Journal of Emergency Nursing

Volume 31, Issue 5, Pages 419-514 (October 2005)

1. Table of contents • Pages A3-A8

2. Editorial Board • Pages A11-A12

3. Author guidelines • Pages A15-A16

4. Info for readers • Page A20

President’s Message

5. Access to Care: A Human Right • Pages 419-420
   Patricia Kunz Howard

Editorial

6. On Solidarity, Among Penguins, Among Nurses • Page 421
   Gail Pisarcik Lenehan

Letters

7. International Medical Mission Work Rewarding • Pages 422-423
   Jennifer C. Anderson

8. Free Monthly Patient Safety Newsletter Available • Page 423
   Peter B. Angood

Research Abstracts

9. Documentation of Patient Pain in the Emergency Department and the Impact of a Nursing Documentation In-service • Pages 424-425
   Christina A. Bernhardt, Chad E. Roline, Carol S. CeDeBaca and Jason S. Haukoos
<table>
<thead>
<tr>
<th></th>
<th>Title</th>
<th>Pages</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Assessing the Needs of Family Members Who Accompany the Adult Patient to the Emergency Department •</td>
<td>425</td>
<td>Janice S. DuBrueler</td>
</tr>
<tr>
<td>11</td>
<td>Utilization of Nurse Practitioners for Procedural Sedation in a Pediatric Emergency Department •</td>
<td>425-426</td>
<td>Charene M. Wood, Colleen Hurley, Julie Wettlaufer, Michelle Penque, Kathy Lillis and Steve Shaha</td>
</tr>
<tr>
<td>12</td>
<td>Choosing to Care: Male and Female Nurse Experiences of Comforting Patients in the Emergency Department •</td>
<td>426</td>
<td>Lisa B. Herterich</td>
</tr>
<tr>
<td>13</td>
<td>Triage Tool Inter-rater Reliability Using Live Cases Versus Paper Case Scenarios •</td>
<td>426</td>
<td>Andrew Worster, Arlene A. Sardo, Christopher M.B. Fernandes, Kevin Eva and Suneel Upadhye</td>
</tr>
<tr>
<td>14</td>
<td>Horse-related Injuries and Deaths in Western Montana •</td>
<td>426-427</td>
<td>Shelley Smith Otoupalik, John Bleicher, Brittney Matheson, Bobbi Perkins, J. Brad Pickhardt and Hannah Parsons</td>
</tr>
<tr>
<td>15</td>
<td>Emergency Severity Index Intra- and Inter-rater Reliability in an Infant Sample: A Pilot Quality Study •</td>
<td>427</td>
<td>Jennifer Hinrichs, Emily Dever and Anne Wojner-Alexandrov</td>
</tr>
<tr>
<td>16</td>
<td>Violence Against Workers in the Emergency Department •</td>
<td>427-428</td>
<td>Lisa McQueen, Donna M. Gates and Clara S. Ross</td>
</tr>
<tr>
<td>17</td>
<td>Implementing the Emergency Severity Index Triage System in the Homeland of Hippocrates •</td>
<td>428</td>
<td>Maria Kyranou, Athansia Chouta, Georgios Georgiadis, Dimitris Oulousidis and Anastasia Tsiviki</td>
</tr>
</tbody>
</table>
## Research

| 18. | Patients' Perspective on Choosing the Emergency Department for Nonurgent Medical Care: A Qualitative Study Exploring One Reason for Overcrowding •  
|     | Pages 429-435  
|     | Matthew S. Howard, Barbara A. Davis, Crystal Anderson, Diane Cherry, Patricia Koller and Derek Shelton |

| 19. | Effectiveness of a 6-week Online Course in the Canadian Triage and Acuity Scale for Emergency Nurses •  
|     | Pages 436-441  
|     | L. Atack, J.A. Rankin and K.L. Then |

| 20. | A Review of Horse-Related Injuries in a Rural Colorado Hospital: Implications for Outreach Education •  
|     | Pages 442-446  
|     | Alexis M. Newton and Ann Marie Nielsen |

## Clinical

| 21. | Trauma Today and Tomorrow: Recent Clinical Literature •  
|     | Pages 447-455  
|     | Dianne M. Danis |

## Case Reviews

| 22. | A 37-year-old Woman Without a Helmet Sustains a Traumatic Brain Injury After a Fall From Her Horse •  
|     | Pages 456-457  
|     | Tammy Dohman |

| 23. | A 44-Year-Old Woman With Multiple Blunt Trauma Related to Horseback Riding •  
|     | Pages 458-459  
|     | Sally Bragg |

## CEN Review Questions

| 24. | Knowledge Assessment and Preparation for the Certified Emergency Nurses Examination •  
|     | Pages 460-461  
<p>|     | Kathleen Carlson |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correction</td>
<td>464</td>
<td></td>
</tr>
<tr>
<td>Danger Zone</td>
<td>Topical Anesthetic Sprays Directly Associated With a Serious, Sometimes Fatal Adverse Drug Reaction: Methemoglobinemia</td>
<td>468-469</td>
<td>Susan Paparella</td>
</tr>
<tr>
<td>Emergency Nursing: Beyond the Walls</td>
<td>Camp Nursing in the Ozark Mountains: One Emergency Nurse's Experience</td>
<td>470-472</td>
<td>Mary Tuel</td>
</tr>
<tr>
<td>Images</td>
<td>The Boxers' Fracture</td>
<td>473</td>
<td>Sally Bragg</td>
</tr>
<tr>
<td>Impressions</td>
<td>Thank You, O'Neta</td>
<td>474-475</td>
<td>Pat Clutter</td>
</tr>
</tbody>
</table>
### Managers Forum

<table>
<thead>
<tr>
<th>32.</th>
<th>Cutting-edge Discussions of Management, Policy, and Program Issues in Emergency Care •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 476-484</td>
</tr>
<tr>
<td></td>
<td>Polly Gerber Zimmermann</td>
</tr>
</tbody>
</table>

### Media Review

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 485-486</td>
</tr>
<tr>
<td></td>
<td>Christine May</td>
</tr>
</tbody>
</table>

### Nurse Educator

<table>
<thead>
<tr>
<th>34.</th>
<th>Our JCAHO Journey: One Emergency Department's Approach to the New Tracer Methodology •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 487-489</td>
</tr>
<tr>
<td></td>
<td>Julie M. Wojtkowski</td>
</tr>
</tbody>
</table>

### Pediatric Update

<table>
<thead>
<tr>
<th>35.</th>
<th>Lessons Learned: Basic Evidence-Based Advice for Preventing Medication Errors in Children •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 490-493</td>
</tr>
<tr>
<td></td>
<td>Donna Ojanen Thomas</td>
</tr>
</tbody>
</table>

### Pharm/Tox Corner

<table>
<thead>
<tr>
<th>36.</th>
<th>Common Nontoxic Pediatric Ingestions •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 494-496</td>
</tr>
<tr>
<td></td>
<td>Allison A. Muller</td>
</tr>
</tbody>
</table>

### Policy Perspectives

<table>
<thead>
<tr>
<th>37.</th>
<th>New Practical Book Helps Nurses to Help Patients Stop Smoking Using the Five A’s: Ask, Advise, Assess, Assist, Arrange •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 497-499</td>
</tr>
<tr>
<td></td>
<td>Ruth E. Malone</td>
</tr>
</tbody>
</table>

### Trauma Notebook

<table>
<thead>
<tr>
<th>38.</th>
<th>Frostbite: Case Report, Practical Summary of ED Treatment •</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pages 500-502</td>
</tr>
<tr>
<td></td>
<td>Ruth McGillion</td>
</tr>
</tbody>
</table>
### Triage Decisions

39. **Differentiating Stridor in Children at Triage: It's Not Always Croup**  •  
*Pages 503-505*  
Nereida Brioso Savoy

### CE Tests

40. **Earn up to 6.5 Contact Hours by Reading the Designated Articles and Taking These Post Tests**  •  
*Page 506*

41. **Earn up to 6.5 Contact Hours by Reading the Designated Articles and Taking These Post Tests**  •  
*Page 507*

42. **Earn up to 6.5 Contact Hours by Reading the Designated Articles and Taking These Post Tests**  •  
*Pages 507-508*

43. **Earn up to 6.5 Contact Hours by Reading the Designated Articles and Taking These Post Tests**  •  
*Pages 508-509*

44. **CE Enrollment Form**  •  
*Pages 510-511*

### Journal Update

45. **Meeting the Nursing Shortage: A Nursing Camp for Prospective Nursing Students**  •  
*Pages 512-514*  
Brenda Bowman and M. Easy Stilson

46. **ACEP/ENA Policy Statement on Delivery Agents for Procedural Sedation and Analgesia by Emergency Nurses**  •  
*Page 514*  
Donna Mason

47. **Coming Meetings**  •  
*Page A31*
This month's Journal cover is a watercolor painting by California artist (and retired RN), Anne F. Fallin, entitled Tumbling Turbans. Anne has exhibited throughout the country, and is a signature member of both the American Watercolor and National Watercolor Societies. Her work has appeared on a number of our covers in recent years. Like many of Anne's paintings, Tumbling Turbans lends vibrant beauty to an otherwise ordinary object in an everyday surrounding, not unlike Monet's interpretation of haystacks or lily pads. Bright, sometimes unexpected colors, splashes of light, and a vivid, tangled background transform these gourds into something of fascination.

Anne had a lifelong love of drawing and painting and had taken lessons all her life, but was too pragmatic to chance a career in art. Instead she attended the Massachusetts General Hospital School of Nursing and then spent her nursing career in med-surg and ICU nursing in Pennsylvania and California. By the early 1980s, she was a serious full-time painter and discovered a talent for watercolor.

Anne has earned hundreds of awards in...
competitive exhibits across the United States, affording her accreditation by the Watercolor Society and the National Watercolor Society. Her work has been featured in many art periodicals, such as the prestigious American Artist. Several of her paintings were included in the book, _The Artist’s Design—Discovering the Hidden Order._

Anne lives near San Francisco and shows her paintings in her California studio and at the North Village Gallery in Warren, Pa. For further information about her work or about paintings and prints, you can contact the artist at (925) 937-9864.

_Cover suggested by Gail Lenehan_
Managers Forum

Time Guarantees
Patient Verification Before Medication Administration
First and Last Names on ID Badges
Patient Self-report Form
Floating Medical-Surgical Nurses to the Emergency Department
Identifying (Badging) Family Members
Alternative Phrasing for “Within Normal Limits”
Improving Relations With Receiving Medical-Surgical Unit Nurses
Dress Code
Considering Factors of Nurses’ Fatigue When Making Schedules

Media Review

Refugee and Immigrant Health: A Handbook for Health Professionals
Christine May, MSN, CFNP

Nurse Educator

Our JCAHO Journey: One Emergency Department’s Approach to the New Tracer Methodology
Julie M. Wojtkowski, RN, BSN, CEN

Pediatric Update

Lessons Learned: Basic Evidence-Based Advice for Preventing Medication Errors in Children
Donna Ojanen Thomas, RN, MSN

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New Practical Book Helps Nurses to Help Patients Stop Smoking Using the Five A’s: Ask, Advise, Assess, Assist, Arrange
Ruth E. Malone, RN, PhD, FAAN

Trauma Notebook

Frostbite: Case Report, Practical Summary of ED Treatment
Ruth McGillion, RN, BSN, DNP

continued on page 8A
Triage Decisions

Differentiating Stridor in Children at Triage: It's Not Always Croup
Nereida Brioso Savoy, MS, ARNP

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Access to Care: A Human Right

Patricia Kunz Howard, PhD, RN, CEN, Lexington, Ky

As emergency nurses, we care for every patient who presents to our care settings. Most emergency nurses would assert that access to health care is a basic human right. That being said, the way that patients access care is not always consistent with how we would recommend that they seek health care. Furthermore, even though many persons are able to receive the care they need, this is not true for everyone. ENA recently participated in a Capitol Hill event sponsored by the American College of Emergency Physicians to heighten awareness about issues related to access to care. In the United States we have serious issues related to access to health care, not just emergency care. However, when we look at this issue from a global perspective, we find that access to health care is a universal problem and even more serious in some countries, such as Africa.

Stephen Lewis, the United Nations Special Envoy for HIV/AIDS in Africa, gave a passionate presentation about health and human rights at the International Council of Nurses (ICN)* Quadrennial Congress held this past May in Taipei. He provided an eloquent description of the devastating effect that HIV/AIDS has had on the medical resources in Africa. Lewis asserted that approximately 20% of the population in Africa will die from HIV/AIDS. While this fact is tragic enough, the impact of this disease on the nursing workforce in Africa is stunning. One in 10 nurses in Africa will lose their life as a result of HIV/AIDS, and often they will leave behind orphaned children. Today there are more than 16 million orphans in sub-Saharan Africa, and by 2010, it is estimated that 1 out of 5 children will be orphaned as a result of HIV/AIDS. The consequences related to access to care are obvious, but the plight of orphaned children also is of concern.

The ICN/Florence Nightingale International Foundation launched the “Girl Child Education Fund” at the May ICN Congress. This project is designed to ensure that female children of deceased nurses will be able to go to school. Although all orphans are disadvantaged, in Africa, female orphans are at an even greater disadvantage than male orphans. Female orphans do not have proper clothing, food, or access to school, not to mention health care. It is hard to imagine any child not being able to go to school, much less orphans whose parents were nurses.

In the United States, we struggle with hospital crowding and the nursing shortage, but we do not experience the imbalance between supply and demand seen in Africa. In his presentation, Mr Lewis cited alarming

*ICN is a federation of national nurses’ associations representing nurses from more than 120 countries. Operated by nurses, for nurses, ICN works to ensure quality nursing care for all persons, sound health policies globally, the advancement of nursing knowledge, and the presence worldwide of a respected nursing profession and a competent and satisfied nursing workforce. Representatives of ENA attend the ICN Congress to facilitate collaborative opportunities with emergency nurses from other countries. This year more than 50 nurses attended the emergency care session. Topics focused on disaster response, crowding, and the nursing shortage. For more information about ICN, visit the following Web site: http://www.icn.ch/
resource-related statistics. For example, Africa has more than 20% of the world’s health needs but consumes only 1.5% of the world’s health resources. The resources they lack are not just equipment, medications, and supplies but health care providers, particularly nurses. The global nursing shortage makes it all too easy for African nurses to leave the difficult and dangerous care environment in their home countries.

When we think about access to care, we need to think beyond our own facility, community, or even country; this is an issue that nurses face worldwide. The snapshots I have described of the presentation I was privileged to hear are not intended to make you sad but rather make us all realize that, despite the challenges we face, we have much to be thankful for.
“The March of the Penguins” is a charming little sleeper of a movie, somewhere between a documentary and a love story, that chronicles the annual rituals of Emperor penguins. They march—waddle really—across the Antarctic ice to an ancient mating grounds where their only goal is to create and then protect a single egg—the precarious fruit of enormous effort and danger. Morgan Freeman reassuringly narrates the story: These penguins come from all over the Antarctic in long, long lines, for the likes of 70 miles, to inexplicably arrive at the same place, on the same day, if not the same time, each year. They begin their trek as the coldest season approaches and the constant threat of imminently impending harsher conditions loom. In the months that follow the laying of their single eggs, the mothers march back, 70 miles or more, to find food, in waters filled with predators, while the father protects the egg. They carefully nestle it between the top of their feet and a fold of heavily feathered skin on their lower belly, to shelter it from the 80-degrees below-zero temperatures. As winter and darkness descend, they endure punishing storms that bear down with 100-mile-an-hour winds, huddled together, hundreds of them, in one huge mass. And as they hunker down, they move, almost imperceptibly, in a rhythm that allows each, in turn, to spend equal time in the “warmest” center of the huge huddled mass. When a single Emperor, weak or disoriented, becomes separated from the group, or when parents falter in the process of carefully passing the egg from one to the other, and it is exposed for more than a few seconds, certain death follows. The importance of staying together to survive is a recurrent theme of the movie.

The lesson? Perhaps that humans also need each other to survive. Emergency nurses, for example, endure harsh conditions of their own, working in what has become one of the most demanding specialties in nursing today. Their challenges can also be best dealt with together. Last month, emergency nurses came from around the country and beyond, to gather at ENA’s Annual Meeting in Nashville. The Leadership Challenge meeting (February 23-26 in Austin, TX), or one of the many regional ENA symposia are also great places to come together.

“The March of the Penguins” ends on a triumphant note, the young hatchlings thriving in the warmth of their cohesive community. Emergency Nurses Week, October 9-15, is a perfect excuse to bring staff together to celebrate the community of emergency nursing, for the fun (how about giving out “most likely to be on when there is a disaster” awards), and for the camaraderie that sustains us all.
Dear Editor:

I recently joined a team of health care professionals on a short medical mission to Guyana (Br.), South America. There, I had the privilege of working directly with nurses in many areas, including Accident and Emergency (A & E).

Mission work is not unchartered territory for myself or many of my colleagues. We practice mainly without material compensation, which is equalized by an overwhelming sense of accomplishment, acceptance, and gratitude, giving an often “thankless” profession a purpose. It provides nurses a renewed respect for teamwork, holism, dedication, and the importance of clinical assessment in the absence of technology. The exchange of information between our Guyanese colleagues and us was priceless. The nursing administration even requested that we provide “topic of interest” presentations during some free time. That was quite an honor. Following our return, I had to refrain for about a day from ordering a malaria screen for every child who presented to triage with a chief complaint of fever, which is a vast majority of a pediatric ED population.

These explorations have incredible implications for the future of emergency nursing. International evaluation is a constant challenge. Mentors and preceptors can be instrumental in encouraging the younger generation to continue to foster these relationships. Funds are a frequent barrier. Foundations or individuals associated with medical centers often can be encouraged to sponsor these...
investments. I can testify that international collaboration is stimulating and enriching for individuals involved.

—Jennifer C. Anderson, RN, MSN, CPNP, Vanderbilt Children’s Hospital, Pediatric Emergency Department, Nashville, Tenn; E-mail: jennifer.Anderson@vanderbilt.edu.

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Free monthly patient safety newsletter available

Dear Editor:

The Joint Commission International Center for Patient Safety recently launched Patient Safety Link, a free online resource available at jcipatientsafety.org. Emergency nurses can receive this new monthly newsletter for solutions and insight on patient safety challenges.

Every month Patient Safety Link will feature journal articles, book excerpts, and other resources from the Joint Commission on Accreditation of Healthcare Organizations and its affiliate Joint Commission Resources. Patient Safety Link’s inaugural May 2005 issue includes articles on:

- Strategies to prevent and manage anesthesia awareness
- Learning to improve safety: false-positive pathology report results in wrongful surgery
- Improving the accuracy of patient identification

Emergency nurses can sign up for e-mail delivery by sending an e-mail message to patientsafetylink@jcrinc.com.

—Peter B. Angood, MD, Chief Patient Safety Officer, Joint Commission International Center for Patient Safety

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Research Paper
Summaries From the ENA
2005 Annual Meeting

The following Research Paper Summaries were presented at the 2005 Emergency Nurses Association’s Annual Meeting, September 14–17, Nashville, Tenn. Contact information is provided to facilitate communication with the researchers. Poster abstracts presented at the 2005 ENA Annual Meeting will appear in the December, February, and April issues of the Journal.

216-C Research Paper Presentation I: Changing Your Practice
1. Documentation of Patient Pain in the Emergency Department and the Impact of a Nursing Documentation In-service.
Christina A. Bernhardt, RN, MS, CNS, Chad E. Rolline, BA, Carol S. CeDeBaca, BS, Jason S. Haukoos, MD, MS, Parker Adventist Hospital, 9395 Crown Crest Blvd, Parker, CO 80138; Georgetown University School of Medicine, Washington, DC 20007; Jefferson College of Health Sciences, Roanoke, VA 24031; Denver Health Medical Center, Denver, CO 80218

Purpose: The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) states that pain continues to be undermedicated. JCAHO requires institutions to implement protocols for assessing and managing pain. The purpose of this study was to assess patient pain documentation in ED patients who received narcotics before and after an ED in-service session on pain documentation.

Design: This was a retrospective cohort study. Setting: The study was conducted at an urban level I trauma center. Sample: Medical records of 300 adult patients who received enteral or parenteral narcotics in the emergency department were evaluated.

Methodology: The 300 records were examined for documentation of pain assessment before and after administration of narcotics. This study was divided into 3 periods containing 100 patients each. The first period included patients treated before the departmental pain documentation in-service training presented to ED staff in May 2002. The second period included patients treated after the in-service training. The third period included patients treated 2 years later, in May 2004. A closed-response data collection instrument was used to collect patient demographics, baseline vital signs, type of narcotics received, person who recorded the information (ie, nurse or physician), and presence of a qualitative pain assessment or a quantitative pain score before and after narcotics were administered. The chi-square test was used to assess statistical differences in proportions between the 3 study groups.

Results: Prior to the in-service training, 64% (95% CI: 54% to 73%) of records completed by nurses included pain documentation (either qualitative or quantitative) and 9% (95% CI: 4% to 16%) of physician records included pain documentation. Following the in-service training, presence of pain documentation in nurse and physician records was 55% (95% CI: 45% to 65%).
and 20% (95% CI: 13% to 29%), respectively. At the 2-year follow-up, pain documentation was 56% (95% CI: 46% to 66%) for nurses and 17% (95% CI: 10% to 26%) for physicians. Inter-rater reliability between the 2 data collectors was nearly perfect (average $\kappa = 0.90$) across all groups.

**Conclusions:** The level of documentation of patient pain assessment in the emergency department before and after the administration of enteral or parenteral narcotics remains low. Additionally, we have shown that a brief departmental in-service training on the evaluation, management, and documentation of pain in patients who present to the emergency department is an ineffective method of increasing pain documentation levels even in the short term. Further research is needed to develop and evaluate effective methods for improving nurse and physician documentation of patient pain in the emergency department.


2. Assessing the Needs of Family Members Who Accompany the Adult Patient to the Emergency Department. Janice S. DuBrueler, RN, DNSc, ACLS, TNCC, Shenandoah University, 1778 N Sector Ct, Winchester, VA 22601

**Purpose:** The family of a patient in the emergency department plays a major role in the support and care of the patient, whether he or she is admitted or discharged. The purpose of this study was to assess the needs of family members who accompany patients to the emergency department and to describe the relationship between characteristics of the patient’s visit and characteristics of family members. Specifically, the study focused on the patient’s triage acuity level and length of stay, as well as the family members’ age, education level, socioeconomic status, and physical and psychosocial needs. In addition, this study sought to validate family members’ experiences by defining common themes related to their ED experience.

**Design:** The study was a descriptive, correlational design, using quantitative and qualitative methods. **Setting:** Data collection occurred in a large, regional, level II trauma center serving an urban population in the mid-Atlantic area of the United States. **Sample:** The quantitative phase of the study included 70 family members designated by ED patients. The qualitative phase of the study included 10 family members, a subset of the 70 participants, who volunteered to be interviewed. Full institutional review board approval was obtained.

