Quality Improvement: Management Guideline for Assisted Ventilation in the Nursery Intensive Care Unit

Diane McNerney DNP, ARNP, NNP-BC

Executive Summary

As part of a quality improvement initiative for the Pediatric Medical Group at St. Joseph’s Women’s Hospital, Tampa, Florida, neonatal intensive care unit (NICU) and a project initiative of the Doctorate of Nursing Practice program at the University of South Florida, an evidence-based guideline for assisted ventilation was developed. Mechanical ventilation and oxygen toxicity are related to bronchopulmonary dysplasia (BPD), a severe form of chronic lung disease seen in newborns with pulmonary dysfunction.

A neonatal multi-disciplinary task force composed of a neonatal nurse practitioner, a neonatologist and a NICU respiratory therapist designed an assisted ventilation management guideline (AVMG). After reviewing the literature on pathways of best practices and current approaches regarding assisted ventilation management, an acceptable guideline was developed.

In the neonate, oxygen toxicity and mechanical ventilation are reported as contributing factors that lead to newborn lung disease and BPD (Abman, Mourani, & Sontag, 2008). Between 10,000 and 15,000 cases of BPD occur each year, straining the healthcare dollar with escalating hospital expenses. The literature supports managed ventilation as a method of reducing the occurrence of lung disease and BPD.

Bronchopulmonary dysplasia can be classified as mild, moderate and severe, by gestational age and oxygen requirements at 36 weeks corrected age. How oxygen demands and assisted ventilation of newborns are managed determines the extent of their lung disease and associated co-morbidities.

The target population for the AVMG was the respiratory therapy team in the NICU who make most assisted ventilation changes by order of the neonatologist. Many of the respiratory staff completing the AVMG educational program have several years of clinical experience. The education material did provide increase knowledge of the effect of mechanical ventilation on newborn pulmonology. Most therapists felt the education program was beneficial.

The evidence-based guideline developed by the task force received approval by the hospital Institutional Review Board. The AVMG is intended to reduce the prevalence of BPD and related co-morbidities and support continuity of care among the neonatal healthcare providers.

References


Letter from the President

There is so much to say about the 20th National FANNP Symposium this past year. Thank you to all the membership, because without you there would be no FANNP. Thank you to the Conference Committee for planning and presenting a wonderful conference yet again this year! If you attended, we hope that it was a great conference for you and if you have not, you need to make plans for this coming years conference. It will be at the Sheraton Sand Key again on October 12-16, 2010. This was the first year we began going “green,” thanks to our conference chair, Mary Kraus.

What a wonderful 20 years it has been for the FANNP! We have grown to almost 400 members due to the insight of our founding members. We are politically active in supporting the NNP and their scope of practice. And on that note, I hope you have all heard or read the report from the CEO of the AMA, Dr. Maves, on our scope of practice that was published in a 142-page module. We, the FANNP BOD, have drafted a letter to support the other Nursing and Advanced Practice Associations rebutting this biased report. To see the letter that previously was distributed by the AMA, go the links on the American Academy of Nurse Practitioners Website at www.aanp.org.

I look forward to being your President for the coming two years. If you would like to reach me, please go to our website, www.fannp.org and go to the contact page. You will find a link directly to me.

Ruth Bartelson

Did you know...FANNP is now offering great membership discounts beginning September 1, 2010! Check out the cost saving options:

Active and Associate Member Dues:  Retired Member Dues:

<table>
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<tr>
<th>Duration</th>
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<tbody>
<tr>
<td>1 year</td>
<td>$50</td>
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<tr>
<td>3 years</td>
<td>$135</td>
<td>3 years</td>
<td>$60</td>
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There is no change for members registering at the student rate. Students must renew every year.

Gail Harris Receives 2009 Kim Nolan Spirit Award

Gail Harris (nee Nimpius) was the founding member of FANNP in 1989. Gail was integral in securing funding and pulling together a group of NNPs from across the state in Orlando for the formative meeting. Gail was the association’s first president and held many roles in FANNP until she relocated to Charlotte, North Carolina.

During her career in Florida, Gail was a NNP at Bethesda Hospital in Boynton Beach. Gail is currently the NNP Coordinator at Levine Children’s Hospital in Charlotte.

To nominate someone for the Kim Nolan Spirit Award for 2010, go to the website FANNP.org and download an application, or write to Paula Timoney, c/o FANNP, PO Box 14572, St. Petersburg, Florida 33733-4572.

