Society for Pediatric Anesthesia

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2005 Annual Meeting

October 21, 2005

Hilton New Orleans, Riverside
New Orleans, LA

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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.*

The complete communications committee roster and assistant newsletter editors can be found on the SPA website **www.pedsanesthesia.org**.

Editor's Corner

Rita Agarwal, MD, FAAP

The *2005 Pediatric Anesthesiology* Meeting this past February was a great success, with registration at 430 there were more attendees than any previous winter meeting. Congratulations to Dr. Nancy Glass and the Education Committee for organizing such a outstanding scientific meeting and thanks to everyone who participated and attended.

Drs. Gooden, Mancuso, Golden, Lauro and Armstead have done a stellar job reviewing as much of the meeting as they could. We always try and review as much of the science as time and manpower allows and as always many, many thanks to all the assistant editors and guest editors that make this newsletter possible.

Special thanks to Dr. Jim Steven for his elucidating update on the requirements for Life Long Learning and Dr. Alan Tait for his review of the Fellows Workshop that he and Dr. Jerrold Lerman conducted at the Pediatric Anesthesiology Meeting. Dr. Hoshang Khambatta has provided an excellent article review and there is a new and very compelling "Letter from Africa" in this issue with photos. I hope you find it as fascinating, scary and inspiring as I did.

You are officially invited to become involved in your society.

By way of this Editor's Corner, you are officially invited to become involved in your society. We encourage and depend on member participation, so please don't wait for someone on a given committee to ask you to join, let the Chair of that committee know you're interested and be prepared to work! You can find committee listings and contact information on the SPA website.

If you have a burning desire to express your creative side in print, please let me know (Agarwal.Rita@tchden.org) or if you'd just like to write for the newsletter that's OK too. As always I welcome any questions, comments or suggestions you may have.

Rita Agarwal, MD, FAAP
Editor
The Children's Hospital/UCHSC, Denver, CO

Member Spotlight

Malignant Hyperthermia Association of the United States Bestows Awards Advancing Education, Treatment, and Research

Joseph Tobin, MD of Wake Forest School of Medicine in Winston-Salem, NC, and Joseph Lucero, MD of the University of Iowa Hospitals and Clinics in Iowa City, IA, were recipients of the 2004 MH Hotline Partnership Award by the Malignant Hyperthermia Association of the United States (www.mhaus.org). This award recognizes special cases in which the 24/7 MH Hotline was used to help save lives, solving Malignant Hyperthermia (MH) cases in real time via telephone or Internet.

The case for which they were selected involved a six-year old boy who experienced symptoms of an MH episode during surgery. When Dr. Lucero called Dr. Tobin, the boy was in the Pediatric ICU. They eventually concluded that even if the case was not MH, they recommended the family wear ID bracelets until a muscle biopsy could be obtained for a diagnosis.

Malignant hyperthermia is a silent, inherited metabolic disorder of muscle. Affected individuals usually appear perfectly normal and have no functional difficulties in everyday life. However, when these individuals are given a triggering anesthetic this silent disorder may turn deadly. To get more information on MHAUS go to their website at www.mhaus.org.

Pediatric Anesthesiology 2005 Meeting Review

Fontainebleau Hilton Resort & Spa • Miami Beach, FL
February 24-28, 2005

Thursday, February 24, 2005

By Cheryl K. Gooden, MD
Mount Sinai Medical Center

For the second year, a Pediatric Advanced Life Support (PALS) Provider course was offered on Thursday, before the start of the SPA-AAP meeting. A group of approximately 50 people traveled by bus from the Fontainebleau Hilton Resort to the brand new simulation center at Jackson Memorial Medical Center/University of Miami, where a nine hour course took place. The PALS course included the latest updates, didactic lectures, skills stations and testing. In addition, participants were required to attend an additional six hours from a group of pre-selected lectures during the rest of the meeting.

This year's course was quite successful. Based on the reviews by the participants, the course scored high marks. Kudos go out to the course coordinators **Liz Berg**, **Paul Liu**, and **Hal Shaffner**, as well as the group of instructors. All in all, the instructors and participants had a great day!

Friday, February 25, 2005

By Helen V. Lauro, MD, FAAP
SUNY Downstate Medical Center/
Long Island College Hospital

The Society of Pediatric Anesthesia (SPA)/American Academy of Pediatrics (AAP) 2005 winter meeting was held at the Fontainebleau Hilton Resort in Miami Beach, Florida. Welcoming remarks began by SPA President **Francis X. McGowan, Jr., MD, FAAP**, (Boston Children's, Boston, MA), who reiterated the SPA mission statement of expanding opportunities for continuing medical education, increasing advocacy efforts and increasing public awareness of the role of pediatric anesthesiologists. Members were encouraged to take responsibility and become active SPA participants. AAP Section on Anesthesiology and Pain Medicine Chairperson **Thomas Mancuso, MD, FAAP** (Boston Children's, Boston, MA) was introduced and he encouraged joint membership in both the SPA/AAP to further strengthen both organizations and increase advocacy. SPA winter meeting program Chairperson **Nancy L. Glass, MD, MBA, FAAP** (Texas Children's, Houston, TX) provided the demographics of this year's winter meeting registrants-of the 410 winter meeting registrants, 42 states and 10 foreign countries were represented including Australia, Belgium, Canada, France, Japan, New Zealand, Norway, Portugal, Switzerland, and the United Kingdom. Fifty-four percent of attendees surveyed have their primary practice setting in a children's hospital, while ten percent of attendees have their primary practice in a community setting.

The first morning session devoted to an update of cardiopulmonary resuscitation (CPR) was moderated by **Jayant K. Deshpande, MD, FAAP** (Vanderbilt University, Nashville, TN). **Donald H. Shaffner, Jr., MD** (John Hopkins Hospital, Baltimore, MD) lectured on American Heart Association (AHA) Guidelines. He opened with some historical data on pediatric cardiac arrest, prevention and treatment. He proposed we should avoid vague terminology such as "down time" or "arrest time". The "event-start CPR interval" describes damage from hypoxia-the longer the period of arrest, the lower the blood flow to the anterior brain structures (posterior flow is preserved at all costs), and the less likely CPR will be effective. The "start-stop CPR interval" is another method of description during a cardiac arrest. Starting CPR within one minute increases survival, whereas late defibrillation at fifteen minutes decreases survival. Pediatric basic life and advanced cardiac life support algorithms were then reviewed. Of note, when peripheral intravenous access is delayed or impossible, intraosseous access is now advised, and is no longer restricted to age less than six years. Detector devices such as end tidal carbon dioxide are less accurate in pediatric patients and can be absent in pediatric cardiac arrest secondary to the low flow state. In this situation, direct confirmation of successful endotracheal intubation was recommended by fiberoptic visualization. Prone CPR was discussed as a viable alternative for successful CPR administration, providing effective maintenance of systolic blood pressure, when attempts to turn the patient supine are delayed. Open chest compressions was recommended in the setting of penetrating trauma, post sternotomy to check for tamponade, or when traditional CPR is ineffective. **Frank A. Fish, MD** (Vanderbilt University, Nashville, TN) lectured on Pediatric Resuscitation: Drugs and Electricity. He emphasized that while anesthesiology doctrine holds that pediatric cardiac arrest is usually respiratory in etiology, primary cardiac arrest has been described in

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children with etiologies such as ischemia (hypovolemia, hypotension, coronary artery occlusion ex. arterial switch procedure), trauma, electrocution, primary arrhythmia syndromes (primary long QT, Brugada, long AV block, catecholaminergic VT), electrolyte derangements, hypothermia and drug toxicity. Some arrhythmias may actually worsen with epinephrine and structural heart disease such as hypertrophic cardiomyopathies, anomalous origin of the left coronary artery, or in post surgical congenital heart disease. Successful pediatric resuscitation may be achieved through restoration of myocardial perfusion, oxygenation and normal rhythm, and limiting potential for recurrence. Electrical therapies enumerated included external cardioversion/defibrillation, temporary pacing, pace termination of tachycardias, and reprogramming of implanted devices. Of note, cardioversion is not warranted for treating bradycardia, asystole, or idioventricular rhythm. **Laura K. Diaz, MD** (Texas Children's, Houston, TX) discussed Assist Devices: Bridge to Recovery or Transplant. She opened with the rapid increase in the last two and one-half years in the use of mechanical circulatory support (MCS) in pediatric patients, due to the finding that earlier circulatory support results in better patient outcome. She introduced the cardiac indications (preoperative stabilization, postcardiotomy patient, transplant patient, and nonsurgical indications) and noncardiac indications (critical airway, drug toxicity, hypothermia) for MCS. Not all patients are candidates for MCS. Contraindications include neurologic damage, multisystem organ failure, sepsis, hemorrhage/coagulation problems, and congenital anomalies. The choice of MCS depends partly on expected duration of support, degree of support needed, size of the patient, and desire for extubation and ambulation. The different types of assist devices including intra-aortic balloon pump (IABP), extracorporeal membrane oxygenation (ECMO), centrifugal pump ventricular assist devices (VAD) such as Biomedicus®, paracorporeal VAD such as Thoratec®, and nonpulsatile implantable (intracorporeal) devices such as DeBakey®, and the total artificial heart were introduced. For short term support less than thirty days, IABP, ECMO and VAD like Biomedicus® centrifugal pump should be considered. The advantages of VAD over ECMO were discussed and included greater unloading of the left ventricle to allow reverse remodeling, and fewer neurologic complications. Long term support is best provided by pulsatile pumps like Thoratec® VAD or axial pumps. Dr. Diaz showed real time video footage of a recovering, ambulating pediatric patient who received paracorporeal support via a titanium alloy implantable pulsatile assist device, with a smaller console allowing ambulation.

By Valerie E. Armstead, MD
Thomas Jefferson University, Philadelphia, PA

The mid-morning and afternoon sessions on obesity and pediatric diseases and were moderated by **Drs. Linda J. Mason** (Loma Linda University School of Medicine, Loma Linda, CA) and **Thomas R. Vetter** (Indianapolis University School of Medicine). The first lecture, *Anesthesia for Bariatric Surgery*, by **Dr. Paul J. Samuels** (Cincinnati Children's, Cincinnati, OH) began with an overview and epidemiology of the problem of obesity as an epidemic in children in the US. Dr. Samuels also stated that obesity has become a world health problem that has overtaken malnutrition as a nutrition problem. Dr. Samuels presented the audience with the definition of body mass index (BMI) which is the wt in kg divided by the height in meters squared and stated that over the past 30 years that a number of children in the US with a BMI greater than the 95th percentile had tripled. Further more Dr. Samuels pointed out that the obesity epidemic in children has surpassed all cases of cystic fibrosis, HIV, pediatric type I diabetes, and all forms of childhood cancers combined. He also stressed that by a certain age, fat children would go on to become fat adults and that the co-morbidities associated with adult obesity (hypertension, heart disease, diabetes, and early death) would have a significant negative impact on healthcare.

Dr. Samuels then went on to discuss the biology of obesity and the regulatory physiology and pathophysiology involved. Dr. Samuels stressed that the human body seems to defend its current set point for a given weight and that this stubborn trait is the reason that most diets are not successful. This is because the metabolism slows and individuals gain their lost weight back in an all too short period of time once they give up because of frustration after reaching a weight loss plateau. Dr. Samuels also spoke about genetic abnormalities such as congenital deficiency of leptin (A hormone made by adipose tissue that suppresses appetite) that results in hyperplasia and incredible weight gain that necessitates palliative surgery to remove fat and treat deformities in infancy.

The remainder of Dr. Samuels talk dealt with the multidisciplinary team approach to bariatric surgery in adolescents. The anesthetic implications involved addressing anticipated difficulties. In Dr. Samuel's experience at Cincinnati Children's Hospital, there were not many problems with intravenous access or airway management. As many of the patients were on home CPAP, it was interesting to note that these patients were not placed on CPAP postoperatively, due to concerns of damage to the surgical anastomosis of patients receiving the more common procedure of gastric bypass with roux-en-y.

Dr. Samuels finished his talk discussing the pharmacologic issues with choosing anesthetic drugs. He stressed that highly lipid soluble drugs should be avoided. Furthermore, Dr. Samuels pointed out that anesthetic vapors with the lowest blood gas solubility and low lipid solubility are most appropriate for use to avoid delay in awakening in these morbidly obese patients.

Dr. Thomas H. Inge, a bariatric surgeon from Cincinnati Children's Hospital, gave an interesting talk about the surgical aspects of bariatric procedures as well as the selection process. Dr. Inge gave audience details regarding the laparoscopic gastric bypass with roux en Y (RYGBP) as well as adjustable gastric banding. The mortality for the RYGBP is 0.5 % in adults. Dr. Inge presented data on selection criteria on adolescent patients presenting for RYGBP and the preparation of appropriate candidates for bariatric surgery. He also presented the surgical options currently recommended, including laparoscopic gastric banding, and the perioperative management of the morbidly obese adolescent. Dr. Inge concluded his talk be discussing strategies for handling common and unusual complications, such as anastomotic leaks.

The afternoon portion of the obesity session was moderated by **Dr. Tom Vetter**, who had an audience survey regarding perioperative assessment of the morbidly obese child. Most audience members said that they would not provide anesthesia for a morbidly obese older (greater than four years) child for T&A as an out patient. The audience had mixed responses regarding performing random blood glucoses on morbidly obese children. This discussion was a lead into the lecture on management of diabetic ketoacidosis and type 2 diabetes in children, the latter of which is associated with obesity, by **Dr. Valerie Armstead**. The portion on DKA was a classic review with a review of the new insulins, whereas the type II DM dealt with a large amount of information that did not quite fit into the allotted time. In the waning minutes, Dr. Armstead touched on the mechanisms of how obesity leads to type 2 DM, management of the patient on oral agents, and commorbidities associated with type 2 DM.

Saturday, February 26, 2005

By Tom Mancuso, MD, FAAP
Boston Children's Hospital

On Saturday, February 26, the combined winter meeting was an interesting mix of programs. The day began with clinical discussions in the problem-based discussions, followed by the presentation of abstracts that earned awards given by the AAP Section on Anesthesiology and Pain Management. Next came the AAP advocacy lecture, given by Dr. Robert Troug. Next came a walk-around discussion of posters followed by the AAP " Ask the experts" panel. In the afternoon refresher courses and workshops were scheduled.

The prize-winning abstracts covered a wide range, from work on the actions of local anesthetics using an animal model to a search for markers for post op renal dysfunction to an investigation of a new technique for analgesia for IV placement.

First place was awarded to **Dr. Helene Beloeil**, whose abstract was titled "Actions of local anesthetics on Carageenan-induced hind paw Inflammation in rats II: Cytokines and MAP kinases in circulating leukocytes, dorsal root ganglia and spinal dorsal horn". Dr. Beloeil and her collaborators employed the widely-used model of inflammatory pain, the hind paw injection of Carageenan, to examine the Carageenan-induced increases in lipopolysaccharide-stimulated release of cytokines from circulating WBC's and the production of cytokines and MAP kinases in spinal dorsal horn and dorsal root ganglia. The effect of local, ipsilateral and contralateral administration of Bupivacaine (B) or tetrodotoxin (TTX), which has a high specificity for only certain sodium channels, on these processes was compared. Bupivacaine administration by any of the three routes inhibited cytokine production in WBC's while TTX did not. Neither Bupivacaine nor TTX had any effect on spinal cord or DRG production of cytokines. These results illustrated the complexity of the mechanisms and multiple cellular targets and ion channels by which local anesthetics effect the response to inflammation.

The second place winner was **Dr. Susan Lo** with an abstract titled: "Apoptosis gene products are detectable in urinary epithelial cells following congenital cardiac surgery". Dr. Lo collected urine from children undergoing cardiac surgery in order to determine whether or not urinary apoptosis gene products (UAGP) were detectable and the relationship between elevated post-procedure creatinine and the level of UAGP. The urine was collected both immediately after the surgical procedure and into the post-operative period. Total RNA isolated from the urine sediment underwent RT-PCR for detection of UAGP, with G3DPH used as a housekeeping gene. UAGP were detected in 19 of 23 subjects. No subject had elevated serum creatinine postoperatively. Circulatory arrest did not influence the abundance of UAGP. Although detectable in the postoperative period, the utility of UAGP as a marker of postop renal dysfunction could not be determined in this study since none of the subjects developed an elevated serum creatinine.

Dr. Nathalia Jimenez received third place for her study titled: "Comparison of a needle-free injection system for local anesthesia versus EMLA for intravenous catheter insertion in the pediatric patient". In her study, Dr. Jimenez compared the J-tip, a new needleless FDA approved injection system that can be used to administered local anesthetic, to EMLA in a randomized trial. There are several possible advantages to the use of the J-tip device. While it is recommended that EMLA be applied 60 minutes prior to IV placement, IV placement can be done immediately after use of the J-tip device. Vasoconstriction regularly occurs with EMLA but has not been noted with the J-tip. She reported her preliminary results on 93 subjects, 56 in the J-tip group, in her ongoing investigation. There were no differences in number of attempts for IV placement. The pain scores for J-tip application or EMLA dressing removal were not different as both were 0. There was a significant difference in the reported pain scores at IV placement, however. In the EMLA group the median score was 3 (IQR25-75: 1-1.5) while in the J-tip group the medina score was 0 (IQR25-75:0-0)

The AAP Advocacy Lecture was then given by **Dr. Robert Truog**, Professor of Anaesthesia (Pediatrics) and Ethics, at Harvard Medical School. His medical practice encompasses pediatric anesthesiology, pediatric intensive care and biomedical ethics. The title of the lecture was: "Communicating with patients and families in times of stress-can we improve?" Dr. Troug described a program he had developed for use in the PICU that has important applicability to the practice of anesthesia. The program is called PERCS, Program for Enhanced Relational and Communication Skills. In this program, clinicians interact with actors who portray family member. The scenarios, which are recorded, used in the program involve giving bad news to these parents**.** The clinicians review the medical facts, support the families and come to grips with their own feelings around what are very difficult situations. Afterward, there is extensive debriefing of the tape involving the participants as well as observers. Often, in these constructs, the PICU staff has not had a long relationship with the families. Indeed in some cases involving transport, the PICU staff is meeting the parents of the patient for the first time in these scenarios. Dr. Troug showed an award-wining video of one such interaction and debriefing as part of his talk. The audience was quite spellbound by the presentation. The video seemed all too real and the discussion by the participants afterward was illuminating. He concluded his lecture by comparing the PICU scenarios with situation faced on a daily basis by practicing anesthesiologists. We usually have not met, or met just the night before, the families who place their children in our care. Although very bad news is not a big part of the practice of pediatric anesthesiology, there are certainly cases where thing do not go perfectly and to concerned parents, every imperfection is important. The was we interact with families even as we discuss a lost tooth or failed epidural could be greatly improved, our the lessons illustrated in Dr. Troug's lecture became part of our practices.

The second annual AAP Section on Anesthesiology and Pain Management "Ask the Experts" panel followed the AAP Advocacy lecture. The lunchtime panel was again moderated by **Dr. Constance Houck**, a member of the Section's Executive Committee. The experts on this years panel were **Dr. John Rose** from CHOP, **Dr. Laura Torres** from Texas Children's Hospital and **Dr. Corrie Anderson**, from Seattle Children's Hospital. The topic of the panel this year was cerebral palsy. Dr. Houck used a case-based format to question the experts and the audience-response system to poll the audience on the same issues. The case was an eight year-old with spastic CP who was to undergo an anti-reflux procedure. Initially, the type of procedure was established with most participants and experts reporting that the majority of cases now were done via a laparoscopic approach. Anesthetic choices were explored and in these questions, the common difficulties encountered with Cp patients were part of the questions; induction technique, difficult IV access and muscle relaxant choices. Options for post-operative analgesia for both the less common open procedures and laparoscopic procedures were reviewed by the experts. Dr. Houck concluded the experts panel with questions on a second case involving a femoral osteotomy in child with CP and difficult to control seizure. The experts were questioned about how the use of several anti-convulsants would or would not affect their anesthetic management, how post-op pain could be treated and what options were available for treatment of muscle spasms.

