

"...brains and hearts too good to die"

Peter Safar, M.D.

# 10th Annual Safar Symposium

June 27-28, 2012

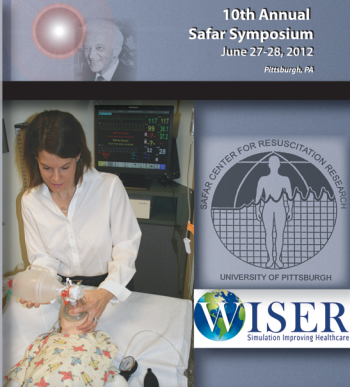
Pittsburgh, PA

## ACKNOWLEDGEMENTS

The Laerdal Foundation  
Department of Anesthesiology  
Department of Critical Care Medicine  
Department of Emergency Medicine  
Department of Physical Medicine & Rehabilitation  
University of Pittsburgh School of Medicine / UPMC



[www.safar.pitt.edu](http://www.safar.pitt.edu)



10th Annual Safar Symposium  
**Multi-Departmental Trainees' Research Day**  
**June 27, 2012**

Location: University Club, Ballroom B-123 University Place

- 9:30 – 10 a.m. Registration and **Poster Setup**
- 10 – 10:15 a.m. Welcome—**Patrick Kochanek, MD, MCCM**  
Director, Safar Center
- 10:15 – noon Poster Presentations
- noon – 2:00 p.m. **Guest speaker during lunch**
- 1 – 1:45 p.m.** **Carol Nicholson, MD, MS, FAAP,**  
**National Institute of Child Health and Human Development**  
**(NICHD)/NIH**  
***"Career Development Thoughts and Strategies for***  
***Clinician Scientists"***
- 2 – 3:30 p.m. **Trainees' Oral Presentations**
- Moderators: **Amy K. Wagner, MD**  
Associate Professor, Physical Medicine and Rehabilitation  
University of Pittsburgh School of Medicine  
**Yan Xu, PhD**  
Professor of Anesthesiology, Pharmacology and Chemical  
Biology, and Structural Biology  
Vice Chairman for Basic Sciences  
Department of Anesthesiology  
University of Pittsburgh School of Medicine
- 3:30 – 4:00 p.m. **Abstract judges meeting**
- 4 – 4:30 p.m. **Awards Presentation and Concluding Remarks**

10th Annual Safar Symposium

## Multi-Departmental Trainees' Research Day

June 27, 2012

Location: University Club, Ballroom B-123 University Place



**Carol E. Nicholson, MS, MD, FAAP** is director of the Pediatric Critical Care and Rehabilitation Research Program at the Eunice Kennedy Shriver National Center for Medical Rehabilitation Research, National Institute of Child Health and Development (NICHD), one of the National Institutes of Health. She is project scientist for the Collaborative Pediatric Critical Care Research Network (CPCCRN), a national network funded by NICHD to provide research support for the benefit of critically ill and injured children and their families. She is a fellow of the

American Academy of Pediatrics holding board certifications from the American Board of Pediatrics in General Pediatrics and Pediatric Critical Care Medicine. Her experience includes work in acute and critical care pediatrics and general pediatric practice. Her research interests include translating basic science findings into meaningful research and therapies in the pediatric intensive care unit, the search for prognostic outcome indicators in critically ill children, and descriptive scientific evaluation of the biology, pathophysiology, and psychopathology of pediatric critical illness and the special needs of children with complex illnesses. She graduated from medical school at the University of Southern California, completed a pediatric internship at Los Angeles County/University of Southern California, residency at the University of California at San Diego, and a pediatric critical care fellowship at Children's Hospital of Los Angeles.

She began her research career in genetics and birth defects, then prenatal diagnosis, and the epidemiological concerns arising from the introduction of the rubella vaccine. She received an MS in child development nursing, and was instrumental in developing Child Development Service and Suspected Child Abuse and Neglect teams. She was a founder of the Interagency Committee on Child Abuse and Neglect, a system of organizing evaluation and research in child abuse in use across the United States. Of the three research proposals written in her last year before medical school, two were funded. Her research experience has included project management of a large component of the REDS project, an NHLBI study evaluating the pathophysiology of human HTLV-1, as well as the pathogen's epidemiology in the United States transfusable blood supply. After coming to the NIH in 2001, she obtained funding for and convened a national experts' conference on "Inflicted Childhood Neurotrauma," a modified evidence-based conference about a complex and understudied problem. The resultant monograph, published by the American Academy of Pediatrics was released in 2003.

