University of Pittsburgh

Sponsored by:

The Laerdal Foundation
Medivance
Department of Anesthesiology, University of Pittsburgh School of Medicine

Sixth Annual SAFAR Symposium

Thursday, May 15, 2008

7:45 a.m.—Starzl Biomedical Science Tower
2:00 p.m.—Winter Institute for Simulation Education and Research (WISER)

SAFAR CENTER FOR RESUSCITATION RESEARCH

UNIVERSITY OF PITTSBURGH

6th Annual Safar Symposium
May 15, 2008
Morning Session

Location: Starzl Biomedical Science Tower
200 Lothrop St. – South-Room S100

7:45 AM	Continental Breakfast
8:15 – 12:00	**Breakthroughs in Resuscitation** **"Neurocritical Care and Neuroanesthesia for Infants and Children"**
8:15 – 8:20	**Patrick M. Kochanek, MD** Director, Safar Center for Resuscitation Research
Moderators:	**P. David Adelson, MD and Michael Bell, MD**
8:20 – 8:45	**Vinay Nadkarni, MD, FAAP, FCCM, FAHA** Medical Director, Center for Simulation, Advanced Education, and Innovation Education, Children's Hospital of Philadelphia Associate Professor of Anesthesia, Critical Care and Pediatrics, University of Pennsylvania School of Medicine **Topic: "Pediatric Resuscitation in the 21st Century"**
8:45 – 9:00	Discussion
9:00 – 9:25	**Seetha Shankaran, MD** Director, Neonatal-Perinatal Medicine, Children's Hospital of Michigan and Hutzel Women's Hospital Professor of Pediatrics, Wayne State University School of Medicine, Detroit, Michigan **Topic: "Hypothermia is Neuroprotection for Neonatal Encephalopathy"**
9:25 – 9:40	Discussion
9:40 – 10:05	**Clifton W. Callaway, MD, PhD** Associate Director, Cardiopulmonary Arrest Program, Safar Center for Resuscitation Research Associate Professor, Emergency Medicine, University of Pittsburgh Medical Center **Topic: "Implementation of Therapeutic Hypothermia at the Health System Level"**
10:05 – 10:15	Discussion
10:20 – 10:35	Coffee break
10:35 – 11:00	**Peter J. Davis, MD** Anesthesiologist-in-Chief, Children's Hospital of Pittsburgh Professor of Anesthesiology & Pediatrics, University of Pittsburgh School of Medicine **Topic: "Anesthetic Considerations Regarding Infants: A Clinical Perspective"**
11:00 – 11:10	Discussion
11:10 – 11:30	**Mioara D. Manole, MD** Clinical Research Scholar, Safar Center for Resuscitation Research, Department of Critical Care Medicine, and Attending, Pediatric Emergency Medicine, Children's Hospital of Pittsburgh, University of Pittsburgh Medical Center **Topic: "Cerebral Blood Flow after Experimental Asphyxial Cardiac Arrest: A New Therapeutic Target"**
11:30 – 11:35	Discussion
11:35 – 11:40	Presentation of the 6th Nancy Caroline Fellowship Award Presented by Patrick M. Kochanek, MD
11:40 – 12:00	Break
12:00 – 12:05	Introduction of the *Safar Lecture*–John P. Williams, MD
12:05 – 12:10	Introduction of *Safar Lecturer*–Patrick M. Kochanek, MD
12:10 – 12:50	**28th Annual Safar Lecture–John W. Olney, MD**
12:50 – 1:00	Questions and Discussion
1:00 – 1:45	Reception – Foyer

The 28th Peter and Eva Safar Annual Lectureship in Medical Sciences and Humanities

Guest Speaker: JOHN W. OLNEY, MD
John P. Feighner Professor of Psychiatry, Neuropathology and Neuropsychopharmacology at Washington University School of Medicine
St. Louis, Missouri

Topic: Excitotoxic and Apoptotic Neurodegeneration – Causal Mechanisms and Preventive Strategies

6th Annual Safar Symposium
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Afternoon Session
Location: WISER, 230 McKee Place, Suite 300

2:00 – 5:10 **Advances in Pediatric Simulation Education and Assessment**

Moderators: **Melinda F. Hamilton, MD and Paul Phrampus, MD**

2:00 – 2:05 **Opening Comments – Afternoon Session**
Paul Phrampus, MD, FACEP
Director, Winter Institute for Simulation, Education and Research (WISER)