**Methodology:** Six instruments were used in the study: (1) personal profile forms for both the patient and family; (2) a 5-level triage acuity rating scale; (3) Hollingshead’s Two Factor Index of Social Position; (4) an adapted version of the Critical Care Family Needs Inventory (CCFNI) for ED families; and (5) a semi-structured interview guide that was based on the 5 dimensions of the CCFNI. All qualitative interviews were tape recorded and transcribed verbatim. Factor analysis of the adapted CCFNI identified the 5 dimensions of family needs present in the original instrument: information, comfort, proximity, assurance, and support. The adapted CCFNI was found to have high reliability with a Cronbach’s $\alpha$ of 0.93.

**Results:** The needs that family members ranked as having most priority were related to the dimensions of information and proximity. Family members noted the following needs as most important: knowledge of how the patient is being treated medically; assurance that the patient is receiving the best possible care; and clear explanations from health care providers. No significant correlations were identified between the dimensions of needs and triage acuity level, family member’s education level, and length of stay. Results showed a significant correlation between the dimension of proximity and family member age ($P = .05$). A significant relationship was also identified between the family member’s social position and the dimensions of support ($P = .02$) and comfort ($P = .02$). Qualitative data reinforced the order of importance of the 5 dimensions of family needs identified in the quantitative phase and provided additional details related to family needs.

**Conclusions:** The results of this study identified the most important needs of family members who accompanied their loved ones to the emergency department. Because it often is the family who is responsible for the discharge care of the patient, policy development related to patient care should take a family-centered approach.


3. Utilization of Nurse Practitioners for Procedural Sedation in a Pediatric Emergency Department. Charene M. Wood, RN, BSc, BSN, MS, CS-PNP, Colleen Hurley, PNP, Julie Wettlaufer, FNP, Michelle Penque, MD, Kathy Lillis, MD, Steve Shaha, PhD, Women’s and Children’s Hospital of Buffalo, 219 Bryant St, Buffalo, NY 14222

**Purpose:** Nurse practitioners (NPs) have practiced in primary care settings for years and more recently have been incorporated into emergency departments. In 1995, NPs were introduced into our pediatric emergency department (PED). In June 2002, the NP role was expanded to include administration and management of procedural sedation and analgesia (PSA) in a highly independent practice model. The purpose of this study was to determine if utilization of NPs decreased overall length of stay (LOS) for patients in the PED without increasing the complication rate.

**Design:** This was a retrospective study using exhaustive chart review. **Setting:** The study was conducted at a PED of an urban, teaching, regional pediatric trauma center. **Sample:** All cases of patients up to 21 years of age who presented to the pediatric emergency department between May 1, 2001, and April 30, 2004, and who required PSA were included in the chart review.

**Methodology:** The retrospective chart review was conducted for children who underwent PSA, which was defined as 2 or more agents. Data collected included time of triage, time seen by NP or physician, time of sedation, time of discharge, total LOS in the PED, NP involvement, medications given, patient diagnosis, and complications.

**Results:** Results substantiated statistically significant advantages to NP management of PSA. Of the 693 cases that were reviewed, 77.4% were treated by physicians, 17.7% were treated by NPs, and 4.9% involved transfer of care between physicians and NPs. LOS in the PED and time to sedation were both significantly lower for NP-managed cases than for physician cases across all diagnoses ($P < .001$). There were no significant differences between NPs and physicians regarding: (1) time to contact with
practitioner, (2) medications utilized, and (3) diagnoses treated. NP time values remained significantly lower than physicians’ time values for the 2-year period after NPs were fully implemented for PSA in the emergency department. There were no significant differences in complication rates, and neither NP nor physician management of procedures required advanced airway management.

Conclusions: Overall LOS and time to sedation were significantly improved when NPs independently managed patients requiring PSA in the emergency department. NPs used the same medications as physicians and incurred no significantly higher rates of complications.


237-C Research Paper Presentation II: Changing Your Practice 4. Choosing to Care: Male and Female Nurse Experiences of Comforting Patients in the Emergency Department. Lisa B. Herterich, RN, MSN, CEN, University of Texas at Tyler, 3201 N Eastman Rd, Longview, TX 75605

Purpose: The concept of comfort is essential to the caring process. Comfort provides a sense of ease and well-being, both physically and psychologically, and is necessary throughout life. This qualitative study used a grounded theory methodology to explore nurse self-awareness of individual comforting styles in the ED setting. Possible gender differences were explored by comparing male and female accounts of their individual comforting values and behaviors. A review of the literature focused on the concepts of caring and comfort and how they affect the work of ED nurses. Through this study and the use of Jean Watson’s Theory of Human Caring and Katherine Kolcaba’s Comfort Theory as theoretical frameworks, an emerging theory of comfort evolved specific to ED nursing.

Design: This was a qualitative study that used a grounded theory approach. Setting: The study was conducted with ED nurses who work at a level II trauma center emergency department in eastern Texas that sees approximately 70,000 patients per year. Sample: Four male and 4 female registered nurses with ED nursing experience ranging from 1 year to 14 years were recruited into the study. Six of the participants had only ED experience, while 2 of the participants had experience in other nursing areas.

Methodology: Participation was voluntary and informed consent was obtained prior to the interview process. Face-to-face interviews were conducted in a private setting. Each interview began with the grand tour question: “Tell me how you feel about comforting patients in the emergency department.” Subsequent questions were used as new information emerged through the constant comparative data analysis process. Interviews were transcribed verbatim by the researcher, and data saturation was reached after 8 interviews. Data analysis was confirmed by an expert nurse researcher.

Results: Four major themes emerged through data analysis: Nurse Characteristics, Process of Assessing Comfort, Comfort Consequences, and Nurse Evaluation. The Basic Social Process that emerged is that ED nurses choose, either consciously or unconsciously, to provide comfort care to their patients in varying degrees. Specific male and female comforting traits also were identified.

Conclusions: Further research is needed to examine each of the individual themes and to test the theory of caring that emerged. In addition, careful examination of gender differences and comforting traits would be beneficial. Study findings offer the hope that nurses can be more consciously aware of the choices they make in providing patient care and comfort so that an atmosphere of healing and concern may prevail in the stressful ED environment.


5. Triage Tool Inter-rater Reliability Using Live Cases Versus Paper Case Scenarios. Andrew Worster, MD, CCFP(EM), MSc, FCFP, Arlene A. Sardo, RN, MSN, ACNP, ENC(e), CNC(c), Christopher M.B. Fernandes, MD, FACEP, Kevin Eva, PhD, Suneel Upadhye, MD, FRCP(C), ABEM, McMaster University, 711 Concession St, Hamilton L8V 1C3, Ontario, Canada

Purpose: Most published studies of triage scale inter-rater reliability assessment have been conducted using paper case scenarios. The objective of this study was to determine if this method of inter-rater reliability assessment generated significantly different measures from those generated from live triage cases.

Design: This was a multi-center, prospective, observational cohort study. Setting: This study took place in emergency departments of 2 hospitals located in south central Ontario. Sample: A population-based random sample of patients triaged at 2 emergency departments during a 4-month period was included in the study.

Methodology: During the study period, ED patients were simultaneously and independently triaged by 2 or 3 research triage nurses using a 5-level triage acuity scale. All triage nurses were blind to each other’s assessment and to the study objective. Six months later, the same nurses were asked to assign triage scores to paper case scenarios of the same patients who they had previously triaged. Each of the 9 research nurses triaged approximately 90 cases.

Results: The inter-rater reliability as measured by an intra-class correlation coefficient was 0.90 (95% CI = 0.87, 0.93) for the live triage assessments and 0.76 (95% CI = 0.73, 0.79) for the paper case scenarios. The mean triage score assigned to the live cases was significantly less than that assigned to the paper-based cases (3.17; 95% CI = 3.08, 3.26; P < .001).

Conclusion: There is a moderate to high agreement between live cases versus paper case scenarios and the inter-rater reliability, although significantly different, is acceptable in both cases. It is impossible to determine which triage setting provides a more accurate triage score, but in general, paper case scenarios receive lower triage scores than live cases.


6. Horse-related Injuries and Deaths in Western Montana. Shelley Smith Otoupalik, RN, MSN, CEN, CFRN, FNP(s), EMT-P, John Bleicher, RN, Brittney Matheson, PA-C, Bobbi Perkins, J. Brad Pickhardt, MD, FACS, Hannah Parsons, PA(S), St Patrick Hospital, 500 N Broadway, Missoula, MT 59806

Purpose: Horses and horse-related activities are engrained in the lifestyle of Montana and the western United States. Thousands of
people interact with horses daily, and injuries occur. The severity of these injuries range from minor cuts and scrapes to severe head and neck injuries resulting in long-term disability and/or death. These injuries are often treated in the emergency department. The purpose of this study was to identify the number, type, severity, and cause of horse-related injuries and deaths in emergency departments of western Montana and northern Idaho with the goal of incorporating this information into an equestrian injury prevention program.

**Purpose:** Multiple factors delineate the severity of infant illness, which can make triage of this patient population challenging.

**Design:** A descriptive study design was utilized. **Setting:** This study gathered information on victims of horse-related incidents at 16 hospitals in western Montana and 1 hospital in northern Idaho. **Sample:** Any patient presenting to the emergency department of the participating hospitals with an injury resulting from a horse-related incident between the dates of April 15, 2002, and April 15, 2004, was included in the study.

**Methodology:** A 12-item questionnaire, completed by the primary emergency health care provider at the time of admission to the emergency department, included demographics, mode of arrival, cause of injuries, type of injuries, severity of injuries, and disposition. Data were compiled and analyzed by a multidisciplinary team comprised of a trauma surgeon, a trauma coordinator, a trauma registrar, a trauma physician assistant, and a trauma nurse practitioner.

**Results:** Six hundred seventeen patients with 879 documented injuries were included in the study. The most common injury was extremity injury (36%), followed by head/neck (26%), chest (20%), pelvis (10%), and abdomen (5%). Of the 617 patients included in the study, 3 (0.5%) died. The average injury severity score for patients who died was 59.7. A quarter of the patients involved in the study sustained injuries that resulted in hospitalization. Ninety-two percent (n = 568) of the study sample wore no type of protective equipment such as a helmet or Kevlar vest.

**Conclusions:** Horse-related injuries comprise a significant number of ED visits in western Montana. Velocity of travel, height of patient off the ground, and unpredictability of animals all lend themselves to several types of injuries: high-speed decelerating injuries, blunt trauma, penetrating trauma, and dragging-type injuries that range from minor to mortal. Little attention has been paid to the cause and prevention of these injuries. Protective equipment is underutilized by most riders. Injury prevention programs stressing the potential severity of injury and the benefits of protective equipment must be made available to equestrians. Further investigation into the cause and prevention of equestrian accidents is needed.

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**324-C Research Paper Presentation III: Changing Your Practice 7. Emergency Severity Index Intra- and Inter-rater Reliability in an Infant Sample: A Pilot Quality Study.** Jennifer Hinrichs,1 RN, MSN, CCRN, Emily Dever,1 RN, CEN, Anne Wojner-Alexandrov,2 PhD, CCRN, FAAN, 1Clarian Health Partners-Riley Hospital for Children, 702 N Barnhill Dr, Indianapolis, IN 46202; 2Health Outcomes Institute, Fountain Hills, AZ

**Purpose:** Multiple factors delineate the severity of infant illness, which can make triage of this patient population challenging. Triage may become especially difficult when the infant’s illness is chronic and characterized by subtle and/or rapid changes. When the Emergency Severity Index (ESI) was implemented at this hospital (2003), it was well established as being highly reliable in adult patients. The purpose of this research was to determine intra- and inter-rater reliability of the ESI in infants.

**Design:** Retrospective chart review. **Setting:** An urban, tertiary care pediatric emergency department in the Midwest with an average of 15,000 patients per year. **Sample:** The medical records of infants ranging from 1 to 12 months old were randomly selected from a 2-month period of past ED records.

**Methodology:** After reviewing each chart, the investigator recorded the original triage acuity assigned and the name of the triage nurse. An ESI expert as determined by this person’s experience as a triage nurse (12 years) and having been instrumental in the ESI education when the ESI was implemented was also used in this study. Two de-identified copies of each chart were made; one copy was given to an ESI expert, and the second copy was given to the nurse who originally triaged the patient. Utilizing emergency department documentation, the ESI expert and the triage nurse assigned acuity to the patient using the ESI method. For each case, reassignment of ESI triage acuity scores was performed by the ESI expert and triage nurse within 30 and 60 days following the original date of triage. *K*appa coefficient and percentage of agreement was calculated to assess intra-rater and inter-rater reliability. For inter-rater reliability of the triage nurse, the original score was compared to the 30- and 60-day ESI scores determined by chart review. To assess inter-rater reliability, the ESI experts’ triage acuity scores were compared with the triage nurses’ scores.

**Results:** The patient sample (N = 80) had a mean age of 5.5 months (SD ± 3.2). The triage nurse sample (N = 11) had a mean of 11.7 years experience in emergency nursing. Intra-rater reliability reflected a κ coefficient of .313 (95% CI = .157 to .469, t = 4.5, *P* < .001) with 53.9% score agreement within each nurse. Inter-rater reliability reflected a κ coefficient of .325 (95% CI = .169 to .481, t = 4.7, *P* < .001) with 53.9% score agreement between triage nurses and the ESI expert.

**Conclusions:** This pilot study demonstrated low ESI intra- and inter-rater reliability. Low intra-rater agreement was not related to improved ESI skill among our triage nurses, as inter-rater reliability was also low. The ESI is still a very new tool; therefore, further research is necessary to evaluate its effectiveness in pediatric, and more specifically, infant populations. One possibility is that the ESI needs some adjustments in order to accurately triage the infant patient population. Additional research is also warranted to determine the effectiveness of educational/training methods on infant ESI for ED staff.

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**8. Violence Against Workers in the Emergency Department.** Lisa McQueen, RN, MSN, Donna M. Gates, RN, EdD, FAAN, Clara S. Ross, MD, JD, Northern Kentucky University, Nunn Drive, Highland Heights, KY 41099

**Purpose:** ED workers are at risk of violence because of the increased numbers of patients and visitors under the influence of drugs and/or alcohol or with psychiatric disorders or dementia. In addition, a presence of weapons in the emergency
Department, a stressful ED environment, and a flow of violence from the community may contribute to violence in the emergency department. The purpose of this study was to survey ED workers about the violence they experience from patients and visitors.

**Design:** This was a descriptive survey study. **Setting:** The study took place at 5 hospitals in the Midwest. Two were located in urban areas, and 3 were suburban hospitals. One of the urban hospitals was a teaching, level I trauma center. **Sample:** The study population included 600 ED workers who worked at least 8 hours per month and interacted with patients and/or visitors. The population included nurses, physicians, paramedics, physician assistants, social workers, patient care assistants, unit and registration clerks, schedulers, and patient representatives.

**Methodology:** The researchers contacted ED managers at each hospital to obtain an anonymous list of workers. A 31-item survey that included multiple-choice, open-ended, and Likert-type items was developed by the researchers. Study variables included frequency of assaults, verbal and sexual harassments, and verbal threats during the previous 6 months; reporting frequency; worker injuries; lost workdays; prevention training; and assault risk factors. Content validity was established using ED nurses as experts. After obtaining approval from each hospital’s institutional review board, anonymous surveys and consent letters were distributed to employee mailboxes. ED workers were instructed to place completed surveys in data collection boxes that were located in each emergency department. A reminder flyer was posted in ED break rooms at each facility to increase response rate.

**Results:** Two hundred forty-two surveys were returned (response rate = 40%). In relation to violence from patients, 94% of respondents reported being verbally harassed, 66% reported being verbally threatened, 48% reported being assaulted, and 39% reported being sexually harassed. Sixty-five percent of those assaulted never formally reported the incident. Sixty-three percent of those assaulted never formally reported the incident. Sixty-three percent of respondents had no violence prevention training within the study period. Alcohol and drug use by patients were the most frequently cited risk factors for assault as perceived by respondents.

**Conclusions:** Results of this study confirm that the ED workplace poses a risk for violence to ED workers. Prevention efforts need to include education, security, environmental controls, and violence prevention policies. Reporting is needed to document risk factors and plan appropriate interventions. Research is needed to evaluate violence prevention strategies.


9. Implementing the Emergency Severity Index Triage System in the Homeland of Hippocrates. Maria Kyranou,1 RN, MSc, PhD Candidate, Athsania Chouta,2 RN, Georgios Georgiadis,2 RN, Dimitris Oulousidis,2 RN, Anastasia Tsviki,2 RN, 1University of California, San Francisco, Box 0610, 2 Koret Way, Nursing 631, San Francisco, CA 94143; 2Papageorgiou General Hospital, Ring Road of Thessaloniki, Thessaloniki, 56403, Greece

**Purpose:** Different triage systems have been developed and implemented in emergency departments, including the Australian National Triage Scale, the Canadian Triage and Acuity Scale, the Manchester Triage System, and the Emergency Severity Index (ESI). Implementation of a new triage system depends on strengths and weaknesses of available systems as well as organizational and cultural characteristics of an emergency department. The purpose of this study was to evaluate the implementation of the ESI system in an emergency department in Greece by comparing an early phase of implementation to a later phase.

**Design:** This retrospective, descriptive study examined patient records and hospital reports as well as nurses’ interviews. Descriptive and inferential statistics were used for analyses. **Setting:** The study was conducted at an emergency department of a large tertiary, teaching hospital in Thessaloniki, Greece. This emergency department is 1 of 8 departments that provide emergency and trauma care to 2 million citizens. At any given time, on an alternating schedule, only 2 of the 8 emergency departments operate 24 hours a day, which results in overcrowded waiting rooms. **Sample:** During the study period from November 2, 2003, to September 30, 2004, 50,410 patients visited the emergency department, and their patient records were reviewed retrospectively. The sample was divided into 2 groups. The first group included all patients who visited the emergency department in the first 2 months of the study period (n = 5905), which was during the initial stage of ESI implementation (phase I). The second group included all patients who visited the emergency department during the remainder of the study period (n = 44,505) (phase II).

**Methodology:** Patients’ records and hospital reports were screened for predictive validity outcomes associated with triage levels for both study phases so that comparisons could be made. In addition, data were gathered and comparisons were made related to admission rates, length of stay, mortality at triage, and patients leaving the emergency department after triage. Reliability of the ESI system was tested by measuring inter-rater agreement and test-retest agreement among 15 triage nurses who had at least 1 year of experience in triage guidelines at the hospital.

**Results:** The following results pertain to Phase I - Phase II and triage categories 1 through 5. Admission rates: (1) 100% - 100%, (2) 64.3% - 89.2%, (3) 22.8% - 33.6%, (4) 4.9% - 2.6%, and (5) 2.4% - 0.38%. Length of stay in minutes: (1) 0 - 1, (2) 4 - 4, (3) 24 - 17, (4) 72 - 62, and (5) 91 - 69. Mortality: 0.2% - 0.08%. Number of patients leaving the emergency department after triage: 4.47% - 3.18%. Inter-rater agreement: 88.5% - 84.5%. Test-retest agreement: 92% - 96%.

**Conclusions:** Utilization of a newly implemented ESI system was shown to be reliable and valid in this Greek emergency department. Outcomes improve with experience and through continuous follow-up during the implementation process.

Patients’ Perspective on Choosing the Emergency Department for Nonurgent Medical Care: A Qualitative Study Exploring One Reason for Overcrowding

Introduction: For decades it has been known that patients use emergency departments for nonurgent care needs. This study was conducted to help determine how the health care community can assist patients achieve consistent health care while meeting the patient’s perceived needs.

Method: A descriptive qualitative study was conducted based on interviews with 31 persons between 22 and 43 years of age following an ED visit for a nonurgent medical need. Exploration of the patient’s perception was accomplished through open-ended questions in a structured interview format. Data were analyzed using content analysis.

Results: Patients who participated in our study revealed 3 major themes: (1) They were unable to obtain an appointment with a primary care provider (PCP); (2) they were referred by the staff (not the doctor) in PCPs’ offices to be evaluated in the emergency department; and (3) it took less of their time to be seen in the emergency department than it did to contact their PCP, only to then be told to go to the emergency department.

Discussion: The findings of this study support the need for health care providers to find ways to provide nonurgent care in a timely and efficient manner. Multiple options for providing this care need to be conceived and evaluated.
The increased utilization of the emergency department has placed additional strain on emergency nurses. The rising numbers of ED visits has required emergency nurses to become more task oriented rather than fostering quality nurse-patient relationships. Research attributes a major reason for ED utilization and therefore its overcrowding to the increased use of emergency services as a primary source of health care. Numerous patients who could have been assessed and treated in other facilities that treat less urgent cases are visiting emergency departments every day. Patients are losing out on quality and continuity in care. For this reason, we wanted to know: Why do people choose to come to the emergency department instead of their primary care provider (PCP) with nonurgent medical complaints? Health care providers do not fully understand why patients choose the ED route of care.

Our current health care system has failed to provide timely and effective access to health care for individuals. Wait times for nonurgent problems can be long. This failure has great impact on the decision to use an emergency department for primary health care. The nursing profession has an obligation to its patients and community to begin working closely with the medical and management fields to combat this overutilization and overcrowding. By focusing on the patients’ perceptions of the emergency department and their PCP, we can acquire a better understanding of patients’ reasons for the ED visit and begin to develop plans to address their needs.

Overcrowding has been at the heart of the strain on emergency departments for the past 25 years. The emergency department serves as the safety net of the health care community, a fact well documented in medical literature as well as health policy circles. Some patients may not be aware of other places to go for their current health problems. Overcrowding poses major hazards to patient care. Overcrowding is related to prolonged wait time, delay in diagnosis and treatment, and increased risk of poor outcomes. More than 1.6 million patients seeking medical care in an emergency department in 2001 left without being seen.

A study by Lucas and Sanford found that 72% of patients came to the emergency department because they thought their chief complaint was of moderate or serious severity and 59% thought their complaint needed immediate medical attention. Uninsured patients, while not perceiving their severity as high, have stated access to be the main reason for using the emergency department for care. Persons who lack a PCP or some uniform source of medical care tended to refer to the emergency department as their PCP.

Numerous traits have been identified as altering the use of a PCP as a usual source of health care and placing the emergency department on the front lines of health care. These traits include a lack of accessibility, affordability, acceptability, accommodation, and full access to the PCP. A 2005 study of 279 patients in a university emergency department found while 56% (n = 157) had a PCP, 47% (n = 73) rated the emergency department better for unscheduled care. Dissatisfaction with a PCP highly correlates with the nonurgent use of the emergency department. In telephone interviews with 58,000 adults who indicated a usual source of care other than the emergency department, Weber et al found they were more likely to visit the emergency department if that usual source of care was a hospital outpatient clinic, they had unmet medical needs, they were dissatisfied with their PCP, or they had Medicare or Medicaid.

