

Third Neurocritical Care Research Conference

Outcomes Research in Neurocritical Care

Marriott Hotel, Texas Medical Center, Houston, TX August 15-17, 2014

Scientific Program

Friday August 15, 2014

18:00 – 21:00 Welcoming Reception and Dinner

Saturday August 16, 2014

07:00 – 07:45 Registration and Breakfast

07:45 – 08:00 History and Aims of the Neurocritical Care Research Conference

Peter D Leroux, MD; Jose I Suarez, MD (Baylor College of Medicine, Houston, TX)

*08:00 – 12:00 **Session 1: Special Lectures***

Moderators: Stefan Wolf, MD (Charité, Berlin, Germany); Lori Shutter, MD (University of Pittsburgh, Pittsburgh, PA)

-08:00 – 08:45 Meaningful Outcome Measures for Neurocritical Care: lessons from general critical care

K. Guntupalli, M.D., FCCM, FCCP, MACP
Baylor College of Medicine, Houston, TX

-08:45 – 09:00 Questions & Answers

-09:00 – 09:45 Checklists and Outcomes Research in the NeuroICU

Alexis F Turgeon, MD, MSc
Université Laval, Québec, Que, Canada

-09:45 – 10:00 Questions & Answers

10:00 – 10:15 Coffee Break

-10:15 – 11:00 Outcome Calculators in Neurocritical Care

Stephan Mayer, MD
Icahn School of Medicine at Mount Sinai in New York, NY

-11:00 – 11:15 Questions & Answers

-11:15 – 12:00 Research Funding Opportunities for Neurocritical Care Research at NIH

Walter J Koroshetz, MD

Deputy Director, NINDS, Bethesda, MD

-12:00 – 12:15 Questions & Answers

12:15 – 13:00 Lunch Break

13:00 – 19:30 **Session 2: Assessment of Outcomes and Interventions**

13:00 – 14:00 Evidence Development

Moderators: Christiana Hall, MD (UT Southwestern, Dallas, TX); Gene Sung, MD (University of Southern California, Los Angeles, CA)

-13:00 – 13:20 What is Evidence-Based Medicine (EBM)?

John Marshall, MD

University of Toronto, Toronto, ON, Canada

-13:20 – 13:40 Why undertake Clinical Trials?

Renee Martin, PhD

Medical University of South Carolina, Charleston, SC

-13:40 – 14:00 When are Randomized Clinical Trials unnecessary?

John Marshall, MD

University of Toronto, Toronto, ON, Canada

14:00 – 15:20 Comparative Effectiveness Research (CER)

Moderators: Edward Manno, MD (Cleveland Clinic Foundation, Cleveland, OH); Nino Stocchetti, MD (University of Milan, Italy)

-14:00 – 14:20 What is CER?

Steven Clauser, PhD, MPA

Program Director,

Patient Centered Outcome Research Institute (PCORI), Washington, DC

-14:20 – 14:40 Prioritizations of Important CER Questions

Steven Clauser, PhD, MPA

Program Director,

Patient Centered Outcome Research Institute (PCORI), Washington, DC

-14:40 – 15:00 The Politics of CER

Aanand D Naik, MD

Baylor College of Medicine, Houston, TX

-15:00 – 15:20 Statistical Methods and CER

Renee Martin, PhD

Medical University of South Carolina, Charleston, SC

15:20 – 15: 35 Coffee Break

15:35 – 16:55 Health Technology Assessment (HTA)

Moderators: Susanne Muehlschlegel, MD, MPH (University of Massachusetts, Worcester, MA); J Claude Hemphill, MD, PhD (University of California, San Francisco, CA)

-15:35 – 15:55 What is HTA?

Karen L Rascati, Ph.D.

University of Texas at Austin, Austin, TX

-15:55 – 16:15 How should HTA Research be Conducted?

Karen L Rascati, Ph.D.

