



Society for Pediatric Anesthesia NEWSLETTER

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Pediatric Anesthesiology 1998

Phoenix, Arizona

Gail E. Rasmussen, M.D.

Vanderbilt Children's Hospital



Gail E. Rasmussen, M.D.

The Fourth Annual Pediatric Anesthesiology Meeting, the combined winter meeting of the Society for Pediatric Anesthesia and the American

Academy of Pediatrics-Section on Pediatric Anesthesiology, was held in Phoenix Arizona this year from February 12-15, 1998. **Dr. Frank McGowan**, Children's Hospital, Boston, did a stellar job as the Program Chair in combining important clinical and research perspectives. A Welcome Reception for the attendees opened the meeting on Thursday evening.

Friday, the first full meeting day and was commenced by a welcome address from **Dr. Mark Rockoff**, the SPA

President and **Dr. Frank McGowan**, the Program Chair. The first session "Coming Soon to an OR near You" was moderated by **Dr. Frank Kern**, of Duke University. **Dr. Ira Cheifetz**, Duke University, spoke on "Monitoring and Managing Your Ventilator to Optimize Heart and Lung Function". He discussed conventional modes of ventilation and their effects on cardiac function including both RV and LV dysfunction. He went on to discuss non-conventional techniques of ventilation including high-frequency oscillatory and liquid ventilation and their effects on cardiorespiratory parameters. Dr. Cheifetz demonstrated the applica-

tion of graphical analysis using three types of ventilator triggers: flow, pressure and time, for clinical use. Such airway graphical analysis provides a better understanding of the patient's unique physiologic profile and may aid in optimizing ventilatory support in the ICU.

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Past Presidents meeting in Phoenix (l-r) Drs. Charles Lockhart, Aubrey Maze, Myron Yaster and Robert Crone.

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The Society for Pediatric Anesthesia (SPA) publishes the SPA Newsletter three 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.

Editor:

Jayant K. Deshpande, M.D., Departments of Anesthesiology and Pediatrics, Vanderbilt Children's Hospital, T-0118 MCN, Nashville, TN 37232-2591

Associate Editor:

Gail E. Rasmussen, M.D., Departments of Anesthesiology and Pediatrics, Vanderbilt Children's Hospital, T-0118 MCN, Nashville, TN 37232-2591

Assistant Editors:

Rita Agarwal, M.D., Department of Anesthesiology, The Children's Hospital, 1056 E 19th Ave., Denver, CO 80218

Karen S. Bender, M.D., 120 Stonepost Rd, Longwood, FL 32779

Gavin Fine, M.B., BCh, 5562 Hogart St., Apt. 601, Pittsburgh, PA 15217

Howard B. Gutstein, M.D., Section of Pediatric Anesthesia, Mott Children's Hospital, 1500 E. Medical Center Drive, Ann Arbor, MI 48109

Zeev N. Kain, M.D., Department of Anesthesiology, Yale University School of Medicine, 333 Cedar St., P.O. Box 3333, New Haven, CT 06510

Alan S. Klein, M.D., Pediatric Anesthesia Consultants, 818 E. 19th Ave., Denver, CO 80218

Ronald O. Litman, D.O., Strong Memorial Hospital, 601 Elmwood Ave., Box 604, Rochester, NY 14642

Thomas Mancuso, M.D., Egleston Hospital for Children, Dept. of Anesthesia, 1405 Clifton Rod. NE, Atlanta, GA 30322

Francis X. McGowan, M.D., Dept. of Anesthesiology, Boston Children's Hospital, 300 Longwood Ave., Boston, MA 02115

Berklee Robins, M.D., 14071 Chatham Ct., Lake Oswego, OR 97035

Scott Schulman, M.D., Duke University Medical Center, Dept. of Anesthesia, P.O. Box 3094, Durham, NC 27710

Thomas Vetter, M.D., Children's Hospital Medical Center of Akron, 1 Perkins Sq., Akron, OH 44308

Mehernoor F. Watcha, M.D., Department of Anesthesia, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75235-9068

SPA Headquarters

Society for Pediatric Anesthesia
1910 Byrd Ave., Suite 100 / P.O. Box 11086
Richmond, VA 23230-1086;
(804) 282-9780; Fax (804) 282-0090;
Email: SocietyHQ@compuserve.com;
Internet: <http://www.uams.edu/spa/spa.htm>

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News from the American Academy of Pediatrics Section on Anesthesiology

Lyn Means, MD

Chair, AAP Section on Anesthesiology

An update of Section news and activities finds "The Guidelines for the Pediatric Perioperative Environment" at the Academy Board of Directors awaiting review and approval. The "Guidelines" are the work of the Section's Quality Assurance Committee lead by **Al Hackel, MD**. They outline the minimal acceptable equipment and drugs that are necessary in areas where infants and children are anesthetized. They are not intended to replace the ASA Monitoring Standards, but instead to complement them in order to improve the care of pediatric patients. Board approval of the "Guidelines" is anticipated by mid-April followed by publication in *Pediatrics* later this year.

Section on Anesthesiology Executive Committee members were asked by Academy leadership to comment on the HCFA proposal to eliminate the requirement that certified registered nurse anesthetists be supervised by physicians so that hospitals and ambulatory surgical centers can be reimbursed. As a result of those comments and an unanimous vote disapproving the HCFA proposal, Joseph R. Zanga, MD, FAAP, President of the American Academy of Pediatrics, has sent a letter declaring the Academy's opposition to the HCFA proposal.

In membership news, Patty Davidson, MD and Peter Davis, MD are working on a proposal for joint SPA/AAP membership. Dr. Davis recently made a presentation at the AAP Council on Sections outlining the benefits of joint membership for both organizations. Other sections in the Academy have also voiced their support for similar joint memberships with sister organizations. Work is underway to bring the leadership of the SPA, Section on Anesthesiology, and the Academy together for a one day meeting to study the impact and to develop an implementation plan if such a proposal were adopted. The goal of the project is for anesthesiologists who wish to be members of both organizations and who meet membership criteria to be able to do so at a reduced cost.

Special recognition and congratulations go to the residents and fellows who received awards during the winter meeting. Dr. Davidson has a report on the awards elsewhere in the newsletter.

April 15, 1998 is the date to elect the 1999-2000 AAP president. One of the candidates is Carden Johnston, MD, an emergency medicine pediatrician. Carden is a long-time advocate for children, pediatricians, and subspecialists and a friend of pediatric anesthesiologists. Please remember this when marking your ballot and encourage colleagues to do likewise.

AAP Section on Anesthesiology Executive Committee Members:

Lynda J. Means, MD, Riley Hospital For Children, *Chair*
Lynne Ferrari, MD, Boston Children's Hospital, *Chair-Elect*
Patty Davidson, MD, Columbus Children's Hospital, *Chair, Membership Comm.*
Jay Deshpande, MD, Vanderbilt Children's Hospital, *Chair, Education Comm.*
Thomas Mancuso, MD, Boston Children's Hospital, *Chair, Electronic Communication Comm.*
Ann Bailey, MD, University of North Carolina
Peter Davis, MD, Children's Hospital of Pittsburgh

President's Message



Mark A. Rockoff, MD

It was a pleasure seeing so many colleagues and friends at the recent Winter Meeting of the Society for Pediatric Anesthesia/American Academy of Pediatrics. As reported elsewhere in this Newsletter, this was the most successful winter meeting we have had with more registrants, workshops and scientific papers than ever before. It also was our most international meeting with speakers from Japan, Great Britain and Canada joining the many lecturers, moderators and workshop organizers from the USA. This added a more global perspective to the program, and we used the opportunity to discuss possibilities of a "combined" meeting of many international societies of pediatric anesthesia in the future. I am very grateful to all the faculty for their time and effort in making this meeting such a success. I would particularly like to acknowledge the enormous amount of work done by one of my colleagues in Boston, **Frank McGowan, M.D.** who with this meeting completed his two-year term as Program Director of our Winter Meetings. **Lyn Means, M.D.** from Riley Children's Hospital in Indianapolis, has taken over the responsibility for this meeting for the next two years. The Education Committee has already met to plan next year's program which will be held at a new resort hotel in Las Vegas. I hope you will plan to join us around the same time next year.

Before then, we will be meeting in Orlando at the 12th Annual Meeting to be held the day before the Annual Meeting of the ASA. An excellent program has been prepared by **Lynn Martin, M.D.** from Children's Hospital in Seattle, the Program Chairman for our Annual Meetings, and this should be another outstand-

ing educational and social event. In addition, this year we will have elections of new Officers and Directors of the Society as many terms (including mine) expire after the October meeting. **Bill Greeley, M.D.** the immediate Past-President, is Chairman of the Nominating Committee that will propose candidates for these vacant positions. Additional information about this will be included in the next Newsletter and I hope you will make plans to join us in Orlando.

I would also like to take this opportunity to update you on a number of additional issues that were discussed by the Board. The Society is examining ways we can improve communication with all our members, including expansion of our Web site. This takes a great deal of time, and the Board is considering hiring a commercial organization to take the burden off our volunteers who have been doing this up to now. It is hoped that with assistance we can include much more information on our Web site, such as the membership and fellowship directories, meeting registration forms, this complete Newsletter, among other things. In addition, the Board has created a subcommittee to examine ways the Society can assist developing nations with pediatric anesthesia. **Quentin Fisher, M.D.** from Johns Hopkins is leading a group that is examining this matter and will report to the Board in October. It is hoped this can be the beginning of an organized effort by the Society to assist developing nations with the things they need to provide better anesthesia for children, as well as assist pediatric anesthesiologists in our Society who wish to get involved with projects abroad. Anyone with ideas or interests in these areas should feel free to contact Dr. Fisher and we will

keep you apprised of the Society's efforts as they progress. In addition, I want to note that **David Nichols, M.D.** Chairman of the Research Committee, has submitted a proposal to the NIH for a large, multi-institutional study of the effects of URI's on anesthesia and surgery. A response is anticipated by the summer and it is hoped that this project will receive the funding necessary to get it going. It is only through collaborative efforts of many of our institutions that we will be able to answer some of the vexing problems we all face in the practice of pediatric anesthesia.

