) and Cerebral Compliance in TBI                                                         |
| 09:30 – 09:50        | Cerebral Blood Flow and Metabolism in TBI                                                                          |
| 09:50 – 10:10        | Question and Answers                                                                                               |
| <b>10:10 – 10:30</b> | <b>Coffee Break</b>                                                                                                |
| 10:30 – 10:50        | TBI Management Guidelines                                                                                          |
| 10:50 – 11:10        | Basics of TBI Resuscitation and Early Stabilization                                                                |
| 11:10 – 11:30        | Brain Injury in the Polytrauma Patient                                                                             |
| <b>11:30 – 12:45</b> | <b>Moderated Panel Discussion – TBI in Polytrauma:</b>                                                             |
| 1.                   | Patient with Severe TBI who needs to go Directly to the Operating Room for Laparotomy                              |
| 2.                   | Patient Herniating from a Clot who Needs to go to Operating Room Before the General Surgery Workup is Done         |
| 3.                   | When can the Severe TBI Patient with Surgical Extremity Trauma go to Operating Room for Surgical Management of TBI |
| <b>12:45 – 13:30</b> | <b>Lunch</b>                                                                                                       |
| 13:30 – 13:50        | Advanced Monitoring – PbrO <sub>2</sub> , JvSO <sub>2</sub> , PRX, Micro Dialysis, Electrophysiology               |
| 13:50 – 14:10        | Controversies in TBI – Healthy Skepticism                                                                          |
| 14:10 – 14:30        | Penetrating TBI                                                                                                    |
| 14:30 – 14:50        | Pediatric TBI                                                                                                      |
| 14:50 – 15:00        | Question and Answers                                                                                               |
| <b>15:00 – 15:20</b> | <b>Coffee Break</b>                                                                                                |

## Preliminary Program

**Saturday, November 8, 2014** (continued)

| Time                 | Agenda Item                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>15:20 – 16:00</b> | <b>Moderated Panel Discussion – Specific Neurotrauma Scenarios #1:</b>                                                   |
|                      | 1. Awake Patient with Mass Effect – Role of ICP Monitoring and Issues of Treatment Threshold                             |
|                      | 2. Stable Patient with Marginal Intracranial Hypertension – Using Multimodality Monitoring to Tailor Treatment           |
|                      | 3. Gun Shot Wound - Local Management, Role of ICP Monitoring, Craniotomy Indications                                     |
|                      | 4. Other Focal Points                                                                                                    |
| 16:00 – 16:20        | Surgical Decision Making in TBI                                                                                          |
| 16:20 – 16:40        | Decompressive Craniectomy                                                                                                |
| <b>16:40 – 17:20</b> | <b>Moderated Panel Discussion – Specific Neurotrauma Scenarios #2:</b>                                                   |
|                      | 1. Decompressive Craniectomy Versus Other Second Tier Treatments (e.g. Barbs) – Pediatrics Case                          |
|                      | 2. Unilateral Versus Bifrontal Case, Including Technical Approach Discussions (DI III Case)                              |
|                      | 3. Other Focal Points                                                                                                    |
| 17:20 – 17:40        | Craniofacial Reconstruction in the TBI Patient – Timing and Techniques                                                   |
| 17:40 – 18:00        | Scalp Tissue Defect / Pre-Cranioplasty Skin Insufficiency: What to Do                                                    |
| 18:00 – 18:20        | Management of Posttraumatic Rhinorrhea or Otorrhea                                                                       |
| <b>18:20 – 19:00</b> | <b>Moderated Panel Discussion</b> (with Snack and Beverages) –<br><b>Neurosurgery Craniomaxillofacial Collaboration:</b> |
|                      | 1. Case on Management of Rhinorrhea/Otorrhea                                                                             |
|                      | 2. Case on Surgical TBI and Craniofacial Injuries – Timing and Techniques                                                |
|                      | 3. Wound Issues – How Does the Craniotomy Incision Influence Subsequent CMF Approaches?                                  |
|                      | 4. Other Focal Points                                                                                                    |
| <b>19:00</b>         | <b>End of the Day Wrap-up</b>                                                                                            |

## Preliminary Program

Sunday, November 9, 2014

| Time                 | Agenda Item                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------------------|
| 08:00 – 08:10        | Welcome and Introduction to Day 2                                                                         |
| 08:10 – 08:30        | Pathophysiology of Spinal Cord Injury (SCI)                                                               |
| 08:30 – 08:50        | Blood Pressure Management and Spinal Cord Perfusion                                                       |
| 08:50 – 09:10        | Timing of Surgery                                                                                         |
| 09:10 – 09:30        | Rational Use of Methylprednisolone in SCI                                                                 |
| 09:30 – 09:45        | Question and Answers                                                                                      |
| <b>09:45 – 10:00</b> | <b>Coffee Break</b>                                                                                       |
| <b>10:00 – 10:40</b> | <b>Moderated Panel Discussion – Management of SCI with Spinal Cord Compressions (Jumped Facets Case):</b> |
|                      | 1. Steroids                                                                                               |
|                      | 2. Blood Pressure Management                                                                              |
|                      | 3. Imaging                                                                                                |
|                      | 4. Timing of Surgery                                                                                      |
|                      | 5. Surgical Approach                                                                                      |
|                      | 6. Other Focal Point                                                                                      |
| <b>10:40 – 12:00</b> | <b>Moderated Panel Discussion - Hot Topics:</b>                                                           |
|                      | 1. Neurotrauma in the Coagulopathic Patient                                                               |
|                      | 2. Associated Neurovascular Injuries                                                                      |
|                      | 3. Cranial Multi-Compartmental Injuries                                                                   |
|                      | 4. Combined Cranial-Spinal Injuries                                                                       |
| 12:00 – 12:15        | End of Course Audience Response and Closing                                                               |
| <b>12:15</b>         | <b>Adjourn</b>                                                                                            |