Whether emergency care is more cost-effective for nonurgent problems than care provided by PCPs or urgent treatment centers is controversial. Some literature has suggested that emergency care is more cost-effective, particularly for after-hours care, whereas other literature has supported the traditional perception that emergency care is expensive and not cost-effective. Frequent ED visits and subsequent overutilization of emergency departments are also associated with socioeconomic distress, chronic illness, and a high use of other health resources. People who make repeated visits to emergency departments constitute complex and ambivalent relationships for providers, which can lead to missed diagnoses, stigmatization of those who make repeated visits, and reduced provider morale.

There also is a supply and demand issue concerning ED overcrowding. Increased demand for ED services with an increasingly constrained resource can make for deadly consequences. In one 4-year quantitative study from the University of Washington, improved continuity of care was found to be associated with lower ED utilization. As well, in a retrospective cohort study, researchers found
that of 46,097 patients enrolled in a health maintenance organization, children with lower continuity of primary care were associated with higher utilization of the emergency department. The study also found that an increased relationship with a PCP led to fewer ED visits and ultimately, fewer hospital admissions.20

Method

RESEARCH DESIGN AND DATA COLLECTION
Using a qualitative descriptive design, we examined the research question: “Why do people choose to come to the emergency department instead of their primary care provider (PCP) with nonurgent medical complaints?” We sought to provide a comprehensive summary of events in common, everyday language21 that would reveal more in-depth and rich information than a quantitative description. Overall themes and patterns were assessed with a content analysis.22

SAMPLE
The convenience sample consisted of persons who were seeking treatment in the emergency department for care of a nonurgent complaint and who could articulate the reasons for choosing this source of care as opposed to their PCP. Study participants were older than 18 years and younger than 50 years. Each perspective participant had to have a PCP as well as a source of insurance or Medicaid as defined by chart audit. All participants presented with and were discharged from the emergency department with a chief complaint or diagnosis deemed nonurgent according to standards set by ENA. Inclusion nonurgent diagnoses included rash without fever, rhinitis or cold symptoms, and cystitis. Participants were to have a working phone or current address to receive research information and were excluded if they were a resident of a long-term care facility.

The 31 participants ranged in age from 22 to 43 years, with a mean age of 34 years. The participants had some form of medical insurance, either private or Medicaid. All participants stated their usual source of medical care to be their PCP. Eighty-five percent of participants interviewed stated they attempted to contact their PCP via phone prior to their arrival at the emergency department. Participants were recruited until saturation of data was attained.

SETTING
The study was conducted in 3 Ohio Valley hospital emergency departments located in small urban cities. In 2003, the number of visits to these emergency departments ranged from 43,000 to 58,000, and had an average length of stay for nonurgent cases ranging from 70 to 90 minutes.

PROCEDURE
After Institutional Review Board and agency approval, we conducted interviews in 3 Ohio Valley area hospitals. We approached potential participants either while they were awaiting discharge or immediately afterward. Following informed consent, patients who met inclusion criteria and agreed to participate were escorted to a private room for the interview. An open-ended interview tool modified from the Medical Expenditure Panel Survey in a study conducted by the Agency for Healthcare Research and Quality in 1996 was used10 (see Table 1 for interview questions). Responses were audiotaped to facilitate analysis.

ANALYSIS
Participants’ statements were transcribed daily by each of the 5 individual researchers. After each day of data collection, individual researchers read each transcript 7 to 10 times and analyzed the transcripts for commonalities and themes. Transcripts from each subsequent day were compared to determine evidence of similarities or differences in the emerging themes.23 At least weekly, researchers communicated via electronic chat to discuss and validate findings. One final face-to-face meeting was conducted to confirm the themes identified. An additional credibility check was conducted using an independent analysis by a faculty member considered an expert in qualitative research who validated the themes identified.

Results

THEME ONE
People used the emergency department because they have been told to do so by staff in their PCP’s office. One participant said, “I called my doctor about my nose and they said that they were booked up, to go to the ER and they would call ahead.” “I like him (speaking of her PCP), but it is impossible to see him if you are sick,” said another participant. This 38-year-old woman was instructed by staff
in her PCP's office to seek medical care at a nearby emergency department for her head congestion and cold symptoms. “It is weeks before you can get an appointment,” she said, and “I really don’t want to spend the whole day in the doctors' office.” A 32-year-old male participant described the following scenario: “I called my doctor but it didn’t do me any good. You have to call and talk to the secretary, then she transfers you to the nurse and you have to leave a message. Then you wait for 2 to 3 hours for them to call you back and tell you to go the emergency room.”

These sentiments were very typical of the responses most study participants provided. Many of the responses to questions regarding their relationship with their PCP were positive, yet as one respondent said, “Well, if I just want a yearly check up or to get medicine refills, that is okay if it is several months away, but if you are sick and need medicine that day, forget it.” In all cases, the participants did not speak directly with the PCP, but were informed to seek medical attention in the ED by office staff.

THEME TWO
People have difficulty gaining an appointment with a PCP in a timely manner. The majority of participants responded in some way, either by perception, history, or telephone conversation, that they would be unable to get an appointment to see their PCP the day they called. One participant’s response was a representative example of many of the responses received: “You can never get in when you’re sick. It is easier just to come out here [to the emergency department]. At least, here I know I will be seen by a doctor.” A 28-year-old woman who has been with her PCP for 7 years said, “Sometimes it’s months before you can get an appointment.” She feels this inhibits her relationship with her PCP in that “He doesn’t have time for me and I feel like I can’t get answers.”

Many participants also responded that their PCP was either not in the office or not open the day of their particular medical situation. Jane stated, “It is weeks before you can get an appointment.” When she attempted to call her PCP for an appointment, one female participant stated: “You can call, but it is usually not worth the time. You have to leave a message and wait for someone to call you back. By that time, I can usually have [gone to] urgent care and back home. Besides that, all they are going to tell me is he can’t see me today and to go to a walk-in clinic.”

One male participant observed, “I like him [his doctor] okay, but it is so hard to get in to see him when you are sick and they won’t ever call you in any medication for your symptoms.” One male participant, a 40-year-old man and long-time patient of his PCP, noted that he has had trouble making timely appointments with his PCP when he needed to do so. He stated: “I don’t like calling

### TABLE 1

<table>
<thead>
<tr>
<th>Interview questions</th>
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<tbody>
<tr>
<td>1. Tell me about your usual source of health care, your primary care physician, doctor’s office, clinic, health center, etc.</td>
</tr>
<tr>
<td>a. How long have you known your usual source of care?</td>
</tr>
<tr>
<td>b. When was the last time you contacted him/her?</td>
</tr>
<tr>
<td>i. Why did you contact him/her?</td>
</tr>
<tr>
<td>ii. Why haven’t you contacted him/her?</td>
</tr>
<tr>
<td>c. Tell me about your relationship with your usual source of care.</td>
</tr>
<tr>
<td>d. Explain to me what you have to do to see your usual source of care.</td>
</tr>
<tr>
<td>i. Transportation</td>
</tr>
<tr>
<td>1. Is it reliable?</td>
</tr>
<tr>
<td>ii. If you have children, is child care a problem?</td>
</tr>
<tr>
<td>iii. Is time a factor when you consider a health care provider?</td>
</tr>
<tr>
<td>iv. Phone calls</td>
</tr>
<tr>
<td>v. Tell me about making appointments with your usual source of care.</td>
</tr>
<tr>
<td>e. Tell me about your confidence concerning your usual source of care’s ability to help you when you have a health problem.</td>
</tr>
<tr>
<td>2. Tell me about your health insurance.</td>
</tr>
<tr>
<td>a. Tell me about the quality of your health insurance.</td>
</tr>
<tr>
<td>b. How do you feel about your health insurance?</td>
</tr>
<tr>
<td>3. What made you choose to come to the emergency department today?</td>
</tr>
<tr>
<td>a. What were your alternatives?</td>
</tr>
<tr>
<td>b. What factors did you consider when deciding to come to the emergency department?</td>
</tr>
<tr>
<td>c. Who made the decision to come to the emergency department?</td>
</tr>
<tr>
<td>d. Who usually makes decisions regarding health care?</td>
</tr>
<tr>
<td>e. Tell me about the importance of this emergency department visit.</td>
</tr>
</tbody>
</table>
the office because you usually have to leave a message for the nurse to call you back. You sit around all day waiting for them to call you back in their own sweet time. It is really aggravating because when I am sick, I want to see somebody or get medicine called in. They act like you are just a number on a list, not really a sick person that has other responsibilities too.”

THEME THREE
Time played a factor in every response given by the participants. One patient stated, “I feel like I sit for hours for him to see me for 2 minutes; it is much quicker to come out here.” Many participants stated that they have symptoms now and by the time they could see their usual source of care that “it would be pointless.” When discussing waiting for his PCP in his office, one participant noted: “…It seems like when you go in there, you wait forever, even with an appointment. I think that is pretty disrespectful of my time. They wouldn’t wait for you if you were that late. I have sat in that office for 2 hours before, but when it is my turn it seems like he only has seconds to spend with me and I think, if he don’t talk any longer than this to everybody, how in the world did he get so far behind? You sort of have to mark off the whole day if you are going to the doctor because you can’t count on getting in and out at any certain time.”

One female participant summed it up: “The ER is the quickest way to get checked out.” When another participant was asked if time was a factor when considering her health care provider, she replied, “Yes, I have to go on my day off or if I take off sick, I want to go that day and I really don’t want to spend the whole day in the doctor’s office.”

Other subthemes emerged through further exploration of the participants’ views on time. Many participants stated that their work must be scheduled around a potential doctor’s appointment. A 24-year-old male participant noted: “When I am sick and miss a day of work, I need to see a doctor that day. I can’t afford to be off work any longer than I have to. I need to get feeling better so I can get back to work tomorrow.”

A 32-year-old full time female employee said, “I don’t really like having to spend the whole day at his office [only to …] get in hours after my appointment time.”

Child care was a consideration for one 34-year-old mother of 4 children, who said that she was not able to “sit in a doctor’s office all day long with 3 kids”: “I have 4 children and the ones I leave at home can’t stay there for long time alone. If they are not at school, I will take them along with me. Sometimes my mom will keep them if she is at home.”

Many of the participants had already called into work sick and did not want to miss any more days waiting on a doctor’s appointment. One male participant said, “It is really important to me because I need to get feeling better so I can get back to work tomorrow.”

Several other aspects of patient utilization were explored, including transportation, quality of insurance, confidence in a PCP, and alternative health care facilities. These aspects were investigated and found to have no significance. The majority of the respondents had a reliable source of transportation, and fear of noncoverage was not a deciding factor when choosing the emergency department over their PCP for this medical situation All participants were aware of alternative sources of care in their area other than the emergency department. Dissatisfaction with one’s PCP was, in most cases, secondary to the 3 major themes identified in our research.

Discussion
Prior to this study, we initially agreed with Lucas and Stanford’s conclusion that patients came to the emergency department with nonurgent complaints because they believed their conditions were urgent or emergent.7

DIFFICULTIES ACCESSING THEIR PRIMARY CARE PROVIDERS PREVAILING THEME
This study suggests that patients come to the emergency department because of their inability to access their PCP in a timely manner. The reasons patients came to the emergency department included: (1) more flexible time, (2) inability to obtain an appointment with the PCP, and (3) referral to be seen in the emergency department by staff in the PCP’s office. These themes were evident in nearly all study participant interviews.

Results from the present study were consistent with other research. Other studies have concluded that patients who are either dissatisfied with, foresee barriers in
accessing their PCP, or view the emergency department as more convenient are more likely to utilize emergency departments for their nonurgent need.8,10,11 Other reasons suggested in the literature for patients using the emergency department for care such as perception of severity of illness, type of insurance, and perception of the emergency department as providing better or more cost-effective care than that of a PCP were not supported in this study.4,7,11,12

The inability to obtain an appointment with a PCP and the referral to the emergency department by office staff appear to be related to the issue of time as well as the overcrowding of emergency departments. The fact that offices have specific hours of operation may be a reason they may overload their own schedules and have little time available for same-day office visits.

LIMITATIONS
The use of 3 hospitals limited the extent of variation within the study. The themes identified cannot be generalized, and comparative studies should be conducted to validate the outcome of our study using a larger number of health care organizations in different regions and different sample populations. The sample in this study ended up including 22- to 43-year-olds who had insurance. The overriding theme of inability to access their primary care provider in a timely manner may not be prevalent in older or younger patients and patients without insurance.

RECOMMENDATIONS FOR FUTURE STUDIES
The use of only adult subjects may have limited the reactions gained from staff in PCPs’ offices. Are pediatric office staffs more willing to “fit” pediatric patients into their hectic schedules? Or would they be sent to the emergency department as well? Future studies should include research that expands the age limits on the participants. It may be interesting to examine the pediatric population and referral to the emergency department. Other recommendations would be to examine staffs in PCP offices and their perception of nonurgent care in the emergency department and in their offices. It also could prove relevant to assess the criteria staff in PCP offices use in making referrals to the emergency department. Future studies also should examine both satisfaction with a PCP and the PCPs’ perception of their access to their patients. This may prove useful when evaluating a local area’s health delivery system. Another recommendation would be to investigate the patient’s perception of being referred to the emergency department. Does this emit a feeling of uncaring on the part of the PCP or their staff?

The answer to the question, “Why do patients use the emergency department for nonurgent problems?” is complex.24 As demonstrated by this study, consumers want access in a timely, convenient manner. The patients in this study perceived the emergency department as the mechanism to achieve this goal or believed they did not have another viable option when referred by their PCP.

It has been suggested that a lack of inpatient beds is the major reason for emergency department crowding.25 The lack of accessibility, accommodation, and access to and from a PCP, however, also seem to contribute to ED visits. In our society where instant gratification is expected, consumers will seek to have their needs met with efficient access and treatment. Individual emergency departments need to make a decision if they want to envelope these consumers or develop optional mechanisms for treatment. The development of “fast tracks” in some emergency departments has been a step in this direction. Another response has been the opening of urgent treatment centers.

Other options might include physician groups staffing after-hours clinics for patients who cannot come during regular office hours or whose PCP may not be available. The use of alternate care providers such as advanced practice nurses or physicians’ assistants have been used in these capacities. A triage mechanism whereby nonurgent patients are referred to community resources is another option. In a study of 225 persons referred from an emergency department to community resources after a medical screening, Diesburg-Stanwood et al26 found that 55% reported their condition had improved after 72 hours. Forty percent of the patients had accessed the community resources.26 In an Israeli study, use of an integrative telemedicine system resolved 86% of presenting medical problems without using hospital facilities.27 A system of this type might work in the United States if very specific algorithms were developed.
Summary

Health care has changed. The traditional view of the emergency department being used for emergencies only is no more. The care of nonurgent conditions in the emergency department, for reasons found in this study (primarily time), has implications affecting health care as a whole. Models that work to achieve the goals of consumers, such as fast tracks, free-standing clinics that see patients without an appointment, and referring out of the emergency department to community resources, need to be identified and implemented.

Acknowledgment

This study was completed as part of the requirements for the Master of Nursing Science at the University of Southern Indiana. We thank Jeri Burger for her assistance with the data analysis for this study.

REFERENCES

Effectiveness of a 6-week Online Course in the Canadian Triage and Acuity Scale for Emergency Nurses

Introduction: There is increasing interest in 5-level triage systems in emergency departments; however, the adoption of a new system places heavy training demands on ED department nurses and physicians. One emerging training option is online learning. The purpose of this study was to explore the effectiveness of an online course in the 5-level Canadian Triage and Acuity Scale (CTAS) on the clinical practice of the triage nurse.

Methods: Interviews were held with 23 emergency nurses from across Canada. A chart audit of triage codes from 367 charts from 6 hospitals was conducted.

Results: The most consistent finding was that the majority of RN staff enjoyed the online course and believed it had improved their triage practice. Nurses believed that their patient assessments were more thorough, accurate, and consistent throughout the department. Improved communication between staff and with patients and families was identified. Nurses reported using what they learned to improve triage assessment. Triage accuracy was high; the overall agreement between CTAS graduates and the chart auditor/expert within one CTAS level was 99.7%. Nurses also identified a number of organizational barriers to CTAS implementation after the course.

Discussion: The online format appears to be an effective, efficient, and convenient way to educate large numbers of ED staff in CTAS. Further research is needed regarding the use of multimedia and computer online chat options to further enhance the online learning experience for nurses.
ED nurses are facing increasingly complex patient situations, and the existing 3-level triage systems do not adequately address patient acuity and resource needs. Recently, ENA and the American College of Emergency Physicians issued a statement that the quality of patient care would be enhanced with the implementation of 5-level triage scales.1 Recently, the province of Ontario adopted the Canadian Triage and Acuity Scale (CTAS), a 5-level system that has emerged as a sensitive, accurate, and reliable tool for rapid patient assessment.2 The CTAS training in Canada has been provided through workshops, which placed heavy demands on those presenting. Coordinating the nurses’ schedules and dealing with staff shortages also made attendance both costly and challenging. Also, the efficacy of 1-day workshops on changing practice has been questioned.3 In an effort to improve access for the user, facilitate learning, and standardize triage education for nurses, a 6-week fully online course in the CTAS was developed. The course was funded by The Change Foundation, and it is delivered through Centennial College, Ontario.

The online course

It was recognized that nurses enjoy learning when it is applied to clinical situations, and thus the course was developed with the following features:

- Information presented as text had links to online articles, research and policy papers.
- Interactive case studies included photographs of patients to enhance simulations (see Table 1).
- There was an online discussion area for student-student and student-teacher interaction.
- A workplace project was integrated in the course. Students were required to share new learning in their department. They could choose among several options: providing an in-service session, a presentation, or a poster, or updating department manuals/resources.

The course took 6 weeks for participants to complete, and they typically spent about 3 to 4 hours a week online to accomplish the work. Students completed one module per week for the first 5 weeks. The modules were an overview of the CTAS, CTAS process and triage levels, the role of the nurse in triage, triage-focused assessment (including adaptations for patients with SARS and West Nile virus), and pediatric triage. Nurses were able to log onto the course from home or work at any time that was convenient. They started each week by reading both the content and the articles for the week online. They then worked through case studies and assigned a triage level to each situation (Table 1). As a regular learning activity, participants were required to engage in weekly online discussions with the teacher and peers regarding their triage

<table>
<thead>
<tr>
<th>TABLE 1 Sample learning activity: Week 5 Pediatric Module</th>
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<tbody>
<tr>
<td>Activity and online discussion</td>
</tr>
<tr>
<td>Read the following case study. In the discussion forum:</td>
</tr>
<tr>
<td>1. Assign a level of acuity to the case situation.</td>
</tr>
<tr>
<td>2. Provide your rationale.</td>
</tr>
<tr>
<td>3. Identify the appropriate response time for the physician and the nurse.</td>
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<tr>
<td>4. Briefly discuss how you would integrate the concept of patient-focused care.</td>
</tr>
<tr>
<td>5. Respond to one of the case situation answers completed by a classmate. Include why or why not you would have assigned the same acuity level.</td>
</tr>
</tbody>
</table>

Case Study

A 3-year-old boy is brought to the emergency department by his mother. He presents with an intermittent fever and rash on all limbs.

History: Child has been irritable and drowsy for 2 days. He has had an intermittent fever treated with Tylenol. He now presents with purpuric rash on all 4 extremities. He is unable to look up and focus on surroundings. His appetite is poor.

Vital signs: Temperature, 103°F; apical pulse, 140; peripheral pulses, absent; respirations, 34

Past medical history: Unremarkable
Allergies: None
Medications: Tylenol past 48 hours
Immunizations: Up to date
decisions for the case studies. The discussions were asynchronous, meaning nurses could post and read their peers’ comments at any time during the week. The discussion was moderated by the course facilitator, an experienced ED nurse who posed and answered questions for the participants. Nurses took multiple choice tests and short answer quizzes at the end of each module to evaluate their progress. In some instances, participants had these tests corrected and returned by the facilitator. In other instances, the computer gave correct answers and/or feedback immediately. The final week consisted of a case study based examination. Upon completion of the course, nurses received a certificate in CTAS from Centennial College.

Researchers have examined the impact of Web-based learning on clinical practice and found this delivery method effective.4,5 Most nursing studies, however, have not examined the transfer of learning to professional practice. At the time this study was conducted, there was no evidence of the impact of online learning on emergency nurses’ professional triage practice and triage accuracy.

Methods

Our study was conducted using surveys, a chart audit, and interviews to determine the impact of the CTAS online course on nurses’ triage skills and practices. The study was funded by Health Canada.6 The focus of this article is the results from the interviews and the chart audit component of the study. The research questions were: (1) What are ED nurses’ experiences with online learning? and (2) What impact does online learning have on nurses’ triage practices and accuracy?

One hundred seventy-six nurses were eligible to participate. Of this number, 124 completed the end of course survey. To gain an in-depth understanding of their experience, nurses completing the survey were invited to participate in an interview. Twenty-three (18.5%) registered nurses (RNs) working in emergency departments from 7 Canadian provinces participated. Even though data saturation was reached at the 18th interview, a further 5 interviews were conducted to ensure that no new themes emerged. The majority of participants ranged in age from 35 to 54 years. Eight (35%) worked in rural settings, 14 (61%) in urban hospitals, and one nurse worked at an outpost setting. The study was approved by the respective ethics review boards of the participating institutions. The RNs gave informed consent for participation in the interview process.

The interviews were conducted 2 to 4 weeks after the course was completed to allow time for the participants’ knowledge to transfer to the workplace. The interviews were taped and were approximately 30 minutes in duration. An interview guide was used to provide a systematic approach, and all interviews were conducted by one investigator (LA). The interviewer started by asking a general question: “Can you tell me about your experience with the online CTAS course?” Participants also were asked to comment on the factors that helped or hindered their learning and to describe the impact, if any, of the course on their triage practice and workflow. At the conclusion of the interview, the researcher summarized nurses’ comments and asked the participants to verify the accuracy of the summary.

The audiotapes were transcribed and a content analysis was done to classify responses to the interview questions and identify themes. The data were coded independently by 2 investigators (LA and KT) and compared. The level of agreement was high, and in those instances where reviewers differed, the transcripts were re-examined and recoded.

The majority of RN staff (78%, n = 18) enjoyed their online learning and believed that the course had improved their triage practice. Participants discussed their experience related to course content and design, interactions with others, and the online course technology and identified ways in which the course had improved their triage practice. They also identified a number of barriers to using CTAS effectively in practice.

CHART AUDIT

Six hospitals from 4 Canadian provinces where CTAS graduates were employed were randomly selected for chart audit. A shift worked by a CTAS graduate was randomly selected for audit, and all charts completed by the nurse on that shift were included in the audit. Three hundred sixty-seven charts were audited. The audit was done by an experienced ED nurse who is an expert in CTAS and works as a provincial triage auditor. The reviewer began by first looking at the presenting complaint and the triage nurses’ documented assessment. The reviewer assigned her own triage code and then compared that code to the code assigned by the CTAS graduate. The expert reviewer verified her triage designation by using current CTAS guidelines.
The CTAS graduates’ codes were then compared to the expert’s codes, and an accuracy rate was calculated.

