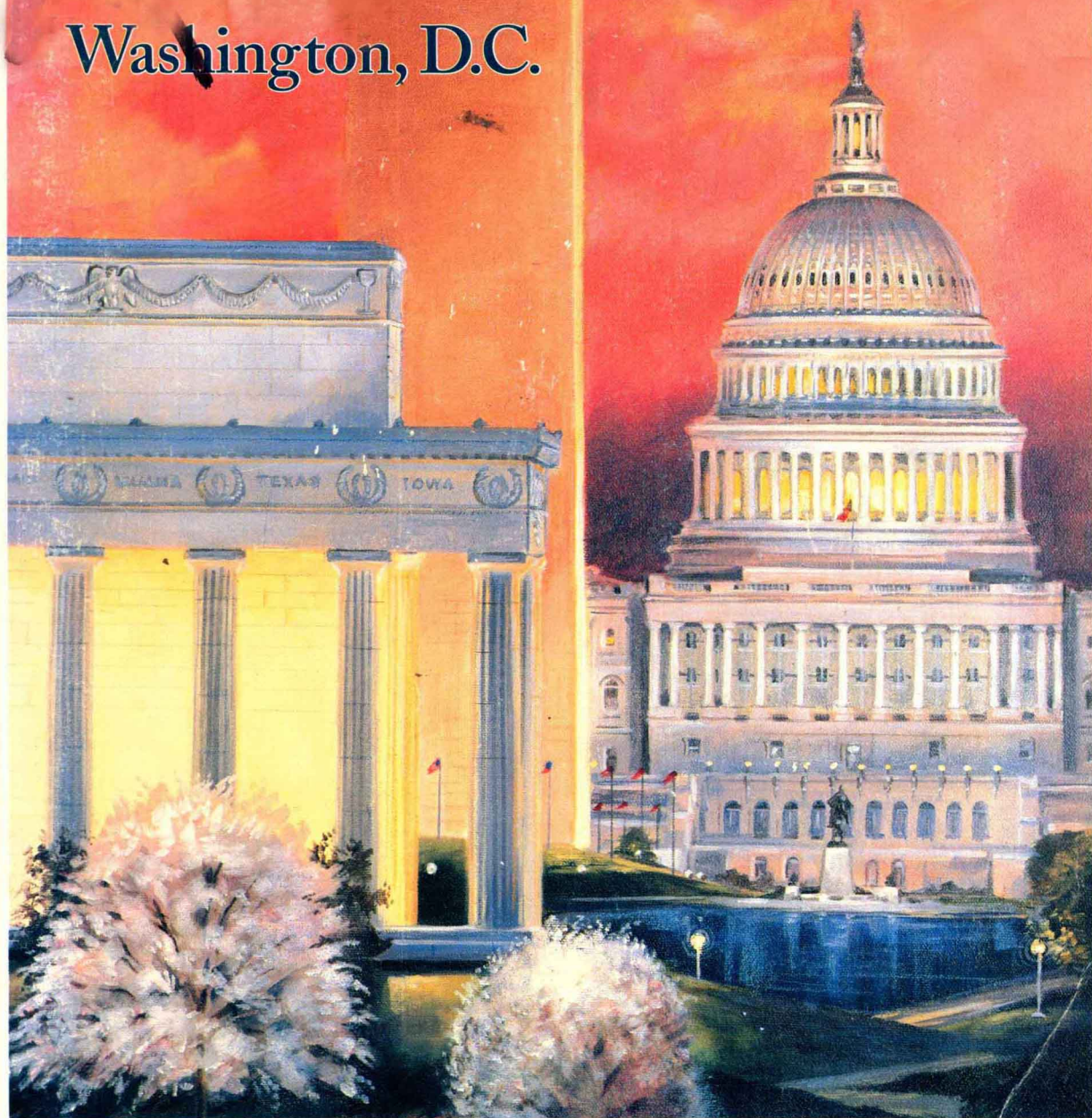




AMERICAN SOCIETY OF ANESTHESIOLOGISTS

1993 Annual Refresher Course Lectures  
October 9-13, 1993

Washington, D.C.



