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ADVANCE PROGRAM



2014

PRE-MEETING
SESSION
SEPTEMBER 10, 2014

SEATTLE

SEPTEMBER 11-14, 2014
THE WESTIN SEATTLE • SEATTLE, WASHINGTON



Welcome to the 12th Annual Meeting of the Neurocritical Care Society!



Romergrzyko G. Geocadin, MD, FNCS
Chair, 2014 Annual Meeting Program Committee
Vice President, Neurocritical Care Society

Recent growth of the Neurocritical Care Society has been rapid and exciting. NCS membership has broadened in terms of educational and professional backgrounds, and levels of training and experience. In consideration of this growth and diversity, the Annual Meeting Planning Committee, with its diverse members (e.g., emergency physicians, trauma surgeons, neurologists, scientists, neurosurgeons, pharmacists, internists, nurses, anesthesiologists and members-in-training) has worked to ensure that everyone attending the meeting in Seattle will find something professionally enriching. Given the focus on integration of neurocritical care's different disciplines, the Committee chose the theme: "Interdisciplinary Collaboration to Improve Outcomes." Indeed, we find that in our subspecialty, in caring for patients with challenging, multifaceted, rapidly changing problems, the integration of disciplines is key to better outcomes.

Our meeting has grown from one day in the early years to four days as of last year. This year we will add one more day for a total five days. The pre-meeting day dedicated to early career members is new this year. The following three days will form the core of the meeting. The meeting will then close on Sunday with sessions centering on NCS Spirit. Each day will have a distinct focus, but all five days will serve the theme of "Interdisciplinary Collaboration to Improve Outcomes."

Pre-meeting Day (September 10): Early Career Members

The pre-meeting day will focus on topics of high importance to early-career members. Wednesday's sessions will have three tracks: Practice Update, Mentorships, and Workshops. The day-long Practice Update Session, co-chaired by Dave Greer and Ed Manno, will cover neurocritical care's core topics: General Critical Care, Cerebrovascular, Trauma and Post-Operative, Neurocritical Care Principles, Coma and Prognosis, and Special Conditions.

The Research Mentorship session, co-chaired by Jonathan Rosand and Kevin Sheth, will focus on training junior NCS members for a career in the academic practice of neurocritical care.

The Future Leaders session, chaired by Wendy Wright, will enhance leadership abilities and opportunities for junior members within and outside of the NCS. The topics of Wednesday's workshops are Neuropharmacology and Basic EEG in the ICU.

All are invited to the Welcome Reception, which will round out the evening.

Day 1 (September 11): Keynote Address, NCS Business and Guidelines

Thursday, the opening day of the Annual Meeting, is packed with important sessions, such as the Business Meeting, the Presidential Address, the Keynote Address, and Guideline and Consensus Sessions. A new session, nursing in neuro-critical care, will be presented by nurses on this day. Business to be addressed during the Business Meeting, will include, but is not limited to: by-laws amendments, election results, and recognition to meritorious members.

The NCS is honored to feature General Henry Hugh Shelton (Ret.) as the 2014 Keynote Speaker. General Shelton was the 14th Chairman of the Joint Chiefs of Staff and is presently the Chairman of the Henry and Carolyn Shelton Military Neurotrauma Foundation.

Several important consensus statements and guidelines will be highlighted on this day. The first is the Multimodality Monitoring Consensus statement, developed in collaboration with ESICM and other organizations. The second is Practice Guidelines on the Management of Large Hemispheric Infarctions (LHI), which was developed in collaboration with the German Neuro-Intensive Care Society. The third will address the dilemma in anticoagulation in neurocritical care/neurosurgical procedures.

Day 2 (September 12): Targeted Temperature Management and Translational Science in Intracerebral Hemorrhage

Friday's sessions will provide cutting-edge science, clarity in the practice of complex clinical problems, and even some that are controversial.

The Science Subcommittee has planned a comprehensive and cutting-edge Translational Science session on intracerebral hemorrhage (ICH). Co-chaired by Hooman Kamel and Kevin Sheth, this session will cover global epidemiology, pathophysiology, clinical trials, and state-of-the-art developments in ICH management. These speakers in this session are some of the very best in the field of ICH research and practice.

Talks on the topic of the management of challenging cases will continue when SNACC speakers join the NCS in a session on the management of the most complex post-operative cases.



Just when we thought we knew how to provide hypothermia for cardiac arrest survivors, another intriguing study comes along. Dr. Niklas Nielsen, the lead investigator for the TTM study, will join us, along with distinguished experts on post-resuscitation brain injury to discuss the best ways to manage brain injury after CPR.

Day 3 (September 13): Clinical Trials, Challenging Practice and Pediatric Neuro-ICU

Saturday will bring an update on a cutting-edge TBI clinical trial. Clinical investigators of ProTECT III, led by David Wright, will update us with the latest on the use of progesterone in the treatment of TBI. A multidisciplinary panel will provide a wider perspective on the clinical trial outcome.

The topic of infection will be addressed on this day. Renowned experts will provide updates in the diagnosis and management of acute encephalitis in the Neuro-ICU. Additionally, a session addressing the latest in ARDS and sepsis will be presented in collaboration with speakers from the American College of Chest Physicians (ACCP).

New this year, a series of cutting-edge sessions in Pediatric Neurocritical Care will be presented on Saturday and Sunday. Special acknowledgement goes to Mike Bell, Mark Wainwright, Jose Pineda and the Pediatric Neurocritical Care Research Group for this exciting collaboration.

Day 4 (September 14): NCS Spirit Day

All great things come to an end, but not without a bang. The last morning of the meeting will feature "quintessential NCS" sessions. Peter Leroux and Jose Suarez will start the day with the results of NCS Prince Study. The Member-Submitted Session, "Extracorporeal Therapies in Neurocritical Care," directed by Neeraj Badjatia, will follow. Then, the entertaining-yet-educational NCS Debates chaired by Matt Koenig, will close the day and the 2014 meeting. These debates – considering the match-ups and topics – will be epic!

Throughout the Meeting

The Science of NCS

The Science subcommittee, led by Kevin Sheth, has been working hard to bring out the best of NCS science in three platform presentation sessions and three e-poster sessions, which will take place on Thursday, Friday, and Saturday. The Abstract Selection Workgroup, chaired by Marion Buckwalter, met the challenge of choosing the best scientific abstracts from the 300+ excellent abstracts that were submitted. New this year is the Late-Breaking Abstract Session.

Also new this year is our departure from traditional poster boards to e-Posters. The e-Poster sessions, co-chaired by Nerissa Ko and Luke James offers more meaningful opportunities to interact and share knowledge. Another benefit is that it frees presenters from not only lugging around those long poster tubes, but it saves the cost of printing large posters.