Results: Interviews

**COURSE CONTENT DESIGN**
Most nurses enjoyed the convenience and flexibility of online learning. The online environment made access to standardized CTAS training possible for nurses who lived in rural and remote areas and those who worked different shifts. The positive perspective was illustrated by one nurse who remarked, “I really enjoyed it. It opened my eyes to a lot of things that we should have been doing differently. You see, we’ve been under-triaging. When CTAS came in a couple of years ago, we wanted to get going with it. We are self-taught. There was no course for us to be taking. This was my first online course. I really enjoyed doing my own thing, calling my own hours to work on it, especially doing shift work.”

Most nurses found that the case studies were realistic and helped them put the triage system theory into practice. The pediatric content and case studies enabled nurses who worked in departments in which children were seen infrequently to refresh their assessment skills. Some nurses (17%, n = 4), however, were ambivalent about the course. These participants indicated that they would have benefited from an opportunity to practice analyzing more complex case studies.

**INTERACTIONS WITH THE TEACHER AND PEERS**
Participants’ comments regarding their online discussions with the teacher and peers were generally very positive. Nurses reported that hearing about other nurses’ experiences facilitated their learning. It helped them to reflect and evaluate their own work practices and made them feel less isolated about triage issues in their own facility. Nurses enjoyed the feeling of being connected to other ED nurses as far as 3000 miles away and were encouraged that the difficulties experienced at their own institution were not confined to their region. Nurses identified a number of best practices regarding online facilitation. They were adamant that they wanted the teacher to take an active role in guiding and directing their discussions, providing an expert evaluation of their case study answers, and giving regular, rapid feedback to their work.

**TECHNOLOGY**
The majority of nurses (75%) had no previous experience with online learning. Several nurses noted that initially they had been frustrated adjusting to online learning and navigating the course platform. Experienced online learners learned to navigate the course quickly, and all participants reported feeling confident by the third week of the course. Almost all participants noted that their computer and online skills had improved as a result of the course.

**IMPACT ON PRACTICE**
The majority of participants (78%, n = 18) reported that the course had a positive impact on their triage practice in a number of ways (Table 2). One nurse, who worked in a remote emergency department, commented, “I thought you might like to know how valuable the CTAS has been this past weekend at our 10-bed rural hospital. At 05:30 this morning, there were two of us on shift and alone as staff. We had a patient die on the ward at the same time we received 5 teen victims from a motor vehicle collision. It was a challenging time for the teens, their families, and the family of the ward patient who died... Being comfortable with a good triage system was a big asset for me.”

An increased understanding of the CTAS guidelines translated to a triage process that was more accurate, which then resulted in better patient care. One nurse noted, “It has definitely made me more aware and how to more accurately triage. I’m looking at things differently now, because you are looking at the potential diagnosis down the road, not just the obvious, it makes you think and do a plan of care.”

**TABLE 2**

<table>
<thead>
<tr>
<th>Impact of CTAS online on triage practice</th>
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</thead>
<tbody>
<tr>
<td>Improved, thorough assessment</td>
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<tr>
<td>Improved triage accuracy</td>
</tr>
<tr>
<td>Improved objectivity/less judgmental</td>
</tr>
<tr>
<td>Increased confidence in triage practice, backed by national standard</td>
</tr>
<tr>
<td>Improved accuracy in pediatric assessment</td>
</tr>
<tr>
<td>Improved consistency in practice throughout the department</td>
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<tr>
<td>Improved patient flow through the department</td>
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<tr>
<td>Improved patient reassessment</td>
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<tr>
<td>Improved communication with patients and families</td>
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October 2005 31:5

JOURNAL OF EMERGENCY NURSING 439
Nurses indicated a renewed attention to assigning a higher level of acuity to patients whose diagnoses were once thought to be routine. They also reported increased triage inter-rater reliability with their colleagues, which resulted in a higher level of confidence among caregivers. Nurses believed the CTAS guidelines improved their ability to organize patient flow through the emergency department and, ultimately, improve patient care. They appreciated having a standard of practice to support their decisions. One nurse noted, “Having a rationale now for prioritizing the patient makes things easier. It has improved the flow of things in the department. You could see it change over the 6 weeks of the course.”

Nurses believed they were being more attentive to patients and families, particularly level 4 and 5 (less urgent) patients who typically had a lengthy stay in the waiting room. Several nurses commented that they were re-assessing all patients more frequently, including those in the waiting room, thus reducing risk to the organization. They also reported using greater diplomacy in their communication with patients and families when asked about the patient’s status and wait times. “We are tending to the less urgent patients better, less aggressively. We’re more diplomatic with them, more friendly and helpful. I’d say it had a good impact on our communication with them. The patients are less angry now.”

BARRIERS TO IMPLEMENTING CTAS AFTER THE ONLINE COURSE

Although the RNs believed that they had learned the CTAS well, they also reported that they had encountered a number of barriers to successful implementation. One surprising finding was that nurses at some sites reported that no formal triage system was in place or that triage was being done by a clerk. “Before this [the CTAS course] it was first come, first served.” Another nurse remarked, “We don’t have a formalized triage system here. Patients are registered by a clerk who often does not have any medical experience. If the clerk thinks that the patient is sick enough she’ll send them to see the nurse. We’ve had kids coming in with high fever that were sent to the waiting room, and we’ve had children seizure there. I think the course is going to change things a lot. Now we will be looking and be more on our toes.”

Participants reported that the CTAS course gave them the justification for additional staff, for a change in the physical layout of the ED, and for a change in policy so that patients would see a professional RN on arrival.

Additional challenges to the CTAS implementation were noted by participants. Some nurses reported that there was insufficient staff available to triage according to the CTAS guidelines in their smaller sized emergency departments. Others noted that while nurses had been trained in the CTAS, other team members such as physicians and paramedics had not been trained, which led to communication problems among the team. Another barrier was the physical layout of some emergency departments. Participants reported that privacy and confidentiality were not maintained when assessing patients in view of others. The need for administrative support was also identified as a key to the success of the CTAS model. Some nurses questioned if their organization would have the administrative support to follow through with physical plant improvements and staffing changes to implement the CTAS.

Results: Chart audit

Seventy percent of the CTAS graduates’ charts were coded at exactly the same triage level as that assigned by the expert. The overall agreement, within one CTAS level, between the CTAS graduates and the expert was 99.7%.

Discussion

The majority of emergency nurses learned CTAS and transferred their learning in the form of triage accuracy to the workplace. The 99.7% agreement between CTAS graduates and the expert reviewer within one triage level is very positive and suggests nurses can learn and use the CTAS reliably following an online course.

Most nurses also reported a positive learning experience. As novice online learners, most nurses faced a rather steep learning curve regarding the technology and adjusting to the pattern of online learning; this was a common finding. However, from the perspective of an innovative method of learning, it was encouraging that the RNs could adjust to a new way of learning and successfully complete the course in 6 weeks. Participants not only learned CTAS but gained computer skills for lifelong education.

As identified in earlier studies, the discussion forum available to participants played a major role in online
The forum provided a valuable opportunity to connect course content to the real world of practice. It allowed nurses to critically reflect on new content, test new skills, and learn from more experienced peers. Experienced CTAS nurses believed that more in-depth discussion regarding the rationale for assigning a particular triage level to a patient situation was critical for their learning. Identifying this gap suggests nurses recognize that access to course content does not necessarily equate with knowledge construction. The discussion forum also provided a valuable opportunity to network with colleagues across the country. Networking was perceived as positive and helped nurses put their own workplace practices into perspective, which was perceived as a genuine morale booster.

Not all the comments about the online discussion forum were positive. Some nurses believed that they had not connected with their peers; others believed the discussions lacked focus or relevance. Thus, some nurses made it clear that while they valued their peers’ input, they wanted the teacher to validate and moderate the discussion. The consistent impact of the amount and quality of student-teacher time online has been confirmed elsewhere. The online CTAS course helped nurses learn and had a positive impact on their triage practices. This finding is supported by findings from the chart audits. The online format appears to be an effective, efficient, and convenient way to train large numbers of ED staff. It is important to note, however, that online learning does not match everyone’s learning style, and therefore additional education options should be made available. Research regarding the use of multimedia and computer online chat room options to facilitate learning and communication also is needed. One of the limitations of this study might have been cost. The course fees were paid by employers for most of the participants, and this may have had a positive influence on their perceptions of the course.

Nurses indicated that even the best computer training program needs administrative support. For example, nurses need to be given time to work on the computer and the support of administrators to put into practice what they have learned. These support systems have been identified in numerous previous studies. Further research on facilitating the transfer of new learning to the workplace is needed to maximize the benefits from online learning for nurses.

REFERENCES
A Review of Horse-Related Injuries in a Rural Colorado Hospital: Implications for Outreach Education

Authors: Alexis M. Newton, RN, MSN, CNS, and Ann Marie Nielsen, RN

Introduction: The literature contains many studies on the types of injuries sustained in horseback riding incidents. Most advocate the use of equestrian helmets to prevent head trauma. However, information is limited on other specific prevention strategies.

Methods: A 4-year, retrospective, and prospective review of medical records pertaining to horse-related injuries in a southwestern Colorado hospital yielded a sample of 85 patients who had been injured while riding or tending to horses. In addition to the record review, patients were interviewed during ED discharge, inpatient treatment, or in a follow-up telephone call to determine the types, causes, and mechanisms of injuries, and the circumstances surrounding the incidents. Operators of 7 guest ranches and outfitters within a 30-mile radius of the hospital plus 3 ranches in Oklahoma and an additional ranch in Colorado were contacted with the study results and suggestions for injury prevention.

Results: Patients ranged in age from 2 to 77 years. Fifty-five percent were inexperienced or beginner riders, 10% were novice riders, and 35% were experienced riders. Seventy percent were injured during recreational pursuits. The average Injury Severity Score for all patients was 8.5, with an average length of stay of 72 hours. Injuries were related to rider inexperience, equipment problems, or unpredictable horse behavior.

Conclusion: Thirty-eight percent of the horse-related injuries were preventable. All operators of the guest ranches and outfitters were receptive to hearing or reading the study information. It is hoped that raising awareness and providing suggestions related to the screening of riders, prevention of injuries, and safety measures may decrease the numbers of horse-related injuries.
Background

Horse-related injuries are common in rural northwestern Colorado. The area is known for seasonal recreation and horses are involved in the majority of outdoor activities, as well as in ranching. Many national studies looking at the issue of horse-related incidents and resulting injuries have been conducted by associations such as The American Medical Equestrian Association,1 The Brain Injury Association,2 The World Medical Association,3 and The Centers for Disease Control and Prevention.4 Their focus has been to provide databases of injuries and to support the recommendation that all horseback riders should wear helmets.2,5 Existing studies are largely descriptive and few have outlined other, specific prevention strategies.9,10 Our interest in horses and riding inspired further research into horse-related injuries and their preventable causes.

...38% of the injuries sustained during the study period were thought to be preventable. This was noted through patients’ accounts of their own carelessness or because of a mismatching of the horse to the ability of the rider.

Methods

In this descriptive study, all horse-related injuries in an emergency department in rural Colorado were tracked for 4 years (2000 through 2003). Data were collected by both prospective and retrospective chart reviews (Figures 1 and 2, Tables 1 and 2). Considering the small volume of patients seen in the emergency department—1500 patients per year—we were surprised that 85 patients had been treated who were injured while riding or tending to horses. To further identify relevant variables, the authors conducted a real-time interview with the patients during ED discharge or inpatient treatment, or during a follow-up telephone call (Table 3). We protected subjects’ anonymity by coding information and we obtained consent for all interviews.

The authors decided to focus on area guest ranches and outfitters within a 30-mile radius of the hospital (N=7). We contacted each prior to our visit and, when we could not visit 2 of the ranches, we sent them a summary of our study and results. We also presented our study to the hospital board of trustees, 4 of whom are ranchers. One author also
took results to 3 ranches in Oklahoma and an additional ranch in northern Colorado.

Results

The average Injury Severity Score for all patients was 8.5 out of 75, with an average length of stay of 72 hours. Five patients were airlifted to a trauma center for further care. We were unable to identify any correlation between injuries and specific age groups. Of note, none of the patients wore a helmet.

Though the authors are well aware that horses are unpredictable, the data demonstrate that 38% of the injuries sustained during the study period were thought to be preventable. This was noted through patients’ accounts of their own carelessness or because of a mismatching of the horse to the ability of the rider.

As a result of the data, the authors questioned whether the following variables might have contributed to the injuries and used these questions to develop an educational program on injury prevention:

1. Do employees of ranches and outfitters (ie, persons who provide horses, tack, and supplies, and who set up camp) properly assess the riding abilities of their guests? During interviews, patients commented that they were not comfortable riding young horses or believed that they had over-estimated their riding abilities.

2. Are saddles and tack routinely checked for wear and tear and are cinches checked or regularly tightened to prevent saddle slipping? Renting saddles and tack contributes to wear of equipment. Severe changes in temperature can also affect leather as it cracks when it is frozen and thawed and expands during the arid heat of summer. Stretching of the leather can contribute to the loose cinches that were blamed for 25 injuries. Also, in some cases, horses push out their abdomens while being cinched. The later caused the saddles to slip.

3. Is the correct bit being used for the horses’ mouths? The wrong bit can cause the horse to become irritable.

4. Is there anything under the saddle blanket creating irritation for the horse?

5. Have the horses been fed and watered? This is important to basic animal health and well-being. During visits to several ranches, we saw horses that were saddled all day with no access to water.

We presented our data in poster board format along with our original questions and the following recommendations:

1. Helmets should be worn by all inexperienced and beginner riders. (Although we focused on new riders, all riders are at greater risk for head injuries if they do not wear helmets.) Of note, the National Children’s Center for Rural and Agricultural Health and Safety has reported that among

<table>
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<tr>
<th>TABLE 1</th>
<th>Causes of horse-related injuries from 2000 through 2003 in a rural emergency department in Colorado</th>
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<tbody>
<tr>
<td>• Horses falling into ditches</td>
<td></td>
</tr>
<tr>
<td>• Horses bitten by other horses</td>
<td></td>
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<tr>
<td>• Inadvertent spurring by the rider</td>
<td></td>
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<tr>
<td>• Carelessness</td>
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<tr>
<td>• Walking behind a horse</td>
<td></td>
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<tr>
<td>• Horse “spooked”</td>
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<tr>
<td>• Horse not fully trained</td>
<td></td>
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<tr>
<td>• Horse had the wrong bit</td>
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<tr>
<td>• Rider was distracted</td>
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<tr>
<td>• Horse had a saddle irritation</td>
<td></td>
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<tr>
<td>• Horse had been ridden infrequently</td>
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<tr>
<th>TABLE 2</th>
<th>Mechanisms of injury for 85 patients with horse-related injuries riding on guest ranches or with outfitters in northwestern Colorado</th>
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</thead>
<tbody>
<tr>
<td>Mechanism of injury</td>
<td># of patients</td>
</tr>
<tr>
<td>Kicked by horse</td>
<td>10</td>
</tr>
<tr>
<td>Bucked off of horse</td>
<td>26</td>
</tr>
<tr>
<td>Fell off of loping horse</td>
<td>25</td>
</tr>
<tr>
<td>Stepped on by horse</td>
<td>8</td>
</tr>
<tr>
<td>Horse rolled over patient</td>
<td>9</td>
</tr>
<tr>
<td>Jumped off of loping horse</td>
<td>1</td>
</tr>
<tr>
<td>Fell off of still horse</td>
<td>2</td>
</tr>
<tr>
<td>Hit patient’s head to head of horse</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
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</table>
children, more girls than boys, and more English riders than Western riders, wear helmets. 11)

2. Horse safety classes should be part of the horse rental package for inexperienced and beginner riders.

3. The wording on horse rental applications should be changed from, “Do you consider yourself a beginner, novice, or experienced rider/horseman? (Inexperienced riders have never ridden before and beginners have ridden very infrequently and sporadically.)

All riders are at greater risk for head injuries if they do not wear helmets.

Discussion

Some operators of guest ranches and outfitters commented that they were aware of injuries that had occurred or of the potential for injuries. Operators of 7 guest ranches and 1 outfitter stated that they would consider changing their waivers. All were receptive to hearing or reading our information, including the cowboys, farriers (ie, blacksmiths, horseshoers), and other horsemen/women. It is our hope that raising awareness and providing suggestions related to the screening of riders, prevention of injuries, and safety measures may decrease the numbers of horse-related injuries during recreational and work-related horse activities.

REFERENCES


5. Dawson J. The helmet question. American Association for
Horsemanship Safety. 2000 Spring;5(1) Available from: URL:

sports related head injuries. CPSC Document #5044. Available

7. Chitnavis J, Gibbons C, Hirigoyen M, Lloyd Parry J, Simpson
A. Accidents with horses: What has changed in 20 years? Injury

8. Centers for Disease Control and Prevention. Traumatic Brain
Injury (TBI): Prevention, Control, and Elimination. Available
from: URL: http://www.cdc.gov/node.do/id/0900f3c80000dbdc/

Marlenga B. Pediatric farm injuries involving non-working
children injured by a farm work hazard, five priorities for

safety packet: injury prevention strategies—what can child

11. National Children’s Center for Rural and Agricultural Health
http://research.marshfieldclinic.org/children/Resources/Equestrian/
Trauma
Today and Tomorrow: Recent Clinical Literature

The literature on trauma encompasses thousands of articles in a wide range of journals. This article summarizes some of those most pertinent to emergency nurses that were published in 2004. Articles from the Journal of Emergency Nursing were not included since readers already have access and can even search back to articles from 1998 on (www.JENonline.org). Criteria for the following selection of articles included those related to clinical practice in the ED phase of care and that were relevant to nursing. Articles that addressed new developments or re-evaluated old assumptions were also included. While far from all-inclusive, the articles discussed here-in provide interesting reading for nurses who want to develop their trauma expertise. Readers are encouraged to see the complete articles for the fullest appreciation of their information.

War & terrorism

Perhaps the most telling sign of the times is the need to become more informed about injuries suffered during war and terrorist events.

A US Army Forward Surgical Team’s Experience describes the experience of the 555 Forward Surgical Team (FST) during Operation Iraqi Freedom in March to April 2003. An FST is a 20-member team consisting of surgeons, ED and ICU nurses, CRNAs, and medics. This portable deployment, intended to operate near the front lines of battle and provide care for the injured who cannot be evacuated without treatment, cared for 154 US soldiers, enemy prisoners-of-war, and Iraqi civilians. With an overall mortality rate of 1.9%, and 25 major surgical operations performed, the cause of injury was most frequently
high-energy bullet and fragmentation injuries. Body regions most frequently injured were upper and lower extremities, head and neck, and chest. Injuries to extremities accounted for 56% of injuries, requiring arterial reconstructions, irrigation and debridement, external fixation, and amputations. The 3 patients who died were Iraqi soldiers who sustained major GI, abdominal, and vascular injuries. All of the exploratory laparotomies and thoracotomies were performed on prisoners of war or civilians; this was attributed to the US soldiers’ body armor and their location in protected fighting vehicles. The FST concentrated on triage, resuscitation, damage control, and stabilization, with the goal of rapid evacuation. This was not always possible given the intensity of the conflict and rapid evolution of the battlefront.

Casualties of War: Military Care for the Wounded From Iraq and Afghanistan provides an overview of the military medical care system, with a historic low mortality rate of 10% in the wars in Iraq and Afghanistan. The system begins with the FSTs, described in the preceding article. The next level is the Combat Support Hospital (CSH), 259-bed mobile hospitals equipped with radiology and laboratory facilities, intended to provide a more expanded level of care, but for a length of stay of no more than 3 days. Soldiers who require additional care are transferred to a full-service Level IV hospital in Kuwait, Spain, or Germany; those who will need more than 30 days of care are transferred to the United States. The system can move with great speed, with less than 4 days on average from battlefield to completed transfer to the United States. Unexpected were the increased number of blast injuries from suicide bombs and land mines (improvised explosive devices, or IEDs), which present as a constellation of penetrating, blunt, and very contaminated wounds and burns, as well as a high number of mangled extremities. The body armor worn by US soldiers does not protect them as well from IEDs as from more conventional war-time injuries: IED blast forces have been found to project upward under the armor and medially through its axillary vents. The accompanying article, Caring for the Wounded in Iraq: A Photo Essay, depicts in full color every phase of the medical care system from Iraq to rehabilitation, including some very graphic photographs of battlefield injuries.

According to Soldier Self Care, an article about Defense Advanced Research Projects Agency projects, there is a “paradigmatic shift from medic-centric to warfighter-centric medical care,” aimed at increasing the amount of care delivered by non-clinicians, expediting healing, and shortening recovery time and time to return to the battlefield. Some very interesting research projects, while not quite ready to be used on the battlefield, give us a glimpse of what to expect there, and, inevitably, in our own emergency departments. For example, a handheld ocular scanning device is being developed that would be able to identify, based on small variations in eye movements and pupil size, a number of chemical/biological warfare agents, such as nerve agents, cyanide, carbon monoxide, and botulinum toxin. Wound healing is a major focus, especially therapies delivered via portable technology. One is a light-emitting diode (LED) technology that delivers near-infrared light, shown in research to increase cellular energy production; another is topical oxygen emulsion using perfluorocarbon liquids, which facilitates the delivery of high-dose oxygen to injured tissues; a third is the use of micro-electrode arrays to deliver a pulsed low-intensity direct current that will cause an increased migration of epithelial cells to accelerate wound closure. The innate magnetic tourniquet is a substance composed of ferro-magnetic nanoparticles (injected systemically prior to battle), which enhance local hemostasis when attracted to a wound site by the use of a handheld device. A pain-provoking peptide corresponding anti-PPP antibody is being researched. This so-called pain vaccine would last for several weeks. Lastly, portable devices that could generate concentrated oxygen from air are being developed; these automatic emergency ventilators would be designed for non-clinicians to operate.

The Special Injury Pattern in Terrorist Bombings reviews the experience of the 9 major Israeli trauma centers that cared for 906 terrorist bombing victims requiring hospital admission from 2000 to 2003. These victims differed from other trauma patients in a number of ways. They were more seriously injured, had more body regions injured, had more severe neurologic deficits, and were more likely to require surgery and ICU care. Mortality was also higher, with a total mortality of 62.5% vs 36.4%. The authors attribute these phenomena to the multiple injury mechanisms triggered by explosions: primary blast injury from the explosive force, secondary blast injury caused by flying projectiles, tertiary blast injury as the victim strikes stationary objects, quaternary blast injury

448 JOURNAL OF EMERGENCY NURSING 31:5 October 2005
from burns, and quinary injury from toxic materials released during the explosion.

A handheld ocular scanning device is being developed that would be able to identify, based on small variations in eye movements and pupil size, a number of chemical/biological warfare agents, such as nerve agents, cyanide, carbon monoxide, and botulinum toxin.