Finally, applications are now available for individual programs to apply for accreditation by the Accreditation Council for Graduate Medical Education (ACGME) for their training programs in pediatric anesthesiology. Those submitted by June 1st will be reviewed by the Residency Review Committee (RRC) for Anesthesiology at its meeting in October. Any program that has not received an application and wishes to do so should contact Mr. Thom Kulik, Accreditation Administrator at the RRC, at (312) 464-4645. Remember, only programs will be accredited, not individuals, so anesthesiologists in practice need not be concerned about this; it is an issue for program directors only at this time. This information will be included in the next (3rd) edition of the Directory of Pediatric Anesthesiology Fellowship Programs the Society will publish.

In conclusion, I hope this message helps everyone keep aware of the Society's activities and the work of its volunteers, committee members, directors and officers. Anyone interested in becoming more involved in the Society is encouraged to contact me, **Steve Hall, M.D.** (your President-Elect), or any of the Committee Chairs. There is always room for volunteers; actually, the Society depends upon the ideas and time of its members to function. Your participation is welcome and I hope you will try to attend the meetings of your Society and meet the remarkable people who comprise its membership.

Mark A. Rockoff, M.D.

President

Editor's Note



Jayant K. Deshpande, MD

Welcome to the three new members of the publications committee: Drs. Gavin Fine, Scott Schulman and Berklee Robins. Each one brings a renewed enthusiasm and expertise in pediatric clinical anesthesia in addition to their research interests. The Publications Committee work will certainly benefit from their participation.

The POINT/COUNTERPOINT in this issue addresses an ongoing debate in pediatric care - management of sedation for children outside the Operating Room. The articles by Drs. Malviya and Bracikowski are meant to stimulate thought and discussion. The positions of the authors are by design more absolutist than each might hold in practice. We would appreciate readers' comments and letters on the issue.

I would like to direct the readers' attention to the new column "HCFA Alert". This occasional column will highlight pressing issues of importance to all of us. We also will include the Board's official positions regarding these so that all of you are aware of what your Society is saying on your behalf.

Finally, a hearty thanks and congratulations to Frank McGowan for organizing an excellent meeting in -Phoenix! A job well done.

Thanks

Jayant K. Deshpande, MD
Editor

New Members

Aribindi, Shanthi, MD, Woodridge, IL
Arthur, Douglas S., MB, ChB, FRCA, Glasgow, UK
Bauman, Loren A., MD, Winston Salem, NC
Benefiel, David J., MD, Mill Valley, CA
Benoit, Sharon A., DO, Columbus, OH
Bent, Sabrina T., MD, East Haven, CT
Bissing, Mary Kay, DO, Lake Forest, IL
Blanton, Spencer C., MD, Tampa, FL
Carr, Richard D., MD, Portland, WA
Castro, Barbara A., MD, Burlington, MA
Chagnon, Mary Brita, MD, Schenectady, NY
Cheifetz, Ira M., MD, Durham, NC
Connor, Kathleen A., MD, Newton, MA
Crawford, Kathleen K., MD, Los Angeles, CA
Cross, David J., MD, Rockford, IL
Crowe, Marie-Josée, MD, St-Laurent, PQ, Canada
De Looze, Theodore H., MD, Oregon City, OR
DeNeal, Darcie K., RN, ST Louis, MO
Denham, E. Joseph, DO, Lawton, OK
Edelstein, Patti M., MD, Atlanta, GA
Elmqvist, Blake A., MD, Woodbury, MN
Escajeda, Mark S., MD, Lafayette, CA
Ewen, Alastair, MD, Calgary, AL, Canada
Fleischhacker, Glenn, DO, Dix Hills, NY
Foley, Peter J., PhD, MD, Springfield, MA
Gal, Stephen, MD, PhD, Wyckoff, NJ
Gallison, Claudia J., MD, Portland, OR
Garland, James W., DO, Colorado Springs, CO
Garvey, Cynthia L., DO, Chicago, IL
Gazula, Sreehari, MD, Riverwoods, IL
Gillerman, Richard G., MD, PhD, Providence, RI
Giusti, Franca, MD, Padova, Italy
Gottschalk, Lewis I., MB.ChB, Houston, TX
Gramlich, Lisa A., MD, Tinley Park, IL
Green, Morton C., MD, Indianapolis, IN
Guarini, Vincent E., MD, Brown Mills, NJ
Hall, Brian A., MD, Rochester, MN
Henderson, Amber M., M.D., Atlanta, GA
Holasek-Fritz, Judy M., CRNA, Victoria, MN
Homer, Terri D., MD, Menlo Park, CA
Horn, Connie, MD, Clarksville, OH
Husseini, Tina Maria, MD, Evanston, IL
Inadomi, David P., MD, Seattle, WA
Ingersoll, Thomas F., MD, Peoria, IL
Iwata, Nilza M., MD, Sao Paulo, SP, Brazil
Jacobson, Kenneth H., MD, New York, NY
Jo, Yong N., MD, Old Saybrook, CT
Keddie, Suzanne M., MD, High Point, NC

(Continued on Page 9)

Health Care Financing Administration

HCFA Alert

March 25, 1998

Nancy-Ann Min DeParle, Administrator
Health Care Financing Administration
ATTN: HCFA-3745-P
P.O. Box 7517
Baltimore, MD 21207-0517

Dear Ms. DeParle:

The Society for Pediatric Anesthesia is the largest organization in the United States representing anesthesiologists who care for children. We currently have as members approximately 1,700 physicians, plus more than two thousand additional anesthesiologists-in-training. As the leaders of the Society for Pediatric Anesthesia, we wish to speak clearly and forcefully against the HCFA proposal to allow nurse anesthetists to practice without supervision.

Why should America's children be targeted to receive second class anesthetic care from unsupervised nurses? We think this would represent a decrement in the care of children nationwide. Our most disadvantaged and underprivileged pediatric patients would be made further vulnerable to less than optimal care. Whereas some nurse anesthetists suggest that they may be able to practice independently, it is highly unlikely that the same degree of care would be delivered as that which would be provided from a physician anesthesiologist - particularly one with specialty training in pediatrics - or a nurse supervised by an anesthesiologist.

Recent statistics support the above premise. Despite what many nurse anesthetists would suggest, physician anesthesiologists administer or supervise at least 90% of the anesthetics in this country. Anesthesia-related adverse events have decreased enormously over the past twenty years under the present conditions requiring physician supervision. Undoubtedly, the present system of an anesthesia team, led by a physician, has contributed to this decrease in anesthesia-related problems.

On a global perspective, this is not an economic issue. Medicare and Medicaid reimbursement is the same for anesthesia whether performed by an anesthesiologist, a nurse anesthetist, or a combination of the two. Therefore, it is inconceivable that the care of children will be improved either from a cost-effective standpoint or from a quality assurance standpoint by eliminating physician supervision. Rather, the proposal to eliminate physician supervision will only serve to enhance the risk of adverse perioperative events (without increasing the benefits) in a population of patients that are vulnerable to a greater degree than adults.

In summary, we believe the idea that nurse anesthetists can provide the same quality of anesthesia care as physician anesthesiologists is **WRONG** and is, in reality, undeserving of discussion. However, the issue has been raised by the American Association of Nurse Anesthetists (MNA). Furthermore, the information the AANA is disseminating is misleading to both the public and Congress. This information should not be used to convince HCFA to eliminate physician supervision of patients. We believe this proposal, if passed, would have a profound negative impact on the safety of millions of American infants and children who need anesthesia.

We feel strongly that accepting a proposal to eliminate physician care of infants and children is authorizing a degree of second class care for disadvantaged pediatric patients and should be recognized as such. As the Officers and Directors of the Society for Pediatric Anesthesia, we urge HCFA to reject the notion of independent practitioner status for nurse anesthetists and maintain the current policy mandating physician supervision of all anesthesia care provided to children.

Sincerely,

Mark A. Rockoff, M. D.
President

1998 Winter Meeting Review Continued ...

The next speaker, **Dr. Robert Hirschl** of C.S. Mott Children's Hospital spoke on "Liquid Ventilation in the Setting of Respiratory Failure." he described different types of liquid ventilation and the use of the perfluorocarbon emulsion to improve gas exchange and pulmonary function during respiratory failure. There are two commonly used techniques. The first is Total Liquid Ventilation where the lungs are filled with perfluorocarbon to a volume equal to the Functional Residual Capacity (FRC). A special liquid ventilator is used to generate breathing rates of 4-5 breaths/minute. During Partial Liquid Ventilation the lungs are partially filled with perfluorocarbon with a standard gas mechanical ventilator is used to provide tidal breaths. The perfluorocarbon emulsion enhances alveolar recruitment in atelectatic lung areas and may help to redistribute blood flow from dependent to non-dependent lung regions.

