

# Society for Pediatric Anesthesia



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### Society for Pediatric Anesthesia



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2209 Dickens Road  
P.O. Box 11086  
Richmond, VA 23230-1086

## Society for Pediatric Anesthesia



The Society for Pediatric Anesthesia (SPA) publishes the SPA Newsletter four times a year. The information presented in the SPA Newsletter has been obtained by the Editors. Validity of opinions presented, drug dosages, accuracy and completeness of content are not guaranteed by SPA.

### Communications Committee

#### Co-Chairs:

**Shobha Malviya, MD**

University of Michigan Health System, Ann Arbor, MI

**Allison Kinder Ross, MD**

Duke University Medical Center, Durham, NC

#### Newsletter Editor:

**Rita Agarwal, MD, FAAP**

Children's Hospital, Denver, CO

#### Associate Editor:

**Thomas Mancuso, MD, FAAP**

Children's Hospital, Boston, MA

#### Contributing Editors:

**Zulfiqar Ahmed, MBBS**

Children's Hospital of Michigan, Detroit, MI

**Cathy Bachman, MD**

University of Chicago, Chicago, IL

**Joseph P. Cravero, MD**

Dartmouth-Hitchcock Medical Center, Lebanon, NH

**Sam Golden, MD, FAAP**

University of Chicago/Comer Children's Hospital  
Chicago, IL

**Cheryl K. Gooden, MD, FAAP**

Mount Sinai Medical Center, New York, NY

**Hoshang J. Khambatta, MD**

Columbia Presbyterian Medical Center  
New York, NY

**Helen V. Lauro, MD, FAAP**

SUNY Downstate Medical Center/  
Long Island College Hospital, Brooklyn, NY

**Olutoyin Olutoye, MD**

Texas Children's Hospital/Baylor College of Medicine  
Houston, TX

**David Poloner, MD, FAAP**

Children's Hospital, Denver, CO

**Michael Jon Williams, MD**

Thomas Jefferson University, Philadelphia, PA

#### Guest Contributors:

**Dean B. Andropoulos, MD**

Texas Children's Hospital, Houston, TX

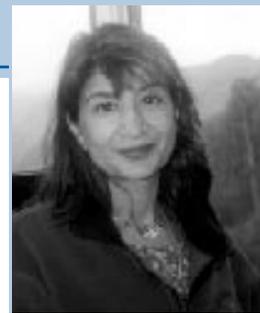
**Quentin A. Fisher, MD, FAAP**

Medstar Washington Hospital Center  
Washington, DC

The complete communications committee roster and assistant newsletter editors can be found on the SPA website [www.pedsanesthesia.org](http://www.pedsanesthesia.org).

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## Editor's Corner



Rita Agarwal, MD, FAAP

Wow, we had so many amazing contributions to this edition of the newsletter, that we will be saving some for the next. A HUGE thank you to all the wonderful assistant Newsletter Editors who make this possible.

In addition to the Literature Reviews submitted by Drs. Khambatta, Williams and Gooden, and the Topic Review by Samuel Golden, we have dedicated a significant portion of the newsletter to reviewing as much of the SPA/AAP meeting in Florida as we can. Thanks to Drs. Lauro, Bachman, Cravero, Mancuso, Ahmed, Olutoye and Polaner for all their hard work. Hopefully this will encourage those of you who were unable to attend to try to attend a future meeting. The Board of Directors is always open to ideas to help improve the meeting so if you don't see topics covered that you'd like to learn more about, please let them know

It is time to think about the elections! No not who's going to win in congress, but who is going to be on the next SPA Board of Directors. Dr. Anne Lynn and the Nominating Committee have selected several highly qualified candidates and their bibliographies are presented in these pages. You will have an opportunity to vote over the summer either electronically or by paper ballot. Please vote! More complete details on how to go about doing so will appear later. Dr. Lynn described the Nominating procedures in the last issue of the newsletter, and for those of you who missed it or would like to re-read it the article can be found in the Newsletter archives.

I wanted to let all of you who read this to know that Drs. Cheryl Gooden and Helen Lauro have graciously agreed to assume more responsibility in putting the newsletter together and as such, I have asked them to become Associate Editors. Congratulations and thank you to both of them. Dr. Thomas Mancuso has so ably filled that role for the last several years and has my everlasting gratitude.

Drs. Shoba Malviya and Allison Kinder-Ross, Co-Chairs of the Communications Committee have worked really hard to update and improve the website ([pedsanesthesia.org](http://pedsanesthesia.org)). Please take a look and let them know what you think. The Communications Committee is entering a really exciting stage of trying to expand the educational and other offerings on the site. Anyone who is interested in helping will be welcomed with open arms.

Don't forget to vote, Any question, comments or concerns? E-mail me at [Agarwal.Rita@tchden.org](mailto:Agarwal.Rita@tchden.org)

Rita Agarwal, MD, FAAP

Editor

The Children's Hospital/UCHSC, Denver, CO

### Don't forget to use your SPA Member Resources

**SPA Link: [www.pedsanesthesia.org/research](http://www.pedsanesthesia.org/research)**

Research Funding: Foundation for Anesthesia Education and Research Update

Application deadlines: February 15 and August 15

- Research Starter Grant (RSG)
- Mentored Research Training Grant (MRTG)
- Research Fellowship Grant (RFG)
- Research in Education Grant (REG)

# 2006 Pediatric Anesthesiology Meeting Review

## Friday Morning Lecture Review

By Helen V. Lauro, MD, FAAP



Helen V. Lauro, MD

The Society of Pediatric Anesthesia (SPA)/American Academy of Pediatrics (AAP) 2006 winter meeting was held at the Sanibel Harbour Resort in Fort Myers, Florida. The meeting opened with welcoming remarks from SPA President Francis X. McGowan, Jr., MD, FAAP, who announced that meeting attendance soared this year to almost 500 attendees. He also called attention to the new continuing medical education (CME) on the SPA web site now available at no cost to SPA members. AAP Section on Anesthesiology and Pain Medicine Chair Thomas Mancuso, MD, FAAP was introduced and he encouraged joint membership in both SPA and AAP as both organizations contribute actively to care of children. SPA Program Chair Nancy L. Glass, MD, MBA, FAAP announced this year's meeting faculty were drawn from 27 states including the District of Columbia and Canada, meeting registrants were present from 42 states and eight foreign countries. This year's abstract submissions increased by approximately 50 percent reaching 161 submissions.

The morning session "How to Keep Bad Things from Happening to Good People" was moderated by **Steven C. Hall, MD, Paul V. Miles, MD, FAAP**, American Board of Pediatrics, lectured on "Patient Safety and Physician Quality: What Kinds of Mistakes do Doctors Make?" Top medical mistakes include adverse drug events, preventable infections, surgical events, diagnostic adverse events and medical equipment failure. The anatomy of good versus bad medical care was illustrated by a case vignette of a 33-year-old female physician with a congenital myopathy stung by a bee presenting to the emergency room of her hospital, where in her case, systemic errors involved administration, communication, medication dosage, physician-patient collaboration, nursing, mechanical ventilation, and above all, failure to acknowledge there was a major problem. He contrasted the patient perspective (hospital perceived as a really scary place when a confluence of errors may cause a life-threatening mistake), with the physician perspective (actual error reporting, dismissal of family concerns and considering fairly common medical errors to be "rare" events). He concluded physicians (1) must believe harm-free care is achievable, (2) must listen to other workers, and (3) should demand competency in patient safety with consideration of Institute of Medicine (IOM) standards and American Board of Medical Specialties (ABMS)/Council on Medical Specialty Societies (CMSS) core competencies to move organizations from a culture of shame to learning.

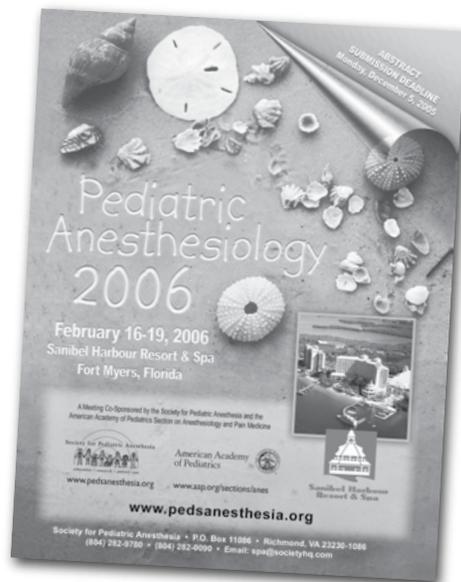
**C. Dean Kurth, MD, FAAP** presented "Can Our Monitors Save Us?" Near infrared spectroscopy (NIRS)—a noninvasive optical technology that relies on the relative transparency of biological tissues to near infrared light to determine tissue oxygenation, in effect functions as a pulse oximeter for the brain that could help prevent injury. After a discussion of the technology, he moved on to a myriad of clinical applications including congenital heart disease with/without coexisting neurological injuries, shock-trauma, sickle cell anemia, and critically ill premature infants. Similarities and differences of NIRS with pulse oximetry were elaborated — NIRS measures a weighted average oxygen saturation of blood in small "gas-exchanging vessels" (arterioles, capillaries, and venules) versus pulse oximetry measuring arterial pulsatile component, but limitations include that NIRS indicates a change in oxygenation accurately but does not indicate accurately what the oxygenation actually is. **Peter J. Davis, MD** spoke

on "Awareness", illustrated by bispectral index monitoring (BIS). The incidence of pediatric awareness is 0.8% representing a 4-5 fold increase in children over adults at 0.13%. Psychological sequela of awareness includes sleep disturbances, nightmares, panic attacks, flashbacks, avoidance of medical care, and post traumatic stress disorder, with bed-wetting and aggression as examples of post anesthesia behavioral changes

seen in 16-52% of children. He elucidated etiologies and risk factors for awareness include lack of use of volatile agents, light anesthesia, machine malfunction, female gender, increased intraoperative opioid use, and increased use of muscle relaxants. He emphasized awareness is not an immediate postoperative complaint—50% of awareness patients report the finding 1-3 weeks after anesthesia, described as auditory (48%), unable to move (36%), pain (28%), sensation of endotracheal tube (24%). Six limitations of BIS included (1) a more variable pediatric EEG than adults, (2) age related EEG frequency changes, (3) age related EEG background changes, (4) the BIS monitor has high sensitivity but low specificity with variable effects on BIS with inhalation (sevoflurane increases, nitrous oxide has no effect or increases) and intravenous agents (ketamine no effect, propofol and remifentanyl unpredictable effect) and premedication (oral midazolam no effect), (5) inpatient variability concerning the laterality of BIS placement and (6) interpatient variability. He suggested that while the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) states decreasing awareness must be a priority, our role as pediatric anesthesiologists must be to formulate evidence-based guidelines before governmental agencies do.

