Section on Anesthesiology & Pain Medicine

NEWSLETTER Fall 2016

American Academy of Pediatrics
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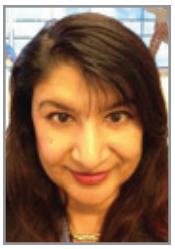
In This Issue ...

Chairperson's Report

Rita Agarwal, MD, FAAP


Rita Agarwal

Dear All,

I hope you had a wonderful summer. Our section may be small, but it is mighty! We continue to be remarkably productive and are now seeing the fruit of many of the efforts that were started by Dr. Joe Tobias during his tenure as Section Chair. Two new clinical reports have been published in *Pediatrics*:

- A revision of the AAP/AAPD "Guidelines for Monitoring and Management of Pediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures: Update 2016" was published in *Pediatrics* in July 2016.
- A new AAP clinical report titled "Codeine: Time to Say 'No,'" a joint report with the Committee on Drugs, was published in *Pediatrics* in September 2016
  For more information on both topics, see page 4.

In addition, the Section is working on:

- A revision of the statement on "The Assessment and Management of Acute Pain in Infants, Children, and Adolescents"; Drs Corrie Anderson and Nathalia Jimenez are leading this effort.
- A new statement on "Care of Pediatric Patients with Chronic Pain"
- A revision of the clinical report, "Interpretation of Do-Not-Attempt-Resuscitation and Resuscitation Limitation Orders for Pediatric Patients Who Require Anesthesia and Surgery," a joint effort with the Section on Surgery and the Committee on Bioethics. Dr. Coutney Hardy is representing the SOA as a co-author on this report.
- A new policy statement, "Peri-operative Management of Children with Sleep Disordered Breathing/Obstructive Sleep Apnea," which will be a joint effort with the Section on Otolaryngology – Head and Neck Surgery. Drs. Anita Honkanen and Mohamed Rehman are the lead authors from our Section
- Developing educational materials or possibly a statement regarding smoking abstinence (for both parents and children) in the perioperative period, with the Section on Tobacco Control. This is still very preliminary so ALL help, suggestions, and ideas are welcome

This summer there were 2 more webinars produced by the Section and the AAP Committee on Substance Use and Prevention in association with the Providers' Clinical Support System for Opioid Therapies Grant from SAMHSA (http://pcss-o.org). These were the 3rd and 4th offerings of a 6-part webinar series aimed at prevention, identification, and treatment of opioid dependence. They are designed for primary care health care providers, but all clinicians are welcome to view them. Payment is required for CME, otherwise a lot of the information is free. The 3rd Seminar is a discussion of managing youth with co-occurring psychiatric issues and substance abuse by Drs. Pamela Gonzalez and Diane Diester (both psychiatrists from the Committee on Substance Use and Prevention), a group that I certainly see in my inpatient pain practice. You can view the slides, outline or the entire webinar at: http://pcss-o.org/event/co-occurring-psychiatric-illness-and-substance-use-in-youth/. As a mother of teenagers with ADHD, I found their talk terrifying and thought-provoking. The 4th Seminar was given by Dr. Stephen Hays and can be viewed at http://pcss-o.org/event/rational-pain-management-in-children-with-chronic-medical-conditions/. It is an excellent review of pain management in the child

(Continued on page 2)

(Continued from page 1)

with chronic pain. Stay tuned for more information on Sessions 5 and 6 in 2017. Last year's webinars by Drs. D'Souza and Golianu (Stanford University) and Dr. Breuner (Seattle Children's Hospital) were extremely well received and are archived for future reference at http://tinyurl.com/hhof3hg.

I hope that many of you will be joining us for the 2017 SPA/AAP SOA Pediatric Anesthesiology Meeting in Austin, Texas. We have some great sessions planned, including the presentation of the Robert M. Smith Award to Dr. Peter Davis from Pittsburgh Children's Hospital. Please come and celebrate his extraordinarily influential career with us (for more information on our 2017 Awardee, see page 15). Our AAP Advocacy Lecture will be on Bioethics in the Neonatal Intensive Care Unit. Our speaker will be Annie Janvier, BSc, MD, PhD, a neonatologist and clinical ethicist from Montreal. The Ask the Experts Panel will focus on the Weird and Wonderful (in honor of Austin's unofficial motto, "Keep Austin Weird"). Dr. Susan Goobie (Boston Children's) will talk about blood conservation techniques in Craniofacial Reconstruction, and Dr. Franklyn Cladis will talk about "Challenging Craniofacial Syndromes." The final offering from the SOA will be the John J. Downes Resident Research Awards for the top three abstracts from our trainees. These trainees will have an opportunity to present their work in front of a discerning audience and will hopefully be encouraged to continue their research. The John J. Downes awards and oral abstract presentations are given as part of the scientific session that also rewards young investigators (SPA Young Investigators Award) for their work.

The ongoing initiatives of the AAP Section on Anesthesiology & Pain Medicine continue to focus on the improved health and well-being of pediatric patients of all ages. In October 2015, the AAP endorsed an updated version of the SmartTots Consensus Statement on the Use of Anesthetic and Sedative Drugs in Infants and Toddlers. In response to the Consensus Statement, the AAP Surgical Advisory Panel, an expert panel made up of the Chairs of each of the surgical sections within the AAP, has established a Subcommittee on Optimal Timing of Surgery.

As Chair of the Section on Anesthesiology and Pain Medicine, I was invited to participate in an IARS/SmartTots Teleconference in August. The purpose of this teleconference was to review the basic science and clinical research on neurotoxicity in the developing brain and to determine future research directions. Animal research continues to show neurotoxicity in developing animals of all species, while clinical research continues to be mixed. The consensus is that there is still significant research to be done and many questions to be answered. Emphasis should be on the effects of surgery on neurodevelopment, not just anesthesia. In addition, there is promising research of neuroprotective agents that should be expanded.

In September 2016, the U.S. Food and Drug Administration (FDA) held a joint meeting of its Anesthetic and Analgesic Drug Products Advisory Committee (Chaired by Dr. Raeford Brown, SOA Chairperson–Elect), its Drug Safety and Risk Management Advisory Committee, and its Pediatric Advisory Committee. A number of our AAP SOA members were involved, including by Drs. Raeford Brown, Constance Houck (Chairperson, AAP Surgical Advisory Panel; Section Voting Member, AAP Committee on Drugs) and Randall Flick (SPA President-Elect; ASA Liaison to AAP SOA). An in-depth review of this meeting can be found on page 5. There is also a summary in the SPPM newsletter

Over the last year, we have had the opportunity to work with colleagues within PediaLink, AAP's Online Learning Center, to develop an online CME course on pediatric pain management and opioid use/misuse. The course, titled "Acute Pain Management: Changes and Challenges," was just released in September 2016 and can be accessed at: http://shop.aap.org/Acute-Pain-Management-Changes-and-Challenges. It is aimed at pediatricians, pediatric specialists and subspecialists who prescribe opioids and/or follow up with children who are on opioids. It is co-authored by myself and Dr. David Casavant (Intensivist, Boston Children's Hospital). The project was funded by a generous grant from the AAP Friends of Children Fund. For more information about the course, see page 6.

The AAP National Conference and Exhibition will be held in San Francisco October 22-26, 2016, at the same time at the ASA meeting in Chicago. This year the AAP SOA will be sponsoring sessions on "Integrating Acupuncture in Pediatric Practice." There will also be a "Hot Topic" presentation sponsored by our Section on "Babies, Anesthesia and the Developing Brain," to be given by Lisa Wise-Faberowski. The AAP Surgical Advisory Panel will have a session that is co-sponsored by the SOA, the Section on Hospital Medicine and the Sections on Orthopedics and Surgery on "Co-Management of Surgical Patients in the Hospital." Next year the AAP NCE will be in September in Chicago. They have accepted a proposal from our section for a session on "The Opioid Crisis: Implications for Pediatric Pain Management," which will be given by Dr. Santhanam Suresh and Dr. Ravi Shah from Lurie Children's.

I look forward to seeing everyone soon. I hope that everyone will consider being an active part of the AAP, and I would welcome phone calls, curb side chats at meetings, or e-mails with suggestions as to how to improve our section.

From the Editor

Mary Landrigan-Ossar, MD, PhD, FAAP

This issue marks the end of an era for the Section on Anesthesiology and Pain Medicine newsletter. After ten years of expert direction, Corrie Anderson, MD, FAAP will be stepping down as editor. As I begin my tenure in this position, I will try to live up to the maxim he appends to every email, "*Et fortitudo et honestas intus*" (Both strength and honor within). I am certain I speak for every member of the section when I extend my heartfelt thanks to Corrie for his hard work, his strength and his honor. *Vale, gratias tibi*, Corrie!

Corrie Anderson

Mary Landrigan-Ossar

2016 Joint SPA/AAP Winter Meeting in Photos

Dr. Lynne Maxwell, 2016 Robert M. Smith Award winner, pictured with her children and their spouses

Dr. Lynne Maxwell, 2016 Robert M. Smith Award winner, being congratulated by SOA members, Drs. Allison Ross, Anita Honkanen, Lena Sun, Aubrey Maze and Constance Houck (left to right).

Dr. Joseph Tobias, Immediate Past Section Chairperson (standing), with 2016 John J. Downes Resident Research Award Winners, Dr. Kristine Paik, Dr. Stephanie Cruz, and Dr. Mumin Hakim (left to right)

Dr. Rita Agarwal, Section Chairperson (middle), with 2016 AAP Ask the Experts Panel Participants, Dr. Kenneth Furukawa (left) and Dr. Louise Furukawa (right)

Lynne Maxwell, 2016 Robert M. Smith Award winner, surrounded by her children and joint meeting attendees who trained and worked with her at Johns Hopkins and CHOP over the years

Dr. Lynne Maxwell, 2016 Robert M. Smith Award winner, pictured with fellows and staff who she has mentored at CHOP

New SOA Policy Statement Urges Restrictions on the Use of Codeine in Children

The American Academy of Pediatrics is urging parents and health providers to stop giving codeine to children, calling for more education about its risks and restrictions on its use in patients under age 18. A new AAP clinical report (http://pediatrics.aappublications.org/content/138/4/e20162396) authored by Section members, Joseph Tobias and Charles Coté, which appeared in the October 2016 issue of *Pediatrics*, "Codeine: Time to Say `No,'" cites continued use of the drug in pediatric settings despite growing evidence linking the common painkiller to life-threatening or fatal breathing reactions.

An opioid drug used for decades in prescription pain medicines and over-the-counter cough formulas, codeine is converted by the liver into morphine. Because of genetic variability in how quickly an individual's body breaks down the drug, it provides inadequate relief for some patients while having too strong an effect on others. Certain individuals, especially children and those with obstructive sleep apnea, are "ultra-rapid metabolizers" and may experience severely slowed breathing rates or even die after taking standard doses of codeine.

Despite these well-documented risks and with concerns expressed by groups including the AAP, the U.S. Food & Drug Administration and the World Health Organization, the drug still is available without a prescription in over-the-counter cough formulas from outpatient pharmacies in 28 states and the District of Columbia. In addition, according to the AAP report, it still is commonly prescribed to children after surgical procedures such as tonsil and adenoid removal. More than 800,000 patients under age 11 were prescribed codeine between 2007 and 2011, according to one study cited in the AAP report. Otolaryngologists were the most frequent prescribers of codeine/acetaminophen liquid formulations (19.6 percent), followed by dentists (13.3 percent), pediatricians (12.7 percent) and general practice/family physicians (10.1 percent).

Charles Coté

Joseph Tobias

The new clinical report outlines potential alternatives to provide pain relief in children but acknowledges that relatively few safe and effective drugs are available for pediatric use.

"Effective pain management for children remains challenging," said the report's lead author, Joseph D. Tobias, MD, FAAP, "because children's bodies process drugs differently than adults do."

The AAP report, published online Sept. 19, calls for improved education of parents and health providers about the risks of codeine use in children and formal restrictions of its use in children, as well as further research on safe and effect pain treatment in children.

New AAP/AAPD Sedation Guidelines Recently Released!