2:05 – 2:35 **Mary D. Patterson, MD, MEd**
Associate Professor, Clinical Pediatrics and Emergency Medicine Medical Director, Cincinnati Children's Center for Simulation and Research
Topic: "In Situ Simulation: Innovation for Teamwork and Safety"

2:35 – 2:40 Discussion

2:40 – 3:10 **Vinay Nadkarni, MD, FAAP, FCCM, FAHA**
Medical Director, Center for Simulation, Advanced Education, and Innovation Education, Children's Hospital of Philadelphia
Associate Professor of Anesthesia, Critical Care and pediatrics, University of Pennsylvania School of Medicine
Topic: "Use of Healthcare Failure Mode Effect Analysis to Develop Scripted Debriefing Tools for PALS Team Training"

3:10 – 3:15 Discussion

3:15 – 3:30 Coffee Break

3:30 – 4:00 **Jennifer Arnold, MD, MSc**
Assistant Professor of Pediatrics
Division of Neonatology, Stony Brook University Medical Center
Topic: "Improving Neonatal Airway Skills with Simulation"

4:00 – 4:05 Discussion

4:05– 4:35 **Noel S. Zuckerbraun, MD, MPH**
Assistant Professor of Pediatrics, Associate Director, Pediatric Emergency Medicine Fellowship, University of Pittsburgh School of Medicine, Children's Hospital of Pittsburgh, Department of Pediatrics, Division of Pediatric Emergency Medicine
Erin Phrampus, MD
Assistant Professor of Pediatrics,
University of Pittsburgh
Children's Hospital of Pittsburgh
Topic: "Room for Improvement: Transforming Pediatric Emergency Medicine Education for Residents and Fellows"

4:35 – 4:40 Discussion

4:40 – 5:00 **Melinda F. Hamilton, MD, MSc**
Assistant Professor of Critical Care Medicine & Pediatrics
Department of Critical Care Medicine
University of Pittsburgh Medical Center
Director, Pediatric Simulation
Peter M. Winter Institute for Simulation, Education, and Research (WISER) and
Children's Hospital of Pittsburgh Simulation Center
Topic: "ECMOSim; Training to Care for the Sickest of the Sick"

5:00 – 5:05 Discussion

5:05 – 5:10 Concluding Comments –
Paul Phrampus, MD
Patrick M. Kochanek, MD

6th Annual Safar Symposium
May 15, 2008

Morning Session Speakers
Breakthroughs in Resuscitation: Neurocritical Care and Neuroanesthesia for Infants and Children

Starzl Biomedical Science Tower,
200 Lothrop St., South-Room S100

VINAY M. NADKARNI, MD, FAAP, FCCM, FAHA

Medical Director, Center for Simulation,
Advanced Education, and Innovation
The Children's Hospital of Philadelphia

Vinay Nadkarni, MD, is Associate Professor of Anesthesia and Pediatrics, Director of the Center for Simulation, Advanced Education and Innovation at the Children's Hospital of Philadelphia, and Associate Director of the Center for Resuscitation Science at the University of Pennsylvania. He is an NIH-NICHD/NHLBI and AHRQ-funded physician-scientist with a long-standing commitment to education. Dr. Nadkarni's research interests lie in the discovery, translation and implementation of resuscitation science. Mentoring trainees and junior faculty members is the highest priority for Dr. Nadkarni, as it is intimately embedded to his academic and administrative functions at CHOP. His recruitment to Penn was to establish and improve fellowship education and a sincere desire to create a unique environment in which to prepare future resuscitation physician-scientists. Dr. Nadkarni served as Pediatric Critical Care Medicine fellowship training program director for six years, trained more than 25 graduate students and postdoctoral fellows, and has mentored and advised more than 30 physician-scientists during his career at Thomas Jefferson University and the University of Pennsylvania. He is currently mentor to Fellows and Instructors who receive NIH, AHRQ, Foundation, and Departmental Awards for research. He has served as chairman of the American Heart Association (AHA) National Committee on Pediatric Resuscitation, Emergency Cardiovascular Care Committee, as national editor for the Pediatric Advanced Life Support (PALS) training materials, and is currently co-chair 2007-2010 of the International Liaison Committee on Resuscitation (ILCOR) that publishes evidence-based advisory statements in Europe, North America, South America, Southern Africa, Asia, Australia, and New Zealand. He is a board member of the Citizen CPR Foundation and the World Federation of Pediatric Intensive and Critical Care Societies, Scientific Advisory Board of the Pediatric Acute Lung Injury and Sepsis Investigators, and AHA National Registry of CPR. He was the course director for the 2006 National SCCM Pediatric Critical Care Concepts Course. He has authored more than 70 peer-reviewed manuscripts and 25 book chapters related to the practice of pediatric critical care medicine. As a member of the Society for Critical Care Medicine for more than 10 years, he has delivered more than 50 presentations at annual SCCM Education and Scientific Symposia, and has received three major SCCM research awards: the National In-Training Award, the National Neuroscience Specialty Award, and the National Pediatric Specialty Award. In 2008, he was selected as the Asmund Laerdal Award Lecturer at the annual SCCM Educational and Scientific Symposium.