Since coming to the NIH ten years ago, she has been instrumental in obtaining major research funding set asides, and support for investigator-initiated work in pediatric critical care and rehabilitation research. The innovative program was designed to study all aspects of pediatric critical care with priority for studies that provide science contributing to improvement of long-term outcomes for children with special needs after serious illness/injury. Using funding from the Department of Health and Human Services National Vaccine Program Office, she was named PI of the Critical Pertussis Study, a national effort executed in the CPCCRN. It is the largest real-time prospective cohort study of this persistent child killer, ever assembled.

Carol's passion for science and medicine has been life-long. The need for research to provide a scientific basis for acute and critical care practice as linked to family effects and disabling residua in children with complex illnesses is urgent, and Dr. Nicholson welcomes the opportunity to help those with the same aspirations.



# June 28, 2012

## Morning Session

**Location: Starzl Biomedical Science Tower**  
**200 Lothrop Street-South-Room S100**

7:45 a.m. Continental Breakfast

8:15 – noon ***“Breakthroughs in Resuscitation: Pediatric Issues”***

8:15 – 8:20 a.m. **Opening Comments–Morning Session**

**Patrick M. Kochanek, MD, MCCM**

Professor and Vice Chair, Department of Critical Care Medicine;  
 Director, Safar Center for Resuscitation Research, University of  
 Pittsburgh School of Medicine

**Moderators: Cameron Dezfulian, MD**

Assistant Professor, Department of Critical Care Medicine,  
 University of Pittsburgh School of Medicine

**Anthony E. Kline, PhD**

Associate Professor, Physical Medicine and Rehabilitation,  
 Psychology, and Center for Neuroscience, University of Pittsburgh  
 School of Medicine

8:20 – 8:50 a.m. **Robert A. Berg, MD, FCCM, FAHA, FAAP**

Russell Raphaely Endowed Chair of Critical Care (CCM)  
 Division Chief, CCM, The Children's Hospital of Philadelphia,  
 Professor of Anesthesiology and Critical Care Medicine,  
 The University of Pennsylvania Perelman School of Medicine  
**Topic: “New Developments in Pediatric CPR: Saving More Lives”**

8:50 – 8:55 a.m. Discussion

8:55 – 9:25 a.m. **Cecil D. Hahn, MD, MPH**

Division of Neurology, The Hospital for Sick Children  
 Associate Scientist, Neurosciences and Mental Health Program,  
 The Hospital for Sick Children Research Institute; Assistant  
 Professor of Paediatrics (Neurology), University of Toronto  
**Topic: “Continuous EEG Monitoring in Children with Acute  
 Brain Injury”**

9:25 – 9:30 a.m. Discussion

9:30 – 9:45 a.m. Break

9:45 – 10:10 a.m. **Vesna Jevtovic-Todorovic, MD, PhD, MBA**

Harold Carron Professor of Anesthesiology and Neuroscience,  
 University of Virginia School of Medicine  
**Topic: “General Anesthesia and the Developing Brain: Is  
 There a Cause for Concern?”**

10:10 – 10:15 a.m. Discussion

10:15 – 10:40 a.m. **Linda Ewing-Cobbs, PhD**

Professor of Pediatrics and Psychiatry and Behavioral Sciences  
 Director, Dan L. Duncan Children's Neurodevelopmental Clinic  
 at the Children's Learning Institute, University of Texas Health  
 Science Center at Houston

**Topic: “Application of Neuroimaging Findings to Pediatric  
 Traumatic Brain Injury”**

10:40 – 10:45 a.m. Discussion

10:45 – 11:10 a.m. **Ashok Panigrahy, MD**

Radiologist-in-Chief, Associate Professor of Radiology  
 Children's Hospital of Pittsburgh of UPMC, Department of  
 Radiology

**Topic: “Innovative Neuroimaging Biomarkers of Pediatric  
 Hypoxic-ischemic Brain Injury”**

11:10 – 11:15 a.m. Discussion

11:15 – 11:35 a.m. **Jing Ji, MD, PhD**

Research Fellow, Safar Center for Resuscitation Research,  
 University of Pittsburgh School of Medicine