More children undergo medical and dental procedures that require sedation than in prior decades, prompting the American Academy of Pediatrics to update recommendations that provide a safety net for pediatric patients. The clinical report (http://pediatrics.aappublications.org/content/138/1/e20161212), "Guidelines for Monitoring and Management of Pediatric Patients Before, During, and After Sedation for Diagnostic and Therapeutic Procedures: Update 2016," authored by section member, Charles Coté, was published in the July 2016 issue of *Pediatrics* (online June 27). The AAP and the American Academy of Pediatric Dentistry collaborated to unify recommendations used by medical and dental practitioners and provide clarification and updates of prior reports. The report also includes a new requirement to monitor expired carbon dioxide to ensure airway patency and gas exchange. As a result, sedation monitoring is nearly identical to the requirements for general anesthesia. The sedation of children differs from adults, and is used to relieve pain and anxiety, as well as to modify behavior. The potential for a life-threatening event, such as apnea or airway obstruction, requires a sufficient number of people to carry out the procedure and monitor the patient. Studies have shown that it is common for children to pass from the intended level of sedation to a deeper, unintended level of sedation, according to the report. The report calls for a person in addition to the practitioner to monitor the patient and to assist in any supportive or resuscitation measures, if required. The monitoring and care outlined in the report may be exceeded at any time based on the practitioner's judgment.

Welcome New Members Since April 2016

Nawaf Alkhayat
Megan Brockel
Christina Diaz
Lisa Faberowski
Mariam Fahim
Terri Keegstra
Sharon Kemper
Jonathan Meserve
Ziad Solh
Suresh Thomas
Bistra Vlassakova

Report from Combined Meeting of the FDA's Anesthetic and Analgesic Drug Products Advisory Committee, Drug Safety and Risk Management Advisory Committee, and Pediatric Advisory Committee

Constance S. Houck, MD, FAAP
Chair, AAP Surgical Advisory Panel
SOA Voting Member,
AAP Committee on Drugs

Raeford Brown, MD, FAAP
Chair, FDA Advisory Committee on Anesthetics and Analgesics
Chairperson-Elect, AAP Section on Anesthesiology and Pain Medicine

On September 15 and 16, 2016, the Food and Drug Administration (FDA) convened a meeting of three of its drug advisory committees "to discuss the appropriate development plans for establishing the safety and efficacy of prescription opioid analgesics for pediatric patients, including obtaining pharmacokinetic data and the use of extrapolation." Section on Anesthesiology and Pain Medicine (SOA) Chairperson-Elect, **Dr. Raeford Brown** served as the overall chair of this combined advisory committee meeting, and SOA member, **Dr. Randall Flick** served on the committee. The first presentation of the meeting was given by Dr. Rohit Shenoi, an emergency medicine physician from Texas Children's Hospital and a member of the AAP Committee on Drugs, who presented the official AAP statement reinforcing the importance of the Best Pharmaceuticals for Children Act (BPCA) and Pediatric Research Equity Act (PREA) in ensuring the appropriate study and labeling of **all** drugs administered to children. He advocated for the conduct of rational and well-designed studies of opioids in children and encouraged journals to publish results of well-designed investigations, including negative studies.

The rest of the first day was filled with presentations from FDA staff and a number of experts in the areas of treatment, clinical investigation, pediatric research ethics, and prescription opioid abuse and diversion. Dr. Lynne Yao, the Director of Pediatric and Maternal Health from the Center for Drug Evaluation and Research (CDER) described the history of regulation of drug studies in children. This was followed by a presentation by Dr. Robert "Skip" Nelson, the FDA Deputy Director and Senior Pediatric Ethicist who reviewed the safeguards for children in clinical investigations, and a particularly interesting presentation by Tracy Minh Pham, PharmD, from the Division of Epidemiology. She presented recent data about the number of opioid prescriptions written for children in the U.S. She noted that pediatric surgical specialists are some of the major prescribers of opioids in children, with dentists representing the #1 prescriber of opioids in children 2 – 16 years and otolaryngologists representing the #2 prescriber of opioids in children 2 – 6 years. She also demonstrated that the number of outpatient opioid prescriptions written for children has declined by 34% from 2011 to 2015 and that the vast majority of opioid prescriptions are for immediate release opioids, with hydrocodone and codeine being the most commonly prescribed during this time period. For those interested in more specifics, her full report can be found at: http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/Drugs/AnestheticAndAnalgesicDrugProductsAdvisoryCommittee/UCM519724.pdf

The FDA presentations were followed by presentations by Dr. Charles Berde and Dr. Steven Weisman, both experts in pediatric pain, Dr. Harold J.P. van Bosse, a pediatric orthopedic surgeon representing the Pediatric Orthopedic Society of North America (POSNA), Dr. Chris Feudtner, a pediatric palliative pain physician and pediatric ethicist, and Dr. Sharon Levy, an adolescent substance abuse expert. These presentations provided a comprehensive background for why pharmacokinetic and pharmacodynamics studies of opioids in infants, children and adolescents can be particularly challenging to do and why they are also so crucial in providing appropriate guidance for physicians for treatment of pain in these vulnerable populations. Dr. Levy's presentation on the developmental aspects that make adolescents particularly primed for drug use and vulnerable to substance use disorders was particularly compelling. She recommended that opioid dosing in otherwise healthy adolescents be minimized and of short duration and that adolescents should be appropriately screened and families routinely educated about the risks of opioid abuse.

During the public comment period on the second day of the meeting, **Dr. Shobha Malviya**, SOA member and President of the Society for Pediatric Anesthesia (SPA), presented a statement on behalf of SPA, the American Society of Anesthesiologists, the Society for Pediatric Pain Medicine and the American Society of Regional Anesthesia supporting studies of opioids in children, education of pediatric practitioners about pediatric pain management (including reasonable regulatory requirements to assure compliance), and the need for guidance around the disposal of opioids. In addition, **Dr. Connie Houck** gave a statement on behalf of the pediatric surgical specialists and dentists. The full transcript of Dr. Houck's statement is included below.

The FDA provided the members of the combined committees with a list of 6 questions to guide their work going further and a detailed discussion by the committee members was conducted. The full transcript, updated background and meeting materials for this important meeting can be found at: http://www.fda.gov/AdvisoryCommittees/CommitteesMeetingMaterials/Drugs/AnestheticAndAnalgesicDrugProductsAdvisoryCommittee/ucm486848.htm

Statement re: Docket number FDA-2016-N-0584 at the Combined Meeting of the Anesthetic and Analgesic Drug Products Advisory Committee, the Drug Safety and Risk Management Advisory Committee, and the Pediatric Advisory Committee on September 15 – 16, 2016

My name is Dr. Connie Houck and I am a pediatric anesthesiologist from Boston Children's Hospital and the Chair of the American Academy of Pediatrics Surgical Advisory Panel, which is made up of the leaders of all of the pediatric surgical specialist sections within the Academy including anesthesiology, general surgery, neurosurgery, ophthalmology, orthopaedic surgery, otolaryngology, plastic surgery, radiology, urology and oral health.

Pediatric surgical specialists are on the front lines of the treatment of acute and postoperative pain in children. We are increasingly

concerned that there is inadequate information to inform our care of postoperative pain and insufficient safeguards to prevent our patients from both overtreatment and undertreatment of pain. Recently we have been asked by an increasing number of parents of children and adolescents not to provide opioid treatment for postoperative pain due to concerns regarding addiction. There is an urgent need for education and study-informed labeling of analgesics for children and adolescents in the perioperative period.

Advances in pediatric surgery in the last 50 years have made it possible to repair many of the congenital defects in infants and children that were lethal in years past. It has also increased the need for safe and effective medications for the treatment of perioperative pain and rational strategies to reduce side effects. The lack of pharmacokinetic and pharmacodynamic studies of opioids in infants and children has made the treatment of postoperative pain problematic and potentially unsafe. Studies since the 1980's have also shown that undertreatment of pain in neonates and infants can have detrimental long-term physical and psychological effects, which puts our patients at even further risk. There is no evidence that providing appropriate labeling of opioids in children increases use, in fact a recent research letter in JAMA Pediatrics suggested that there was actually a decrease in the already very low number of prescriptions for OxyContin written for children 11 – 17 years of age in the year since the labeling changes were made in 2015.[1]

As pediatric surgical specialists and dentists, we recommend the following:

1) Robust studies of all opioid analgesic agents in order to provide appropriate labeling of opioid medications for use in infants, children and adolescents in the perioperative period. Without specific studies in children, we risk both overtreatment and undertreatment of pain in children and long-term consequences of these ill-informed prescribing decisions.

2) Balanced regulatory approaches that motivate prescribers to obtain the proper education and training to appropriately treat acute pain in children. This education must include specific strategies that have been shown to be safe and effective in infants, children and adolescents for both inpatient and outpatient surgery, including multimodal approaches for perioperative pain control.

3) Specific guidance as to the appropriate techniques for disposal of unused opioid analgesics. Recent studies have shown that for many pediatric surgeries, there may be extra pain medicine that is not needed and is stored by caregivers for future use. Surgical specialists and dentists need to know how to counsel parents about both the appropriate use and the disposal of opioid medication that is not needed.

As the surgeon general, Vivek Murthy has recently stated in his letter to all physicians in the U.S., "we must educate ourselves to treat pain safely and effectively."[2] This is difficult for pediatric surgical specialists and dentists to do when there is limited information about the pharmacokinetics and pharmacodynamics of analgesic agents in children and the most recent guidelines from the CDC that Dr. Murthy has suggested that all physicians read does not include any specific information for children less than 18 years of age. Pediatric surgical specialists and dentists need up-to-date information about the safe and effective use and disposal of opioids in children and adolescents in order to provide optimal perioperative care to our patients and families. The best way that we can protect children is to increase our knowledge about the use of analgesics in children, not increase their suffering by avoiding effective treatments due to ignorance or fear.

1. Xu J, Gill R, Cruz M, Staffa J, Lurie P. Effect of US Food and Drug Administration–Approved Pediatric Labeling on Dispensing of Extended Release Oxycodone in the Outpatient Retail Setting. JAMA Pediatrics, Published online September 9, 2016

2. U.S. Surgeon General Opioid Letter to Clinicians, August 2016

New AAP Online CME Course on Acute Pain Management and Appropriate Use of Opioids Released September 2016!

Thanks to a generous grant from the AAP Friends of Children Fund, our Section was recently given the opportunity to build an online CME course on Acute Pain Management and Appropriate Use of Opioids in PediaLink, the AAP's Online Learning Center. The course launched in late September and is now available to AAP members and non-members alike. Please pass this information on to your pediatrician and pediatric subspecialist colleagues who prescribe opioids or follow up with children who are taking opioids. Please read on for detailed course information. Thanks to Dr. Rita Agarwal and Dr. David Casavant for their work on this new educational resource.

PediaLink
The AAP Online Learning Center

Acute Pain Management: Changes and Challenges

The main goals of this course are to increase the number of pediatricians who understand how to assess and treat pain as well as how to identify patients at risk for misusing and abusing opioid medications.

Case studies presented in this course provide the opportunity to apply the pain screening and management techniques to patient and family case situations.

After completing this course, you will be able to:

- Identify appropriate pain assessment tools for children of different ages.
- Select scales that may be used in cognitively impaired children.
- List current dosing guidelines and recommendations for analgesic medications.
- Describe common clinical factors that may influence opioid dosing.
- Identify considerations for treating acute pain in children at increased risk of developing adverse events.
- Recall the origins and scope of the opioid crisis in the United States.
- Review guidelines on the proper use of opioid analgesia.
- Use tools to screen for substance use.
- Discuss management of opioid misuse.
- Recognize when to enlist the help of substance use specialists.