# 44th Annual Refresher Course Lectures and Clinical Update Program

Presented October 9-13, 1993 at the Washington, DC Convention Center  
during the Annual Meeting of the American Society of Anesthesiologists

These reviews have not undergone peer or editorial review

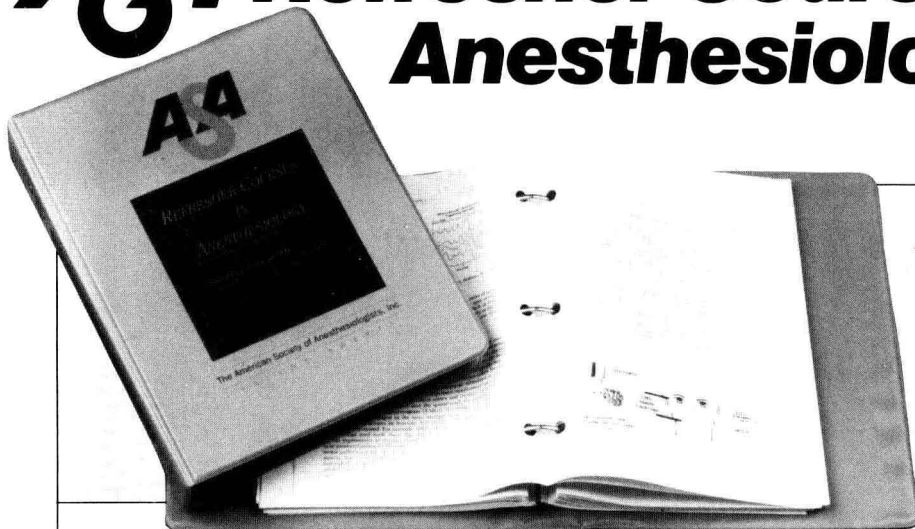
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Time	Room 38	Room 39	Room 40	Room 13-14-15	Room 20-21-22	Room 30-31	Room 32-33
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# 44th Annual Refresher Course Lecture Program

Sunday, October 10, 1993  
Washington, DC Convention Center • Washington, DC

Time	Room 38	Room 39	Room 40	Room 13-14-15	Room 20-21-22	Room 30-31	Room 32-33
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<b>A.M.</b> 10:15-11:05	New Inhalational Anesthetic Agents <b>E. Eger, II</b> 212	Principles and Practice of Capnography <b>M. Good</b> 221	Carotid Artery Surgery: Anesthesia and Monitoring <b>M. Mahla</b> 231	Perioperative Renal Protection <b>R. Sladen</b> 241	Pulmonary Artery and Mixed Venous Monitoring: An Overview <b>J. Vender</b> 251	Indications and Contraindications for Regional Anesthesia <b>M. Mulroy</b> 261	Anesthetic Management of the Head Injured Patient <b>A. Bendo</b> 271
<b>A.M.</b> 11:30-12:20	Drug Interactions with Anesthetic Agents <b>C. Rosow</b> 212	Perioperative Fluid Management: The Use of Crystalloid, Colloid and Hypertonic Solutions <b>D. Prough</b> 222	Epidural Opioids and Local Anesthetics for Pain Management in Obstetrics <b>S. Shnider</b> 232	Anesthesia for the Transplanted Patient for Nontransplant Procedures <b>L. Firestone</b> 242	Neurologic Complications of Central Neural Blockage <b>D. Wedel</b> 252	Anesthesia for the Pediatric Ambulatory Patient <b>R. Hannallah</b> 262	Opioids and Hypnotics in the Geriatric Patient <b>C. Hug, Jr.</b> 272
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<b>P.M.</b> 4:30-5:20	Regional Anesthesia and Analgesia of Pediatric Patients <b>M. Yaster</b> 216	Are Differences in Cardiopulmonary Effects Among the Inhalation Agents Clinically Important? <b>R. Merin</b> 226	Changing Concepts in Preoperative Medication and "NPO" Status of the Pediatric Patient <b>C. Coté</b> 236	Noninvasive Cardiovascular Monitoring <b>M. Cahalan</b> 246	Recognition and Management of Complications of Ambulatory Anesthesia and Surgery <b>P. Kapur</b> 256	Fiberoptic Instrumentation for Airway Management <b>P. Boyesen</b> 266	Hemostasis: Evaluation, New Agents, New Problems <b>D. Bjoraker</b> 276

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Washington, DC Convention Center • Washington, DC