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Sunday, February 27, 2005

Sam Golden, MD, FAAP
University of Chicago

This was the final day of the meeting and was planned to finish at checkout time -11 AM. This year's final morning was useful, interesting and well-attended. **Dr. Raafat Hannallah** began the morning with a breakfast symposium entitled "The Use of Modern Inhaled Anesthetics." This was a comprehensive review of the pharmacology, clinical aspects, use, and deleterious effects of sevoflurane and desflurane. I will touch briefly on Dr. Hannallah's evidence-based discussion. With its lack of airway irritation and cardiovascular stability, sevoflurane should be used for induction. Desflurane, using low flow, with its faster emergence and recovery profile, should be considered for maintenance. Instead of a gradual increase in inspired concentration, using 8% sevoflurane from the beginning of induction is preferred. Sevoflurane causes a smoother induction with less bradycardia and cardiac depression than halothane.

Spontaneously resolving clonic movements without EEG evidence of seizures have been previously noted with sevoflurane induction. However, recent studies using surface EEG have show an incidence of epileptiform discharges with sevoflurane induction of 88% using controlled ventilation and 20% with spontaneous ventilation. Fifty percent of the polled audience felt they had observed seizure-like activity in children during sevoflurane induction. A heart rate increase of 60% was noted in children with epileptiform discharges, none in those without. Dr. Hannallah suggested decreasing the inspired concentration of sevoflurane to 5% if such a heart rate increase or clinical seizure-like activity is noted during induction.

Dr. Hannallah presented evidence that because of the its lower blood/gas and muscle/blood partition coefficients, desflurane causes faster wake-up in obese patients and as case-length increases. Regarding cerebral blood flow, at normocapnia, 1.5 MAC desflurane increases CBF but not with hyperventilation. With normocapnia, the tendency to increase CBF is as follows: Des>Iso>Sevo but ICP remains normal with hyperventilation using all agents.

Dr. Hannallah suggested desflurane or isoflurane could be used with the LMA but recommended a protocol using 1 mcg/kg of IV or nasal fentanyl up-front, using the inhaled agent in N_2O, and assisted ventilation until spontaneous breathing is resumed.

Regarding side-effects, a dose of 2.5 mg/kg of fentanyl for cases of at least 30 minutes was suggested to minimize the risk of emergence delirium. Complications of the interaction of inhaled anesthetics with dessicated CO_2 absorbers were reviewed. Degradation of agent is Sevo>Iso>Des, and fires/explosions with sevoflurane have been reported. In these reports, the absorber temperature is greatly increased, and a discrepancy of the dialed sevoflurane concentration and measured ET% may be noted. Production of carbon monoxide (CO) with dessicated absorbers is increased with soda and baralyme and decreased with absorbers using strong non-alkali metal bases such as $Ca(OH)_2$ (e.g. Amsorb). Recommendations included making sure O_2 flow was turned off at the end of cases, anesthesia machines were turned off at nights and weekends, and consider changing absorbent on Monday mornings.

Following Dr. Hannallah's discussion, a Pro/Con debate was held on routine tracheal intubation for EGD. **Dr. David Polaner** took the pro side while **Dr. Jerome Parness** took the con side. Dr. Polaner favored mask or IV propofol induction with propofol/remifentanil (20 mcg remi per cc propofol) maintanence with spontaneous ventilation. Dr. Parness agreed with intubation for those less than 6 months, ASA 3 or 4 patients, those with craniofacial anomalies and those at increased risk of hypoventilation with gastric distention such as the obese. All other patients he felt did not require intubation. All agreed these cases were still general anesthetics even without use of an ETT.

Following this were presentations of the 10 best articles of 2004. **Dr. Kimberly A. Hansen** presented 3 pain articles: "The neurobiology of infant pain: development of excitatory and inhibitory neurotransmission in the spinal dorsal horn." *Regional Anesthesia & Pain Medicine 29(1):36-44, 2004 Jan-Feb.*, "Continuous peripheral nerve blocks at home for treatment of recurrent complex regional pain syndrome I in children." *Anesthesiology 102(2):387-91, 2005 Feb.*, and "The use of dexmedetomidine to facilitate opioid and benzodiazepine detoxification in an infant." *Anesthesia & Analgesia. 98(6):1658-9, 2004 Jun.*

Dr. Ron Litman presented three articles related to ambulatory anesthesia: "Anesthetic agents and the immature brain: are these toxic or therapeutic?" *Anesthesiology 101(2):527-30, 2004 Aug,* and "Conscious sedation of children with propofol is anything but conscious." *Pediatrics 114(1):e74-6, 2004 Jul.,* and "Safe duration of postoperative monitoring for malignant hyperthermia patients." *Anaesthesia and Int Care 2004;32:502 Aug.*

Dr. James Steven presented his three outstanding cardiovascular anesthesia articles: "Intraoperative hyperglycemia during infant cardiac surgery is not associated with adverse neurodevelopmental outcomes at one, four, and eight years." *Anesthesiology* 100(6):1345-52, 2004 Jun., "Impact of amoxicillin prophylaxis on the incidence, nature, and duration of bacteremia in children after intubation and dental procedures." *Circulation* 109(23):2878-84, 2004 Jun 15, and "Myocardial performance index with sevoflurane-pancuronium versus fentanyl-midazolam-pancuronium in infants with a functional single ventricle." *Anesthesiology* 101(6):1298-305, 2004 Dec.

Finally, session moderator **Dr. Peter Davis** picked the single outstanding article of the year: Andrew J. Davidson, et al. **"**Awareness during Anesthesia in Children: A Prospective Cohort Study." *Anesth Analg* 2005 100: 653-661. In this Australian study of 864 children ages 5-12 undergoing general anesthesia, the incidence of awareness was found to be 0.8%, higher than the reported 0.1-0.2% incidence in adults. No association with use of neuromuscular blockers was found.

Friday Afternoon Workshops

Success in Academics

By Helen V. Lauro, MD, FAAP

A free special career development workshop for SPA members, conducted by **Joseph R. Tobin, MD, FAAP, FCCM** (Wake Forest University School of Medicine, Winston-Salem, NC), was introduced at this year's joint SPA/AAP winter meeting in Miami Beach, Florida. The emphasis of this workshop was for anesthesiology practitioners in the early years of their academic careers.

In the backdrop of the current crisis of empty seats in academic anesthesiology, Dr. Tobin 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.