Faculty
Rita Agarwal, MD, FAAP
David Casavant, MD, FAAP

Credit Information
AMA PRA Category 1 Credit(s)™: 1.00
AAP Credit: 1.00
NAPNAP Credit Contact Hours: 1.00
Pharmacology Rx: 0.25

Registration Fees
AAP Member: $24
Non-Member: $29

To access the course, visit: http://shop.aap.org/Acute-Pain-Management-Changes-and-Challenges

Spotlight on Opioids

NIDA DIRECTOR'S BLOG: RESPONSIBLY AND SENSITIVELY ADDRESSING CHRONIC PAIN AMID AN OPIOID CRISIS

National Institute on Drug Abuse (NIDA) Director Nora Volkow blogs about the U.S. Surgeon General Vivek Murthy's *Turn the Tide* campaign, which seeks help from health care practitioners and public health leaders to address the prescription opioid crisis. Dr. Murthy called on physicians to educate themselves in appropriate prescribing of opioids, to screen patients for opioid use disorders, and to refer them to treatment if necessary, and to set the right example in talking about addiction as a medical illness and not a moral failing. https://www.drugabuse.gov/about-nida/noras-blog/2016/09/responsibly-sensitively-addressing-chronic-pain-amid-opioid-crisis

FUNDING NEEDED TO ENSURE ACCESS TO EVIDENCE-BASED TREATMENT

The U.S. Department of Health and Human Services (HHS) announced $53 million in funding to 44 States, four tribes, and the District of Columbia to improve access to treatment for opioid use disorders, reduce opioid related deaths, and strengthen drug misuse prevention efforts. In addition, funding will support improved data collection and analysis around opioid misuse and overdose as well as better tracking of fatal and nonfatal opioid-involved overdoses. Administered by SAMHSA and the Centers for Disease Control and Prevention (CDC), the funding supports six programs. Press Release: http://www.hhs.gov/about/news/2016/08/31/hhs-awards-53-million-to-help-address-opioid-epidemic.html#

DESIGNER AGENT BLOCKS PAIN IN MICE WITHOUT MORPHINE'S SIDE EFFECTS; STRUCTURE-BASED MOLECULE SELECTIVELY TARGETS BRAIN ANALGESIC CIRCUITRY

Scientists have synthesized a molecule with a unique profile of highly specific pain-relieving properties and demonstrated its efficacy in mice. Compared to existing opioid pain relievers like morphine, the new agent, called PZM21, was not "reinforcing" or prone to triggering potentially lethal respiratory impairment, and was less constipating. Unlike existing analgesics, it had little effect on spinal cord reflexive responses, instead targeting the brain-mediated emotional/experiential component of pain. In addition to clinical potential, PZM21 holds promise as a "tool molecule" for exploring the workings of brain pain systems, say the researchers funded by the National Institutes of Health (NIH).
Science Update: http://www.nimh.nih.gov/news/science-news/2016/designer-agent-blocks-pain-in-mice-without-morphines-side-effects.shtml

U.S. SURGEON GENERAL APPEALS TO AMERICA'S CLINICIANS TO "TURN THE TIDE" ON THE PRESCRIPTION DRUG EPIDEMIC

In a historic first, the U.S. Surgeon General Dr. Vivek H. Murthy has sent a letter to 2.3 million American health professionals asking them to lead a national movement to turn the tide on the nation's prescription opioid epidemic. The Surgeon General urged clinicians to visit a website his office launched this month, *TurnTheTideRx.org*, where they can pledge their commitment to combating opioid misuse by enhancing education for treating pain, by screening patients for opioid use disorder, and by leading a shift in the public perception of addiction so that it is treated as a chronic illness rather than as a moral failing. This effort builds upon the U.S. Department of Health and Human Services (HHS) Opioid Initiative focused on tackling the nation's opioid epidemic, as well as the National Pain Strategy, the federal government's first coordinated plan to reduce the burden of chronic pain in the U.S.
Press Release: http://www.hhs.gov/about/news/2016/08/25/united-states-surgeon-general-appeals-to-americas-clinicians-turn-the-tide-prescription-drug-epidemic.html

OPIOID PAIN OR COUGH MEDICINES COMBINED WITH BENZODIAZEPINES: DRUG SAFETY COMMUNICATION - FDA REQUIRING BOXED WARNING ABOUT SERIOUS RISKS AND DEATH

A FDA review has found that the growing combined use of opioid medicines with benzodiazepines or other drugs that depress the central nervous system (CNS) has resulted in serious side effects, including slowed or difficult breathing and deaths. Opioids are used to treat pain and cough; benzodiazepines are used to treat anxiety, insomnia, and seizures. In an effort to decrease the use of opioids and benzodiazepines, or opioids and other CNS depressants together, FDA is adding Boxed Warnings to the drug labeling of prescription opioid pain and prescription opioid cough medicines, and benzodiazepines.
Release: http://www.fda.gov/Drugs/DrugSafety/ucm518473.htm

For more Information on opioid diversion and abuse, the effect on children, and a summary of what is being done, please see page 20.

NIH Review Finds Nondrug Approaches Effective For Treatment Of Common Pain Conditions

U.S. study reviews trial results on complementary health approaches for pain relief; aims to assist with pain management. Data from a review of U.S.-based clinical trials suggest that some of the most popular complementary health approaches — such as yoga, tai chi, and acupuncture — appear to be effective tools for helping to manage common pain conditions. The review was conducted by a group of scientists from the National Center for Complementary and Integrative Health (NCCIH) at the NIH.
Press Release: https://www.nih.gov/news-events/news-releases/nih-review-finds-nondrug-approaches-effective-treatment-common-pain-conditions

SEEN IN *PEDIATRICS*

Article Discusses Formalizing the Process of Transition of Care from Pediatric to Adult Surgery

Transition of Care From Pediatric to Adult Surgery. David H. Rothstein, Roshni Dasgupta, on behalf of the Delivery of Surgical Care Committee of the American Academy of *Pediatrics* Section on Surgery Pediatrics Sept 2016, e20161303; DOI: 10.1542/peds.2016-1303

This article (http://pediatrics.aappublications.org/content/138/3/e20161303) presents a discussion on the importance and benefits of a formal process of transition of care for children who undergo operations in infancy for a congenital anomaly. Three broad categories within pediatric surgery needing particular attention are also discussed.

Article Discusses Biopsychosocial Basis to Chronic Pain in Children

Pediatric Chronic Pain: Biopsychosocial Assessment and Formulation. Christina Liossi, DPsych, Richard F. Howard, MBChB *Pediatrics* Volume 138 , number 5 , November 2016; early release: October 14, 2016; DOI: 10.1542/peds.2016-0331

This article (http://dx.doi.org/10.1542/peds.2016-0331) points to recent studies, which strongly support a biopsychosocial basis to all pain. It discusses the fact that the development and maintenance of chronic pain involve long-term changes in multiple integrated peripheral, spinal, and brain regions interacting in a complex way to shape the individual's experience. It goes on to conclude that chronic pain from any cause cannot be viewed as a purely physical or psychological phenomenon, and therefore it should not be expected that a unimodal approach to treatment will succeed. It follows that when assessing children and young people with chronic pain, information on a wide range of developmentally relevant dimensions, conveniently classified as biological, psychological, and sociocultural, should be gathered to formulate the potential causes, contributors, and effects of pain to devise an appropriate multimodal management plan.

SEEN IN *AAP NEWS*

Mastering the Media: How to calm your nerves, get your message out during interviews

Most physicians get nervous when asked to be interviewed by the media yet we answer questions and give messages to our patients and families every day. Is that any different than giving a message to an interviewer? Read tips from Hansa D. Bhargava, M.D., FAAP, member of the AAP Council on Communications and Media at http://www.aappublications.org/news/2016/06/08/Media060816.

Pediatric critical care physicians at particular risk for burnout

This article (http://www.aappublications.org/news/2016/06/09/CriticalCare060916) discusses the growing body of evidence which highlights the need for wellness programs to support health care professionals. It notes that burnout has been shown to vary across specialties, with the highest rates seen in emergency medicine and surgical specialties, with one of the earliest studies of pediatric specialty provider burnout having demonstrated a 50% rate of burnout or being at risk for burnout among pediatric critical care physicians. It concludes that provider wellness is a complex problem that requires a multifaceted solution.

Misunderstanding about radiation risks from medical imaging abounds

The word *radiation* evokes fear for many. Misunderstanding about radiation and medical imaging abounds among both the public and health care providers. This article (http://tinyurl.com/huzhr2c) discusses the misunderstandings that currently exist, stresses informed use and underscores the benefit of medical imaging. It also provides resources for health care providers, including information about a free publication from the World Health Organization, "Communicating Radiation Risk in Paediatric Imaging" (http://bit.ly/2bJEYBL), which addresses issues related to radiation doses, radiation risk and communication strategies. In addition, it highlights the very useful resources available from the Image Gently Alliance (http://www.imagegently.org/), which was started in 2007 to educate and raise awareness regarding the use of medical imaging using ionizing radiation in kids. The alliance now includes more than 100 societies and organizations representing more than 1 million health care professionals. The AAP has been an alliance member from the beginning.

SEEN IN THE PRESS FROM THE AAP

American Academy of Pediatrics Urges Action to Lower Prices of Epinephrine Auto-Injectors

8/26/2016

Statement by Benard Dreyer, MD, FAAP, President of the American Academy of Pediatrics

"At least one in 20 children in the U.S. has a known food allergy. As these children head back to school this month, it's critically important they have immediate access to lifesaving epinephrine. Prompt treatment with epinephrine lowers a child's risk of hospitalization and death. The most practical and convenient way to administer this medication is through an auto-injector, like EpiPen.

"As the cost of epinephrine auto-injectors has risen dramatically in the past four years, the American Academy of Pediatrics (AAP) is gravely concerned some families will be left without access to this important medication. The cost of this medicine is making it unavailable to children who need it – this is especially true for families with more than one child and for children with special health care needs.

The AAP recommends children with serious food allergies have two epinephrine auto-injectors with them at all times, in case a second dose is needed, and that they have separate injectors for school, child care and home. In fact, the AAP led efforts in 2013 to pass the School Access to Emergency Epinephrine Act, which encourages states to require public elementary and secondary schools to maintain a supply of epinephrine on site.

"In some parts of the country, prices for a dual pack of epinephrine auto-injectors exceed $500. Even with insurance, some patients pay co-pays as high as $200 per dual pack. Moreover, because of the current expiration date, products must be replaced every year. Every child's safety is of equal importance, and no parent should have to worry about how to pay for access to life-saving allergy medication for their child. The high cost of these devices imposes a significant financial burden on families and places an obstacle in these patients' access to lifesaving medical care where they live, learn and play. The high cost is even more of a burden considering many children need multiple epinephrine auto-injectors, and some families have more than one child with a serious food allergy. Some families are splitting the doses because of the financial burden, placing children at risk.

"Urgent solutions are needed. Now is the time for all interested stakeholders--families, doctors, manufacturers, distributors, payers and government agencies like the Food and Drug Administration--to act quickly to alleviate the financial hardships faced by families."

AAP ADVOCACY UPDATES

DEPARTMENT OF FEDERAL AFFAIRS

Ensuring Children's Access to Specialty Care Act (H.R. 1859/S. 2782)

The AAP has obtained the signatures of over 70 societies in supporting a bill that would strengthen the pediatric subspecialty workforce. The legislation would amend the Public Health Service Act to allow pediatric subspecialists practicing in underserved areas to participate in the National Health Service Corps (NHSC) loan repayment program. The AAP Dept of Federal Affairs will be strongly advocating for the passage of this legislation, which serves as a needed step toward curbing today's demonstrated critical shortage of pediatric medical subspecialists, pediatric surgical specialists, and pediatric mental health specialists to help provide children with timely access to the vital health services they need. Please share our AAP letter (http://tinyurl.com/z9zdmte) with your elected representatives. In addition, we encourage AAP members to engage their senators and representative on the issue right now through the AAP federal advocacy action center (http://tinyurl.com/hkomlqp); login required.

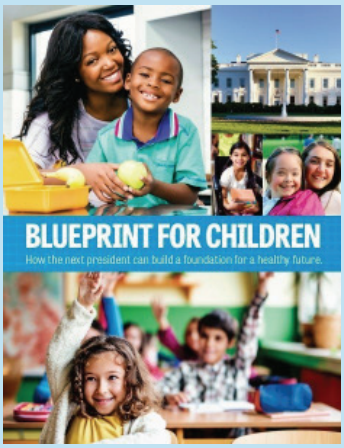
New Academic and Subspecialty Advocacy Report

A new Academic and Subspecialty Advocacy Report is available from the AAP Department of Federal Affairs. To read the full October 2016 report, visit: http://tinyurl.com/hq4hzqf

The Report contains updates on the following topics:

- AAP Advocacy for Academic and Subspecialty Pediatrics
- Advocacy Training for Pediatric Subspecialists
- 2016 Election Activities
- Access to Care
- Children's Health Insurance Program
- Academic and Subspecialty Workforce
- Physician Payment
- Pediatric Drugs and Devices
- Pediatric Research
- Budget and Appropriations
- Emergency Medical Services for Children
- Grassroots Advocacy: AAP Key Contact Program
- FederalAdvocacy.aap.org: Dept. of Federal Affairs Online Resource Center
- Engaging with AAP on Social Media
- AAP 7 Great Achievements Campaign

Blueprint for Children: How the Next President Can Build a Foundation for a Healthy Future



To assist the next presidential administration in putting children and families at the center of its policy agenda, the American Academy of Pediatrics (AAP) has produced the Blueprint for Children: How the Next President Can Build a Foundation for a Healthy Future (https://www.aap.org/en-us/Documents/BluePrintForChildren.pdf).

The *Blueprint* presents specific policy recommendations for the federal government to align its activities to promote **healthy children**, support **secure families**, build **strong communities**, and ensure that the United States is a **leading nation** for children.

Looking ahead to Election Day, one thing is clear – **our children need leaders who act with their needs in mind**. With the release of the *Blueprint*, the Academy, along with 10 endorsing health and medical organizations, has put forward a vision for how the 45th president of the United States and the federal government can do just that.

For more information on the *Blueprint* and to read the full document, please visit aap.org/blueprint. For a copy of the September 20, 2016 AAP News article, which summarizes highlights from the Blueprint, please visit: http://www.aappublications.org/news/2016/09/20/Blueprint092016.

The *Blueprint's* release preceded a special event that took place on September 19, 2016, in Washington, DC, *Speaking Up for Children: A Conversation About Child Health in the Next Administration*. The event, hosted by Dr. Karen Remley, CEO of the AAP, was moderated by ABC News Chief Health and Medical Editor Richard Besser, MD, FAAP, and included an interactive panel discussion with AAP President Benard P. Dreyer, MD, FAAP; Director of Michigan State University & Hurley Children's Hospital Pediatric Public Health Initiative, Mona Hanna-Attisha, MD, MPH, FAAP; Chair of America's Promise Alliance, Alma J. Powell; and Senior Fellow at Center on Budget and Policy Priorities Jared Bernstein, PhD. To view an archived video of the full event, which runs approximately 90 minutes, please visit: https://www.youtube.com/watch?v=-tMCj--3rY0.

The AAP has also produced a new video featuring several pediatrician leaders urging those who care for children to vote this November. Watch the video here (http://tinyurl.com/z54vt5v) and share it using #VoteKids. To learn more about our #VoteKids campaign go to www.aap.org/votekids. While children do not have a vote, through you, they have a voice.

2017 AAP Legislative Conference: Pediatric Subspecialty Advocacy Track

The 2017 AAP Legislative Conference will take place April 23 – 25 in Washington, DC. Each year, the conference brings together pediatricians from across the country who share a passion for child health advocacy. Participants attend skills-building workshops, hear from guest speakers, learn about policy priorities impacting children and pediatricians and go to Capitol Hill to urge Congress to support strong child health policies. For the second year, the conference will include a **Pediatric Subspecialty Advocacy Track**.

The track will feature specific workshops, advocacy and educational opportunities for specialists, including a skills-building workshop on how to frame specialty expertise to legislators and build relationships with congressional staff, advocacy on legislative priorities especially relevant to pediatric subspecialists and the patients they treat, networking opportunities, and more.

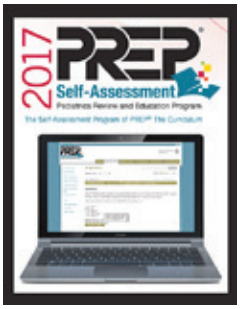
All attendees who participate in the track will attend the events and workshops on the full conference agenda, with the following modifications/additions:

- **A skills-building workshop** on how to educate legislators and their staff about your field of expertise, how to credential yourself as a resource to legislators on issues related to your specialty when there isn't legislation moving on that topic, and how to adapt broader legislative priorities to meet your focus and interest
- **At least one legislative priority workshop** on a subspecialty topic related to an issue impacting specialists and subspecialists (for example, sustaining a robust and specialized pediatric workforce)
- **Networking opportunities** to meet other pediatricians in other fields and compare advocacy challenges and achievements

If you are interested in learning more about the track and would like to be notified when registration for the conference opens, please email LegislativeConference@aap.org and mention your specific interest in the track. For more information on the Legislative Conference, please visit aap.org/legcon.

AAP Call for Nominations

PREP Self Assessment Editorial Board



The AAP is currently looking for qualified individuals to serve on the PREP Self-Assessment Editorial Board (https://pedialink.aap.org/visitor/moc/moc-part-2). We are seeking nominations to fill the following positions.

- Pediatric Pulmonologist
- Adolescent Medicine
- Pediatric Generalist
- Pediatric Gastroenterologist

For detailed information on Editorial Board Member Responsibilities, visit: http://downloads.aap.org/DOSP/PREP SA Job Description.doc.

The deadline for receipt of nomination materials is 4:30 PM (CDT), Friday, November 18, 2016. To request nomination materials for completion, please email Lisa Donato, Division Coordinator, at ldonato@aap.org. A nominee must submit a completed and signed *PREP Self-Assessment Editorial* Board Fact Sheet, a current CV, a completed AAP Full Disclosure Statement, and a writing sample. The writing sample should be a case-based multiple choice question and critique, 1-2 typed pages, which has not been published or edited by others. All information must be sent electronically. Email attachments should be in MS Word or PDF format. Nominees should email materials to ldonato@aap.org.

Editorial Board of PediaLink

The AAP is currently looking for qualified candidates to serve on the Editorial Board of PediaLink (http://www.pedialink.org). We are seeking Academy Fellows with strong educational credentials and an interest in online learning to fill three open positions.

For a description of position responsibilities of PediaLink editorial board members, please visit: http://downloads.aap.org/DOSP/PL Ed Board Job Description.doc. The term of appointment is three years, with the possibility of reappointment for a second three-year term.

The deadline for receipt of nomination materials is 4:30 PM (CST), Friday, November 18, 2016. To request nomination materials for completion, please email Lisa Donato, Division Coordinator, at ldonato@aap.org. Each candidate must forward their CV and a fully completed PediaLink Editorial Board Fact Sheet for consideration. All information must be sent electronically. Email attachments should be in MS Word or PDF format. Nominees should email materials to ldonato@aap.org.

EQIPP Planning Group

The AAP is currently looking for qualified candidates to serve on the EQIPP Planning Group (https://eqipp.aap.org). We are seeking Academy Fellows with strong educational credentials and an interest in online learning and quality improvement to fill our two open positions.

For a description of position responsibilities of EQIPP Planning Group members, please visit: http://downloads.aap.org/DOSP/Roles and Responsibilities_EQIPP.docx. The term of appointment is two years, with possibility of reappointment for an additional 2-4 years.

The deadline for receipt of nomination materials is 4:30 PM (CST), Friday, November 18, 2016. To request nomination materials for completion, please email Lisa Donato, Division Coordinator, at ldonato@aap.org. Each candidate must forward their CV and a fully completed EQIPP Planning Group Fact Sheet for consideration. All information must be sent electronically. Email attachments should be in MS Word or PDF format. Nominees should email materials to Lisa Donato, Division Coordinator, at ldonato@aap.org.

The AAP's 2016 National Election Set to Begin October 21st….All Members Urged to Vote!

The 2016 National AAP Election for president-elect and district officers begins Friday, October 21 and will conclude at noon CT on Monday, November 21. Members are asked to choose their next president-elect: Michael T. Brady, M.D., FAAP, or Colleen A. Kraft, M.D., FAAP. The winner will serve as the 2018 AAP president.

Voters also will elect district officers in six out of 10 districts: district chairpersons (who serve as AAP Board members), district vice chairpersons and National Nominating Committee representatives.

Visit the AAP Election Center on the AAP website, www.aap.org (login required) for more information about the election.

READ ON FOR PROFILES OF EACH OF THE AAP PRESIDENT-ELECT CANDIDATES…

Michael T. Brady, M.D., FAAP
Columbus, Ohio

Dr. Brady is associate medical director at Nationwide Children's Hospital (NCH) and professor of pediatrics at The Ohio State University (OSU).

Born in Wilkes-Barre, PA, he had early introductions to medicine through his father, a family physician, and his mother, a nurse. Both parents were role models showing him the challenges and rewards that accompany providing service to those in need. He and Jane, wife of 40 years, have two children, Tom and Kate, and two grandchildren, Ruth and Knox.

Graduating from the University of Notre Dame and Jefferson Medical College, his training included pediatric residency at NCH and pediatric infectious diseases fellowship at Baylor College of Medicine. Following fellowship, Dr. Brady joined the pediatric infectious disease faculty at NCH, focusing on infection control and HIV. Notable accomplishments included developing a family-centered HIV program recognized by the federal government in 2005 as a "Model That Works." He was chair of the OSU Department of Pediatrics from 2005-2013.

Active with the Academy at national and state levels, Dr. Brady has been a member of the Section on Infectious Diseases, Committee on Pediatric AIDS and Committee on Infectious Diseases, which he chaired from 2010-2014. He is associate editor of the 2015 and 2018 *Red Books*. He assisted the AAP Ohio Chapter with improving human papillomavirus immunization rates and with legislation improving immunizations of children in child care.

Dr. Brady's teaching awards from medical students at OSU and NCH pediatric/family practice residency programs are personal points of pride. He received the Leonard Tow Humanism in Medicine Award from OSU and the Tom Dooley Award from Notre Dame as an alumnus who has exhibited outstanding service to mankind.

Colleen A. Kraft, M.D., FAAP
Cincinnati, Ohio

Dr. Kraft is a graduate of the first Head Start class in 1965. She went on to receive her undergraduate degree at Virginia Tech and her M.D. from Virginia Commonwealth University. She completed her residency in pediatrics at Virginia Commonwealth University.

She is an associate professor of pediatrics at the University of Cincinnati School of Medicine and the medical director for the Health Network by Cincinnati Children's (HNCC). HNCC is an innovation lab for alternative payment models with Medicaid managed care. HNCC provides data and incentives to the community-based network of providers in the Greater Cincinnati area, helping practices understand risk stratification and proactive care management for their population of pediatric patients.

Prior to her arrival in Cincinnati, Dr. Kraft was a primary care pediatrician in private practice in Richmond, Va., and the founding pediatric program director at the Virginia Tech Carilion School of Medicine.

She was president of the AAP Virginia Chapter from 2006-2008 and was best known for working with the Legislature to improve Medicaid payment rates for pediatric services.

Dr. Kraft is co-author of the book *Managing Chronic Health Conditions in Child Care and Schools*. She has been actively involved in pediatric engagement in school and child care for children with special health care needs. She serves on the AAP Task Force on Pediatric Practice Change and the National Medical Home Initiative Project Advisory Committee.

(Continued on page 12)

Has Your Work Been Highlighted in a Recent News Article?

We are hoping to feature AAP Section on Anesthesiology and Pain Medicine "Members in the News" in upcoming editions of this newsletter.

If you have an article to share, please don't be shy! We'd love the opportunity to showcase the work that members of our AAP Section are involved in on a daily basis.

Help us with this effort by submitting your update to Mary Landrigan-Ossar, Newsletter Editor, at Mary.Landrigan-Ossar@childrens.harvard.edu.

(Continued from page 11)

President-Elect Candidates Answer Question About Enhancing Engagement and Leadership Training for Early Career Physicians in All Areas of the AAP

The President-Elect candidates were recently asked: ***How would you enhance engagement and leadership training for early career physicians in all areas of AAP?***

President-Elect Candidates have responded formally to a handful of other questions leading up to the election; those questions and answers can be viewed online at https://www.aap.org/en-us/my-aap/national-aap-election-center/Pages/Michael-T-Brady-Questions-and-Answers.aspx (for Dr. Brady) and https://www.aap.org/en-us/my-aap/national-aap-election-center/Pages/Colleen-A-Kraft-Questions-and-Answers.aspx (for Dr. Kraft); login required.

Dr. Michael T. Brady

For early career pediatricians, engagement with AAP should begin during their pediatric residencies by providing tangible evidence that AAP offers value to them and to children's health. All pediatric residents should receive hard copies of valuable resources such as Bright Futures, Red Book and Guidelines for Perinatal Care. These concrete resources will be used frequently during training and will serve as a constant reminder of benefits of AAP membership.

AAP must recognize that the new generation of pediatricians has different priorities, including heightened social consciousness. Providing opportunities in AAP that address their passions can be a foundation for life-long engagement.

Chapters need to clearly and regularly promote their interest in having early career pediatricians participate in chapter activities. They should be specific about roles, responsibilities, time commitment and, most importantly, the value associated with participation. In deference to work-life balance, chapters and national AAP may need to restructure time commitments for AAP activities to be more attractive for pediatricians at all career stages to participate.

Leadership training programs should be developed within chapters to prepare members to participate in AAP activities at the chapter, district and national levels. The AAP NCE should host a pre-conference meeting to highlight the AAP structure, AAP leadership opportunities, networking skills and leadership competencies.

Individuals interested in becoming leaders in their chapters should be assigned capable mentors to encourage their leadership development.

Life-long engagement and leadership training go hand-in-hand. Ensuring early career members have leadership opportunities is itself an effective way to maintain life-long engagement.

Dr. Colleen A. Kraft

Early Career Physicians are individuals with different and unique needs, interests, and goals; the American Academy of Pediatrics has a place for everyone. Real engagement of our newer colleagues happens less at an institutional level, more at a personal level. As members, we do this best through our interactions with these pediatricians.

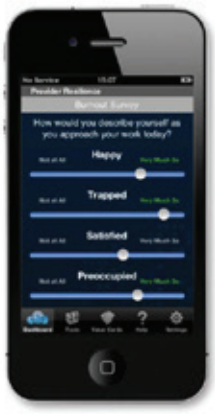
Recall your own mentors within the AAP, and how they promoted your interest and informally developed your leadership skills. I started in practice as a part-time pediatrician with three young children. Having first-hand knowledge of struggles with quality child care, I found the guidance of Dr. Susan Aronson both pragmatic and inspiring. Two practice mentors, Drs. David Arkin and Harry Gewanter, helped me understand the academic, medical, and systems issues with school problems. Dr. Thomas Sullivan first approached me to lead the Child Care Committee of the Virginia Chapter AAP. Each one of us is a mentor and can impact engagement and leadership through recognizing interest and talent in our early career colleagues.

Two suggestions for the AAP at a national level include improving the navigation on AAP.org, and offering the Pediatric Leadership Alliance (PLA) course on a semiannual basis. The PLA is a terrific leadership training experience with lifelong rewards; I still use the principles in my day-to-day career. Resources for part-time pediatricians, starting in practice, physician well-being, relocation and discounts on other programs are additional member benefits. The ability to easily find these on AAP.org will enhance engagement of all our members. The link is: https://www.aap.org/en-us/about-the-aap/Committees-Councils-Sections/Section-on-young-physicians/Pages/Resources.aspx

Provider Resilience App

Provider Resilience gives health care providers tools to guard against burnout and compassion fatigue as they help service members, veterans, and their families.

Your responses to a short self-assessment create ratings of your risk for compassion fatigue, burnout, and secondary traumatic stress. These ratings can also be viewed as graphs so you can monitor them over time.



A clock showing time since your last day off, inspirational cards, stretches, and Dilbert comics all encourage you to take restful breaks critical to avoiding burnout. Finally, videos by service members describing the positive impact health care providers had in their lives are there when you need a reminder of the value of what you do.

See more at: http://t2health.dcoe.mil/apps/provider-resilience

Jo Eland: A Remembrance

By Neil Schechter, MD, FAAP

Joanne Eland, PhD, RN, FAAN, FNAP

Although many readers of this newsletter may not be familiar with the name Jo Eland, the lives of literally millions of children and likely your practice has been changed for the better because of her. Joanne Eland, PhD, RN, FAAN, FNAP, who died September 25 after a long illness, was a young faculty member in the early 1970s who noticed what was obvious but somehow ignored – that pain in children was treated differently than pain in adults. While supervising students in 1971 on a pediatric oncology ward, she observed how little was done for the pain associated with these diseases. In a later reflection on this experience, she wrote:

Watching so many children die in unrelieved pain caused me to begin reading everything I could about pain and soon found there was virtually nothing written about pediatric pain. The memories of so many children dying in unrelieved pain left a lasting impression that has never left me. (Reproduced with kind permission of Jo Eland)[1]

That impression led to a life of advocacy and action regarding children's pain. Her master's thesis offered the first published comparison of the disparity between the treatment of adults and children. Of the 25 post-operative 4 -8 year old children whose charts she reviewed, only 12 received any analgesics at all. Those 12 received a total of 24 doses, half opioid, half non-steroidal. She compared them to a group of 18 post-operative adults who received 372 opioid doses and 299 non-opioid analgesics. In a frequently cited chapter in a textbook on pain management nursing in 1977, she reported this information and offered a laundry list of fallacious explanations for this phenomenon which she called "myths" about children's pain which she felt persisted because of the limitations of the existing research. It is fair to say that her recognition of this problem provided the impetus for many investigators to further document the existence of this problem and to identify the devastating consequences physically and psychologically of untreated pain.

Jo then became a fierce advocate for the treatment of children's pain. Throughout the 1980s and 90s, she lectured to often hostile medical audiences who did not like being told that their practice patterns were antiquated, especially by a nurse. But she persisted, and bolstered by the work of KJS Anand and a host of other investigators, her message gained resonance. Due to her visibility in the field, a woman from Italy, Lucia Benini, who had lost her child, Livia, to leukemia, contacted Jo and offered to help fund a conference under the auspices of the WHO to develop guidelines to address cancer and acute pain in children. Those guidelines were published in 1998 and have had significant impact on practice worldwide. Jo subsequently developed a relationship with Jill Lawson, a mother whose infant had died following unanesthetized surgery (which was the standard of care) for patent ductus in 1985. When Ms. Lawson recognized that this had occurred, she became an outspoken advocate for pain control in children. The Jeffrey Lawson Award was subsequently established by the American Pain Society to recognize advocacy in the treatment of pediatric pain, and Jo Eland was its first clinician recipient.

Jo had stated that "Nurses own pain" and went on to mentor and inspire hundreds of nurses and infuse in them an interest and passion for pediatric pain. She continued her relationship with her Italian colleagues and by bringing her students and colleagues to Italy and training armies of Italian nurses, she had a dramatic impact on the way pain was treated there. In 2009, she established a similar relationship with nursing and physician colleagues in India and developed a pain curriculum now required for all nursing students.

Fortunately, Jo's contribution and leadership was appreciated in her lifetime by professional colleagues, and she was given numerous national and international awards in recognition of her impact on the care of children in pain. Children's Hospice International awarded her the Robert A. Milch Award for Palliative Pain and Symptom Management. She received the Audrey Hepburn Award for her international work with children's pain and the Jean Guyvean Award from the American Society of Pain Management Nurses, an organization of which she was past president.

Jo Eland was not only an extraordinary clinician but on a personal level, she was open and generous and had an unexpectedly rollicking sense of humor which emerged when she lectured and is frequently mentioned in her uniformly excellent online ratings as a professor. She was also a loyal friend who displayed a genuine interest in people and truly loved her canine friends. She brought a love of technology to her work, was an early adapter, and had a passion and genuine talent for photography in which her eye for beauty is evident – take a look at some of her work online when you are in the middle of a challenging day. Jo Eland is gone but her life serves as a model of a life well lived and an example of how, in an often frustrating and challenging world, kindness, competence, and persistence can create ripples that beget a tidal wave of change.

1.Unruh AM, McGrath PJ. History of Pain in Children. In McGrath PJ, Stevens BJ, Walker SM, Zempsky WT. Oxford Textbook of Pediatric Pain, 2007, p 7.

THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS
AAP News

Focus on Subspecialties

Reprinted with permission from AAP News

Survey highlights barriers to post-residency training for combined pediatrics, anesthesia residents

by Jewel Sheehan M.D.; Jennifer Wagner M.D.; Rita Agarwal M.D., FAAP

The Dual Pathway for Certification in Pediatrics and Anesthesiology took effect on July 1, 2011, and allows an individual to complete training in both disciplines in five years, compared to six or seven years required for separate training in each of the disciplines.

This year, the first class graduated from the combined pediatrics and anesthesia residency programs. As this milestone approached and the classes behind them begin to apply for fellowships, the career choices of dual-trained residents can be evaluated.

Anesthesia and pediatrics complement each other when providing care for critically ill or injured children. The goal of dual training in pediatrics and anesthesia is to similarly prepare these residents to become leaders in perioperative pediatric medicine and critical care, providing a continuum of care from the operating room through the intensive care unit. Currently, there are seven combined programs across the country.

A survey was sent to all residents currently in combined pediatrics and anesthesia residencies to evaluate their career goals. Specifically, the survey looked at how post-residency training and career plans may have changed since the residents started the combined training program. Response rate was 56%.

Results showed almost all (96%) combined residents plan to meet the American Board of Pediatrics' objective to continue their post-residency medical education with fellowship training. The survey revealed, however, that many have changed their attitudes toward further subspecialty training. The majority of residents (55%) applying to the combined residency programs initially planned to pursue a career that combines pediatric anesthesia with pediatric critical care. When asked about current career plans, only 25% planned to complete a critical care fellowship.

These residents were asked to rank reasons for the change from a list of seven options: length of training is too long, limited job opportunities, not enjoying anesthesia as expected, not enjoying pediatrics as expected, family reasons, jobs available with less training, and lost interest in a career other than pediatric anesthesia. Residents were allowed to choose multiple responses.

The majority of respondents (84%) reported that their first reason for reconsidering their career path is that the length of fellowship training for pediatric anesthesia and pediatric critical care is too long, four years post-residency. This is in contrast to critical care certification in adult medicine, which requires a one-year fellowship following anesthesia residency. Many (69%) feel they can get a satisfactory job with less training. Family concerns, not liking pediatrics as much as expected, concerns about limited job opportunities or losing interest in a career other than pediatric anesthesia also were contributing factors.

Residents then were asked the maximum amount of time they would be willing to dedicate to fellowship training in both pediatric anesthesia and pediatric critical care. None of the respondents indicated that they would be willing to spend four years, which is the current length of pediatric anesthesia and critical care fellowships.

Respondents also noted that separate fellowships led to redundancy and repetition in training. The majority (76%) of residents would be willing to complete three years of fellowship training, with the majority of those preferring a combined anesthesia and critical care fellowship.

(Continued on page 15)

THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS
AAP News

Focus on Subspecialties *(Continued from page 14)*

Concerns over length of training and the lack of interest among combined pediatrics residents to complete four years of additional fellowship training pave the way for opportunities to explore combined fellowship training. Combined residency programs across the country want to continue to train future leaders in pediatric anesthesia and critical care who can improve patient outcomes and advance the field of pediatric perioperative and critical care medicine. Combined physicians also enhance the ability to collaborate across specialties, expanding research and leadership opportunities.

This survey highlights important barriers to post-residency training and serves as a platform for combined programs to continue to advocate for and support their residents in advancing the field of pediatrics.

Dr. Sheehan is an AAP resident member and a member of the Section on Medical Students, Residents and Fellowship Trainees. Dr. Wagner is clinical assistant professor, pediatric anesthesia, and associate program director, combined pediatric anesthesia residency, Stanford University, Department of Anesthesiology, Preoperative and Pain Medicine. Dr. Agarwal is chair of the AAP Section on Anesthesiology and Pain Medicine Executive Committee.

Dr Peter Davis to Receive 2017 Robert M. Smith Award

By Franklyn Cladis, MD, FAAP


Peter Davis

Dr Peter J Davis will be honored with the Robert M Smith award in Spring 2017. The award will be presented at the joint meeting of the Society for Pediatric Anesthesia and the American Academy of Pediatrics (AAP) Section on Anesthesiology and Pain Medicine, to be held at the JW Marriott March 3-5 2017 in Austin, TX.

Dr Davis is the Chief of Pediatric Anesthesia at The Children's Hospital of Pittsburgh of UPMC and the Joseph H. Marcy Endowed Chair of Pediatric Anesthesia. He is a tenured Professor of Anesthesiology and has a secondary appointment in Pediatrics. Over the course of his career he has molded, shaped and influenced almost every aspect of Pediatric Anesthesiology as well as mentored our future leaders. In short he is the pediatric anesthesiologist's Pediatric anesthesiologist. As he takes his place among the "Giants" of pediatric anesthesia it becomes apparent that he was influenced and inspired by five of these "Giants".

