



Perinatal-Pediatrics Bulletin

Nov./Dec. '01

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Get it on the Web

Notes from the Chair

by Timothy R. Myers BS, RRT

Now that the fall asthma season is a distant memory and winter has inundated us with — dare we say it — RSV, it's time to look forward to the New Year. As this *Bulletin* arrives in your mailbox, many of us are just returning from an exciting International Respiratory Congress in San Antonio, TX. The Perinatal-Pediatric Section honored our 2001 Specialty Practitioner of the Year at the Awards Ceremony, conducted our Annual Section Business Meeting, and witnessed the first ARCF and VIASYS *Healthcare Fellowship for Neonatal & Pediatric Therapists* to recognize outstanding original research in the field of neonatal and pediatric intensive care. In future *Bulletin* editions, we will take a closer look at both award winners. Neonatal/pediatric therapists were also very fortunate to hear many exciting lectures and symposiums during the conference, including:

- A symposium covering current practices in the NICU.
- A symposium covering pediatric protocols and a consult service.
- A symposium covering various airway clearance modalities.
- Lectures specific to pediatric home care issues, nitric oxide, RSV, intrapulmonary percussive ventilation, neonatal resuscitation, ventilator graphics, and infant pulmonary functioning testing.
- Various lectures on asthma and its management (i.e., Heliox).
- Lectures on neonatal and pediatric transports.

On a sadder note, it is with both personal and professional regret that I announce the resignation of Doug Petsinger as co-editor of the *Bulletin*. As you will read in the following article from Doug, he is relinquishing his vol-

untary role as *Bulletin* co-editor for both personal and professional reasons. Doug has been an invaluable resource to the section, Peter Betit, and myself over the past two years as the co-editor. While we are saddened by Doug's departure, we wish him well in his future personal and professional endeavors. Luckily, we have already found someone to step into his shoes. Melissa K. Brown has volunteered to serve as co-editor for 2002.

As you can see, the Perinatal-Pediatric Section has been busy working to advance the initiatives of its members and the Association over the last several months. So, share this information with your peers and colleagues and extol the virtues and the benefits of joining the AARC and our specialty section. I also encourage any of you out there who haven't already joined us on the perinatal-pediatric email listserv to do so soon. It is an excellent way to share ideas with your fellow section members around the country in a very timely format. Recent topics that have been discussed include NICU accidental extubations, aerosol therapy, bronchiolitis protocols, and airway clearance techniques.

And finally, I encourage any section members who would like to contribute to this newsletter to contact either myself or Melissa Brown at the addresses or numbers listed on page 2. If you don't want to write an article yourself, but have topics of interest you would like to see appear in an upcoming edition of the *Bulletin*, let me know about these topics. This past year the *Bulletin* received contributions from more than ten different authors, some for the first time. So, without further ado, let's get on with some of the exciting articles in this edition of the *Perinatal-Pediatric Bulletin*. ■

The AARC Online Buyer's Guide
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<http://buyersguide.aarc.org>

Notes from the Co-Editor

by Doug Petsinger, BS, RRT/RCP IV

This will be my last "Notes from the Co-Editor." My plate is full here at Children's of Atlanta and is going to get even fuller. Also, I have not quite bounced back from my adventure with cancer. So I need to cut back, and this is the most logical choice.

I have had an enjoyable two year run as co-editor and would recommend this role to an individual who wants to sharpen their mentoring skills. This *Bulletin* is here to provide guidance, to help our specialty move forward,

and to share knowledge. Unfortunately, not every perinatal-pediatric practitioner is able to work in a center of excellence or experience ground-breaking medical advances. The *Bulletin* can and will expose you to these medical miracles. Both the AARC and the *Bulletin* will take you to very exciting and new heights of respiratory care.

It has been my great fortune to work with so many professionals over the last two years. Both Peter Betit and Timothy Myers have

been exceptional chairs, elevating the Perinatal-Pediatric Section to new heights. Thank you so much! Lastly, there are all of you members of the section. You are the greatest professionals that I have had the pleasure to work with. Thank you all so much.

As always, my door is open. If you need anything, I'll try to help, or if you just need to chat, I'll listen. Thank you all. ■

FYI . . .

Paternal smoking and its impact on kids' lung function

A study of 1,718 Chinese children, ages 8 to 15, who lived in a rural community and had mothers who had never smoked showed that youngsters whose fathers smoked had small but

detectable deficits in two basic lung function tests. The researchers checked 860 girls and 858 boys in a community along the Yangtze River. Of those tested, 1,374 had fathers who smoked and 344 had fathers who never smoked. No other sources of indoor or outdoor air pollution existed in the rural community.

When the children were divided into two groups by fathers' rate of cigarette consumption, those children of men with the higher level of smoking (over 30 cigarettes a day) had the largest deficits in the two lung function tests. Moreover, when the data were further examined, non-asthmatic girls showed the greatest deficits in their lung tests. (All data for the children were adjusted by age, sex, weight, height, asthma, and father's educational level.)

The investigators believe the negative impact of paternal smoking had its effect on childhood lung growth rather than on airflow obstruction. Since paternal smoking did not modify the functional relationship between age and height, they believe the observed decreases in pulmonary function represented a lung-specific effect rather than a broader problem related to overall bodily growth.

The research appears in the second of two September issues of the *American Journal of Respiratory and Critical Care Medicine*.

Prenatal nicotine exposure

Prenatal nicotine exposure in pregnant rhesus monkeys produces changes in the lung mechanics of their newborns that are strikingly similar to those reported in human offspring whose mothers smoked during pregnancy. Scientists infused seven pregnant rhesus monkeys with nicotine and seven control monkeys with a saline solution. They used a special infusion pump implanted in the mother to infuse the solutions from day 26 to day 160 of the timed pregnancies. Although term for the rhesus monkeys is 165 days, the infants were delivered at day 160 by Caesarian section.

The researchers found that lung development in the prenatal nicotine-exposed infants was significantly impaired. They also has reduced lung function, as measured by tests performed shortly after birth. The investigators note that previous clinical research suggests that, for women who smoke, nicotine crosses the placenta to interact with nicotine receptors in the devel-

oping lungs of the fetus to cause changes in lung structure and, subsequently, to influence the offsprings' lung function. They believe their results in monkeys are strikingly similar to changes seen in babies of smoking mothers. The research appears in the second of two September issues of the *American Journal of Respiratory and Critical Care Medicine*.

Better asthma control?

In a "Pulmonary Perspective" article published in the second September issue of the *American Journal of Respiratory and Critical Care Medicine*, two experts discuss how a long-acting inhaled beta2-agonist can be combined with an inhaled glucocorticosteroid to better control moderate to severe asthma. According to the authors, several studies have shown that monotherapy with beta2-agonists, either short- or long-acting, is clinically inferior to inhaled glucocorticosteroid (ICS) as a maintenance therapy for persistent asthma. However, a substantial proportion of patients with more severe disease are insufficiently controlled with a low to moderate dose of ICS. Rather than increasing the dose, which might induce side effects in the patient, the authors suggest adding a beta2-agonist as part of a dual formulation therapy in a single inhaler. This drug combo can offer a rapid and pronounced beneficial effect on symptoms and baseline lung function for many patients.

Study looks at variation in the neonatology workforce

A team of Dartmouth Medical School researchers has completed the first study of the neonatal workforce since 1983 to determine the geographic distribution of neonatologists in the United States. Their results, reported in the July/August issue of *Effective Clinical Practice*, lay the groundwork for understanding whether neonatal intensive care resources are located in accordance with risk and whether more resources improve newborn outcomes.

In the past 30 years, the number of neonatologists has increased, while total births have remained nearly constant. It is not known how equitably this workforce is distributed. The

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“FYI...” continued from page 2

Dartmouth Medical School researchers — David C. Goodman, MD, MS; Elliot S. Fisher, MD, MPH; George A. Little, MD; Therese A. Stukel, PhD; and Chaing-Hua Chang, MS — set out to determine the geographic distribution of neonatologists in the United States.

“Despite rapid growth in neonatal intensive care, there is little information about whether services tend to be located where newborn needs are greatest, and whether more resources always lead to better outcomes,” says Goodman. “This study finds a very high degree of regional variation for neonatal intensive care; studies are underway to understand how well this distribution serves newborns.”

Neonatal intensive care, considered one of the most important recent advances in pediatrics, has been shown to be highly effective in reducing mortality and improving long-term outcomes for premature and ill newborns. The Dartmouth team found that the regional supply of neonatologists varies dramatically and cannot be explained by the substitution of neonatal mid-level providers or by the proximity of academic medical centers.

The team measured the number of neonatologists and neonatal mid-level providers per live birth within 246 market-based regions. They found that the neonatology workforce varied substantially across neonatal intensive care regions. The number of neonatologists per 10,000 live births ranged from 1.2 to 25.6, with a median of 5.8. Cities such as Washington, DC and Newark, NJ had high numbers, while numbers for others, such as Lebanon, NH and Omaha, NE, were low.

Likewise, the volume of low birthweight deliveries per physician varied, with the “very high” supply regions having fewer low birthweight infants per neonatologist than the “very low” supply regions. The weakly positive correlation between neonatologists and neonatal mid-level providers per live birth is not consistent with substitution of neonatal mid-level providers for neonatologists. There was no difference in the percentage of neonatal fellows in the lowest and highest workforce quintile (14% vs. 16%) or in the percentage of neonatologists engaged predominantly in research, teaching, or administration (14% in lowest and highest quintiles), two indicators of academic medical centers.