Mass Casualty Terrorist Bombings\(^6\) analyzed 35 articles in the medical literature and described 29 terrorist bombings resulting in mass casualties (30 or more victims). Bombings that collapsed buildings were the most deadly, with 1 in 4 victims dying immediately. In structural collapses, patients received more inhalation and crush injuries. Confined space events were more likely to cause classic blast injuries and burns, and open air bombings caused more soft tissue trauma, usually minor, from shrapnel penetration.

Prehospital care

Several articles looked at the important issue of prehospital airway management, with some disquieting results. In Prehospital Endotracheal Intubation for Trauma Does not Improve Survival Over Bag-Valve-Mask Ventilation,\(^7\) a retrospective review studied 553 trauma patients receiving either endotracheal intubation (without neuromuscular paralysis or rapid sequence intubation [RSI]) or bag-valve-mask ventilation in the New Orleans ALS system. Intubated patients had a considerably higher mortality (88.9% vs 30.9%). Though a retrospective study in a limited geographic area, the results were still of concern. Other studies looked specifically at the traumatic brain injury population, one in whom the risks of hypoxia and hyperventilation are well-known. In The Impact of Hypoxia and Hyperventilation on Outcome After Paramedic Rapid Sequence Intubation of Severely Head-Injured Patients,\(^8\) a prospective non-randomized analysis was conducted of 59 San Diego EMS system patients who underwent RSI and were monitored with oximetry-capnometry. The mortality rate was 40.7% versus 21.5% for a set of matched control patients. The researchers identified a number of patients with profound desaturations during RSI, or hypoxia, hyperventilation, and hypocapnia after intubation. The authors attributed these findings to errors during the intubation and post-intubation phases and commented that capnometry should be universally adopted in the prehospital environment. In another San Diego study, Air Medical Transport of Severely Head-Injured Patients Undergoing Paramedic Rapid-Sequence Intubation,\(^9\) 336 patients undergoing paramedic RSI were stratified into groups according to their subsequent air or ground transport. The prospective non-randomized study then identified matched control patients. There was a small decrease in mortality of the air-transport group versus the control group and a statistically significant increase in mortality for the ground-transport group. The authors theorized that the differences might have been a result of paramedic inexperience or superior post-intubation ventilation management by flight crews. The last study, Out-of-Hospital Endotracheal Intubation and Outcome After Traumatic Brain Injury,\(^10\) used Pennsylvania trauma registry data to compare 1797 patients undergoing prehospital intubation with 2301 patients intubated in the emergency department. The findings were of a nearly 4-fold increased odds of mortality along with increased odds of poor neurologic outcome in the group intubated in the field. The authors emphasized that, as this was a retrospective study, they had identified an association between prehospital intubation and outcome, but not necessarily causality. They commented on the difficult prehospital environment and limited airway training. Nonetheless, an accompanying editorial noted that “if we were dealing with a drug that had such a negative association with patient outcomes, it would likely be pulled from the market.”\(^11\) None of these studies approached the “gold-standard” prospective randomized controlled clinical study method and all had significant limitations. However, the implications are profound in terms of airway training and quality control, the need for improved monitoring procedures and equipment, and the urgent need for more definitive research and for an unbiased reconsideration of how best to secure the airway in these vulnerable patients.

Resuscitation

The Next Generation in Shock Resuscitation\(^12\) provides a cogent overview of traumatic shock resuscitation, recaps the current controversies and dilemmas in resuscitation, then
previews several possibilities for the “next generation” of care. The authors explain that our current fluid resuscitation protocol of rapid crystalloid infusion followed by blood transfusion is an “obligatory intervention to decrease the severity of the shock insult [because shock triggers the inflammation response which causes multiple organ failure], but . . . is not directed at modulating inflammation—in fact, it may worsen it.” Studies have suggested that both lactated Ringer’s solution and blood transfusions contribute to this dysfunctional inflammation. The authors review the leading candidates for new resuscitation fluids that may replace the old standbys. These include alternative colloid (hydroxyethyl starch [Hextend Biotime, Inc., Berkeley, CA]) or crystalloid (Ringer’s ethyl pyruvate) solutions, hypertonic saline in combination with dextran (HSD), and polymerized hemoglobin solution (currently in Phase III clinical trials). Of note is that the authors do not propose limited or “hypotensive” fluid resuscitation as a strategy that will become the protocol of the future, except perhaps in a small subset of isolated penetrating injuries. Another intervention that shows promise is recombinant activated factor VII (see discussion of next article in this section). New monitoring technology is on the horizon that will allow more “ICU-like” monitoring without the need for pulmonary artery catheters in less-controlled environments, like the prehospital arena and emergency departments. The technologies include near-infrared spectroscopy measurement of tissue hemoglobin oxygen saturation (StO₂); direct tissue monitoring of PO₂, PCO₂, and pH; fiberoptic sensor measurement of sublingual carbon dioxide; transcutaneous O₂ monitoring (PtcO₂); central venous hemoglobin oxygen saturation (ScvO₂); and transthoracic electrical bioimpedance cardiac output monitors.

An . . . editorial [about mortality and poor neurological outcome in patients intubated in the field] noted that “if we were dealing with a drug that had such a negative association with patient outcomes, it would likely be pulled from the market.”

There is much interest in the trauma community concerning the use of recombinant activated human coagulation factor VIIa (NovoSeven; Novo Nordisk Pharmaceuticals, Inc., Princeton, NJ) for the management of coagulopathy. Factor VIIa has been reported to enhance coagulation at the site of bleeding without systemic effects. Factor VIIa for Correction of Traumatic Coagulopathy reports on a case series of 81 trauma patients who received Factor VIIa under a compassionate use guideline (the drug is not FDA-approved for this indication). Four groups of coagulopathic patients were treated: pre-existing Factor VII deficiency or warfarin therapy, hemorrhagic shock, traumatic brain injury, and ICU coagulopathy. Reduction of hemorrhage rate and volume was observed in all patients, along with decreased prothrombin time. Seventy-five percent of patients demonstrated hemostasis and a significant decrease in transfusion requirement. No patients demonstrated any of the hypothesized side effects, such as myocardial infarction, ischemic stroke, pulmonary embolus, or vascular graft occlusion. Overall mortality was 58%—a figure that sounds high but needs to be evaluated from the perspective that all of these patients were deemed to be at risk of death before treatment. Despite the clinical responses observed, the researchers were unable to establish survival benefit. A multi-institutional prospective randomized controlled study is needed. (The most recent update is that the drug is pending approval in Europe for use in connection with intracerebral hemorrhage; a confirmatory clinical trial is being planned for mid-2005 as a step toward approval in the US.)

**Traumatic brain injury**

The Neurophysiology of Brain Injury is an in-depth up-to-date review of the mechanisms and pathophysiology of brain injury, and a great reference for those interested in learning more about injury at the cellular level. The author describes the acceleration/deceleration, rotational force, and shear effects which combine to cause diffuse axonal injury (now called “traumatic axonal injury”—turns out it’s not really diffuse after all). Then an almost minute-to-minute description of the damage brain injury causes to brain cells is provided. Very briefly, axonal stretch causes a calcium influx, which results in reactive axonal swelling. In contrast, in focal brain injury, the damage is initiated by contusion or hemorrhage, with either direct
trauma or secondary neuronal necrosis caused by ischemia and edema.

Studies [suggest] that both lactated Ringer’s solution and blood transfusions contribute to dysfunctional inflammation. New resuscitation fluids that may replace the old standbys include alternative colloid (hydroxyethyl starch [Hextend]) or crystalloid (Ringer’s ethyl pyruvate) solutions, hypertonic saline in combination with dextran (HSD), and polymerized hemoglobin solution (currently in Phase III clinical trials).

If the promise of the S-100b blood test comes to pass, we may be able to drastically reduce the number of head CT scans we do on patients with minor head injuries. S-100b is a protein found in the astroglial and Schwann cells of the central nervous system (CNS). The substance passes into the bloodstream when the blood–brain barrier is impaired, as happens with CNS trauma. A rapid (18 minutes) blood test measuring serum S-100b was approved for use in Germany this year (Elecsys S100; Roche Diagnostics, Basel, Switzerland). In a large multi-center prospective clinical trial, Measurement of S-100 for the Indication of Computed Tomography in Minor Head Injury, the researchers correlated S-100b levels and CT scan results. In 322 patients with GCS of 13 to 15 and S-100b levels of ≤0.10 μg/L, 321 had normal CT scans (the exception was a fracture not requiring treatment). At the authors’ hospital, clinical practice has changed, and the S-100b test is now used as a screen before ordering a CT scan.

Spinal cord injury

Pathophysiology and Pharmacologic Treatment of Acute Spinal Cord Injury offers a look at spinal cord injury from initial trauma through the cellular impact. This is integrated with explanation of the various pharmacologic treatments under investigation. After the primary axon and neuron injury, a zone of secondary tissue injury expands from the injury “epicenter.” It is secondary injury that is the focus of most current research. Several processes thought to account for secondary injury are detailed, including microvascular hypoperfusion and ischemia, lipid peroxidation, glutamate release, and calcium and sodium dysregulation. Also discussed are the phenomena of inflammation and immunologic responses, including the likelihood that inflammation is a “double-edged sword,” in early stages neurotoxic and in late stages neuroprotective. The article concludes with an overview of pharmacologic interventions, including corticosteroids, gangliosides, opioid antagonists, glutamate receptor and ion (calcium and sodium) channel antagonists, cyclooxygenase (COX-2) inhibitors, and newer agents being researched. The section on methylprednisolone is particularly valuable; the authors outline the supporting research and then the current controversy about use of the drug, based on weaknesses in the original research, lack of substantiation of true clinical gains, and concern about adverse consequences. For more on this topic, see High-Dose Steroids for Acute Spinal Cord Injury in Emergency Medical Services, a position paper of the National Association of EMS Physicians, which presents the case against methylprednisolone and the position that the drug “should not be considered the standard of care for out-of-hospital emergency medical care.” Some trauma centers have stopped using high-dose methylprednisolone; this may be a trend that will gain momentum.

Special populations

Buckled-Up Children focuses on the group of children aged 4 to 9 who present unique challenges in achieving appropriate safety restraints. They are too large for child safety seats and too small for proper use of adult seat belts. Booster seats are recommended but often not used. According to experts, children should be in booster seats until they are over 4’9” in height and weigh 80 pounds; another gauge is that children can stop using booster seats when they can sit against the back of the vehicle seat with their legs bending at the knees and feet hanging down over the seat. The author cites data that 83% of children between 4 and 8 years are improperly restrained. Most commonly, these children are placed in adult seat belts without boosters. As a consequence, the shoulder belt may cross the face or neck instead of shoulder; the response may be to place the belt under the arm or behind the child.
Under-arm belting places the belt over the vulnerable abdomen. Moving the belt behind allows the child to jackknife over the lap belt. The lap belt will not fit snugly enough and will tend to ride up or allow the child to submerge out from under the belt. In the seat belt syndrome or lap belt complex, the pattern of injuries includes abdominal wall soft tissue trauma, mesenteric and bowel injuries, and lumbar vertebral fractures. Improperly restrained children are also more vulnerable to serious head and facial injuries. The article covers the incidence of seat belt injuries, mechanism of injury and contributing factors, typical and atypical injuries, assessment, diagnostic testing, management, and prevention.

[A] position paper of the National Association of EMS Physicians, . . . presents the . . . position that [methylprednisolone] “should not be considered the standard of care for out-of-hospital emergency medical care.” Some trauma centers have stopped using high-dose methylprednisolone . . . a trend that [may] gain momentum.

Pedestrians Injured by Automobiles used trauma registry data to analyze 5838 pedestrian injuries over a 10-year period, stratified by age. The researchers found that the incidence of severe trauma increased with age, ranging from 11.2% in the pediatric age group to 36.8% in the elderly age group. The breakdown of severe injuries by body region revealed that the most common overall was head trauma (10.6%); the incidence of severe head trauma also increased with age (23.7% in those >65 years). Specific types of head trauma in the elderly were subarachnoid hematoma, brain contusion, and subdural hematoma. While the incidence of serious extremity injuries was low overall, specific types of orthopedic injuries occurred commonly. Pelvic fractures occurred in 12.8% of patients overall and 22.6% of elderly patients. Femur fractures occurred in 9.8% overall and were most common in the youngest age group (15.5% in those ≤14 years), the only serious injury not most common in the elderly. The most common single injury was tibia fracture (25.9%). Also notable was the incidence of severe chest trauma, severe abdominal injuries, and spinal injuries in the elderly. Overall mortality was 7.7%, ranging from 3.2% in the pediatric group to 25.1% in the elderly group. This study, though limited to the data of a single trauma center, does point us to the types of injuries we could anticipate when assessing pedestrian trauma, and certainly flags the elderly as a high-risk group.

The elderly are a growing risk group in trauma—a Baby Boomer turns 50 every 7 seconds and the elderly require hospital admission post-trauma twice as often as younger persons—and When the Trauma Patient is Elderly provides a thorough overview of how we should be altering our care for this population. Though intended for peri-anesthesia nurses, almost all of the content is very relevant for the acute phase of care. The author covers the physiologic changes of aging, mechanisms and patterns of injury, physiologic response to injury, and primary and secondary assessment and intervention adapted for the elderly. An informative table displays, according to body system, common pre-existing conditions, physiologic age changes, resulting clinical signs and symptoms, and potential traumatic injuries.

Pain

The Impact of Introducing Patient Controlled Analgesia for Trauma Patients Admitted Through Accident and Emergency describes the implementation of patient controlled analgesia (PCA) in a British emergency department to address problems in pain assessment and management. The authors audited the records of trauma patients with fractures for evidence of pain assessment and management, and found deficiencies. Several improvement activities were carried out. A 4-point pain scale incorporating verbal, numeric, and pictorial descriptors was adopted. The scale is as follows: 0 = no pain (“it does not hurt at all”), 1 = mild pain (“hurts a little”), 2 = moderate pain (“hurts a lot”), and 3 = severe pain (“worst hurt ever”); each point has an illustrative facial cartoon. A treatment regimen was selected consisting of an initial intravenous morphine bolus followed by PCA when indicated. Guidelines for PCA use in the emergency department were written and a flowsheet was developed. Staff were educated about the pharmacology of morphine and the use of the PCA, as well as appropriate documentation. Patient response was highly
favorable. Follow-up documentation audits demonstrated improved documentation and improved pain management. This exemplary project can serve as a model for all emergency departments seeking to improve their care of patients in pain.

Trauma systems & trauma centers

Obviously, a critical question concerning the problem of ED diversion is its effect on patient outcome. Emergency Department Diversion and Trauma Mortality attempted to answer that question for trauma patients in Houston by comparing mortality during “significant diversion days” with “nonsignificant diversion days” from 1999 to 2001. Mortality was slightly higher on significant diversion days, though not statistically significant. Further analysis revealed that mortality differences approached statistical significance among the most severely ill patients transferred from other facilities (25% vs 14%). Because the study was limited in a number of ways, the authors characterize their evidence as “weak but disturbing,” and I would agree. The need for additional research is clear.

Considerable research has been devoted to the issue of whether the standard trauma team activation criteria can be improved to eliminate unnecessary activations. The authors of Trauma Team Activation Criteria as Predictors of Patient Disposition From the Emergency Department studied the San Francisco General Hospital (SFGH) trauma team activation criteria by means of a prospective cohort study conducted in 1998. SFGH has a 2-tier activation system. The first tier of criteria are largely physiologic and the second tier primarily relate to mechanism of injury. For first-tier activations, a much larger trauma team is activated. The researchers defined an appropriate activation as one resulting in a severe outcome, defined by either ED death or OR/ICU admission. For 1005 trauma team activations, they ranked the criteria used to make the activation decision from most to least predictive. Of 305 first-tier activations, 46.6% were OR/ICU admissions and an additional 29.2% were standard hospital admissions. Of 700 second-tier activations, 7.7% were OR/ICU admissions and an additional 19.4% were hospital admissions. The least predictive first-tier criterion was “age >65 years and [presence of] second-tier criterion,” which resulted in a severe-outcome incidence of 20.6%. The authors suggest that this criterion be evaluated from the risk-benefit perspective and that it might merit elimination. My personal opinion is that a rate of 20.6% severe outcomes is substantial and that the criterion deserves retention given the well-known poorer outcomes of older trauma patients, especially since it would probably become more predictive if the second-tier criteria were revised. The 4 least predictive second-tier criteria were as follows: motorcycle crash with separation of rider, pedestrian hit by motor vehicle, motor vehicle crash with rollover, and motor vehicle crash with death of occupant. Elimination of these criteria was calculated to reduce the number of second-tier activations from 700 to 216 and to increase the percentage of appropriate activations from 7.7% to 14.8%. The researchers recommended eliminating these criteria. They do not discuss the option of refining the criteria instead of eliminating them; for example, the more restrictive ACS pedestrian criterion is “pedestrian thrown or run over.” I wonder whether reducing the number of trauma team activations would ultimately increase or decrease ED efficiency. In my experience, while trauma activation does require increased personnel, it also often expedites assessment and disposition. The authors do not say whether they revised the SFGH activation criteria as a result of the study. Because the study was conducted in a single trauma center, the results cannot be generalized; nevertheless, it provides an excellent model for replication in other centers.

This is a question often raised in trauma centers: Are those 23-hour observation admissions for trauma team activation patients really necessary? The answer may be no, according to Evaluation of the Necessity of Clinical Observation of High-Energy Trauma Patients Without Significant Injury. The researchers observed that large numbers of patients in their Seattle and Amsterdam (The Netherlands) trauma centers were routinely hospitalized for clinical observation if they had been involved in a high-energy trauma event, even without any evidence of significant injury. They conducted a retrospective record review of 503 patients with the following results: 1) in 89% of cases, both GCS and Revised Trauma Score (RTS) were maximal on ED arrival; 2) in the remaining 11% of cases, GCS and RTS had normalized by ED departure; 3) all patients had minor injuries or no injuries; 4) during the observation period, none of the patients had additional injuries diagnosed or experienced complications; 5) post-hospital
follow-up of a subset of patients revealed no complications, additional injury diagnoses, or re-admissions. As a result of the study, the authors’ trauma centers no longer admit these patients, instead scheduling them for outpatient follow-up. Other trauma centers might consider replicating this study, especially with the current capacity crisis (though I wonder whether some of these patients would end up staying longer in the emergency department for observation if the protocol no longer required admission).

This question [“Can ED nurses independently clear cervical spines?”] is well worth further exploration, given the benefits of earlier removal of collars and backboards which can cause pain, agitation, anxiety, airway compromise, and impaired skin integrity.

Nursing practice & education

In Can Nurses, Working in the Emergency Department, Independently Clear Cervical Spines?, the author took each of the 5 criteria for clinical clearance from the internationally recognized National Emergency X-Radiography Utilisation Study (NEXUS) and discussed the necessary knowledge and skills. The criteria are as follows: no midline cervical tenderness on direct palpation, no focal neurological deficit, normal alertness, no intoxication, and no painful distracting injuries. Patients who do not meet these criteria require radiographic clearance. The author believes that properly educated nurses could competently clear cervical spines clinically, but that nurse-controlled radiographic clearance would not be appropriate. In an abstract presented at a recent conference, Can Nurses Apply the Canadian C-Spine Rule: A Pilot Study, the ability of nurses to perform clinical clearance according to the Canadian C-spine Rule (CCR) was evaluated by comparing physician and nurse agreement in 88 cases. Inter-rater agreement for most of the criteria was good except that most nurses did not test range of motion. The researchers concluded that with further training nurses should be able to safely apply the rule. The CCR has different criteria than NEXUS. Briefly, the CCR algorithm is as follows: high-risk, age over 65 years, dangerous mechanism, or paresthesia in extremities—obtain X-ray; low-risk, simple rear-end collision, sitting position in emergency department, ambulatory at any time, delayed onset of neck pain, or absence of midline tenderness—test ability to rotate neck actively and order X-ray if unable. This is a question well worth further exploration, given the benefits to patients of potentially earlier removal of collars and backboards which can cause pain, agitation, anxiety, airway compromise, and impaired skin integrity.

Large numbers of nurses have taken trauma courses, but how long do the knowledge and skills gained persist? Nurses’ Acquisition and Retention of Knowledge after Trauma Training, a British study, is the first to attempt to answer the question. The study tested 14 participants in an Advanced Trauma Nursing Course (ATNC), a 5-day course that incorporates the Advanced Trauma Life Support course and additional nursing-specific content. Participants were tested at 4 stages and completed a logbook to track post-ATNC trauma clinical experience and education. Before receiving the course manuals, none of the participants passed. At the beginning of the course, 1 participant passed. At the completion of the second day, 79% passed. Three months after the course, 43% passed. Knowledge levels significantly declined between course completion and the 3-month post-test. However, participant knowledge levels did increase overall and this was found to be statistically significant; also, 43% of the participants did pass the test 3 months after the course, compared to none at Stage 1. Statistical analysis revealed that retention was related to the length of emergency nursing experience and the number of trauma articles read. The author calls for further research and strategies to improve retention. She also questions the current practice of allowing 4 years before requiring reverification. Certainly, this small study demonstrates the need for more research with a larger sample. Both ATNC and the Trauma Nursing Core Course should be evaluated.

Also noteworthy

Two issues of the Clinics journals also focused on trauma in 2004. Critical Care Clinics published an issue on trauma that included the following topics: initial management, coagulation defects, brain/spine injuries, cardiac injury, thoracic trauma, post-traumatic respiratory failure, damage control
surgery, abdominal injury, pelvic/femur fractures, and crush injury. Finally, Critical Care Nursing Clinics of North America published an issue on burn and wound care. Some of the topics covered were burn epidemiology, physiologic response to burns, prehospital/ED care, trends in resuscitation, burn wound assessment and management, inhalation injury, pain management, topical therapies, pediatric burn patients, and burn prevention.

REFERENCES
A 37-year-old Woman Without a Helmet Sustains a Traumatic Brain Injury After a Fall From Her Horse

A 37-year-old woman was brought to the emergency department via ambulance after a fall from her horse. Her husband had found her on the ground, unconscious. Initial assessment revealed a patient with full cervical spine precautions. Vomitus was present on her face but she was maintaining her own airway. Respirations were shallow at 16 breaths/minute with equal chest wall excursion and clear breath sounds. Her blood pressure was 110/68 mm Hg with a heart rate of 82 beats/minute in normal sinus rhythm on the cardiac monitor.

The patient had her eyes closed but she responded to verbal stimuli and answered most simple questions appropriately. Her pupils were asymmetrical; the left pupil measured 8 to 9 mm and was unresponsive to light, while the right pupil measured 6 mm and had a sluggish reaction to light. The patient was unable to open her left eyelid or track with her left eye. Babinski’s reflexes were equivocal. Her Glasgow Coma Score (GCS) was 10 out of 15. Despite being on the ground in November for at least 10 to 12 minutes, she was normothermic. She complained of pain to the front and top of her head, but she did not have any external bleeding or obvious injuries. Her past medical history was only remarkable for a closed head injury related to a fall from a horse 20 years earlier.