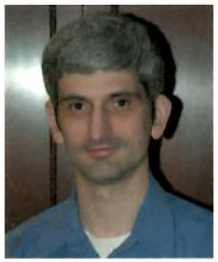
SEETHA SHANKARAN, MD

Professor of Pediatrics, Wayne State University
Director, Neonatal/Perinatal Medicine
Children's Hospital of Michigan

Dr. Shankaran is Professor of Pediatrics at Wayne State University School of Medicine in Detroit, Michigan, and is the Director of Neonatal/ Perinatal Medicine at Children's Hospital of Michigan and Hutzel Women's Hospital. She is also the Director of the Regional Neonatal Programs at the Detroit Medical Center.

Dr. Shankaran is recognized nationally for her experience and expertise in clinical care, teaching, research and child advocacy. Her research interests are prevention and treatment of brain injury in preterm and full-term infants. She is also involved in follow-up of high risk infants and is evaluating the fetal basis of childhood and adolescent disease. She is one of only two pediatricians who have been elected as members of the Wayne State University Academy of Scholars. She has received the Caroline Duncan Distinguished Women in Medicine Award from the Louisiana State School of Medicine and the Kristine Sandberg Knisley Lectureship Award from the University of Pennsylvania, Children's Hospital of Philadelphia.

Dr. Shankaran has been a member of the Steering Committee of the National Institute of Child Health and Human Development Multi-Center Network of Neonatal Intensive Care Units since 1986. She has been the Principal Investigator of the WSU site and was PI of the Antenatal Phenobarbital for Prevention of Neonatal Intracranial Hemorrhage study in the Neonatal Research Network. Dr Shankaran is PI of the first U.S. trial of neurprotection with hypothermia for hypoxic ischemic encephalopathy in term infants that was performed in the NICHD Network and was published in the New England Journal of Medicine. She has served on the study sections of the NICHD Maternal and Child Health Research subcommittee and the National Institute of Neurologic Disorders and Stroke Research subcommittee. Dr. Shankaran grant awards currently total more than $13 million from Federal sources.



CLIFTON W. CALLAWAY, MD, PHD

Associate Professor, Department of Emergency Medicine,
University of Pittsburgh Medical Center

Dr. Clifton Callaway attended Harvard University where he received his AB in psychology. The Georgia native then went on to receive his MD from the University of California. He continued his studies at the University of California where he received his PhD in neurosciences. Dr. Callaway then completed an Affiliated Residency in Emergency Medicine at the University of Pittsburgh.

Dr. Callaway is an Associate Professor at the University of Pittsburgh, Department of Emergency Medicine. He is also the Cardiac Arrest Research Program Director of the Safar Center for Resuscitation Research and a Liaison to the American Heart Association's Emergency Cardiovascular Care Program. Dr. Callaway conducts basic and clinical research in resuscitation.

PETER J. DAVIS, MD

Chief, Department of Anesthesiology
Children's Hospital of Pittsburgh of UPMC

Dr. Davis earned his medical degree at the Albert Einstein College of Medicine. He completed a residency in pediatrics at the University of California, San Francisco, and was chief resident at the San Francisco General Hospital. Following his pediatric training, Dr. Davis completed an anesthesia residency at the Massachusetts General Hospital and a fellowship in pediatric anesthesia and pediatric critical care at the Children's Hospital of Philadelphia. Dr. Davis is board certified in both pediatrics and anesthesia.