University of Texas at Austin, Austin, TX

-16:15 – 16:35 Statistical Methods and HTA

Stacia DeSantis, PhD

UT School of Public Health, Houston, TX

-16:35 – 16:55 HTA or Rationing: the ethics behind it

Lawrence B McCullough, PhD

Baylor College of Medicine, Houston, TX

16:55 – 17:10 Coffee Break

17:10 – 19:30 Panel Discussion: EBM, CER, and HTA in Neurocritical Care

Christiana Hall, MD (UT Southwestern, Dallas, TX); Gene Sung, MD (University of Southern California, Los Angeles, CA); Edward Manno, MD (Cleveland Clinic Foundation, Cleveland, OH); Nino Stochetti, MD (University of Milan, Italy); Susanne Muehlschlegel, MD, MPH (University of Massachusetts, Worcester, MA); J Claude Hemphill, MD (University of California, San Francisco, CA)

19:30 – 21:30 Dinner

Sunday August 17, 2014

07:00 – 08:00 Registration and Breakfast

*08:00 – 09:45 Session 3: **Research Priorities and Outcomes Research in Neurocritical Care***

Moderators: Jennifer Frontera, MD (Cleveland Clinic Foundation, Cleveland, OH); Wendy Ziai, MD (Johns Hopkins University, Baltimore, MD)

-08:00 – 08:10 Subarachnoid Hemorrhage

R Loch Macdonald, MD, PhD

University of Toronto, Toronto, ON, Canada

-08:10 – 08:20 Status Epilepticus

Jan Claassen, MD, PhD

Columbia University, New York, NY

-08:20 – 08:30 Traumatic Brain Injury

Claudia Robertson, MD

Baylor College of Medicine, Houston, TX

-08:30 – 08:40 Ischemic Stroke

Michel Torbey, MD

Ohio State University, Columbus, OH

-08:40 – 08:50 Intracerebral Hemorrhage

J Claude Hemphill, MD, PhD

University of California, San Francisco, CA

-08:50 – 09:00 Anoxic Brain Injury

David Seder, MD

Maine Medical Center, Portland, Maine

Tufts University, Boston, MA

-09:00 – 09:45 Questions & Answers

09:45 – 10:00 Coffee Break

*10:00 – 12:30 Session 4: **Research Project Presentation and Discussion*****

Moderators: Sarah Livesay, DNP, RN (UT Houston, Houston, TX); Jonathan Rosand, MD (Harvard University, Boston, MA); Daiwai Olson, PhD, RN (UT Southwestern, Dallas, TX)

-10:00 – 10:15 Project 1
-10:15 – 10:30 Questions & Answers
-10:30 – 10:45 Project 2
-10:45 – 11:00 Questions & Answers
-11:00 – 11:15 Project 3
-11:15 – 11:30 Questions & Answers
-11:30 – 11:45 Project 4
-11:45 – 12:00 Questions & Answers
-12:00 – 12:15 Project 5
-12:15 – 12:30 Questions & Answers
12:30 – 12:40 Concluding Remarks & Adjourn
12:40 Lunch

** A Review Committee will review all submitted proposals, and then will critique and grade them. The top 5 proposals will be selected for formal presentation and discussion.

Review Committee:

Chair: Jonathan Rosand, MD (Harvard University); Other members: Sarah Livesay, DNP, RN (UT Houston), Alexandros Georgiadis, MD (Baylor College of Medicine), Mauro Oddo, MD (University of Lausanne, Lausanne, Switzerland), Daiwai Olson, PhD, RN (UT Southwestern), Kevin Sheth, MD (Yale University), Fabio S Taccone, MD (Université Libre de Bruxelles, Erasme Hospital, Brussels, Belgium), Panayiotis Varelas, MD, PhD (Henry Ford Hospital).

CME/CE Credits

Accreditation

Texas Heart Institute is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation

Texas Heart Institute designates this live activity for a maximum of *10.50 AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity. This activity is designated by Texas Heart Institute for 3.75 hours of education in medical ethics and/or professional responsibility.

We also have made arrangements to provide an equal number of *CE Credits for nurses*. Physicians and nurses should only claim credit commensurate with the extent of their participation in the activity.

Child Care Facilities:

The conference and the Baylor College of Medicine have made arrangements for back-up child care for those conferees requesting it at the time of registration.