Expanding the Workshops

This year, the Workshop Subcommittee, led by Josh Goldstein, has expanded from 13 to 16 workshops. I'd like to thank the Workshop Subcommittee, the Course Directors, and Faculty for this year's exciting offerings. The following workshops are new this year: Diagnosing Brain Death, Neuro-Ethics of End-of-Life, and Coding and Billing. Of course, the old favorites will still be offered. Workshops will be going on during the pre-meeting day, in the afternoons of the main session, and in the morning of the final day.

Social and Special Events

We like to work hard, study hard, and of course, play hard! Saturday is the day for play! A Fun Run and Walk has been added this year and will kick off Saturday's events. Be sure to bring your running shoes, so you can have a healthy dose of fun. After Saturday's plenary sessions, everyone will head over to the Experience Music Project Museum for the NCS Annual Banquet. In the hall that houses the exhibits on Jimi Hendrix and Nirvana, NCS will again show off its own brand of music with the Codes and Bubba's Taxi. A guest DJ will provide dance music until midnight. For the fun on this day and social events throughout the meeting, I thank Arash Afshinnik and Jen Robinson, and the Annual Meeting Socials Subcommittee.

I look forward to having a wonderful time learning, networking and having fun with all of you in Seattle!



Romergryko G. Geocadin, MD, FACS

*Chair, 2014 Annual Meeting Program Committee
Vice President, Neurocritical Care Society*

Annual Meeting Learning Objectives

- Apply clinical practice guidelines developed for Multimodality Monitoring neurocritical care patients and the management of patients with Large Hemispheric Infarction.
- Identify the advances in recent clinical trials in neuroprotection after Traumatic Brain Injury and Targeted Temperature Management for brain injury after cardiac arrest
- Apply current best clinical practices to the management of patients with encephalitis, ARDS and sepsis
- Describe how emerging translational and clinical research in intracerebral hemorrhage are directly relevant to the clinical practice of neurocritical care
- Describe the advances and challenges in pediatric neurocritical care research and practice
- Integrate the neurocritical care management of complex post-operative patient in the ICU
- Describe the challenges and best practices in bedside neurocritical care nursing

Workshop Learning Objectives (varies depending on workshops attended)

- Describe unique aspects of airway and ventilation management for neurocritical care patients
- Implement procedures such as bronchoscopy and ultrasound as applicable to neurocritical care patients
- Describe current issues in neuropharmacy for neurocritical care patients
- Explain principles of diagnostic electroencephalography and imaging as they apply to neurocritical care patients
- Interpret relevant diagnosis studies involved in acute management of neurocritical care patients including, intracranial pressure neuroimaging and electrophysiology
- Direct management of systemic and cerebral hemodynamics to optimize the care of neurocritically ill patients
- Perform and interpret the brain death examination
- Identify ethical principles relating to near end-of-life and end-of-life decision-making and medical care
- Describe the process related to billing and coding in the neuro-ICU

Target Audience

- Physicians in neurosurgery and neurology
- Physicians in critical care and pulmonary medicine
- Physicians in anesthesiology
- Physicians in surgery
- Physicians in emergency medicine
- Physicians in pediatric intensive care
- Physicians in internal medicine
- Critical care nurses
- Neurological nurses
- Advanced critical care nurse practitioners
- Physician assistants
- Pharmacists
- Translational neuroscientists
- Physicians in training
- Medical students

TOP SUPPORTERS

THE NEUROCRITICAL CARE SOCIETY GRATEFULLY
ACKNOWLEDGES SUPPORT FROM:

(As of July 1, 2014)

Platinum Level
Bard Medical
Ornim Medical
The Medicines Company
Gold Level
Zoll Medical Corporation
NeurOptics
Silver Level
American Medical Response
Medtronic
Bronze Level
Integra Foundation

Exhibition

The Neurocritical Care Society welcomes the
following exhibitors for 2014:

(As of July 1, 2014)

<i>ABRET</i>	<i>Integra Foundation</i>
<i>Akorn Pharmaceuticals</i>	<i>NeuroLogica</i>
<i>Arbor Pharmaceuticals, LLC</i>	<i>NeurOptics</i>
<i>Austrian Institute of Technology</i>	<i>Nihon Kohden America</i>
<i>GMBH</i>	<i>Ornim</i>
<i>Bard Medical</i>	<i>Otsuka</i>
<i>Cadwell</i>	<i>Raumedic, Inc.</i>
<i>Chiesi USA, Inc.</i>	<i>Rimed Ltd.</i>
<i>Edge Therapeutics</i>	<i>RosmanSearch, Inc.</i>
<i>Edwards Life Science</i>	<i>Texas Stroke Institute</i>
<i>Global Neuro-Diagnostics</i>	<i>The Medicines Company</i>
<i>Hemedex, Inc.</i>	<i>Zoll Medical Corp.</i>

Practice Update Overview

David Greer, MD, FNCS and Edward Manno, MD

Practice Updates Chair and Co-chair



David Greer, MD, FNCS



Edward Manno, MD

The Practice Update in the 2014 Annual Meeting is not limited to preparation for the UCNS board exam but will serve all members who desire up-to-date information about neurocritical care clinical practice topics, whether you are a nurse, fellow, international member, or already UCNS-certified. The bulk of the update will occur on the first day of the conference, with core topics covered in significant detail by high-level speakers. The talks will focus on reviews of core principles of management and care. New this year will be a "Hot Topic" Practice Update which will occur on Thursday, Friday, and Saturday mornings and will give an update on recent research and developments in more rapidly changing aspects of neurocritical care. A high-quality syllabus will continue to accompany the Practice Update.

Practice Update Learning Objectives

- Achieve an update to practice and care on core subjects in neurocritical care
- Identify updates in research and developments in core subjects in neurocritical care
- Describe advances in the more rapidly moving aspects of neurocritical care ("Hot Topics")



Scientific Program Overview

Kevin Sheth, MD, FAHA, FCCM

Science Committee Chair



This year's scientific program is packed with exciting sessions such as: a presentation of original data from the pivotal ProTECT III Traumatic Brain Injury Study; a high-profile session on Therapeutic Temperature Modulation; and, in response to demand from the membership, we will once again offer the Translational Science Symposium. The topic of this year's symposium is intracerebral hemorrhage (ICH). Internationally-recognized, high-impact investigators will share the depth and breadth of their knowledge as well as present their latest findings on ICH.

