



2018 APSF Stoelting Conference
Perioperative Medication Safety:
Advancing Best Practices

Co-hosts:

Mark A. Warner, M.D.

David B. Goodale, D.D.S., Ph.D.

Timothy Vanderveen, Pharm.D.

September 5-6, 2018

Royal Palms Resort and Spa

Phoenix, AZ



OBJECTIVES

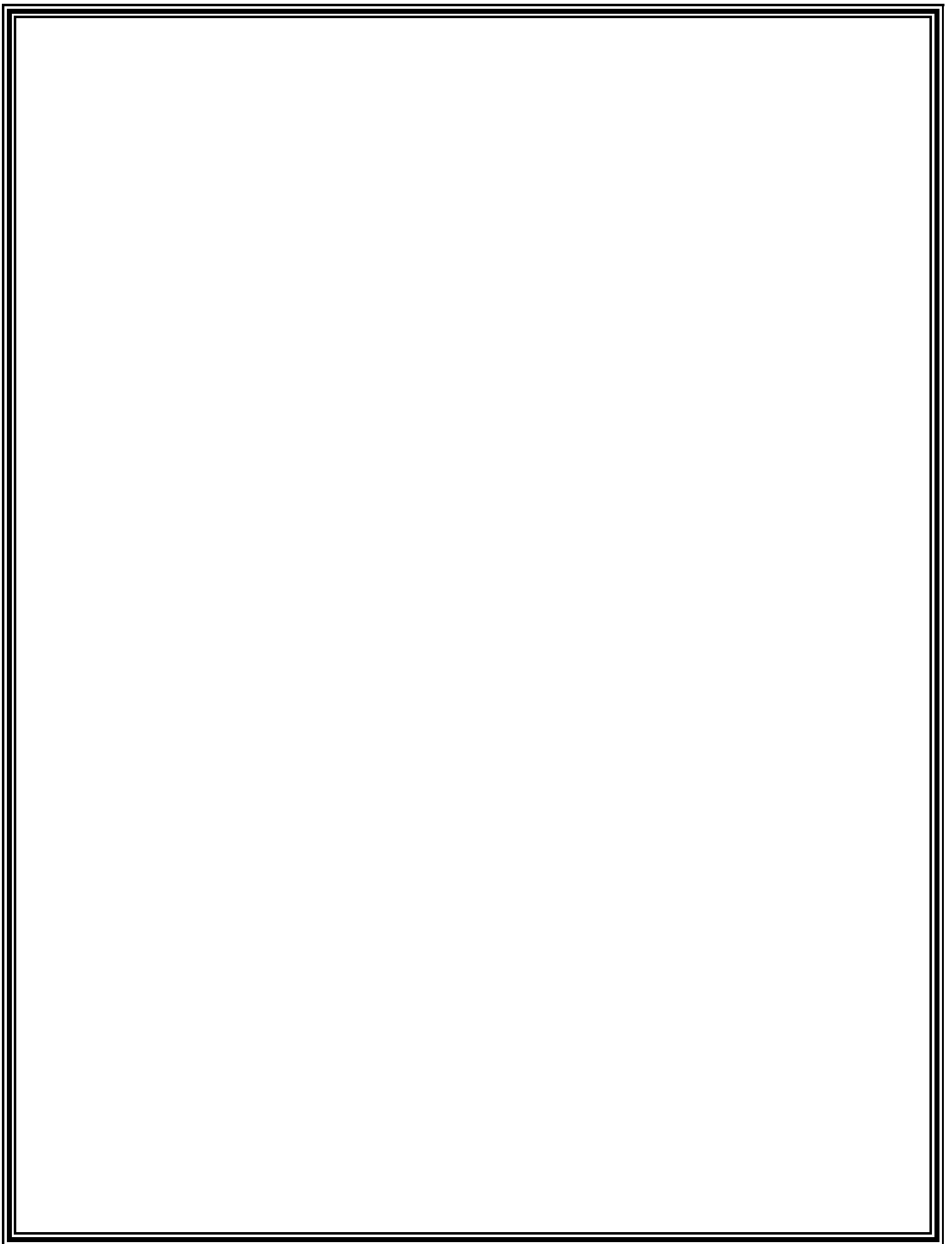
The APSF held a consensus conference on medication safety in 2010. The link to the summary from the *APSF Newsletter* for the 2010 conference is below.