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Room 30-31	Shock: Pathophysiology and Pharmacotherapy <b>B. Chernow</b> 321
Room 32-33	AIDS and the Health Care Worker <b>D. Henderson</b> 331

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Room 39	Safe Anesthetic Induction and Emergence of the Pediatric Patient <b>D. Cook</b> 421	Risk Management in Anesthesia <b>J. Eichhorn</b> 422	Anesthetic Considerations for the Geriatric Patient <b>C. McLeskey</b> 521	Malignant Hyperthermia <b>R. Kaplan</b> 522
Room 40	Regional Anesthesia of the Extremities <b>A. Winnie</b> 431	Anesthesia for Cardiac Surgery: State of the Art <b>J. Kaplan</b> 432	Management of the Difficult Airway: The ASA Algorithm <b>J. Benumof</b> 531	Management of Chronic Pain <b>J. Rowlingson</b> 532



# 1993

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# 1993

## Refresher Course Lecture and Clinical Update Program

### New Concepts in Management of Pulmonary Edema

Steven J. Allen, M.D. ....274

Associate Professor  
Department of Anesthesiology  
The University of Texas Medical School  
Houston, Texas

#### *Lecture Objectives:*

- 1) Review the physical signs and radiologic characteristics of pulmonary edema; 2) Understand how pulmonary edema develops in various disease states; 3) Become familiar with promising new therapies for prevention and treatment of pulmonary edema.

### Anesthetic Considerations for Major Pediatric Trauma

J. Michael Badgwell, M.D. ....174

Associate Professor  
Anesthesiology and Pediatrics  
Texas Tech University Health Sciences Center  
Lubbock, Texas

#### *Lecture Objectives:*

- 1) To review current anesthetic management of major pediatric trauma including head injury and shock; 2) To emphasize airway management in the child with suspected cervical injury and induction/maintenance techniques for the hypovolemic child; 3) To discuss equipment and monitoring requirements, blood component and fluid therapy; and postoperative pain relief.

### Understanding Your Anesthesia Machine

J. Jeff Andrews, M.D. ....163

Associate Professor of Anesthesiology  
Department of Anesthesiology  
The University of Texas Medical Branch  
Galveston, Texas

#### *Lecture Objectives:*

- 1) Review the operation, function and integration of major machine components; 2) Review appropriate preoperative machine checks; 3) Examine recent developments in modern anesthesia systems; 4) Review the operating principles of the new desflurane vaporizer.

### The High Risk Patient for Noncardiac Surgery: Preoperative Evaluation

Paul G. Barash, M.D. ....231

Professor and Chair  
Department of Anesthesiology  
Yale University School of Medicine  
New Haven, Connecticut

#### *Lecture Objectives:*

- To use clinical information as well as laboratory data for appropriate preoperative evaluation of patients with significant cardiovascular disease who require noncardiac operations. To use cost benefit analysis to determine the necessity of ordering additional cardiovascular tests (e.g., stress test) for diagnosis and risk stratification of the patient with coronary artery disease

### Current Controversies in Adult Outpatient Anesthesia: Administrative and Clinical

Jeffrey L. Apfelbaum, M.D. ....254

Associate Professor and Vice-Chair  
Clinical Affairs  
Director, Outpatient Surgery  
Department of Anesthesia and Critical Care  
University of Chicago  
Chicago, Illinois

#### *Lecture Objectives:*

- 1) To provide an update on current controversial issues in adult outpatient anesthesia including preoperative evaluation and preparation, laboratory screening, patient selection in the 1990s, choice of optimal cost-effective anesthetic agents and/or techniques, and practical discharge criteria; 2) To present the possibilities for resolution of these controversies.

### Cost Containment in Anesthesiology

Karl E. Becker, Jr., M.D. ....165

Professor and Chair  
Department of Anesthesiology  
University of Kansas  
School of Medicine - Wichita  
Wichita, Kansas

#### *Lecture Objectives:*

- 1) Review the factors leading to increases in medical care costs over the last 50 years; 2) Understand specific costs in drugs, equipment and methods used for anesthesia; 3) Describe ways to decrease these costs safely and effectively.

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## Anesthetic Management of the Head Injured Patient

Audrée A. Bendo, M.D. ....272

Associate Professor  
Department of Anesthesiology  
State University of New York  
Health Science Center at Brooklyn  
Brooklyn, New York

### *Lecture Objectives:*

This lecture reviews the pathophysiology of head injury, the available treatment modalities and the influence of anesthetic techniques on cerebral hemodynamics.