The core of the scientific program, however, is the showcase of the work from the most important investigators -- ALL OF YOU! For the first time, abstract presenters will have the opportunity to share their work in the interactive ePoster environment. This new mode of presentation will facilitate the dissemination of original research and eliminate the burden of printing and lugging around traditional posters. Also new this year is the Late-Breaking abstract submission process which leverage our membership's rapidly advancing work. Finally, the Best Abstract and Christine Wijman Outstanding Young Investigator Awards will honor deserving applicants.

Neurocritical Care Society 2014 Annual Meeting

Keynote Speaker

General Henry Hugh Shelton, U.S. Army (R)



General Shelton was the fourteenth Chairman of the Joint Chiefs of Staff from 1997 until his retirement in 2001. He previously served as Commander-in-Chief of U.S. Special Operations Command (SOCOM). He was knighted by Queen Elizabeth II in 2001 and awarded the Congressional Gold Medal in 2002. Since January 2002, he has served as the Executive Director of the General H. Hugh Shelton Leadership Center at North Carolina State University. Together with his wife Carolyn, General Shelton founded the Hugh and Carolyn Shelton Military NeuroTrauma Foundation with the goal of significantly improving survival rates for injured soldiers and preventing the long-term consequences of brain injury.

Annual Meeting Planning Committees and Subcommittees

We would like to acknowledge the following individuals for their time and dedication in making this meeting possible.



Overall plenary program

Meeting Chair: Romer Geocadin, MD
Aimee Aysenne, MD
Christopher Zacko, MD
J. Claude Hemphill, III, MD
Dave Seder, MD
David Greer, MD
Deborah Stein, MD
Ed Manno, MD
Eljim Tesoro, PharmD
Guiseppa Citerio, MD
Jennifer Robinson, APRN
Joshua Goldstein, MD
Julian Boesel, MD
Kevin Sheth, MD
Matthew Koenig, MD

Michael (Luke) James, MD
Michael Bell, MD
Panos Varelas, MD
Sam Tisherman, MD
Sarah Livesay, RN
Shawn Rowe, PharmD
Arash Afshinnik, MD
Alan Garber, MD

Science

Chair: Kevin Sheth, MD
Hooman Kamel, MD
Nerissa Ko, MD
Marion Buckwalter, MD
Guiseppa Citerio, MD
Michael (Luke) James, MD

Fundraising

Chair: Panayiotis Varelas, MD
Paul Vespa, MD
Stephan Mayer, MD
Sherry Chou, MD
Ryan Hakimi, MD
Tarvez Tucker, MD
Arash Afshinnik, MD
Carmelo Graffagnino, MD
Denise H. Rhoney, PharmD
Mohammed Fazlur Rehman, MD
Michael Schneck, MD
Michael Diringer, MD
Julian Boesel, MD
Jesse Corry, MD

J. Claude Hemphill, III, MD
Gene Sung, MD
Gary Bernardini, MD
Diana Greene, MD

Workshops

Chair: Josh Goldstein, MD
Kristine O'Phelan, MD
David Seder, MD
Soojin Park, MD

Practice Updates

Chair: David Greer, MD
Co-Chair: Ed Manno, MD

THE NCS WORKSHOPS ARE BACK!



The Neurocritical Care Society Workshop series is unique – a reasonably-priced, multispecialty, multidisciplinary approach to continuing medical education. Intended as a complement to the regular meeting, the workshops offer an unparalleled opportunity to go into a few topics in depth and gain the critical skills you need. The faculty includes some of the leading experts and educators in neurocritical care. These are intensive sessions with a case-based, hands-on, pragmatic approach. We have doctors, nurses, pharmacists, and midlevel providers here to show you what to do. Don't just read a book; intubate a mannequin yourself! Do your own ultrasound, insert a bronchoscope, and adjust the ventilator settings with your own two hands! Our instructors will be right there with you. There is something here for everyone!

Every person attending the annual meeting should plan to participate in a workshop. We will give you more than your money's worth in practical information, pearls, and techniques you can use immediately. We want to give away the secrets of neurocritical care!

Can't wait to see you in Seattle!



Josh Goldstein, MD PhD
Chair, Workshop Subcommittee

The 2014 NCS Workshop Committee
Josh Goldstein, MD
Kristine O'Phelan, MD
Soojin Park, MD
David Seder, MD

**SIGN UP
FOR A WORKSHOP
TODAY!**



2014 Workshop Descriptions

(Workshop information is subject to change upon further program development, prior to annual meeting)

Wednesday, September 10, 2014
Pre-Meeting Day
1:00 p.m. – 5:00 p.m.

Continuous EEG 101

Course Director: Emily Gilmore

Do you work in the neuro-ICU and want a better understanding of continuous EEG monitoring? This workshop will enhance the participant's practical utilization of continuous EEG in the ICU. We will teach you the basics – how to work the equipment, how to attach the leads. We will give you an introduction to bedside EEG pattern and artifact recognition, the role of quantitative EEG displays in EEG analysis, nursing and technical issues, and case studies with various EEG systems. We will also cover common start-up, business and coding issues.

Neurocritical Care Pharmacology **Course Director: Theresa Human, PharmD, BCPS, FNCS**

Designed to cover the hottest topics in neurocritical care pharmacotherapy today! Experts will discuss the role of NSAIDs in neuro-ICU fever control, pharmacologic treatment of refractory vasospasm, delirium in the neurologically injured patient, intraventricular medication administration, and pharmacologic treatment of dysautonomia after severe traumatic brain injury. Case-based, small-group discussions will highlight controversies and areas of interest.

Thursday, September 11, 2014
1:00 p.m. – 5:00 p.m.

Advanced ICU Hemodynamics

Course Director: William McGee, MD, MHA

Want to optimize patient outcomes and cerebral blood flow? Hemodynamic monitoring and manipulation play a huge role in neurocritical care, and the science is evolving rapidly. Our workshop will focus on the use of hemodynamic therapy to provide optimal outcomes in TBI, SAH/vasospasm, and those with acute lung injury/ARDS. The workshop will also cover hemodynamic therapy of the brain-dead organ donor which has been shown to increase organ yield in these physiologically complex patients. Small group sessions will focus on use of the various technologies and data interpretation. The emphasis will be on arterial pulse contour analysis along with an overview of essential ECHO techniques for practicing neuro-intensivists. Our workshop will include

description and use of "the physiologic optimization program" through real case interactive simulation sessions to emphasize course content. Attendees will be able to bring both the cases and the principles of physiologic optimization back to their units to train staff.

Coding, Billing, and ICD-10 **Course Director: Owen Samuels, MD**

You have the world's most awesome ICU, but you need to get paid for your work. Your training program may have taught you the medicine but did they teach you how to bill? This workshop will give an in-depth overview of how to code, how to bill...and what is the deal with ICD-10 anyway?