<https://www.apsf.org/article/successful-implementation-of-the-new-paradigm-for-medication-safety-standardization-technology-pharmacy-and-culture-stpc/>

Regrettably, patients undergoing anesthesia continue to be harmed by medication errors, both intraoperatively and perioperatively. While it appears that there has been improvement in medication safety over the past two decades, the improvement has been tenuous, inconsistent, and insufficient.

The objectives of this meeting are to:

- Understand the current extent of knowledge and gaps in understanding related to medication safety and other factors that contribute to patient harm associated with the use of medications and errors in their administration.
- Review potential toxicities of commonly used anesthetic drugs, highlighting deficiencies/inconsistencies with currently approved FDA labeling.
- Learn what impact periodic drug shortages may have on perioperative patient safety.
- Discuss opportunities to reduce patient harm from perioperative medication use.
- Craft specific recommendations that APSF and others can use to influence changes that improve perioperative medication safety and encourage the development and FDA approval of new anesthetic drugs.



PROGRAM

TUESDAY, SEPTEMBER 4, 2018

6:00 – 9:00 PM Pre-conference Reception (Cervantes Lounge)

WEDNESDAY, SEPTEMBER 5, 2018

6:30 – 7:30 am Full Buffet Breakfast and networking (Estrella Patio)

Introduction

7:30 – 8:15 am

Welcome, why are we here, and what are our expected outcomes?

Mark Warner, MD

Professor of Anesthesiology, Department of Anesthesiology and Perioperative Medicine

Mayo Clinic

Rochester, MN

Dr. Mark Warner is a professor in anesthesiology at the Mayo Clinic. In his institution, he has served as chair of the Department of Anesthesiology, the physician leader of its hospitals, executive dean of its College of Medicine and Science, and a member of its Board of Governors.

Dr. Warner has served in the leadership of several national anesthesiology organizations. He has been president of the American Society of Anesthesiologists, the American Board of Anesthesiology, and the Academy of Anesthesiology. He currently is president of the Anesthesia Patient Safety Foundation.

Introduction of 2018 APSF Safety Recognition Award Recipient: Best Practices for Safe Medication Administration During Anesthesia

Why this conference's topic really matters

May Pian-Smith, MD

Associate Professor of Anesthesia at Harvard Medical School

Director of Quality & Safety for the Dept of Anesthesia, Critical Care & Pain

Medicine at Massachusetts General Hospital

Boston, MA

Dr. May Pian-Smith is Associate Professor of Anesthesia at Harvard Medical School and Director of Quality & Safety for the Dept of Anesthesia, Critical Care & Pain Medicine at Massachusetts General Hospital, Boston, MA. In this role she

oversees the coordinated work of the Quality Assurance Committee and The Quality & Safety Improvement Committee

Dr. Pian-Smith's research that has been funded by FAER and APSF has focused on "speaking up" across hierarchical gradients, with the goal of improving education, enhancing the role and responsibility of all members of care teams, and supporting safety culture. She has advanced fellowship training in medical education (Harvard Medical School) and patient safety leadership (NPSF-AHA) and lectures nationally and internationally about anesthesiology, medical education, safety culture and patient safety.

Session 1: How Safe Are our Most Commonly Used Anesthetics?

8:15 – 9:00 am

Sevoflurane and Desflurane: Hepatotoxicity

Dolores Njoku, MD

Associate Professor of Anesthesiology and Critical Care Medicine, Pathology and Pediatrics

Johns Hopkins University School of Medicine

Dr. Dolores B. Njoku is an associate professor of Anesthesiology and Critical Care Medicine, Pathology and Pediatrics at the Johns Hopkins University School of Medicine. In 2005, Dr. Njoku opened the door for understanding the pathways in the liver-injury process when she published results of her work with a mouse model that replicated the drug reaction in the liver that had been seen in patients. In her institution, she has served as director of the Pediatric Anesthesiology Fellowship program from 2007 – 2018, on the Research Committee since 2013, and the Principal Investigator of her lab where she has investigated mechanisms that initiate injury in the liver and other organs in addition to mechanisms responsible for the increased prevalence of drug-induced autoimmune liver disease in female patients since 2009.

Dr. Njoku has served as Councilor for the Association of Academic Subspecialty Program Directors and ASA-liaison to the American Institute of Ultrasound in Medicine. She currently serves on the Executive Committee of the Foundation for Anesthesia Education and Research (FAER), as the Chair of the FAER-APSF Mentored Research Training Grant Committee, and as a member of the American Society of Anesthesiology, the Society for Academic Anesthesiology Associations, the American Board of Anesthesiology and the American Association of Immunologists.