ONSITE CONTACT FOR PROBLEMS OR QUESTIONS:

Eusebia Calvillo, RN: Phone: 832.868.8331

Jose I Suarez, MD: Cell phone: 713-319-4454; E-mail: jisuarez@bcm.edu

FACULTY BRIEF BIOS

Organizing Committee:

Jose I Suarez, MD (co-Chair) is a tenured Professor of Neurology and Neurosurgery, and Head of Vascular Neurology and Neurocritical Care at Baylor College of Medicine in Houston, TX. Dr. Suarez is a nationally and internationally recognized expert in stroke and neurocritical care. Dr Suarez has authored or co-authored over 100 manuscripts in the areas of stroke and critical care neurology. Dr Suarez has received several awards including the 2007 Teaching Recognition Award from the American Academy of Neurology and the 2011 BCM Department of Neurology Teaching Award. He is a member of the Editorial Board of Stroke and Neurocritical Care and a member of the Board of Directors and co-Chair of the Research Committee and NCRN of the Neurocritical Care Society. Dr Suarez has been involved in several NIH-supported clinical trials, and participates in several study sections as a reviewer including the Brain 1 Study Section of the National American Heart Association and NSD-K Study Section (NINDS).

Peter D Leroux, MD (co-Chair) is a neurosurgeon at Main Line Health Care where he serves as the co-Director of the Brain and Spine Center. He is also Adjunct Professor of Neurosurgery at Thomas Jefferson University in Philadelphia, PA. Dr. LeRoux has been recognized with the Young Neurosurgeon Award from the World Federation of Neurosurgical Societies, the Charles A. Elsberg Fellow of the New York Academy of Medicine, and is listed in US News and World Report's Top Doctors, Best Doctors in America, Who's Who in the World, and America's Top Surgeons. He has a longstanding record in translational research in brain resuscitation and recovery, and is an internationally known expert in subarachnoid hemorrhage and traumatic brain injury management, and neurocritical care. Dr. LeRoux has performed research on robot-assisted microsurgery with the Jet Propulsion Laboratory and NASA. He is a published author of over 170 peer-reviewed manuscripts in scientific journals, is the editor of two textbooks, Management of Cerebral Aneurysms, and Monitoring in Neurocritical Care and has written the traumatic brain injury guidelines for Emergency Neurological Life Support and for the International Olympic Committee

Special Lectures:

K. Guntupalli, M.D., FCCM, FCCP, MACP is Frances K. Friedman and Oscar Friedman, MD '36 Endowed Professor for Pulmonary Disorders and Chief, Section of Pulmonary, Critical Care and Sleep Medicine, Department of Medicine at the Baylor College of Medicine in Houston, TX. She is well known and respected physician scientist in the fields of acute respiratory distress syndrome (ARDS), sepsis and physician/patient education. She is a Past President of the American College of Chest Physicians (2009-2010) and has received numerous awards including: Lifetime Achievement Award, Indian Society of Critical Care Medicine, 2010; Master of the American College of Physicians - MACP, American College of Physicians, 2008; Parker J. Palmer Courage to Teach Award, Accreditation Council for Graduate Medical Education, 2008; Distinguished Scholar in Critical Care, The CHEST Foundation, 2006; World Lung Health Award, American Thoracic Society, 2004; Barbara and Corbin J. Robinson, Jr., Presidential Award for Teaching Excellence, 2004; and the Fulbright and Jaworski Academic Excellence Award, Enduring Materials, 2004, among others. Dr Guntupalli is an active member of ARDSNET (NHLBI/NIH) and has published extensively in the areas of ARDS, sepsis, and pulmonary disorders.

Alexis Turgeon, MD, MSc (Epi) is Assistant Professor and Research Director, Division of Critical Care, Department of Anesthesiology, Faculty of Medicine, Université Laval, Associate Director Population Health-Optimal Health Practices Research Unit (Trauma-Emergency-Critical Care), CHU de Québec Research Center, Hôpital de l'Enfant Jésus, Québec City, Québec, Canada. He is the co-chair of the Grants and Manuscripts Committee of the Canadian Critical Care Trials Group (CCCTG). Dr Turgeon first graduated from Université Laval medical school in 1999 and, following residency training in Anesthesiology, he completed a master's degree in Clinical Epidemiology. He pursued training in Critical Care Medicine at the University of Ottawa along with a research fellowship at the Clinical Epidemiology Unit of the Ottawa Hospital Research Institute. He is a clinician-scientist in the Traumatology – Emergency – Critical Care Medicine Unit (Trauma – Urgence – Soins Intensifs) at the Centre de Recherche du CHU de Québec. Dr Turgeon's research program focuses on the evaluation of the neurological prognosis in critically ill patients with severe traumatic brain injury and on the comprehension of level of care decisions in neurocritically ill patients. As part of his research program and with colleagues from across Canada, he recently showed a variation in mortality in patients with severe traumatic brain injury across centers in Canada, and a variation in the incidence of withdrawal of life-sustaining therapies. He currently leads the CIHR-funded TBI-Prognosis Multicenter Prospective Study, a pan-canadian study aiming to develop a prognostic model of long-term prognosis following severe traumatic brain injury. He also leads the FRQ-S-funded TBI-Quale Study aiming to understand the determinants of the decision to withdraw life-sustaining therapies in critically ill patients with traumatic brain injury. Dr Turgeon is also involved in the use of blood products in critically ill patients, and has a strong methodological interest in systematic reviews and meta-analyses.