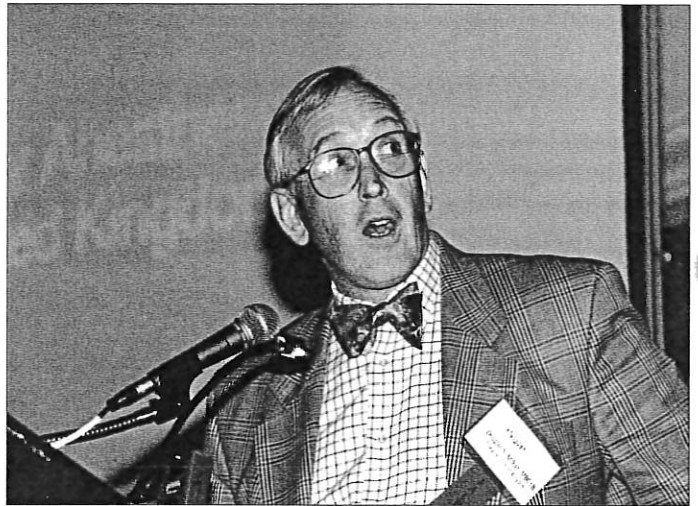
Dr. David Edsall of the HealthAlliance group and the Leahey/Hitchcock Clinic spoke on "Getting the Most Out of an Information System" with particular reference to automated intraoperative records. He stressed the Importance of establishing an appropriate database and analysis. This is essential to accurately interpreting information, for the purposes of quality improvement and assurance, management and potentially studying clinical outcomes. Intraoperative analysis is not simply creating the anesthesia record; there are ways to use the data for outcome analysis, process control, independent analysis (of a particular practitioner) and economic analysis in terms of accurate billing and coding. The ability to have statistical information to back up clinical practice may have substantial economic impact on contracting with payers and on malpractice premiums, for example.

The final speaker of this session, **Dr. Arthur Lam** of Harborview Medical Center, University of Washington, talked about "Monitoring the Brain/Spinal Cord to Achieve Better Neurological Outcomes". There are new monitors to study cerebral blood flow (CBF), particularly the laser Doppler flowmetry (LDF) and the transcranial Doppler ultrasonography (TCD). TCD is noninvasive and measures the relative changes in CBF and the presence of emboli or air can be detected. TCD is now largely responsible for the recognition of vasospasm in subarachnoid hemorrhage. Other monitors for cerebral function include the ICP monitor, the jugular venous bulb oximetry, near infrared spectroscopy, SSEP and EEG analysis. All in all our monitoring techniques have improved considerably and with an improved understanding of the cerebral physiologic environment, it is hoped the substantial improvement in neurologic outcome can be achieved.

The afternoon of Oral Abstract Presentations was moderated by **Drs. Douglas Arthur** (Royal Hospital for Sick Children, Glasgow, Scotland) and **Frank McGowan**. There were eight abstracts presented with a wide diversity of topics. These included parental presence in the OR, treatment of RSD in children, spinal anesthesia in open heart surgery, use of a new airway device-COPA, fasting practices, work of breathing in spontaneous ventilation, TEE pacing in congenital heart block and use of Org-9487 neuromuscular blocker in children.



Dr. Badgwell congratulates Dr. Arthur Lam on his lecture.



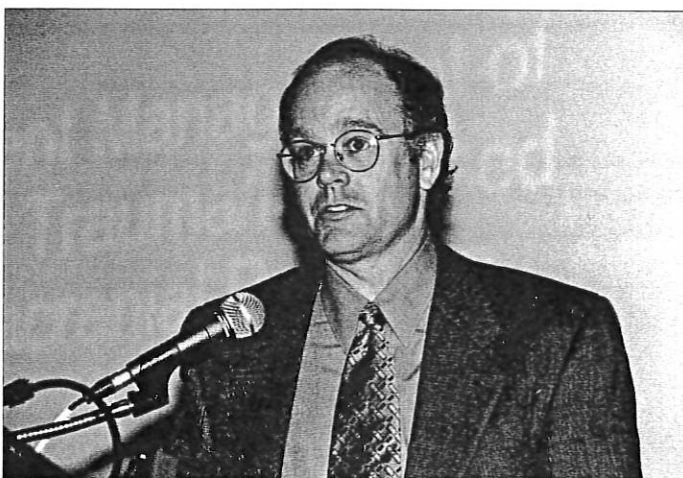
Dr. Douglas Arthur (Royal Hospital for Sick Children, Glasgow, Scotland) discussed ambulatory anesthesia in the U.K.



Dr. Katsuyuki Miyasaka (National Children's Hospital, Tokyo, Japan) enlightens the meeting on the Japanese experience.



Dr. Suzanne C. Ulyot reviews the Canadian approach to anesthesia and upper respiratory infections.



Dr. Thomas Luerksen of Riley Children's Hospital, Indianapolis, IN.

The second part of the afternoon session was presented by **Dr. Richard Blum** of Harvard Medical School who gave the first "Live Interactive Pediatric Case Conference" using the simulator from the Center for Medical Simulation of the Harvard University system. A case was used in which there was an uncommon drug reaction and management concepts were discussed in real time. The potential for education and clinical crisis management training using the simulator based approach is enormous as the level of sophistication in hardware and software evolves.

The second day of the conference began with a second set of Oral Abstract Presentations, moderated by **Drs. Katsuyuki Miyasaka (National Children's Hospital, Tokyo) and Robert Valley (University of North Carolina)**. Topics that were discussed included: desflurane effects on smooth muscle, autoantibodies in inhalational agent induced hepatitis, preoperative preparation programs, fibrinolysis in cardiopulmonary bypass, epidural analgesia in congenital diaphragmatic hernia repair and liquid ventilation in swine model of cardiopulmonary bypass. There was also a Parallel Poster Discussion Session moderated by **Drs. Suzanne Ulyot (Children's Centre in Winnipeg, Canada), Theodore Striker (Cincinnati Children Hospital) and Lyn Means (Riley Children's Hospital, Indianapolis)**, with 57 abstracts of diverse topics presented. There were so many outstanding abstracts and new ideas I hesitate to mention a few and leave out so many others. I encourage SPA members to read through the program booklet and review the abstracts.

The session was called Anesthesia Around the Globe and moderated by **Dr. Steven Hall (Children's Memorial Hospital, Chicago)** which consisted of three speakers from other countries discussing aspects of pediatric anesthesia practice in their respective countries. The first speaker was **Dr. Katsuyuki Miyasaka (National Children's Hospital, Tokyo)** who discussed "The Japanese Sevoflurane Experience in Children". At the National Children's Hospital in Tokyo, Sevoflurane has been the only inhalational agent used since 1990. The group rarely uses neuromuscular blocking agents. Dr. Miyasaka reports that they have demonstrated a significantly faster induction time with sevoflurane than halothane and more rapid recovery characteristics. They feel that cough and laryngospasm from sevoflurane are extremely rare and usually mild in nature.

The next speaker was **Dr. Douglas Arthur** from the Royal Hospital for Sick Children, Glasgow, Scotland. He presented their experience with: "Anaesthesia for Day Surgery in Children". He gave a thorough discussion of patient selection, preoperative fasting periods, maintenance of anesthesia and postoperative considerations. The experience in this practice had an overall admission rate of only 2%.

The last speaker of this session was **Dr. Suzanne Ulyot** from the Children's Centre in Winnipeg, Canada, who discussed, "Anesthesia and Upper respiratory Infections". She discussed the increased incidence of respiratory difficulties related to a URI and the importance of timing with relation to the presence of active infection. This problem remains a difficult one for those in a high volume outpatient setting as to when to cancel to do the procedure.

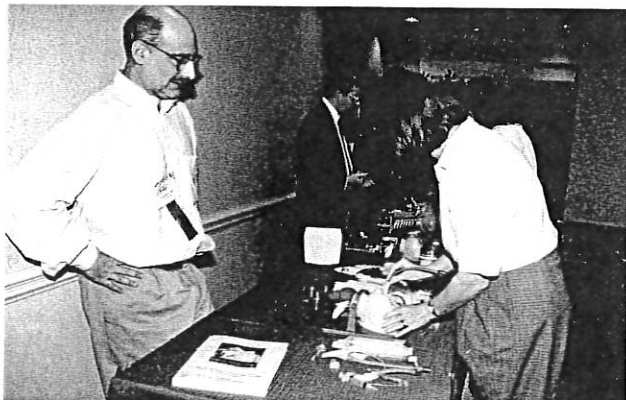
Continued on page 6

1998 Winter Meeting Review Continued ...

Workshops

Both the first and second day of the conference had afternoon sessions for the Parallel Workshops, that continue to be an integral and popular part of this meeting. The topics of interest continue to expand; this year they included the following: Airway techniques, Fiberoptic techniques, CPR and Intraosseous Infusions, Echocardiography, Managing the Epidural Space, Common and Advanced Pain Blocks, Upper and Lower Extremity Blocks, Managing Pain in the NICU, Setting up a Pain Service, Power Strategies, Investigating Alternate Careers, Anesthesia Department Management and Using the Computer and the Internet.

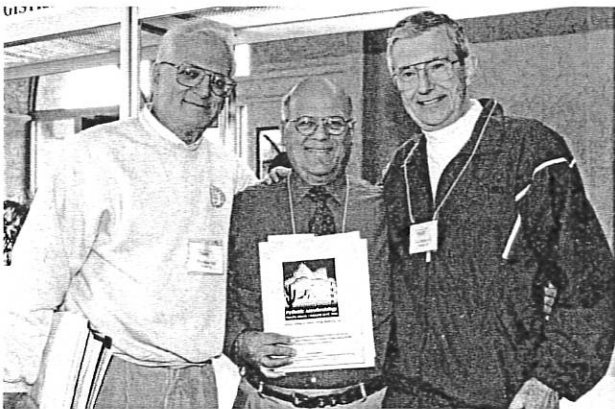
The final half day session that began with the Baxter Breakfast: "Establishing a Pediatric Sedation Service: Take it on the road versus Build it and they will come", led by **Dr. David Cohen** of Children's Hospital of Philadelphia and **Dr. Constance Houck** of the Children's Hospital, Boston. The speakers presented their views on the needs for a sedation service and ways in which to make this economically feasible. Audience participation was quite good during this session.



The next session Pediatrics and Anesthesia was moderated by **Dr. Mark Rockoff** of the Children's Hospital, Boston. This session included three clinical lecture topics. **Dr. Peter Laussen**, Children's Hospital, Boston, discussed "The Child with Palliated/Repaired Congenital Heart Disease". **Dr. Zeev Kain** of Yale University discussed "Perioperative Implications of Drug Abuse in Children and Adolescents". **Dr. Thomas Luerssen** of Riley Hospital for Children, discussed "Current Management of Head Trauma/Increased Intracranial Pressure.