Nitrous Oxide: Vitamin B₁₂ Destruction and Myeloneuropathy

Kirk Hogan, MD, JD

Department of Anesthesiology

University of Wisconsin School of Medicine and Public Health

Madison, WI

Dr. Kirk Hogan is a professor of anesthesiology at the University of Wisconsin – Madison, WI. The focus of his research is the identification of genomic and

epigenomic predictors of deleterious consequences of anesthetics and surgery on the central nervous system, skeletal muscle, and other tissues. He serves as the scientific director responsible for biomarker characterization of DNA samples for The Wisconsin Registry for Alzheimer's Prevention (WRAP). His report of acute neurologic injury after nitrous oxide anesthesia is the first example of a "two-hit", pathway-specific, pharmacogenetic mechanism in which a mutation is expressed in an enzyme upstream of a target protein that is impaired by a drug.

Sulfites: Here, there, and everywhere

Max Baker, PhD
Department of Anesthesia
University of Iowa
Iowa City, IA

Max T. Baker, PhD, associate professor - Dr. Baker is a researcher in the Department of Anesthesia at the University of Iowa. His work has focused on anesthetic metabolism and toxicity, synthesis of new fluorinated compounds as anesthetics, and propofol-related phenols as antiseizure agents. Dr. Baker has studied propofol emulsion stability and the chemistry of metabisulfite in propofol emulsions.

In addition to numerous publications, Dr. Baker has 13 issued patents, and is involved in teaching and startup company efforts at the University of Iowa.

9:00 – 9:15 am

Mid-morning break

9:15 – 10:30 am

Propofol: Syndrome and frenzy examined

Dave Goodale, DDS, PhD
Executive Clinical Director
DBG Pharma, LLC
West Chester, PA

Dr. David B Goodale is executive clinical director at DBG Pharma LLC in West Chester, PA. His expertise includes a PhD in neuropharmacology, DDS degree, 2 year residency in Hospital Anesthesia and 22 years experience in the new speciality of Pharmaceutical Medicine.

His career milestones include a 1980, first author, publication in Science prior to entering anesthesia. He was executive clinical director for the USA leading DIPRIVAN, all local anesthetics & migraine drug, ZOMIG during his 22 year career at AstraZeneca. He achieved 7 FDA approvals for Diprivan in 7 years. He currently serves on the SEC Committee for APSF, is retiring from APSF Board of Directors and serves on Board of Advisors for Presbyterian Historical Society.

Safe and Effective Use of CO₂ Absorbents

Jeff Feldman, MD
Professor of Clinical Anesthesiology
Children's Hospital of Philadelphia and Perelman School of Medicine

Philadelphia, PA

Jeffrey Feldman, MD is an attending anesthesiologist and Director of Perioperative IT at the Children's Hospital of Philadelphia, and a Professor of Clinical Anesthesiology at the Perelman School of Medicine, University of Pennsylvania. Dr. Feldman is a past president of the Society for Technology in Anesthesia, has academic interests in the technology used for patient care in the operating room and has worked as a consultant for medical device companies. He serves on the APSF Board of Directors and Chairs the APSF Committee on Technology.

FDA and Generic Drug Labeling Updates

Raeford Brown, MD

Professor of Anesthesiology and Pediatrics

University of Kentucky Medical Center/ The Kentucky Children's Hospital
Lexington, KY

Rae Brown is a professor of Anesthesiology and Pediatrics at the University of Kentucky. While in Lexington he has served as Executive Vice Chair of the Department of Anesthesiology, and the Chief of Pediatric Anesthesiology and Pain Medicine at the Kentucky Children's Hospital. At UK Medical Center, Dr Brown has served as Associate Chief of Staff responsible for Mortality Reduction, as well as The Medical Director of Perioperative Services.

Currently, Dr Brown serves as the Chair of the FDA Advisory Committee on Analgesic and Anesthetic Drug Products, Chair of the Section on Anesthesiology and Pain Medicine of the American Academy of Pediatrics, and as a consultant on opioid use in children for the Centers for Disease Control and Prevention.

Panel Discussion

Panelists

10:30 – 11:00 am Mid-morning snack break

Session 2: Drug Shortages Affecting Patient Safety

11:00 am – 12:15 pm

Drug Shortages

Erin Fox, PharmD

University of Utah Health

Senior Director, Drug Information and Support Services

Salt Lake City, UT

Erin Fox is a clinical pharmacist serving as Senior Director of Drug Information and Support Services at University of Utah Health and as Adjunct Associate Professor at the University of Utah College of Pharmacy. The University of Utah Drug Information Service provides all content for the ASHP Drug Shortage Resource Center and Erin has led this project since 2001. Erin is recognized as an

expert in drug shortages and frequently serves as a media resource and advocate for change.