Stephan A Mayer, MD is Director of the new Institute for Critical Care Medicine at Icahn School of Medicine at Mount Sinai in New York, NY. He is a graduate of Brown University, received his medical degree from Cornell University Medical College in New York, and did his postgraduate medical training in neurology and neurological intensive care at the Neurological Institute of New York. Dr. Mayer is considered a world leader in the field of neurological intensive care. He has published more than 500 journal articles, books, case reports, book chapters, and abstracts. He was principal investigator of the FAST Trial, a worldwide multicenter clinical trial evaluating ultra-early hemostatic therapy for brain hemorrhage, and was director of the Columbia University Subarachnoid Hemorrhage Outcomes Project, an AHA-funded study designed to identify novel risk factors for neurocognitive impairment in patients with brain aneurysms. Dr. Mayer is also active in research related to therapeutic hypothermia, multimodality brain monitoring, noninvasive ICP monitoring, and status epilepticus. Dr. Mayer is a founding member and past-president of the Neurocritical Care Society. He is a co-author of several

textbooks, including *Therapeutic Hypothermia and Neurological and Neurosurgical Intensive Care*, which is considered the standard text in the field. His work as a neurointensivist was also recently profiled in the books *Back From the Brink* by Edward J. Sylvester and *Cheating Death* by Dr Sanjay Gupta, medical correspondent for CNN.

Walter J Koroshetz, MD has been the Deputy Director of NINDS since 2007. He works with the NINDS Director in program planning and budgeting, and oversees Institute scientific and administrative functions. Before joining NINDS, Dr. Koroshetz served as vice chair of the neurology service and director of stroke and neurointensive care services at Massachusetts General Hospital (MGH). He was also a professor of neurology at Harvard Medical School and had led neurology resident training at MGH since 1990. A native of Brooklyn, New York, Dr. Koroshetz graduated from Georgetown University and received his medical degree from the University of Chicago. He trained in internal medicine at the University of Chicago and Massachusetts General Hospital. Dr. Koroshetz trained in neurology at MGH, after which he did post-doctoral studies in cellular neurophysiology at MGH and the Harvard neurobiology department. He joined the neurology staff, first in the Huntington's Disease unit and then in the stroke and neurointensive care service. As a member of the NINDS intramural review and oversight committees, Dr. Koroshetz has been involved in various NINDS symposia and clinical trials, and served as the Institute's representative to the American Neurological Association's Career Development Symposium. He was a member of the NINDS-chaired Brain Attack Coalition (BAC), a group of professional, voluntary and governmental entities dedicated to reducing the occurrence, disabilities, and death associated with stroke.

Other Faculty (in alphabetical order)

Jan Claassen, MD, PhD is an Assistant Professor of Neurology and neurointensivist in the Division of Neurocritical Care, Department of Neurology at the Neurological Institute of New York at Columbia University. Dr Claassen is a nationally and internationally recognized expert in the treatment of neurological intensive care. He is an expert in status epilepticus and brain hemorrhages. He is the co-chair for guidelines development for the Neurocritical Care Society and a member of its Board of Directors. Dr Claassen received a PhD in neurophysiology studying evoked potentials after traumatic brain injury. He has published more than 150 journal articles, book chapters, and reviews. His research characterizes physiologic changes following acute brain injury, focusing on novel treatment approaches to potentially improve patient outcomes. He has championed the use of innovative brain monitoring techniques including continuous EEG monitoring.