In between the two morning sessions, Dean B. Androupoulos, MD briefly introduced the Congenital Cardiac Anesthesia Society (CCAS), including the background of its formation and function as an integral subsociety of SPA with a separate board of directors, but shared administrative support from SPA. Registrants can look forward to a full-day pediatric cardiac anesthesia conference at the CCAS meeting, which will take place the day before Pediatric Anesthesiology 2007 commences, and every other year thereafter. Membership benefits will include access to their extensive CCAS database, offering unprecedented information on the anesthetic care and outcomes of patients with congenital heart disease and opportunities for novel research projects.

**Donald C. Tyler, MD**, moderated the second morning session "Things You Should Be Doing, But Probably Aren't", and opened with quality measures will function as important indicators defining the best clinical practice and promote accountability. **Douglas G. Ririe, MD** lectured on central line skin preparation. The greatest complication of central venous catheter placement is infection (ahead of malposition, bleeding or pneumothorax), entailing a cost of \$3,000-\$30,000



Continued on page 7

# ★★★ Nominations for SPA Board of Directors ★★★

## Submitted by the Nominations Committee

Anne M. Lynn, MD, - Chair  
Peter J. Davis, MD  
Lynne R. Ferrari, MD, FAAP  
William J. Greeley, MD, MBA  
Steven C. Hall, MD  
Mark A. Rockoff, MD

## Legend

1. Full Name
2. Name and City/State of Hospital for which you work.
3. Hospital and University Titles
4. Name and City/State of College attended; degree and year obtained.
5. Name and City/State of Medical School attended; degree and year obtained.
6. Name and City/State of Hospital where internship was done; type and dates attended; degree and year obtained.
7. Name and City/State of Hospital where Anesthesiology Residency done; dates of training.
8. Name and City/State of Hospital where Fellowship training was done (if applicable); type and dates of Fellowship.
9. Name and City/State of Hospital/University where additional training was done (if applicable); type and dates of training.
10. Prior involvement with SPA (if applicable); describe briefly.
11. Involvement with other national/international (pediatric) anesthesia organizations (if applicable); describe briefly.

## Nomination for SPA Secretary

1. **Nancy L. Glass, MD, MBA, FAAP**
2. Texas Children's Hospital Houston, TX
3. Director of the Pain Service, Director of Anesthesia Education, TCH; Professor of Anesthesiology and Pediatrics, Baylor College of Medicine
4. Rice University, Houston, TX, 1971-1974, 1985-1986; B.A., German literature, 1986
5. Baylor College of Medicine, Houston, TX; M.D. 1978.
6. Pediatrics, Baylor College of Medicine (BCM), 1978-1979.
7. Pediatrics, BCM, 1979-1981. Anesthesiology, UT Health Science Center, Houston, 1986-1987.
8. Children's National Medical Center, Washington DC, 1981-1983, Pediatric Critical Care Medicine.
9. Rice University, Jones Graduate School of Management, MBA, 2000-2002.
10. Elected Member, Board of Directors, 2000-2004; Program Director, Winter Meetings 2005, 2006. Education Committee, Finance Committee, Membership Committee participation.
11. ABA Oral Examiner; active in educational efforts at ASA, member of ASA PBLD Committee 2006; active in medical missions in Antigua, Guatemala through Faith in Practice, and ecumenical Houston-based organization providing medical care to the indigenous population of Guatemala.



## Nomination for SPA Board of Directors

1. **Rita Agarwal, MD, FAAP**
2. The Children's Hospital, Denver, CO
3. Associate Professor of Anesthesiology, University of Colorado Health Science Center
4. Texas, A&M, College Station, TX; B.A. Biology 1982
5. Baylor College of Medicine, Houston, TX; M.D. 1986
6. Surgery Internship, 1986-1987, Baylor College of Medicine, Houston, TX
7. Anesthesia Residency, 1987-1990, Baylor College of Medicine, Houston, TX
8. Pediatric Anesthesia Fellowship, 1990-1991, The Children's Hospital, Denver, CO
9. No additional training
10. Communication Committee Member 1994-present, Chair 2002-2005, Newsletter Assistant Editor 1996-2001, Editor 2001-present. Education Committee Member 1999-present. Member of the AAP: Section of Anesthesiology and Pain Management Board of Directors 1999-2006, AAP:SOAPM, Membership Chair, AAP:SOAPM 2001-present, Education Committee, AAP Reimbursement Committee



1. **Valerie E. Armstead, MD, FAAP**
2. Thomas Jefferson University Hospital, Philadelphia, PA
3. Associate Prof. of Anesthesiology; Director, Anesthesiology Program for Translational Research, Certified Clinical Research Contract Professional
4. The University of Chicago, Chicago, IL; A.B. 1977
5. Washington University School of Medicine, St. Louis, MO; M.D. 1981
6. Northwestern University, McGaw Medical Center, Chicago, IL, Medicine, 1981-1982
7. Washington University, Barnes & Affiliated Hospitals, 1984-1986
8. Univ. of Washington, Children's Hospital & Medical Center, Seattle, WA, 1986-1987
9. U.S. Health Service Corps, Sunrise Community Health Center, Greeley, CO 1982-1984
10. Program Chair, Annual 2007/2008 Meetings, Current: Education Committee, Communications Committee, Sickle Cell Interest Group, Past: Finance Committee, Congenital Cardiac Anesthesia Society, American Society for Testing & Materials (ASTM) International/U.S. FDA Committee F29.12 to write standards for supraglottal airways for pediatric and adult patients, 2002-current



1. **Cheryl K. Gooden, MD, FAAP**

2. Mount Sinai Medical Center, New York, NY
3. Assistant Professor of Anesthesiology and Pediatrics
4. University of Pennsylvania, Philadelphia, PA; B.S. / B.A. 1980
5. Temple University School of Medicine, Philadelphia, PA; M.D. 1988
6. Albert Einstein Medical Center, Philadelphia, PA; Pediatrics 1988-1989
7. St. Luke's / Roosevelt Hospital Center, New York, NY; Anesthesiology 1991-1994
8. Columbus Children's Hospital, Columbus, OH; Pediatric Anesthesia 1994-1995
9. Downstate Medical Center, Brooklyn, NY; Obstetrics and Gynecology 1989-1991
10. SPA Newsletter Contributing Editor 2000-present; Communications Committee 2000-present; International Education and Service Committee 2006



1. **Zeev M. Kain, MD, MBA**

2. Yale University School of Medicine, New Haven, CT
3. Professor of Anesthesiology & Pediatrics & Child Psychiatry  
Anesthesiologist-in-Chief, Yale-New Haven Children's Hospital
4. Ben Gurion University, Beer Sheva, Israel; B.S 1981
5. Ben Gurion University, Faculty of Health Sciences; M.D. 1985
6. Schneider Children's Hospital, New Hyde Park, NY; Pediatrics Residency 1986-1989
7. Yale-New Haven Hospital, New Haven, CT; Anesthesia Residency 1989-1991
8. Children's Hospital, Boston, MA 1991-1992
9. Yale University School of Medicine, New Haven, CT  
Robert Wood Johnson Clinical Scholar's Program, 1992-1999
10. SPA Education Committee, SPA Research Committee, SPA Publication Committee. Faculty, Moderator and workshop organizer in multiple SPA annual meetings.
11. ASA: Chair, Sub-Committee on Pediatric Anesthesia, Research Committee, Panels Committee, Pediatric Anesthesia Committee, Delegate to the House of Representatives  
AAP: Chair of the Anesthesia QA committee, Member Executive Committee of the Section on Anesthesia and Pain Management; NICHD: Member of study section; Chair, special emphasis panel; over \$6M in current NIH funding  
Editorial Boards: *Anesthesiology*, *Pediatrics*, *J Clinical Anesthesia* AUA: member of the scientific committee  
Executive Director, Center for the Advancement of Perioperative Health ([www.perioperativehealth.org](http://www.perioperativehealth.org))



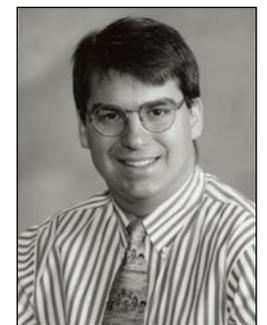
1. **Julie J. Niezgod, MD**

2. The Children's Hospital / Cleveland Clinic Foundation, Cleveland, OH
3. Chairman, Department of Pediatric Anesthesia CCF, Staff Department of Pediatrics
4. Ohio State University, Columbus, OH; B.S. 1979
5. Ohio State University, Columbus, OH; M.D. 1985
6. Rainbow Babies and Children's Hospital CWRU Pediatrics 1985-1986
7. Rainbow Babies and Children's Hospital CWRU, Cleveland, OH; Pediatrics 1986-1988  
Case Western University Hospital; Anesthesia 1988-1991
8. Pediatric Anesthesia, Pittsburgh Children's Hospital, Pittsburgh, PA, 1993
9. None
10. Member Education Committee 1999-present.
11. Participate annually with Healing the Children International Mission Group