The Awards presentation was moderated By Dr. Patty Davidson who has a separate article below.

The final session of the conference was Pediatric Anesthesia Jeopardy with a number of chiefs (who were the Indians?) Including: Drs. **James Steven**, **James Viney**, **Peter Davis**, **Myron Yaster**, and **Aubrey Maze**.



New Members

(continued from page 4)

Kelly, Cindy K., MD, Dallas, TX
King, Stephen W., MD, PhD, San Jose, CA
Klim, Carol M., MD, Orlando, FL
Lee, Richard J., MD, FRCP(C), London, ON, Canada
Lobel, Gregg P., MD, New York, NY
MacDonald, M. Eileen, MD, Kenilworth, IL
Malchioni, Michael J., MD, Evansville, IN
Marks, Phillip, MD, Santa Ana, CA
Marnach, Richard L., MD, Stillwater, MN
Matar, Marla M., MD, Sierra Madre, CA
Maupin, Bill C., MD, Oklahoma City, OK
McDade, William A., MD, PhD, Chicago
Miguel, Eliza A., MD, San Juan, Puerto Rico
Mihalka, Joseph P., MD, Roswell, GA
Miyasaka, Katsuyuki, MD, Toyko, Japan
Monma, Dean T., MD, St. Charles, IL
Morelli, Joseph J., MD, Huntington, NY
Moritz, Friedrich, MD, San Jose, CA
Moroney, Thomas R., MD, Tampa, FL
Navedo-Rivera, Andres T., MD, Woodbridge, CT
Nelson, William W., MD, Jackson, WY
Newcome, John P., MD, Minneapolis, MN
O'Hare, Brendan P., MD, Dublin, Ireland
Orlandi, Marc A., MD, Canal Fulton, OH
Parthipan, Loganathan, MD, Horsham, PA
Rogic, Nancy, MD, Omaha, NE
Salant, Evan P., MD, Gulf Breeze, FL
Sarmiento, Jeffrey J., MD, Long Beach, CA
Sartore, Danny M., MD, Springfield, IL
Savarese, Gail, MD, Oakland, CA
Schears, Gregory J., MD, Philadelphia, PA
Schwartz, Donald A., MD, Springfield, MA
Schwarz, Uwe, MD, Gockhausen, Switzerland
Sherman, Scott C., MD, East Setauket, NY
Steinberg, Jeffrey W., MD, Encino, CA
Stenquist, Scott A., MD, Casper, WY
Stewart, Charles V., MD, Tulsa, OK
Strafford, Maureen, MD, Cambridge, MA
Tan, Evelyn R., MD, Edison, NJ
Teller, Lynn E., MD, Philadelphia, PA
Thoman, Elizabeth A., RN, Edwainsville, IL
Tozbikian, Haig G., MD, Dayton, OH
Vadi-Latiff, V. Helena, MD PhD, Champaign, IL
Voller, Robert D., MD, PA, Columbus, OH
Webber, Thomas G., MD, Stamford, CT
Webinger, Margaret A., CRNA, Golden Valley, MN
Yang, Elaine C., MD, Rancho Palos Verdes, CA
Zadra, Nicola, MD, Padova, Italy

1998 Winter Meeting Review Continued ...

Award Presentations

Patty Davidson, MD
Columbus Children's Hospital

First we recognized the 1997-98 winner of the **FAER/SPA research grant, Dr. Neil Farber**. He gave a brief review of his work on anesthetic effects on the cerebral circulation..

The AAP gives its "**John J. Downes**" Award for the most outstanding research abstract presented by a resident or fellow. This year's winner was **Gavin Fine, MD**, from the University of Pittsburgh School of Medicine and Children's Hospital of Pittsburgh. His abstract was entitled "Work of Breathing During Spontaneous Ventilation in Anesthetized Children: A Comparative Study Between the Face Mask, Laryngeal Mask Airway and Endotracheal Tube".

The second place award went to **Ronald Van Brempt, MD**, from University Hospitals of Leuven, Belgium, for his work entitled, "Perioperative Transesophageal Pacing in Complete Congenital Heart Block as a Bridge to Permanent Cardiac Pacing".

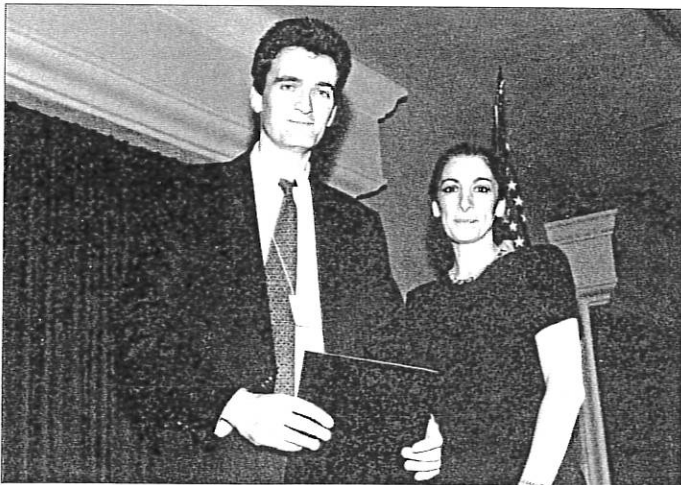
Susan M Goobie, MD of the Children's Hospital of Boston received the third highest score for her abstract entitled, "The use of Epidural Analgesia in Newborns Undergoing Congenital Diaphragmatic Hernia Repair. A new Approach to Perioperative Management".



FAER/SPA Research Grant, Dr. Neil Farber:



John J. Downes Research Award, Dr. Gavin Fine



Ronald Van Brempt, MD received second place for the John J. Downes Research Award.



Susan M Goobie, MD received third place for the John J. Downes Research Award.

The SPA Awards are given for the highest scoring paper presented by a young investigator, someone in the first three years out of training. The first place award went to **Delores B. Njoku, MD**, from the Johns Hopkins Medical Institutions, for her work, "Autoantibodies Associated with Inhalational Anesthetic Hepatitis Found in the Sera of Anesthesiologists". Of interest, many meeting participants contributed sera at this meeting for future research on this occupational hazard, as well as latex allergies. The second place young investigator was **Douglas G Ririe, MD**, of Wake Forest University School of Medicine. His award for "Age-Dependent Effect of Desflurane on Relaxation of Vascular Smooth Muscle" was Doug's third consecutive young investigator award!

Next on the program, **Mark Rockoff** presented plaques honoring the program chairs for the previous meetings including **Drs. McGowan, Tobin and Greeley**.

The **Robert M. Smith Award**, for significant lifetime contribution to pediatric anesthesiology, was presented by **Dr. Charlie Cote'** on behalf of the AAP Section on Anesthesiology to this year's winner, **Dr. John Ryan**, Massachusetts General Hospital. In the presence of his family, Dr. Ryan delivered a wonderful and moving speech, which was an appropriate conclusion to this special session.

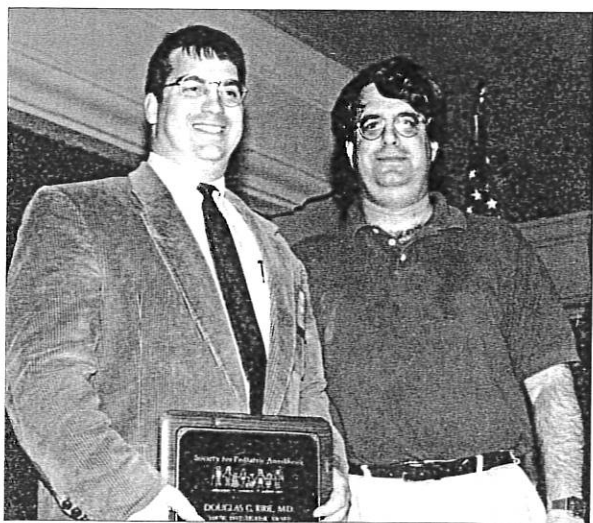
I was particularly proud to be involved in this session for the fourth year.



First Place, Young Investigator went to Delores B. Njoku, MD



Dr. Charlie Cote' presents John Ryan, M.D. with the Robert M. Smith Award.



Second Place, Young Investigator; Douglas G. Ririe, MD



Dr. John Ryan with his family after being presented with the Robert M. Smith Award.

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The Society for Pediatric Anesthesia acknowledges with deep appreciation the following organizations that have provided educational grants.

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Point - Counterpoint

Sedation for Children Outside the OR:

Only Anesthesiologists Should Do It



Shobha Malviya MD
*Assistant Professor of Anesthesiology
The University of Michigan Health Systems
Ann Arbor, Michigan*

Diagnostic and therapeutic procedures outside the operating room (OR) environment are being performed with increasing frequency in children. A number of options including conscious and deep sedation and general anesthesia (GA) have been considered acceptable to achieve the necessary co-operation and immobilization required for successful completion of these procedures. Recently these options have been closely scrutinized for the following reasons.

Awareness of sedation related disasters and deaths

A series of sedation related disasters compiled by Coté et al from the adverse drug reports made to the FDA, the United States Pharmacopoeia and from a survey of practitioners who routinely provide sedation for children included 52 deaths, 6 incidents of permanent neurologic injury and 15 cases of prolonged hospitalizations (Coté et al *Anesthesiology* 83:A1183, 1995). These events occurred in several different settings and with diverse sedation protocols. Most of these mishaps were related to drug overdose, inadequate monitoring, inadequate skills of personnel administering drugs, or premature discharge. Of greater importance, 28 of the deaths occurred after the

(Continued on page 14)

Not Only Anesthesiologists Can Do It



Andrea C. Bracikowski, M.D.
*Associate Professor of Emergency Medicine and Pediatrics
Director, Pediatric Emergency Medicine
Vanderbilt University Medical Center*

For many years children were held down with "brutane" - the use of brut force to restrain a child - during a diagnostic or therapeutic procedure. The "lytic cocktail" Demerol, Thorazine and Phenergan (DTP), with its very long half-life and poor combination of drugs was used for short procedures without any monitoring and often with early discharge. The goals of reducing or eliminating anxiety and enhancing comfort for children, safely, during a procedure are more than noble and are long overdue. Many of these procedures do not require the advanced airway skills and comprehensive knowledge base of an anesthesiologist and it is for this reason non-anesthesiologists are sedating children.