**Topic: “Neuroprotective Effects of Mitochondria-Targeted  
 Nitroxide after Traumatic Brain Injury”**

11:35 – 11:40 a.m. Discussion

11:40 – 11:45 a.m. **Presentation of the 10th Nancy Caroline Fellowship Award**

Presented by Patrick M. Kochanek, MD, MCCM

11:45 – noon Break

noon – 12:05 p.m. Introduction of the *Safar Lecture*–John P. Williams, MD

12:05 – 12:10 p.m. Introduction of the *Safar Lecturer*–Patrick M. Kochanek, MD

**12:10 – 12:50 p.m. 32nd Annual Safar Lecture – Gabriel G. Haddad, MD**

12:50 – 1 p.m. Questions and Discussion

1 – 1:45 p.m. Reception–Foyer

### The 32nd Peter and Eva Safar Annual Lectureship in Medical Sciences and Humanities

**Guest Speaker: Gabriel G. Haddad, MD**

Professor of Pediatrics and Neuroscience,  
 Chair of Pediatrics, University of California, San Diego; Physician-in-  
 Chief and Chief Scientific Officer, Rady Children's Hospital, San Diego

**Topic: Tolerance and Susceptibility to Hypoxia: New Lessons from  
 Vertebrate and Invertebrate Model Systems**



# June 28, 2011

## Afternoon Session

Location: WISER, 230 McKee Place, Suite 300

2 – 5:05 p.m. ***“Simulation – Spanning the Spectrum of Technology”***

2 – 2:05 p.m. **Opening Comments–Afternoon Session**

**Paul E. Phrampus, MD**

Director, Winter Institute for Simulation, Education and Research (WISER), University of Pittsburgh, Associate Professor of Emergency Medicine and Anesthesiology, University of Pittsburgh School of Medicine

**Moderators: Paul E. Phrampus, MD**

2:05 – 2:25 p.m. **Douglas A. Nelson, BS**

Graduate Student Researcher and Teaching Assistant, University of Pittsburgh Simulation and Medical Technology R&D Center

**Joseph T. Samosky, PhD**

Director, Simulation and Medical Technology R&D Center, Assistant Professor of Anesthesiology and Bioengineering, University of Pittsburgh

**Topic: “An Introduction to Current Research of the Pitt Simulation and Medical Technology R&D Center: Enhancing Simulator Capabilities with Sensors, Autonomous Responses and Augmented Reality”**

2:25 – 2:30 p.m. Discussion

2:30 – 2:55 p.m. **J. Hurley Myers, PhD**

Emeritus Professor of Physiology and Medicine, Southern Illinois University School of Medicine, Carbondale, IL  
President and CEO, DxR Development Group, Inc., Carbondale, IL

**Topic: “Improving Clinical Competence Using Patient Simulations”**

2:55 – 3 p.m. Discussion

3:00 – 3:15 p.m. Coffee Break

3:15 – 3:40 p.m. **John M. O'Donnell, CRNA, MSN, DrPH**

Director and Associate Professor, University of Pittsburgh Nurse Anesthesia Program

**Topic: “Development of a Fiberoptic Bronchoscopy Simulation Course: Mastery Learning in Action”**

3:40 – 3:45 p.m. Discussion

3:45– 4:10 p.m.

**Gene McDaniel, BS**

Captain / Paramedic; Phoenix Fire Department

**Topic: “Simulation Training for Fire and EMS”**

4:10 – 4:15 p.m.

Discussion

4:15 – 5 p.m.

**Tour Session of the Pitt Simulation and Medical Technology R&D Center (SimlMedlTech Center)**

5 – 5:05 p.m.