1. **Douglas G. Ririe, MD**

2. Wake Forest University Health Sciences, NC  
Baptist Hospital/Brenner Children's Hospital, Winston-Salem, NC
3. Associate Professor of Pediatric and Cardiothoracic Anesthesiology
4. University of North Carolina-Chapel Hill, NC; B.A. Chemistry with Honors 1985
5. Medical School: University of North Carolina-Chapel Hill, NC; M.D. 1990
6. Cambridge City Hospital, Cambridge, MA 1990-1991
7. Anesthesiology, Wake Forest University School of Medicine-Baptist Hospital, Winston-Salem, NC 1991-1993; Cardiothoracic Anesthesiology 1993-1994
8. Pediatric Anesthesiology, Boston Children's Hospital, Boston, MA 1994-1995
9. Ph.D.: Molecular Medicine, Wake Forest University School of Medicine, Winston-Salem, NC 2004-present
10. Member SPA since 1994. Member of the Education Committee from 1998-2005. Member of the Anesthesia Council Operation Smile International 2003-present. Anesthesia Liaison to the Education Committee Operation Smile International 2005-present. FAER sponsored research from 1998-2000 on developmental modulation of acute and chronic pain. Current NIH supported anesthesia research in the field of developmental neurobiology of acute pain in the spinal cord and peripheral nervous system.



Continued on page 6



1. **Rita Agarwal, MD, FAAP**
  2. The Children's Hospital, Denver, CO
  3. Associate Professor of Anesthesiology, University of Colorado Health Science Center
  4. Texas, A&M, College Station, TX; B.A. Biology 1982
  5. Baylor College of Medicine, Houston, TX; M.D. 1986
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1. **Valerie E. Armstead, MD, FAAP**
  2. Thomas Jefferson University Hospital, Philadelphia, PA



# The Congenital Cardiac Anesthesia Society Launches

On December 7, 2005, the Congenital Cardiac Anesthesia Society, a new organization formed as a separate society within the SPA, was officially launched at the CCAS Pediatric Cardiac Anesthesia Conference, held in conjunction with the Pediatric Cardiac Intensive Care Symposium 2005, at the Ritz Carlton Hotel South Beach, Miami FL. The full day cardiac anesthesia conference had an attendance of nearly 300, 150 of whom were anesthesiologists. The morning sessions began with lectures on neonatal myocardial preservation by Frank McGowan, double switch operation by Emad Mossad, cath lab issues by Helen Holtby, and mechanical support by Laura Diaz. The morning sessions concluded with lectures on Sano vs. BT shunt for Norwood operation by Susan Nicolson, MRI findings in Norwood patients by James Spaeth, and a pro/con debate on minimal access surgery for single ventricle patients by James diNardo and Chandra Ramamoorthy. After a luncheon during which the CCAS Mission and Membership information were presented, the afternoon sessions began with lectures on aprotinin and factor VII by William Oliver, phenoxybenzamine by George Hoffman, dexmedetomidine by Joseph Tobias, and continued with a pro/con debate on ultrasound for vascular access by Susan Verghese and Helen Holtby. There were then two concurrent workshops: TEE by Wanda Miller-Hance, and Pediatric Cardiothoracic Anesthesia Fellowship Issues by Dean Andropoulos. The conference concluded with a panel discussion moderated by Steve Stayer on the provision of cardiac anesthesia services to children. There was also a poster discussion session in which several anesthesia research studies were presented, with the abstracts to be published in *Pediatric Critical Care Medicine*.

The CCAS launch continued on February 17, 2006, at the SPA Winter Meeting, with a short presentation and membership drive. The CCAS Organizing Committee held meetings on December 6 and 8, and again on February 18, and made progress in the following areas:

1. Nominations for CCAS Board Members and Officers will be submitted to the SPA by April 15th, with elections open to CCAS members to occur with the same timetable and process as the SPA Board elections in the summer and fall of 2006.

2. The preliminary program for the full day Pediatric Cardiac Anesthesia Conference, to be held March 8, 2007, in Phoenix, AZ, the day before the 2007 Winter SPA Meeting, was presented to the SPA Education Committee.



Dean B. Andropoulos,

3. The CCAS Database, a joint project with the Society for Thoracic Surgeons' Database, is progressing under the leadership of David Vener, and should start enrolling patients by the end of 2006.
4. The CCAS Organizing Committee sent a statement to the SPA and the Anesthesia RRC concerning the proposed fellowship in Pediatric Cardiothoracic Anesthesiology, asking that implementation be delayed until the proposal could be further studied, so that problems could be addressed and a solution taking into account the best interests of the entire subspecialty of Pediatric Anesthesiology could be proposed.
5. A plan for institutional Charter Memberships in the CCAS has been proposed, with more information forthcoming.
6. The Pediatric Cardiac Anesthesia Workshop, chaired by James diNardo and co-sponsored by the CCAS and the Society of Cardiovascular Anesthesiologists, will be held on Saturday, April 29th, 2006, in San Diego at the SCA Annual Meeting.

After the SPA Winter Meeting, the CCAS membership has increased to 116. SPA members wishing to join the CCAS are directed to the SPA website at [www.pedsanesthesia.org](http://www.pedsanesthesia.org). CCAS members desiring to volunteer for committee service, particularly education and database committees, or who are interested in institutional charter memberships, or have database or other questions can email the CCAS at [CCAS@societyhq.com](mailto:CCAS@societyhq.com), or Dean Andropoulos at [dra@bcm.tmc.edu](mailto:dra@bcm.tmc.edu).

Dean B. Andropoulos, MD  
*Chair, CCAS Organizing Committee*  
*Texas Children's Hospital*

## Winter Meeting Review

*Continued from page 3*

per infection and a hospital stay of seven days. His take-home message-- an alcohol rub, chlorhexidine (CLX) scrub (in those greater than two months of age), maximum sterile barrier precautions (MSBP) and education can reduce infection 50-90%--was supported by important data. Alcohol-based solutions as methods of hand washing reduce infection better than soap and water (88%-96% versus 50%), are cost effective, better tolerated, quicker, effective against MRSA and engender greater compliance. Skin preparation with CLX is superior to povidone-iodine, reported as a four-fold lower infection rate in catheters than alcohol or povidone-iodine in a randomized prospective adult trial, and a 60% reduction in blood culture growth versus iodine. MSBP of cap, sterile gown, mask, and gloves when draping result in a six-fold reduction in infection versus traditional sterile gloves and drape, and a three fold decrease in sepsis. **Jeffrey L. Galinkin, MD** opened his talk on preoperative antibiotics by challenging the benefits of antibiotic prophylaxis in common minor pediatric surgery stating the only proven benefit is for postoperative antibiotics only. He continued that subacute bacterial endocarditis (SBE) prophylaxis is recommended for procedures involving the respiratory, gastrointestinal, and genitourinary tract, with the exceptions of bilateral myringotomy and tube placement, transesophageal echocardiogram, endoscopy or circumcision, with an initial dose based on body weight, and subsequent doses provided past two drug half lives with antibiotic discontinued within 24 hours of surgery end time. Alternative interventions effective in lowering surgical infections include keeping the child warm (patients at 36.6 degrees Celsius had fewer surgical infections than those at 34.7 degrees Celsius), tight glucose control (improves wound healing), use of eighty percent oxygen as an "antibiotic" during surgery and maintaining same for two hours postop (reduced surgical infections 50% or more). He concluded with the need for pediatric anesthesiologists to put infection control strategies into action at their institutions with multi-departmental collaboration to positively impact postop morbidity. **Madelyn D. Kahana, MD** lectured on "Ventilator-associated Pneumonia". She opened that nosocomial infection is associated with greater than 48 hours of mechanical ventilation, and affects 10-40% of ventilated patients with a two- to four-fold increase in mortality. Clinical diagnosis (pyrexia, leukocytosis, new infiltrates and positive endobronchial cultures) is most often undertaken, but has limitations of low sensitivity and specificity. Host risk factors for VAP include altered level of consciousness, operation, trauma, biotrauma, and endotracheal tube, recumbent position, and poor oral hygiene, with microscopic aspiration responsible as the number one cause of VAP, potentially precipitated by anesthesiologists inoculating the patient with suction catheters. Preoperative considerations included CLX rinse, dental care and respiratory optimization. Intraoperative recommendations included precautions against aspiration during induction, orally intubating when possible and suctioning before extubation with a clean technique. Postoperatively, attention to elevation of the head of the bed, incentive spirometry and ambulation along with adequate pain control can be effective. She stressed in those who must be post operatively mechanically ventilated, the shortest duration should be encouraged, with tidal volumes less than 10 ml/kg (to prevent increases in microvascular permeability) and positive end expiratory pressure to decrease inflammatory markers such as tumor necrosis factor and interleukin 1. She concluded that our interventions in the operating room may be brief but can have a significant impact on morbidity--we can significantly reduce VAP risk preop and postop. **Douglas C. Tyler, MD** lectured about how you find these standards. Many organizations, such as American Society of Anesthesiologists, governmental (Medicare, Agency for Healthcare Research and Quality at [www.guideline.gov](http://www.guideline.gov)), private (National Quality Forum), payers (Leapfrog) and JCAHO are seeking development of

quality care standards and measures, with only peripheral application so far to our specialty with protocols for laterality, antibiotics, tourniquet frequency, washing hands, standard labeling and keeping the work area clean. **Nancy L. Glass, MD, MBA, FAAP** began the final morning talk "How to Get Docs to Do What They are Supposed to Do". Physicians must accept that change in individual clinician behavior is inevitable with new production pressures, more regulations, protocols and standards of care--often perceived as interfering with patient care. This is especially difficult for anesthesiologists who have very different styles and in general like their autonomy, including holding on to local customs and training and for whom new initiatives may be seen as complex, illogical, and as a barrier to doing the right thing. This represents a leadership challenge for anesthesiology departments. Effective leaders need to understand the three primary factors that motivate physicians--achievement, affiliation, and powerful influence. A physician may be an "achiever" doing challenging work well, an "affiliator" or team player who likes to work with others or, a "joiner" who likes to be active, or a "power" person who enjoys influence and speaks up at every staff meeting. Effective leaders in the department may win "buy-ins" of different physicians through understanding what motivates them. To the "achiever", showing data and comparing that to the benchmark is often effective. To the "affiliator", inviting the person to be a team member may work. To the "power" person, including her in planning for the initiative is effective. She counseled that effective leaders help physicians become comfortable with change and willing to try new initiatives through an individualized message including listening, empathizing, providing face-to-face feedback, and building systems to support change and communicating, rather than sending countless emails and memos.

## Friday Afternoon Sessions

Reviewed by Cathy Bachman, MD  
University of Chicago

The Friday afternoon sessions at the SPA annual winter meeting began with a session which continued the theme of the morning -- Patient Safety. The first talk was entitled "Crew Resource Management" for people who don't fly the airplane, given by **Captain Carlyle "Jai" Rampersad**, a professional pilot in the aviation industry, and by **Sally Rampersad, MD**. Captain Rampersad began by showing videos of a few airline accidents or near-misses -- extremely spell-binding and a real attention-grabber! He then discussed the aviation industry's approaches to adverse event analysis, and a systems approach to reduce such incidents. In summary, the "root causes" of adverse events include: (1) catalyst event, (2) system fault(s), (3) loss of situational awareness, and (4) human error. Barriers to adverse events include: (1) technology, (2) proficiency, (3) standard operating procedure, and (4) judgment. Many of the lessons and approaches of the aviation industry can be applied to the practice of anesthesia; Dr. Sally Rampersad continued the discussion. Crew resource management has applicability to the operating room and critical care environment. The ability to function in a complex and changing environment is imperative to both anesthesia and aviation. Personalities factor into adverse event generation or solutions as well. Some personalities are particularly unhelpful in avoiding adverse events, and may even detract from solutions to dangerous situations. These types of personalities were labeled "the Shiva factor" -- after Shiva the Hindu god of destruction, and include non-productive behavior such as loss of situational awareness, arrogance, and not accepting help or advice. Finally, both pilots and anesthesiologists in training are evaluated on an individual basis, but in the real world must function as a member of a team. Training in teamwork may be integral to reducing adverse events.

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**Dr. Allan Tait** conducted a Fellows Research Workshop on Designing and Conducting a Clinical Research Study. Both descriptive and analytical studies were discussed, including the structure of a study, its analysis, and review of the literature.

Concurrent with the Fellows Workshop Dr. Joseph Tobin conducted a Junior Faculty Workshop on Success in Academics. This workshop was aimed at faculty in their early years of academic practice. Topics covered included getting started with one's own scholarship, mentorship, developing a personal local forte, and undergoing a recurring process of self-assessment.

Jeopardy, an annual favorite, was once again MC'd by the entertaining and able **Dr. Myron Yaster**. The panelists this year were **Drs. Cheryl Gooden, Stephen Hayes, Jeffrey Koh, and Chandra Ramamoorthy**. As always, the panelists picked a topic from the Jeopardy board, which then lead to some discussion from the panel and from the audience. The topics this year included PCA, where the audience response suggested that most institutions are running basal infusions. Parental or nurse PAC was also discussed. PICC lines were a second topic. Epidural infusions were also on the list. Most in the audience responded that their institutions were not requiring special "monitored" beds for postop patients with epidurals, that bupivacaine is still the most common local anesthetic used, and clonidine is not routinely being added to infusions.

The last part of the afternoon was devoted to the Refresher Courses and Workshops. This was once again a well-subscribed series of workshops, on a wide variety of topics, from scientific to magic to work-life balance.

The day ended with a Wine and Cheese reception with the exhibitors – and enthusiasm and interest in meeting up with other attendees while partaking in refreshments was palpable. A good end to a very productive first day.

## Saturday Morning Session

Reviewed by Joseph P. Cravero, MD; Thomas Mancuso, MD; and Constance Houck, MD

The meeting began on Saturday with the PBLD sessions held on the veranda on a beautiful morning. Following these case-based learning session, which featured a chance for direct contact with experts in the field, there was a plenary session in the main meeting room. At 08:30, the American Academy of Pediatrics Section on Anesthesiology abstract winners presented their work and responded to audience questions. Two abstracts tied for the first place award.

Dr. Aparna Phadke, from the Children's Hospital in Pittsburgh Department of Anesthesiology presented her work in which she reviewed all accidental extubations that occurred during general anesthetics administered at Children's Hospital in Pittsburgh during the period from April 1, 1988 through June 30, 2005. This review was undertaken in order to identify the frequency of this adverse occurrence, any cofactors or predictors of accidental extubations and the sequellae of these extubations. In her report of more than 17 years of anesthetics that included > 224,000 cases she found 128 accidental extubations. The number is an incidence of 0.057%. Fortunately, none of the children who had accidental extubation suffered hypoxemia sufficient to cause either neurological injury of cardiac arrest. Her analysis did identify specific factors that place patients at higher risk for accidental extubation: age < 1 year, surgery in and around the mouth (rigid esophagoscopy, cleft lip/palate repair, T&A or dental restoration). In addition accidental extubations occurred more frequently in children with ASA physical status of 3 or 4 compared to those with ASA status 1 or 2.

Dr. Christopher Lancaster, from the Johns Hopkins Hospitals Department of Anesthesiology and Critical Care was the other first place winner. He presented his work investigating the actual delivered tidal volume (Vt) from the Draeger Fabius GS anesthesia machine. The ventilator on this machine has a compensation for breathing circuit dispensability and compression of the circuits' gas volume in order to maintain accurate delivery of the set tidal volume. He postulated that delivered Vt would vary with increased length of the breathing circuit even with the use of the machines compliance algorithm. Dr. Lancaster used a calibrated pneumotachygraph to measure delivered Vt, with a breathing circuit connected to a mechanical test lung. The breathing circuit was used in the collapsed and extended configurations. The ventilator was set to deliver Vt of 250, 500, 750 and 1000 cc at rates of 8, 10 and 12 breaths/minute. With the circuit collapsed the delivered Vt's were consistent with the set volume. With the circuit in the extended configuration, however, the delivered Vt's were higher at all settings. This difference was greatest at lower Vt and higher rates. At a rate of 12/minute delivered Vt exceeded set Vt by up to 18%.

The third place winner was Dr. Anne Waters, who performed a meta-analysis to determine the rate of unanticipated admission (UA) to the hospital following scheduled ambulatory surgery. The authors undertook an extensive search for RCT's, prospective and retrospective observational studies reporting unanticipated admissions after day surgery & anesthesia during the period from 1966 to 2005. The rate for unanticipated admission found was 2.1% (95% CI: 1.7%-2.6%). She reported that, in this meta-analysis, anesthetic causes for UA accounted for 0.6%, surgical reasons accounted for 0.8% and social, medical or other reasons accounted for 0.3%. The most common anesthetic reasons for UA were post op nausea and vomiting, dehydration and respiratory complications. A trend of increased rate of UA over time was noted and in addition the data showed a higher rate of UA in European countries (2.2%) versus North America (1.4%).

After the abstract presentations, the Robert M. Smith Award was presented. This prestigious award is presented to individuals who have devoted their professional lives to the perioperative anesthetic care of children and who have made significant and lasting contributions to the field of pediatric anesthesiology. The American Academy of Pediatrics Section on Anesthesiology presents the award on a regular basis when the nominations committee finds an individual whose career accomplishments are up the very high standard of the award. This year's honoree was Dr. Alvin Hackel. Dr. Hackel is currently a professor of Anesthesiology and Pediatrics at Stanford University Medical School practicing pediatric anesthesiologist at Lucile Packard Children's Hospital. He is a former chair of the executive committee of the AAP Section on Anesthesiology and Pain Management and has been a practicing pediatric anesthesiologist for many years. He has always had a prominent leadership role in the specialty. He authored virtually single-handedly the landmark statement of the AAP section entitled "Guidelines for the Pediatric Perioperative Anesthesia Environment" published in Pediatrics in February 1999. On receiving his award, Dr. Hackel reviewed briefly the history and events that led him to create that very important study. He then called us all to action regarding the future of peri-anesthetic care of children, citing many important areas where leadership in the field of pediatric anesthesiology is called for.

Following the rousing standing ovation for Dr. Hackel, the AAP Advocacy lecture was delivered. The speaker for this keynote lecture of the meeting was Edward R. Redd, First Justice of the Roxbury Division of the Boston Municipal Court. Judge Redd discussed the intersection of the rights of adolescents, our patients, in the health care system with the rights and responsibilities of their parents. He reviewed several important cases that illustrated the complexities of health care delivery, privacy, and autonomy when adolescents

and their parents are involved. These issues often suddenly and unexpectedly come to the fore in pediatric anesthesiology around issues of pregnancy testing and abortion in addition to regular difficulties with consent to care. Privacy becomes an exquisitely important issue when payment for care rendered to an adolescent is provided through insurance held by the parents. In addition to an informed, interesting, and timely review of the provocative topic of conflicting rights when parents and adolescents are involved together in health care of teen-agers, Judge Redd demonstrated to all in attendance how to give a compelling talk without dozens and dozens of power-point slides. Judge Redd captivated the attention of the listeners with the power of his discussion and his skill as an orator.

The final part of the program on Saturday morning was the AAP Ask the Experts Panel, moderated by Constance Houck, MD, FAAP. This year's panel was entitled "Perioperative Concerns for Children with Hemostatic Disorders" and featured a box lunch co-sponsored by the Pediatric Anesthesia Departments at Texas Children's Hospital and Cincinnati Children's Hospital and Medical Center. James DiNardo, MD, FAAP of Children's Hospital, Boston started the discussion by describing recent developments in the use of recombinant activated Factor VIIa in the perioperative period. He presented an overview of the mechanism and potential uses for this agent and then described not only its advantages but also the disturbing down sides to its use, most notably life threatening thrombosis. Though this drug has definitely been life saving in a number of instances, he recommended that use be restricted to those patients whose bleeding cannot be controlled in any other way and is potentially life threatening.

Lori Aronson, MD, FAAP from Cincinnati Children's Hospital followed with an excellent review of the use of the use of antifibrinolytics for both prevention and treatment of perioperative bleeding. She discussed the recent studies demonstrating their effectiveness in reducing the amount of blood transfused perioperatively. Special mention was made of the very recent studies suggesting serious potential adverse outcomes with the routine use of aprotinin in cardiac surgery. These studies have noted an increased risk of renal failure and end organ ischemia when this agent is used in association with adult cardiac surgery.

Stuart Hall, MD of Texas Children's Hospital was unable to attend the meeting so Dr. Dean Andropoulos, FAAP stepped in for him to present his overview of the use of regional anesthesia in patients with coagulopathies. This talk focused primarily on the recent recommendations developed by a consensus conference of the American Society of Regional Anesthesia and Pain Management. This consensus statement published in 2002 outlines the concerns and safety issues related to neuraxial anesthesia in the anticoagulated patient. Recommendations for the placement and removal of neuraxial catheters were outlined for the various conditions and drugs that affect coagulation in the perioperative period.

The lunchtime meeting concluded with a few minutes for questions and a brief AAP, Section on Anesthesiology and Pain Medicine business meeting.

## Sunday Morning

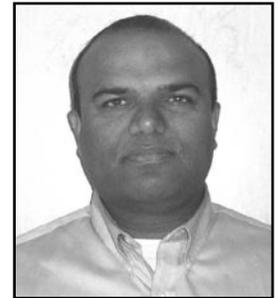
Reviewed by Zulfiqar Ahmed, MD

Sunday morning opened with the Baxter Breakfast sponsored by an unrestricted educational grant from Baxter. The topic was "Practical Uses of Ultrasound in Pediatric Anesthesia". The speakers were **Veronica C. Swanson, MD** from Oregon Health Science Center, Portland, OR and **David McLeod, MD** from Duke University Medical Center, Durham, NC. Dr. Swanson explained the recent advances in ultrasonography and its use in obtaining central venous access especially in pediatric population. With many citations and video clips, she showed clearly that the use of ultrasound in obtaining central venous access is a safe, useful and a potentially time-saving strategy. One can easily differentiate between carotid artery and jugular vein and selectively cannulate the jugular vein. Of special note was the demonstration of intraluminal thrombi in the central veins. As a result, the person obtaining the lines can choose a different site. Next, Dr. McLeod addressed another upcoming and attractive application of ultrasound in the operating room, which is the administration of regional blocks. With numerous illustrations and video clips, he showed the accuracy of the localization of nerves and ability to guide the needle tip to the desired place. Upon injection one can also demonstrate and document the location and spread of the local anesthetic. It was interesting to be able to localize a nerve located between an artery and vein and safely inject close to it. The session was followed by a discussion period.

The final presentation of the conference was the "Ten Best Articles of the Year" by **Drs. Franklin P. Cladis and Peter C. Davis**, both from Children's Hospital of Pittsburgh, Pittsburgh, PA.

Dr. Cladis reviewed three papers from *Transplant Medicine*. The first article was on portopulmonary hypertension in pediatric patients. The second paper was a review of Aprotinin in Orthotopic Liver Transplantation. But it was the third topic on the ethics of facial transplantation that attracted the most attention from the audience. Dr. Cladis provided an extensive review of the current status of the face transplant. He also mentions that a team of medical professionals in Louisville, KY is paving the ethical and professional way to start performing face transplantation in the United States. There were many references to the world's first facial transplant in France. Interestingly there is no information available on the donor of the face for the patient in France, which in my opinion is the most complicating part of the situation.

Dr. Peter Davis then cited several papers describing the problems associated with the administration of a caudal block for bilateral inguinal hernia repair. These include failure of the block, nausea and vomiting associated with narcotic administration and the caudal block as a blind procedure. He then cited an article accepted to be published in *Anesthesia and Analgesia*. That article describes a 100% success rate to perform bilateral ilioinguinal nerve block for bilateral hernia repair with a dose significantly small from caudal block. We anxiously await the paper to be published.



Zulfiqar Ahmed, MBBS

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## Sunday, Debate on Spinal Anesthesia for Ex-Premies for Inguinal Herniorrhaphy

Reviewed by David M. Polaner, MD, FAAP

An evidenced-based debate was held on the best technique for anesthetizing ex-premature infants for inguinal herniorrhaphy. **Dr. Andreas Taenzer** of Dartmouth-Hitchcock Medical Center and Dartmouth Medical School was the advocate for spinal anesthesia. He began by noting that the major risk of anesthesia in these patients is postoperative apnea and bradycardia, and that spinal anesthesia is the only technique which has been shown to have a greatly reduced incidence of this complication. Despite the lack of randomized controlled trials, this conclusion was reached by a review of the data in the literature, and supported by a Cochrane Collaborative meta-analysis. Spinal anesthesia has a high rate of success in the hands of those who utilize the technique frequently, and operative time can be effectively fit into the time afforded by a subarachnoid block by the appropriately skilled surgeon. He further noted the value of educating residents and fellows in this technique.

**Dr. Eugene Fried**, from Nemours Children's Clinics in Jacksonville, FL, proposed that caudal blockade was the best technique. He agreed that regional anesthesia afforded increased safety as regards apnea risk, but noted that the success rate of caudal blockade is far greater than that of spinal anesthesia due to several factors, including frequency of performance and familiarity, greater duration of blockade, and the ability to use a spinal anesthetic as a back-up technique in the event of a failed caudal. His technique involves the use of a large volume (1ml/kg) of high concentration bupivacaine (0.375%). This could be criticized as a potentially toxic dose, but he defended this by arguing that free bupivacaine concentrations are offset by the larger volume of distribution in these infants, and by citing several animal studies that suggest a greater threshold for toxicity in infancy as compared with adults.

**Dr. Constance Houck**, from Children's Hospital, Boston and Harvard Medical School concluded the debate with the contention that despite our common impression of what the literature shows, critical evaluation reveals that the preponderance of evidence favors general anesthesia. Although she agreed that subarachnoid block carries a reduced incidence of apnea, she noted that several case reports have been published documenting postoperative apnea with this technique, and that the Cochrane Collaborative meta-analysis did not fully endorse the evidence for the superiority of spinal anesthesia, stating that its possible advantages must be weighed against the problems of failed blockade and inadequate operative time. She further noted that general anesthesia can be administered for any length of time, and that a short course of caffeine has been found to be highly effective in this setting to significantly reduce the incidence of apnea and bradycardia.

The meeting then concluded for every one to reconvene in October at the SPA Annual meeting held prior to the ASA in Chicago. And don't forget Pediatric Anesthesiology will be returning to the Pointe Hilton at Squaw Peak in Phoenix, AZ, March 2007. We hope to see you all there.

## Promoting Pediatric Anesthesia Education: SPA Joins WFSA to Support Pediatric Anesthesia Fellow from Bangladesh

Quentin A. Fisher, MD, FAAP  
*Medstar Washington Hospital Center*  
*Professor of Anesthesia and Pediatrics*  
*Georgetown University School of Medicine*

The World Federation of Societies of Anesthesiologists (WFSA) is an organization comprised of anesthesia societies from nearly every country in the world. As part of its educational mission, the WFSA began establishing pediatric anesthesia fellowships in 1999 for individuals already fully trained in anesthesiology and desire additional training in the care of children. The concept was to allow anesthesiologists from less advantaged situations to train at regional centers in their own language and culture, at a very modest cost. Fellows are expected to study at the host hospital for six to 12 months and then return home, where they would be in a position to further train others.

This past year, the SPA Board approved the support of a WFSA pediatric anesthesia fellowship at The Vellore Christian Medical College, in Vellore, India. This year's fellow will be Dr. Manisha Paul, a Bangladeshi who has been in practice at the Chittagong Medical Center in Bangladesh. Dr. Paul's six-month fellowship will include four and a half months of pediatric anesthesia and six weeks of neonatal and paediatric intensive care. Both Dr. Paul and her mentor at Vellore, Dr. Rebecca Jacob, will be offered complimentary membership in SPA. A report from Dr. Paul will be featured in an upcoming edition of the Newsletter.

WFSA fellowships are remarkably cost-effective, as the fellows receive training in first-class programs for a total cost of less than \$7,500 per year. For example, Dr. Paul will receive her training at an approximate cost of \$2,000 for the six-month program. WFSA Pediatric Anesthesia fellows receive support for housing and meals, but are not salaried. Since creating the first WFSA pediatric anesthesia fellowship in Santiago, Chile, additional pediatric fellowships have been established in Tunisia, South Africa, Israel (for Eastern Europeans), and India.

As a side note, Vellore is also an excellent destination for SPA members wishing to do high-level teaching overseas. Volunteers who would like to provide two weeks or more teaching pediatric anesthesia would be welcomed there on sponsorship from Health Volunteers Overseas. Moreover, Dr. Jacob's department will be hosting the 5th Asian Society of Paediatric Anaesthesia at Vellore from August 31-September 3, 2006. Dr. Jacob writes, "If any of you are planning to come this way at that time or any other time, do write to me and you will find a welcome mat outside our door."

Supporting the WFSA-SPA fellowship in Vellore is entirely in keeping with SPA's goals of teaching and improving the perioperative care of all children. We hope that this will be the start of a close relationship with WFSA's teaching programs overall and the Vellore program in particular.

Links for further information:

- Health Volunteers Overseas: [www.HVOUSA.org](http://www.HVOUSA.org)
- Vellore Christian Medical Teaching College: <http://cmch-vellore.edu>
- World Federation of Societies of Anaesthesiologists: [www.anaesthesiologists.org](http://www.anaesthesiologists.org)
- 5th Asian Conference on Paediatric Anaesthesia: [www.aspa-2000.com/meetings.html](http://www.aspa-2000.com/meetings.html)

# Henoch-Schonlein

Sam Golden, MD, FAAP  
University of Chicago  
Comer Children's Hospital

Henoch-Schonlein purpura (HSP) is a systemic, immune-mediated vasculitis most commonly affecting skin, joints, gastrointestinal tract, and kidneys. It is the most common vasculitis in children. The disease is more benign and self-limited in children than adults.

The disease is most common in children between 3-10 years and has a peak annual incidence of approximately one in 1,500 children ages 4-7. Antecedent viral infection and group A Streptococcal pharyngitis are thought to be triggers in up to 50% of cases. Some authors believe drugs and foods may be precipitating factors, particularly in adults.

Skin biopsy specimens reveal perivascular granulocyte infiltration of small arterioles and venules ("leukocytoclastic vasculitis"). IgA-containing immune complexes can be demonstrated by immunofluorescence in and around vessel walls. Renal biopsies reveal mesangial infiltration with leukocytes and IgA, and to a lesser extent IgG, complement, and properdin.

Children with HSP have cutaneous involvement in 100% of cases, GI in 38-75%, renal in 13-47%, and joint in 43%. Most children have a pathognomonic rash characterized by non-thrombocytopenic purpura (non-blanching and often palpable) on the lower extremities and ending abruptly at the buttock. Blistering may occur. Joint involvement (arthralgia or arthritis) is most common in the ankles and knees. Abdominal involvement most commonly manifests as abdominal pain after eating ("bowel angina"), nausea and vomiting, but may include gastrointestinal bleeding and ileoileal intussusception.

Renal involvement is the most feared complication of HSP. In children, renal involvement typically occurs after the onset of other signs and symptoms. Risk factors for renal involvement include children older than four, those with GI bleeding, purpura lasting more than one month, and those with levels of factor XIII below 80% of normal. In a recent comprehensive review it was found that proteinuria and hematuria developed in 34% of all HSP patients but only 20% of these patients developed nephritic or nephritic syndrome. Proteinuria and hematuria developed in 85% of cases within four weeks of diagnosis of HSP, in 91% within six weeks and 97% by six months. Another study showed 97% of cases with renal involvement presented within three months of diagnosis.

Severe, initial renal involvement (hypertension, nephritis, renal failure) portends a worse long-term prognosis. In retrospective study of 1,133 patients, permanent renal impairment never developed in patients with a normal urinalysis, it occurred in 1.6% of those with isolated hematuria/proteinuria, and 20% of those who had nephritic or nephritic syndrome. The authors recommended serial urinalysis for 6 months, even if the initial U/A was normal.

Scrotal disease may occur and mimic acute testicular torsion. Ultrasound reveals swelling of the epididymis and scrotal skin. CNS involvement may manifest in seizures and altered mental status. CNS hemorrhage has been described in two patients.

There are no prospective controlled studies on the treatment of HSP, but retrospective reviews and personal anecdotal experience supports the use of steroids for cases with severe involvement of the kidneys, GI tract, CNS, or testicles. Usually, treatment is supportive with serial urinalyses.

Patients with nephritic or nephrotic syndrome have traditionally been treated with corticosteroids. Non-responders have been treated with a variety of other immunosuppressive agents including

urokinase, azathioprine, cyclosporin A, cyclophosphamide, dapsone, and high-dose intravenous immunoglobulin. Rare cases with life-threatening renal and CNS disease have been treated with plasmapheresis. Unfortunately, treatment with prophylactic corticosteroids has not been shown to decrease the subsequent development of renal involvement. Use of ACE inhibitors or angiotensin II receptors blockers have not been shown to be beneficial in HSP patients with renal involvement. Corticosteroids may accelerate the resolution of abdominal pain but carry risks such as GI tract perforation.

The overall prognosis is excellent, but in cases with renal and CNS involvement, recurrences occur in up to 40% of patients, usually within six weeks but occasionally up to 3-7 years later.

In patients diagnosed with HSP, it seems reasonable to postpone elective surgery until the risk of renal involvement is abated. This would be 3-6 months after diagnosis in patients without initial renal involvement. It would also seem reasonable to wait 3-6 months after clearance of isolated proteinuria or hematuria (i.e. not meeting criteria for nephrosis or nephritis) and documentation of a normal blood pressure and creatinine. For emergency surgery in patients in the acute phase of HSP, patients should have a urinalysis. If hematuria or proteinuria are found, serum electrolytes and creatinine should be determined. Blood pressure may be elevated in these patients and treated with hydralazine, labetalol, or other appropriate agents.

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# Literature Reviews

## The Safety and Efficacy of Spinal Anesthesia for Surgery in Infants: The Vermont Spinal Registry

Williams R, Adams C, Aladjem E, et al. *Anesthesia & Analgesia* 2006;102:67-71

**Review:** The goal of the study was to determine the safety of spinal anesthesia in infants. This is a prospective, IRB approved study of all patients undergoing infant spinal anesthesia at the University of Vermont since 1978. The infants examined in this study were scheduled for a broad range of surgical procedures in which spinal anesthesia could be used. General anesthesia was administered to infants with coagulopathies, infections, congenital malformations in the area of proposed lumbar puncture (LP), or those patients already receiving mechanical ventilation.

Patient demographics as well as surgical and anesthetic information have all been entered into a database, the Vermont Infant Spinal Registry. The database included 1,554 patients. More recently since 1991, time and efficiency data have been recorded. The mean weight at the time of surgery was 4,379g (range of 650g – 3.6kg). The surgical procedures performed included general, urologic, orthopedic, neurosurgical, and thoracic procedures. The investigators examined patient outcome, technical data, and the training level of the person performing the LP.

The results of the study were based on 1,483 patients. Of the 1,554 patients, the investigators deemed that 1,483 had appropriate surgical anesthesia with the spinal. They defined a successful LP by the return of cerebrospinal fluid through the needle, as this was observed in 97.4% of the patients. Hyperbaric tetracaine was administered in 99.6% of cases, with the remainder having either hyperbaric lidocaine or bupivacaine. In conjunction with the spinal anesthesia, 24.1% of patients received IV sedation. Supplemental anesthesia was administered by the surgeon in 2.7% of cases, secondary to regression of the spinal anesthetic.

From a cardiorespiratory point of view, the majority of patients remained stable. Supplemental oxygen either by nasal cannula or blow by was required by 3.7% of patients. Oxygen desaturation to less than 90% was observed in 0.6% of patients. In 3.8% of these cases the sensory level of the spinal anesthesia was higher than planned. The result of this was that 23 patients were given supplemental oxygen while maintaining adequate spontaneous ventilation. On the other hand, there were 10 patients with compromised spontaneous ventilation. Of these 10 patients, an equal number required either bag mask ventilation or endotracheal tube ventilation. Bradycardia (heart rate less than 100 bpm) was observed in 1.6% of patients.

The overall time and efficiency in the OR for the cases receiving spinal anesthesia was very good. A mean time of 10 mins was recorded from when the infant first entered the OR until the spinal anesthetic was administered. Also, of note was the mean duration of surgery of 47 minutes.

The data recording whether the anesthesia provider performing the LP was a trainee or an attending was available for 995 patients. A successful LP was noted among 83% of anesthesia trainees. When the attending anesthesiologist worked alone, the LP success rate was 98.9%.

**Comments:** This study is the first of such magnitude to evaluate the safety and efficacy of spinal anesthesia in infants. The results of



Cheryl K. Gooden, MD

this study point to the fact that spinal anesthesia is a rather reasonable option in this patient population. The incidence of complications with this technique has been observed to be low.

One must also keep in mind that there are some limitations to the use of infant spinal anesthesia. This is by no means to suggest that this technique should be avoided. Despite the nature and demands of the OR setting, the use of spinal anesthesia is quite feasible. The results of this study may convince those of us who are not currently performing infant spinal anesthesia, to want to reintroduce it into our practice.

Reviewed by Cheryl K. Gooden, MD, FAAP  
Mount Sinai Medical Center  
New York, NY

## The placebo (I shall please) – is it so pleasing in children?

B Anderson and N Cranswick.  
*Pediatric Anesthesia* 2005; 15:809-813



Hoshang J. Khambatta,

The authors remind us that children are often therapeutic orphans when it comes to implementation of new treatments. The history of drug regulation bears witness that major advances in legislation within the USA have followed pharmacological disasters in children. In 1901 the FDA introduced legislation to ensure purity and quality of medicines after 13 children died following exposure to diphtheria toxoid contaminated with tetanus bacilli. In 1937, 107 persons, the majority of whom were children, died from renal failure after ingesting sulfanilamide diluted in diethylene glycol. Subsequently, legislation was enacted to ensure safety testing of medicines. Finally, in 1961, thalidomide was recognized as a potent teratogen after many hundreds of children were born with phocomelia. After this episode, Congressional mandates required that medicines be tested for efficacy as well as safety. Despite this legislation, children have not benefited from the acknowledgement that the adequate testing of efficacy and safety is key to the appropriate use of medical intervention in humans. Unmonitored off-label use of medicines in children, extrapolated from adult data, resulted in significant morbidity that could have been avoided or minimized by appropriate testing in children. The randomized controlled trial is the accepted standard for testing the effectiveness and safety of a new or novel intervention in medicine. Ideally, the randomized controlled trial should compare the novel therapy against the current best standard. These trials are often powered to demonstrate therapeutic equivalence rather than superiority of one therapy over another. When no gold standard is available, the use of a placebo controlled trial is appropriate, such a trial is usually the most efficient, cost effective and decisive means of testing the effectiveness and safety of a monotherapy for phase III/IV studies.

The Declaration of Helsinki, Ethical Principles for Medical Research Involving Human Subjects is the standard for conduct of research in humans. It includes the statement that “the benefits, risks, burdens and effectiveness of a new method should be tested against those of the best current prophylactic, diagnostic and therapeutic methods. This does not exclude the use of placebo, or no treatment, in studies where no proven prophylactic, diagnostic, or therapeutic method exists.” Placebos are not appropriate in trials of therapy for life threatening conditions if treatment that prolongs or preserves life is available. Is it appropriate, for example, for a patient to suffer unnecessary pain even if the condition is not life threatening? In an analgesic study when the rescue medication is withheld for 10 minutes, do the doctors really have the patient’s best interest at heart when this is allowed?

There are two key considerations in medical ethics are respect for patient autonomy where the patient understands the pros and cons of the treatment options and decides without coercion, and second the beneficence on the part of the physician. Beneficence implies that the physician holds the best interest of the patient utmost. Consent for children is usually sought from parents or guardians, on the assumption consenting adult acts in the best interest of the child. Adults enter clinical trials for reasons that may not always apply to children e.g. financial reward, increased attention from physicians, low perceived risk, future benefits to others with similar conditions, curiosity about scientific process, disgruntlement with existing therapy, or simple altruism. Children under 9 years of age often have poor understanding of the reasons for a proposed study or procedures involved. Age appropriate explanation is the key to the process. Risk should be minimum and the benefit ratio high, typically a subjective ratio. However, minimal risk to an adult is not the same to a child. A venepuncture is a mild impediment in adults but 85% of children between the ages of 2.5-6 years report a high level of distress.

Guide lines for the use of a placebo in adult studies are emerging. Namely, was any therapeutic intervention available that was less harmful than the placebo control? Did placebo control pose more than minimal risk? Was the study designed to minimize potential harm to patients receiving placebo? Were the patients fully and accurately informed of the additional risks in the placebo group? These questions really concern patient autonomy and beneficence; principles that are different in adults and children.

**Comments:** In the context of placebo controlled trials and randomized control trials, I would like to take up the subject of the control of post operative nausea and vomiting. One finds study after study comparing the effects of an agent against a placebo. The authors typically concluding that with the study agent the incidence of post operative nausea and vomiting was less than in the placebo group. Regrettably these studies add nothing to our knowledge or to improvement in patient care. It has been suggested that if an "effective" treatment exists, the scientific motivation in performing placebo controlled trials is strongest when the effectiveness of the available treatment is modest and inconsistent, and when the new treatment is not expected to be more effective than the available treatment – clinical equipoise. If the available treatment is highly and consistently effective, a scientifically convincing therapeutic equivalence trial is feasible and a placebo controlled trial is wrong and not needed to establish the usefulness of a new drug. If the available treatment is only modestly and inconsistently effective, but the new treatment is expected to be an improvement, a placebo controlled trial is not needed. The American Academy of Pediatrics published guidelines in 1995 for the use of placebo in children. The most common alternative to the placebo controlled trial is a comparison with all the available alternative treatments, rather than the placebo. These considerations ultimately rest with institutional review boards and ethics committees, and decisions will vary from place to place. However, it is mandatory that these alternatives be fully documented in the research proposal. A surge in cooperation and collaboration among pediatric research units such as exists throughout Europe and North America, can only improve study design and outcome for children involved in therapeutic trials. Anesthesia needs to be part of this collaboration. May be our nations premier pediatric institutions can put together an appropriately designed large scale randomized control trial to decide on the most effective agent or agents to solve the problem of post operative nausea and vomiting to the benefit of both the children and the anesthesiologists taking care of them.

Reviewed by Hoshang J. Khambatta, MD

## Articles of Interest

By Michael Jon Williams, MD  
Thomas Jefferson University  
Philadelphia, PA

The latter half of 2005 and early 2006 saw a number of interesting review articles, papers and monographs related to pediatric anesthesia. *Clinics of North America* December issue is devoted to pediatric anesthesia, *Current Opinion of Anesthesiology* has some nice review articles and an interesting editorial by Dr. Ronald Litman explaining the move by the Children's Hospital of Philadelphia to have non-anesthesiologists perform sedation on children outside of the OR environment. *Circulation*, in its November supplement, published new guidelines for advanced cardiac life support with Pediatric Basic and Advanced Life Support being covered in part 6 of the supplement (see *Circulation* 2005; 112: III 73 - III 90, 'Part 6 - Pediatric Basic and Advanced Life Support'). Finally there is an interesting article (*Anesth Analg* 2006; 102: 67-71, The Safety and Efficacy of spinal Anesthesia for Surgery in Infants: The Vermont Infant Spinal Registry) dealing with the experience the Department of Anesthesiology of the University of Vermont has had in performing spinal anesthetics on infants less than one year of age over the past 25 years.

In addition to citing the articles above, I would like to draw attention to a point/counter-point pair of editorials in the October issue of the *Journal of Neurosurgical Anesthesiology*. It has been known for some time, during the early life of rats and mice, stimulation of neurons and neural connection formation (synaptogenesis) in the developing brains is necessary in order to maintain neuronal viability. If neurons in a developing brain are excessively inhibited by too much stimulation of GABA receptors (benzodiazepines, of inhalational anesthetics) or there is excessive inhibition of excitatory, NMDA glutamate neurotransmission (ketamine), neuronal degeneration and death (apoptosis) can be increased to up to 68 times normal. Could our specialty be actually complicit in delivering neurotoxins to our youngest and most vulnerable patients?

Well, before we abandon our fentanyl and rocuronium vials, as well as our sevoflurane vaporizers for the "good old days" of nitrous oxide and Pavulon, there are some other issues to consider. Can we extrapolate data of these rat and mice models to humans? Certainly the development rate of a rodent brain is much faster than that of the human. A short course of anesthetic in a rat could be the equivalent of a month's worth in a human. What of the inability to maintain nutrition during the anesthetic? Is hypoxia prevented in the anesthetized animal model? These questions are raised as well as noting references showing no evidence of cognitive dysfunction in larger mammalian species exposed to anesthetics. The counter-point article tends to convince us to "stay the course" in our current practice.

I found the editorials by Drs. Jevtovic-Todorovic, Soriano, and Loepke very interesting. Similar to much political debate in the U.S., both sides of the debate recommended the same advice from Hippocrates, "Do no harm." This is not the first and I am sure this will not be the last time we will see this debate in anesthetic publications.

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## Favorite 2 Abstracts from Pediatric Anesthesiology 2006

Olutoyin Olutoye, MD  
Texas Children's Hospital / Baylor College of Medicine  
Houston, TX

### Presenting research information to children: A Tale of Two Methods

AR Tait, T Voepel-Lewis, S Malviya, C Burger, H Bowman, C Joseph.  
*Department of Anesthesiology, Univ. of Michigan Health System, Ann Arbor, MI.*

The authors emphasize that while pediatric assent does not require the same level of understanding as consent, it is imperative that children understand the voluntary nature of their participation in studies, what will be happening to them, as well as the risks and benefits of their participation. Studies have shown that younger children in particular, have a limited understanding of these elements. The authors also state the importance of delivering adequate, simplified, and child friendly research information to children in order to obtain assent. In this study, they proposed to examine the effects of improved readability and processability on children's understanding of written study information. 148 patients had been enrolled into the study and these included children between ages 7 to 18 years, who were hospitalized for elective procedures or medical conditions. They were randomized to receive either the standard study information form for a previous post-operative nausea and vomiting (PONV) study plus verbal disclosure, or a modified version of the same PONV study information form plus verbal disclosure. The modified version of the study form was structured to meet 8th grade reading level and a processability score of > 60 out of 100. This information was presented to the children in a simulated study situation to simulate standard practice of obtaining assent.

Interviews of the children were subsequently carried out during which the children's understanding of 8 informational elements including purpose, protocol, risks, benefits, alternatives to participation and their responses were recorded. Two independent, blinded assessors graded the children's responses. Both groups of children were then shown the modified version of the study information sheet.

Findings of this study revealed that children who read through the modified study form had a greater overall understanding of the PONV study as well as adequate understanding of the protocol and indirect benefits. The level of understanding correlated significantly with the reading ability of the children. Those in the 7 -11 year old group demonstrated significant improvement in their overall understanding of the material they had been presented however, this improvement was not as marked in the older age group (12-18 years); this group tended to over estimate their understanding of the study information. When shown both forms, 80.7% of the children preferred the modified form stating that it was friendlier and easier to read. The use of pictures in the modified study information sheet was very popular amongst the children.

**Comments:** This study reinforces the need to present study information to children in an age-appropriate and reader friendly fashion. Not only will use of these types of forms empower children to adequately give their assent for study participation, but it will also endear parents to give their consent for their child's participation as well. It is therefore imperative for clinical investigators to develop similar tools for their studies. If this approach can be developed and widely adapted, it would have a significant impact on the success rate of recruiting pediatric patients for clinical research.

### Obesity and its effects on gastric fluid characteristics in pediatric patients fasted for day surgery.

JS Choi, L Rodol, RS Litman, MS Schreiner, K Minger, R Pachikara, PR Gallagher, SD Cook-Sather  
*Department of Anesthesiology and Critical Care Medicine, The Children's Hospital of Philadelphia and The University of Pennsylvania, Philadelphia, PA.*

This abstract was based on a two-part study: a). Examining the prevalence and demographics of overweight and obese children in the pediatric day surgery population at their institution, and b). Measurement of residual gastric fluid volume (GFV) and gastric pH to determine any variation with body mass index.