Anesthesiologists themselves have recognized that sedation of children by non-anesthesiologists does occur and will continue to occur outside the operating room. Holzman et al (*J. Clin. Anesth.* 6:265-276, 1994) and a report by the American Society of Anesthesiologist Task Force on Sedation and Analgesia by Non-anesthesiologist (*Anesthesiology*. 84:459-471, 1996) have developed guidelines for non-anesthesiologists who administer sedation. The authors state their primary practice lies in operating rooms, in intensive care units and on pain services.

(Continued on page 14)

American Academy of Pediatrics (AAP) guidelines to enhance the safety of sedation for children were widely published. In addition to this report, there are several other reports of adverse events from orally and intravenously administered sedatives many of which resulted in poor outcomes.

Most diagnostic and therapeutic procedures themselves pose little risk for adverse events in otherwise healthy children. However, as illustrated by the above reports, sedation that is often necessary to ensure successful completion of the procedure can add substantial risk to the child. Any increase in morbidity and mortality from the procedure resulting from an adverse event related to sedation should be considered unacceptable.

High risk patient population

Advances in diagnostic imaging technologies have resulted in the increased use of sedation and for higher risk patients. For example, it is not uncommon to encounter a child with uncorrected or partially corrected cyanotic heart disease who presents for transesophageal echocardiography to evaluate cardiac or valvular function. The same child may present for an MRI scan to determine the etiology of a neurological deficit after an open heart surgical procedure. Our previously published data have demonstrated that children with an ASA status III-IV were significantly more likely to experience respiratory and all adverse events than children with an ASA status I-II (Malviya et al *Anesth Analg* 85:1207, 1997). We also found that children under a year of age were more likely to experience respiratory adverse events than older children. A greater degree of vigilance and expertise may be required to ensure the safe sedation of these groups of patients.

Increasing emphasis on appropriate utilization of health care resources

Relegation of care of sedated children to anesthesiologists has been considered optimal for patient safety, but this practice has been viewed as costly and impractical in some settings. On the flip side of this argument, however, is the high cost of sedation related misadventures in terms of health care dollars and patient suffering. Examination of quality assurance data from more than 1000 children sedated by nonanesthesiologists at our institution revealed a 20% incidence of adverse quality indicators including inadequate sedation in 13%, failed sedation in 4% and respiratory adverse events resulting in oxygen desaturation in 5% of cases. Prolonged or aborted procedures prove to be costly not only to the institution due to scanner downtime and personnel time, but also to the patient who may be required to return for a repeated procedure with general anesthesia. Additionally, adverse events related to sedation may burden the institution with medicolegal costs.

Most of the events reported in Coté's series (cited above), likely resulted in escalation of care and increased use of valuable health care resources. In light of several reports of disastrous outcomes related to sedation, can the current health care system afford to allocate less than optimal care to children who require sedation for a diagnostic test?

JCAHO involvement with sedation and requirement that the same level of care be provided for deeply sedated patients as those undergoing GA

In most states in the US, GA is provided by anesthesiologists or certified registered nurse anesthetists (CRNA) under the supervision of an anesthesiologist. It is doubtful that a care provider with minimal Basic Cardiac Life Support (BCLS) certification who is acting under the orders of a radiologist or other clinical practitioner as recommended in the AAP guidelines can provide the same level of care as an anesthesiologist or CRNA. This point is well illustrated in a report in the radiology literature attesting to the safe use of IV Nembutal for children undergoing CT scans (Strain et al, *AJR* 151:975, 1988). This study reported a 7.5% incidence of O₂ desaturation to 80% of baseline or less. In one patient, O₂ saturation dropped to 75% but scanning was continued for 7 minutes before the head was repositioned to correct the hypoxia. In another patient, O₂ saturation decreased to a nadir of 50% at 5 minutes and increased to 85% after stimulation in another 5 minutes. Of greatest concern is the fact that these episodes were prolonged and that scanning continued for several minutes before appropriate interventions such as repositioning and supplemental oxygen were undertaken. It is unlikely that scanning would have been permitted to continue for 7 minutes while the child was hypoxic, if sedation had been provided under the care of an anesthesiologist. These cases highlight the differences in reaction times between anesthesia trained personnel and those without anesthesia training.

It can be argued that conscious sedation may be administered safely by an individual trained in BCLS alone. However, it must be recognized that a state of sedation in children represents a continuum of events that may progress from a level of conscious sedation to deep sedation or even GA without the intent or the knowledge of the sedation care provider. Limited access to the patient once the procedure has begun, frequently makes it difficult to detect this transition in the child's level of consciousness. It is therefore, prudent to allocate the same level of care to all patients undergoing sedation for a diagnostic or therapeutic procedure regardless of the intended depth of sedation. This practice will enhance the safety of sedated children and permit compliance with JCAHO mandates.

Minimal personnel and training requirements as recommended by the AAP

Perhaps the AAP recommendation that has been considered the most difficult to follow by primary care providers has been the minimal personnel requirements i.e. one member of the health care team with minimal BCLS training and preferably Pediatric Advanced Life Support (PALS) training to be present throughout the sedation episode until the child has met discharge criteria. On the other hand, the requirement to provide one-on-one care and provide continuous monitoring to an anesthetized or sedated patient has been the standard of care for anesthesiologists/ anesthetists for several years. Anesthesiology departments, therefore are better organized in terms of scheduling of personnel to provide this level of care. The expertise of our

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specialty in patient evaluation, monitoring, and development of an appropriate care plan for a sedated or anesthetized patient permits anesthesiologists to provide superior conditions for successful completion of painful or anxiety provoking procedures.

Comparison studies of sedation vs GA for procedures outside the OR

An argument that is frequently presented against the use of GA for procedures outside the OR is the perceived increased risk of GA by primary care providers and patient families. This issue has been addressed by recent studies. One study evaluated the safety, efficacy and cost of sedation and GA in children undergoing GI endoscopy (Squires et al *Gastrointest Endosc* 41:99, 1995). Sedation was deemed inadequate in 5% of the sedated group which resulted in the procedure being aborted. No other adverse events were reported, but 2 patients in the sedated group required naloxone for unspecified reasons. These authors reported GA to be more costly than sedation, however, the patients who received GA were scheduled in the OR rather than in the GI endoscopy suite which accounted for most of the added cost. Another study that also evaluated GI endoscopy patients reported a higher incidence of O₂ desaturation in children sedated with midazolam compared to those who received GA (89% v/s 5.5%) (Dubreuil et al *Anesthesiology* 83: A1184, 1995). The lowest saturation in the sedation group was 73% compared with 93% in the GA group. Furthermore, the sedation group experienced a higher incidence of dysrhythmias. Lastly, a large, prospective, ongoing study at our institution demonstrated a 5.3% incidence of adverse events in 79 anesthetized children compared with a 23% incidence in 575 sedated children who underwent CT or MRI scans (Malviya et al *Anesth Analg* 86:S410, 1998). Sixteen percent of the events in the sedation group were inadequate sedation that resulted in a failed procedure in 6%. One patient in the sedation group required monitoring and supplemental O₂ in the emergency department for excessive sedation. In all these studies, assignment of patients to the sedation and GA groups was non-random, with the patients perceived to be at higher risk being placed in the GA groups. Taken together, the results of these studies indicate that GA for procedures outside the OR is associated with a lower risk of adverse events compared with sedation.

In summary, sedation for diagnostic and therapeutic procedures performed outside the OR in children continues to pose a challenge. In most cases, successful completion of these procedures in children requires deep sedation which in turn requires the same level of care as general anesthesia to ensure the safety of these children and to comply with JCAHO standards. The high degree of vigilance and expertise required to successfully and safely complete these procedures can be most consistently provided by anesthesiologists particularly in high risk patients such as those with ASA status III-IV and children under a year of age. ❖

They also recognize the substantial need for sedation outside of these settings. They conclude that it is necessary to educate non-anesthesiologists in the safe and effective sedation of patients. This will ensure the safety and welfare of children during sedation for diagnostic and therapeutic procedures.

Are there enough anesthesiologists to be present at every sedation occurring in a busy medical center? This would include conscious sedation with e.g. rectal midazolam to deeper sedation for more difficult procedures. The emergency department is a very busy place where there is an urgent need to repair a wound, relocate a dislocated joint or reduce a fracture. Endoscopy units have daily scheduled and urgent diagnostic procedures. The radiology suite is performing radiographs as well as ultrasounds, angiograms, and MRIs usually requiring sedation for anxiolysis and cooperation from children. The presence of an anesthesiologist at all of these sedations would overtax the personnel of the specialty and presently is impossible. Their expert skills would be better utilized for the complex, high risk patient. Additionally, the cost of such a highly trained and experienced practitioner would be prohibitive.

Conversely, could all of these procedures be done in the operative suites or intensive care units where anesthesiologists are concentrated? Each subspecialty would have its diagnostic procedure suite in the operating suite where the sterile environment is often not necessary. Colonoscopies do not require a completely sterile environment. These procedure suites would be located in intensive care units. Imagine the frightened, 15 month old child with a deep forehead laceration. He would be moved to the operating rooms or the intensive care unit for repair of his wound at 8:00pm on a Sunday evening. Time, money and manpower would be wasted.