Peter Davis' story begins in Quincy, Massachusetts, where he was born. He attended public schools in Quincy, college at the University of Massachusetts in Amherst and medical school in New York at Albert Einstein College of Medicine.

After medical school, he traveled across the country to San Francisco and entered the field of pediatric medicine at UCSF. His trajectory was forever changed when his path crossed his first "Giant" in pediatric anesthesiology, Dr George Gregory. Dr Gregory convinced Dr Davis that the future of pediatric medicine was in anesthesia and critical care. After an additional year as a pediatric Chief resident, Dr Davis heeded this advice and enrolled at The Massachusetts General Hospital in Boston for anesthesiology. His second encounter with a "Giant" came during his pediatric critical care fellowship at the Children's Hospital of Philadelphia when he met Dr Jack Downes.

Both Dr Gregory and Dr Downes had a significant impact on Dr Davis, and he launched his career in pediatric anesthesiology and critical medicine at the Children's Hospital of Pittsburgh where he met the third "Giant," Dr David Ryan Cook. Dr Cook was the Chief of Pediatric Anesthesia at the Children's Hospital of Pittsburgh at the time. Dr Davis made Pittsburgh his home, and he has practiced at the same hospital for the past three decades. His interactions with the fourth "Giant" occurred when he met Dr Etsuro Motoyama in Pittsburgh and collaborated with him to co-edit the 5th edition of Robert M Smith's (the fifth "Giant") textbook *Smith's Anesthesia for Infants and Children*. He and Dr Motoyama have co-edited the last four editions of this textbook, and it seems only fitting that Dr Davis is now the recipient of the Robert M Smith Award.

It is no exaggeration to say that Dr Davis has had a lasting positive impact on our specialty. He has served on the board of the Society for Pediatric Anesthesia and was the president from 2000 to 2002. He has co-edited one of the primary references for the specialty of pediatric anesthesia. For the last ten years he was the pediatric anesthesia section editor for Anesthesia & Analgesia. In addition, he has published 89 peer reviewed articles and 67 book chapters. He was also the program director for one of the first ACGME accredited fellowships in the country and has mentored and trained many of our current pediatric anesthesia providers, educators, and leaders.

On a personal note, Dr Davis has a terrific life. At the center is his wonderful wife, Katie, two children, Julie and Evan, a daughter-in-law Zara, a son-in-law Andy, two grandchildren, William and Hunter, and a grand-dog, Mugsy.

Please help me to congratulate Dr Peter Davis as the 2017 recipient of the Robert M Smith award. Many of us in this specialty owe him a debt of gratitude for his leadership, mentorship and friendship. Throughout his career, Dr Davis has been shaped and influenced by five "Giants" in pediatric anesthesia, and it is now time for him to take his place among these greats.

Pediatric Intensive Care: The Role of the Anesthesiologist

By Anita Honkanen, MD, FAAP


Anita Honkanen

I spoke with some current and former Pediatric Intensive Care (PICU) physicians to find out how the role of the anesthesiologist has evolved during their time in intensive care and how training has shifted, to shed some light on what the future may hold and how to maintain the anesthesiologists' presence in the PICU.

Pediatric Intensive care is a relatively new field, with the first intensive care units for children founded in the 1960's. They built on the expertise developed in the 50's from several areas: adult respiratory intensive care, neonatology, pediatric general and cardiac surgery, and pediatric anesthesiology. (Ref 1, 2). At Children's Hospital of Philadelphia (CHOP), C. Everett Koop developed the first postsurgical care area for infants in 1956 that expanded in staffing and capacity into the first infant care unit primarily focused on post-surgical patients in North America in 1962. (Ref 1, 2). Around that same time, Pediatric Anesthesiologists were beginning to focus on the care of infants and children in the OR and transferred the principles of pharmacology and physiology learned there to postoperative intensive care. Lacking separate training paradigms, pediatricians would train in anesthesiology to develop the skills and expertise required for the care of these critically ill and injured children, both in the operating room (OR) and on the ward. Thus, early pediatric ICUs were led and established by these pediatric anesthesiologists. In 1955, Cheston Berlin opened a PICU at the Children's Hospital of the District of Columbia, and John Downes followed suit at the CHOP in 1967. (Ref 1, 2) By 2001, there were 349 identified pediatric ICUs in the US. (Ref 1)

Separate Boards for Pediatric Intensive Care did not come until 1987, after recognition of pediatric critical care by both the Society of Critical Care Medicine (SCCM) in 1981, and the American Academy of Pediatrics in 1984. (Ref 2) Fellowship training programs sprung up in the 1970's and 80's, with 59 certified 3-year programs offering training for 295 fellows in 2005. (Ref 1)

Alvin Hackel was part of those pioneering efforts on the West Coast. He had trained in pediatrics in the late 50's, followed by time in the Navy and then in a cardiology fellowship at Stanford. He was inspired to complete an anesthesia residency to enable and improve his pediatric intensive care, working in the residency program during the day, and moonlighting as the Intensive Care Physician at California Pacific Medical Center at night. He initially carved out a Stanford pediatric intensive care area, from the general intensive care unit that served all ages, but after a 3 month rotation at The Great Ormond Street Hospital in London, he returned to establish a true 12 bed PICU, running it with a few other pediatric anesthesiologists in the mid-1970's. In fact, virtually all pediatric anesthesiologists at that time were pediatricians who then trained in anesthesia. And virtually all intensive care unit physicians were anesthesiologists.

A decade later, Elliot Krane, trained in 1980 as a pediatrician, wanted to move into pediatric intensive care. Advised by mentors to do anesthesia training first, he completed the MGH (Massachusetts General Hospital) residency in 27 months, and followed it with 6 months of pediatric anesthesia training and 6 months of pediatric critical care at Boston Children's. His first position at the University of Washington had him covering the ICU for the Seattle Children's hospital, with interspersed OR days, later shifting to a primarily OR practice when he relocated to Stanford. Still, at that time in the mid 1980's, most PICUs were covered primarily by anesthesiologists, including those at Boston Children's, Tufts Floating Hospital, the MGH and CHOP. The National Children's Hospital in D.C. was the exception, with Murray Pollock in charge.

Dr. Sunny Anand was training at about the same time, starting in India, followed by PhD research on the stress response in infants in Britain. He moved to Boston Children's in 1985, first as an anesthesiology research fellow, later finishing pediatric residency training in 1991. He followed this with two years of intensive care training at the MGH, focused on infants and children. While he had spent much time in the OR at Boston Children's working with Paul Hickey and had been offered the anesthesia residency to critical care route, he decided against it. He was counseled that he thought like a pediatrician, not an anesthesiologist – preferring to create long lasting relationships with his patients. And he had been through many years of training by that time, with two pediatric residencies and research years under his belt; anesthesia would require a longer route.

Another pediatric anesthesiologist who trained during that era, Dr. Greg Hammer, is the only pediatric anesthesiologist still regularly working in the PICU at Stanford. He began his pediatric residency in 1982, and his training in all 3 areas (pediatrics, anesthesia, and critical care) was completed in 6 years altogether. The year after he finished, both residencies were extended by a year. The result? The same combination of training now takes 9 years, and grows to 10 with a Pediatric Anesthesia Fellowship.

Fast forward to the 1990's when Calvin Kuan finished medical school. At that time, anesthesiology was being heralded as an over-staffed field, and having loved his time in the PICU, he chose a residency in pediatrics. After working for a year as a pediatric hospitalist, he then completed a 3-year pediatric critical care fellowship. When he grew concerned about the rate of burn-out for the older intensive care physicians, faculty mentors, who were also anesthesiologists, advised him to go on with anesthesiology residency, which he did, followed by a year of pediatric anesthesia fellowship, then focusing on pediatric cardiac anesthesia. Finishing in the early 2000's, he noted that the intensive care units were now almost entirely staffed with pediatricians, untrained in anesthesia. He now attends in the OR as a pediatric cardiac anesthesiologist at Stanford and does part time work in the PICU at Benioff Children's Hospital, Oakland.

It is clear from their stories that the arc of training has changed markedly through these decades, from the 70's and early 80's when pediatricians trained in anesthesiology to learn the intensive care manual skill sets and the physiology of ventilation management and acute resuscitation, to the current approach, in which pediatricians go on to 3 years of intensive care training. The coverage of PICUs has shifted over the same time from a staffing model dominated by anesthesiologists to predominant coverage by pediatricians without anesthesia training. We talked about some of the reasons for this, and what may have been lost.

All of those I interviewed commented on the fiscal forces that have tended to pull anesthesiologists into the operating rooms, where procedural based care is reimbursed on a time-weighted basis. These same fiscal pressures have pulled pediatricians into the intensive care unit, where procedural billing and daily management fees inflate the usual pediatrician salary.

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Another key factor was the ever-increasing cost of medical education, creating a large debt burden on graduating medical students. This has been shown to play an increasing role in specialty choices (Ref – 3, 4), driving not only the specialty areas in which students hope to practice, but also how long they are willing or able to forego a full salary to extend their training years in residency and fellowships.

This may seem to be an inevitable economic consequence of the current medical reimbursement and educational system, but what has been lost with this trend? Each of my interviewees commented on the differences in approach taken by anesthesiologists versus pediatricians in the intensive care unit, driven by the very different training and duties required of each. Dr. Krane described anesthesiologists as being very "hands-on, very interventional – we tweak things…always trying to fine tune to make the kid perfect." They analyze the situation, develop an immediate approach, implement that approach, and watch for a response.

Dr. Kuan described it as anesthesiologists being "comfortable doing things themselves, very hands on. For example, if a patient needs to be intubated, a non-anesthesiologist writes the orders, the pharmacist prepares the medications, the nurse needs to administer them, and then the RT (respiratory therapist) helps bag (ventilate) the patient, and the intensivist eventually does the intubation." In contrast, the anesthesiologist may administer the medications, bag-mask ventilate the patient and intubate, all on their own. He noted that the ICU nurses tend to be happy when he is present in the ICU, "noticing a huge difference in how quickly things get done and how much the anesthesiologist is involved. I carry around drugs for resuscitation – twice it has made the difference in saving a child's life."

In contrast, Dr. Anand felt that pediatrician intensivists are accustomed to taking a very thoughtful analytic approach to developing a set of possibilities and working through a plan with others to implement their therapy. Dr. Krane noted the frequent use of consultants by the pediatrician intensivists, something not seen as often with the anesthesiologists. This approach can be critical in sorting through complex medical issues faced by patients in the ICU, but perhaps is less effective for the patient in acute crisis.

In addition, the anesthesiologist often sees the practical mechanical issues that may be altering the apparent concerns at hand, a perspective and skill honed by years in the OR setting. As an example, Dr. Anand went on to relate an event with an intensive care fellow, who wanted to give an anti-hypertensive medication to a new arrival in the PICU, a patient who had developed sudden marked hypertension. When Dr. Anand approached the bedside, he noticed that the arterial transducer had fallen off the bed and was suspended near the level of the floor. Replacing the transducer at the level of the heart, the patient's "hypertension" was cured. Dr. Anand noted that this was something every anesthesiologist would be quick to look for, but was missing in the experience set for the pediatricians being trained. On the other hand, he sees the pediatrician-intensivist well focused on the long-term issues for the patient and their family, working with the team to set up the right course in the case of chronic illness or helping them cope and understand when the patient's course will not improve. This, he feels, is something for which the anesthesiologists are less well prepared, and perhaps less interested in pursuing. As Dr. Hackel put it, pediatric intensive care "requires a certain type of anesthesiologist who is committed to active care."

Finally, because a fair number of the patients coming into the Pediatric Intensive Care Unit are post-surgical patients, the anesthesiologist brings a unique comprehensive understanding of the pathophysiology involved for each of these patients, the extent of their wounds, and the implications of the nuances of how they responded during different phases of the surgery. The surgeons, used to working with the anesthesiologists during the acute and critical intraoperative period, tend to have a great deal of confidence in their abilities and understanding of their patients in the postoperative phase as well.

So both groups, both perspectives, both skill sets bring something unique and important to the care of pediatric patients in intensive care settings. Circumstances in which rapid action is required are often facilitated by the anesthesiologist's presence, and situations in which careful long-term planning and family counseling is needed is well guided by a pediatrician. Those who train in both arenas would be best suited perhaps to continue to drive pediatric intensive care, but that route is less and less common, possibly primarily related to the prolonged training required and the economic drivers already mentioned.