Patient Safety Implications of Drug Shortages

Tricia Meyer, PharmD, MS, FASHP, FTSHP
Regional Director of Pharmacy
Baylor Scott & White Medical Center-Temple
Associate Professor Anesthesiology
Texas A&M College of Medicine
Temple, Texas

Tricia Meyer is the Regional Director of Pharmacy for Baylor Scott & White-Temple Medical Center. Areas of responsibility include Pharmacy Services for the 632 bed inpatient facility, 2 retail pharmacies, Home Infusion Pharmacy, Specialty Pharmacy, Medication Access Service, 340 B program and medication oversight for 150+ clinics. She is a member of the Anesthesia Patient Safety Foundation and serves on the Education & Training Committee and the Editorial Board for the APSF Newsletter. She served as Chairman for the American Society of Health Systems Pharmacists Council on Pharmacy Management was a co-author for the ASHP Guidelines on Perioperative Pharmacy Services and Guidelines on Preventing Diversion of Controlled Substances

New Anesthetics Ready for Rapid Development

Dave Goodale, DDS
Executive Clinical Director
DBG Pharma, LLC
West Chester, PA

Dr. David B Goodale is executive clinical director at DBG Pharma LLC in West Chester, PA. His expertise includes a PhD in neuropharmacology, DDS degree, 2 year residency in Hospital Anesthesia and 22 years experience in the new speciality of Pharmaceutical Medicine.

His career milestones include a 1980, first author, publication in Science prior to entering anesthesia. He was executive clinical director for the USA leading DIPRIVAN, all local anesthetics & migraine drug, ZOMIG during his 22 year career at AstraZeneca. He achieved 7 FDA approvals for Diprivan in 7 years. He currently serves on the SEC Committee for APSF, is retiring from APSF Board of Directors and serves on Board of Advisors for Presbyterian Historical Society.

Panel Discussion

Panelists

12:15 – 1:00 pm Lunch (Palmera Lounge)

Session 3: Reducing Medication and Administration Errors

1:00 – 2:30 pm **Estimating Patient Deaths and Harm from Medication Errors**

Kevin Kavanagh, MD, MS
Health Watch USA
Lexington, KY

Kevin Kavanagh retired from medical practice over eight years ago from long-standing severe arthritis which was treated with multiple operations and the placement of Bone Morphogenetic Protein in his neck. He is founder and Board Chairman of Health Watch USAsm, a non-profit patient advocacy and healthcare policy research organization. Health Watch USAsm is a member of the National Quality Forum and has been designated as a "Community Leader" for Value-Driven Healthcare by the U.S. Department of Health and Human Services. He has published over 20 peer reviewed manuscripts on healthcare policy and/or research integrity problems, many of which deal with deficiencies in reporting systems and in controlling hospital acquired infections and drug resistant organisms. In addition, he has published letters in peer reviewed journals including the Journal of the American Medical Association and New England of Medicine. Dr. Kavanagh is also a frequent contributor to the Lexington Herald Leader on Healthcare Issues and over the last six years a recurrent guest on the Jack Pattie Radio Show on health policy issues.

Dr. Kavanagh has been an Associate Editor for the Journal of Patient Safety since July 2014. He has served on the Centers for Medicaid and Medicare Services' Hospital-Acquired Condition (HAC) Reduction Program Technical Expert Panel (TEP) from 2014 to 2018; the AHRQ Standing Working Group for Quality Indicators for 2016 to 2017; the AHRQ Health Care Effectiveness and Outcomes Research (HEOR) Study Section, and he is also serving as an Interim term appointment (May 9, 2018-September 30, 2018) on the National Quality Forum's Consensus Standards Approval Committee (CSAC).

Medication Safety and Networked Surveillance in Anesthesia

Joyce A. Wahr, MD, FAHA
Vice-Chair for Quality and Safety, Department of Anesthesiology
University of Minnesota
Minneapolis, MN

Dr. Wahr is Vice-Chair for Quality and Safety for the Department of Anesthesiology at University of Minnesota. Previously she was a cardiac anesthesiologist at University of Michigan, and c-chaired the ACC/AHA Scientific Statement on Patient Safety in the Cardiac Operating Room.