Most children receiving sedation are healthy with few if any medical problems. Anesthesiologists have trained non-anesthesiologists (nurse anesthetists) to care for the "uncomplicated cases" in the operating room. Similarly, non-anesthesiologist physicians who practice in the Pediatric emergency department, in the endoscopy suite, in the oncology unit, in the EEG lab can be trained to sedate the "uncomplicated case." Sedation in these settings requires identification, through an initial screening evaluation, of potentially high risk patients. This may then prompt appropriate consultation with subspecialists, including anesthesiologists who are best skilled to care for the high risk patient requiring sedation.

In medicine skills such as reading a certain type of X-ray, placing a central line, airway management, and even diagnostic procedures cross specialties and subspecialties. The realm of sedation for children has crossed these same lines. Only with the cooperation and expertise of our colleagues in anesthesia can non-anesthesiologists learn to safely and effectively sedate children for procedures. Morbidity and mortality would be minimized. The time has come for congenial and collaborative teamwork because non-anesthesiologists can and will continue to sedate children for procedures and the child's safety and welfare is paramount. ❖

Literature Reviews

A Systematic Review of Lidocaine-Prilocaine Cream (EMLA) in the Treatment of Acute Pain in Neonates. Taddio A, Ohlsson A, Einarson TR, Stevens B, Koren G. *Pediatrics* 101, (<http://www.pediatrics.org/cgi/content/full/101/2/1>) 1998.

Review: This is a systematic review of the use of EMLA cream in neonates undergoing painful cutaneous procedures. Medline, EMBASE, Reference Update, bibliographies, personal files, scientific meeting proceedings and key journals were searched for reports with information on neonates (up to 1 month) on the efficacy and safety of EMLA. Randomized controlled and cohort studies that included a placebo were included. Experimental pain procedures and case reports were excluded. There were three studies examining the efficacy of EMLA in circumcision, four for heel lancing, two for venipuncture, one for arterial puncture, one for lumbar puncture (LP) and one for percutaneous venous catheter placement that fit all the inclusion criteria. The infants ranged in gestational age from 26-43 weeks. EMLA was found to diminish pain (measured by physiologic and behavioral changes) in circumcision, venipuncture, arterial puncture, and percutaneous venous catheter placement. It made no difference in infants undergoing LP or heel lancing, although the sample size in LP patients was small. Methemoglobinemia was not a problem when single doses (ranging from 0.5 - 2 gms) were used, and there were no signs of toxicity in any of the infants.

Comment: The authors show, using meta-analytic techniques, that single doses of EMLA diminish pain responses for a variety of procedures in the neonate and that toxicity is minimal. Clearly, further studies need to be done investigating the effects of multiple doses of EMLA. There is ample experimental data in neonatal animals and some in humans to suggest that reduction of pain in these fragile beings is beneficial. It still remains to be seen if increased EMLA use in neonates will have prolonged positive effects.

*Reviewer: Rita Agarwal, M.D.
The Children's Hospital, Denver, Colorado*

The Burden of Environmental Tobacco Smoke Exposure on the Respiratory Health of Children Two Months Through Five Years of Age in the United States. Gergen PJ, Fowler JA, Maurer KR, Davis WW, Overpeck MD. *Pediatrics* 101 (<http://www.pediatrics.org/cgi/content/full/101/2/8>), 1998.

Review: The authors sought to evaluate the effects of environmental tobacco smoke (ETS) in a large (>7500) group of children aged two months to five years. The Third National Health and Nutrition Examination Survey (NHNES III) was conducted from 1988-1994 by the National Center for Health Science of the Centers for Disease Control and Prevention in Atlanta, Georgia. A number of variables were examined including breast feed-

ing history, allergies, self-report of asthma or hayfever in either biologic parent, day care attendance, birth weight, medication use, asthma or bronchitis (as diagnosed by a physician), episodes of wheezing, cough, URI, and pneumonia in the past 12 months. Reported ETS was classified as either current household exposure or maternal smoking. Current household exposure was defined by total number of cigarettes smoked by household members and was divided into three groups; none, 1-19 cigarettes/day, and 20 cigarettes/day.

Thirty-eight percent of children were exposed to ETS at home, and 23.8% were exposed during pregnancy. ETS exposure increased chronic bronchitis, episodes of wheezing and asthma in children age two months to two years, and asthma in children two months to five years. This increased incidence was consistent only in the group whose household exposure was 20 cigarettes/day. There was no increased incidence of URI, pneumonia, or cough.

Comment: This is yet another study, distinguished by its size (n=7680), demonstrating deleterious effects of ETS exposure on the respiratory health of children, especially children < three years. The implications for anesthesiologists caring for these children are: 1) always ask about ETS exposure, and 2) be more probing in questions pertaining to respiratory health in children with significant ETS exposure.

*Reviewer: Rita Agarwal, M.D.
The Children's Hospital, Denver, Colorado*

Judging Pain in Infants: Behavioral, Contextual, and Developmental Determinants. Hadjistavropoulos HD, Craig KD, Grunau RE, Whitfield MF. *Pain* 73:319-324, 1997.

Review: Seven judges (nursing students with experience in clinical care) were asked to view videotapes of 56 newborn infants subjected to heel lancing for routine blood sampling. Their average age was 3.8 days. Gestational ages ranged from 25 weeks to 41 weeks, with a mean of 31.8 weeks. The large majority of infants were caucasians. The judges viewed 10 second video clips of the infant's response to swabbing or lancing the heel. Neonatal Facial Coding System (NFCS) and Infant Body Coding System (IBCS) were used. Facial activity accounted for the majority of variance in pain scores and there was a tendency to judge early preterm infants to be experiencing less pain, despite being subjected to the same invasive procedure.

Comment: The authors should be applauded for their continued efforts to develop pain grading scales in newborn or preterm infants and to assess their efficacy and utility.

*Reviewer: Rita Agarwal, M.D.
The Children's Hospital, Denver, Colorado*

Literature Reviews

(continued from page 15)

Ketoralac as an Adjunct to Patient-Controlled Morphine in Postoperative Spine Surgery Patients. Reuben SS, Connelly NR, Steinberg R. *Reg Anesth* 22:343-346, 1997.

Review: Randomized double blind study investigating the effects of ketoralac administered either on a schedule or as a component of PCA on adult patients undergoing spine surgery. All patients received a morphine PCA and either no ketoralac, 15 mg ketoralac every six hours, 30 mg ketoralac every six hours, or ketoralac added to the PCA. The study shows that the addition of any amount of ketoralac improved pain scores, decreased morphine consumption and decreased sedation scores. There was no difference between any of the groups who received ketoralac and no adverse effects.

Comment: This is an adult study, however, the results may be applicable to pediatric patients.

*Reviewer: Rita Agarwal, M.D.
The Children's Hospital, Denver, Colorado*

Postoperative Analgesia with Preoperative Oral Ibuprofen or Acetaminophen in Children Undergoing Myringotomy. Bennie RE, Boehringer LA, McMahon S, Allen H, Dierdorf SF. *Paediatric Anaesthesia* 7:399-403, 1997.

Review: This is a study evaluating the efficacy of 15 mg/kg acetaminophen and 10 mg/kg ibuprofen administered orally prior to surgery in providing postoperative analgesia in children undergoing myringotomy. The authors reported on 43 children, ASA I or II, randomized to receive either placebo, ibuprofen, or acetaminophen. A behavior scale and Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) was used to evaluate efficacy of treatment in the postoperative period. There were no differences in either CHEOP scores or behavior scores in any of the groups.

Comment: Pain management in children undergoing myringotomy still remains a dilemma. Acetaminophen, NSAID's, and mild opioids have all been tried with varying results. Although this study shows no benefit in using preoperative ibuprofen or acetaminophen, many of us will probably continue to use those agents.

*Reviewer: Rita Agarwal, M.D.
The Children's Hospital, Denver, Colorado*

Seroconversion in Health Care Workers After Percutaneous Exposure. Cardo, DM, Culver DH, Ciesielski CA, et al. A Case-Control Study of HIV *NEJM*; 337(21):1485-1490, 1997.

Review: Despite the growing perioperative use in this country of so-called needleless intravenous administration systems (e.g., InterLink from Becton Dickinson) anesthesia providers remain at significant risk for inadvertent needles sticks from both intravenous catheters and medication syringe. An underlying concern, of course, is the attendant risk of percutaneously acquiring a blood-borne viral infection. Specifically, the overall risk of human immune deficiency virus (HIV) infection after percutaneous exposure to HIV-infected blood is 0.3%.

The authors of this multinational study attempted to identify the factors that play a major factor in this risk of acquiring HIV after a needlestick. They examined 33 health care workers who became seropositive after percutaneous HIV exposure versus 665 controls who despite a needlestick exposure to HIV did not seroconvert. Based upon logistic-regression and univariate analyses, the investigators found that significant risk factors included: 1) large diameter needle (less than 18 gauge); 2) deep injury, 3) injury with a device that was visibly contaminated with the source patient's blood, 3) a procedure involving a needle placed in the source patient's artery or vein, 4) emergency procedures; and 5) exposure to a source patient who died of acquired immune deficiency syndrome within two months. As an aside they authors found that zidovudine, when taken within four of exposure, appeared to have a protective effect in preventing health care worker seroconversion.

Comment: It would thus appear that as anesthesia providers, we are at greatest risk when dealing with trauma and code situations, inserting large-bore IV catheters and arterial/central venous lines, and deep fingertip punctures. Strong consideration should be given to the immediate initiation of zidovudine, especially if one of the above risk factors comes into play.

*Reviewer: Thomas R. Vetter, M.D.
Children's Hospital Medical Center of Akron*

(Continued on page 18)

Literature Review

Pathogenesis and Treatment of Sickle Cell Disease

H. Franklin Bunn, M.D., *NEJM* Vol 337 No. 11 Sept. 11, 1997
pg. 762-769

Review: This review article in the New England Journal of Medicine's mechanisms of disease series is a state-of-the-art review of Sickle Cell Anemia. The author discusses the pathogenesis and pathophysiology of sickling, both in clear prose and with beautifully done color illustrations and electron micrographs. He takes the illness from the level of the amino acid replacement at position number 6 on the beta hemoglobin chain through the factors which affect sickling as well as the development of the irreversibly sickled cell. Current therapies are reviewed including safety and efficacy. Promising newer approaches are also briefly discussed with pertinent animal data, when available.

