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NOTE:
Scroll
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page

Spring Recruitment Drive

ANN's Annual Recruitment Drive is in full swing. Don't miss out on this year's Triple Play bonanza. Recruit three new members and save big! For all recruitment drive details, be sure to check out the ad on page 120.

Neonatal Network: The Journal of Neonatal Nursing Now Available on iPad

Did you know that now you can read *Neonatal Network: The Journal of Neonatal Nursing* on your iPad? With this new app, you can access all articles from the print edition, navigate to fully linked references, and even read and submit continuing education home study courses. You receive notification as soon as each new issue of the journal is available. Best of all, the app is a free download for the first year. Don't miss this opportunity and be sure to tell all your nursing colleagues.

News from ANN's Executive Committee

Joan R. Smith, PhD, RN, NNP-BC

Evidence-based practice (EBP) has rapidly gained acceptance and has been incorporated into all levels of interdisciplinary care delivery within hospital settings and is a core requirement for institutions to receive Magnet accreditation.¹ Challenges and barriers exist for neonatal clinicians to identify, evaluate, and integrate research findings into standard practice. Multiple EBP resources are available for clinicians, yet it's easy to become inundated with all the information and difficult to know where to begin and how to navigate. As vital members of the neonatal health care delivery team, nurses need to be equipped

and competent in their ability to put evidence into practice at the point of care delivery. A valuable resource provided by the Academy of Neonatal Nurses (ANN) is the "members only" EBP toolkit. This toolkit serves as a repository of resources related to the EBP process. Definition of terms, literature review tips, guides for evaluating the evidence, and models for implementing EBP recommendations into the clinical setting are just a few of the resources available. While this toolkit is not all encompassing, it does provide real-life neonatal tutorials to empower frontline staff in their daily decision making.

As we move forward in our commitment to provide safe, timely, efficient, effective, equitable, and patient-centered care, we are faced with the complex challenge of implementing empirically supported interventions into our daily care delivery. Rigorously evaluating the strategies for how to best integrate evidence into practice is part of an emerging field of study involving complex and multilevel processes. It is called Implementation Science (defined as the study of methods to promote the integration, uptake, and use of research findings and other EBPs by individuals and organizations to improve clinical and operational decision making in health care with the goal of improving health care quality^{2,3}), and neonatal nurses are positioned to make substantial contributions to this field in order to improve patient and family outcomes!

Disclosure

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1. American Nurses Credentialing Center. Practice standards. <http://www.nursecredentialing.org/Pathway/AboutPathway/PathwayPracticeStandards>. Accessed January 7, 2014.
2. Eccles MP, Mittman BS. Welcome to *implementation science*. *Implementation Science*. 2006;1:1-6. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1436009/pdf/1748-5908-1-1.pdf>. Accessed January 31, 2014.
3. National Institutes of Health. Health Services Research Information Central: dissemination and implementation science. http://www.nlm.nih.gov/hsrinfo/implementation_science.html. Accessed January 7, 2014.

Are You Looking for a Reason to Escape the Cold Weather?



The 11th National Advanced Practice Neonatal Nurses Conference provides a great reason for you to

book a trip to Hawaii! Join your colleagues April 23–26, 2014, at this conference designed for neonatal nurse practitioners, clinical nurse specialists, and experienced staff nurses. We have planned the program to conclude each day at approximately 1:00 PM. This makes it the ideal conference to combine with a vacation. The conference is held at the oceanfront Sheraton Waikiki. Come and experience this first-class hotel on historic Waikiki Beach.

We put together an outstanding program with an expert faculty to offer you the most innovative, up-to-date information in neonatal care. Topics offered are essential to keeping current in your practice. Highlights include a focus on antibiotics and infection, respiratory support, oxygen toxicity, management of PPHN, and family-centered care in the NICU and a discussion of nutritional supplements. Sharpen your learning skills and come prepared to hear some of your colleagues discuss the latest innovative programs in their units. Podium presentations and posters offer an up-close, in-depth look at what is happening in other units across the country and around the world.

Sign up today; early registration ends March 26, 2014! Mahalo.

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Transition to Home Word Search

monitor
immunization
home
diaper
pediatrician
apnea
medications
formula
crib
development
pacifier
breastmilk

Directions: Here are 12 words that relate to the topic of the Transition to Home. See if you can find them all. Words may appear in any direction; horizontally, vertically, diagonally, or even backwards. The solution to this word search puzzle will be published in the May/June 2014 News of the Academy.

Member in the Spotlight



ANN member Brenda Lessen, PhD, RN, is a researcher at Illinois Wesleyan University's School of Nursing. She is the developer of the Premature Infant Oral Motor Intervention (PIOMI). This is the only evidence-based, validated intervention that facilitates the development of oral-motor skills in preterm infants.