Factors Contributing to Medication Errors

Julie Boytim
Chief CRNA
American Anesthesiology
College Station, TX

Dr. Julie Boytim is a Chief CRNA at American Anesthesiology in College Station, TX. She serves as the Chair of Quality & Safety for her anesthesia group and an anesthesia leader in the facilities she practices.

Dr. Boytim completed her DNP fellowships at the Institute for Safe Medication Practices. She studied the effects of human factors on perioperative medication practices and completed a systematic review of their effects on the perioperative medication system. She currently serves as a perioperative medication consultant.

Drug Concentration Standardization

Elizabeth Rebello, MD, FASA
Associate Professor
Department of Anesthesiology and Perioperative Medicine
The University of Texas MD Anderson Cancer Center
Houston, TX

Dr. Elizabeth Rebello is Associate Professor in the Department of Anesthesiology and Perioperative Medicine (DAPM) at the University of Texas MD Anderson Cancer Center. In her institution, she serves as chair of the DAPM faculty mentoring committee and serves on the Pharmacy and Therapeutics, Faculty Mentoring Advisory, Operations Steering, and Molecular Testing Evaluation Committees.

She serves as the chair of the American Society of Anesthesiologists' (ASA) Committee on Professional Diversity and ASA Education Track for Professional Issues, and leads the Medication Safety Workgroup under the ASA Quality, Management and Data Administration Committee. She is a pharmacist and also serves as an expert consultant to the United States Pharmacopeia Expert Compounding Committee

The ASHP Standardize-4-Safety Project

Deb Pasko, PharmD, MHA
Director, Medication Safety & Quality
Center on Medication Safety and Quality
ASHP
Bethesda, MD

Panel Discussion

Panelists

2:30 – 2:45 pm Mid-afternoon break

2:45 – 4:15 pm **ISMP Perspectives on Standardization of Labels and Vial Colors**

Ronald S. Litman, DO, ML
Department of Anesthesiology and Critical Care, The Children's Hospital of Philadelphia

Professor of Anesthesiology and Pediatrics, Perelman School of Medicine at the University of Pennsylvania
Philadelphia, PA

Dr. Ron Litman is an anesthesiologist at the Children's Hospital of Philadelphia, and Professor of Anesthesiology and Pediatrics at the Perelman School of Medicine at the University of Pennsylvania in Philadelphia.

Dr. Litman is currently the Medical Director of the Institute for Safe Medication Practices, the Medical Director of the MH Hotline for the Malignant Hyperthermia Association of the U.S., and a member of the FDA's Anesthetic and Analgesic Drug Products Advisory Committee.

Intravenous Medication Administration: Potential for Harm

David T. Jamison
ECRI Institute, Executive Director, Health Devices
Plymouth Meeting, PA

David T. Jamison is Executive Director the Health Devices group at ECRI Institute in Plymouth Meeting, PA. Dave is responsible for leading the Engineers and Scientists that test and compare medical devices in ECRI Institute's laboratories as well as leading investigations into medical technology problems reported to ECRI Institute.

Prior to joining ECRI Institute, Dave led new product development programs for 25+ years at several medical device companies in the areas of: Anesthesia machines, ICU Ventilators, Physiologic Monitors, Surgical Laparoscopy Systems, NICU and Clinical Lab. He is a frequent speaker at AAMI Conferences and has served for several years on the APSF Committee on Technology.

Intravenous Medication Administration: Smart Pumps and Other Approaches to Reduce the Potential for Harm

Tim Vanderveen, PharmD, MS

Tim Vanderveen received his BS in Pharmacy and a MS in Clinical Pharmacy from Purdue University. He completed his residency at Bronson Methodist Hospital in Kalamazoo, MI, and received his Doctor of Pharmacy degree from Medical University of South Carolina. For over 40 year he has been involved in the infusion device industry, retiring in 2017 from BD and currently consults for ICU Medical Affairs.

Panel Discussion

Panelists

Session 4: Opioid-Induced Ventilatory Impairment

4:30 – 5:00 pm

Perioperative Opioid-Induced Respiratory Depression Update

Frank Overdyk, MSEE, MD

Professor of Anesthesiology
Charleston, SC

Dr. Overdyk's academic interest as Professor of Anesthesiology is mechanisms of respiratory decompensation due to opioids and sedatives. His passion is reducing preventable harm from opioids in hospitals. He currently serves as Medical Director for several medical technology companies, advocates patient safety, and practices anesthesia part time in Charleston, SC.