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## Management of the Difficult Airway: The ASA Algorithm

Jonathan L. Benumof, M.D. ....531

Professor of Anesthesiology  
University of California  
San Diego Medical Center  
San Diego, California

### *Lecture Objectives:*

Ventilatory catastrophes are the leading causes of brain death and whole body death due to anesthesia. This lecture will explain an ASA algorithm for managing the difficult airway and will include consideration of such issues as recognition, the awake intubation and managing the patient with an impossible airway (i.e., the lost airway where one cannot ventilate by mask, cannot intubate). Finally, the concept and use of a jet stylet in extubating a patient with a known difficult airway will be discussed.

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## Acute Postoperative Pain Management in Children

Charles B. Berde, M.D. ....136

Director, Pain Treatment Service  
and Senior Associate in Anesthesia  
Children's Hospital, Boston  
Associate Professor of Anaesthesia (Pediatrics)  
Harvard Medical School  
Boston, Massachusetts

### *Lecture Objectives:*

- 1) To review pertinent developmental issues;
  - 2) To outline systemic analgesics in children;
  - 3) To outline regional analgesics in children;
  - 4) To discuss coordination of pediatric acute pain services.
- 

## Infection Control in the Practice of Anesthesiology

Arnold J. Berry, M.D. ....156

Associate Professor of Anesthesiology  
Emory Department of Anesthesiology  
Emory University School of Medicine  
Atlanta, Georgia

### *Lecture Objectives:*

The objectives of the presentation are to: 1) Update anesthesiologists on the epidemiology of AIDS and hepatitis; 2) Describe current techniques to prevent occupational transmission of bloodborne pathogens, and 3) Outline appropriate infection control procedures for anesthesia equipment.

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## Perioperative Fluid Management for Pediatric Patients

Frederic A. Berry, M.D. ....175

Professor of Anesthesia and Pediatrics  
University of Virginia Health Sciences Center  
Charlottesville, Virginia

### *Lecture Objectives:*

- 1) Define maintenance and replacement fluids;
  - 2) Discuss intraoperative fluid management;
  - 3) Define and discuss normal versus acceptable hematocrits.
- 

## The Patient with Respiratory Disease: Evaluation, Preparation and Timing of Surgery

Michael J. Bishop, M.D. ....122

Professor of Anesthesiology and Medicine (Adjunct)  
(Pulmonary and Critical Care)  
University of Washington  
Chief, Anesthesiology and O.R. Service  
Veterans' Administration Medical Center  
Seattle, Washington

### *Lecture Objectives:*

- 1) Understand when pulmonary function tests are useful preoperatively;
  - 2) Learn what is new in preoperative preparation;
  - 3) Know when to postpone surgery.
- 

## Hemostasis: Evaluation, New Agents, New Problems

David G. Bjoraker, M.D. ....276

Associate Professor  
Department of Anesthesiology  
University of Florida College of Medicine  
Gainesville, Florida

### *Lecture Objectives:*

To review basic hemostasis by discussing current issues including: 1) Point-of-care methods of evaluating hemostasis; 2) New hemostasis altering drugs such as DDAVP, aprotinin and low molecular weight heparin; and 3) Problems such as anesthesia after thrombolytic therapy, the hemostatic consequences of aggressive red cell salvage, and additional drugs that inhibit platelet function.

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## Fiberoptic Instrumentation for Airway Management

Philip G. Boysen, M.D. ....266

Professor of Anesthesiology and Medicine  
University of Florida College of Medicine  
Chief  
Anesthesiology Service  
Veterans' Administration Medical Center  
Gainesville, Florida

### *Lecture Objectives:*

- 1) Appreciate indications for fiberoptic instrumentation of the airway (FFI);
- 2) Develop a strategy for organizing necessary equipment for FFI;
- 3) Understand different approaches to anesthetizing the awake patient for FFI;
- 4) Learn and understand simple "tricks of the trade;"
- 5) Consider expanding the use of these techniques in the clinical practice of anesthesiology.