Further history obtained from the patient’s husband revealed that they were riding horses while moving cattle on opposite sides of a gulch. Neither the husband nor the patient was wearing a helmet. The husband did not witness the patient’s descent from the horse, but noticed the horse running towards him without a rider. He found the patient unconscious and was unable to rouse her. She had vomited at least once. Because they were in a remote
area, the husband loaded his wife into the back seat of his pickup truck and began driving to the hospital. En route and within city limits, the engine of his truck died. He called EMS who transported the patient to the hospital. During transport, the patient regained consciousness and had recurrent vomiting.

**Head injury is the most common reason for death or serious injury following a horse-related incident.**

During the course of her emergency department treatment, the patient’s vital signs remained stable. Radiographs of her chest, pelvis, and cervical spine did not reveal any abnormalities. Laboratory results also were unremarkable. An unenhanced computed tomography scan of her head revealed an acute traumatic intraparenchymal and subarachnoid hemorrhage with possible mild edema. We administered promethazine 12.5 mg intravenously for recurrent vomiting and fosphenytoin 800 mg intravenously to prevent seizure activity. The patient’s pupils remained unequal and unchanged. She had alternating periods of lucidity and unconsciousness; her short-term memory was poor. After we administered 30 Gm of mannitol intravenously and inserted a Foley catheter, the patient was airlifted to a trauma center with neurosurgery capabilities. Her GCS was 14 at the time of transfer.

**The effectiveness of ASTM/SEI equestrian helmets [in preventing death and reducing the severity of head injuries while riding] is estimated to be 88% - the same as for bicyclists who wear helmets.**

After a prolonged recovery period, the patient was discharged home. Because of a third cranial nerve injury, she did not regain the use of her left eyelid or pupil; it remains dilated, impairing her vision. The patient had lead inserts implanted into her left upper eyelid to help her to close it. She copes with short-term memory deficits related to the traumatic brain injury and still has no recollection of the fall from her horse.

**Discussion**

Head injury is the most common reason for death or serious injury following a horse-related incident. However, consistently wearing an American Society for Testing Materials (ASTM) or Safety Equipment Institute (SEI) approved helmet that has the correct fit and is correctly applied will prevent death and reduce the severity of head injuries while riding. The effectiveness of ASTM/SEI equestrian helmets is estimated to be 88%—the same as for bicyclists who wear helmets. Since her fall, our patient has worn a helmet and, in an outreach effort, she has told her story to various 4-H clubs, to encourage others to wear helmets while horseback riding.

**REFERENCES**

A 44-Year-Old Woman With Multiple Blunt Trauma Related to Horseback Riding

44-year-old woman was found on the road by a passerby after sustaining an unwitnessed fall from a horse. She had been thrown, fell face first, and was trampled twice.

On arrival at the emergency department, the paramedics described her as a helmeted rider with no loss of consciousness and a Glasgow Coma Score of 15 out of 15. Medical and surgical histories were unremarkable. The patient was immobilized on a backboard with a cervical collar in place. Two large bore intravenous lines were infusing lactated Ringer’s solution. The paramedics had decompressed a suspected left pneumothorax with a needle thoracostomy. The patient’s initial vital signs in the emergency department were as follows: blood pressure, 90/50 mmHg; heart rate, 69 beats/minute; respirations, 15 breaths/minute; temperature, 36.9°C (98.4°F); and SpO₂, 100% on a non-rebreather mask. She complained of substantial chest pain with radiation to the left rib area.

Initial assessment revealed an anterior flail chest, hematoma to the patient’s forehead (pupils were equal and reactive to light), and multiple abrasions to the patient’s arms and right hip with free range of motion to all extremities. The trauma team inserted a left subclavian central line, a Foley catheter, and a nasogastric tube.

The patient’s initial laboratory results were normal except for a hemoglobin of 7 G/dL (normal, 12–15.6 G/dL) and a hematocrit of 21% (normal, 35–46%). A chest radiograph revealed fractures of ribs 8 through 10 on the right and ribs 8 through 11 on the left, so the physician inserted bilateral chest tubes. Additional diagnostic tests showed free fluid in the pelvis on abdominal ultrasound examination, and a grade IV–V ruptured spleen via computed tomography scan. Her Injury Severity Score was 33 out of
75; we transported her to the operating room within 50 minutes of her arrival to the trauma bay.

Discussion

Our state actively supports thoroughbred racing, riding academies with equestrian training, horse sales, and the boarding of horses year-round. Over 300,000 horses reside statewide and more than 70% are used for recreational riding and competition.1 Nationwide, horseback riding-related injuries are common.2

Horses can travel up to 40 mph, weigh 1500 lbs, and deliver one ton of force in a single kick.

Between 2002 and 2004, our trauma service admitted 41 patients with horse-related injuries, 50% of whom had Injury Severity Scores of 25 or more. Significant injuries to the chest were documented in 43% of the cases, abdominal injuries in 43%, spinal and long bone injuries in 47%, and head injuries in 39%. Twenty of the admitted patients were injured in more than one area, leading to more complicated recoveries and a higher cost of care. Alcohol and substance abuse may contribute to equine injuries, as suggested by the toxicology results from our patients.

Her helmet may have prevented her from sustaining head trauma. Additional safety precautions, such as having a cell phone handy or riding with another person, might have been helpful.

The risk of injury or death during horseback riding has been estimated to be higher than that in football, hockey, or even motorcycle or car racing.3 This is understandable when considering the mechanism for horse-related injuries. Horses can travel up to 40 mph, weigh 1500 lbs, and deliver 1 US ton of force in a single kick. When mounted on horseback, our patient’s head was approximately 9 feet off the ground. Typically, a fall can result in a delivery of 100–300 G (pounds per square inch) of deceleration to the upper torso and head.4

Sitting forward and unrestrained, our patient was at significant risk for ejection and falls. Her helmet may have prevented her from sustaining head trauma. However, a safety vest could have also prevented thoracic injury. Additional safety precautions, such as having a cell phone handy or riding with another person, might have been helpful. A horse’s movements can be irregular and unpredictable, and even bystanders are at risk for injury.

In the operating room, the surgeons performed a splenectomy and an exploratory laparotomy on our patient to evaluate her for a retroperitoneal hematoma. She made excellent progress in the intensive care and rehabilitation units and was discharged home with trauma clinic follow-up after an 11-day hospitalization.

REFERENCES
Knowledge Assessment and Preparation for the Certified Emergency Nurses Examination

With the current emphasis on credentialing in nursing, many nurses have committed to taking the CEN examination. The following questions have been developed to assist in emergency nursing knowledge assessment and in preparation for the CEN examination. Questions, rationale for the correct answers, and references are provided here for your self-evaluation. ENA has developed educational materials that can be used as further resources for CEN preparation: Emergency Nursing Core Curriculum and CEN Review Manual. For further information on educational review materials, please contact the ENA Association Services Team at (800) 243-8362.

REFERENCES

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QUESTIONS

1. Along with antimicrobial therapy, another first-line treatment for sepsis is to administer
   A. a crystalloid bolus.
   B. a diuretic.
   C. a vasoactive agent.
   D. high-dose steroids.

2. “An unexpected occurrence involving death or serious physical or psychological injury, or the risk of death or serious injury” is the definition of
   A. the Emergency Medical Treatment and Active Labor Act.
   B. breach of duty.
   C. an Occupational Safety and Health Administration regulation.
   D. a sentinel event.

3. Endotoxins from Clostridium tetani, the causative agent in tetanus, are produced in which of the following environments?
   A. Hyperbaric
   B. Aerobic
   C. Antimicrobial
   D. Anaerobic

4. At the time of discharge, you give your patient a prescription for an angiotensin-converting enzyme inhibitor, such as enalapril (Vasotec). You should inform the patient that the drug will:
   A. “remove excess water from your system.”
   B. “open your blood vessels, thereby lowering your blood pressure and helping your kidneys to work more efficiently.”
   C. “block substances that increase your heart rate” (ie, catecholamines).
   D. “help your heart to pump more efficiently.”
5. The most appropriate way to screen a patient for domestic violence is to:
   A. phone the patient at home any time after the ED visit is complete.
   B. interview the entire family.
   C. provide written material for the patient to review.
   D. interview the patient alone.

ANSWERS

1. Correct answer: A
   Sepsis is a systemic response to infection. Venous dilation in sepsis creates relative hypovolemia and hypotension, requiring aggressive fluid resuscitation. Endothelial damage allows fluids to escape into extravascular spaces, causing edema and further hypovolemia. Diuresis (B) would cause more fluid loss, hypovolemia, and hypotension and is not a treatment for sepsis. Patients who do not respond to fluid therapy should receive a vasoactive drug with the goal of rapidly normalizing tissue perfusion pressure (C). Low-dose steroid replacement therapy may be necessary to treat relative adrenal insufficiency (D). Fitch and Gouge,

2. Correct answer: D
   This is the Joint Commission on Accreditation of Healthcare Organizations’ definition of a sentinel event. The Emergency Medical Treatment and Active Labor Act (A) is a federal statute that addresses “patient dumping”—the transfer of unstable patients for financial reasons. Breach of duty (B) is 1 of 4 elements of medical negligence. The other elements are duty, proximate cause, and damage. Through actions such as inspections and fines, the Occupational Safety and Health Administration (C) enforces regulations that affect employee safety, such as the regulation on the occupational exposure to bloodborne pathogens. Sentinel events,

3. Correct answer: D
   Clostridium tetani spores germinate and produce the endotoxin, tetanospasmin, in an anaerobic environment. All other responses (A, B, C) would not support growth of this organism, because gram-positive bacilli, such as C. tetani spores, can only grow in anaerobic environments. Walker,

4. Correct answer: B
   Opening blood vessels, thereby lowering blood pressure and helping the kidneys work more efficiently, is the action of an angiotensin-converting enzyme inhibitor. Removing excess water (A) is the action of a diuretic. Blocking substances that increase the heart rate (C) is the action of a β-blocker. Helping the heart pump more efficiently (D) is the action of a digitalis glycoside. Ayers,

5. Correct answer: D
   The best way to identify a victim of domestic violence is to screen all patients 14 years or older in total privacy; a victim of domestic violence may be afraid to reveal the truth if he or she does not feel safe and supported. If the partner will not leave the patient alone and you are unable to distract the partner by referring him or her to a registrar for billing questions, etc., it is best not to press the issue because it could increase the patient’s risk for violence. If you cannot interview the patient privately, consider calling the patient at work or at home when the partner is not likely to be there (A). The patient should be interviewed alone, no matter how compassionate the partner appears to be (B). Written materials (C) that include phases and progression of abuse, reasons why victims stay, and how to devise a safety plan can be helpful, but it may be unsafe for the patient to take the material if he or she believes that the abuser may find it. Berlinger,
At 7:10 PM, a 4-year-old girl and her father arrived at the triage desk. The child presented with difficulty breathing, cold symptoms for 1 week, and a history of asthma. She used her albuterol puffer at home, but had no change in her condition. On examination, she had warm dry skin, a temperature of 37.5°C (99.5°F) orally, a heart rate of 140 beats/minute, respirations of 48 breaths/minute, blood pressure of 120/73 mm Hg, and an oxygen saturation of 95% on room air. Other initial findings included audible wheezes throughout her chest, use of accessory muscles, and a constant, congested cough.

During treatment in the emergency department, the patient’s chest radiograph was read as normal, and her respiratory rate, pulse, and oxygen saturation on room air returned to normal limits. At 10:00 PM, the ED physician wrote the order for her to be discharged home with her father.

One of the emergency nurses agreed to watch the child while the father left to call a taxi. (This nurse had not been involved with the child’s care.) During the father’s absence, the nurse noted that the child looked flushed and her skin was hot to the touch, but her last recorded temperature, taken almost 3 hours earlier, was normal. An initial attempt to take an oral temperature failed because the child was very drowsy, so the nurse proceeded to take a rectal temperature. The father returned to the room during this procedure and became extremely angry, despite the nurse’s explanation of her concern regarding his daughter’s lethargy, flushed color, and skin temperature. The nurse removed the thermometer prior to completing the temperature; it read 38.4°C (101.1°F). The child went home with her father.
Discussion

A rectal temperature is considered by some to be the most accurate way of measuring an infant’s temperature. Objections to measurement of rectal temperatures are most often based on the risk of rectal perforation by the thermometer. The incidence of perforation, although extremely rare, results in a high mortality rate of approximately 50% in babies, mainly because of the difficulty of diagnosing the problem and locating the wound.

Ear-based temperature measurements, frequently referred to as tympanic temperatures, rely on the ability of the instrument to detect infrared emissions from the tympanic membrane. These temperatures can be obtained quickly, and the ear is readily accessible. Unfortunately, the large diameter of the ear probe and the small diameter of the external opening of the ear canal in neonates and young children impair the instrument’s ability to “visualize” the tympanic membrane or even the innermost portion of the external ear canal. As a result, detection of the infrared energy emitted from these surfaces may not be sufficient to provide an accurate temperature. A large, systematic review of 20 studies concluded that infrared ear-based thermometry is inaccurate, inconsistent, and insensitive for temperature measurement in neonates, infants, and children.

In this same review, similar conclusions were drawn for axilla temperatures in the pediatric population older than 1 month. Obtaining a temperature from the axilla, however, is an accepted nursing practice in neonates because of the greater surface vasculature and thermal uniformity.

Although we were not able to determine why the father in this case was so irate, some researchers indicate that parental attitudes can influence which site is used to measure a child’s temperature, whether or not the site is the most accurate. Kai reported that most parents prefer not to measure a child’s temperature rectally but choose to use the axilla instead. Of the parents in this study who reported being uncomfortable with measuring a rectal temperature, some related feelings of disgust. Alternatively, while some parents believed that measuring temperature at the rectal site was more appropriate for health care professionals, others believed that they either could not comfort their child or might be accused of sexual abuse. Maxton, Justin, and Gillies noted that “Concerns must...be raised about use of rectal probes in light of a number of sexual abuse legal cases...”

In [a] systematic review of best evidence...the rectal site was recommended until the child is old enough to cooperate with oral temperature measurement.

The incident in our case provoked such an extreme reaction that the father made a complaint against the nurse and directed it to the hospital’s director of Quality and Risk Management for action. This action led to a request to the hospital’s Department of Research to undertake a review of sites for temperature measurement in the pediatric population.

Having a parent present when a rectal temperature is taken decreases their concern.

All of the nonpediatric hospitals in one major Canadian city and several pediatric hospitals across Canada responded to our request for information. Most hospitals did not have strict policies on pediatric temperature measurement. Three of the 5 nonpediatric hospitals primarily use the rectal site for temperature measurement in children younger than 2 years. Two of the hospitals reported that they do not use axilla temperatures or find them unreliable, while one reported that it prefers this site for children younger than 5 years. The other hospital prefers measuring the temperature at the axilla for infants and children younger than 3 years. In most of the pediatric hospitals that we contacted, the rectum or axilla is the preferred site in children younger than 18 months. While actual practice varies widely, the literature generally supports the recommendations of the 2 national pediatric organizations (Table 1). In the systematic review of best evidence noted earlier, the rectal site was recommended until the child is old enough to cooperate with oral temperature measurement.
This case study and the child abuse concerns expressed in the media in recent years demonstrate the value of evidence-based temperature measurement policies. Further, it highlights the importance of good communication with families about nursing procedures and their rationales. Although we assume that most parents understand the value of a rectal temperature for their children, this may not always be the case. Having a parent present when a rectal temperature is taken decreases their concern.

**REFERENCES**


Send descriptions of procedures in emergency care and/or quick-reference charts suitable for placing in a reference file or notebook to:

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c/o Managing Editor, 77 Rolling Ridge Rd, Amherst, MA 01002  
800 900-9659, ext 4044 • awbkelley@comcast.net

**TABLE 1**

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<thead>
<tr>
<th>Age</th>
<th>First choice</th>
<th>Second choice</th>
<th>Third choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to 2 y</td>
<td>Rectal (best)</td>
<td>Axilla (for screening)</td>
<td></td>
</tr>
<tr>
<td>&gt;2 y, &lt;5 y</td>
<td>Rectal</td>
<td>Ear</td>
<td>Axilla</td>
</tr>
<tr>
<td>&gt;5 y</td>
<td>Oral</td>
<td>Ear</td>
<td>Axilla</td>
</tr>
</tbody>
</table>

American Academy of Pediatrics*

<3 y Rectal (best) Axilla for screening  
(>3 mo) or ear  
(using proper insertion)

4 to 5 y Oral Ear (using proper insertion)

*The recommendation for 3-year-olds is not defined.

**Correction**

The address given for author Melissa Anderson on page 292 of the June 2005 issue of the Journal incorrectly noted her address as Seymour, Tennessee, due to a publisher’s error. It should have said “Seymour, Indiana.” We regret the error.
An Informal Discussion of Emergency Nurses’ Current Clinical Practice: What’s New and What Works

Susan M. Hohenhaus, RN, BS, Wellsboro, Pa

Danger With Use of Intravenous Promethazine in the Emergency Department

Lately, I have observed many ED nurses delivering promethazine intravenously in the emergency department. I have seen promethazine used for allergic reactions, for the relief of pruritus resulting from various dermatologic conditions, and for nausea and vomiting of various etiologies, such as motion sickness, radiation sickness, anesthesia, and gastroenteritis. Promethazine also is used as a sedative, hypnotic, and tranquilizer in patients with insomnia, nervousness, anxiety, and tension. Unfortunately, because it is so commonly used, clinicians sometimes tend to deliver it in a casual manner, failing to take into consideration the risks involved in its use. For example, promethazine often is given to a patient with acute abdominal pain in conjunction with a narcotic before going to the operating room for an appendectomy. Often these patients are not receiving any intravenous fluid and may have “medlock” access prior to being sent to the operating room.

According to the manufacturer’s instructions, it is recommended that promethazine be given through the tubing of a running infusion set that is known to be functioning satisfactorily, with the speed of injection not exceeding 25 mg/minute. The Infusion Nurses Society Standards of Practice include the following recommendation: Because promethazine has a pH of 4.5 to 5, it should only be given into a central vein, especially if it will be given frequently. Changing the pH to the recommended 6 to 8 for a peripheral vein delivery would mean that the drug would need to be buffered, not simply diluted.

Promethazine also should not be given in any form to children younger than 2 years because of the possible absence or deficiency of detoxifying enzymes and inefficient renal function usually noted in this age group, and also because of its possible effect on sleep pattern, including...
reports of deaths due to apnea. In February 2005, the US Food and Drug Administration (FDA) and Wyeth Pharmaceuticals, Inc, issued a warning to health care professionals stating that the use of promethazine tablets and rectal suppositories is contraindicated in pediatric patients younger than 2 years because of the potential for respiratory depression and death. The warning also stated that because these adverse events are not directly related to individualized weight-based dosing, promethazine should be administered with caution and at the lowest effective dose for pediatric patients aged 2 years and older. Concurrent administration of other drugs with the potential for respiratory depression should be avoided. The FDA notes that antiemetics are not recommended for the treatment of uncomplicated vomiting in pediatric patients; use of these agents should be limited to prolonged vomiting of known etiology. If you are aware of an adverse event related to the use of promethazine, you should report it to the FDA’s MedWatch program by phone at 1-800-FDA-1088, by fax at 1-800-FDA-0178, online at [http://www.fda.gov/medwatch](http://www.fda.gov/medwatch), or by mail to 5600 Fishers Lane, Rockville, MD 20852-9787.

Promethazine also should not be given in any form to children younger than 2 years because of the possible absence or deficiency of detoxifying enzymes and inefficient renal function usually noted in this age group, and also because of its possible effect on sleep pattern, including reports of deaths due to apnea.

I have been doing a lot of reading lately about the role of rapid response teams, 1 of 6 interventions listed as ways to improve patient safety in the “100,000 Lives Campaign” developed by the Institute for Healthcare Improvement ([www.IHI.org](http://www.IHI.org)). To better understand how others are accomplishing this task, I recently had a cyber conversation with one of our colleagues from the United Kingdom (UK) about her role as a “Resuscitation Officer.” Alison Middleton, BSc, RGN (UK), RN (US), lecturer in emergency nursing, says that she worked in an emergency department in Phoenix, Ariz, for a time and returned to the UK to perform in this role. Middleton says that the professional background of the officer is a registered nurse, a paramedic, or an operating department practitioner, much like the US respiratory therapist. The officer works for one “National Health Service Trust,” typically one hospital. Middleton describes many aspects of the role, including (1) attending cardiac arrests, leading the team, supporting staff, demonstrating advanced practice skills, and sharing knowledge; (2) training staff (including administrative staff, nurses, and physicians) in BLS to ACLS; (3) auditing cardiac arrests after the event, which includes making rounds each morning to ascertain how many arrests the hospital had in the previous 24 hours and conducting follow-up on the patient’s clinical condition, team response time, and any issues with equipment; (4) purchasing equipment such as defibrillators and airway equipment and ensuring that it is situated in the correct place and that staff are aware of how to use it; and (5) acting as a consultant to external areas, such as sports arenas and shopping malls, regarding resuscitation and emergency equipment.

...antiemetics are not recommended for the treatment of uncomplicated vomiting in pediatric patients; use of these agents should be limited to prolonged vomiting of known etiology.

Middleton emphasis that hers is not a management position; rather, it is a specialist clinical position focusing on the area of resuscitation. Although she responds primarily to resuscitations, there is another component that might be of interest. Medical emergency teams are common place in the UK, and there is a “calling criteria” based on the Modified Early Warning Score. The Modified Early Warning Score is a form of track and trigger scoring that allows for identification of trends in patient physiology. The triggers are based on routine nursing observations and are sensitive enough to detect subtle changes in patient physiology, which will be reflected in a change of score should
the patients be improving or deteriorating. If the patient deteriorates, a response team is activated. As the resuscitation officer, Middleton can respond to these calls, along with another nurse, typically from the ICU. Alison sees her role now as one where she can support junior, less experienced nurses to help build confidence in caring for sick patients, including spending time with the staff for debriefing.

**Clinical questions** from nurses are welcome, as are names and addresses of clinicians who are interested in answering questions. Submit to:

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Topical Anesthetic Sprays Directly Associated With a Serious, Sometimes Fatal Adverse Drug Reaction: Methemoglobinemia

Topical anesthetics such as benzocaine 14% and tetracaine 2% (Cetacaine), benzocaine 20% (Hurricane spray), and lidocaine are readily available in most emergency departments and are commonly used to anesthetize a patient’s airway before elective endotracheal intubations or endoscopic procedures. Widespread availability of over-the-counter products containing the same basic components (Cepacol Anesthetic Troches and Sucrets® Maximum Strength Lozenges) may lead practitioners to believe that such anesthetic products are safer than they actually are. In reality, topical anesthetic sprays are directly associated with a serious and sometimes fatal adverse drug reaction known as methemoglobinemia.