Dr. Davis joined the faculty of the Department of Anesthesiology, Critical Care Medicine, and Pediatrics at the University of Pittsburgh in 1984. Dr. Davis is a professor of anesthesia and pediatrics. He became anesthesiologist-in-chief at Children's Hospital of Pittsburgh of UPMC in 1999.

Dr. Davis has written extensively in the field of pediatric anesthesia and pediatric pharmacology. He has written, taught, and lectured about many aspects of pediatric anesthesia and pediatric pain management. He is an editor of the textbook *Smith's Anesthesia for Infants and Children* and for the journal *Anesthesia & Analgesia*.

MIOARA D. MANOLE, MD

Clinical Research Scholar, Safar Center for Resuscitation Research, Department of Critical Care Medicine, and Attending, Pediatric Emergency Medicine, Children's Hospital of Pittsburgh of UPMC, University of Pittsburgh Medical Center

Dr. Mio Manole is a Research Fellow at the Safar Center for Resuscitation Research. She is the first pediatric emergency medicine fellow to be funded by our T32 program from NICHD. A native of Transylvania, she completed medical school at the University of Cluj in Romania, pediatric residency training at Mercy Children's Medical Center in Pittsburgh, and recently completed clinical pediatric emergency medicine fellowship training at Children's Hospital of Pittsburgh, where she practices as attending physician in the Emergency Department. Dr. Manole is studying the cerebral blood flow response to asphyxial cardiac arrest in a developing (post-natal day 17) rat model under the mentorship of Dr. Robert Clark and the investigative team at the Pittsburgh NMR Center for Biomedical Research/Carnegie Mellon University. In February 2007 she received second prize for her presentation at the Annual Pulse of Pittsburgh Fellow Research Day, sponsored by the Pennsylvania/Delaware Affiliate of the American Heart Association, and in May 2008 was the recipient of the fourth Nancy Caroline Fellowship Award at the Annual Safar Symposium.

The 28th Peter and Eva Safar Annual Lectureship in Medical Sciences and Humanities

Guest Speaker: **JOHN W. OLNEY, MD**
John P. Feighner Professor of Psychiatry, Neuropathology and Neuropsychopharmacology
Washington University School of Medicine

Topic: **Excitotoxic and Apoptotic Neurodegeneration—Causal Mechanisms and Preventive Strategies**

John W. Olney, MD, is the John P. Feighner Professor of Psychiatry, Neuropathology and Neuropsychopharmacology at Washington University School of Medicine. He came to Washington University in the early 1960s for a residency in psychiatry and remained there serving in many capacities and gaining international prominence for his research.

Dr. Olney is known for pioneering work that helped establish glutamate as a major neurotransmitter in the brain and as an agent that can trigger neurodegeneration. His work in the early 1970s led him to propose that neurons throughout the brain have receptors through which glutamate transmits excitatory signals, and if glutamate excessively stimulates these receptors, it can rapidly kill neurons, a process he referred to as "excitotoxicity." His hypothesis was initially greeted with skepticism and sometimes ridicule, but today "excitotoxic" is an accepted word in the lexicon of science. This work set the stage for the later discovery that stroke, perinatal asphyxia, hypoglycemia, status epilepticus, and head trauma also elicit glutamate release from neurons, setting off a cascade of events that accounts for damage associated with these conditions. It is widely believed that excitotoxicity may play a role in several chronic neurodegenerative diseases, including Alzheimer's disease and amyotrophic lateral sclerosis.

Dr. Olney first made headlines in the late 1960s when he fed glutamate to animals and found it destroyed neurons. Because infant animals were especially sensitive to this neurotoxic action, he undertook a long battle that eventually caused the food industry to end its practice of adding glutamate as a flavoring agent to baby foods.