Intracranial monitoring **Course Director: Benjamin Emanuel, DO**

A hands-on workshop in which you will learn and practice basic techniques for the insertion, management, troubleshooting, data interpretation, and removal of intracranial monitoring devices! Includes ventricular catheterization, ICP, brain tissue oxygen, cerebral blood flow monitoring, and cerebral microdialysis technologies.

Neurovascular Ultrasound **Course Director: Art Lam, MD**

An intensive introduction to transcranial doppler (TCD), transcranial color-coded sonography (TCCS), and carotid ultrasound. A didactic session will cover neurovascular ultrasound basics. Attendees will then rotate through stations where they will practice hands-on ultrasound or use US data to manage clinical scenarios such as stroke, subarachnoid hemorrhage, and vasospasm.

Friday, September 12, 2014

1:00 p.m. – 5:00 p.m.

Continuous EEG 201

Course Director: William D. Freeman, MD and Ira Chang, MD

ICU EEG techniques continue to expand as a critical, non-invasive form of neuromonitoring. This advanced ICU EEG course (intended for individuals with at least a functional knowledge of EEG rhythms and techniques) will broaden your knowledge and utilization of ICU EEG monitoring techniques and use case-based examples to illustrate clinical applications. Topics will include EEG interpretation in the ICU, Quantitative EEG methods (QEEG) such as Alpha Delta Ratio (ADR) for detection of vasospasm and QEEG methods to detect status epilepticus, new ICU EEG terminology, and management of complex ICU cases including refractory status epilepticus. Taught by the leaders in the field.

Difficult Mechanical Ventilation

Course Director: Patrick Mailloux, MD

Hands on the ventilators! If you want to know how to ventilate your patients, come here for tips, tricks, and a rational approach from the experts. Not just a lecture, this is a hands-on experience including complex and difficult cases. Learn how to manage common and life-threatening ventilatory challenges. Learn mechanical ventilation goals and techniques specific to brain injured patients. Learn state-of-the-art noninvasive ventilation, including new ventilators and masks, and how to select the patients most likely to benefit from treatment.

Neuroethics at the End of life

Course Director: Jessica McFarlin, MD

Some of the most important work you will ever do is navigate the difficult issues at the end of life. Is there a best practice for having a family meeting? How do you discuss goals of care in stressful situations? This is not just a lecture, but a hands-on session for those "boots on the ground" who are front and center with families, friends, and loved ones in their most fragile states. This course is a great companion to the Diagnosing Brain Death workshop.

Targeted Temperature Management

Course Director: Jon Rittenberg, MD, MS

TTM is being used in an increasing number of disease states, but where is this therapy headed? Learn what the future holds for TTM and how this will impact care for specific patient populations. Topics will include current practice and research areas, emerging uses in clinical care, and state-of-the-art technologies. This workshop will include: didactic and small group break-out sessions run by expert, multidisciplinary leaders in the field.

Saturday, September 13, 2014

1:00 p.m. – 5:00 p.m.

Bronchoscopy/Pleural Procedures

Course Director: Dale Hoekema, MD

Basic bronchoscopy, thoracentesis, and chest tube placement are fundamental critical care skills...are you up to speed? Ultrasound and vastly improved procedure kits have made these procedures easier and safer than ever before. Learn basic airway inspection and bronchoalveolar lavage techniques, quick ultrasonographic localization of fluid, and chest drain placement using state-of-the-art pigtail and/or Seldinger-technique based kits. Can you afford not to take this workshop?

Diagnosing Brain Death

Course Director: David Greer, MD, FNCS

Intensive discussion and instruction on the current state of the science of diagnosing brain death by masters in the field. We will show you when and how to do a brain death exam. This is the most important exam of your patient's life -- every clinician in the ICU should know how to do it! We will also discuss the impact of commonly used medications on level of consciousness, and prognostication.

Neurocritical Care Airway

Course Director: David Seder, MD, FCCP

The airway course is designed to improve medical knowledge and procedural skills in airway management - emphasizing problems unique to neurocritical care. Learn airway assessment, intubation principles, the difficult airway algorithm, and the pharmacology of urgent neurocritical care intubation; practice ventilation and fundamental intubation skills; and handle tracheostomies, LMAs, and airway adjuncts.

Neuroimaging for the Non-neurologist

Course Director: Chris Horn, MD

Intensive, instruction on fundamental to challenging cases of neuro imaging in neurocritical care. Review key parts of neuroanatomy in both CT and MRI. Develop and hone your skills with basic cases and challenge yourself with the difficult scenarios. Highlights will include acute ischemic stroke, subarachnoid hemorrhage, intracerebral hemorrhage, and trauma.

Sunday, September 14, 2014

8:00 a.m. – noon

Essentials of Neurocritical Care

Course Directors: Cherylee Chang, MD, and Tom Bleck, MD

Wear good shoes, because past NCS Presidents Tom Bleck and Cherylee Chang, along with Kathy Johnson, RN, Neuro Clinical Nurse Specialist will cover a lot of ground in this intensive fundamentals course!

Basic neuroanatomy and neuroimaging, EEG essentials, management of ICP and brain herniation, effects of common ICU interventions on cerebral blood flow, neuromuscular emergencies in the ICU, rating scales (GCS, FOUR, Hunt and Hess, WFNS, Fisher and modifications, NIHSS, ICH, Rankin, Barthel, etc), anticonvulsant drugs, adverse neurologic effects of common ICU drugs, and osmolar disturbances. What a great opportunity to brush up on the basics, whether you're a physician, nurse, midlevel provider, or any other care provider.

Neurocritical Care Ultrasound

Course Director: Krishna Rajajee MD

This is the critical care skill you always wanted but didn't have time to learn! Critical care ultrasound is quickly becoming a required skill in the ICU. The workshop consists of didactic teaching and hands-on stations covering the fundamentals of critical care echocardiography, lung ultrasound, assessment of volume status, detection of lower limb DVTs, and optic nerve sonography for the detection of raised intracranial pressure. Come learn this and more...



ENLS Train the Trainer Workshop

We have received multiple requests from NCS members to put on their own ENLS courses - either stand alone or adjacent to other academic meetings. In response to this, we have created a Train-the-Trainer course.

Why train the trainer when you know this material already? Mostly because we want to assure the continued high quality of ENLS by having all trainers know the material, know the usage and distribution of the training materials, and know how to manage trainee access to the website and certificates. Once trained and certified as a trainer, the trainer is eligible to apply to NCS for usage of the entire portfolio of ENLS teaching tools for the course. This includes contracting with NCS for discounted fees for the trainees. Certified Trainers must be current members of the Neurocritical Care Society, be certificated in ENLS, and have successfully completed the online Trainer certification course.