A recent review of the adverse events reported to the Food and Drug Administration (FDA) suggested that there were 132 reported cases of benzocaine-induced methemoglobinemia in the 5-year period between 1997 and 2002, two of which were fatal events. This figure is thought to be a small fraction of the number of cases that have actually occurred, because adverse drug events historically have been severely underreported to the FDA. Regardless of the actual numbers, it is important to recognize that these adverse events are preventable, making it imperative for ED staff to be keenly aware of the dangers associated with the use of topical spray products that contain benzocaine and take appropriate preventative measures.

Methemoglobinemia can occur because of a genetic trait or the use of an oxidizing agent (in this case benzocaine) that overwhelms the capacity of red blood cells to carry oxygen. Methemoglobin normally accounts for roughly 1% of the body’s hemoglobin. The common thread in adverse drug events reported to the FDA is multiple sprays of benzocaine, or a spray of benzocaine...
for a longer duration than recommended. As the methemoglobin level rises above 10% of total hemoglobin, cyanosis typically is present. As methemoglobin levels rise to 20% to 50%, patients also may experience anxiety, fatigue, and tachycardia. When levels reach 50% to 70%, coma and death can occur. Certain patients are predisposed to this condition, such as infants younger than 6 months or older patients with cardiac problems. Other risk factors are inflamed airways (a patient with an inflamed airway could absorb more active drug), concomitant use of other products implicated in methemoglobinemia, and genetic predisposition (eg, G6PD deficiency, methemoglobin reductase enzyme deficiency, or altered hemoglobin states).

Methemoglobinemia can occur when the doses of benzocaine spray administered exceed manufacturers’ recommendations. Practitioners have long suggested that directions for use on the spray canisters of benzocaine products are easily misinterpreted. Package directions commonly suggest that the user should “...activate the spray with the forefinger for approximately one second. Maximum anesthesia is produced in one minute.” This direction could be interpreted to mean that a continuous spray of up to one minute is permitted and even desirable for maximum anesthesia. Clinicians may not be familiar with the rapid absorption of topically applied anesthetics, so they can be unfamiliar with how much drug they are actually giving. Often these products are not viewed as “medications” and therefore not used as judiciously as other drugs. Because Hurricane spray is available without a prescription, patients could present to the emergency department after spraying or gargling too much of the liquid formulation (or actually may have swallowed the solution), because the directions may be vague (“use a small amount”). Methemoglobinemia also has reportedly occurred when an episode of diaper rash was treated with an over-the-counter vaginal cream.

Methemoglobinemia is easily treated once it is recognized, so it is important for ED staff to be familiar with this possible adverse event. Patients should be screened for predisposition of this disorder before application of products that contain benzocaine. Stocking one form of topical spray can increase the staff’s familiarity with the products available. If cyanosis develops after use of a topical anesthetic, methemoglobinemia should be considered immediately. Treatment includes supplemental oxygen and methylene blue, which should be available in all locations where such products are stored and administered. (Patients with a G6PD deficiency would require transfusion and/or dialysis because methylene blue can cause hemolytic anemia in these patients.)

If cyanosis develops after use of a topical anesthetic, methemoglobinemia should be considered immediately. [Treat with... ] supplemental oxygen and methylene blue...

Take the initiative to discuss this potential adverse drug event at your next staff meeting. Talk with your pharmacy department and ask them to apply additional bold warnings on the outside of the canister, not just the box label, because it is often separated from the canister. The warning should caution against spraying excessively (for more than 1 second). Using a metered-dose formulation of benzocaine (eg, Topex Metered Spray-Sultan Chemists) makes it easier to control the amount of drug being administered, although even metered dose products will not prevent an overdose of drug if multiple sprays are used.

REFERENCES

Contributions for this column are welcomed and encouraged. Submissions may be sent to:
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It all started when my children returned from church camp (in the Ozark Mountains on the Niangua River just south of Lake of the Ozarks) dirty and tired, but with huge smiles on their faces. They excitedly told me stories about their activities and new friends. It was a wonderful time for them, so it was no surprise when they wanted to go to camp again the next summer. Accompanying their enrollment packets was a request for camp volunteers. I remember thinking to myself, “I can help. I’ve been an ED nurse for years. I feel comfortable with the worst trauma or the most critically ill patient.” Little did I know that this was the beginning of an experience that would continue for many more summers. I soon discovered that although emergency nursing and camp nursing have similarities, differences also exist.

My first day

On my first day I discovered that the treatment area, with a first-aid kit consisting of some adhesive bandages, gloves, and Tylenol, also is the nurse’s office. No written records or policies explaining how to do this job I have never done before await me, because this is the first year there has been a camp nurse. The camp is private and is just getting started. I look around the room wondering where the rest of the “stuff” is and I begin to feel uneasy, wondering what I have gotten myself into. Without my familiar ED environment I feel exposed and vulnerable. What if something bad happens? It will take almost an hour for EMS crews to find us. I know because it takes me 20 minutes to get to a paved road in my Jeep! Just then my first patient arrives, a small camper with an abrasion on her knee who is crying, “I want my Mommy!” In that instant I forget all my insecurities and begin doing what I have done for years in

 Camp Nursing in the Ozark Mountains: One Emergency Nurse’s Experience

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the emergency department. After a big job of adhesive bandage application and hugs, she is off, looking back over her shoulder just long enough to say “Thank you, Nurse Mary.” A little smile creeps over my face.

...when a “pretty” snake caught by a few boys, ages 7 to 10 years, was found in the bunkhouse and noted to be a copperhead, obviously something needed to be done.

I look around again at the area provided me and somehow it looks different. Nothing changed in those few minutes, but I now see what an ED nurse can do with it. I begin making lists, keeping records, and developing policies. Over the years my area has grown from half a room to 3 full rooms—one for me to sleep in so I can be close to my area, one treatment room, and a supply/storage room. I also currently have a medical director, policy manuals, emergency equipment, and supplies. I now have a relationship with the local first responders, EMS, and fire rescue, to ensure they know where we are and how to find us. I have a landing zone for a helicopter with a GPS location. I carry a walky talky with a nurse tone so I can be reached anywhere and at any time. My little half room has become an efficient first-aid station with a large decrease in the number of campers sent to local emergency departments.
The top 5 tips I have learned

1. Yes, camp nursing is like ED nursing, but it’s not. I think on my feet with no cohorts to help me. I do what I can with what I have, and sometimes I become very creative!

2. I stay calm! Even on the mountain, everyone panics when they see blood.

3. No matter who told me I do not need a medical director, I do need one, and I now have one.

4. I am active in policy making for all aspects of the camp. Policies for swimming pools, climbing towers, weather emergencies, and activities all need nursing input.

5. I realize injury prevention is needed even in the middle of nowhere. Bugs, snakes, spiders, sunburns, and poisonous plants are just a few of the hazards to the campers. I remember a summer when one creature was a little beyond “normal.” The staff thought nothing of the incident; after all, this was camp! But when a “pretty” snake caught by a few boys, ages 7 to 10 years, was found in the bunkhouse and noted to be a copperhead, obviously something needed to be done.

Because many of our campers have never been to the country and have no idea what can be harmful to them, I assembled an information board about the dangers of camp life. It includes pictures and facts about area snakes, spiders, and poisonous plants. I place the board in the highest traffic area possible—the food line! Everyone standing in line for chow 3 times a day has lots of time to read the information board.

It will take almost an hour for EMS crews to find us. I know because it takes me 20 minutes to get to a paved road in my Jeep!

Conclusion

Camp nursing is wonderful. Every summer I enjoy my time on the mountain, and I believe it is an opportunity to give back a little of the talent I am blessed with. Many teaching moments with other staff members and campers exist. I encourage every emergency nurse who has thought about summer camp nursing to go for it! The experience has had a positive impact on my emergency nursing practice: I have clearer critical thinking skills, I relate better to my patients, especially children, and I am way more creative.

Also, camp nursing is not all work. I enjoy my morning coffee watching the sunrise and listening to the animals waking up (yes, critters and campers!). I enjoy sunny days of hiking or lounging by the pool/lake, and watching spectacular sunsets from the top of the mountain is an experience that is unmatched. Additionally, I now know not to run from a new experience. Camp nursing, for me, opened the door to new insights and a new aspect of myself that I did not know existed.

Contributions for this column are welcomed and encouraged. Submissions should be sent to:

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A fracture of the fifth metacarpal neck is commonly known as a "boxers' fracture." The radiograph shows the classic image for this type of fracture, revealing displacement at the metacarpal head and swelling in the soft tissue. The young boy involved required closed reduction under anesthesia because of the degree of angulation to salvage the future range of motion of the metacarpal phalangeal joint. For information on immobilization and recovery, see the following resources.

SUGGESTED READING


FIGURE
This radiograph shows a classic image of a fracture of the fifth metacarpal neck, also known as “boxers’ fracture.”
Thank You, O’Neta

It didn’t seem like the years were passing by that quickly. In what seemed to be the flash of an eye, I discovered that a friend from the past, an emergency nurse and former ENA member, had died after an illness. Fond memories came back to me. O’Neta Barr, RN, was by my side during many of the early years of Missouri ENA’s Ozark Chapter; she was a dedicated member and president of the Missouri State Council. Ironically, the end of O’Neta’s emergency nursing career began during a return trip from a State Council meeting in Kansas City, when 4 of us were involved in a major motor vehicle crash. Sliding on the rainy pavement, our car careened through the darkness, past the stop sign, and sideswiped an oncoming vehicle. Our car spun and came to a stop in the middle of the road. As we extricated ourselves from the car, another vehicle crested the hill, and there was a second impact. I screamed O’Neta’s name and jumped out of the way, with only seconds to spare.

O’Neta was under the front passenger wheel. I knelt beside her and she began to run down her injuries: “Pat, I’ve got a femur and a tib/fib. I’m breathing ok.” The ambulance arrived. I started her intravenous line, applied oxygen, and helped with splinting while a flight nurse colleague radioed for our home helicopter. We all had cared for so many trauma victims. Now, we were those victims. Despite complications, O’Neta courageously rallied back to a semblance of health and returned to emergency nursing, her love, but only for a short while.

Sadly, we lost one of the greatest emergency nurses and mentors in our specialty. Anyone who worked with her felt her aura of strength, and others drew that strength from her.

Before her death, we learned that O’Neta had requested that a contribution be made to the educational
fund of the Ozark Chapter of ENA in lieu of flowers, even though it had been many years since our paths had crossed. Although O’Neta never became a nationally known figure in the world of emergency nursing, the impact she made through her bedside care, her continual teaching and mentoring of colleagues, and her work on the state level will not be forgotten. A member of the Governor’s Board, O’Neta was instrumental in staffing all ambulances in Missouri with emergency personnel. She taught many classes at the Red Cross and was a team member of the AAA Ambulance Service in its early days. Like emergency nurses everywhere, O’Neta fought the good fight in the trenches and won many of those battles.

On behalf of emergency nurses in Missouri, thank you, O’Neta, for being a mentor to all of us whose lives you touched as you practiced your profession and lived your life with purpose, compassion, and dignity. Thank you, too, on behalf of all the patients you cared for and all the loved ones you hugged as they faced their crises. Thank you for your passion for emergency nursing and for igniting that passion in others. May God bless you and keep you in His arms forever.

I knelt beside her and she began to run down her injuries: “Pat, I’ve got a femur and a tib/fib. I’m breathing ok.”

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Cutting-edge Discussions of Management, Policy, and Program Issues in Emergency Care

Polly Gerber Zimmermann, RN, MS, MBA, CEN

Time Guarantees

Patient Verification Before Medication Administration

First and Last Names on ID Badges

Patient Self-report Form

Floating Medical-Surgical Nurses to the Emergency Department

Identifying (Badging) Family Members

Alternative Phrasing for “Within Normal Limits”

Improving Relations With Receiving Medical-Surgical Unit Nurses

Dress Code

Considering Factors of Nurses’ Fatigue When Making Schedules

The opinions expressed are those of the respondents and should not be construed as the official position of the institution, ENA, or the Journal.

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I have heard that some emergency departments offer time guarantees for patients to be seen in so many minutes. How do they accomplish that?

Answer:
In July 2004 we started offering the guarantee that a patient would see a nurse within 15 minutes of arrival. We had completed a physical renovation in 2003, which gave us more space (24 beds, annual census 22,500). However, the real solutions were instituting express triage (eg, the patient is taken directly back with only a minimal triage nurse assessment to obtain a chief complaint) when the space and staff was available in the treatment area and improving our communication among ourselves. Now if we have multiple patients waiting, someone (including the hospital nursing supervisor) will assist the triage nurse.

We have built in the provision that the guarantee can be suspended for a limited period of time when we have an influx of an excessive number of patients or multiple critical patients. For example, one night we had 22 patients arrive within 15 minutes. Thus far, we have had to institute a suspension (for about 30 minutes to 1 hour) according to the established criteria only 2 times.

If we fail to meet our guarantee, we write off the ED fee (average $250). This write-off does not include the fees for physician services, laboratory work, radiographs or other diagnostic procedures, and pharmacy. In the first 6 months of the program, we gave 10 free visits. All of these visits are then analyzed to help determine how we can improve in the future.

We are a “commuter stop” community outside of Philadelphia. We did some initial advertisement by mail and local theaters, but patient feedback has been great.
Initially, there was some staff resistance, as there always is with change, but now the program is staff run and a great source of department pride. In the end, we all believe the universal standard of care should be a nurse interacting with the patient within 15 minutes, and we are proud to be a market leader in guaranteeing that will happen.—Robert Weinert, RN, BS, Director of Critical Care Services, Central Montgomery Medical Center, Lansdale, Pa; E-mail: Robert.Weinter@ushinc.com

PATIENT VERIFICATION BEFORE MEDICATION ADMINISTRATION

I am concerned about the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standard MM 5.10, which requires verification of the accuracy of a medication order prior to the medication administration. How are others verifying the “5 rights” with the patient in an ED setting?

Answer 1:
We currently use a computerized documentation system that prints out the physician order. We had the system changed to include the patient’s allergies and date of birth on the printout. The nurse takes the written order to the automated medication dispenser (Pyxis) to remove the medications and then takes the paper to the bedside so the 2 forms of identification can be done. The process is a little cumbersome, but our mock JCAHO surveyors said it met JCAHO requirements.—Mary E. O’Sheilds, MS, RN, Director, Emergency Services, Provena Saint Joseph Hospital, Elgin, Ill; E-mail: moshields@msn.com

Answer 2:
Our expectation for staff is as follows:
1. The order is written on the paper chart by the physician.
2. The registered nurse (RN) carries the chart with him/her to the medication room to confirm the right dose, medication, and patient there.
3. The RN carries the chart and unopened medication to the bedside.
4. At the bedside, the RN asks the patient name and date of birth and confirms that the chart with the medication order and the patient’s armband matches the patient’s stated identity.
5. The RN then compares one more time that the medication in hand matches the order and does not violate any patient allergies.

The physicians initially were unhappy about the chart leaving the desk but have adjusted well. We are planning to implement computerized charting and will have a computer permanently mounted in the medication room. This change should help because then the physician and anyone else will be able to access to chart even while a nurse is administering the medications.—Nancy Zahradnik, RN, MSN, CEN, Nurse Manager, Emergency Services, ValleyCare Health System, Pleasanton, Calif; E-mail: nzrad@comcast.net

FIRST AND LAST NAMES ON ID BADGES

Our hospital’s policy is for all staff to have their first and last name on their identification badges. Staff is resistant out of security concerns. How are others handling this issue?

Answer 1:
I had heard that having first and last names on ID badges was a requirement of JCAHO, so I asked the JCAHO Standards Interpretation Group. Mary McNeily, Associate Director of the Standards Interpretation, indicated that “RI.2.60 requires that patient will be informed of the name of the physician or other practitioner who will provide the care, treatment, and services on a timely basis, as defined by the hospital. There is no specific requirement that both the first and last names are provided. Your organization may determine when it would be appropriate to do so.”

Follow-up questions can be answered by calling the JCAHO Standards Group at (630) 792-5900 or fax at (630) 792-5942. Another resource I have found on this issue is the Federal Occupational Safety and Health Administration 2004 publication, Guidelines for Preventing Workplace Violence for Health Care and Social Services Workers. It states, “Provide staff with identification badges, preferably without last names, to readily identify employment.” The entire document can be accessed at http://www.osha.gov/Publications/osha3148.pdf.—David Greenberg, BS, RN, EMT-P, ED Staff Nurse, Morristown Memorial Hospital, Morristown, NJ; NJENA—Northern Chapter President; E-mail: davidrn@gmail.com
Answer 2:
All employees have their regular identification badge with their first and last names, titles, and picture. The ED staff then has another badge with only our first name and title that covers the regular badge for staff protection. This procedure came about as a shared governance idea from the staff and was supported by our Security Department.

The rationale is that violence is a real threat, especially to emergency workers. In fact, the State of Ohio takes the threat seriously and has a law that says it is a felony to injure emergency service workers, including emergency nurses and other personnel in an emergency department.

The new badge is part of our administration’s support for adequate staff safety. It also includes a police presence and panic alarms throughout both of our emergency departments, which has a total patient volume of 70,000.—Nina M. Fielden, MSN, RN, CEN, Clinical Nurse Specialist, ED, Cleveland Clinic Foundation, Cleveland, Ohio; E-mail: fielden@ccf.org

FLOATING MEDICAL-SURGICAL NURSES TO THE EMERGENCY DEPARTMENT
Do other emergency departments accept “floating” nurses from other units, and if so, how do they make it work?
Answer:
We have successfully used floating nurses from medical-surgical units for about 2 years. They are used when we have an “emergency assist” (eg, an operational plan for when the emergency department is overwhelmed and unable to safely care for the current patient population) and/or sick calls we are unable to cover. It seems foolish to “cancel” one of the hospital’s medical-surgical staff nurses because of a low census while the emergency department is working short staffed.

“Floating” nurses are paired with an ED nurse. We have a Float RN Orientation Checklist that specifically clarifies that we do not expect them to function as an ED nurse, but rather as a nurse practicing nursing skills and tasks for which they have already achieved documented competencies. For instance, they are expected to perform such functions as starting intravenous lines and infusions, administering medication, phlebotomy, placing Foley catheters and nasogastric tubes, caring for admitted inpatient “boarders,” and taking vital signs. They are not expected to take primary responsibility for patients or provide care for high-acuity (level 1 or 2) patients unless as an assistant to an ED nurse. They are not expected to titrate vasoactive continuous infusions (unless they are

PATIENT SELF-REPORT FORM
We are considering the use of a “self-report form” for ED triage. The patients would fill it out while waiting, and it would include questions about their medical history, surgical history, current medications, etc (similar to the form that is used by many primary care providers). Has a self-report form worked for other emergency departments?

Answer 1:
We give a form to patients who have been triaged while they are then waiting to see the ED physician. The form helps physicians record the review of systems for coding and billing purposes. Completing the form also gives the patients something productive to do while they wait. The form becomes part of the permanent medical record.

Of course, there was a learning curve for staff to remember to give it to patients. We still miss giving it to a lot of patients, primarily those that get taken straight back to a treatment room and/or ambulance arrivals. However, getting the form from some is better than getting it from none.—Dennis M. McCool, Bed, JD, RN, Director of Critical Care Services, Good Hope Hospital, Erwin, NC; E-mail: dnmcc69@yahoo.com

Answer 2:
When our Urgent Care department opened, we asked patients to fill out a form that included their name, date of birth, allergies, medication, family doctor, and chief complaint (but no insurance information). It is on lime green-colored paper so it stands out from all the other forms.

The form helps provide the nurse with some key information when 6 people arrive all at once. We now also use the form in our regular emergency department. It has really been a helpful tool in triage for us.—Sue McVey, RN, BSN, Manager, Emergency Services, Langlade Memorial Hospital, Antigo, Wis; E-mail: SMcVey@langmemhosp.org
ICU nurses), administer conscious sedation (unless they have a documented competency), transport monitored patients (unless they are ACLS certified), or use equipment/perform a procedure they are not familiar with. Moreover, the floating nurse is never placed in a unique ED role, such as triage or the trauma room.

We specifically spell out their patient care responsibilities, for example, care and tasks for which the nurse already has validated competency in his or her usual unit, such as physical restraints, bedside laboratory testing, discharge planning, documentation, and pain management. The form is signed by the floating nurse and kept on file.

This system works well because our expectations for performance are clearly stated: We do not expect the floating nurse to function as an ED nurse. The process helps remove the nurses’ (and even nurse managers/administrators’) anxiety about floating to the emergency department, and we avoid turning down needed help because of some artificial barriers.

Some nurses specifically request to be sent to us if there is a need. The process has even worked as a recruitment tool. When some of the nurses began expressing an interest in transferring to the emergency department, we sent them to an 80-hour didactic emergency nursing course. Several nurses completed the course and have subsequently accepted ED staff positions.—Diana Meyer, RN, MSN, CCRN, CEN, Clinical Nurse Specialist, Emergency Services, St Joseph Hospital, Bellingham, Wash; E-mail: DMeyer@peacehealth.org

IDENTIFYING (BADGING) FAMILY MEMBERS

Our administration wants the department to institute a system to identify ED patients’ families. How do other facilities identify ED patients’ families?

Answer 1:
We have a security officer in triage who issues badge stickers with the patient’s room number to a maximum of 2 family visitors at a time. We started this procedure because we had too many people wandering into the department looking for a family member who was not even there or who had already gone to the floor and excessive numbers of visitors for one patient. We have an 85,000 per year census, and when patients have 8 to 10 visitors, they can invade other patients’ space or keep the nurse from getting to the patients quickly.

Interestingly, we also have limited the triage process interview to the patient only. In the past, we allowed a family member to remain, but we found patients did not always share as freely and accurately (eg, why they were there and medical history) when family was present.

We always have been a very family-centered emergency department, but we have realized a need to institute these measures out of sensitivity to patient confidentiality.—Karen L. Chung, RN, MSN, Pediatric Emergency Department Coordinator, Shady Grove Adventists Hospital, Rockville, Md; E-mail: kchung@adventisthealthcare.com

Answer 2:
We have a system to identify family members with brightly colored stickers. It is initiated at the triage desk. A side benefit is that hospital employees can easily guide any visitors who wandered to the cafeteria and had trouble getting back to the department.—Shanda Zaharako, RN, BSN, Clinical Nurse Manager, Emergency Department, Mercy General Health Partners, Muskegon, Mich; E-mail: Zaharako@trinity-health.org

Answer 3:
In the past we found the best success using stickers with the patient’s room number. We usually issued 2 stickers per patient, and the family could switch out with each other. We started out with actual visitor badges, but they disappeared so quickly that we found the stickers were a better option.—Judy Kelley, RN, CEN, Director of Emergency, Wilson N. Jones Medical Center, Sherman, Tex; E-mail: jkelley@wnj.org

Answer 4:
We give each patient 2 stickers so the visitors have to hand them off to each other in order to visit the patient. It works very well as long as each staff member makes sure that the visitors comply with the rules—which is not as often as I would like.—Beth Yandell, RN, Director, Emergency Department, Conway Regional Health System, Conway, Ark; E-mail: byandell@conwayregional.org
We are in the process of revising our checkoff list for the nursing assessment. What alternative phrase have others used, besides “within normal limits,” to indicate that everything looked fine for that system?