*Preliminary program subject to modification.*

## Presentation Information

### Faculty Disclosure

It is the policy of AO North America to abide by the Accreditation Council for Continuing Medical Education Standards for Commercial Support. Standard 2: "Disclosures Relevant to Potential Commercial Bias and Relevant Financial Relationships of Those with Control over CME Content," requires all planners, including course directors, chairs, and faculty, involved in the development of CME content to disclose their relevant financial relationships prior to participating in the activity. Relevant financial relationships will be disclosed to the activity audience. The intent of the disclosure is not to prevent a faculty with a relevant financial or other relationship from teaching, but to provide participants with information that might be of importance to their evaluation of content. All potential conflicts of interest have been resolved prior to the commencement of this activity.

### Conflict of Interest Resolution Statement

When individuals in a position to control or influence the development of the content have reported financial relationships with one or more commercial interests, AO North America utilizes a process to identify and resolve potential conflicts to ensure that the content presented is free of commercial bias.

### Off-Label / Experimental Discussions

Some medical devices used for teaching purposes and/or discussed in AO North America's educational activities may have been cleared by the FDA for specific uses only or may not yet be approved for any purpose. Faculty may discuss off-label, investigational, or experimental uses of products/devices in CME certified educational activities. Faculty have been advised that all recommendations involving clinical medicine in this CME activity are based on evidence that is accepted within the profession of medicine as adequate justification for their indications and contraindications in the care of patients. All scientific research referred to, reported or used in this CME activity in support or justification of a patient care recommendation conforms to the generally accepted standards of experimental design, data collection and analysis.

### Disclaimer

AONA does not endorse nor promote the use of any product/device of commercial entities. Equipment used in this course is for teaching purposes only with the intent to enhance the learning experience.

## Course Tuition and Registration

**Tuition:** \$375.00 (US funds)

**Tuition Includes:** Course materials, breakfasts, lunches and refreshments.

Registration is available online only at [www.aona.org](http://www.aona.org)

**We encourage early registration, as seating is limited.**

Upon receipt of your online registration, you will be sent via email a confirmation of your registration in the Course, along with hotel and travel information to assist you in making your arrangements.

**PLEASE NOTE:** Registration deadline is October 13, 2014.

Full refunds will be made only if written notice of cancellation is received by the registration deadline date. Cancellations received after the deadline date will be subject to a 10% cancellation fee. No tuition refund will be issued for cancellations after the start date of the course.

### ADA Statement

AO North America fully intends to comply with the legal requirements of the Americans with Disabilities Act. If any registrant is in need of accommodation, please do not hesitate to submit a written request at least one month prior to this activity.

**Until an email confirmation is received, please do not consider yourself registered in this Course.**

### For Information:

Contact AONA Customer Service Department

Phone: (800) 769-1391

(610) 695-2459

Fax: (610) 695-2420

Email: [customerservice@aona.org](mailto:customerservice@aona.org)



## Hotel and Travel

### Hotel Accommodations

Room reservations are the responsibility of the individual registrant. A block of rooms has been reserved at a rate of \$175 per night, plus tax, single / double occupancy, at Renaissance Baltimore Harborplace Hotel.

Rooms will be held until 10/13/14, or until room block is filled, whichever comes first. After this date, rooms will be on an as-available basis.

Complimentary high speed internet is included in guestroom rate.

### Hotel Information:

Renaissance Baltimore  
Harborplace Hotel  
202 E. Pratt Street  
Baltimore, Maryland 21202  
410-547-1200

### Travel

Renaissance Baltimore Harborplace Hotel is located approximately 8 miles from Baltimore/Washington International Thurgood Marshall Airport – BWI

This hotel does not provide shuttle service.

Alternate transportation: Super Shuttle; fee: 13 USD (one way)  
Reservation Required Estimated taxi fare: 30 USD (one way)

Please visit our website:  
[www.aona.org](http://www.aona.org) to register for this Course  
and for other course offerings.





#### Preliminary Program

## Controversies in Neurotrauma: Brain and Spinal Cord

AO North America  
Department of Continuing Medical Education  
1700 Russell Road  
Paoli, PA 19301

Registration is available only online: [www.aona.org](http://www.aona.org)  
Hotel and Registration deadline: October 13, 2014