Congratulations Gail!
Implementation of an Evidence-Based Neonatal Code Blue Class to Enhance Knowledge and Skill Retention of Neonatal Nurses

Genieveve J. Cline, DNP, ARNP, NNP-BC, RNC

Executive Summary

An evidence-based NICU Code Blue class was developed as part of a quality improvement initiative implemented at All Children’s Hospital (ACH), Neonatal Intensive Care Unit (NICU) in St. Petersburg, Florida, and a project initiative of the Doctorate of Nursing Practice program at the University of South Florida. A pre-test, post-test descriptive study was done to pilot test a newly developed NICU Code Blue Class. The class included eight stations, followed by a simulated code blue experience to determine if the course could enhance the NICU nurses’ knowledge and skill retention. The participants in the study were all Neonatal Resuscitation Program (NRP) certified NICU nurses from ACH ranging in age from 23 years to 60 years of age.

Measures of central tendency were used to compare the pre-test, post-test and skill performance scores between the groups. The pre-test raw scores ranged from 43 – 66 points out of 100 possible points, with a mean score of 57. The post-test raw scores ranged from 66 – 84 points out of 100 possible points, with a mean score of 77. All participants demonstrated improvement in their post-test scores when compared to their pre-test scores by a range of 13 – 30 points. The skill performance scores of participants ranged from 97 – 100 out of a possible 100 total points. The pre-test scores suggest that despite being NRP certified every two years, NICU nurses’ knowledge and skill declined rapidly over time. The results of the project also raise the question that NRP certification, which is primarily focused on delivery room resuscitation, may not adequately prepare the NICU nurse for many of the practical realities and situations that commonly occur during a code in the NICU (knowledge of the crash cart, defibrillation/cardioversion, special considerations for the infant with a tracheostomy, assisting with needle aspiration of chest, chest tube insertion, and set-up of chest drainage system). The results further suggest that a NICU Code Blue class can be developed that includes all the critical elements of an NICU code, beginning with eight 30-minute skill stations that are designed to prepare participants’ for a final mock code blue simulation. Participants demonstrated the NICU Code Blue class was beneficial, providing the essential content, scaffolding, and hands on experience which enhanced their neonatal resuscitation knowledge and skill performance.

The small sample size, which consisted of a convenience sample of seven nurses and the attrition rate of 42%, was identified as a limitation of the study. The pre-test, post-test and skill performance checklists which were the measurement tools used for data collection may also be considered as limitations of the study as these tests were not established to be reliable or valid prior to being used in the study. Finally, the participants were not video-taped during their code blue simulation; their scores were assigned by the principal investigator using the skill performance checklist via direct observation only, which may have resulted in score inflation. Based on the pre-test scores observed in the study population, the author recommends the NICU Code Blue Class become a mandatory class for all ACH NICU Nursing staff supplemented with participation in random unit based codes and quality improvement audits to determine participants competence in actual NICU codes. Further research is needed to determine if this course would be assessed to be relevant and beneficial when tested with a larger population of neonatal nurses with varied ethnic backgrounds, gender, and across NICU’s from different institutions and ranges of NICU’s from level I to level III NICU’s. Finally, nursing education based research needs to be done to determine the impact of the program on neonatal nurse’s resuscitation knowledge and skill retention, code performance competency, and most importantly patient outcomes.

Keywords: Evidence-based teaching strategies; Cardiopulmonary resuscitation; Neonatal nursing; Active learning; Simulation

References


See “Implementation of an Evidence-Based Neonatal Code Blue Class” on page 4
IMPLEMENTATION OF AN EVIDENCE-BASED NEONATAL CODE BLUE CLASS

continued from page 3


2010 Classified Advertising in the FANNP Newsletter

Acceptance of Advertising
• Classified ads only
• Link on website for direct submission
• All advertisements are subject to review and approval by the Editor

Ad Options
May run ad in one newsletter or all year – 4 total newsletters, December, March, June, and September issues

Cost
• $50.00/ad each newsletter or $150.00 for all 4 newsletters. No cash discounts.
• Payment must be received in full prior to the scheduled close date for the quarterly issue.
• Payments can be made though pay pal on the FANNP website

Format
• The classified ad section of the newsletter will be limited to 1 page only with approximately 30 ads per page
• Ads will be processed on a first come first serve basis

Closing Dates for Space and Advertising Materials
• June, 2010-ads must be received by May 14, 2010, and paid in full
• September, 2010-ads must be received by August 13, 2010, and paid in full
• December, 2010-ads must be received by November 12, 2010, and paid in full

— FANNP BOD
Grant Writing: Part I

Terri Marin, MSN, NNP-BC

If you have been challenged with writing a grant to fund your proposed research project, there are many steps to achieving this lofty goal. Writing a grant takes enormous preparation that can take significant time to accomplish. Many organizations offer grants, as well as federal funding provided by the National Institutes of Health (NIH). This article will explain the initial process and provide insight into the tedious process of writing a grant for NIH submission.