It has been found to improve oral feeding, shorten hospital stays by 2–3 days, and lower costs.¹

The tool evolved from Dr. Lessen's interest in premature infant feeding problems since her days as a NICU staff nurse. She was particularly concerned for those infants whose discharge was delayed because they could not progress to full feeds. Thus began a program of graduate study, exploring how infants could be helped before a bottle was ever placed in their mouth. Because there was nothing available in the nursing literature, Dr. Lessen turned to oral-motor therapy methods in the speech pathology literature. She coupled this with predictive neural networking literature to understand how the premature infant's "brain wiring" was disrupted by the premature birth and negative oral stimulation of the NICU environment. Debra Beckman's BOMI (Beckman Oral Motor Assessment and Intervention) tool was modified with permission to create

an eight-step, five-minute intervention that premature infants could tolerate. The PIOMI is designed to provide muscle and sensory activation to oral structures and cheeks to increase functional strength and range of motion and control movement until the infant is old enough to breast or bottle feed. The original study evaluated the use of PIOMI once a day for 7 days in 29-week gestation infants before bottle feeding was initiated to establish safety in such small infants.¹ PIOMI infants attained full feedings 5 days earlier and were discharged 2.6 days sooner than those receiving conventional care. It was estimated that \$2 billion would be saved annually if over half a million premature infants born each year were discharged 3 days early. This study has been replicated in Tehran, Iran, with twice the sample size, and produced the same results. The replicated study is being prepared for publication.

The PIOMI is becoming very popular since there is no cost and no equipment, and it is high-touch, easy to learn, well tolerated, does not require cognitive participation of the patient, and can be taught to parents. By request of the Illinois Easter Seal Chapter in Bloomington, Dr. Lessen has developed a parent version of the training materials that can be used in the home. These materials are being used to study the effects of the intervention done by parents and continuing after discharge.

Training materials can be obtained directly from Dr. Lessen or from her website (www.PIOMI.com). The packet includes a video DVD, eight-step guide, quick reference guide, and reliability rating tool. Dr. Lessen can train your facility or consult as needed after you have received training materials. Dr. Lessen is also available for consultation as the tool is implemented for graduate students or researchers wishing to use the tool. She can be reached via e-mail at blessen@iwu.edu or cell phone at 309-212-0544.

Since the publication of the original study in *Advances in Neonatal Care*, interest has taken off. Before disseminating training materials, Dr. Lessen completed a reliability study. The reliability study showed the tool had >97 percent for all reliabilities (between, among, and for repeated users). Dr. Lessen does recommend an annual competence review to maintain this reliability. Nationally, there are 15 centers in 10 states that have been trained. There are also 11 centers in eight countries that have received training. The tool has been requested by researchers, students, speech pathologists, and parents. It will be translated into many languages.

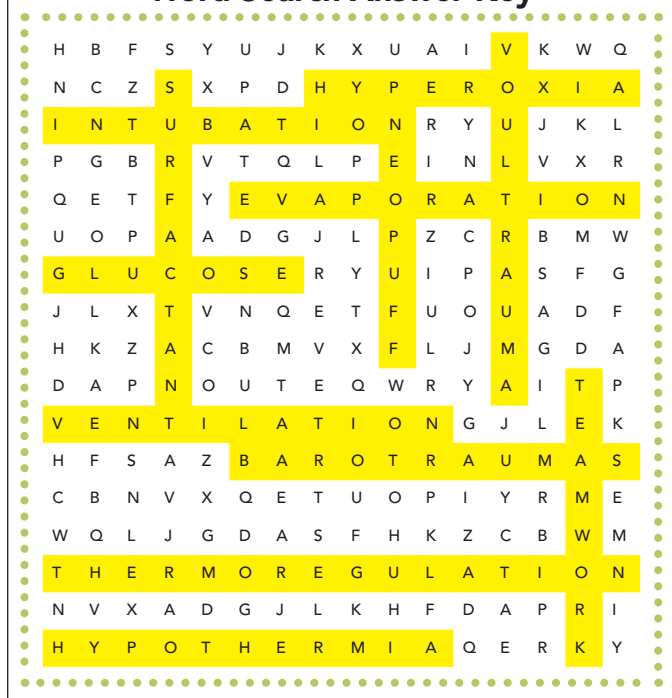
There are many opportunities for future research, particularly for those interested in translational research. Some topics already being considered include:

- Does the PIOMI benefit other populations of infants such as older infants, those with cardiac issues, or those labeled as "poor feeders"?

The Golden Hour

(from News of the Academy – January/February 2014 Issue)

Word Search Answer Key



- Does it have an effect on breastfeeding success?
- Would an increased frequency or duration be more effective?
- When do we achieve maximum benefit?
- Do the initial positive effects on feeding continue after discharge?
- What would the results be for feeding outcomes if parents were feeding as compared with nursing staff?
- What would be the effects of parents performing the PIOMI in the NICU?