Academic success in the context of promotional advancement was addressed for the balance of the workshop. In accessing realistic opportunities for academic advancement in a department, it was recommended to review the Department of Anesthesiology mission statement, which should clearly state a commitment to research and

scholarship. If this is present, the physician should proceed to become acquainted with the promotion criteria of his institution, bearing in mind the length of the promotional process (about 7.9 years to associate professor, and 9.1 years to professor). Dr. Tobin emphatically outlined scholarship as the most important factor for promotional consideration, best established through initial case reports, progressing to retrospective reviews, cohort studies, clinical trials, and peer reviewed journal reviews. Research activities are an effective method to display scholarship. Activities that do not contribute to promotion, such as exhausting review articles and chapter "traps", were strongly discouraged. The successful candidate should also develop clinical and educational excellence and administrative skills.

Effective mentoring was underscored as necessary to mature and grow academically. A mentor offers significant career assistance to a protégé. Dr. Tobin stated we must not rely on a single mentor, but rather many mentors such as Chairman, medical educators, previous mentors, and colleagues at subspecialty societies such as SPA. In turn, protégés must become mentors for students and junior colleagues. Toxic mentoring must be avoided—a dysfunctional mentoring relationship emanating from a conflict in goals or a competition between mentor and 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. Anesthesia curriculum development was used as an illustration. Successful teaching improvements should be documented quantitatively such as via in-training examination scores. The teaching portfolio together with a personal statement and curriculum vitae form the usual academic portfolio ultimately used for promotional review.

Fellow's Research Workshop

By Alan R. Tait, PhD

This year's Fellows' Research Workshop was presented by Alan R. Tait, PhD, Professor of Anesthesiology and Director of Clinical Anesthesia Research at the University of Michigan, Ann Arbor MI. The workshop now in its third year was initially designed by Dr. Jerry Lerman as a primer for research design and methodology.

The goals of the workshop are to provide Residents and Fellows with the basic tools to design and conduct a clinical research study, to engender research interests, and hopefully to promote a culture for future academic anesthesiologists.

This year, the two and a half hour workshop was held on Friday afternoon, and, despite the warm weather, was extremely well attended. The SPA has felt strongly that this workshop be offered free of charge, therefore, it was encouraging that attendees were sufficiently motivated to attend despite other potential distractions. This year there were 16 registered attendees which represents an approximate 75% increase over last year. Initially, registration had been limited to 10 attendees; however, given the obvious interest, it was decided to open registration to all, such that no-one was excluded.

The workshop covered topics such as how to design and conduct a clinical study, hypothesis testing, basic statistics, and how to critically review the literature. Particular emphasis was placed on de-mystifying the issue of sample size determination. Examples were provided using a simple statistical program for calculating sample size. There was also some discussion regarding the importance of providing informed consent for research. Dr. Tait provided examples from his own research of how to optimize the presentation of consent information to both parents and children. Other topics were largely driven by the interests of the audience and included: writing a meeting abstract, preparing a paper, and some tips for submitting a grant. Given the apparent interest generated by this workshop, it is hoped that it will become a permanent fixture of the SPA's winter meeting.

SPA would like to recognize the following companies for their suport of the 2005 Winter and Annual Meetings

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The Thin Blue Line: Evidence-based Medicine and Central Venous Catheter (CVC) Insertion

Douglas G. Ririe, MD, Timothy E. Smith, MD
Wake Forest University School of Medicine
Winston-Salem, NC

This brief article was stimulated by the Jeopardy Session at the Society of Pediatric Anesthesia Winter Meeting in Miami, FL 2005. The topic of infection risk and aseptic technique in the operating room was raised by Dr. Myron Yaster. During this session, panel and audience participation revealed that a large number of providers who care for children fail to follow established guidelines for placing CVCs (proper hand washing, sterile technique with maximum barrier protection, choice of prep solution, etc.). The question then arises: What is proper based on available evidence?

The issue of CVC infection is real. Most CVCs placed in the operating room in pediatric patients remain in place for at least several days, but frequently much longer. We should be keenly aware that each patient may be affected by the minimal extra effort in prevention of CVC infection, despite the fact that we may not primarily observe infectious clinical events occurring days after insertion.

The factors that affect infection of CVCs are 1) site, 2) indwelling duration, 3) hand washing, 4) experience of the provider placing the CVC, 5) prep solution, 6) patient status, and 7) dressing type. Although some of these cannot be controlled, we should control those that we can. Concerns for patient status should play a role since the risk of infection is even higher in immunocompromised patients.

The current guidelines for placement of CVC were published in *Pediatrics* 2002; 110: 51 and are summarized as follows: 1) hand washing with soap and water or alcohol based solutions prior to gloving (even with nonsterile gloves for peripheral IV access); 2) use of maximal sterile barrier precaution (including cap, glove, gown, mask, and large sheet); 3) chlorhexidine preparation of the skin (no recommendation for use in infants < 2 months of age); and 4) education of those inserting catheters (1). Further recommendations and discussion are presented in this article. It addresses virtually every issue and grades the evidence (evidence-based medicine) for each recommendation or issue considered. Other obvious recommendations include cleaning injection ports prior to access. Injection port cleaning should also be done for peripheral intravenous sets, which in our experience is commonly overlooked by trainees in the operating room.

The evidence to date suggests that maximum barrier protection including cap, gown, mask, gloves and large drape reduces infection. In a randomized trial of sterile gloves and drape versus maximum barrier protection, there was a three-fold reduction in infections in the maximum barrier protection group (2). The sterile glove and drape group had a six-fold increase in septicemia and infection more proximate to the time of insertion. Hand washing is known to reduce infection in numerous clinical settings. The type of prep solution used also seems to play a role in reduction of infection risk. In a meta-analysis of studies comparing povidone-iodine to chlorhexidine, the patients who received povidone-iodine as the prep solution were twice as likely to develop catheter related bloodstream infection (3). This suggests a real reduction in infectious complications related to the type of solution used to cleanse the skin. While concerns with chlorhexidine use may exist for infants, one certainly has to weigh the evidence against the risk of one-time minimal exposure to skin cleansing. The evidence in our opinion favors use of chlorhexidine 0.5-1% in alcohol base. In placement of long-term CVC, prophylactic antibiotics are associated with a reduction in catheter infection (4), although the benefit is unclear in short-term CVCs. However, if the patient is to receive antibiotics for the surgical procedure, some benefit may be derived by administering the antibiotic prior to placement of the CVC by an anesthesiologist in the operating room.

What is crossing the blue line? Classically, it is when the police who are supposed to protect us cross the line of power with potential injury to the very person they are supposed to protect. In an article on approaches to surgery in animals, titled “The Thin Blue Line,” it was noted that small animals did not receive the same attention to sterile and aseptic technique when compared to large animals during invasive procedures (5). Are we crossing the thin blue line? Are we treating children differently than adults, because most of the evidence is in the adult population? Is sterile and aseptic technique something that requires further study in the pediatric population? We say that it is not. The evidence is better than for many decisions incorporated into our practice to conclude that the guidelines for CVC placement reduce infectious complications. Therefore, I urge my colleagues to review and implement the guidelines for CVC placement.