Concluding Comments –

**Paul E. Phrampus, MD**

**Patrick M. Kochanek, MD, MCCM**



10th Annual Safar Symposium  
June 28, 2011  
**Morning Session Speakers**  
**"Breakthroughs in Resuscitation:  
Pediatric Issues"**

Location: Starzl Biomedical Science Tower,  
200 Lothrop Street—South-Room S100



**Dr. Robert Berg** is The Russell Raphaely Endowed Chair of Critical Care and Chief of Critical Care Medicine at The Children's Hospital of Philadelphia. Dr. Berg has been an active laboratory cardiac arrest and CPR investigator for over twenty years, focusing on many preclinical, translational issues including CPR hemodynamics, hands-only CPR, numerous pharmacologic agents during CPR and after resuscitation, the benefit of immediate pre-shock and immediate post-shock chest compressions, post-arrest myocardial dysfunction, VF waveform analyses, and defibrillation in adult, pediatric, and neonatal swine models. He has investigated CPR quality in piglet models, adult swine models, as well as children and adults. Dr. Berg has provided research mentorship for >100 trainees and young faculty members in both the CPR laboratory setting and in the clinical research arena. He is Chairman of the American Heart Association's Get-With-Guidelines-Resuscitation (GWTG-R) committee (formerly known as NRCPR), and is a past the American Heart Association's PALS and BLS committees.

He is the senior author of the only randomized, controlled trial of any intervention for pediatric in-hospital cardiac arrests (NEJM 2004), the largest series of in-hospital pediatric cardiac arrests (JAMA 2006), and the two largest series of pediatric ventricular fibrillation (NEJM 2006), and the largest series of out-of-hospital pediatric cardiac arrests (Lancet 2010 and Circulation 2009). He has published more than 230 peer-reviewed articles on cardiac arrest, CPR, and defibrillation, and more than 25 book chapters. He has received numerous national and international honors, highlighted by being the 2006 recipient of the American Heart Association's Resuscitation Science Symposium's Lifetime Achievement Award as a Cardiac Resuscitation Scientist, and in 2010 being honored by the International Liaison Committee on Resuscitation as a "Giant" in CPR.



**Dr. Cecil Hahn** is a clinician-investigator in the Division of Neurology at The Hospital for Sick Children, with expertise in paediatric neurocritical care and epilepsy. Dr. Hahn directs the ICU continuous EEG monitoring program at SickKids, and has led the implementation of clinical guidelines for EEG monitoring. His research group has recently validated the use of quantitative EEG tools for seizure identification in the ICU. He is the principal investigator of a prospective study of nonconvulsive seizures among comatose children in the ICU, whose goals are to measure the prevalence of nonconvulsive seizures, characterize patients at risk for nonconvulsive seizures, and measure the impact of these seizures on functional and neuropsychological outcomes. Dr. Hahn's research is funded by the Canadian Institutes of Health Research, the SickKids Foundation and the PSI Foundation.



**Dr. Jevtic-Todorovic** received her MD degree from the University of Belgrade School of Medicine in Yugoslavia; her PhD degree in pharmacology from the University of Illinois School of Medicine in Chicago, IL, and her MBA degree from the Darden Graduate School of Business at the University of Virginia in Charlottesville, Va. She currently holds the title of Harold Carron Professor of Anesthesiology and Neuroscience at the University of Virginia. Her research interests have been focused on the neurotoxic effects of anesthesia on the mammalian brain, especially during early stages of development. Her research is currently funded by the NIH and the March of Dimes.



**Dr. Linda Ewing-Cobb** is a professor in the Children's Learning Institute and director of the Dan L. Duncan Children's Neurodevelopmental Clinic at the University of Texas Health Science Center at Houston. She received her graduate degrees in clinical neuropsychology from the University of Houston. Since that time, she has served as the principal investigator or co-investigator on several grants funded by the National Institutes of Health that involve neuropsychological assessment of a variety of outcomes following brain injury in infants, children, and adolescents. She is a co-investigator and outcome assessment expert for clinical trials that range from examining efficacy of autologous bone marrow mononuclear cell therapy for pediatric and adult traumatic brain injury to examining different interventions for children with combined ADHD and reading difficulty to examining nutritional supplementation to reduce sepsis in infants. She has authored or co-authored over 100 research articles and book chapters in the area of child neuropsychology and has served on the editorial board of several journals and national research review panels.