Oxygen Monitoring: Brain versus Finger-Tip

John M Murkin MD, FRCPC, FCAI(hon)
Professor of Anesthesiology
University Hospital, LHSC
Schulich School of Medicine
University of Western Ontario
London, ON

Dr. Murkin is currently full Senate Professor of Anesthesia, previous Director of Cardiac Anesthesiology, Director of Cardiac Anesthesiology Research, and past Chair of Department of Anesthesiology Research Committee at University of Western Ontario in London Canada.

His most recent ongoing peer-funded investigations focus on both the role of near infrared spectroscopy (NIRS) for assessment of cerebral oxygenation, as well as novel investigations on the impact of early sepsis on NIRS-detected microcirculatory vasoreactivity and tissue oxygenation. As a clinical scientist he has published over 150 peer reviewed papers with more than 9000 total citations having an h-index of 41 and i10-index of 108.

He is a member of the Protocol Review Committee of National Heart Lung and Blood Institute assessing funding priorities for cardiac surgical studies. More recently he has also become an invited participant in the NIH panel assessing grant proposals investigating therapeutic strategies in traumatic brain injury. Dr Murkin has also been a panelist on the AHA Emerging Science Series webcast. As a founding member, he has recently been elected President of MiECTIS, a new multidisciplinary society dedicated to optimizing physiologically-based cardiopulmonary bypass and evolving circulatory technologies.

5:00 pm

Adjourn

6:00 – 9:00 pm

Mid-Conference Reception (Palmera Lounge)

THURSDAY, SEPTEMBER 6, 2018

6:30 – 7:30 am

Full Breakfast Buffet and networking (Estrella Patio)

Session 5: Implementation of a Comprehensive Perioperative Drug Safety Program

7:30 – 8:30 am

Evaluation and Actions: One Institution's Story

David W. Bates, MD, MSc

Professor of Medicine at Harvard Medical School

Professor of Health Policy and Management at the Harvard School of Public Health

Boston, MA

Dr. David Bates is a Professor of Medicine at Harvard Medical School, and a Professor of Health Policy and Management at the Harvard School of Public Health, where he co-directs the Program in Clinical Effectiveness. He is chief of the Division of General Medicine and Primary Care as well as the director of the Center for Patient Safety Research and Practice at Brigham and Women's Hospital.

An internationally renowned expert in patient safety, Dr. Bates uses information technology to improve care, quality-of-care, cost-effectiveness, and outcomes assessment in medical practice. He has studied medication safety in many areas, including the perioperative area, and has focused in particular on the impact of HIT on medication safety. He is the immediate past president of the International Society for Quality in Healthcare (ISQua) and the editor of the Journal of Patient Safety.

A Comprehensive Approach: Seattle Children's Hospital

Eliot Grigg, MD

Assistant Professor, Department of Anesthesiology and Pain Medicine

University of Washington / Seattle Children's Hospital

Seattle, WA

Dr. Grigg is an Assistant Professor at the University of Washington and practices at Seattle Children's Hospital. He is Director of Sedation and service line lead for the spine, orthopedic and urology anesthesia groups. He attends on the Pain Service, is in charge of anesthesia equipment and oversees a variety of medication safety efforts at Seattle Children's with a focus on human factors and workspace design.

Panel Discussion

Panelists

8:30 – 8:45 am

Morning break

Session 6: Specific Recommendations and Next Steps

8:45 – 10:00 am

Breakout groups

Drug Safety Group: Approaches to addressing concerns about current anesthetics? Should we advocate for the introduction of new anesthetics? How would we do it?

Dave Goodale and Rich Prielipp

Drug Shortage Group: Can we promote or influence actions that may decrease drug shortages or uneven distribution of perioperative medications? How would we do it?

Steve Greenberg and Jerry Cohen

Reducing Medication and Administration Errors: What role should we play? Advocacy? Support of clinical research in specific areas? Collaborating with industry to reduce the risk of errors?

Meghan Lane-Fall and Lynn Reede

Standardization and Innovation: Should APSF advocate for medication standardization regarding drug concentrations, labelling, and administration approaches? If yes, how should we do it?

Jeff Feldman, Tim Vanderveen, and Patty Reilly

10:00 – 10:15 am Mid-morning snack break

10:15 – 11:30 am **Finalizing recommendations and next steps**
Mark Warner, Dave Goodale, and Tim Vanderveen

A special thank you to our Stoelting Conference Supporters:

