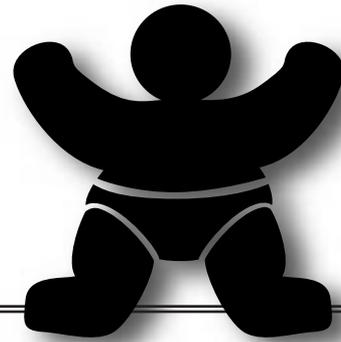


Perinatal-Pediatrics Bulletin



THE AMERICAN ASSOCIATION FOR RESPIRATORY CARE

NUMBER 7

FALL 1997

NOTES FROM THE CHAIR

by Katie Sabato, MS, RRT

To laugh often and much; to win the respect of intelligent people and the affection of children; to earn the appreciation of honest critics and endure the betrayal of a false friend; to appreciate beauty; to find the best in others; to leave the world a bit better, whether by healthy child, a garden patch or a redeemed social condition; to know that even one life has breathed easier because you have lived; this is to have succeeded.

— Ralph Waldo Emerson

As I enter the third quarter of my first year as chair of the AARC Specialty Section devoted to the ever-challenging, ever-changing field of breathing and babies, I feel I am beginning to develop a comfort level with both my role as chair and my position within our professional organization. With this in mind, I will devote these "Notes" to some of my thoughts and perceptions on future directions for our section.

Since this issue of the *Bulletin* will be handed out during the AARC Respiratory Congress in New Orleans, these comments are also intended to serve as an impetus to further communication and discussion when we all meet at the annual section business meeting, which will be held on Monday, December 8 at 10:30 a.m. in Rooms 13-15-17. (Since our request to change the meeting from the traditional, last minute of the last day was honored, I know I will see you all at this meeting!)



AARC PERINATAL-PEDIATRIC SPECIALTY SECTION ON THE INTERNET

Our section's homepage on AARC Online is here! To visit the page, just dial up AARC Online (<http://www.aarc.org>), then choose the "Members Only" button. From there choose "Specialty Sections,"

then "Perinatal/Pediatric Care." This is what I envision for our web area—

Trend Query Topics —

The neonatal-pediatric field is still somewhat in its infancy, and because the technology is changing so rapidly, a wealth of personal, first-hand experiences, trials, and informal research is taking place daily in our clinical practice. Unfortunately, the vast majority of these experiences, whether they be successful or learning processes, are never shared with our peers. Usually the reason has to do with lack of time. I am a perfect example.

At Oakland Children's Medical Center, we nebulize our routine albuterol treatments straight. We do not dilute them with normal saline. We have been delivering aerosols this way for as long as albuterol has been available, and before that we delivered straight alupent times an average number of breaths. Oakland Children's is not noted for higher than average lengths of stay for its respiratory patients, nor is it associated with excessive delivery of aerosolized medications. We do, however, deliver our single, nebulized bronchodilator treatments in half the time it takes those of you who are delivering the traditional diluted therapy. And in this age of cost consciousness, that is good. Why haven't we shared this experience with the medical community at large? The "no time, no resource" factor is the culprit...no time to perform a large, random, controlled study...no time to completely research a theory or an experience.

Have you ever been afraid to adapt a new procedure or trial a new piece of equipment? Have you ever wanted to know (right away) if other respiratory care departments are experiencing the same good outcomes you are with specific procedures? Have you ever had to table something you really wanted to develop further or investigate because of the time involved? Perhaps your specialty section peers could have helped. Maybe they were having the same experiences and questions.

Now we can sign on to our homepage and find out. Identify your topic as a "trend query" (so-labeled to reflect the fact that information shared in this area is

FREQUENCY OF VENTILATOR CHECKS AND THE RESULTS OF AN INFORMAL SURVEY

by Katie Sabato, MS, RRT

not backed by controlled, scientific research). Ask your question, describe your experience — if we each invest just a little of our time, we can develop a valuable resource that will benefit us all. Here are some possible current trend topics to help you get started —

- Use of vaponehrine to treat wheezing in RSV infants
- Pressure support in the nursery
- Is CPT indicated or effective in the PICU?
- Ribavirin — using it?
- How do you deliver your continuous albuterol to infants?

I have already entered all of these topics into the perinatal-pediatric member section online, so check it out! (For individuals who do not have access to the Internet, I will post pertinent information received in the *Bulletin*.)

A National Perinatal-Pediatric Respiratory Care Network at last —

For as long as I can remember, AARC members who are also members of very active state/regional/local perinatal-pediatric networks have been wanting to figure out how we could all link together. I believe the perinatal-pediatric homepage can help us reach this goal. I suggest we post all minutes from these state/regional/local network meetings on the Internet.

To make this happen, however, I will need an AARC Perinatal-Pediatric Section member who is also an active member of a state/regional/local network to act as a National Perinatal-Pediatric Respiratory Care Network link coordinator. This person would receive minutes from participating networks, then post them in the Network section located in AARC Online's perinatal-pediatric area. Interested volunteers may submit their names to me via phone, fax, or e-mail (see back page of this issue for numbers/address), or through the perinatal-pediatric area on AARC Online. All networks interested in posting their minutes and activities should contact me as well. I am hoping to tie all this together before the AARC Respiratory Congress in New Orleans, but, if need be, we can further develop this area of interest at our business meeting there.

Interested in chairing the Perinatal-Pediatric Section?

The last item of business I would like to bring to your attention is our section's need for a volunteer to serve as chair-elect for the coming year. This individual would serve in that capacity until 1999, when he/she would assume the position of chair. Please contact me at the addresses/numbers on the back page with your nominations. Nominations will also be solicited and accepted at the business meeting in New Orleans.

As our profession continues to change and evolve, we find ourselves frequently challenging what once was considered routine, effective care (i.e., IPPB, O₂ rounds, IMV, deep suctioning). RCPs in my department at Oakland Children's Medical Center are joining many of their colleagues at other medical centers around the nation in questioning the time-honored practice of routine Q2-Q3 ventilator checks. Multiple factors demand a reassessment of this procedure: managed care, cost and capitation, and increased sophistication of critical technologies, especially in neonatal-pediatric ventilation. The focus is on positive patient outcome, and like everything else in patient care, ventilator checks must demonstrate a role in achieving that goal.

Are Q2-Q3 vent checks still reasonable in today's health care environment? Some would argue that a ventilator documentation sheet full of redundant ventilator numbers tells very little about patient outcome. Nor would having a therapist running around writing (sometimes copying) numbers down on a flow sheet be considered actively participating in efficient effective positive outcome. Rather, a productive, effective therapist is one who not only assures that the ventilator is working appropriately, but also develops a daily plan directed at positive outcome and then works towards that goal throughout his/her shift, documenting only significant changes and then summarizing whether the daily plan was met or not. Such a therapist is a productive member of the ICU team, contributing his/her expert knowledge to the positive outcome of the ventilated patient.

At Children's in Oakland we have a patient acuity driven approach to ventilator care. The therapist performs a full initial patient assessment and patient support system check. Any further charting done during the shift is per exception only. A daily plan is set up and an assessment of the outcome of that plan is made at the end of each 12-hour shift.

What are some of our section members doing in the area of ventilator assessment and documentation? An information fax survey on frequency of ventilator checks that was sent to various members of the Perinatal-Pediatric Consultant Panel last August revealed the following —

A majority are performing complete ventilator checks on a Q2 basis.

- Rainbow Babies in Ohio reports performing Q4 ventilator checks
- Primary Children's in Utah reports Q6 ventilator checks

- University Medical Center San Francisco reports Q6 ventilator checks
- Children's Medical Center in Oakland reports Q12 ventilator checks

Many report they are considering/researching charting by exception.

Few report they will change the frequency of vent checks.

Please keep in mind that a computer will, one day, "check all ventilators" and, at that point, administrators will look to RCP departments for additional cuts. We need to make sure we are prepared for that day so that this will not be an issue in our institutions.

Our experience and that of other institutions will be shared during lectures presented at the AARC Respiratory Congress in New Orleans, and I and others will also be available to discuss this and other topics at the section business meeting. In the meantime, comments, concerns, or questions regarding this topic may be posted on the perinatal-pediatric homepage on AARC Online.



BENEFITS OF POINT OF CARE TESTING IN THE NEONATAL SETTING: RTs USE I-STAT ANALYZER TO IMPROVE CARE

by Nicki Peterson, RRT

Nicki Peterson is a supervisor at Alta Bates Medical Center in Berkeley, CA.

In March of 1996 our 37-bed community Level III NICU began using the I-stat analyzer with the goal of improving patient care by combining ABGs, electrolytes, HB, HCT, and iCA into a single test performed with only four drops of blood. Our experience has proven that this type of point-of-care testing has minimized transfusion. During one clinical trial we noted that, on average, we did two fewer transfusions per baby. This translates to a decrease in transfusion-related problems such as hepatitis, cytomegalovirus, and human immunodeficiency; a decrease in the cost of transfusions; and the preservation of blood supply for other recipients.

In addition to decreasing the amount of blood volume needed for these tests, the I-stat analyzer significantly decreases the turn-around time for many crucial blood tests, giving the physician vital information within minutes and allowing instant implementation of corrective action. The decrease in turn-around time has been most beneficial during neonatal transport, when time and resources are scarce.

Another benefit we found was that I-stat allows the RCP to stay at the bedside when he/she is most needed, instead of mysteriously disappearing from the unit during a critical situation in order to analyze the sample in the lab. This allows the RCP to remain an integral part of the team during critical decision making.

Because our NICU chose to use a cartridge that resulted in arterial blood gas values as well as lab values, implementation of the I-stat required a strong relationship between the clinical lab and the respiratory therapy department. The sample is drawn by the respiratory therapist and results are printed at the bedside. Once a shift, the data from the I-stat analyzer is downloaded into the I-stat central data system. Results are then reviewed by a lab technologist and sent to the lab information system. This process is performed under supervision of the clinical lab medical director, Dr. Thomas Bruce. Training of personnel, annual competencies, ordering of cartridges, and QC are shared by the clinical lab and the respiratory therapy department. This type of teamwork has been the cornerstone of success for point-of-care testing in our NICU.



ARCF SILENT AUCTION OFFERS UNPARALLELED OPPORTUNITY FOR RC MANAGERS

Attention RCPs! If you're planning to attend the AARC's 43rd International Respiratory Congress this December 6-9 in New Orleans there's a new attraction you won't want to miss. In an effort to raise funds for important projects aimed at improving quality of care for patients and positioning the RCP for success in our changing health care system, the American Respiratory Care Foundation is sponsoring the profession's first-ever Silent Auction.

Thanks to the generous support of the respiratory care industry and others in the respiratory community, the auction will feature items ranging from Las Vegas casino/hotel nights and ski lift passes to Disneyland vacations. Medical equipment to be auctioned off includes items such as capnographs, ventilators, and an oxygen system. You may also want to take advantage of the many New Orleans packages available, including fine dining, cruises, and voodoo tours. Since opening bids on all items have been set at just 25% of estimated retail value, it's a great way to take advantage of a good deal for yourself and/or your department while supporting your profession at the same time.

The auction will run throughout the four-day meeting and all AARC members and officially regis-

tered attendees at the meeting are invited to come by Auction Headquarters as often as they like to place and/or raise bids. A preliminary catalog of items published in the October issue of *AARC Times* tells how the bidding process works, and a final catalog with an updated items list will be available onsite. So take a minute to see what's available, then come and join in the fun.



FYI...

FYI is a regular section of the *Perinatal-Pediatrics Bulletin* devoted to short summaries of articles or papers from other journals or sources that may be of interest to members of the section. Please feel free to submit items of interest for this section to Katie Sabato at the address/numbers listed on the last page of this and every issue.

Asthma inpatient pathway has little effect on patient outcomes

Researchers who evaluated an inpatient asthma clinical pathway found that the pathway resulted in changes in the use of resources but no changes in clinical outcomes or overall costs when compared to standard care.

The study, which was conducted at Children's Hospital and Medical Center in Seattle, WA, involved a retrospective comparison of 297 asthmatic children and adolescents admitted during the year following the implementation of the pathway with 292 similar patients admitted during the year before the pathway was implemented.

While no significant differences were found in steroid or peak flow meter use between the two groups, and average lengths of stay and total charges were similar, the pathway group did have lower laboratory and radiology charges. Lab charges for pathway patients were \$26 per admission, compared to \$39 per admission for pre-pathway patients. Radiology charges, which averaged \$55 per admission before the pathway, dropped to an average of \$32 per admission after the pathway was put in place. The study was published in the July issue of the *Archives of Pediatric and Adolescent Medicine*. (Source: Reuters Medical News, 8/6/97)

Study compares LMA, tracheal tube values

A study that looked at end-tidal CO₂ and arterial CO₂ values obtained with a laryngeal mask airway (LMA) and a tracheal tube during ventilation in children found that, in anesthetized children, end-tidal CO₂ measurements obtained through the LMA are as accurate for arterial CO₂ determination as those obtained through a tracheal tube. Because of the small size of the sample group (12 patients between one and 13 months of age), however, they were unable to establish a relationship between the blood gas values obtained through the two techniques. The study was published in the January issue of *Anesthesia Analogs*. (Source: *Technology For Respiratory Therapy*, ECRI 1997)

Residential treatment produces lasting results in children with intractable asthma

While numerous studies have shown that treating asthma patients according to the National Institute of Health's guidelines can lower acute exacerbations and hospitalizations, convincing patients and families to comply with the recommendations in the guidelines is another story. Inner-city children are particularly hard to treat, especially when poverty is severe and family support is lacking. For those patients, say researchers from Children's Medical Center of Brooklyn, temporary removal from the home and placement in a facility where the child's asthma can be brought under control may be the answer.

In a study of 12 children with intractable asthma who were placed at St. Mary's Hospital for Children in Brooklyn for a median of one year for treatment of their asthma, pediatric pulmonologist Dr. Sahid Sheikh and his colleagues found marked—and lasting—improvement in their conditions after discharge. The retrospective study found that the median number of hospitalizations per patient for the two years prior to being placed in the residential program was nine. During a two year follow-up post-discharge, the median number of hospitalizations per patient fell to just one. Emergency room visits decreased from an average of 20 per patient before the year-long program to just 11 per patient after. At the same time, the number of children requiring oral steroids dropped from nine before residential treatment to just three following treatment.

While the residential approach to caring for children with asthma is likely to remain controversial, Sheikh and his colleagues believe it can play an important role in helping children in cases where all

other options have failed. The study was published in the Spring '97 issue of *Pediatric Asthma, Allergy and Immunology*. (Source: Reuters Medical News, 7/9/97)

Parental smoking is costly, say studies

The price tag on parental smoking is high, say studies published in both the *Archives of Pediatric and Adolescent Medicine* and the *Archives of General Psychiatry* last July.

In the former, researchers from the University of Rochester and the University of Wisconsin found that involuntary pediatric exposure to tobacco smoke results in \$4.6 billion a year in direct medical costs and \$8.2 billion in loss of life costs. Among the conditions attributed to secondhand smoke are low birth weight, sudden infant death syndrome, respiratory syncytial virus, bronchiolitis, acute otitis media, otitis media with effusion, asthma, and fire-related injuries.

In the latter study, researchers who studied the relationship between maternal smoking and behavioral problems found that preadolescent boys with mothers who smoked more than half a pack of cigarettes a day while pregnant were 4.4 times more likely to exhibit such problems as boys with nonsmoking mothers. The University of Chicago study involved 177 boys ages seven to 12 who were followed for a period of six years after initial assessment for behavioral problems. (Source: Reuters Medical News, 7/15/97)

Nasal spray vaccine proves effective against influenza in children

A multicenter, double-blind, phase III trial has found that an attenuated live-virus vaccine given via nasal spray is effective in preventing influenza in healthy children.

According to a National Institutes of Health press release, the vaccine was 93% effective in the more than 1,000 children in the study who received it. Just 1% of that group developed culture-confirmed influenza during the trial period, compared with 18% of 532 children in a placebo group. The vaccine was effective against both the A and B strains of influenza circulating last season, and children receiving only one dose of the vaccine (0.25 milliliter per nostril) fared as well as those receiving two doses, two months apart.

Researchers from the National Institute of Allergy and Infectious Diseases who conducted the original study plan to use just one dose of the vaccine to revac-

inate the participants during this year's flu season to test the efficacy of revaccination. This year's vaccine will be formulated to include both flu strains from last year, plus a new strain expected to be circulating this year as well. The vaccine's manufacturer, Aviron, also plans to test the vaccine in healthy adults and in children with asthma and will apply for FDA approval by the summer of 1998.

Drug shows promise in preventing RSV in high risk infants and children

A new drug designed to prevent respiratory syncytial virus in high risk infants and children reduced the incidence of RSV-associated hospitalizations by 55% in a phase III clinical trial conducted among 1,502 high risk infants and children at 139 centers throughout the U.S., Canada, and the United Kingdom.

Study group participants were either under six months old with a history of prematurity or under 24-months with bronchopulmonary dysplasia. They received either a 15 mg/kg dose of the drug, MEDI-493, or placebo by intramuscular injection each month for up to five doses during the November 1996 to April 1997 RSV season. In addition to reducing hospitalizations, the drug reduced hospital days, ICU admissions, and hospital days with increased supplemental oxygen due to RSV infection in the treatment group.

Adverse reactions and number of fatalities were similar for the treatment and placebo groups, and none of the fatalities could be linked to use of the drug. MEDI-493 is manufactured by Gaithersburg, MD-based MedImmune, which plans to file for FDA approval by the end of the year. (Source: Reuters Medical News, 7/17/97)

Animal study shows that pulmonary deposition of albuterol is greater in patients who are breathing spontaneously

Researchers who used an MDI with a spacer to deliver technetium-99m-labeled albuterol through a neonatal ventilator circuit to anesthetized and awake rabbits found that the pulmonary deposition in the awake rabbits was more than twice that seen in the anesthetized rabbits. The drug was administered at ventilatory settings similar to clinically-used settings. The study was published in the January issue of *Critical Care Medicine*. (Source: *Technology For Respiratory Therapy*, ECRI 1997)

Methacholine challenge dose in pediatric asthma clarified

Methacholine inhalation challenge at the right dose can provide additional diagnostic information in suspected cases of pediatric bronchial asthma, say researchers from Jefferson Medical College in Philadelphia who studied three different doses in 71 children ages seven to 15 who presented with symptoms of suggestive of bronchial asthma. The results showed that—

- A dose of 50 breath units (BU) resulted in a sensitivity of 33% and a specificity of 83%
- A dose of 100 BU resulted in a sensitivity of 54% and a specificity of 74%
- A dose of 225 BU resulted in a sensitivity of 58% and a specificity of 49%

Because the false positive rate at the higher dose was unacceptably high, they conclude that 100 BU is the optimal dose for methacholine inhalation challenge in this population. They caution, however, that at all doses, the test was more reliable in boys than in girls. The study was published in the Spring '97 issue of *Pediatric Asthma, Allergy and Immunology*. (Source: Reuters Medical News, 7/11/97)

Website offers free access to medical information

The National Library of Medicine (NLM), which is part of the National Institutes of Health, has launched a new service that allows Internet users to access the world's most extensive collection of published medical information free of charge. You can visit the NLM site at <http://www.nlm.nih.gov>.

New device helps kids keep track of asthma meds

A new device that counts and displays the number of inhalations remaining in an MDI canister, as well as displays the number of inhalations taken in the current day, is being touted as a way to help kids with asthma keep better track of their medication usage. "This device goes a long way to solving the problems faced by millions of asthmatic children and their parents: remembering the number of puffs taken and knowing how much medication remains in an inhaler at any given time," says Dr. Henry Milgrom, director of the ambulatory pediatric allergy program and staff physician at the National Jewish Medical and Research Center, who helped develop the device.

In addition to keeping tabs on daily inhalations and

medication levels, the computerized device also stores the number of puffs taken each day for the past 30 days in its memory. When it's time to refill the canister, an alarm beeps three times. The self-contained battery in the device lasts for a full year.