**Dr. Ashok Panigrahy** graduated from Boston University in 1992 with a Bachelor of Arts degree in political science. He graduated from Boston University School of Medicine in 1998, during which he spent two years as a Howard Hughes Research Fellow at Boston Children's Hospital in developmental neuroscience. He went on to diagnostic radiology residency at UCLA School of Medicine, where he was chief resident and received the RSNA Roentgen Resident Award. He completed his neuroradiology fellowship in 2003 at UCLA and a pediatric neuroradiology/pediatric radiology fellowship at Children's Hospital Los Angeles in 2004, where he continued as an assistant professor and Director of MR/CT imaging for five years. About three years ago, he was recruited to Children's Hospital of Pittsburgh of UPMC as radiologist-in-chief and associate professor. His two major areas of research interests include using advanced neuroimaging techniques to study fetal/neonatal brain injury and pediatric brain tumors.

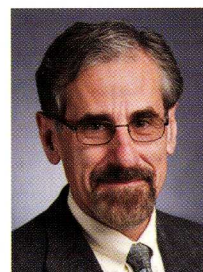


**Dr. Jing Ji**, after finishing Medical College of Nanjing University, Nanjing, China, worked as a neurosurgeon at Nanjing Drum Town Hospital Affiliated with Nanjing University. Then, he obtained his masters in cell and molecular biology at NEOMED in OH and received his PhD while working at the Safar Center at the University of Pittsburgh under the mentorship of Drs. Valerian E. Kagan and Hülya Bayır. Dr. Jing has been working with Drs. Kagan and Bayır in in vitro and in vivo models of traumatic brain injury and cerebral ischemia to decipher the specific role of mitochondrial reactive oxygen species in signaling neuronal death.

## The 32nd Peter and Eva Safar Annual Lectureship in Medical Sciences and Humanities

**Guest Speaker:** **Gabriel G. Haddad, MD**  
**Professor of Pediatrics and Neuroscience,**  
**Chair of Pediatrics, University of California, San Diego**  
**Physician-in-Chief and Chief Scientific Officer,**  
**Rady Children's Hospital, San Diego**

**Topic:** **Tolerance and Susceptibility to Hypoxia: New Lessons  
From Vertebrate and Invertebrate Model Systems**



**Gabriel G. Haddad, MD** is the physician-in-chief and chief scientific officer at Rady Children's Hospital and the chairman of the Department of Pediatrics at the University of California, San Diego. UCSD's Department of Pediatrics and Children's Hospital are affiliated programs, with most of UCSD's pediatric training and inpatient care based at Children's Hospital. He is a leading specialist in pediatric respiratory medicine and an accomplished physician-scientist. He is passionate about developing better care through research. In recent years his research has focused on the basis for cell and tissue injury at the molecular level when tissues and organs are deprived of nutrients and oxygen.

He leads the development of a comprehensive strategic research plan at Rady Children's with a goal of ensuring San Diego's place on the national map as a leading center for children's health and research.

Dr. Haddad came from the Albert Einstein College of Medicine in New York, where he served as the Chairman of the Department of Pediatrics, and also as Pediatrician-in-Chief at The Children's Hospital at Montefiore Hospital.

He has published over 225 articles and manuscripts, written over 90 chapters, and authored numerous medical texts including the landmark Basic Mechanisms of Pediatric Respiratory Disease. He sits on numerous national committees such as the National Heart Lung and Blood Institute, and is a member of 18 distinguished medical societies, many in a leadership role. Dr. Haddad has held numerous editorial appointments, is a reviewer for 27 respected medical journals, is the recipient of numerous awards and honors, and has been invited to speak at over 150 national and international conferences.

Dr. Haddad received his medical education and initial medical training at the American University of Beirut in Lebanon, followed by additional training at University of Texas in Houston. He then moved to Columbia University in New York to do his fellowship before joining the faculty in 1978. Ten years later he accepted an appointment at Yale to direct the Respiratory Medicine Section and serve as chief of clinical service in respiratory medicine, and became a professor of cellular and molecular physiology shortly thereafter at the same institution. He was appointed chairman at Albert Einstein in 2002.

Dr. Haddad is married and the father of three children.



## Afternoon Session Speakers

### "Simulation: Spanning the Spectrum of Technology"

Location: WISER, 230 McKee Place, Suite 300



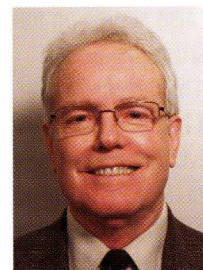
**Douglas A. Nelson** is a graduate student researcher and teaching assistant at the University of Pittsburgh Simulation and Medical Technology R&D Center where he is working on his PhD in bioengineering. Douglas received a BS in both bioengineering and applied mathematics from the University of Pittsburgh. His research includes advanced interaction methods and natural user interfaces for medical training applications, 3D tracking technologies, gesture-based interfaces, methods to incorporate intelligent tutoring systems into medical training and novel performance assessment metrics. Doug is the recipient of the 2012 Carnegie Science Center University Student award, honoring innovation in science and technology.