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Lifelong Learning

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Chief Medical Officer
The Children's Hospital of Philadelphia
At-large ABA Member
Council for the Continual Professional Development of Anesthesiologists

In order to practice medicine in accordance with current evidence, a physician must adopt some method of lifelong learning. Unfortunately, studies repeatedly show that physicians are extraordinarily slow to incorporate new medical knowledge into their practice, even when that evidence is incontrovertible. These observations helped to support the American Board of Medical Specialties (ABMS) in their decision that mandatory re-certification of medical specialists would be necessary to assure a basic level of current knowledge and practice competence across all certified specialists in each of its 24 member boards. The American Board of Anesthesiology (ABA) has offered voluntary re-certification since 1993, but it was among the last of the specialty boards to make re-certification mandatory (2000). The ABA also has among the longest re-certification cycles, extending the period for each certification over 10 years.

from the standpoint of the ABA, those awarded primary ABA certification before 2000 will never jeopardize that status by participation in MOCA

ABA Re-certification Process

The ABMS expects four components to a Maintenance of Certification (MOC) process; evidence of Professional Standing; Lifelong Learning and Self-Assessment (LL-SA); evaluation of Practice Performance; and a Secure Examination. These elements have been embraced by the ABA and adapted into their MOC for Anesthesiology (*i.e.* MOCA). While mandatory participation in this process is limited to those who were certified in 2000 or later, we do see increasing trends on the part of a few payers and some states to require re-certification even when the specialty board might not. However, from the standpoint of the ABA, those awarded primary ABA certification before 2000 will never jeopardize that status by participation in MOCA. Those diplomates of the ABA holding permanent (*i.e.* non time-limited) certificates who face external requirements for re-certification, can still satisfy that requirement with the voluntary ABA re-certification examination until 2009 or MOCA. Beyond that date, MOCA will be the only means by which ABA will grant re-certification.

The four MOC elements have been adapted by ABA according to its 10-year certification cycle. Professional standing will entail the demonstration of a valid, unencumbered medical license in at least one U.S. or Canadian jurisdiction at two points during the cycle, years six and 10. LL-SA entails 350 CME credits spread over the 10-year cycle. More details about this component can be found in the next section. A secure cognitive exam is given once during the cycle. It can be taken as early as year seven, provided the diplomate has completed at least 200 of the required CME credits, and met ABA requirements for Professional Standing and Practice Performance. The latter component is not yet finalized, but conceptually entails a periodic evaluation of each diplomate's practice and quality improvement activities. As currently proposed, this would entail an attestation by a Department Chair or Chief of Staff twice over the 10-year cycle, years five and nine. This proposal has been submitted to ABMS and should be finalized by December 2004.

As MOCA enrollment only began in January 2004, those diplomates who became ABA certified between 2000-2003 have less than 10 years to complete the cycle. Thus their LL-SA requirements have been prorated. Diplomates who allow their time-limited certificate to lapse can go on to complete the re-certification process by meeting all the MOCA requirements in the 10 years leading up to re-certification. In other words, any CME credits obtained in year one are no longer valid toward re-certification in year 11.

Lifelong Learning Component of MOCA

Shortly after ABA initiated a time-limited certification process, they began to work collaboratively with the American Society of Anesthesiologists to formalize a lifelong learning strategy. A joint advisory committee was formed, the Council for the Continual Professional Development of Anesthesiologists (CCPDA) with representation from both organizations. The goals for CCPDA were to develop a LL-SA curriculum and timeline for MOCA. As a part of this responsibility, CCPDA would develop criteria for the types of activities that would satisfy LL-SA requirements. It was even contemplated that CCPDA might be engaged in evaluating specific CME programs periodically. Finally, CCPDA was asked to develop methods to evaluate the impact of ongoing participation in LL-SA activities.

The CCPDA proposed, and the ABA has adopted a LL-SA requirement of 350 credits over the 10-year MOCA cycle. At least 250 of these credits must represent ACCME-approved Category 1 activities. The diplomate may attest to as many as 100 credits for other formal or informal medical education activities. As many as 35 CME credits may be related to non-cognitive core competencies, such as professionalism, ethics, patient safety, practice management and quality improvement. The ABA recommends that diplomates engage in some CME activity in at least five of the 10-year cycle.

In the broader sense, however, lifelong learning strategies should be driven by a desire to transmit evidence-based practice to the anesthesiologists engaged in daily clinical practice, rather than abstract board re-certification requirements. In concept, CCPDA continues to work to incorporate that which is known about adult learning and effective CME in order to make the ABA requirements reflect best education practice. Unfortunately, the tools necessary to achieve the optimal lifelong learning outcome are not widely available as yet.

Adult education is most effective at achieving a change in behavior when the learning is self-directed. Hence self-assessment represents a key component to an optimal lifelong learning program. The ASA has several offerings designed to address this need for anesthesiologists. The Anesthesiology Continuing Education (ACE) program is being launched this month with the expressed goal of providing a self-assessment tool that enables the practicing anesthesiologist to test their own knowledge of core concepts in the specialty (http://www.asahq.org/conted/ACE2004.pdf). ASA has also offered a Self-Education and Evaluation (SEE) program for a few years whose focus is more on recently published "emerging knowledge" in peer-review journals and refresher courses (http://www.asahq.org/publicationsAndServices/continuing.htm).

Another important tenant of adult learning is that interactive methods are more effective than passive plenary lectures. Although one can find workshops and problem-based learning discussions as far

Continued on outside cover

Literature Reviews

Herbal medicine use by children presenting for ambulatory anesthesia and surgery.

Suzanne Crowe and Barry Lyons. *Pediatric Anesthesia* 2004; 14: 916-919

Reviewed by: *Hoshang Khambatta, MD*

Though much has been written about the use of herbal medication in adults, little is known about the use of these products in the pediatric surgical population. This study aims to describe the extent of herbal medicine use in children presenting for ambulatory surgery and anesthesia. Six hundred and one children between the ages of 1 month and 16 years, sequentially admitted for ambulatory surgery over a 10 week period, were enrolled in the study. The child's parent / guardian was asked to complete a questionnaire regarding the use of herbal medicine. Recorded demographics included the health insurance status of the child as surrogate marker for economic status, along with age and gender. The questionnaire included a check box list of commonly used herbal medicines listed by their generic names. Proprietary names were not listed, but space was allowed for parents to include any product that they had given to their child which may have contained a herbal medicine. If the child was aged 6 months or less and was being breastfed, the mother was asked if she was concurrently taking any herbal medicine.