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## Anesthetic Management of the Patient with Abnormal Liver Function

**Burnell R. Brown, Jr., M.D.** .....241  
Professor and Head, Anesthesiology  
University of Arizona Health Sciences Center  
Tucson, Arizona

### *Lecture Objectives:*

The objective is to discuss the pathophysiology of liver disease and its consequences in the surgical patient. Particular emphasis will be placed upon the perturbations imposed by various anesthetic regimens in the patient with compromised hepatic function. Perioperative management of this high risk category of patients and postoperative intensive care will be discussed.

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## Anesthetizing the Morbidly Obese Patient

**F. Peter Buckley, M.B.** .....151  
Associate Professor  
Department of Anesthesiology  
University of Washington School of Medicine  
Seattle, Washington

### *Lecture Objectives:*

Acquaint participants with the pathophysiologic, anatomic and pharmacologic deviations from normality that occur in the obese patient. Discuss the clinical relevance of these abnormalities to the clinical management of the obese patient and the practical safe conduct of pre-, intra- and postoperative management of these patients.

---

## Noninvasive Cardiovascular Monitoring

**Michael K. Cahalan, M.D.** .....246  
Associate Professor of Anesthesia  
University of California, San Francisco  
Director, Anesthesia for Cardiac Surgery  
Moffitt/Long Hospitals  
San Francisco, California

### *Lecture Objectives:*

This lecture provides a critical review of the advantages and disadvantages of some noninvasive methods of cardiovascular monitoring including: continuous blood pressure and cardiac output determination and transesophageal echocardiography.

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## Adverse Outcomes in Anesthetic Practice: What Are the Data? Can Outcome Be Improved?

**Robert A. Caplan, M.D.** .....211  
Staff Anesthesiologist  
Virginia Mason Medical Center  
Clinical Associate Professor of Anesthesiology  
University of Washington  
Seattle, Washington

### *Lecture Objectives:*

This lecture will utilize the experience of the ASA Closed Claims Project to: 1) Explore the major sources of claims and lawsuits in anesthetic practice; 2) Define the relationships between standard of care, severity of injury and costs of settlement or jury award; 3) Identify promising strategies for minimizing the impact of adverse outcomes.

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## Shock: Pathophysiology and Pharmacotherapy

**Bart Chernow, M.D.** .....321

Professor of Medicine, Anesthesia and Critical Care  
The Johns Hopkins University School of Medicine  
Physician-in-Chief  
Department of Medicine  
Sinai Hospital of Baltimore  
Baltimore, Maryland

### *Lecture Objectives:*

Following the lecture, attendees will be able to: 1) Describe the mediator response to circulatory shock; 2) Understand the biochemistry and pharmacology of catecholamines; 3) Describe molecular approaches to the treatment of sepsis; 4) Detail the anesthetic implications of circulatory shock.

---

## Anesthesia for the High Risk Obstetrical Patient

**David H. Chestnut, M.D.** .....412

Professor of Anesthesia, Obstetrics and Gynecology  
Vice-Chair for Administration  
Department of Anesthesia  
University of Iowa College of Medicine  
Iowa City, Iowa

### *Lecture Objectives:*

To review the pathophysiology and anesthetic management of: 1) Preeclampsia; 2) Fetal stress/distress; 3) The difficult airway; and 4) Placenta previa/accreta. Emphasis will be given to practical management of these common clinical problems.

---

## Monitoring the Respiratory System in the ICU: What Works and What Doesn't

**Neal H. Cohen, M.D.** .....244

Professor of Anesthesia and Medicine  
Director, Critical Care Medicine  
University of California San Francisco  
Department of Anesthesia  
San Francisco, California

### *Lecture Objectives:*

1) Familiarize the anesthesiologist and critical care practitioner with the currently available techniques for monitoring the respiratory system of critically ill patients; 2) Define which monitors of respiration are most cost-effective for routine respiratory monitoring; 3) Recommend monitoring techniques to use to facilitate ventilatory management of the ICU patient and weaning of the ventilator-dependent patient.

---

## Safe Anesthetic Induction and Emergence of the Pediatric Patient

**D. Ryan Cook, M.D.** .....421

Professor of Anesthesiology  
University Medical Center of Pittsburgh  
Director of Anesthesiology  
Children's Hospital of Pittsburgh  
Pittsburgh, Pennsylvania

### *Lecture Objectives:*

The purposes of this lecture are to outline safe premedication and anesthetic techniques for the pediatric patient.