ADVANCE PROGRAM

WEDNESDAY,
SEPTEMBER 10

PRE-MEETING

8:00 am - 5:00 pm

Practice Update

Chair: David Greer, MD, MA, FCCM, FAHA, FNCS
Co Chair: Ed Manno, MD

Cerebrovascular

Acute ischemic stroke
Nerissa Ko, MD, MAS

Neuroendovascular Interventions
Thabele Leslie-Mazwi, MD

Subarachnoid Hemorrhage
Eric Rosenthal, MD

Coma/Brain Death/Prognosis

Cardiac Arrest/HIE: Hypoxic-Ischemic Encephalopathy
David Greer, MD, MA, FCCM, FAHA, FNCS

Coma/brain death
David Greer, MD, MA, FCCM, FAHA, FNCS

Delirium
Panos Varelas, MD, PhD

General Critical Care

Cardiovascular monitoring
J. Javier Provencio, MD

Mechanical Ventilation
Julian Boesel, MD, PhD

Non-neuro trauma
Samuel Tisherman, MD

Sedation/Analgesia
Paul Nyquist, MD

Neurocritical Care Principles

Multimodal Neuromonitoring
Giuseppe Citerio, MD

Neuronursing
Jennifer Robinson, APRN

Neuropharmacology
A. Shaun Rowe, PharmD

Quality Care Metrics
Michelle VanDemark, CNP

Special Conditions

Neuromuscular
Jennifer Fugate, DO

Peds neurocritical care
Mike Bell, MD

Status epilepticus
Stephen Hantus, MD

Trauma

Post-op Neurosurgical Care
Christopher Zacko, MS, MD

Traumatic brain Injury
Joshua Levine, MD

Traumatic Spinal Cord Injury
William Coplin, MD

8:00 am - Noon

Research Mentorship

Chair: Jonathan Rosand, MD, MSc
Co-Chair: Kevin Sheth, MD
Mentors: Paul Nyquist, MD;
J. Javier Provencio, MD

Balancing Competing Demands – Hospital, Department, Career
Kyra Becker, MD

How to be a Successful Basic Scientist and Neurointensivist
Marion Buckwalter, MD, PhD

Nursing research in Neurocritical Care
Daiwai Olson, PhD, RN

Where do I go from here; how do I become a closer?
Jonathan Rosand, MD, MSc;
Kevin Sheth, MD

Effective networking and building research collaborations
Jose Suarez, MD

8:00 am - Noon

Workshop 1: Continuous EEG 101

Director: Emily Gilmore, MD

9:45 am - 10:15 am

Break

12:00 pm - 1:00 pm

Lunch Symposium with support from American Medical Response and Medtronic

1:00 pm - 5:00 pm

Future Leaders: Leadership Development in NCS

Chair: Wendy Wright, MD, FCCM, FNCS
Speakers/Mentors:
Samuel Tisherman, MD, FCCM
Galen Henderson, MD
J. Claude Hemphill, MD, MAS, FNCS
Judith Jacobi, PharmD, FCCM
Mary Kay Bader, RN, MSN, CCNS, FAHA, FNCS
Romergrzyko Geocadin, MD, FNCS

1:00 pm - 5:00 pm

Workshop 2: NCC Neurocritical Care Pharmacology

Director: Theresa Human, PharmD, BCPS, FNCS

5:00 pm - 6:30 pm

Welcome Reception

Participants: Romergrzyko G. Geocadin, MD, FNCS; J. Claude Hemphill, III, MD; Arash Afshinnik, MD

THURSDAY,
SEPTEMBER 11

7:00 am - 8:00 am

Breakfast

8:00 am - 8:05 am

Welcome/ Opening Remarks

Chair, 12th NCS Annual Meeting Committee and NCS Vice President: Romergrzyko G. Geocadin, MD, FNCS

8:05 am - 8:30 am

Hot Topics: Controversy in BP Control in ICH

Speaker: Adnan I. Qureshi, MD

8:30 am - 9:45 am

Int'l. Multimodality Monitoring (MMM) Consensus

(Joint session with ESICM)
Chair: Peter Leroux, MD

Volumes and flow
Giuseppe Citerio, MD

Metabolism, Temperature, Multimodality
Paul Vespa, MD

Oxygen, Nutrition, and Process of care
Mary Kay Bader, RN, MSN, CCNS, FAHA, FNCS

9:45 am - 10:15 am

Break

10:15 am - 10:45 am

Business Meeting

10:45 am - 11:15 am

Presidential Address

J. Claude Hemphill, III, MD

11:15 am - noon

Keynote Address

General Henry Hugh Shelton, Army (R) Past Chairman, Joint Chiefs of Staff Executive Director, General Hugh Shelton Leadership Center at North Carolina State University
Director, Hugh and Carolyn Shelton Military Neurotrauma Foundation

Noon - 1:00 pm

Lunch Symposium supported by **NeuroOptics. Use of the Pupillometer in Neurocritical Care: Successful Adaptation in Today's Neurocritical Care Unit**

1:00 pm - 2:00 pm

Scientific Abstracts: Platform Presentation 1

Co-chairs:
Nerissa Ko, MD, MAS
M. Luke James, MD

2:00 pm - 3:15 pm

Large Hemispheric Infarction (LHI) Guidelines

(Joint Session w/ German NeuroIntensive Care Society)

Update on decompressive surgery in stroke

Stefan Schwab, MD

Guidelines for the management of severe ischemic stroke

Michel Torbey, MD, MPH

Pharmacotherapies in LHI

Denise Rhoney, PharmD

3:15 pm - 3:45 pm

Break

3:45 pm - 5:15 pm

Anticoagulation and Neurocritical Procedures

Chair: Christopher Zacko, MS, MD

3:45 pm - 5:15 pm

Nursing in Neurocritical Care

Chair: Jennifer Robinson, APRN

BP Management Controversies: What Does the Evidence Tell Us?