Developed by Newmed Corporation, The Doser™ (retails for \$29.95-\$34.95 and is available from pharmacies nationwide or by calling (800) 863-9633. (Source: PRNewswire, 7/15/97)

New moms need help understanding allergens

Physicians should be doing more to educate new parents whose infants are at high risk for asthma and allergies about measures they can take to avoid asthma/allergy triggers, say researchers from the University of Toronto. In a study involving 122 new mothers who were classified as high risk for having an atopic child based on history of asthma, allergy, or eczema, they found that even though —

- 36% reported having animals in the home,
- 10% reported living in a dusty environment,
- 47% said they had carpeting in the home, and
- 18% said someone in the home smoked cigarettes

— just 13% reported having been educated by their physicians about potential allergens and the effects they could have on their new child. All of the mothers in the study, which also included 72 new mothers categorized as low risk, had uncomplicated pregnancies. The study's authors believe their results indicate a need for physicians to be more diligent in educating the mothers of infants at high risk for asthma and allergy about avoidance measures. The study was published in the July issue of the *Annals of Allergy, Asthma & Immunology*. (Source: Reuters Medical News, 7/31/97)

**Visit AARC
on the Internet—**

<http://www.aarc.org>

CONSULTANT PANEL UPDATE

by Mike Czervinske, RRT

The Perinatal Pediatric Section Consultant Panel is an important method of networking perinatal pediatric professionals. The AARC occasionally receives requests for information on panel topics. In such instances, specific information from this database is given to the person making the request so he/she may contact individuals who are listed under the requested topic. The Perinatal Pediatric Section Consultant Panel now has almost 120 members and 700 listings. A sign-up form will be published with the listing twice a

year. Section members who would like to be on the panel but who do not find a suitable category for their specific interests should contact me at the address/numbers listed on the last page of this and every issue. Section members on the list are encouraged to check their listings for accuracy and contact me if changes are required. It has been a pleasure to continue to keep this listing up-to-date.

Topics

(choose no more than 10)

- Airway Management
- Anatomic Anomaly
- Apnea Management and Monitoring
- Asthma
- Blood Gases
- Bronchial Hygiene
- Bronchial Hygiene, Vest
- Bronchoscopy
- Calorimetry
- Cardiology
- CPAP
- Critical Care, Pediatric
- Critical Care, Perinatal
- Cystic Fibrosis
- Discharge Planning
- ECMO
- Education, Patient/Family
- Education, Staff
- Education, Transport
- Growth/Development
- HFV, Interrupter
- HFV, Jet
- HFV, Oscillator
- High Risk Delivery
- Home Care
- Infectious Diseases
- Invasive Monitoring & A-line
- Management, Administration
- Management, Patient Focused Care
- Management, Productivity

- Management, Protocols
- Management, Quality Improvement/Assessment
- Mechanical Ventilation, Monitoring
- Mechanical Ventilation, Neonatal
- Mechanical Ventilation, PSV
- Mechanical Ventilation, Pediatric
- Mechanical Ventilation, Synchronize
- Mechanical Ventilation, Volume
- Mechanical Ventilation, Work
- Mixed Gas Administration, Helium/Oxygen
- Mixed Gas Administration, Hypoxic Mixtures
- Mixed Gas Administration, Nitric Oxide
- Nebulized Medication and MDI
- Nebulized Medication, Continuous
- Neonatal Life Support
- Networking, Professional
- Noninvasive Monitoring
- Outpatient Clinic
- Oxygen Administration
- Pediatric Life Support
- Pharmacology, Neonatal
- Polysomnography
- Pulmonary Function, Infant
- Radiologic Topics
- Research and Publication
- Ribavirin Administration
- Surfactant Replacement
- Tracheostomy Care
- Transport, Neonatal
- Transport, Pediatric
- Trauma

Consultant Panel Form

New Panel Member

Returning Panel Member With Changes

Please Drop My Name From The Panel

Name _____

Title _____

Institution _____

Complete Work or Home Address (up to 2 lines): _____

Phone(s) _____

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Chair-elect

To be appointed

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Guidelines for the submission of educational conference information for the *Bulletin*:

WINTER ISSUE: Submit dates for Feb., Mar., and April.
SPRING ISSUE: Submit dates for May, June, and July
SUMMER ISSUE: Submit dates for Aug., Sept., and Oct.
FALL ISSUE: Submit dates for Nov., Dec., and Jan.

Deadlines for submitting copy for publication in the *Bulletin*—

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Summer Issue: May 1
Fall Issue: August 1
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