Dr. Olney's current research program focuses intensively on drug-induced developmental neuroapoptosis, a previously unknown phenomenon that he and his colleagues discovered. They found that if drugs that suppress neuronal activity are administered to immature animals during synaptogenesis, it can cause widespread neuronal suicide (neuroapoptosis). These findings have important public health implications in that there are many drugs in the human environment that suppress neuronal activity, including drugs that are sometimes abused by pregnant mothers (alcohol, phencyclidine, ketamine, benzodiazepines, barbiturates) and drugs that are widely used in pediatric and obstetric medicine (sedatives, anticonvulsants, and anesthetics). These findings provide a plausible explanation for the well-recognized deleterious effects of alcohol on the human fetal brain (fetal alcohol syndrome) and point to many other drugs that may, in a similarly occult manner, delete neurons from the developing brain. Whether pediatric drugs trigger neuroapoptosis in the human infant brain is currently

being debated by medical researchers and practitioners and is being carefully examined by regulatory authorities.

A member of the prestigious Institute of Medicine of the National Academy of Sciences, Dr. Olney has received many awards, including the Wakeman Award for Research in Neuroscience and the Charles A. Dana Foundation Award for Pioneering Achievements in Health. For 40 years, his research has been funded by grants from NIH. Early in his career, he received a Career Development Award from NIMH and this was successfully renewed as a Research Scientist Award every five years for 30 years.

Afternoon Session Speakers
Advances in Pediatric Simulation Education and Assessment

WISER, 230 McKee Place, Suite 300

MARY PATTERSON, MD, MEd

Associate Professor, Clinical Pediatrics and Emergency Medicine, Cincinnati Children's Hospital, the University of Cincinnati and Medical Director, Cincinnati Children's Center for Simulation and Research

Dr. Patterson completed pediatric residency training at Columbus Children's Hospital and then served as a primary care physician in the United States Air Force for three years. During her service in the Air Force, she developed an interest in trauma and pediatric resuscitation. Subsequently, she entered fellowship training in pediatric emergency medicine at Children's National Medical Center in Washington, D.C.

Dr. Patterson has completed a master's degree in education at the University of Cincinnati and a patient safety fellowship at Virginia Commonwealth University.

Dr. Patterson's primary research interests are related to the use of medical simulation to improve patient safety and human factors work related to patient safety. She is a federally funded investigator in these areas.

VINAY M. NADKARNI, MD, FAAP, FCCM, FAHA

Medical Director, Center for Simulation, Advanced Education, and Innovation
The Children's Hospital of Philadelphia

Vinay Nadkarni, MD, is Associate Professor of Anesthesia and Pediatrics, Director of the Center for Simulation, Advanced Education and Innovation at the Children's Hospital of Philadelphia, and Associate Director of the Center for Resuscitation Science at the University of Pennsylvania. He is an NIH-NICHD/NHLBI and AHRQ-funded physician-scientist with a long-standing commitment to education. Dr. Nadkarni's research interests lie in the discovery, translation and implementation of resuscitation science. Mentoring trainees and junior faculty members is the highest priority for Dr. Nadkarni, as it is intimately embedded to his academic and administrative functions at CHOP. His recruitment to Penn was to establish and improve fellowship education and a sincere desire to create a unique environment in which to prepare future resuscitation physician-scientists. Dr. Nadkarni served as Pediatric Critical Care Medicine fellowship training program director for six years, trained more than 25 graduate students and postdoctoral fellows, and has mentored and advised more than 30 physician-scientists during his career at Thomas Jefferson University and the University of Pennsylvania. He is currently mentor to Fellows and Instructors who receive NIH, AHRQ, Foundation, and Departmental Awards for research. He has served as chairman of the American Heart Association (AHA) National Committee on Pediatric Resuscitation, Emergency Cardiovascular Care Committee, as national editor for the Pediatric Advanced Life Support (PALS) training materials, and is currently co-chair 2007-2010 of the International Liaison Committee on Resuscitation (ILCOR) that publishes evidence-based advisory statements in Europe, North America, South America, Southern Africa, Asia, Australia, and New Zealand. He is a board member of the Citizen CPR Foundation and the World Federation of Pediatric Intensive and Critical Care Societies, Scientific Advisory Board of the Pediatric Acute Lung Injury and Sepsis Investigators, and AHA National Registry of CPR. He was the course director for the 2006 National SCCM Pediatric Critical Care Concepts Course. He has authored more than 70 peer-reviewed manuscripts and 25 book chapters related to the practice of pediatric critical care medicine. As a member of the Society for Critical Care Medicine for more than 10 years, he has delivered more than 50 presentations at annual SCCM Education and Scientific Symposia, and has received three major SCCM research awards: the National In-Training Award, the National Neuroscience Specialty Award, and the National Pediatric Specialty Award. In 2008, he was selected as the Asmund Laerdal Award Lecturer at the annual SCCM Educational and Scientific Symposium.