In the first part of the study, 1025 consecutive patients between the ages of 2 and 12 years, presenting for day surgery were enrolled within a one-month span. The BMI of these patients were calculated. The CDC definition of overweight and obesity (85th-95th percentile BMI and > 95th percentile respectively) was used to classify these patients as overweight or obese based on their calculated body mass index (BMI). Of the 1025 patients recruited, 834 patients had complete data for analysis. One-third of their pediatric day surgery population met the criteria for being either overweight or obese. No significant difference in the prevalence of obesity with regard to race or gender was found.

In the second part of the study, children between 2 to 12 years of age requiring endotracheal intubation for their surgical procedures were recruited and their demographics were collected. The design of this second phase of the study involved GFV and gastric pH measurement after endotracheal intubation. In the 49 patients reported, GFV was not found to vary with BMI.

This preliminary data reveals that the overweight/obese children who had fasted for greater than 2 hours did not have significantly greater gastric fluid volume per kilogram than fasted lean patients.

**Comments:** The authors are to be applauded for studying this group of patients that pose unique challenges to the pediatric anesthesiologist and are presenting to our operating rooms in increasing numbers for elective and day surgery procedures.

This study shows that a significant number of obese and overweight children present for day-surgery procedures. These numbers can only be expected to increase as the epidemic progresses and as these children develop obesity related co-morbidities that may require surgical intervention. Examining the impact of obesity on residual gastric fluid volume and aspiration risk with induction of anesthesia is an important step in understanding the pathophysiology of this group of patients as it pertains to their anesthetic management. While the number of patients in the second arm of the study is too small to draw any meaningful conclusions; upon completion of the study, (slated to recruit 1000 patients) a significant contribution will be made to pediatric anesthesiology regarding findings on this important category of patients.

## Friday Afternoon Junior Faculty Workshop: Success in Academics

Reviewed by: Helen V. Lauro, MD, FAAP

This is the second year a free, highly acclaimed career development workshop has been offered at the winter meeting for SPA members, conducted by Joseph R. Tobin, MD, FAAP, FCCM. The emphasis of this workshop was for anesthesiology practitioners in the early years of their academic careers. Dr. Tobin was informally joined by Gregory B. Hammer, MD and Valerie A. Armstead, MD, FAAP.

As an introduction, meeting registrants verbally discussed their goals for the workshop. Dr. Tobin described the need for such a workshop for junior faculty arose at Wake Forest University at a time of low departmental finances, reduced nonclinical time, and diminished quality of sponsored research. He elaborated various definitions of "success" (wealth, position, honors and the like), and differentiated these from personal success (positive nuclear family, rewarding clinical practice, national reputation, promotion, sense of contribution, self growth and actualization). Whatever the individual definition, Dr. Tobin enforced the significance of "owning one's success" with concern for those attributes most vital to the clinician, and having one's passion drive that success.

For those who are pursuing academic success, it is crucial to align one's academic and clinical work with promotability. Promotion criteria are specific to one's institution, but usually include scholarship, teaching and research. Dr. Tobin emphatically outlined scholarship as the most important factor for promotional consideration, best established through initial case reports, retrospective reviews such as involving patient ergonomics, patient satisfaction or fast tracking, cohort studies, clinical trials, and bench lab research. For those contemplating a project for institutional review board (IRB) approval, he advised the IRB is empowered by federal law and its interpretation varies institution to institution. He suggests meeting with the Chairman of the IRB, incorporating a power analysis, demonstrating no conflicts of interest and preparing correct wording of consent and assent documents for those children greater than age 6. The question of how to obtain seed money for research was raised-- Drs. Tobin and Armstead suggested potential grant sources as Anesthesia Patient Safety Foundation (APSF), Foundation for Anesthesia Education and Research (FAER), March of Dimes, American Heart Association, and Franklin Fund. Journal reviews for peer reviewed journals are one way to gain experience. 'Chapter traps' should be avoided, and Dr. Tobin emphasized not taking on more than one can deliver to avoid failure. The successful candidate must also develop clinical and educational excellence and administrative skills.

The junior attending must be knowledgeable of the departmental salary structure. He counseled that the American Association of Medical College lists salaries by public and private institutions in the 25th and 75th percentiles for 2004-5 and this report entitled Report On Medical School Faculty Salaries 2004-2005 may be purchased online. In negotiating with the department it is important to approach the Chairman on what else can be offered beside salary, such as, a research nurse or nonclinical time. The concept of protected non-clinical time was raised by Dr. Hammer--being pulled into the operating room to do clinical work at the expense of non-clinical time with no extra compensation or payback was deemed unacceptable, as was accepting nonclinical time post call when the junior attending is not fresh for productivity. One idea suggested was to negotiate with the Chairman an increase of nonclinical time for a period to allow grants to get up and running, after which the worthiness of the nonclinical time may be reevaluated.

Effective mentoring was underscored as necessary to mature and grow academically. A mentor offers significant career assistance to a protégé. Dr. Tobin stated one must not rely on a single mentor, but rather many mentors such as Chairman, scientific mentors, master educators, previous mentors, and colleagues at subspecialty societies such as SPA. In turn, protégés must become mentors for students and junior colleagues. Toxic mentoring relationships must be avoided—a conflict in goals of the mentor and protégé where the mentor displays lack of availability and responsiveness and competition with the protégé.

Concluding remarks highlighted the need to develop and periodically review one's teaching portfolio, which should include all departmental, intra-institutional and extra-institutional accomplishments. Power point presentations were used as an illustration. The junior attending should keep digital copies of all work done from fellowship forward. The teaching portfolio together with a personal statement and curriculum vitae form the usual academic portfolio ultimately used for promotional review.



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## BOOK CORNER

By: Helen V. Lauro, MD, FAAP

Smith's Anesthesia for Infants & Children, editors Etsuro K. Motoyama M.D. and Peter J. Davis M.D., 1304 pages, \$175.00, ISBN 0323026478, New York, N.Y., Mosby, 2005.

This eagerly and long anticipated textbook of pediatric anesthesiology has recently been released in its seventh edition. Despite the fact that the original text by Dr. Robert M. Smith was released almost a half century ago, the premise of a practical text presenting fundamental differences in pediatric patients as related to older persons, with safety and simplicity as main underlying principles, remains adhered to in a rich compilation which has been thoroughly revised and updated to provide a wealth of information pediatric anesthesiologists will need and benefit from in their discipline as their practice enters the new millenium.

The content remains organized into four parts: Basic principles in pediatric anesthesia, General approach to pediatric anesthesia, Clinical management of special surgical problems, and Associated problems in pediatric anesthesia. Thirty-six chapters written by more than 75 preeminent international contributors are presented including new sections on office-based pediatric anesthesia, anesthesia for fetal surgery, neonatal emergencies and perioperative psychological preparation. Other changes from the prior edition are expansion of physiologic principles, monitoring techniques, pharmacology, organ transplant anesthesia, general abdominal, thoracic, urologic and bariatric surgery in pediatric patients, and plastic surgery. Appendices of pediatric drug dosages, growth curves, normal pulmonary function values, indices of syndromes and their pediatric anesthetic implications are retained. Figures and tables are black/white but are clearly demarcated from the text. An outstanding addition is the DVD, prepared by 14 world-renowned contributors, containing video and color-slide presentations on pediatric airway (including pediatric fiberoptic intubation, and methods for achieving single-lung ventilation), cardiovascular disease, trauma, regional anesthesia, general surgery (including liver and small bowel transplantation), neonatal surgery (including laparoscopic and thoracoscopic surgery), and pediatric syndromes. The latter is sure to become an excellent reference tool for teaching residents and fellows, readily available at computer terminals in the operating room.

This text is a triumph for the authors and editors and a must-have for pediatric anesthesiologists in the operating room, office, and anesthesia library.

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By Helen V. Lauro, MD, FAAP

## 2006

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8th Annual Society for Pediatric Anaesthesia in New Zealand and Australia (SPANZA) Scientific Meeting

Tel: +64 3 379 0390, Fax: +64 3 379 0460

Information: Arna Wahl Davies, Event Manager, Conference Innovators, P.O. Box 13 494 Christchurch, New Zealand

Website: <http://www.spanza.org.au>

### October 5-7: Budapest, Hungary

FEAPA European Conference on Paediatric Anaesthesia: "Safe anaesthesia for children"/7th Conference of Hungarian Paediatric Anaesthesia and Intensive Care Society

Tel: + 36 1 327 1000 ext 2538, Fax + 36 1 411 6370

Information: Mrs. Klára Papp, Bethesda Children's Hospital, Budapest Hungary

Website: <http://www.bethesda.hu>

### October 7-10: Barcelona, Spain

Europaediatrics 2006

Tel: +41 22 908 0488, fax: +41 22 732 2850

Information: Kenes International Global Congress Organizers and Association Management Services, 17 Rue du Cendrier, P. O. Box 1726, CH-1211 Geneva 1, Switzerland.

Website: <http://www.kenes.com/europaediatrics>

### October 13: Chicago, Illinois, USA

Society of Pediatric Anesthesia (SPA)  
20th Annual Meeting

Tel: (804)-282-9780, Fax (804)-282-0900

Information: Society of Pediatric Anesthesia, P.O. Box 11086, Richmond, VA 23220-1086

Website: <http://www.pedsanesthesia.org>

#### **Footnote:**

Please forward all information concerning congresses relevant to Pediatric Anesthesia to: Helen V. Lauro, MD, FAAP, Department of Anesthesiology, Long Island College Hospital, 339 Hicks Street, Brooklyn, New York 11201.