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## Changing Concepts in Preoperative Medication and "NPO" Status of the Pediatric Patient

Charles J. Coté, M.D. ....236

Associate Anesthetist  
Massachusetts General Hospital  
Associate Professor of Anaesthesia  
Harvard Medical School  
Boston, Massachusetts

### *Lecture Objectives:*

To present current concepts and methods of administering premedication to children and to present new approaches to preoperative fasting in the pediatric patient, with particular emphasis on a review of the available literature. In particular, the advantages and disadvantages of each technique of premedication as well as the advantages and disadvantages of the changing modalities of preoperative fasting will be discussed.

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## Brain Protection

James E. Cottrell, M.D. ....172

Professor and Chair  
Department of Anesthesiology  
State University of New York  
Health Science Center at Brooklyn  
Brooklyn, New York

### *Lecture Objectives:*

Outline the ionic and metabolic alterations that occur during cerebral ischemia and review the effect of anesthetics and adjuvant drugs which ameliorate or exacerbate the cascade of events that lead to irreversible damage.

---

## Anesthesia and the Multiple Organ Dysfunction Syndrome (MODS)

Douglas B. Coursin, M.D. ....221

Associate Professor of Anesthesiology and Internal Medicine  
Associate Director of the Trauma and Life Support Center  
University of Wisconsin School of Medicine  
Madison, Wisconsin

### *Lecture Objectives:*

1) To review the definition, epidemiology, pathophysiology, prevention and treatment of patients with the multiple organ dysfunction syndrome (MODS); 2) To briefly discuss anesthetic considerations in critically ill patients with MODS.

---

## CNS Dysfunction in the Perioperative Period: Diagnosis and Management

Gregory Crosby, M.D. ....245

Associate Professor of Anaesthesia  
Harvard Medical School  
Director of Neuroanesthesia  
Massachusetts General Hospital  
Boston, Massachusetts

### *Lecture Objectives:*

Review factors that contribute to an abnormal wake-up or neurologic recovery after general anesthesia. We will consider "normal" CNS sequelae of general anesthesia, causes of abnormal psychologic and neurologic recovery following both routine and high CNS-risk procedures (e.g., carotid endarterectomy, cardiopulmonary bypass, thoracic aneurysm resection), and the role of the anesthesiologist in preventing, recognizing and evaluating such problems.

---

## Opioid Use in Pediatric Patients

Peter J. Davis, M.D. ....154

Associate Professor of Anesthesiology/CCM and Pediatrics  
University of Pittsburgh School of Medicine  
Attending Anesthesiologist  
Children's Hospital of Pittsburgh  
Pittsburgh, Pennsylvania

### *Lecture Objectives:*

- 1) To discuss the issue of opioid sensitivity in infants and children; 2)
- To discuss the rational use of opioids in pediatric anesthesia.

---

## Physiology and Pharmacology of Local Anesthetics

Rudolph H. de Jong, M.D. ....261

Professor  
Department of Anesthesiology  
Director  
Jefferson Pain Center  
Jefferson Medical College  
Philadelphia, Pennsylvania

### *Lecture Objectives:*

- 1) Basic neurophysiology pertinent to understanding mechanism of conduction block by local anesthetics; 2) Clinical pharmacology of local anesthetics: quinoester and aminoamide linkage, dissociation and pH, minimum blocking concentration and minimum blocking length; 3) Toxicity of local anesthetics: allergy, prurhythmic and arrhythmic actions, convulsions (mechanism, prevention, treatment).

---

## Fluid Management for Neurosurgical Patients

John C. Drummond, M.D. ....511

Professor of Anesthesiology  
University of California San Diego  
Anesthetist-in-Chief  
Veterans' Administration Medical Center  
San Diego, California

### *Lecture Objectives:*

- 1) Review the mechanisms by which fluid therapy contributes to the evolution and prevention of cerebral injury processes; 2) Review the physiologic principles that serve to guide fluid selection for neurosurgical patients; 3) Review the management of specific abnormalities of water and electrolyte homeostasis that occur in neurosurgical patients.

---

## New Inhalational Anesthetic Agents

Edmond I. Eger, II, M.D. ....212

Professor and Vice-Chair for Research  
Department of Anesthesia  
University of California San Francisco  
San Francisco, California

### *Lecture Objectives:*

- To appreciate the advantages and limitations of two new inhaled anesthetics, desflurane and sevoflurane.