JENNIFER L. ARNOLD, MD, FAAP, MSc

Assistant Professor, Department of Pediatrics/ Neonatology
Stony Brook University Medical Center

Jennifer Lynn Arnold, MD, FAAP, MSc is an assistant professor at Stony Brook University Medical Center in the Department of Pediatrics/ Neonatology. Dr. Arnold received her medical degree from Johns Hopkins University in 2000. She joined our fellowship program in July 2006 after having completed a pediatric residency at Children's Hospital and fellowship in neonatology at Magee-Womens Hospital of UPMC. She was supported by our T32 training program in Pediatric Neurointensive Care and Research in July 2006. Dr. Arnold completed a neonatal-perinatal fellowship at Magee-Womens Hospital while pursuing her master's degree in medical education in 2007. In July 2007 she carried out an important clinical trial at WISER on the use of simulation for resident training in neonatal intubation and resuscitation skills. For that work she received the Ray Helfer Award at the 2008 meeting of the Pediatric Academic Societies/Society for Pediatric Research.

NOEL S. ZUCKERBRAUN, MD, MPH

Assistant Professor of Pediatrics, Associate Director, Pediatric Emergency Medicine Fellowship, University of Pittsburgh School of Medicine, Children's Hospital of Pittsburgh of UPMC, Department of Pediatrics, Division of Pediatric Emergency Medicine

Noel Zuckerbraun is an assistant professor of pediatrics at the University of Pittsburgh School of Medicine and a pediatric emergency medicine attending at the Children's Hospital of Pittsburgh of UPMC. She has a Master's Degree of Public Health from the University of Pittsburgh Graduate School of Public Health. In her role as the Associate Director of the Pediatric Emergency Medicine Fellowship at the Children's Hospital of Pittsburgh of UPMC, she became interested and involved in simulation as a tool to improve the fellow's education experience. Since she began working with WISER in 2005, she and her pediatric emergency medicine colleagues have taught more than 100 residents and 20 fellows pediatric emergency medicine simulation courses.

ERIN PHRAMPUS, MD

Assistant Professor of Pediatrics
University of Pittsburgh
Children's Hospital of Pittsburgh of UPMC

Erin D. Phrampus is an assistant professor of pediatrics at the University of Pittsburgh. She completed her medical school education at Eastern Virginia Medical School and her pediatric residency training and pediatric emergency medicine fellowship training at the Children's Hospital of Pittsburgh of UPMC. She is actively involved in resident education and incorporating simulation in the training of pediatric and emergency medicine residents.

MELINDA F. HAMILTON, MD

Associate Director, Winter Institute for Simulation, Education and Research
Assistant Professor, Critical Care Medicine and Pediatrics, Children's Hospital of Pittsburgh of UPMC

Dr. Hamilton is an Associate Director of WISER, supervising the area of pediatric simulation. She is also the Director of Simulation at the Children's Hospital of Pittsburgh of UPMC Simulation Center. She received a B.S. in biology from the University of Wyoming and her MD from Creighton University School of Medicine in Omaha, Nebraska. She completed a residency in pediatrics at the Penn State School of Medicine/Hershey Medical Center and a pediatric critical care fellowship at the Children's Hospital of Pittsburgh. She was a T32 National Institute of Health grant recipient through the Safar Center for Resuscitation Research in Pittsburgh. Currently, she serves as assistant professor of critical care medicine and pediatrics at the Children's Hospital of Pittsburgh, University of Pittsburgh Medical Center.

During her Safar fellowship, Dr. Hamilton received a master's degree in medical education from the University Of Pittsburgh School Of Medicine and she focuses her departmental work on education and the role of simulation in medical education. She was the chief pediatric adviser for the beta-testing of SimBaby, Laerdal, at WISER and she is a facilitator for several of her own pediatric simulation courses, especially those related to the recognition and management of critically ill children. Current work is focused on the growth and expansion of pediatric simulation in the Children's Hospital of Pittsburgh's Pediatric Simulation Center, especially in the areas of resident education, nursing orientation, and hospital crisis team training.