Comment: The author does not refer to transfusion practices in general or in the perioperative period, issues of direct daily relevance to pediatric anesthesiologists, but this concise review brings the practitioner's knowledge of this important illness and the newer directions that therapies are taking up to date.

Reviewer: Thomas J. Mancuso, MD, FAAP
Childrens Hospital, Boston

Lung Volume, Pulmonary Vasculature, and Factors Affecting Survival in Congenital Diaphragmatic Hernia Donald W. Thibeault, M.D., Barbara Haney, RNC, MSN *Pediatrics*, Vol. 101 No.2 February 1998 pg. 289-295

Review: The authors of this paper set out to test the hypothesis that factors other than the degree of hypoplasia of the pulmonary vasculature are important in the outcome of patients with CDH. The hospital courses of 90 infants with CDH who were admitted consecutively to a children's hospital with an ECMO program were retrospectively reviewed. The patients were referred to the hospital during the period from 1987 to 1996. In general, ECMO was the therapy of last resort, although the criteria for its institution varied over the 9 years. Eleven of the more recent infants were treated with Nitric Oxide at various times during their hospitalization. The authors divided the patients into four groups; 1. Lived, No ECMO, 2. Lived with ECMO, 3. Died with ECMO, 4. Died, no ECMO. The overall survival rate was 63% (56/90). The survival rate was 61% (35/56) in the ECMO treated infants. The authors conclude that a minimum lung volume of 45% of the value predicted for age-matched controls is needed for survival. In this series there were 8 infants whose lung volume was adequate for survival who died of medical and surgical complications and who, the authors speculate, were potential survivors.

Comment: This series is a retrospective review which correlated lung volume with survival. It includes a fair amount of detailed information regarding the management of the infants including post mortem examinations. With the two papers from Boston and Toronto, this paper gives a reasonable overview of current treatment and implications for future directions in the therapy of this vexing problem.

Reviewer: Thomas J. Mancuso, MD, FAAP
Childrens Hospital, Boston

Congenital Diaphragmatic Hernia—A Tale of Two Cities: The Boston Experience J.M. Wilson, M.D., D.P. Lund, M.D., C.W. Lillehi, M.D., J.P. Vacanti, M.D. *J Pediatr Surg* 32:401-405 1997

Congenital Diaphragmatic Hernia—A Tale of Two Cities: The Toronto Experience K. Azaro, A. Messineo, R. Pearl, R. Fuller, G. Barker, D. Bohn *J Pediatr Surg* 32:401-405 1997

Review: These two articles, as the titles indicate, summarize the experiences of two major pediatric centers with the evolving of treatment of congenital diaphragmatic hernia. The period of the studies is 1981 to 1994. Children whose surgical correction was done elsewhere were excluded in these analyses. There were 223 patients enrolled at Toronto's Hospital for Sick children and 285 children enrolled at Children's Hospital in Boston. In Toronto, ECMO was not a part of medical therapy while it was in Boston. Overall survival was similar at both institutions, in the 55% range. Children treated with either high frequency oscillatory ventilation or ECMO did not have higher rates of survival than children treated with conventional mechanical ventilation. In Boston survival was affected by the presence of other anomalies, the degree of iatrogenic barotrauma and bleeding (while on ECMO). In Toronto the following factors were associated with improved survival: higher birth weight and Apgar scores. The size of the defect and the timing of surgery did not appear to affect survival nor were there other surgical factors which affected the survival rate.

The Boston group introduced a different treatment algorithm in the management which has been associated with a 25% increase in survival. Permissive hypercapnia has been used in ventilating these babies instead of hyperventilation to respiratory alkalosis as had been done in most centers. This new ventilation strategy was undertaken since barotrauma has been at least partly responsible for much morbidity and mortality in patients with congenital diaphragmatic hernia. The overall survival rate for babies treated with permissive hypercapnia preop has been 69%, a 25% increase over the survival rate for the preceding years. These children for the most part also have had epidural

Literature Reviews

catheter placed into the thoracic epidural space via the caudal route prior to surgery and kept in place to provide post op analgesia with the expectation of early extubation.

Comment: These two articles document the experiences of two major centers with over 500 cases of congenital diaphragmatic hernia. That alone makes these papers worth reading but it is especially interesting to note the recent improvement in survival noted in Boston following the institution of a more gentle ventilatory strategy as well as the addition of epidural analgesia to the anesthetic management. It is also stated by the authors of the Toronto paper that timing of repair did not affect survival and this opinion is supported by the survival data from Boston regarding immediate versus delayed repair.

*Reviewer: Thomas J. Mancuso, MD, FAAP
Childrens Hospital, Boston*

Drugs for Pediatric Emergencies, Committee on Drugs, 1996 to 1997, Pediatrics Vol. 101 No.1 January 1988, p. e 13

Review: This article is authored by the committee on drugs. The AAP section on anesthesiology liaison to that committee, Charles Cote, MD had important input in the document. This paper is an electronic article. It is not available in the published journal but is available on the AAP web site. The Pediatrics web site url is: <http://www.pediatrics.org/> (The international url for the Pediatrics is: <http://intl.pediatrics.org/>) The url for this specific article is <http://www.pediatrics.org/content/vol101/issue1/>. It provides current recommendations about the use of emergency drugs for acute pediatric problems. Standard references have been used in the creation of the document. The abstract states that it is not to be used in an actual emergency nor is it comprehensive. It does review much pertinent information such as indications, doses, and specific warning and contraindications about resuscitation drugs, muscle relaxants, sedatives and other emergency medications.

Comment: The article begins with Some considerations for the use of drugs for endotracheal intubation which very nicely, albeit briefly, outlines the rationale for the use of barbiturates, sedatives etc. to blunt the response to laryngoscopy. This section also contains an excellent discussion of the important place succinylcholine has in emergency intubations. This reference is likely to be read and used by pediatricians, in the emergency room, the PICU and NICU so it would be an important addition to the files of pediatric anesthesiologist.

*Reviewer: Thomas J. Mancuso, MD, FAAP
Childrens Hospital, Boston*



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Bilotta, Federico, MD, Rome, Italy
Bishop, Charles G., MD, Columbia, MO
Black, Matthew L., MD, Hammond, IN
Bodily, Dan W., MD, San Antonio, TX
Bohay, Jordan A., MD, Winnipeg, MB, Canada
Bolduc, Louis, MD, Verdun, PQ, Canada
Bouhlev, Ognian, MD, Roslyn, NY
Brito, Joseph C., MD, Morgantown, WV
Brown, Darlene K., DO, Kirksville, MO
Buisseret, Pierre, MD, Brussels, Belgium
Bulatov, Igor, MD, Hamden, CT
Busracamwongs, Atichat, MD, Troy, NY
Butz, Steven F., MD, Wheeling, IL
Byrnes, Joseph P.M., MD, New Orleans, LA
Caroli, Debra L., MD, Micanopy, FL
Cerro, Cindy A., MD, Albany, NY
Chenanda, Ponnamma M., MD, Branford, CT
Chew, Sophia T.H., MD, Durham, NC
Connor, Caroline M., MD, Seattle, WA
Conover, Margaret A., MD, Seattle, WA
Cuignet, Olivier Y., MD, Seattle, WA
Custeau, Ingrid, MD, Sherbrooke, PQ, Canada
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Darwich, Alaeldin A., MD, Oakbrook Terrace, IL
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De La Cruz, Luis A., MD, Miami, FL
Dermer, Shawn M., MD, Ann Arbor, MI
Dhar, Abrar M., MD, Ann Arbor, MI
Durrani, Asim F., MD, Branford, CT
Eisenberg, Seth M., MD, Albany, NY
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Espinal, Ramon D., MD, Augusta, GA
Fadly, Magued R., MD, Wallingford, CT
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Fischer, Stefanie R., MD, Galveston, TX
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Fukami, Sakae, MD, Osaka, Japan
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Wiens, Anthony V., MD, Winnipeg, MB, Canada
Willsey, Derrick B., MD, Boston, MA
Yamamoto, Shinichi, MD, Tokyo, Japan
Yong, Jinghong, MD, Houston, TX
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Zarate, Eduardo, MD, Dallas, TX
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Society for Pediatric Anesthesia



SPA / FAER Update

SPA/FAER New Investigator Award

Congratulations to Dr. Neil Farber, who has been awarded the SPA/FAER New Investigator Research Award for a second year. His project is on "The Role of Nitric Oxide in Modulating Volatile Anesthetic-Induced Actions on Intracerebral Microvessels".

Research Deadlines

Research Starter Grant: Awards are intended for anesthesiologists holding a faculty appointment, who are not yet ready to conduct independent research. Starter grants provide seed money to initiate a project that will advance the applicant's training and will allow the applicant to seek future additional support. No significant extramural support should be available, either directly or indirectly, and applicants should not have received previous peer-reviewed funding from any other source. Application deadline is July 31, 1998.

New Investigator Award: Awards are intended for anesthesiologists on the verge of becoming independent investigators. Although applicants must have an experienced investigator as an adviser, the project should be planned and conducted primarily by the applicant. Application deadline is November 30, 1998.

Educational Research Grants: Grants are intended to support research in anesthesia education, and proposals may include the design and evaluation of specific educational techniques and curricula, development of instruments for the prediction and evaluation of outcomes, or other original and creative investigations which have an impact on the quality of anesthesia education and care. Application deadline is July 31, and November 30, 1998.

Application Guidelines are available by contacting Dr. Alan Sessler, Executive Director, FAER, Charlton Building, Mayo Clinic, 200 First Street SW, Rochester, MN 55905 or on the Internet at (<http://www.asahq.org/FAER/homepage.html>). For questions call (507) 266-6866.