**Dr. Joseph T. Samosky** is the founding director of the Simulation and Medical Technology R&D Center at the University of Pittsburgh, where he is assistant professor of anesthesiology and bioengineering. The SimMedTech Center is a design and engineering innovation center whose mission is to invent next-generation enabling technologies for simulation-based healthcare training and to develop new, "smart" medical devices. He received his PhD in medical engineering from the Massachusetts Institute of Technology, training in the joint Harvard-MIT Division of Health Sciences and Technology. He holds a master's degree in electrical engineering and computer science from MIT and bachelor's degrees in behavioral neuroscience and electrical engineering from the University of Pittsburgh.

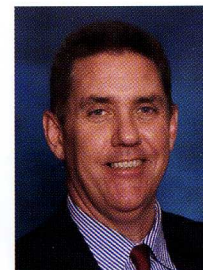
Dr. Samosky has been engaged in research in simulation, computer graphics and medical imaging for over 20 years. At MIT his research included the development of a simulator of arthroscopic knee surgery, a 3D visualization system for medical images, and methods for the noninvasive MRI-based measurement of the mechanical properties of articular cartilage. His current research focuses on the user-centric design and engineering of real-time interactive systems that enhance learning and improve patient care and safety. Before joining the University of Pittsburgh, he was a researcher and systems engineer with the Simulation Group at the Center for the Integration of Medicine and Innovative Technology at Massachusetts General Hospital and an instructor at Harvard Medical School. He is coinventor and former systems engineer of the Combat Medic Training System (COMETS, commercialized by CAE Healthcare as the CAE Caesar

simulator), an interactive, sensor-enhanced full-body autonomous simulated trauma patient that supports field training in casualty care. Dr. Samosky and Douglas Nelson, with their co-researchers Brandon Mikulis and Russell Bregman received the first place award for Technology Innovation at the 2012 International Meeting on Simulation in Healthcare for their development of a novel intravenous drug recognition system for medical simulators based on direct fluid identification.



**Dr. J. Hurley Myers** is emeritus professor of physiology and internal medicine at Southern Illinois University School of Medicine. As a faculty founder of Southern Illinois University School of Medicine, he participated in all aspects of curriculum development and administration for 35 years, including serving as an assistant dean for medical education and chair of the Department of Physiology and Pharmacology. He is a past president of the Illinois Affiliate of the American Heart Association (AHA), and was a member of the national AHA Board of Directors. During his term with the AHA, he received their Award of Merit in recognition of outstanding volunteer service in the development of AHA's national education/community programs.

He is currently president and CEO of DxR Development Group, Inc, which is a service and publishing company that develops, markets, and licenses interactive software products for the worldwide healthcare education market. He has published over 60 medical education software programs, including DxR Clinician, Clinical Competency Examination, DxR Nursing, DxExam, and the Integrated Medical Curriculum courseware. He collaborated with Novartis Medical Education and Elsevier Medical Publishing to create a series of eLearning software programs based on illustrations from the Frank Netter, MD, collection. In 2007, he was named Chief Series Advisor for a series of nine basic science licensure review textbooks published by Elsevier Medical Publishing.



**Dr. John O'Donnell** has been active in human simulation education since 1994 and has been assistant or associate director of the Winter Institute for Simulation, Education and Research (WISER) since 2001. In 2009, he was honored with the Ake Grenvik Award for Excellence in Simulation Education and Assessment and in 2011 received the University of Pittsburgh's Chancellors Award in recognition of teaching excellence. In 2012 he was named as WISER co-director of research. O'Donnell

consults in nursing simulation efforts for undergraduate and graduate nursing education as well as for practicing nurses in the 20 hospital UPMC health system. Additionally, Dr. O'Donnell is one of two associate editors for Clinical Simulation in Nursing and was the expert consultant and lead author of the American Heart Association Structured and Supported Debriefing online course.