The combined pediatrics and anesthesia training programs, described as a "huge step forward" by Dr. Krane, were developed in the mid-2000's to help address this issue. Trainees graduate in 5 years, rather than 6, and are eligible for board certification in both pediatrics and anesthesia. The expected next step would include Pediatric Anesthesia fellowship, but following that with an additional 3 years of Pediatric Intensive Care training has proved too extended for the vast majority of graduates of this new program. Faced with high debt, these graduates, who uniformly started enthusiastically dreaming about a career in Pediatric Intensive Care, are turning away from that route, focusing instead on an anesthesia based career path (For more information on this see our Section-authored AAP News article on page 14). From Dr. Hackel's perspective, "if someone has done pediatrics and anesthesia, they don't need any more intensive care training; they have the knowledge and skills needed to do the work." That may be true, but it is an approach unlikely to find much support in today's world. Research training is seen as a critical part of the intensive care fellowship, preparing physicians to continue to innovate and improve critical care for children. Working with the American Board of Pediatrics to develop an acceptable 2-year path, one year in pediatric anesthesia fellowship and one year in intensive care/research, may be the most likely way to stem this tide and gain the benefits of keeping the combined experience available to our patients.

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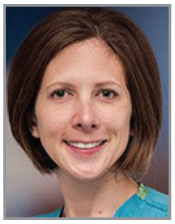
Point of Care Lung Ultrasound: The Stethoscope of the Future?

Faith J. Ross, MD; Denise Joffe, MD


Faith J. Ross


Denise Joffe

Introduction

As ultrasound technology has improved over the past few decades, point of care ultrasound has become an increasingly useful tool for anesthesiologists. Most anesthesiologists have adopted ultrasound use for central venous catheter placement and many are facile with transesophageal echocardiography.[1]

The lungs have traditionally been considered off-limits to ultrasound due to the unfavorable ultrasound acoustics of air-filled organs. Diagnosis of pulmonary pathology such as pleural effusion and pneumothorax historically relied on imaging modalities that utilize ionizing radiation, such as chest radiography and computed tomography. With improvement in technology and training, lung ultrasound has become a useful adjunct to the physical exam and can provide vital information quickly and accurately. In fact, ultrasound can rule out pneumothorax more rapidly and more accurately than chest radiography.[2] Ultrasound has greater than 90% sensitivity and specificity for detection of pneumothorax, pleural effusion, and alveolar interstitial disease.[2,3]

Thoracic ultrasound is increasingly utilized in critical care, emergency medicine, trauma surgery, internal medicine, pediatrics, and anesthesiology. [1,4] This review will discuss techniques for basic lung ultrasound and will discuss the ultrasound appearance of common pulmonary pathology such as pneumothorax, pleural effusion, pulmonary edema, and pneumonia.

The Normal Lung Exam

Ultrasound waves produced by the transducer probe are transmitted through or reflected from tissue planes depending on the acoustic properties of the tissue. Reflected waves are received by the transducer and transformed into an electrical signal to form an image. Ultrasound waves penetrate solid organs and fluid well, but are reflected by air and bone. [1,5] As ultrasound tissue penetration depends on the frequency of the transmitted waves, appropriate probe choice should consider the depth of the structure of interest. Imaging of the pleura can be accomplished with a higher frequency (7.5-10 MHz) probe, but deeper structures require a lower frequency (3.5 MHz) probe.[5] Both standard 2D imaging and M-mode, which displays the motion of one part of the image over time, are useful for evaluation of pulmonary pathology.

A thorough thoracic ultrasound examination evaluates each thoracic zone (Figure 1) with the transducer perpendicular to the axis of the ribs to obtain an image similar to the one shown in Figure 2. The bright linear structure seen between the rib shadows represents the pleural interface. Movement of the lung with respiration causes a sliding motion of the visceral pleura over the parietal pleura referred to as lung sliding. In the normal lung, reflection of ultrasound waves from the pleural interface creates a series of equally spaced horizontal lines referred to as A lines. Repetitive reflection of ultrasound waves within the lung parenchyma creates vertical B lines (also sometimes called comet-tail artifact or lung rockets), perpendicular to the pleural line, which extend from the pleura to the bottom of the image and obliterate transecting A lines.[6] A normal lung exam should reveal lung sliding, A lines, and fewer than 3 B lines between a pair of ribs.[6]

In M-mode, the normal lung appearance is described as a “seashore,” with the overlying soft tissues representing the waves, and the underlying mobile pleura and parenchyma as the sandy beach. (Figure 3) The lung pulse refers to a small movement of the pleura with cardiac pulsation. It should not be confused with lung sliding which bares no relationship to the cardiac cycle.[7] Lung pulse is subtle and typically not appreciated unless respiratory motion of the lung is abolished. Pathologic changes in the fluid content or aeration of the lungs produces changes in this typical ultrasound appearance.

Pneumothorax

Pneumothorax is characterized by absence of lung sliding, as the interface between the visceral and parietal pleura is no longer present. Lung sliding may also be absent in other pathologies that involve nonaeration of the lung, including endobronchial intubation, severe ARDS, or atelectasis. As the ultrasound transducer is moved to an area of aerated lung, lung sliding should become visible. This “lung point” is a specific diagnostic finding for pneumothorax.[8] In M-mode, the typical seashore appearance is replaced by a static “barcode” appearance. The transition between the “seashore” and “barcode” areas of

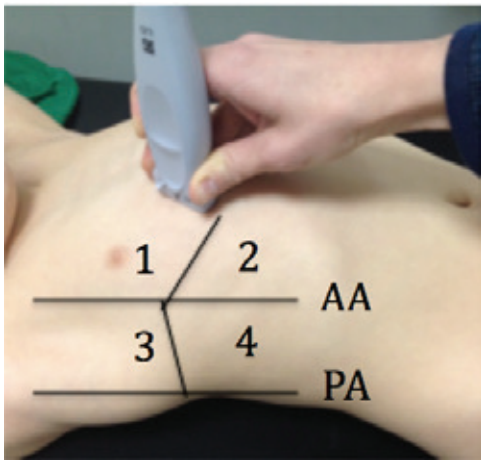


Figure 1: Thoracic zones for complete lung ultrasound examination AAL: Anterior axillary line, PAL: Posterior axillary line

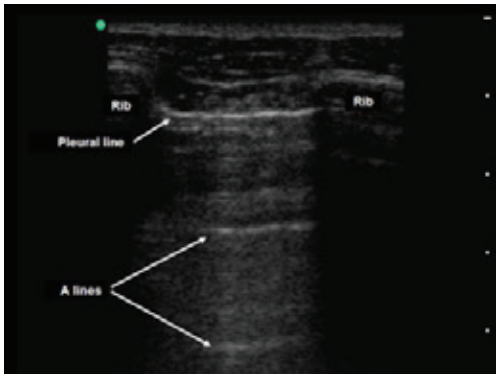


Figure 2: Normal thoracic ultrasound demonstrating pleural line, A lines, and rib shadows.[13]

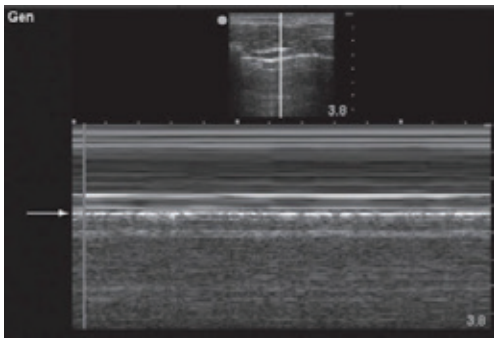


Figure 3: M-mode appearance of normal lung with seashore sign.[14]

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the lung identifies the lung point. (Figure 4) The presence of A lines does not rule out pneumothorax as they are sometimes present even in the absence of aerated lung.[5] B lines are not present in pneumothorax. If a lung point cannot be identified, but lung sliding, B lines, and lung pulse are absent, alternative methods should be used to verify the diagnosis of pneumothorax.

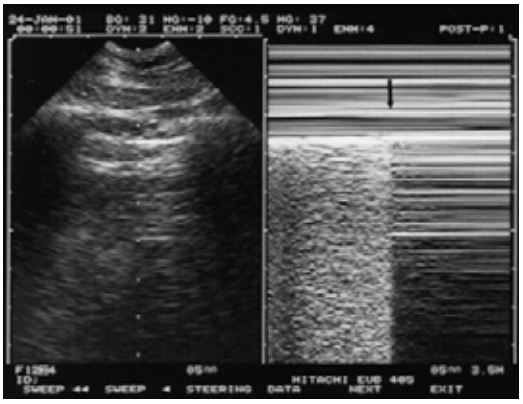

Figure 4: Appearance of lung point in 2D and M-mode ultrasound. The arrow denotes the lung-point. Note the transition from "seashore" to "barcode" in the right portion of the image.[6]

Pleural Effusion

Pleural effusion should be evaluated with the ultrasound probe placed as posteriorly as possible in a supine patient to identify fluid layered in the dependent portion of the thorax. Effusion appears as an anechoic (black) area deep to the parietal pleura referred to as the quad sign. The upper boundary of the area is created by the parietal pleura and the lower boundary by the visceral pleura. Movement of the lung toward the pleural line on inspiration creates an alternating pattern on M-mode known as sinusoid sign. [6,9] (Figure 5)

Pulmonary Edema

Pulmonary edema is characterized by multiple B lines created by repetitive echo reflection from thickened and edematous interlobular septa.[6] (Figure 6) B lines may be seen in acute pulmonary edema, acute respiratory distress syndrome, pneumonia, or chronic interstitial lung disease.[1] B lines change acutely with patient condition, increasing in number with fluid loading and decreasing with fluid removal during hemodialysis.[10] It may be possible to use dynamic changes in B lines to assess volume resuscitation and adequacy of diuresis.

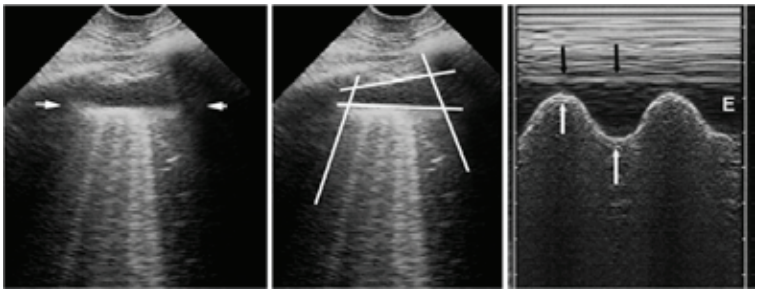

Figure 5: Appearance of pleural effusion in 2D and M-mode ultrasound. Note the quad sign in the middle image and the M-mode sinusoid sign in rightmost image.[6]

Pneumonia

Consolidated lung takes on a hypoechoic appearance similar to fluid rich tissues such as the liver or spleen. Pneumonia is differentiated from other causes of consolidation by dynamic air bronchograms, visualized as bright linear structures converging toward the hilum.[11] (Figure 7) Air entrapment inside atelectatic lung may cause static air bronchograms that do not change with respiratory motion. Lung ultrasound is superior to chest x-ray in detecting pneumonia; however, sonographic diagnosis of pneumonia is limited to subpleural regions of the lung that can be accessed without sonographic interference from overlying aerated lung. Other ultrasound characteristics of pneumonia include B-lines, pleural irregularity, and lung sliding with or without A-lines.

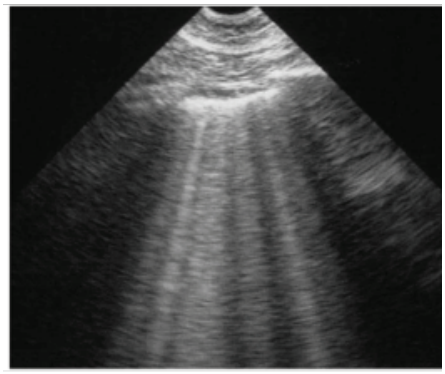

Figure 6: Multiple B lines suggestive of interstitial/alveolar fluid. Note that the B lines begin at the pleura and extend to the bottom of the image. A lines cannot be seen crossing the B lines.[6]

Conclusion

Point of care lung ultrasound has become a useful tool for quickly evaluating pulmonary pathology in real time and can be a valuable resource for anesthesiologists in the operating room or intensive care unit. As portable ultrasound technology progresses in the future, ultrasound evaluation of the heart and lungs may become a routine extension of the physical exam. I strongly recommend that all anesthesiologists familiarize themselves with this incredibly useful technique.