Molly McNett, PhD, RN, CNRN

Mobility in the ICU: Timing Demystified

Susan Yeager, RN, MSN

Standardization of the Neurologic Exam

Sarah Livesay, DNP, RN, ACNP-BC

1:00 pm - 5:00 pm

Workshops:

Workshop 3:

Advanced ICU Hemodynamics

Director: William McGee, MD, MHA

1:00 pm - 5:00 pm

Workshop 4:

Intracranial monitoring

Director: Benjamin Emanuel, DO

1:00 pm - 5:00 pm

Workshop 5:

Coding, Billing, ICD-10

Director: Owen Samuels, MD

1:00 pm - 5:00 pm

Workshop 6:

Neurovascular Ultrasound

Co-Chairs: Nerissa Ko, MD, MAS; M. Luke James, MD

5:15 pm - 6:45 pm

Scientific Abstracts: e-Poster Session 1

Co-Chairs: Nerissa Ko, MD, MAS; M. Luke James, MD

FRIDAY,
SEPTEMBER 12

7:00 am - 8:00 am

Breakfast corners/ Special Interest Groups

8:00 am - 8:30 am

Hot Topics: Controversy in Prognostication in Acute Brain Injury

Speaker: G. Bryan Young, MD

8:30 am - 9:45 am

Post-Operative Challenges in Neurocritical Care

(Joint Session with Society for Neuroscience in Anesthesiology and Critical Care [SNACC])

Chair: Ines Koerner, MD, PhD

Multi-Level Spinal Fusion with Massive Hemorrhage Complicated by TRALI

Andrea Orfanakis, MD

Posterior Fossa Tumor With Air Embolus and Intraoperative Cardiac Arrest

Rolf A. Schlichter, MD

Multisystem Trauma Patient Undergoing Epidural Hematoma Evacuation and Orthopedic Surgery

Myles D. Boone, MD

9:45 am - 10:15 am

Break

10:15 am - noon

What to Do: Temperature Targeted Therapies and Cardiac Arrest

Chair: Samuel Tisherman, MD

The TTM Trial: Impact on Post Cardiac Arrest Care

Niklas Neilsen, MD

Practice and Guidelines: What do we do now?

Clifton Callaway, MD, PhD

**Pre-Hospital Cooling after CPR:
What's Next?**

Graham Nichol, MD, MPH

Nursing Care in TTM

DaiWai M. Olson PhD RN CCRN

Noon - 1:00 pm

Lunch Symposium with support from Zoll

1:00 pm - 2:00 pm

Scientific Abstracts:

Platform Presentation 2

Co-chairs

Marion Buckwalter, MD, PhD

Kevin Sheth, MD

2:00 pm - 3:15 pm

**Translational Science: Advances
In Intracerebral Hemorrhage (ICH)
Part 1**

Co-Chairs: Hooman Kamel, MD;

Kevin Sheth, MD

Global Burden of ICH

Rita Krishnamurthi, MD, PhD

Acute Pathophysiology of ICH

Lauren Sansing, MD, MS

Changes in Immunity after ICH

Kyra Becker, MD

3:15 pm - 3:45 pm

Break

3:45 pm - 5:15 pm

**Translational Science: Advances In
Intracerebral Hemorrhage (ICH)
Part 2**

Pathogenesis of ICH:

Insights from Genetics

Daniel Woo, MD, MS

Acute Critical Care

Management I ICH

Andrew Naidech, MD, MSPH

Interventional Treatments in ICH

Dan Hanley, MD

1:00 pm - 5:00 pm

Workshops:

**Workshop 7: Targeted Temperature
Management (TTM)**

Director: Jon Rittenberger, MD, MS

1:00 pm - 5:00 pm

**Workshop 8: Neuroethics at End
of Life**

Director: Jessica McFarlin, MD

1:00 pm - 5:00 pm

Workshop 9: Continuous EEG 201

Director: William D. Freeman, MD

Co-Director: Ira Chang, MD

1:00 pm - 5:00 pm

**Workshop 10: Difficult Mechanical
Ventilation**

Director: Patrick Mailloux, DO, MEd,
FCCP

5:15 pm - 6:45 pm

**Scientific Abstracts: e-Poster
Session 2**

Co-Chairs: Nerissa Ko, MD, MAS;

M. Luke James, MD

6:45 pm - 8:15 pm

Dinner Symposium supported by
Ornim

**SATURDAY,
SEPTEMBER 13**

6:00 am - 8:00 am

Fun Run (5K run; 1 mile walk)

Chair: Jennifer Robinson, APRN

Co-Chair: Arash Afshinnik, MD

7:00 am - 8:00 am

Breakfast

8:00 am - 8:30 am

**Hot Topics: Updates in
Neuroimaging**

Speaker: Paul Lindell, MD

8:30 am - 9:45 am

**Updates on Sepsis & ARDS - Joint
Sess. w/ American Coll. of Chest
Physicians** (ACCP)

**Recent Advances in Ventilatory
Management of ARDS**

Robert Hyzy, MD

**Severe Sepsis: Why Everything
Old is New Again**

Steven Q Simpson, MD

9:45 am - 10:15 am

Break

10:15 am - noon

**Traumatic Brain Injury -
PROTECT III Trial Update**

Highlighted Speaker:

David Wright, MD, FACEP

Translational studies

Donald Stein, PhD

Neuro-surgical insights

Geoffrey Manley, MD, PhD

Insights in clinical trials on

TBI

Michael Bell, MD

Noon - 1:00 pm

**3rd Women in Neurocritical
Care luncheon "Moving up,
Not Burning Out"**

Speaker: Denise H. Rhoney, Pharm.D.,
FCCP, FCCM, FNCS

Ronald and Nancy McFarlane
Distinguished Professor and Chair
Division of Practice Advancement and
Clinical Education
UNC Eshelman School of Pharmacy
Chapel Hill, NC

1:00 pm - 2:00 pm

**Scientific Abstracts:
Platform Presentation 3**

Co-chairs:

W. Taylor Kimberly, MD

Javier Provencio, MD

2:00 pm - 3:15 pm

Critical Care of Acute Encephalitis

Chair: Arun Venkatesan, MD, PhD

**Update on Epidemiology,
Etiologies and Presentations of
Acute Encephalitis**

Carol Glaser, DVM, MPVM, MD

Acute Care in the ICU

Arun Venkatesan, MD PhD

**Novel treatments in Refractory
Status Epilepticus**

McKenzie Cervenka, MD

3:15 pm - 3:45 pm

Break

3:45 pm - 5:15 pm

**Pediatric Neurocritical Care:
Practical Application**

**Interventional Studies in Pediatric
Stroke - Lessons to Learn**

Mark Wainwright, MD, PhD

**Detecting Neurological Injuries in
Children Using Biomarkers -
Where are we now?**

Melania Bembea, MD, PhD

**Update on Cardiopulmonary
Resuscitation and Cardiac Arrest
Outcomes in Children**

Alexis Topjian, MD, MSCE

1:00 pm - 5:00 pm

Workshops:

Workshop 11:

Diagnosing Brain Death

Director: David Greer, MD, MA, FCCM,
FAHA, FNCS

1:00 pm - 5:00 pm

Workshop 12:

Neurocritical Care Airway

Director: David Seder, MD

1:00 pm - 5:00 pm

Workshop 13:

Bronchoscopy/ Pleural Procedures

Director: Dale Hoekema, MD

1:00 pm - 5:00 pm

Workshop 14:

**Neuroimaging for the
Non-neurologist**

Director: Chris Horn, MD

5:15 pm - 6:45 pm

**Scientific Abstracts: e-Poster
Session 3**

Co-Chairs: Nerissa Ko, MD, MAS;

M. Luke James, MD

7:00 pm - midnight

**NCS Banquet at the Experience
Music Project**

Featuring: Bubba's Taxi, the Codes, and
a DJ



**SUNDAY,
SEPTEMBER 14**

7:00 am - 8:00 am

Breakfast

8:00 am - 8:30 am

NCS Research: Prince Study Results

Speakers: Peter Leroux, MD;

Jose Suarez, MD

8:30 am - 9:45 am

NCS Member Submitted Session:

**Extracorporeal Therapies in
Neurocritical Care**

Session Chair: Neeraj Badjatia, MD

8:30 am - 9:45 am

**Pediatric Neurocritical Care:
Systems of Care**

**Understanding the Burden of
Pediatric Neurocritical Care**

Around the World - the PANGEA

(Prevalence of Acute critical Neuro
logical disease in children: a Global

Epidemiological Assessment) Study
Erika Fink, MD, MS

**Implementation of Pediatric
Neurocritical Care Teams in the
US - What is the current practice
and how does it impact on
outcomes?**

Sandra Buttram, MD

**Attitudes about Pediatric Neuro
critical Care - Results from a
Survey of Pediatricians,
Neurosurgeons, Neurologists and
Neurointensivists**

Sarah Murphy, MD

9:45 am - 10:15 am

Break

10:15 am - 11:45 am

NCS Annual Debates

Chair: Matthew Koenig, MD

Debate 1: Real neurocritical care
begins in the Emergency Department.

Pro: Rachel Garvin

Con: Tamer Abdelhak

Debate 2: Poly-trauma patients don't
belong in the Neuro ICU.

Pro: Sarah Livesay

Con: Kristine O'Phelan

Debate 3: Guidelines are great for
neurocritical care in general, but not
for real experts like me.

Pro: William Coplins

Con: Gretchen Brophy

Debate 4: ICP monitoring should not
be undertaken without multi-modality
monitoring.

Pro: Andrew Kofke

Con: Michael Diringer

10:15 am - noon

**Pediatric Neurocritical Care:
Neurotrauma Research**

**Adherence to TBI Guidelines and
Outcomes - The PEGASUS Study**

(Pediatric Guideline Adherence and
Outcomes Study)

Monica Vavilala, MD

**When Pigs Fly - Modeling
Pediatric TBI Care and
Multimodality Monitoring in
Swine**

Stuart Friess, MD

**Targeting Mitochondria in
Experimental TBI - What Therapies
Show the Most Promise?**

Courtney Robertson, MD

8:00 am - noon

Workshops:

Workshops 15:

Essentials of Neurocritical Care

Director: Cheryllee Chang, MD

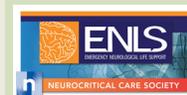
Co-Director: Thomas Bleck, MD

8:00 am - noon

Workshops 16:

Neurocritical Care Ultrasound

Director: Krishna Rajajee, MD



8:00 am - noon
ENLS Train-the-Trainer

Instructors: Wade Smith, MD, PhD, FNCS
and Chad Miller, MD



GENERAL INFORMATION

Disclaimer

The information is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician relative to diagnostic and treatment options of a specific patient's medical condition. In no event will the Neurocritical Care Society be liable for any decision made or action taken in reliance upon the information provided through this activity.

Meeting Location

Westin Seattle
1900 Fifth Avenue
Seattle, WA 98101
Hotel Direct: (206) 727-5881
Reservations: (888) 627-8513
Website: www.westinseattle.com

Hotel Reservations

Reserve your hotel room early! Discounted hotel rooms are available to NCS attendees at the Seattle Westin for \$226 USD per night for a standard single, double, triple or quad room. The deadline to make reservations is August 10, or until the block fills. To make your reservation, call 888-627-8513 and mention you are with the NCS meeting.

Overflow rooms have also been booked at the Seattle Warwick, just 2 blocks from the Westin. Group rates are \$189 and the cut off is Tuesday August 12. To make reservations call: 800-426-9280

Please visit the NCS website for information about local restaurants, attractions, and transportation needs.

Annual Meeting Registration

The NCS registration desk will be located on the Grand Level of the Westin Seattle. The registration desk will be open during the following dates and times.

Tuesday, September 9	3:00 p.m. - 6:00 p.m.
Wednesday, September 10	6:45 a.m. - 5:30 p.m.
Thursday, September 11	6:45 a.m. - 5:30 p.m.
Friday, September 12	6:45 a.m. - 5:30 p.m.
Saturday, September 13	6:45 a.m. - 5:30 p.m.
Sunday, September 14	6:45 a.m. - 12:00 p.m.

The pre-registration deadline is August 8, 2014. After this date, registration will be accepted onsite only at the Westin Seattle Hotel.

Registration Cancellation Policy

All cancellations received on or before August 8, 2014, are subject to a \$50 cancellation fee. Written notification of your cancellation is required in order to process your refund. No refunds will be issued after August 8, 2014.

Exhibit & Poster Hall

This year's exhibit & poster hall will be in Grand 1 and 2 located on the Grand Level of the Seattle Westin. Be sure to visit this year's exhibitors for the following dates and times and join them on Tuesday evening for the Opening Reception!

Thursday, September 11	7:00 a.m. - 3:45 p.m. 5:15 p.m. - 6:45 p.m.
Friday, September 12	7:00 a.m. - 4:00 p.m. 5:15 p.m. - 6:45 p.m.
Saturday, September 13	7:00 a.m. - 4:00 p.m. 5:15 p.m. - 6:45 p.m.

Attire

The attire for the Annual Meeting is business casual. Attire for the banquet is casual.

Climate

The average temperature in Seattle in September is 60 degrees and partly sunny.

Membership

To join the Neurocritical Care Society, please visit www.neurocriticalcare.org and click on "Join NCS". Membership benefits include the Neurocritical Care journal subscription, discounted Annual Meeting rates, access to the members' only discussion forum, and networking opportunities.

Accreditation

This activity has been planned and implemented by Ciné-Med and the Neurocritical Care Society. Ciné-Med is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME), to provide continuing medical education for the health care team.

Physicians

Ciné-Med designates this live activity for a maximum of 34 AMA PRA Category 1 Credit(s)[™]. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Nurses

This activity is approved for 34 contact hours for nurses.