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## Electrical Safety in the Operating Room

Jan Ehrenwerth, M.D. ....152  
Professor of Anesthesiology  
Yale University School of Medicine  
New Haven, Connecticut

### *Lecture Objectives:*

- 1) To review the basic principles of electricity and grounding; 2) To compare and contrast the electrical power system in the home with the isolated power system in the operating room; 3) To understand the differences between macroshock, microshock, and electro-surgical burns, and how to protect the patient from injury by each of these.

---

## Risk Management in Anesthesia

John H. Eichhorn, M.D. ....422  
Professor and Chair  
Department of Anesthesiology  
University of Mississippi Medical Center  
Jackson, Mississippi

### *Lecture Objectives:*

- 1) Explain classic risk management; 2) Show that anesthesia risk management is a very active system of behaviors, plans and protocols designed to: a) Reduce the likelihood of all types of adverse patient outcomes, maximizing quality and, thus, reducing the likelihood of malpractice suits and, b) Help deal with the immediate and long-term aftermath of adverse events when they do occur, thus, minimizing the impact on the patient and the practitioner(s).

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## Epidural and Spinal Narcotics

James C. Eisenach, M.D. ....135  
Associate Professor  
Department of Anesthesia  
Wake Forest University Medical Center  
Winston-Salem, North Carolina

### *Lecture Objectives:*

- 1) To describe pain syndromes responsive to intraspinal opioids; 2) To describe rational selection of opioid and adjuncts for intraspinal treatment; 3) To describe appropriate monitoring and approaches to minimize side effects from intraspinal opioids.

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## Use of Blood and Blood Products During Anesthesia and Surgery

Norif Ellison, M.D. ....161  
Professor of Anesthesia and Vice-Chair  
Department of Anesthesia  
University of Pennsylvania School of Medicine  
Philadelphia, Pennsylvania

### *Lecture Objectives:*

- 1) Review the reasons why conservation in blood transfusion is essential today; 2) Present the recommendations of several national bodies concerning blood conservation; 3) Outline the several methods of reducing blood transfusion in the perioperative period.

---

## Anesthesia for the Transplanted Patient for Nontransplant Procedures

Leonard Firestone, M.D. ....243  
Chief, Cardiac Anesthesia  
University of Pittsburgh and  
Presbyterian University Hospital  
Pittsburgh, Pennsylvania

### *Lecture Objectives:*

This lecture will focus on principles and practices of anesthesia care for patients who have previously undergone organ transplantation. Topics include the pharmacology and toxicology of immunosuppressants and their interactions with anesthetics/adjuvants; organ function following transplantation including effects on drug metabolism; specific risks in immunosuppressed patients (nosocomial and transfusion-borne infection and sensitization); and, how organ rejection may mimic surgical emergencies.

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## New Developments in Adult Respiratory Distress Syndrome

T. James Gallagher, M.D. ....123  
Professor of Anesthesiology and Surgery  
Departments of Anesthesiology and Surgery  
University of Florida College of Medicine  
Chief, Division of Critical Care Medicine  
Shands Hospital at the University of Florida  
Gainesville, Florida

### *Lecture Objectives:*

- 1) To understand new modalities for ventilatory support in ARDS; 2) To understand new insights into the pathophysiology of ARDS; 3) To describe new therapies for prevention and treatment of ARDS.

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## Anesthesia for the Pregnant Patient Requiring Nonobstetrical Surgery

Charles P. Gibbs, M.D. ....265  
Professor and Chair  
Department of Anesthesiology  
University of Colorado Health Sciences Center  
Denver, Colorado

### *Lecture Objectives:*

Pertinent aspects of the science of teratology will be presented as well as proposed mechanisms of abortion and premature labor at the time of surgery during pregnancy. Specific techniques will be outlined.

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## Principles and Practice of Capnography

Michael L. Good, M.D. ....222  
Associate Professor of Anesthesiology  
University of Florida College of Medicine  
Gainesville, Florida

### *Lecture Objectives:*

This Refresher Course will: 1) Compare advantages and disadvantages of sidestream and mainstream capnographs; 2) Outline a systematic method for interpreting capnograms; 3) Provide examples of both common and uncommon abnormal capnograms that may be encountered in clinical practice; 4) Review the relationship between arterial carbon dioxide ( $P_aCO_2$ ) and maximum expired carbon dioxide ( $P_{E}CO_{2max}$ ), and factors which increase the  $P_aCO_2$ - $P_{E}CO_{2max}$  difference; 5) Summarize patient and equipment problems ("critical incidents") that can be detected with capnography.