Steven Clauser, PhD, MPA is the Program Director of the Improving Healthcare Systems Research Program at the Patient-Centered Outcomes Research Institute (PCORI). He is responsible for developing PCORI's research program that evaluates comparisons among alternative health system strategies to improve patient outcomes in a broad range of clinical and organizational domains. Dr Clauser is a health services and outcomes researcher with over 25 years of research management experience. His past research has focused on developing measures of patient reported outcomes, care experiences, and clinical effectiveness for use by health care organizations to track, assess, and improve the quality of care they provide to adults with cancer and other chronic diseases. Before coming to PCORI, Dr Clauser held the positions of associate director for the National Cancer Institute's (NCI) Community Oncology Research Program, as well as chief of NCI's Outcomes Research Branch. He also was co-director of NCI's Community Cancer Centers Program, where he developed and managed a variety of research projects related to system strategies to improve cancer care delivery, including methods to increase adherence to evidence based practice and models of multidisciplinary treatment planning for patients requiring

multi-modal cancer treatment. He has expertise in a broad range of research methodologies used for assessing patient reported outcomes and quality improvement programs.

Stacia DeSantis, PhD, is an Associate Professor of Biostatistics at UT Houston School of Public Health. Dr. DeSantis has a special interest and considerable expertise in Bayesian methods of statistical analysis. Dr. DeSantis has applied this expertise as a collaborator on multiple research projects. She currently serves as Co-PI on a NIH/NIAAA R03 research project and as a Co-Investigator on more than 20 additional NIH research projects. Dr. DeSantis is active in scientific societies related to her discipline, has made multiple presentations at regional and national meetings.

Jennifer Frontera, MD is a neurointensivist and Assistant Professor of Neurology at the Cleveland Clinic Foundation and the Lerner College of Medicine at Case Western Reserve University in Cleveland, OH. Dr Frontera is well respected in the field of NCC and is a Board Member of NCS. Her main areas of research interest include: neurointensive care; cerebrovascular diseases, subarachnoid, intracerebral or subdural hemorrhage.

Alexandros Georgiadis, MD is an Assistant Professor of Neurology at the Baylor College of Medicine and a neurointensivist at the St Luke's Medical Center in Houston, TX. He has received training in Neurology, Vascular Neurology, Neurocritical Care, and Endovascular Neurology. His main areas of research interest are acute ischemic stroke interventions and intracranial hemorrhage. He is one of the main investigators for the NCRN-supported Point Prevalence Study in Neurocritical Care (PRINCE).

J Claude Hemphill, MD, PhD is Professor of Neurology and Neurological Surgery at the University of California, San Francisco and Director of Neurocritical Care at San Francisco General Hospital. His research focuses on advanced neuromonitoring and management of intracerebral hemorrhage. He is the principal investigator for the San Francisco site of the NIH-sponsored Neurological Emergencies Treatment Trials network and is currently conducting clinical trials of neuroprotection in traumatic brain injury and ischemic stroke as well as prehospital treatment for status epilepticus. He serves as the President of the Neurocritical Care Society and is a member of editorial board of *Neurocritical Care*.

Christiana Hall, MD is an Associate Professor of Neurology & Neurotherapeutics, and Neurological Surgery, and Director of NCC at UT Southwestern University, Dallas, TX. Dr Hall's main areas of research interest are cerebrovascular disease, brain injury, and diabetes. She is the co-PI for the NINDS-funded randomized-controlled SHINE clinical trial.

Sara L Livesay, DNP, RN, CNS-A, ACNP-BC is an Assistant Professor of Nursing at the University of Texas in Houston, TX. Field Staff Disease Specific Care at The Joint Commission. She was the former System Director Service Line Development at the St Luke's Episcopal Health System in Houston, TX. Dr Livesay's main areas on interest are clinical outcomes in neurocritical care, neurocritical care nursing, and systems of care of acute ischemic stroke.