Of the 601 participating children, 59 (6%) were currently taking a herbal preparation; while an additional 61 (10%) had taken herbal medication in the recent past. Nine of these 601 children were under one year of age. There was one breastfeeding mother on St John's wort. Echinacea was most frequently administered followed by arnica. Other herbal medicines included St John's wort, gingko, valerian, garlic, camomile, and ginseng. Eight percent of the children were on more then one herbal medication. The majority of parents (85%) had not informed their pediatrician that the child was taking herbal medicine, and even a greater number (90%) had not informed the surgical team admitting the child that day. The herbal medicines were chosen based on information obtained from family friends (23%), media (18%), alternative practitioners (10%), general practitioners (6%), pharmacy (6%), religious instruction (4%), and Internet (2%). Eighteen percent of children had private health insurance, of these, 34% were taking a herbal medicine compared with 15% of uninsured children.

In any calendar year, 37% of American adults take herbal medication. Studies carried out on adult surgical population suggest that 23 – 43% take herbal medicines. Approximately 29% of Australian children with asthma, and 14% of American adolescents with inflammatory bowel disease use herbal medicines. In Washington DC, a prevalence study showed that 8% of children used herbal remedies, while the figure was almost 5% in a similar primary care pediatric setting in Detroit. However, no such data were available for pediatric surgical population. This study found that 17% of children admitted for day care surgery were currently taking or had taken herbal medicine in the recent past.

In this study, 16% of those taking herbal medicine were ingesting substances that may affect perioperative care. A further 12% of parents admitted to administering herbal medication to their child, but had no idea what it was. Increased bleeding has been reported with the use of gingko, biloba, and garlic, hypertension with ginseng, and excess sedation with St John's wort and valerian. Hypoglycemia has been reported with ginseng and would be cause for concern in infants. There have been no reports of drug interaction between anesthetics and the two most commonly used herbal medicines, echinacea and arnica. Echinacea is mainly used to treat viral, bacterial, and fungal upper respiratory infection, but long term use may result in immunosuppression and may potentially increase risk of wound infection. Arnica is widely believed to control bruising, reduce swelling, and promote recovery after local trauma. Many patients, therefore, take it perioperatively, even though its efficacy is debated.

Comments: The use of herbal medicine is here to stay at least for the foreseeable future. Annual expenditure for herbal medicines in the United States is not readily available. It has been estimated that the annual expenditure for herbal medicines is as much as $360 million in the UK and about $2 billion in Germany. These staggering figures make it incumbent upon anesthesiologists to educate themselves about herbal medicines, especially the benefits and risks. It is imperative that anesthesiologists caring for children be aware of all medications, both conventional and alternative, being administered so as to provide the best possible care for the child.

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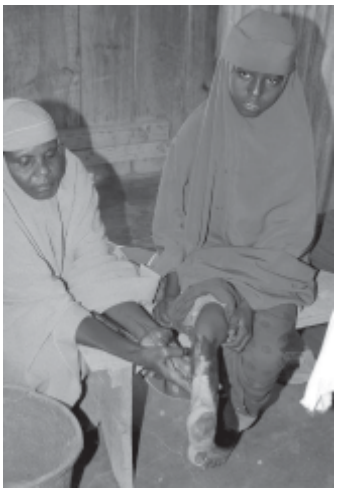
- Discounted registration fees at the Annual and Winter meetings
- A forum for networking with other pediatric anesthesia medical professionals,
- Research and scientific progress through grant funding in conjunction with FAER to qualified member applicants,
- Complimentary subscription to the society newsletter (three times per year) which communicates Board of Director and committee activities as well as literature reviews and other articles of interest in the field of pediatric anesthesia,
- Reduced fees for the international journal, *Pediatric Anesthesia*, http://www.blackwellpublishing.com/journal.asp?ref=1155-5645
- An up-to-date website that provides a wealth of information at the touch of a button where members may actively participate in society business,
- A Members Only section on the website which provides an avenue for communicating with other members, paying dues and registering for meetings. The Members Only section offers a real-time password protected directory that will put you in touch with other SPA members

Out of Africa

Mark Newton, MD
Pediatric Anesthesiologist
Kijabe, Kenya
(Denver Children's Hospital)

Pediatric anesthesiology and public health issues are typically not mentioned in the same paragraph. My last two weeks' adventures in East Africa have emphasized how conflict and the resultant public health breakdown can influence my responsibilities and medical experiences. Our team of three surgeons and myself, traveled by small aircraft (6 seater) to northeastern Kenya, near the Somali border, to review surgical patients to be scheduled at Kijabe Hospital.

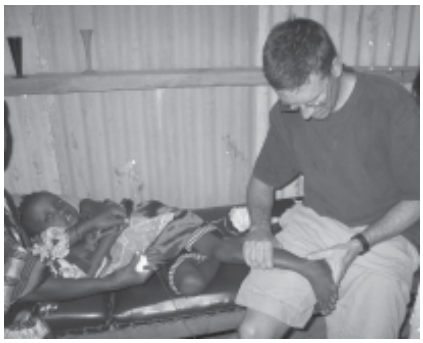


We have no HMO to send us patients, so we go get them!

The 150,000 population UN Somali Refugee Camp is located in an arid bush area where camels drink once every two weeks and the scorpions and snakes thrive in the 110 degree heat. If you enjoy roller-coasters, you should fly over an African desert on a Cessna 206!

During our four day adventure, we provided CME courses to a remote government hospital's staff and we reviewed and treated many patients. As an indication of the public health issues we reviewed toddlers with cleft lip; many children with burn and snake bite contractures, who had never seen a physician after their injuries; school aged children with unevaluated hydrocephalus; and even a 32 year old man with bilateral club feet. We were asked to visit an equally remote area which has also been affected by the instability in Somalia. I quickly realized that I was out of my league when the first ten children all complained of painless hematuria. Remember in medical school hearing about an "educated guess"? After a visit to the water supply, chai with community leaders, and a browse through a tropical medicine handbook, we guessed schistosomiasis. What do surgeons and anesthesiologists know about schistosomiasis?

Prior to our arrival, we were forewarned that our area around Kijabe was now affected by tribal clashes. Water is a valuable resource for many in Africa and two neighboring tribal groups which our hospital border started a dispute. Ethnic (cultural) lines were established, homes were burned, and people on both sides were being killed and injured. Due to these clashes, Masai patients from the Rift Valley were too fearful to travel across the border line to reach our hospital. We were informed that a 12 year old injured boy had a femur fracture and they needed help. As I was bumping down the dirt road retrieving this boy in my Land Rover (or ambulance), I reconfirmed to myself that a Pediatric Anesthesiologist's skills could be useful in rural Africa. We are taught to remain calm when the area around us is in a storm, we can stick needles in strange places (the femur fracture boy got a fascia-iliaca block pre-transport), and resuscitate young children in shock (after our schistosomiasis discovery, a 3 year old girl presented with an acute cobra bite).