Coming Soon

**12TH ANNUAL MEETING
OF THE
SOCIETY FOR
PEDIATRIC ANESTHESIA**

Society for Pediatric Anesthesia



Friday, October 16, 1998

Omni Rosen
Orlando, Florida

Lynn D. Martin, M.D.
Program Chair

A Conference Sponsored by the Society for Pediatric
Anesthesia and the Society for Education in Anesthesia

For more information contact:

Society for Pediatric Anesthesia
P.O. Box 11086, Richmond, VA 23230-1086
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SocietyHQ@compuserve.com



SPA 12th Annual Meeting Program

Orlando, Florida

Morning Session

7:00 - 7:45am	Registration and Continental Breakfast
7:45 - 8:00am	Introductory Comments and Welcome Drs. Mark A. Rockoff and Lynn D. Martin
8:00 - 10:00am	Scientific Advances in Pediatric Resuscitation Moderator: Elliot J. Krane, M.D.
8:00am	<i>Advances in Pediatric Cardiopulmonary Resuscitation</i> Donald H. Shaffner, M.D.
8:50am	<i>Frontiers in Cerebral Resuscitation: Lessons Learned from Human Head Injury</i> Patrick M. Kochanek, M.D.
9:40am	<i>Questions and Discussion</i>
10:00 - 10:30am	Coffee Break / Exhibit Viewing
10:30 - Noon	Clinical Update of Pediatric Resuscitation Moderator: Randall C. Wetzell, M.B., B.S.
10:30am	<i>Pediatric Resuscitation, The European Perspective</i> David A. Zideman, M.B., B.S.
11:05am	<i>Outcomes of Pediatric Perioperative Resuscitation</i> Jeremy M. Geiduschek, M.D.
11:40am	<i>Questions and Discussion</i>
12:00 - 1:30pm	Luncheon & SPA Business Meeting / Election of Officers

Afternoon Session

1:30 - 3:00pm	Office Based Anesthesia - The Next Frontier for Pediatric Anesthesia Moderator: Mark A. Helfaer, M.D.
1:30pm	<i>Office Based Anesthesia - A Dentist's Perspective</i> Stephen Wilson, D.M.D., M.A., Ph.D.
1:55pm	<i>Office Based Anesthesia - An Anesthesiologist's View</i> Richard A. Berkowitz, M.D.
2:20pm	<i>Outcomes of Office Based Anesthesia - A Historical Review</i> Charles J. Coté, M.D.
2:30pm	<i>Questions and Discussion</i>
3:00 - 3:30pm	Coffee Break / Exhibit Viewing
3:30 - 5:00pm	Contemporary Management Issues - Moderator: Karen S. Bender, M.D.
3:30pm	<i>Perioperative Anxiety - the Patient, Parents, and Anesthesiologists</i> Zeev N. Kain, M.D.
4:00pm	<i>Medicine on the Final Frontier: A Microgravity Environment</i> M. Rhea Seddon, M.D.
7:00 - 10:00pm	Reception: EPCOT's American Adventure Pavilion

SPA Buffet Reception at EPCOT's American Adventure Pavilion

Members should plan on making their participation complete at the Society for Pediatric Anesthesia 12th Annual Meeting by attending the highly popular SPA Annual Meeting Buffet Reception. The reception will be held from 7:00 - 10:00 pm at EPCOT's American Pavilion. The cost of this event is included in the SPA Annual Meeting Registration fee. Tickets for spouses or guests may be purchased in advance at the cost of \$50.00 per person. Please check the appropriate box on the registration form and include the proper remittance with your registration fee. Shuttle buses will provide roundtrip transportation from the Omni Rosen, Orlando, Florida.

SPA's Buffet Receptions held in the past have been heavily attended. This year's promises to be even better. Early registration for this event is strongly encouraged.

SPA 1998 Annual Meeting Registration Form

October 16, 1998, Omni Rosen Hotel, Orlando, Florida

PLEASE PRINT OR TYPE INFORMATION

Name _____ Degree _____

Address (Checks Preference): () Home () Business

City / State / Zip _____

Phone () _____ Fax () _____

Email _____

Hospital Affiliation _____

Business Telephone () _____

- () I plan to attend the SPA Buffet Reception
- * () I plan to bring a guest with me to the Buffet Reception

Registration Fees: Registration fee includes meeting syllabus, continental breakfast, luncheon, breaks and buffet reception.

	Thru Sept. 18	After Sept. 18	
SPA Members, includes Resident Members ¹	\$175	\$200	\$ _____
Non SPA Members ² (U.S. or Canada)	\$275	\$300	\$ _____
<i>(includes \$100 immediate SPA membership).</i>			
International Nonmember ³	\$225	\$250	\$ _____
<i>(includes \$50 immediate SPA membership).</i>			
*Extra Buffet Reception Tickets	\$50	\$60	\$ _____
^{1,2,3} To subscribe to Anesthesia & Analgesia		\$110	\$ _____
<i>(includes membership in IARS)</i>			
Optional Airmail Journal Delivery Overseas		\$167	\$ _____
Optional Airmail Journal Delivery Canada		\$75	\$ _____
Educational/Research Fund <i>(SPA is a 501(c)3 organization and donations are tax deductible as allowed by law. All contributions will be acknowledged.)</i>			\$ _____
TOTAL			\$ _____

Payment

- Check Enclosed Visa MasterCard AMEX

Card Number _____ Expire _____

Signature _____

Refund Policy

Full refund less \$50 administrative fee through August 17, 1998; 50% refund August 18-Sept. 18, 1998; No refunds after Sept. 18, 1998. Refunds determined by date written cancellation is received.

Make Check payable to the **Society for Pediatric Anesthesia** and mail to:

Society for Pediatric Anesthesia, P.O. Box 11086, Richmond, Virginia 23230-1086
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Continuing Medical Education Needs Assessment

The Society asks that you give consideration to topics you would like to have addressed in future educational offerings.

1. What topics would you like to see addressed at future annual/winter meetings?

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

2. Do you like workshops at the winter meeting?

Very Much - - - **Not at All**
1 2 3 4 5

3. If you like workshops, which topic would you like to see included:

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

4. a. Would you be interested in separate workshops during the year?

Very Much - - - **Not at All**
1 2 3 4 5

b. Would you like the meeting to be co-sponsored with another organization (i.e., critical care, neurology, etc.)?

Very Much - - - **Not at All**
1 2 3 4 5

5. Additional comments and suggestions: _____

Mail / Fax to:

SPA
P.O. Box 11086 / 1910 Byrd Ave., Suite 100, Richmond, VA 23230-1086
phone (804) 282-9780 / fax (804) 282-0090
Email: SocietyHQ@compuserve.com

Membership Application



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SPA MEMBERSHIP #: _____

PLEASE MAKE MY MEMBERSHIP EFFECTIVE: JANUARY 19____ OR JULY 19____.

Name (Last) _____ (First) _____ (MI) _____		<input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Ph.D.
<input type="checkbox"/> CRNA <input type="checkbox"/> Other:		
PREFERRED MAILING ADDRESS <input type="checkbox"/> This is my Home Address, <input type="checkbox"/> This is my Business Address		
CITY _____	STATE/COUNTRY _____	ZIP/POSTAL CODE _____
OFFICE PHONE _____	FAX _____	EMAIL _____
DATE OF BIRTH Month / Day / Year	TYPE OF PRACTICE <input type="checkbox"/> PRIVATE <input type="checkbox"/> UNIVERSITY <input type="checkbox"/> GOVERNMENT <input type="checkbox"/> OTHER:	
HOSPITAL AFFILIATION _____		
ACADEMIC DEGREES AND OTHER PROFESSIONAL CERTIFICATION W/DATES _____		

I HEREBY MAKE APPLICATION FOR:

ACTIVE MEMBERSHIP (PHYSICIAN)*:

- SPA Membership \$100.00
- SPA membership with subscription to ANESTHESIA & ANALGESIA, includes joint membership in IARS \$210.00

AFFILIATE MEMBERSHIP (NONPHYSICIAN)*:

- SPA Membership \$100.00
- SPA membership with subscription to ANESTHESIA & ANALGESIA, includes joint membership in IARS \$210.00

INTERNATIONAL MEMBERSHIP*:

- SPA Membership \$50.00
- SPA membership with subscription to ANESTHESIA & ANALGESIA, includes joint membership in IARS \$160.00

* For additional information on optional joint membership with the Society of Cardiovascular Anesthesiologists and the Society for Ambulatory Anesthesia contact the IARS office at (216) 642-1124.

RESIDENT MEMBERSHIP: Residency Membership Requires Endorsement By Program Director (Please complete the below section on Residency)

- INCLUDES MEMBERSHIP IN SPA, IARS, SCA, AND SAMBA \$60.00

Residency Location _____

Residency Completion Date _____ Signature of Program Director _____

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- Charge My Membership Fees to: AMEX Master Card Visa

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- International Members receive the journal by surface air lift at no additional charge. Airmail delivery for overseas subscriptions is available for an additional \$167. Canadian members receive the Journal by 2nd Class Mail. Optional expedited delivery for Canadian subscription is available for an additional \$75. (Please Include this amount when paying dues.)

Society for Pediatric Anesthesia



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The Society for Pediatric Anesthesia (SPA) was founded in 1987 to promote quality perioperative care for infants and children. Membership in SPA has grown steadily to more than 4000 members. Membership consists of community-based and academic physicians who have an interest in pediatric anesthesia, as well as resident and affiliate members. The goals of SPA include:

1. To advance the practice of pediatric anesthesia through new knowledge
2. To provide educational programs on clinical, scientific, and political issues that are important to pediatric anesthesia practice
3. To promote scientific research in pediatric anesthesia and related disciplines
4. To provide a forum for exchange of ideas and knowledge among practitioners of pediatric anesthesia
5. To support the goals of the American Society of Anesthesiologists and the American Academy of Pediatrics

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