(Continued on page 20)

Pulmonary Pathology	Ultrasound Findings
Pneumothorax	- Presence of lung point - Absence of lung sliding - Absence of B lines - Absence of lung pulse
Pleural Effusion	-Quad sign -Sinusoid sign
Pulmonary Edema	- B lines
Pneumonia	- Hypoechoic lung appearance - Dynamic air bronchograms - B lines - Pleural irregularity

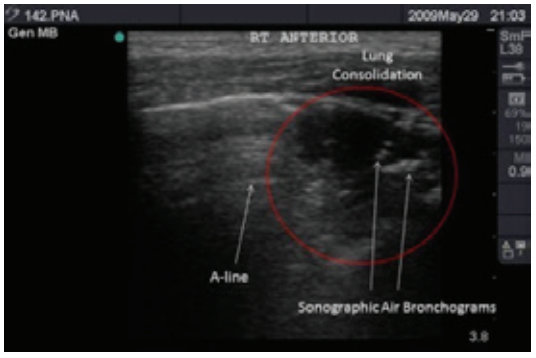

Figure 7: Sonographic air bronchograms in a patient with an ultrasound diagnosis of pneumonia.[15]

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Opioid Diversion and Abuse – The Effect on Children and What is Being Done

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Opioids are prescribed daily for acute and chronic pain management in patients throughout the world. Appropriate use is usually effective in assisting thoughtful clinicians in managing discomfort in a compassionate fashion and has been studied and shown to be safe and effective in adults, adolescents, children and infants. For many years fear of the use of opioids in children reduced the appropriate management of pain in some patients. Over the course of the last twenty-five years hundreds of studies have demonstrated that pain can occur in all patients whatever their developmental level, that untreated pain can have chronic deleterious implications and that there can sometimes be permanent effects from the lack of treatment. Currently opioids are readily available for the treatment of pain and have been used in almost every setting. Opioids are useful, safe when used appropriately, and effective.

Problematic in this picture is a relatively recent change in society that has accelerated the diversion of prescription opioids leading to morbidity and mortality. The availability of thousands of units of extended relief and long acting opioids since 1995 may have been instrumental in this change. Clinicians, dependent on the pharmaceutical industry for education and training about new products were led to believe that some new agents were available that were pharmacologically superior to older agents and, specifically, would not produce problematic use in patients – read long-term abuse. For the patient with long term low back pain, and there are millions, these drugs were a godsend, producing pain relief for the first time in many years. Many of the patients that received these medications used the drugs and predictably saw their dose requirements escalate over time. Most adult patients take the drugs as long as they are being prescribed. When they are no longer being prescribed, or when the doses no longer meet the patient’s physiological need, users will often find “their drug” on the street. If their drug is not available, users will turn to whatever is most available at the time, often to heroin, which is available in the United States in unbelievable quantities and at a price point below prescription drugs. The use of heroin has risen dramatically in the last ten years. At this time the Drug Enforcement Administration, the Food and Drug Administration, and the Center for Disease Control and Prevention have been instructed by the President and the Congress to focus on this as a public health issue of the first order. More opioids on the street seem to invite the abuse of these agents.


Rae Brown

As advocates for children, these findings are stark and frightening as they relate to their health and well-being. The impact of this health care crisis goes well beyond the simple diversion and abuse of drugs. It goes to the stability of families and the opportunity for a child’s continued social and intellectual development. The importance of this concept cannot be overstated and at this juncture we appear to be well on our way to creating a generation of lost children.

Though fewer children than adults become addicted to opioids it is not outside of the realm of the possible. Adolescents with chronic disease or with acute and chronic pain syndromes often have difficulty dealing with the use of opioids; management of these drugs without significant supervision is generally not possible in patients without a nervous system that is mature. Failure to appropriately manage opioids can be exacerbated by friends that may press the patient to divert their prescription drugs or by parents that may have problems of their own with substance use or abuse.

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There is much that is being done to reduce diversion of prescription drugs. Many states track closely the prescribing behavior of opioids by clinicians. Those states that have well-established systems to track prescribing practices have for the most part been successful in reducing or attenuating the rapid rise in the diversion and abuse of prescription opioids. This has not reduced the use of heroin, as there appears to be an inverse relationship between the elimination of prescription drugs and the increase in heroin use. The DEA has closed hundreds of "pill mills" where prescriptions have been produced for no reasonable medical condition. The Center for Disease Control has begun to educate clinicians about when opioids can be used safely, offering evidence based guidelines for reasonable patient management. The most recent statement was published in April of 2016. The CDC has reached out to many professional societies, including the American Academy of Pediatrics, to assist in the creation of educational programs that highlight appropriate prescribing practices.

The Food and Drug Administration has taken an active role. In the last four years the pharmaceutical industry has been provided guidance about the development of opioid compounds that are more resistant to abuse. In most of these new formulations, the focus has been to block opioid effect after tampering or to reduce the ability of a user to crush the pill so that it cannot be snorted or injected. The transition by users of ER-LA drugs from appropriate oral use to snorting or injecting the drug not only produces immediate and dangerously elevated levels of the drug, but is epidemiologically associated with profound respiratory depression or death. Chronic snorting or IV injection of adulterated product, even in narcotic tolerant patients, will produce chronic lung disease often associated with pulmonary hypertension.

The FDA has been in the forefront of the development of risk mitigation strategies (REMS) as a part of any new drug application (NDA)for an opioid by the pharmaceutical industry. REMS should include "Elements to Assure Safe Use" which may include:

1. Provider Enrollment and Training
2. Patient Counseling About the Risks and Benefits of the Chronic Use of Opioids
3. Safety Checks During the Medication Use Process – This may include routine or random drug counts and/or drug screens
4. Restrictions on the Conditions of Use – This may include opioid use contracts. The FDA recommends these contracts but they are not required to be in compliance with regulations.

The FDA has been fairly prescriptive about the requirements for REMS, and it is the drug's sponsor that actually creates the program. The FDA is involved in the development of these documents prior to marketing and continues to monitor safety issues associated with the drug after marketing to determine if the REMS has been successful in reducing the risk of diversion and abuse.

As this program is relatively new, the creation of risk mitigation strategies and the analysis of follow-up marketing information continue to evolve. The new Commissioner of the FDA, Dr. Robert Califf, has assured the congress that the FDA will make an increased effort to confirm that the analysis of the outcome of REMS for opioids will be carefully considered and that more resources will be provided to consider all opioid compounds that are presented as new drugs.

REMs are certainly not the magic bullet to solve our opioid diversion problems. Theoretically, monitoring programs such as this should be effective in reducing diversion and thereby taking illicit opioids off of the market. However, the assessment of efficacy is deterred by the lack of baseline data about how many opioid units there are and how many patients are currently diverting. Current methods for deriving this information include such nonspecific methods as reviewing poison control data and state-by-state mortality data. In addition, it is not reasonable to believe that one monitoring program, like REMS, will be the total answer. This program, however, is a good start as it includes training of clinicians, monitoring of patients, and continuing oversight by the FDA. The intent is that the REMS program will continue to evolve as post-marketing data is obtained and methods of deriving data become more sophisticated

An outgrowth of the current focus on opioids has been a renewed consideration of the role of the FDA in the management of drugs for infants and children in the United States. To that end the activity of the Committee on Pediatrics, and the Science Board, both of which report directly to the Commissioner, has increased dramatically. The effect of this activity remains to be seen but it certainly offers an opportunity for consideration of drugs other than opioids. The NIH can support further funding of the effect of new and old drugs on children. Supportive statements from the FDA may be important in affecting that outcome.

Before Providing Health Care Services, Be Sure You Are *Choosing Wisely*

Choosing Wisely is a national campaign of over 70 medical societies, including the AAP. It encourages clinicians and patients to talk about health care services in order to choose care that is:

- Supported by evidence
- Not duplicative of other tests or procedures already received
- Free from harm
- Truly necessary

In response to this challenge, national organizations representing medical specialists have asked their providers to "choose wisely" by identifying tests or procedures commonly used in their field whose necessity should be questioned and discussed. The resulting lists of "Things Providers and Patients Should Question" (http://www.choosingwisely.org/doctor-patient-lists/) will spark discussion about the need—or lack thereof—for many frequently ordered tests or treatments.

Choosing Wisely®

An initiative of the ABIM Foundation

Double-Boarded?...Looking for Ways to Meet the ABP's Part IV MOC Requirement?...

Claim MOC Credit for QI Work You're Already Doing

Pediatricians are committed to providing the best care for their patients and to making that care better every day. Thousands of physicians have used online tools, like American Board of Pediatrics (ABP) Performance Improvement Modules (PIMs) and AAP EQIPP modules to help with improvement and to meet Maintenance of Certification (MOC) requirements. The AAP's PediaLink QI system can also be used to build and manage small-group QI projects for MOC credit. These online tools and modules can be great ways to learn the QI process, but many pediatricians are already doing important QI work, including those projects facilitated by the AAP, in their practices. How can pediatricians claim credit for the quality improvement work they're already doing?

In addition to the numerous ways in which pediatricians can earn credit through the AAP and in an effort to continue to offer a wider range of meaningful and practical ways to meet MOC requirements for Improving Professional Practice (Part 4), the ABP has developed simple online applications for pediatricians to report the QI work that they originate where they practice.

For Small Groups

The application – called the **Small Group QI Project Application** -- is designed specifically for QI teams involving 1-10 pediatricians. Once a QI project is complete, the diplomate leading the project submits a Small Group QI Project Application on behalf of the group. When the project is approved, each participating physician then earns 25 Part 4 points. There is a fee of $75 per project (not per person). Now you can finish your QI project, submit your Small Group QI Project Application and claim your credit!

Video: How to Claim Your Credit Today

(http://tinyurl.com/he75ft4)

Begin Small Group QI Project Application (1-10 Physicians)

(http://tinyurl.com/zr6sqtl)

For the Larger Groups

For those QI teams that include more than 10 pediatricians, the ABP offers a slightly altered version of the Small Group application. The **QI Project Application**, which is appropriate for long term, ongoing QI projects, is designed for organizations whose QI teams include 11 or more pediatricians. This application costs $250 for the entire team and earns each participant (no maximum) 25 Part 4 points.

Credit can be awarded each time a member of the QI team can attest to meaningful participation -- meaning one project can result in multiple opportunities for its participants to claim MOC credit for their work!

Begin QI Project Application (11 or More Physicians)

(http://tinyurl.com/gn94psz)

For Those Leading Institutions in QI Work

Those individuals with expertise in quality improvement science who are in positions to lead institutional quality improvement initiatives – such as Vice President of Quality/Safety, or a Chief Quality Officer – can claim 40 Part 4 points for their leadership activities. The QI Program Development application is designed specifically for those developing and leading macro-level QI programs (not necessarily projects) within an organization.

QI Program Development

(http://tinyurl.com/gwdlt48)

For Organizations Sponsoring QI Projects

Organizations that are sponsoring three or more QI projects within a two-year period may apply to become a Portfolio Sponsor. This role as sponsor allows the organization to oversee multiple, simultaneously-running QI projects and approve qualifying projects for 25 Part 4 points. The Portfolio Sponsor is responsible for submitting a progress report to the ABP for each approved project.

Did you know the AAP is a Portfolio Sponsor? The AAP reviews and approves its own QI Projects, based on ABP MOC standards, and then awards credit for participation.

AAP Portfolio Program

(http://tinyurl.com/zgn9ab4)

For Those Who've Earned NCQA Recognition

MOC Part 4 credit can also be claimed if a practice has earned National Committee for Quality Assurance (NCQA) recognition for either Patient-Centered Medical Home (PCMH) or Patient-Centered Specialty Practice (PCSP).

The ABP recognizes the rigorous QI efforts necessary to obtain such recognition. Individual physicians, at no additional charge, can claim 40 Part 4 points if they have meaningfully participated in earning NCQA-PCMH or NCQA-PCSP recognition based on either 2011 or 2014 standards.

NCQA Patient-Centered Medical Home/Specialty Practice

(http://tinyurl.com/hb6muu7)