If you plan to submit a grant to the NIH, you must first peruse their website to locate a specific funding opportunity (RFA) or program announcement (PA). These can be found on their website: http://grants.nih.gov/grants/guide. There are numerous funding opportunities posted for nursing research, and this site is frequently updated. You will need to carefully scrutinize these opportunities to locate an RFA or PA that suits your research purpose. If you are a doctoral student or post-doctoral status, you may want to locate the National Research Service Awards (NRSA) or F31 for possible funding opportunities, as these are available specifically for nursing research. It is required that doctoral students have a committed mentor (sponsor) who is an active and established investigator in your area of research. Once you have found an opportunity that is congruent with your focus, thoroughly read the guidelines for that specific grant. Each grant will provide details regarding submission dates and deadlines, eligibility, and participating organizations within the NIH that provide funding for the specific program announcement.

After locating a specific funding opportunity, it is essential that you contact the program officer for the individual participating organization(s) listed on the announcement. For example, if the F31 you are applying for is supported by the National Institutes of Nursing Research (NINR), you will need to visit this website and email the Program Officer that manages funding opportunity inquiries. Communication with the Program Officer is essential, but may be an intimidating process for those new to grant submission. However, the NIH Program Officers are very receptive to grant inquiries and are extremely responsive and approachable. They will provide you with guidance regarding your research proposal’s appropriateness with their organization’s stated mission. This information is vital in offering direction for your submission process. You will also receive valuable insight regarding details that need to be included in your proposal regarding the specific mission of the particular organization.

At this point, it is highly suggested that you secure a username and password for eRA commons. This is the format for online grant submission for NIH grants. To do this, you need to go to https://commons.era.nih.gov/commons. If you are a doctoral student, your sponsoring institution will assist you with this process. You must have this information to proceed in the submission process. Following this task, you must then download your chosen grant instruction booklet. This is an enormous document that details all specific information to be included in your grant. The trick is to compare the program announcement guidelines with the grant instructions to ensure you have followed every detail and included all required information that both require. This is a tedious process, so allow yourself ample time to read every word on all documents several times before writing your final draft. It may be helpful to develop a checklist of every item required with its corresponding location within the final grant document.

There are numerous portions to the grant, and most have page limitations. Pay attention to the guidelines within the grant instruction booklet because your online submission will be rejected if these page limitations are not followed. For example, the “Research Plan” consists of specific aims, background and significance, preliminary studies and methodology. The abstract is not included in this portion and does not contribute to the page limitation of the research plan. All documents must be saved and submitted in PDF format. There are also specific directions for font, font size, margins and spacing. Refer to the instruction booklet often when preparing each required document. The NIH has very specific requirements for all sections, documents and tables that must be correctly adhered to for grant approval.

Once your grant is completely written and you have prepared all required documents, you are ready to upload.
to the online application, which can be found within the program announcement. It is also acceptable to upload documents as you write, just make sure you delete and re-upload if changes are made. In addition, it is highly suggested that you contact your references, known as “referees” well in advance of the submission deadline. Specific guidelines for this process are outlined in the instruction booklet, and the referees are required to submit a reference letter online following a defined format. This is a relatively new process, so some of your references may be unfamiliar with the process. It is recommended that you review the reference letter prior to contacting referees so that you can give them personal instruction on completing these forms. These forms must also be saved and submitted in PDF format.

Submitting a federal grant is a tedious and time-consuming process. Allow yourself ample time to methodically review all instructions and proceed through the process smoothly to avoid omission or mistakes. Before pursuing the grant writing process, it is obvious that a proper research proposal has been decided upon that is supported by an adequate and exhaustive literature review. The research plan is composed of a problem, specific aims, research questions/hypotheses, background and significance, methodology and preliminary studies. Development of a research plan involves enormous preparation, literature review and analysis, conceptual framework generation/incorporation and thoughtful organization into a well-designed and scholarly written proposal.