There are certainly many opportunities for research and a very willing colleague to share her work and passion with our ANN members. Thank you, Dr. Lessen, for creating the PIOMI to enhance feeding success for our vulnerable population. (LW)

1. Lessen BS. Effect of the Premature Infant Oral Motor Intervention on feeding progression and length of stay in preterm infants. *Adv Neonatal Care*. 2011;11(2):129-139.

Medication Highlight

Sildenafil—The First-Line Treatment for Persistent Pulmonary Hypertension of the Newborn?

Sildenafil citrate, a phosphodiesterase type 5 (PDE5) inhibitor, has been shown to selectively reduce pulmonary vascular resistance in animal and adult human models. It has been reported to be successful in the treatment of persistent pulmonary hypertension of the newborn (PPHN).¹⁻⁴ Sildenafil citrate enhances nitric oxide-mediated vasodilation and reduces pulmonary vascular resistance by increasing cyclic guanosine monophosphate (cGMP). This is achieved by inhibiting PDE5, which is responsible for degrading cGMP to guanosine monophosphate.⁵⁻⁷ Sildenafil is a selective pulmonary vasodilator that has no effect on systemic arterial pressure. The effects of inhaled nitric oxide are also potentiated with oral administration of sildenafil.^{6,8}

Sildenafil has been used in centers that do not have access to nitric oxide and high-frequency ventilation to improve oxygenation in infants with pulmonary arterial hypertension, primary pulmonary hypertension, and PPHN that is refractory to nitric oxide.^{2,6} The cost and lack of availability of these therapies has driven the need to explore therapeutic alternatives for those in resource-constrained environments.⁹ There is interest in understanding and targeting the biochemical pathways that regulate pulmonary vasoconstriction and remodeling in PPHN as nitric oxide is not universally effective in reversing PPHN.^{10,11} The oral preparation of sildenafil was approved by the Food and Drug Administration in 2007 for the treatment of adults with pulmonary arterial hypertension (PAH), with no functional class restriction. The recommended adult dose was 20 mg three times daily. There is no recommended dosage for children or neonates with PAH;⁸ however, current dosages for neonates have been

extrapolated from the adult dosage range. Therapeutic ranges reported in the literature are 0.5–2 mg/kg/dose.^{8,9} In a case study of sildenafil administration via nasogastric tube, 0.5 mg/kg/dose was given four times per day. When there was no response, the dose was doubled to a maximum of 2 mg/kg/dose.¹³ It has been reported that a single dose of 0.4 mg/kg orally prevented rebound after withdrawal from inhaled nitric oxide.¹⁴

Sildenafil is rapidly absorbed after oral administration. Its bioavailability is 40 percent. Maximum serum concentration of the drug in children was reached within an hour of administration, depending on the dose.¹² There have been reports of nebulized sildenafil. The effects were similar to oral or parenteral administration with deposition of the drug varying depending on the nebulizer.⁶ Parenteral administration has been evaluated in a number of studies. The drug is reported to be well tolerated even with higher dosages.⁶

Endotracheal administration has been considered to achieve a more rapid onset of action, but more needs to be learned about this route. Presently, oral administration appears to be the safest and most efficacious route.⁶

More studies are needed to assess the safety, efficacy, and optimal dosage of sildenafil when compared with nitric oxide and high-frequency ventilation for neonatal patients.^{2,6,9,13} Pharmacokinetics need to be better defined, as does the side-effect profile. Hypotension is one of the most common side effects of sildenafil administration in neonates. Ocular complications are a significant side effect in adults, but it has not been determined what the risk is for neonates, who are otherwise not at risk of developing retinopathy of prematurity (ROP). Sildenafil is suspected of exacerbating ROP.¹⁴ (LW)

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2. Shah PS, Ohlsson A. Sildenafil for pulmonary hypertension in neonates. *Cochrane Database Syst Rev*. 2007; CD005494.
3. Vargas-Origel A, Gomez-Rodriguez G, Aldana-Valenzuela C, et al. The use of sildenafil in persistent pulmonary hypertension of the newborn. *Am J Perinatol*. 2010;27(3):225-230.
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Practice Questions for Certification

In keeping with ANN's mission to advance the knowledge and education of neonatal nurses, we would like to challenge and prepare you for your certification exam with *Practice Questions for Certification*. If you have study topics or questions you would like to contribute, please contact Ute Berman at uberman@academyofneonatalnursing.org.