Further research is warranted to understand whether more resources improve newborn outcomes, say the Dartmouth researchers. They gathered their data from 1996 American Medical Association physician masterfiles; a

1999 survey of all U.S. neonatal intensive care units; a 1995 American Hospital Association hospital survey; and 1995 U.S. vital records.

Herbal preparations may produce adverse cardiovascular complications in children

Michael Artman, MD, FAAP, director of pediatric cardiology at NYU Medical Center, presented information at the National Conference of the American Academy of Pediatrics (AAP) in San Francisco regarding the potential risk of using complementary and alternative medical therapies — particularly common herbs and nutritional supplements — in children. According to Artman, “This is a growing national problem. In adults, approximately 50% use some form of complementary medicine. Annual spending is over \$5 billion on herbal products and \$2 billion on dietary supplements in the U.S. It is growing with children.”

To date, there is little documented evidence that these alternative therapies are safe and/or effective. Most products are not standardized and vary widely in concentration and components, and there is little or no data on utilization, prevalence, efficacy, and acute/chronic toxicity in children.

One common herb with demonstrated cardiovascular activity is ephedra, a Chinese herb used for asthma and weight loss, and as an energy booster. The drugs in ephedra can cause high blood pressure, palpitations, stroke, and death. Garlic, another common herbal supplement, can interfere with platelet aggregation. When combined with some cardiac medications, such as blood thinners, garlic supplements can increase the risk of stroke or excessive bleeding following surgery.

Artman urges pediatric practitioners not to underestimate the magnitude of complimentary and alternative medicine (CAM) utilization in their parents and to document CAM requests, discussions, and responses in the patient’s medical records. “Alternative therapies are potentially quite toxic with minimal benefit and should not be recommended,” he says. “Health care providers must be alert to potential adverse effects and drug interactions due to herbal medications.”

Respiratory flutter syndrome in neonates

Respiratory flutter syndrome that occurs during the first month of life could be a more frequent cause of respiratory failure in newborns than previously recognized, says Johns Hopkins researchers who studied three neonates who had respiratory failure shortly after birth associated

with respiratory flutter. Their condition required temporary ventilatory support.

Respiratory flutter involves rapid rhythmic respiratory muscle contractions of the diaphragm and intercostal muscles superimposed on a normal respiratory cycle.

The respiratory flutter of the three babies was confined to the inspiration phase of the breathing cycle. Continuous positive airway pressure normalized the breathing pattern in one infant and temporarily improved the ventilation in the other two by reducing the amount of respiratory flutter. Chlorpromazine, a major tranquilizer that also stops nausea and vomiting, halted respiratory flutter within 12 hours in all infants and permitted them to be weaned off of ventilatory support within a few hours. The study appears in the first of two October issues of the *American Journal of Respiratory and Critical Care Medicine*.

Two Pediatrics studies look at kids and asthma

In the study, “Onset and Persistence of Childhood Asthma: Predictors From Infancy,” researchers publishing in the October issue of *Pediatrics* found that psychosocial factors like the environment and upbringing may combine with biological factors to influence asthma onset in children. The study looked at 150 children who were at risk of developing asthma based on heredity. The children in the group whose mothers reported parenting difficulties were more likely to be diagnosed with asthma later in life.

The study “Relation Between Infantile Colic and Asthma/Atopy: A Prospective Study in an Unselected Population,” also in the October issue, found no evidence to support an alleged link between infantile colic and increased risk for asthma or allergies.

Rural kids have higher mortality rates

A new study from the Department of Health and Human Services finds that the highest death rates for children and young adults are in rural counties. Findings also show that people who live in the suburbs of large metropolitan areas have the lowest infant mortality rates and are more likely to have health insurance and healthy lifestyles.

Alternatively, death rates for working-age adults were higher in the most rural and most urban areas. Suburban residents were more likely to exercise during leisure time and more likely to have health insurance, and suburban women were the least likely to be obese. ■

Get it on the Web

Want the latest news from the section in the quickest manner possible? Then access the *Bulletin* on the Internet! If you are a section member and an Internet user, you can get your section newsletter a week and a half to two weeks earlier than you would get it in the mail by going to your section homepage at: http://www.aarc.org/sections/section_index.html.

You can either read the *Bulletin* online or print out a copy for later.

The AARC is encouraging all section members who use the Internet to opt for the electronic version of the *Bulletin* over the mailed version. Not only will you get the newsletter faster, you will be helping to save the AARC money through reduced printing and mailing costs.

These funds can then be applied to other important programs and projects, such as ensuring effective representation for RTs on Capitol Hill.

To change your option to the electronic section *Bulletin*, send an email to: mendoza@aarc.org. ■

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