Part II of this article (to be included in the next newsletter) will discuss the specifics of writing the research plan and proposal, as well as how to decide upon a specific research project. Writing grants can be an overwhelming task, but with proper foresight and guidance, many of the obstacles can be anticipated and successfully conquered. Realization that very few NIH grants are successfully awarded following primary submission is imperative and should be expected. Revisions are often necessary, even from the most experienced researchers. Guidance for revisions is properly provided from the NIH organization, and should be followed with every revision and resubmission. The purpose of this article is to provide initial guidance into the world of federal grant submission, and insight for the initiating phase. If you would like further information regarding Research Plan development prior to the next newsletter circulation, please contact the author at tmarin@emory.edu.

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**Are You Eligible for a FANNP Scholarship?**

FANNP members who attend an educational program leading to a degree related to the health care field between September 15, 2009 and September 15, 2010 are eligible for a 2010 scholarship. Contact scholarships@fannp.org with any questions or to receive a 2010 scholarship application.

**FANNP Scholarship Eligibility Criteria:**

- Scholarship applicants must be FANNP members.
- All members, student members and associate members are eligible.
- Priority for scholarship award will be given to members, followed by student members and then associate members.
- Priority for scholarship award will be based on length of membership and service to FANNP.
- Scholarship applicants must be a licensed RN, ARNP, NNP or equivalent.
- Preference will be given to currently licensed certificate NNPs working towards a NNP degree.
- Scholarship applicants must attend an educational program leading to a degree related to the health care field during the application period.
- The application period for the 2010 scholarship is September 15, 2009 to September 15, 2010. (i.e. To be eligible for a 2010 scholarship you must have attended classes sometime between September 15, 2009 and September 15, 2010.)
- An applicant may receive a maximum of two scholarship awards for each degree sought.
- Preference will be given to those working towards a degree in neonatal health care.

If awarded a scholarship, recipients agree to write a short article for the FANNP newsletter within the next year. The completed scholarship application must be postmarked by September 15, 2010.

To obtain an application or for questions, please contact FANNP via email at: scholarships@fannp.org OR leave a message at 1-800-74 FANNP OR by US mail at: Karen Theobald, FANNP, PO Box 14752, St. Petersburg, FL 33733.
Continuing Competency Initiative Is Coming

Look to your mailbox after the first of the year for information on the new continuing competency initiative that will become part of NCC’s certification maintenance program.

Focused on providing tools to the certified nurse and nurse practitioner to assess continuing education needs through a specialty assessment evaluation, the new program will be implemented in two stages.

Stage 1 will require everyone to take a 125 question specialty assessment evaluation at the NCC website beginning in June 2010 through December 31, 2013, that will provide content feedback information to you on your certification specialty knowledge competencies. There is no pass/fail. This is for feedback purposes only and to familiarize you with the assessment process which will be integral to the maintenance process in 2014.

In Stage 2, beginning 2014, the results of the specialty assessment evaluation will drive what CE is needed for certification maintenance which in most cases will decrease your CE requirements.

The program will be applicable only to NCC certified nurses and nurse practitioners. For those holding credentials no longer offered by NCC or holding of a certificate of added qualification will not be affected by the new requirements. Go to www.nccwebsite.org to download a copy of the brochure.

Meeting Minutes Available

Members may obtain a copy of any approved Board of Director meeting minutes by simply e-mailing FANNP.org and requesting a copy of the BOD minutes.

Bring it On  Answers (questions on page 12):

1. Answer is B; Evacuation of contrast medium from the bowel is a concern after GI studies. It is possible for fluid to be pulled out of the vascular compartment and into the bowel. The side effects that are possible then are fluid loss and hypotension. It is imperative to assess the infant for these potential complications.

2. Answer is A; The goal of volume expansion in treating the neonate in shock is to achieve adequate tissue perfusion.

3. Answer is B; Holoprosencephaly is a primary defect in the forebrain development. Because of this developmental problem, there is a lack of separation of the frontal hemispheres. This defect is classified as a malformation, meaning the involved structures were abnormal from the beginning of their development.