R Loch Macdonald, MD, PhD is Scientist in the Keenan Research Centre of the Li Ka Shing Knowledge Institute of St. Michael's Hospital, Professor, Surgery/Neurosurgery, University of Toronto, Division Head, Neurosurgery, St. Michael's Hospital, and the Keenan Endowed Chair, Surgery at St. Michael's Hospital. Dr Macdonald's main areas of research interest include: Subarachnoid hemorrhage, cerebral vasospasm, cerebral blood flow and metabolism, stroke, cerebral aneurysms. His research has been of high impact and contributed to furthering our knowledge in cerebral blood flow and subarachnoid hemorrhage. He served in the steering committee and liaison between steering and critical events

committees, CONSCIOUS-3: A prospective, multi-centre, double-blind, randomized, placebo-controlled, parallel-group study to assess the efficacy and safety of clazosentan in reducing vasospasm-related morbidity and all-cause mortality in adult patients with aneurysmal subarachnoid hemorrhage treated by endovascular coiling.

Edward Manno, MD is Head of Neurocritical Care at the Cleveland Clinic, Cleveland, Ohio. He is board-certified in neurology and vascular neurology, and certified in neurocritical care through the United Council of Neurological Subspecialties. Dr. Manno's research focuses on vascular neurology and neurocritical care; he has been section chairman of neurocritical care for the American Academy of Neurology and the Society of Critical Care Medicine, and is a founding member of the Neurocritical Care Society. He trained in internal medicine and neurology at the University of Pennsylvania, Philadelphia, Pennsylvania, and was a neurocritical care fellow at Massachusetts General Hospital, Boston, Massachusetts; before joining the Cleveland Clinic, Dr. Manno was Associate Professor of Neurology at the Mayo School of Medicine, Rochester, Minnesota.

John Marshall, MD is a scientist in the Keenan Research Centre of the Li Ka Shing Knowledge Institute of St. Michael's Hospital, Professor of Surgery, Surgery/General Surgery, University of Toronto, and Director of Research, Critical Care Medicine, St. Michael's Hospital in Toronto, ON, Canada. In addition, he is Chair, Canadian Critical Care Trials Group Chair, International Forum for Acute Care Trialists (InFACT), Past-Chair, International Sepsis Forum, and Member, Grants Review Panel, CIHR Experimental Medicine.

Laurence B McCullough, PhD, is the associate director for Education and inaugural holder (since May 2008) of the Dalton Tomlin Chair in Medical Ethics and Health Policy in the Center for Medical Ethics and Health Policy, Baylor College of Medicine, where is he also professor of Medicine and Medical Ethics. Dr. McCullough is also a professor of Family and Community Medicine at BCM and faculty associate of Baylor's Huffington Center on Aging. Dr. McCullough has published 370 papers in the peer-reviewed medical and bioethics literature. In addition, he has published 50 original chapters in scholarly books and more than 100 chapters in medical textbooks.

Renee Martin, PhD is an Assistant Professor Department of Biometry and Epidemiology, Medical University of South Carolina, Charleston, SC. She obtained her Ph.D. in Biostatistics from the same university in 2001. She is a member of the American Statistical Association, American Stroke Association and Society for Clinical Trials. She has participated as the principal biostatistician or biostatistician co-investigator in several NIH-funded studies including ALISAH, ALIAS, ATCAH, and ATCAH II. She has ten years' experience in clinical trials and has conducted extensive research on statistical methodology to manage missing data. Therapeutic areas of expertise: GAD, PTSD, Stroke. Research Interests: Missing Data Techniques.

Susanne Muehlschlegel, MD, MPH is an Assistant Professor of Neurology at the University of Massachusetts School of Medicine in Worcester, MA. Dr. Muehlschlegel completed clinical training in neurology, vascular neurology and neurocritical care, and obtained additional research training through the completion of the Harvard School of Public Health Summer Program for Clinical Effectiveness and Masters of Public Health Program, with a focus in Clinical Effectiveness. Her work has been funded by the American Heart Association Scientist Development Grant, and the 2010 Worcester Research Foundation, and was the PI for a feasibility trial of Dantrolene after subarachnoid hemorrhage. In addition, Dr Muehlschlegel is supported by the University of Massachusetts Medical School (UMASS) Faculty Scholar award (to support women in research during times of increased family responsibilities),

and is currently investigating ways of improving the outcome prognostication of moderate-severe traumatic brain injury admitted to the neurointensive care unit.

Aanand D Naik, MD is an Associate Professor, Department of Medicine, Section of Health Services Research, at the Baylor College of Medicine and Adjunct Assistant Professor, Division of Health Promotion and Behavioral Sciences, School of Public Health, University of Texas Health Sciences Center at Houston. Dr Naik is and Investigator, Health Decision-Making & Communication Program and Chief, Education & Training Core, Center for Innovations in Quality, Effectiveness and Safety, Michael E. DeBakey VA Medical Center in Houston, TX. He is a thought leader on the utility of CER as well as patient-centered care. Dr Naik is a Clinical Research Scientist at the Dan L. Duncan Cancer Center at BCM - Prevention and Population Sciences Program, and presently receives federal funding from Department of Veterans Affairs, NIH, and Agency for Healthcare Quality and Research.

Mauro Oddo, MD is an Assistant Professor in the Faculty of Biology and Medicine at the University of Lausanne and an intensivist at the Department of Intensive Care Medicine at Lausanne University Hospital, Switzerland. He has received several awards including the 2008 SCCM Annual Scientific Award and the Clinical Research Award, European Critical Care Research Network, European Society of Intensive Care Medicine (ESICM). He is currently the Head of the Neurointensive Care Section of ESICM and is funded by the Swiss National Science Foundation.

Daiwai Olson, PhD, RN is an Associate Professor of Neurology & Neurotherapeutics and Neurosurgery at the University of Texas Southwestern in Dallas, TX. Dr Olson is very well known and respected in the field of neurocritical care and neurocritical care nursing. Dr. Olson is the principal investigator for clinical studies that seek to measure the impact of nursing care on critically ill patients. He is a member of the Board of Directors and the Executive Committee of the Neurocritical Care Society.

Karen L Rascati, PhD is the Stewart Turley/Eckerd Corporation Centennial Endowed Professor of Health Outcomes & Pharmacy Practice at the University of Texas at Austin, TX. Dr. Rascati's research interests include economic and outcomes evaluations for several disease states as well as for pharmacy services. She has conducted over 35 funded research projects and has served on various grant review panels. She serves as a reviewer for many research journals and is a member of the *Clinical Therapeutics* Editorial Advisory Board. She has authored or co-authored more than 90 publications (including five textbook chapters) and more than 100 national and international presentations. Her textbook, *Essentials of Pharmacoeconomics* was published in 2008, and was translated into Portuguese in 2009. In addition, she received the 2009 University of Texas Hamilton Runner-up Book Award

Claudia S Robertson, MD is Professor of Neurosurgery at the Baylor College of Medicine and the director of the Center for Neurosurgical Intensive Care at Ben Taub General Hospital in Houston, TX. She has received numerous awards including the Lifetime Achievement Award from the Texas Brain Injury Association in 2004. Her areas of research are mechanisms of brain damage and neuroprotection following traumatic brain injury, and cerebral blood flow physiology. She is the principal investigator in the NIH-funded Vascular Mechanisms of Secondary Insults in Severe Brain Injury Project (USPH PO1 NS38660). She is also the co-director of a \$33 million-dollar consortium from DOD to study mild traumatic brain injury. She was also a co-investigator in the NINDS-funded Ethical Issues in Emergency Medicine Study (R01-NS40479).

Jonathan Rosand, MD, MSc is a Professor of Neurology at the Harvard Medical School, Director of the Division of Neurocritical Care, Massachusetts General Hospital, and Director of the Neuroscience

Intensive Care Unit at Mass General, and Faculty Member at Center for Human Genetics Research (CHGR). Dr Rosand uses clinical, neuroimaging and genetic characterization of patients with stroke in order to improve understanding of the risk and clinical course of cerebrovascular disease. In addition to his broad-based genetic studies, Dr Rosand continues to enroll patients with hemorrhagic and ischemic stroke in longitudinal studies of stroke outcome. All of his efforts involve collaborations with other groups, within the Department of Neurology, the Center for Human Genetic Research, the Broad Institute, and the Martinos Center for Biomedical Imaging, as well as within the International Stroke Genetics Consortium.

David Seder, MD is Associate Program Director, Pulmonary & Critical Care Medicine Fellowship Medical Director, Neurocritical Care Maine Medical Center and Assistant Professor of Medicine Tufts University School of Medicine in Boston, MA. Dr Seder is a member of the NCS Board of Directors and his main areas of research interest include: outcomes following anoxic brain injury, TBI, and ischemic stroke.