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## Management of the Compromised or Traumatized Airway

Alexander W. Gotta, M.D. ....141

Professor of Clinical Anesthesiology  
Vice-Chair for Academic Affairs  
Department of Anesthesiology  
State University of New York  
Health Science Center at Brooklyn  
Brooklyn, New York

### Lecture Objectives:

- 1) Understand the mechanisms of traumatic airway disruption; 2) Recognize the compromised airway; 3) Create and implement an anesthetic plan suitable for management of surgical correction of the traumatized airway.

---

## The Anesthesiologist and Management of Cardiopulmonary Bypass

Glenn P. Gravlee, M.D. ....126

Professor  
Department of Anesthesia  
Head  
Section on Cardiothoracic Anesthesia  
Wake Forest University Medical Center  
Winston-Salem, North Carolina

### Lecture Objectives:

- Review basic principles of extracorporeal circulation, pharmacology of CPB, hemodilution, hypothermia, anticoagulation and monitoring during CPB.

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## Mechanical Ventilation of Infants and Children Perioperatively

George A. Gregory, M.D. ....251

Professor of Anesthesia/Pediatrics  
Department of Anesthesia  
University of California School of Medicine  
San Francisco, California

### Lecture Objectives:

- To understand the relationship between ventilation and lung function in infants and how ventilation affects their perioperative course.

---

## How to Make an Epidural Work

Brett B. Gutsche, M.D. ....512

Professor of Anesthesia  
Professor of Obstetrics and Gynecology  
The Hospital of the University of Pennsylvania  
Philadelphia, Pennsylvania

### Lecture Objectives:

- 1) Basic principles in the performance of an epidural; 2) How to tailor an epidural to the patient, i.e., a labor epidural, a surgical epidural; 3) Means to modify local anesthetics to improve onset, duration and effectiveness.

---

## Anesthesia Outside the OR: The Pediatric Patient

Steven C. Hall, M.D. ....142

Arthur C. King Professor of Anesthesia and  
Anesthesiologist-in-Chief  
Children's Memorial Hospital  
Associate Professor of Anesthesia, Clinical  
Northwestern Medical Center  
Chicago, Illinois

### Lecture Objectives:

- This lecture will identify some of the unique challenges involved in providing anesthesia services outside the traditional operating room environment and potential solutions for pediatric services in these areas.

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## Anesthesia for the Pediatric Ambulatory Patient

Raafat S. Hannallah, M.D. ....263

Professor of Anesthesiology and Pediatrics  
George Washington University Medical Center  
Vice-Chair of Anesthesia  
Children's National Medical Center  
Washington, District of Columbia

### Lecture Objectives:

- 1) Discuss criteria for selection, preoperative screening and preparation of pediatric ambulatory patients; 2) Review and update the anesthetic and analgesic management of these children with a special emphasis on the use of recovery and discharge criteria.

---

## AIDS and the Health Care Worker

David K. Henderson, M.D. ....331

Associate Director for Quality Assurance  
and Hospital Epidemiology  
Clinical Center  
National Institutes of Health  
Bethesda Maryland

### Lecture Objectives:

- 1) To describe the epidemiology of HIV-1 infection among health care workers in the United States; 2) To discuss routes of transmission and the magnitude of risk for patient-to-provider transmission of HIV-1 in the health care workplace, and to compare these risks already present in the workplace; 3) To discuss the potential routes and risks for provider-to-patient transmission of HIV-1 and to compare these risks with other societal risks; 4) To discuss management issues and strategies related to health care providers who are infected with bloodborne pathogens.

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## Neurologic Complications of Cardiac Anesthesia and Surgery

Bradley J. Hindman, M.D. ....145

Assistant Professor  
Department of Anesthesia  
University of Iowa, College of Medicine  
Iowa City, Iowa

### Lecture Objectives:

- 1) Establish current estimates of incidence and outcome; 2) Discuss potential etiologies of these injuries; 3) Discuss controversies in bypass management and brain protection as they relate to neurologic injury.