Educational Offerings 2010

7th National Advanced Practice Neonatal Nurses Conference
March 18–20, 2010
San Francisco, California
www.academyonline.org

13th Annual Neonatal Advanced Practice Nursing Forum 2010
June 2–4, 2010
[NNP Faculty] 8th APN Forum (pre-conference)
June 2, 2010
Omni Shoreham Hotel
Washington, DC
www.dhmc.org/goto/APNForum2010

26th Annual NANN Conference
September 19–22, 2010
Las Vegas, Nevada
www.nann.org

The 21st FANNP Neonatal Nurse Practitioners Symposium: Clinical Update and Review
October 12–16, 2010
Clearwater, Florida
www.fannp.org

2010 Annual Vermont Oxford Meeting & 11th Quality Conference
December 4–5, 2010
Omni Shoreham Hotel,
Washington, DC
www.vtoxford.org

Hot Topics in Neonatology
December 5–7, 2010
Omni Shoreham Hotel,
Washington, DC
www.hottopics.org
Handbook on Identifying Newborn Infection  
*Editor: Diane McNerney, DNP, NNP-BC, ARNP*

The handbook on identifying newborn infection was designed to give the NNP and nursing staff a quick and easy reference to understand how bacterial, viral, fungal and protozoal infections are identified and treated. The “Handbook on Identifying Newborn Infection” is presented in the FANNP newsletter as a four part series consisting of:

*Part 1*
1. Handbook on Identifying Newborn Infection - Quick Reference
2. Types of Microorganisms
3. Types of Gram Stains
4. Bacterial Gram Stains by Shape

*Part 2*
1. Common Newborn Infections
2. Bacteria Infections - Gram Stain, Aerobic/Anaerobic, Signs & Symptoms
3. Viral Infections - PCR, Testing, Signs & Symptoms
4. Fungal Infections - Testing, Risk factors, Signs & Symptoms
5. Protozoal Infections - Testing, Risk factors, Signs & Symptoms

*Part 3*
Antibiotic, Antiviral, Antifungal and Anti-Paracitic Pharmacological Treatment:
A. Antiviral
B. Antiviral
C. Antifungal
D. Anti-paracitic

*Part 4*
1. Definition of Leukocytes on CBC
2. Common calculations

**Leukocytes on a Complete Blood Count**

<table>
<thead>
<tr>
<th>Neutrophils – Phagocyte</th>
<th>Neutropenia – Infection, bone marrow suppression</th>
<th>Most populated WBC. They are produced as a response to acute body stress, whether from infection, infarction, trauma, or distress. First at the site of inflammation, they are phagocytic at the site of injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bands</td>
<td></td>
<td>The band count has been used as an indicator of acute stress, known as “left shift”. Last immature stage of neutrophil.</td>
</tr>
<tr>
<td>Lymphocytes – 3 Kinds</td>
<td></td>
<td>An increase in lymphocytes is usually a sign of a viral infection and in some cases leukemia.</td>
</tr>
<tr>
<td>T – cells</td>
<td></td>
<td></td>
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<tr>
<td>B – cells</td>
<td></td>
<td></td>
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<tr>
<td>Natural Killer cells</td>
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<tr>
<td>Leukocytosis – Viral, parasitic infections.</td>
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<tr>
<td>Lymphopenia – Infection</td>
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Monocytes
Monocytosis – TB, protozoa, autoimmune disease, chronic inflammation.

Two functions – replenish resident macrophages and dendritic cells and in response to inflammation monocytes can move quickly to sites of and divide/differentiate into macrophages and dendritic cells to elicit an immune response. Half of them are stored in the spleen.

Eosinophils – Phagocyte
Eosinophilia – Allergies, parasitic infections.

Following a classic acute phase reaction, as the granulocyte count in the peripheral blood drops, the eosinophil count temporarily rises. Involved in allergic and paracitic infections

Basophil – mast cell
Contains histamine, involved in allergies. Major role in hypersensitivitvand anaphylaxis.

Metamyelocytes
A metamyelocyte is a cell undergoing granulocyte formation, derived from a myelocyte and leading to a band cell.

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<th>Table 2</th>
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### Common Calculations

<table>
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<tr>
<th>ANC</th>
<th>Absolute Neutrophil Count</th>
<th>Calculation</th>
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<tr>
<td>ANC= % neutrophils + % bands x WBC</td>
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| Correct CSF WBC counts falsely increased due to a traumatic LP | WBC(blood) x RBC(CSF) / RBC(blood) |

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<tr>
<th>CRP</th>
<th>C Reactive Protein – CRP is used mainly as a marker of inflammation</th>
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| Less than 1.0 mg/dL |
| Average risk 1.0 >3.0 mg/dl |
| High Risk >3.0 mg/dl |

| I:T Ratio | Immature Neutrophils: Total Neutrophils |
| # Bands + # Metamyelocytes |
| # Neutrophils + # Bands + # Metamyelocytes |