Case Study

Baby Michael was born by cesarean section at 27 weeks of gestation to a 32-year-old woman with preeclampsia. Michael weighed 630 g, was intubated, given surfactant, and extubated to NCPAP of +6 cmH₂O. He is now eight hours old with stable vital signs and is on FiO₂ of .25. A capillary blood gas analysis is done with the following results:

pH 7.27
pCO₂ 51
HCO₃ 24

1. The best interpretation of this blood gas analysis is:
 - a. metabolic acidosis
 - b. respiratory acidosis
 - c. respiratory alkalosis
 2. Based on Baby Michael's condition and the results of this blood gas analysis, the nurse would anticipate which of the following orders? An order to:
 - a. intubate the baby
 - b. decrease the CPAP to +5
 - c. initiate minimal enteral feedings
- Baby Michael is given a loading dose of caffeine to prevent apnea of prematurity.
3. Nursing care of an infant receiving caffeine is based on the knowledge that the infant is at increased risk of:
 - a. cardiac arrhythmias
 - b. hypoglycemia
 - c. hypertension

The answers to these questions are on page 118. (DF)

Website Review

If you find it difficult to keep up with all the latest research, here is a great way to have it delivered to your inbox free. *eNeonatal Review* provides a monthly newsletter and podcast of current literature from various journals. Recent topics include Optimizing Nutrition, NICU Emergency Preparedness, and Biomarkers for Sepsis. Continuing education hours are available if you complete a short posttest and evaluation. The website is jointly presented by Johns Hopkins University School of Medicine and the Institute for Johns Hopkins Nursing, so you can be assured the information is current and accurate. Be sure to check it out at <http://www.hopkinscme.edu/ofp/eneonatalreview/>. (ST)

Book Review

The Infusion Nurses Society (INS) has published the first edition of its 172-page *Policies and Procedures for Infusion Nursing of the Pediatric Patient*, copyrighted in 2014. The spiral-bound book has a retail price of \$72.00 at the on-line store http://www.insl.org/i4a/ams/amsstore/category.cfm?category_id=7. Sections include patient care, documentation, infection prevention and safety compliance, infusion equipment, vascular access device site selection and placement, site care and maintenance, infusion-related complications, infusion-related procedures, and nonvascular access. The focus of the text is almost exclusively the central line. Neonatal procedures such as umbilical lines and exchange transfusions are omitted.

This resource includes up-to-date advisories, such as the FDA's most recent recommendation on the use of chlorhexidine with premature newborns, but neglected to include a section on blood products transfusion. Color photos (from Becton, Dickinson and Company) of infant anatomy are located at the end of the text; no other illustrations have been included. Bibliographies at the end of each policy/procedure are fairly up to date, but no key word index is provided to ease location of specific discussion.

In summary, this very-much-needed educational resource in neonatal and pediatric care is not as valuable at this price for the NICU population and acute care providers as it could be. Hopefully, in future editions, the omissions of both a key word index and graphic illustrations, along with neonatal-specific equipment, policies, and procedures will be addressed. (AL)

Scholarships and Awards for ANN Members

Each year, the Academy of Neonatal Nursing offers its members the opportunity to apply for three different educational scholarships and the Excellence in Neonatal Nursing Practice Award. Focus and eligibility

for each of these scholarships varies. We encourage you to send in an application for a chance to become the next recipient of one of these prestigious neonatal nursing awards.

Visit the Academy website at academyonline.org and under the membership tab click on Scholarships and Rewards.

- The nonprofit organization Foundation for Neonatal Research and Education (FNRE) supports nursing research and provides scholarships to neonatal nurses. ANN supports this mission by donating \$1 from each new membership to the foundation. FNRE awards scholarships of \$500 to \$1,500 to ANN members pursuing nursing degrees to advance their neonatal nursing practice. Deadline for application submission is May 1.
- The Academy of Neonatal Nursing Conference Scholarship recognizes professionally active Academy members by offering scholarships to attend the National Neonatal Nurses Meeting. Deadline for application submission is June 1.
- The Academy of Neonatal Nursing Ingrid Josefin Ridky Academic Scholarship provides monies to ANN members pursuing academic advancement in neonatal nursing. Deadline for application submission is June 1.

ANN Education

Webinar: Neurocritical Care for Neonates and the Nurse's Role

March 19, 2014, 11 AM Pacific Time

Presenter: Susan Peloquin, RN, BSN, MS, PNP

11th National Advanced Practice Neonatal Nurses Conference

April 23–26, 2014

Sheraton Waikiki • Honolulu, Hawaii

14th National Neonatal Nurses Conference

September 4–6, 2014 (September 3 Preconference Day)

Hyatt Regency • New Orleans, LA

17th National Mother Baby Nurses Conference

September 4–6, 2014 (September 3 Preconference Day)

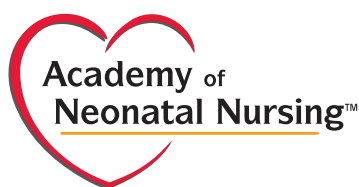
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Answers to Practice Questions for Certification

1. Answer is B.

2. Answer is C.

3. Answer is A.



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