These "medical adventures" in East Africa merely simplistically emphasize the role of conflict in altering a physician's experiences amidst tragedy. Although these stories may seem unreal, they are communicated so that when the words "Africa" and "conflict" appear in a newspaper article's paragraphs, you can see beyond the printed words to very "real" faces. You may recall a Somali refugee child with burn contractures or a 12 year old boy smiling as he stretches out in the back of a Land Rover while watching a herd of zebra cross the dirt path on the way to the hospital.

(Thanks to Dr. Glenn Merritt for teaching me the block!)

Book Corner

Helen V. Lauro, MD, FAAP

Paediatric & Neonatal Anaesthesia by Ann E. Black and Angus McEwan, 216 pages, $29.95, ISBN: 0750653809, New York, N.Y., Butterworth Heinemann, 2004.

This soft cover pocket handbook presents a succinct, practical and intelligible treatise of pediatric anesthesia. It is the fifth volume in the *Anaestheesia in a Nutshell series*, whose series editors are Neville Robinson and George Hall, and focuses entirely on pediatric anesthesia.

The text is designed to give the junior resident anesthesiologist and/or student nurse anesthetist essential information for their pediatric anesthesia module or rotation, which is necessary for the first few weeks of their training. Following an overview of physiology and anatomy relevant to pediatric anesthesia, nineteen chapters cover topics including pharmacology, equipment and monitoring, anesthesia in the infant and child, pediatric ambulatory surgery (day care), anesthesia in the neonate, anesthesia for general surgery, specialty pediatric anesthesia (ENT, dental, urology, cardiac, neurosurgery), radiology, medical problems with relevance to pediatric anesthesia, local anesthetic techniques, trauma, sedation, and resuscitation.

Invaluable is the chapter on local anesthetic techniques listing indications, methods, positioning, equipment, sites, doses, risks and complications for each regional technique, written in a simple and concise style that will facilitate discussion and disclosure to parents and patients. Figures and boxes, such as those on pediatric fiberoptic scopes and assessment of dehydration, are nicely displayed from textual material, providing essential and comprehensible information to the reader. Finally, the web pages section at the end of the text is unique in providing a list of resources online to trainee anesthetists and anesthesiologists alike caring for children.

The authors have achieved their goal, stated in their preface, of concentrating on covering core knowledge with chapters reflecting all subspecialist areas in a ready reference format, rather than providing extensive textbook information, that could overwhelm the beginner. Overall, this is a very laudable pediatric anesthesia text.

Continued from page 9

more regular constituents of CME programs, they remain rather peripheral on the agenda of the average conference participant. In fact, they types of engaging discussions that actually influence clinical care deliver are far more likely to occur at a department or hospital level than the major national society meetings. Thus the immediate challenge we face is integration of three formerly independent, parallel processes: specialty board certification and re-certification, CME, and local quality improvement initiatives. Ideally, the most effective settings for changing clinical practice will simultaneously be informed by current, evidence-based principles and simultaneously recognized and incorporated into the LL-SA component of the re-certification process.

Future Possibilities

The roles to be played by ABA, ASA and other subspecialty societies, such as the Society for Pediatric Anesthesia (SPA) in LL-SA remain incompletely delineated. In order to prevent any perceived (or real) impropriety in administering board certification, the ABA cannot endorse any specific CME curriculum or preparatory course. They have endorsed an overall CME target with broad categories of curriculum and content types that can meet that target. It is conceivable that these target values of CME credits might evolve to a weighting system that encourages participation in the types of interactive activities that are known to be most effective.

The ASA, SPA, and other specialty and subspecialty have a long heritage in CME programs. While they would seem ideally positioned to adapt the principles of LL-SA into new, effective CME products, they also confront myriad political, logistical, financial, and perhaps legal challenges in so doing. While the ASA has made some strides toward self-assessment, the need for targeted, authoritative CME content to address deficiencies identified in self-assessment remains. Technologic advances have given us a set of tools that make plausible the vision that interactive, evidence-based LL-SA content could be distributed to any practicing anesthesiologist with an identified need and functioning computer. The specialty and subspecialty societies have relatively ready access to content experts, but marrying them with this sort of technology will require an investment in time and money the likes of which most CME providers cannot muster.

Finally, this system will already impose additional costs on the ABA diplomate. Outcome measurements will become critical for them to evaluate the manner in which they apportion the additional investment required by LL-SA activities. Narrowly speaking, that outcome would at least entail the benefits of a particular program on achieving re-certification through MOCA. Ideally, this goal will be intimately linked with a broader societal objective to enhance the delivery of optimal care to patients. An objective mechanism by which these outcome measures will be developed and tracked has yet to be established.

References are available at www.pedsanesthesia.org

PedsPassport:

Your global meeting itinerary

2005

June 23-26: Amelia Island, FL, USA

Fifth International Pediatric Cardiovascular Symposium: Management of Complex Congenital Heart Disease from Infancy to Childhood

Tel: (404)-785-7843, Fax: (404)-785-7673
Information: Ms. Kathy Murphy, Course coordinator, Children's Healthcare of Atlanta Continuing Education, 1600 Tullie Circle, Atlanta, GA 30329
Website: http://www.choa.org/cme

August 18-21: Townsville, Australia

Society for Paediatric Anaesthesia in New Zealand and Australia (SPANZA) Meeting 2005: Joint meeting with the Australian Society of Paediatric Surgeons

Tel: +61 3 9698 7444, Fax: +61 3 9690 3944
Information: Dr Patrick Farrell, Secretary SPANZA, Department of Anaesthesia, John Hunter Hospital,Locked Bag 1, Hunter Region Mail Centre,Newcastle NSW 2310 Australia
Website: http://www.spanza.org.au

September 1-3: Cologne, Germany

6th European Congress of Paediatric Anaesthesia

Tel: +49 (0) 221 890752 64, Fax: +49 (0) 221 890754 94
Information: Dr Med. Josef Holzki, Abteilung für Anästhesie und Intensivmedizin Kinderkrankenhaus der Stadt Köln, Amsterdamer Strasse 59, 50735 Köln 60, Germany.
Website: http://www.feapa-cologne2005.org

September 17-18: Boston, MA, USA

Pediatric Sedation Outside of the Operating Room

Tel: (617)-384-8600, Fax: (617)-384-8686
Information: Harvard Medical School, Department of Continuing Education, P.O. Box 825, Boston, MA 02117-0825
Website: http://www.cme.hms.harvard.edu/sedation

October 21: New Orleans, LA, USA

Society for Pediatric Anesthesia (SPA) 19th 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

November 11-13: Toronto, ON, Canada

Pediatric Anesthesia Conference

Tel: (416)-813-7445, Fax: (416)-813-7543
Information: The Hospital for Sick Children, University of Toronto, Toronto, Canada
Website: http://www.sickkids.ca/anaesthesia

A Complete listing of meeting is at www.pedsanesthesia.org