Definitions:
An ANC less than 500 cells/µL is defined as neutropenia and significantly increase the risk of infection.
C-reactive protein (CRP) is a protein found in the blood, the levels of which rise in response to inflammation.
The 2010 legislative session is currently underway and both the Senate and House are developing goals for this year’s session. One bill already under consideration is Senate Bill 188/HB677. This is the prescriptive privilege bill that would allow ARNPs to prescribe controlled substances, schedules II through V. Unfortunately, this bill has failed to pass over the last several years. There are currently insufficient physicians and ARNPs to meet the needs of patients in our state. This bill would allow ARNPs to provide prescriptions for patients in need of medications for pain control or behavior modification, thereby improving care to many of the state’s most vulnerable populations. Should this bill finally pass, Florida will become one of 49 states that allow ARNPs to prescribe controlled substances.

On a national level, the battle over health care reform continues. Both the House and Senate have passed health care reform bills and leaders from both organizations along with the President, have been working to reconcile the two bills. The recent election of Republican Scott Brown to fill the late Senator Ted Kennedy’s (a staunch supporter of health care reform), Senate seat has placed the future of health care reform in serious jeopardy. Negotiations continue in an attempt to develop a viable health reform option.

See “Legislative” on page 11
Recently, the American Medical Association released a document entitled the Nurse Practitioner, a module contained in the AMA Scope of Practice Data Series that has raised concern among the nursing community. Numerous nursing organizations including the National Association of Neonatal Nurses, the Florida Association of Neonatal Nurse Practitioners, and the National Association of Neonatal Nurse Practitioners have formally expressed their dissatisfaction with this document. These organizations feel the document contains factual misrepresentations and misleading conclusions. They also disapprove of the AMAs attempt to control the scope of practice, education and credentialing of nurse practitioners. The entire AMA document can be accessed at http://www.acnpweb.org/files/public/08-0424_SOP_Nurse_Revised_10_09.pdf.

In order for nurses and nurse practitioners to continue to control the education, credentialing and scope of practice of their profession, each individual must be aware and take action to ensure their voice is heard on a local, state and national level. To make a difference, nurses need to become involved in formal nursing organizations. Pick today as the day you will make a difference in your professional community by becoming a member of a national nursing organization.

Penelope’s Pose

Is your organization ready for excellence? Swartwout (2009) reports the publication of The American Nurses Credentialing Center’s (ANCC) Pathway to Excellence Standards. The standards consist of 12 traits identifying excellent nursing practice environments that are grounded in evidence-based research and expert opinion; they are:
1. Nurses control the practice of nursing
2. The work environment is safe and healthy
3. Systems are in place to address patient care and practice concerns
4. Orientation prepares new nurses
5. The chief nursing officer is qualified and participates in all levels
6. Professional development is provided and utilized
7. Competitive wages and salaries are in place
8. Nurses are recognized for achievements
9. A balanced lifestyle is encouraged
10. Collaborative interdisciplinary relationships are valued and supported
11. Nurse Managers are competent and accountable
12. A quality program and evidence-based practices are utilized

More information is available at www.nursecredentialing.org. How does your work environment rate?

Haiti Earthquake

I am so proud of the outpouring of response to the urgent nursing care needs of the victims of the devastating earthquake in Haiti by so many dedicated nurses. Nurses, historically, have responded to the call of the needy and unfortunate; this contemporary example of triage nursing in the trenches of despair would surely make Florence Nightingale proud!

Good Reads


NeoNotes Journal Club is going green. The newsletter will no longer be printed off and mailed. You can register to receive this publication electronically at http://fsneo.org/JourClub/nnreg.htm. Sign up now for this free journal!

Until next time,

Penelope
Bring It ON….

Questions (please see answers on page 7):

1. Possible side effects of an upper gastrointestinal study with small bowel follow-through for the neonate are:
   a. Fluid overload with hypertension.
   b. Fluid loss and hypotension.
   c. Fluid loss and hypertension.

2. The objective of therapy when treating hypovolemic shock is:
   a. Prompt restoration of adequate tissue perfusion.
   b. Rapid expansion of the vascular bed.
   c. Rapid rise in blood pressure.

3. Holoprosencephaly is characterized by which of the following physical findings:
   a. Severe microcephaly, overlapping sutures.
   b. Cleft lip, hypoplastic nose and ocular hypotelorism.
   c. Midfacial hypoplasia, short limbs and small thorax.