Pharmacists

This program has been accredited for 0.34 CEU (34 contact hours) of continuing education credit. ACPE #: 0399-9999-14-006-L01-P.





www.neurocriticalcare.org
or complete the following
registration form.

12TH ANNUAL NEUROCRITICAL CARE SOCIETY MEETING
SEPTEMBER 11 - 14, 2014 | THE WESTIN SEATTLE | SEATTLE, WASHINGTON

REGISTRATION FORM PART 1

Pre-registration deadline is August 8, 2014. After that date, registrations will only be accepted onsite at an increased cost. Please enter the information as you would like it to appear on your attendee materials, such as your badge and confirmations. For US attendees, registration materials will be sent prior to the meeting to the address provided below. Non-US attendees will pick up their materials at the NCS Registration Desk at the Westin Seattle. REGISTER ONLINE

Last Name _____ First Name _____

Designation (MD, PhD, RN, etc) _____

Company/Institution _____

Mailing Address _____

City _____ State _____ Country _____ Zip/Postal Code _____

Phone _____ E-mail Address _____

ADA/Dietary Requests _____

Specialty (REQUIRED): Physician Nurse Pharmacist Physician Assistant Medical Professional Fellow Resident Student

Others, please specify: _____

ANNUAL MEETING REGISTRATION

Full Meeting Registration includes access to all sessions, pre-meeting sessions, breakfasts, lunches and the Annual Banquet (Excludes Sunday's ENLS Train-The-Trainer Course and any workshops.)

Registration: Domestic Participants

- \$750** NCS Members – Physicians
- \$850** Non-Members – Physicians
- \$470** Healthcare Professionals & Trainees*

*Includes Nurses, Pharmacists, Physician Assistants, Medical Professionals, Fellows, Residents & Students

World Bank Countries A & B Full Meeting Registration

- \$650** Group A Country – Physicians
- \$415** Group A Country – Healthcare Professionals & Trainees**
- \$150** Group B Country – All

**See World Bank Rate guide.

9/14 ENLS Train The Trainer Course (Limit: 75 people)

\$125 for full meeting attendees (lunch not included)

WORKSHOP & BANQUET REGISTRATION

Workshop Registration

- \$175** X _____ (# of workshops) per Technical Workshop*
- \$100** X _____ (# of workshops) per Non-Technical Workshop

*Please select your workshop(s) on the next page.

Banquet Attendance (Gratis for Full Meeting Attendees)

YES! I plan on attending the Annual Banquet at Experience Music Project (EMP) on Saturday, September 13.

Banquet Guest Registration

\$125 per guest X _____ (# of guests)

Guest Name(s): _____

MEMBERSHIP

Indicate your membership type below by selecting the amount and circling your specialty. Note that in order to register for the member rate, you must be a current NCS member. If you are not a member, select the appropriate membership type below to apply and you will then be eligible to register at the member rate. To learn more about membership benefits, visit <http://www.neurocriticalcare.org/join-ncs>.

- \$250 Physician** **\$150 Healthcare Professionals** (Please circle: Nurse, Pharmacist, Physician Assistant or Medical Professional)
- \$100 Trainee** (Please circle: Fellow, Resident, & Student)

Send both pages with full payment to:

NCS, 5841 Cedar Lake Road, Suite 204, Minneapolis, MN 55416 OR Fax to (952) 545-6073 Or email to info2@neurocriticalcare.org

12TH ANNUAL NEUROCRITICAL CARE SOCIETY MEETING
SEPTEMBER 11 - 14, 2014 | THE WESTIN SEATTLE | SEATTLE, WASHINGTON

REGISTRATION FORM PART 2

WORKSHOP SELECTION

Space for workshops is limited and will be confirmed on a first come, first served basis.

1. Please prioritize your workshop selections by indicating 1, 2, 3, etc. in the rightmost column of the table below.
2. Once your meeting registration has been processed, you will receive a confirmation via email that will include your scheduled workshops.

Title	Director	Day,Date	Time	\$	Max Seats	Priority
Continuous EEG 101	Emily Gilmore	Wed, 09/10	1:00 - 5:00pm	100	100	
Neurocritical Care Pharmacology	Teresa Human	Wed, 09/10	1:00 - 5:00pm	100	125	
Advanced ICU Hemodynamics	William McGee	Thur, 09/11	1:00 - 5:00pm	100	80	
Coding, billing, ICD-10	Owen Samuels	Thur, 09/11	1:00 - 5:00pm	100	100	
Intracranial monitoring	Benjamin Emanuel	Thur, 09/11	1:00 - 5:00pm	175	26	
Neurovascular Ultrasound	Art Lam	Thur, 09/11	1:00 - 5:00pm	175	25	
Continuous EEG 201	W. Freeman & I. Chang	Fri, 09/12	1:00 - 5:00pm	100	75	
Difficult Mechanical Ventilation	Patrick Mailloux	Fri, 09/12	1:00 - 5:00pm	100	36	
Neuroethics at the End of Life	Jessica McFarlin	Fri, 09/12	1:00 - 5:00pm	100	100	
Targeted Temperature Management	John Rittenberger	Fri, 09/12	1:00 - 5:00pm	100	50	
Bronchoscopy/Pleural Procedures	Dale Hoekema	Sat, 09/13	1:00 - 5:00pm	175	30	
Diagnosing Brain Death	J. Frank & D. Greer	Sat, 09/13	1:00 - 5:00pm	100	100	
Neurocritical Care Airway	David Seder	Sat, 09/13	1:00 - 5:00pm	175	25	
Neuroimaging for the Non-neurologist	Chris Horn	Sat, 09/13	1:00 - 5:00pm	100	60	
Essentials of Neurocritical Care	Cherylee Chang	Sun, 09/14	8:00am - noon	100	125	
Neurocritical Care Ultrasound	Krishna Rajajee	Sun, 09/14	8:00am - noon	175	25	

PAYMENT INFORMATION

TOTAL DUE \$ _____

Check # _____ (please make checks payable to Neurocritical Care Society – must be submitted with registration form)

VISA MasterCard

Cardholder's Name (Print): _____

Card Number _____ Expiration date _____

Signature _____ Security Code _____

CANCELLATION POLICY: Cancellations must be received in writing and must be received on or before August 8, 2014 and will be charged a \$50 cancellation fee. Cancellations received after August 8, 2014, will not be honored and no refunds will be awarded.

Mail completed form(s) with full payment to:

NCS, 5841 Cedar Lake Road, Suite 204, Minneapolis, MN 55416 OR Fax to (952) 545-6073