Kevin Sheth, MD is an Associate Professor of Neurology and of Neurosurgery, Division Chief of Neurocritical Care and Emergency Neurology, Director of the Neuroscience ICU, and Chief of Clinical Research in the Department of Neurology at Yale University. Dr Sheth's main areas of interest are brain edema, ischemic stroke, and outcomes of neurocritically-ill patients. He was the PI for the highly successful GAMES-Pilot Study in patients with large infarction and is now the PI for the phase II GAMES-RP study. He was also the PI for the multicenter Prognosis in Intracerebral Hemorrhage (PICH) study, evaluating prognosis formation and communication in patients with ICH. He co-chaired the AHA Scientific Statement on the management of large hemispheric infarction with swelling. He serves on several editorial boards including *Neurosurgery* and *Neurocritical Care*, has served on NIH and NASA study sections, and served as a mentor for career development awards.

Lori Shutter, MD is a neuro-intensivist at the University of Pittsburgh School of Medicine, where she was appointed as Visiting Professor, Department of Critical Care Medicine in July, 2012. She holds secondary appointments in the Departments of Neurology and Neurosurgery. She is the Program Director for the Neurocritical Care Fellowship, and Co-Director of the Neurovascular Intensive Care Unit. Dr. Shutter's research focus is the area of traumatic brain injury and advanced monitoring in neurocritical care. She participated in development of the Brain Trauma Foundation's Guidelines for Management of Severe Traumatic Brain Injury (2007), the Neurocritical Care Society's Guidelines on Medical Management of Subarachnoid Hemorrhage (2011) and Management of Status Epilepticus (2012). In recognition of her clinical practice, she was a 2008 recipient of the Leonard Tow Humanism in Medicine Award, presented by the Arnold P. Gold Foundation.

Nino Stocchetti, MD is the Director of Neurocritical Care and Professor of Anesthesiology and Resuscitation at the Istituto di Anestesia e Rianimazione - Università degli Studi di Milano, Italy. He is a respected international investigator in TBI research. Dr Stocchetti is an Honorary Member of NCS and a member of the Advisory Board of the International Mission for Prognosis and Analysis of Clinical Trials in TBI (IMPACT). He is the author and co-author of more than 194 manuscripts, as well as over 24 book chapters. His research focuses in the fields of physiopathology of secondary cerebral damage, intracranial pressure monitoring and control, cerebral blood flow in head trauma.

Gene Sung, MD is an Assistant Professor of Neurology and chief of the Division of Stroke and Neurocritical Care at University of Southern California. Dr Sung is a recognized leader in both fields of stroke and neurocritical care. He was a founding member of both the international Neurocritical Care

Society (and its immediate Past President) and the Western States Stroke Consortium (and its current President). He is also a founder of the journal Neurocritical Care and its current associate editor.

Fabio S Taccone, MD is an intensivist at the Erasme Hospital and Assistant Professor of Critical Care Medicine at the Free University of Brussels in Brussels, Belgium. Dr Taccone's main areas of research interest are cerebral microcirculation in sepsis and outcomes in the neurocritically-ill patients. He is well respected internationally and is a frequent speaker at the major international critical care venues. He is currently the Deputy for the neurocritical section of ESICM.

Michel Torbey, MD, MPH, is Professor of Neurology and Neurological Surgery, Vice Chair of Hospital Affairs and Director, Division of Cerebrovascular Diseases & Neurocritical Care Medical Director, OSU Neurovascular Stroke Center in Columbus, OH. Dr Torbey is the PI for the OSU NINDS-funded NETT and Stroke Research Network. In addition, he serves as an Officer for the NCS.

Panayiotis N Varelas, MD, PhD is currently the Director of the Neurosciences Intensive Care Unit at Henry Ford Hospital in Detroit, MI, the Neurosciences Intensive Care Unit at Henry Ford West Bloomfield Hospital in West Bloomfield, MI and an Associate Professor of Clinical Neurology at Wayne State University. Dr. Varelas has published more than 60 peer reviewed journal articles, 1 book about seizures in the ICU (currently in 2nd Edition), more than 15 book chapters, and 85 abstracts in National and International Meetings. He is participating in several federal or industry research grants and is an ad hoc reviewer for many journals, including Critical Care Medicine, Neurocritical Care, Stroke, Neurosurgery and Neurology. His research interests and grants focus on intracranial bleeds (intracerebral and subarachnoid), seizures in the ICU, myasthenic crises and brain death determination.

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