Answer 1:
We use “no significant findings.” Our policy then ties it back to the nurses defining what is significant for the patient according to the goal of the care plan. We view it not as charting by exception, but charting pertinent positives for the patient and translating that into a plan of care.—Stacey Carlen, MSN, Director, Emergency Services & Wellness Works, Watertown Area Health Services, Watertown, Wis; E-mail: scarlen@wahs.com

Answer 2:
We use “within defined limits.”—Shanda Zaharako, RN, BSN, Clinical Nurse Manager, Emergency Department, Mercy General Health Partners, Muskegon, Mich; E-mail: zaharaks@trinity-health.org

IMPROVING RELATIONS WITH RECEIVING MEDICAL-SURGICAL UNIT NURSES

Does anyone have some tried and true ways to help improve relationships between the emergency department and the medical-surgical floor unit staff? They are overworked, we are holding, and frustration builds on both sides.

Answer 1:
We have used a number of methods to improve the relationship between the units. Some are directed at erasing old baggage, some at improving communication, and some at increasing understanding of what the other unit faces.

One of our first attempts was to give a “thank you” care package to the receiving nurse of every admit during nursing week. We made 50 kits with adhesive bandages, chocolate kisses, hard candy, and other trinkets, with a note enclosed to thank them for saving lives and providing such wonderful care. The acts of giving and receiving are great ice breakers.

You might want to start with getting your charge nurse teams together on a regular (perhaps monthly) basis. Ours have met monthly for a while, and now some meetings can be adjourned almost immediately because of a lack of issues. They handle these discussions well without my interference. I learned (the hard way) that they do best when I (the manager) just sit on the sidelines.

We have given the charge nurses on all units a cell phone that they hand off at change of shift, and the charge nurses call each other directly if there are issues with an admission. This process allows them to evaluate the respective workloads of the emergency department and the receiving unit to determine where the best interest of the patients will be addressed by the ability of the staff to provide care at that given moment. For instance, if the inpatient unit is overwhelmed but the emergency department is “ED Light,” it is likely in the best interest of the patient to remain in the emergency department for a little while. Likewise, if the ED charge nurse tells the floor unit we are tottering on the brink, the receiving charge nurse almost always makes transfers happen faster than you would ever imagine possible.

Presenting statistics to the inpatient and ED nurses helps a lot too. At one meeting, we were discussing the difficulties both units face with ED admits, and we presented them with our stats that an average hold time from decision to admission was 90 minutes. They were stunned, because it seemed to them as if we called to give report as they were hanging up from giving the bed assignment. Pictures go a long way.

In conclusion, I think it is important that the managers not get caught up in the drama. We can work behind the scenes to make it flow more smoothly, but it is not supportive of our staff to encourage them in their frustration. Keep reinforcing that the other units are working in the best interest of the patient too, and they must be understanding. While acknowledging their frustration, speak positively of the other unit. Showing frustration yourself only reinforces theirs.—Nancy Zahradnik, RN, MSN, CEN, Nurse Manager, Emergency Services, ValleyCare Health System, Pleasanton, Calif; E-mail: nzrad@comcast.net

Answer 2:
We started a heads-up program. As soon as the patient is in the emergency department and is an apparent admission to us, we call the floor unit and let them know to...
anticipate the admission. Then when the patient does arrive, it is not an immediate and unexpected need.

We stock candy bars and take something up to the nurse when we trade off the admission and give report. Believe it or not, we actually have nurses asking us where their chocolate is when we have none.

We also have invited unit nurses to come to our department meetings and share some of our competency days with them.—Stacey Carlen, RN, MSN, Director, Emergency Services & Wellness Works, Watertown Area Health Services, Watertown, Wis; E-mail: scarlen@wahs.com

Answer 3:
Having the nurses develop an understanding of the work that is done by the other unit is essential to improving this relationship. One way to achieve this is to use the “walk a mile in my shoes” approach. Simply have an ED nurse work upstairs for a shift (with a nurse from the floor and not in lieu of). Similarly, have a floor nurse work in the emergency department with an ED nurse. It is a great eye opener for both sides. Ideally you would rotate all staff through this experience, but this is not always possible for several reasons. If that is the case, then do it with a handful of nurses and have them report back about the adventure to their co-workers at a staff meeting.—Scott Keech, RN, MBA, CEN, Clinical Consulting Manager, Kaiser Permanente—Northern California Region Regional Office, Oakland, Calif; E-mail: Scott.A.Keech@kp.org

DRESS CODE

What type of dress code do other emergency departments require?

Answer 1:
We use different colored uniforms at our hospital to identify the staff, but we realize that not everyone knows who wears what. So, in addition, staff identification badges have a plastic card that hangs perpendicular to the badge with a 1-inch by 2-inch area for large position letters, such as RN, MD, and NA. Nonclinical positions also have these identifying letters that are visible from some distance, such as ADM and HR. I believe it is a good idea to clearly identify the nurses, because in this day of sometimes replacing the RN with a “semi-professional” for cost concerns, it helps keep who is the nurse in the forefront.—Diane Gurney, RN, MS, CEN, Educator and Trauma Coordinator, Emergency Department, Cape Cod Hospital, Hyannis, Mass; E-mail: dgurney@capecodhealth.org

Answer 2:
We implemented color-coded uniforms so at a glance, anyone can tell that the people wearing wine-colored uniforms are the nurses and those in blue are the technicians. Even though many of us initially minimized the importance or need for this new policy, we have had a lot of positive feedback from patients and staff members.—Kathleen Carlson, RN, MSN, CEN, Operations Manager, Emergency Department, Sentara Careplex Hospital, Hampton, Va; E-mail: kkcarls@aol.com

Answer 3:
After studying the history of the nursing uniform, I decided to advocate for nurses wearing a highly visible red and white RN logo patch on the nurse’s uniform, regardless of any other features. While various styles have been put forth, the left upper chest position was favored by most of those surveyed.

While a patch may not be an individual’s first choice (many liked gold pins), it is good to have something that is inexpensive, readily available, and easy to replace. Other groups proudly display their patches. It could become a symbol of meaningful pride.1,2—Lynn Houweling, MS, RN, CCRN, Doctoral Student, University of Pennsylvania, Philadelphia, Pa; E-mail: lynnsh2@nursing.upenn.edu

REFERENCES

Answer 4:
We do not have a dress code. The staff’s favorite attire is the maroon and navy shirts that the ED physicians gave them for Christmas. On the front of the shirts is printed “Emergency Department: Front door to the hospital,” and on the back it is printed, “And proud of it!” The shirts coordinate with their solid-colored scrub pants, and during the holiday seasons they change in honor of the specific upcoming holiday.
I was taught years ago that what you wear does not automatically get you respected as a professional. However, introducing yourself as an RN and acting in a professional manner will do it every time.—Dorothy (Dotty) Kuell, RN, Nurse Manager, Emergency Services, FirstHealth Moore Regional Hospital, Pinehurst, NC; E-mail: Dkuell@firsthealth.org

Answer 5:
Our dress code policy prohibits long natural nails and/or artificial nails for those providing direct patient care in the patient care areas. It is easy to justify this policy because there is evidence that these nails can promote the spread of infection (they tend to harbor more microorganisms before and after handwashing) and can be a safety hazard when providing patient care (long nails are more likely to rip gloves).1,2—Marjorie Keyes, MS, RN, Clinical Nurse Specialist, Baystate Medical Center, Springfield, Mass; E-mail: Marjorie.Keyes@bhs.org

REFERENCES

Answer 6:
One way to help patients “identify” the nurses is the use of business cards. The cards have the facility name, logo, etc, with a line for the staff member’s name and position. Giving these cards out to patients or families helps them to remember who their caregiver is and is a great public relations tool. Patients (and/or families) are more likely to write letters of recognition about their care and/or concerns from their ED visit. We have been using business cards at our hospital and the satisfaction scores are up 5%, with awesome handwritten feedback.—Conni Tucker, RN, CEN, ED Supervisor, Glens Falls Hospital, Glens Falls, NY; E-mail: cptcat@yahoo.com

Answer 7:
I believe position-colored uniform dress codes should not be an issue. I think patients frequently think all females are nurses and all males are physicians in spite of their uniforms and/or self-introductions. What identifies a nurse is the knowledge, skills, approach, and caring. I believe that insisting nurses wear same-colored uniforms sets ourselves apart in a class structure in a way that should not be necessary for professionals.—Jerry L. Mowery, RN, CEN, Regional Administrator, EMSystem RM, The Santa Clara County Region of Northern California Hospital, Council of Northern and Central California, and San Jose Medical Center, San Jose, Calif; E-mail: Mowery@pacbell.net

Answer 8:
I am fond of saying: “Not everyone who wears scrubs is a nurse, and not every nurse wears scrubs.” I agree that all of us should identify ourselves (and that is really just common courtesy). I think the problem here is with those who do not identify themselves or with those (perhaps institutional) strategies used to give the impression of “nurses” on the floor. There was a corporate move a few years back to eliminate all name tags. It did not get far, thanks to the efforts of nurses and professional organizations that insisted on proper identification of nurses.

Patients and the general public can be duped into thinking anyone in the hospital (particularly a woman) wearing scrubs is a “nurse.” I have seen “educational institutions” using misleading advertisement of their certified nurses aide programs with a theme like “get into nursing” or “nurses are in high demand.” We must realize that if we allow this type of behavior to continue, our profession will be exploited by those who have much to gain from the “appearance” of nursing without providing the actual essence of it.—Martin Schiavenato, RN, BSN, MS, Editor-In-Chief, Bandido Books; E-mail: martin@bandidobooks.com; Web site: www.bandidobooks.com

CONSIDERING FACTORS OF NURSES’ FATIGUE WHEN MAKING SCHEDULES

With our department’s increasing patient volume and acuity, I am concerned about the nurses’ schedules. Is there a way to reduce the fatigue factor (and possible resulting errors)?

Answer 1: You are correct to consider this issue. A July 27, 2004, report by HealthGrades.com, “Patient Safety in American Hospitals,” shows that patient deaths from preventable
hospital errors is “epidemic” at 195,000 deaths annually. Nursing hours as a source of fatigue is emerging as a concern.

I was lead researcher in the Staff Nurse Fatigue Study, which supported the findings of the other previous related studies: work duration, overtime, and the number of hours worked had significant effects on errors. Some of our findings include:

- The likelihood of making an error was 3 times higher when nurses worked shifts lasting 12.5 hours or more.
- Nurses actually worked longer than the scheduled hours until they were finished with their shift work about 40% of the time.
- The risk of making errors was significantly increased when nurses worked more than 40 hours a week and was even higher when nurses worked more than 50 hours a week.
- The majority of errors and near-errors (near-misses) were medication related.
- Working overtime, regardless of the scheduled length of the shift, increased the odds of making at least one error.

Fatigue causes physiologic changes that cannot be overcome by drinking more coffee or willpower. It is time to start adapting safety limits, similar to requirements in other industries (eg, pilots, air traffic controllers, resident physicians, and truck drivers) and other countries (eg, Australia). Some suggestions include:

- Limit requests for staff overtime. In our study, only 10% of the overtime was actually mandated; the rest the nurse had volunteered to work.
- Avoid double-back scheduling. No one should have a “pm” shift with a day shift the following morning (ie, less than 8 hours off between worked shifts for travel and sleep).
- Forbid back-to-back doubles.
- Limit “on call” time. Currently there is no legal limit to the amount of “on-call” time that can be required. In my study, some nurses ended up working their entire 24 hours of call time. I recommend no one be “on call” for more than 18 hours.
- Provide rest break time during the shift. Nurses routinely “skip” breaks/meals. In the study, 46% indicated they did not get a break and, of those who did, 43% were not truly relieved of patient care responsibilities during their “break.” However, we know that a true break of only 5 minutes every 2 hours will make any individual more alert and refreshed.
- Allow sleeping on the night shift. Sleeping 1 hour during a 12-hour night shift, prior to the peak time of sleepiness (2 to 4 AM), allows the individual to get through that period with a better performance. Even 1 hour of sleep restores an individual’s reflex times. Yet the policy of many institutions is to fire a nurse who sleeps on the night shift. The key is to allow for some arousal time after sleeping; it typically takes at least 15 minutes to become alert after waking during the night.
- Supply a reclining chair for rest or allow staff to leave the unit. For those who do not want to sleep, walking around and changing the scenery for even 15 minutes can make a difference.

As authors, we recommended that routine use of 12-hour shifts should be curtailed. Even though they are popular, more than three fourths of the shifts scheduled for 12 hours exceeded that time frame. We also recommended that overtime, especially when associated with 12-hour shifts, should be eliminated.

It is important to promote a cultural change in nursing, similar to other fields, that support the underlying human physiology limits to how long a person can function safely, regardless of the person’s intent or profession.1

Ann E. Rogers, PhD, RN, FAAN, Associate Professor, School of Nursing, University of Pennsylvania, Philadelphia, Pa; E-mail: aerogers@nursing.upenn.edu

REFERENCE
performance deficits associated with fatigue, sleep loss, and the sleepiness associated with circadian variations in alertness.” Their report indicated that 27.2% of RNs reported working more than 13 hours at a stretch despite being scheduled for an 8-hour shift; this occurs one or more times each week. They also recommend that state regulatory bodies prohibit nurses from working more than 12 hours in a 24-hour period and from working more than 60 hours per 7-day period.3

Some of the guidelines to ensure adequate time off between shifts that are recommended include4:

- Take 10 hours off after working 8 hours.
- Take 12 hours off after working 12 hours.
- Take 24 hours off when transferring to or from night shift.
- Take at least 3 days of rest after working 4 consecutive 12-hour shifts.

Other suggestions from the research to help with the issue of off shifts include:

- Consuming caffeine only early in the shift to avoid the lasting stimulating effects interfering with sleep after one’s shift.
- Exercise or take a nap during your break when your patients are “covered.”
- Take many short breaks throughout the shift.
- Work in a bright light, with nondistracting noise (such as music), at nights.
- Avoid doing tedious work around 4 AM, when most night shift workers are not as alert and are more likely to make errors.
- When possible, have permanent evening or night shifts to offer the best health and productivity benefits.

Unfortunately, shift work is inherent to health care. Altering our action, however, can help alleviate its negative impact on our lives and patient safety.5—Ronda Hughes, PhD, MHS, RN, Senior Scientist Administrator, the Agency for Healthcare Research and Quality; E-mail: rhughes@ahrq.gov, and Patricia Stone, PhD, MPH, RN, Assistant Professor of Nursing, Columbia University, New York City, NY

REFERENCES
Refugee and Immigrant Health: A Handbook for Health Professionals


If you have noticed that your current practice has an increasingly international flavor, this book might be a welcome addition to your reference shelf. Written by a medical anthropologist and a nurse practitioner experienced in refugee health, the book is well organized and readable.

Part I, “Issues and Background,” sets the context for cultural understanding of different approaches to life events and health care. Important distinctions are made between immigrants and refugees, because their needs and resources vary. Of particular note is the discussion of the special needs of women, given their histories, which might include sexual abuse and torture, drug trafficking, or sex slavery and the consequences of poverty on reproductive health and nutrition. This section also describes the practice of female genital cutting, or female circumcision.

Part II, “Cultural Traditions and Populations,” provides a quick reference to 29 countries and 2 specific ethnic groups who occupy parts of several countries. Each chapter is organized similarly, giving an overview of health beliefs, traditions, and problems to anticipate. The subsections Communications and Health Beliefs and Practices are the most useful. The subsection Health Problems and Screening is less helpful because a list of illnesses common to a country without signs and symptoms is of little practical value.

Part II, which forms the bulk of the book, is both its strength and shortcoming. Beliefs about illness, traditional healing, and health needs are clearly described. ED nurses
might recognize a culture-bound illness found in the Caribbean known as *amok*, when “persecutory thinking precedes a violent...outburst”! But what seems to be missing is the history or politics that resulted in large numbers of people leaving the country. I also found myself wondering why these countries and ethnic groups were chosen for the book, and not others, such as Tibetans. A large part of my current practice is with Hmong clients from a refugee camp in Thailand, whose families originally were from Laos; some lived there almost 30 years ago. Although Mr Kemp and Dr Rasbridge include Laos in their book, they do not describe the current Hmong migration to the United States resulting from resettlement of a large camp in Thailand.

In the end, if you have to choose only one book, *Refugee and Immigrant Health* might be it. It certainly provides useful facts about health care needs of refugees and challenges faced by providers, and raises awareness of cultural differences. But, of course, true cultural sensitivity probably requires more than one book!—*Christine May, MSN, CFNP*

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In the fall of 2004, ED Administrative Leader Patricia Skidmore requested my help in preparing the Rutland Regional Medical Center emergency department for the upcoming Joint Commission on Accreditation of Healthcare Organizations (JCAHO) survey the following spring. I am a staff nurse in the emergency department, as well as the ED representative on the Quality Improvement (QI) Committee.

Initially, I reviewed the current literature and information shared in the QI Committee regarding the new JCAHO tracer methodology, the scoring criteria used by JCAHO, and the current National Patient Safety Goals (NPSG). Tracer methodology differs from past evaluations by JCAHO in that it follows a patient or series of patients throughout all services provided to that patient in a facility. Tracer methodology differs from other JCAHO surveys in that JCAHO now follows a patient throughout his or her complete stay in a facility and includes all departments that participated in the patient’s care, including departments performing all diagnostic studies. In the past, as long as the leader and the educator could answer the surveyors’ questions, the remainder of the staff could stay “under the radar.” With the new methodology, it was paramount for all of the staff to have a comfort level in speaking confidently to the surveyors. My goal was to provide the information to the staff, but I also wanted to make the process fun, encourage discussions, and spice up what can be a “dry” subject.

I developed a timeline using a reverse method, starting with the anticipated survey in the beginning of March. My plan was to start in November and introduce the JCAHO tracer methodology through mandatory
viewing of a video on tracer methodology by H.C. Pro, which was purchased by the QI Department for approximately $250. In December, I would produce a weekly newsletter to send to the staff. A board area for display of JCAHO information would be identified, and a new poster highlighting the 2004 NPSG would be rotated over the ensuing weeks. In January we would start a “Question of the Day,” posted near all phones on brightly colored paper. In February we would continue these methods and add a 4-week Jeopardy game reinforcing the questions of the day and material on the boards, complete with prizes for the highest scoring individuals.

Mid month, we planned to hold mock surveys with me and the ED educator, Irene Fortin, as the “surveyors,” passing out meal passes as prizes. I conferred with Irene to formulate questions, and during our discussion, Irene mentioned the recent addition to our computers of a screensaver with the list of currently allowed abbreviations. This conversation prompted a call to Information Services Manager Rick Twigg, whose department came up with a plan to have a “Question of the Day” appear on the screensaver, with the answer to follow after the abbreviation screensaver. After our inquiry, we were able to get questions placed on the screensaver relatively quickly. I created the questions in Microsoft PowerPoint and changed them on the screensaver every couple of days. The questions remained on the screensaver for 2 to 3 days to allow more exposure for staff not present every day. These questions addressed a wide range of topics: policies and procedures, environment of care, and many topics covered in the JCAHO Mock Survey Made Simple.

The ED administrative leader spearheaded the prize collection, some of which were donated and some that were paid for with Emergency Department funds. The grand prize for the overall winner of the 4-week Jeopardy game would be a 2-day conference paid for by the department. We hoped the prizes would help maintain interest, excitement, and momentum to the end of the process. I decided to call the newsletter JCAHO Journey. The creation of the newsletter was more involved than I initially thought it would be; it was published every 2 weeks. Copies were sent by E-mail to the staff and hung at the nursing station and in the bathroom bulletin board (our captive audience!). The newsletters highlighted the NPSG, hospital core measures, QI projects both hospital-wide and unit specific, and who’s who at the hospital. We also covered areas that other facilities had been targeted for within their surveys. I created a “JCAHO Sheriff” persona to instill a bit of humor, and he gave pointed hints with regard to NPSG in each newsletter.

To produce the poster board production of the NPSG, I created a variety of slides in Microsoft PowerPoint and then cut and pasted them in an appealing manner. I placed an easel beside our time clock and displayed each poster for a period of 5 to 7 days. The poster was then moved to the hallway for reference. The old posters were rotated back to the easel just prior to the survey.

In mid January we received notice that our survey would be held in mid February—earlier than we thought—which changed the timeline for the Jeopardy game. I had the concept but still needed to iron out the details, so I spent the next few days planning categories, figuring a point system, and developing answers that the staff then needed to answer in the form of a question. The game took on a personalized aspect particular to our department/hospital. Categories were Tom’s Edicts (chief executive officer), Captain Kirk (medical director), Protocol Patty (ED administrative leader), Irksome Queen Irene (ED educator), and JCAHO Sheriff (myself).

I started off the first 2 weeks with questions ranging in value from 100 to 500. I kept a running score sheet posted on the refrigerator in the ED lounge. The previous questions were posted on the refrigerator for the week, so that all staff had an equal opportunity to participate. We had winners for each week of the contest. I tried to invoke a sense of humor in the answers. The staff particularly liked, “These are the individuals required per our moderate sedation protocol; think of them as the 3 stooges.” An answer box was available in the lounge so individuals could deposit answers. I received answers on all types of mediums...even toilet paper!

Our challenges during our preparation included an increased census with winter illnesses as well as ski and snowboard injuries, increased holding of telemetry and medical-surgical patients, and then the JCAHO survey
coming 2 weeks earlier than expected. On a personal level, I was not very familiar with Microsoft PowerPoint/Word/Publisher and learned quite a bit in a short period. During the preparation, our concern was the number of patients admitted through the emergency department, and therefore, we expected most of the patients to be traced to begin in the emergency department.

Overall, we believed that as a department, we were prepared for the survey. Our unit had been very busy leading up to the survey, but the actual amount of time the surveyors spent in the department was much less than we expected.

In reviewing our preparation project, I found that the screensavers were a highly visible, useful method to present short, clear policies, questions, and answers. Some of the staff stated that it would have been helpful for the screensaver to cycle more slowly. The staff was very enthusiastic about our Jeopardy game. Participation was more than 50% for actual written submissions, but staff comments and lunchtime table discussions spilled over to more than just the actual participants. Much conversation took place with regard to the humorous slant of some of the questions. The JCAHO Journey, our newsletter, was widely distributed and provided a hard copy of information for staff to refer to during the Jeopardy game.

The posters for the NPSG were visually interesting and again provided a resource for staff to refer to during the Jeopardy game. In the surveys I received from staff, one nurse stated, “I’ve never had this much fun getting ready for JCAHO. I feel this is the best prepared we’ve ever been.” I also received positive comments from ancillary staff that frequent or reside in our unit regarding our Jeopardy game and the questions of the day.

Although I followed my initial plan, I made a few adjustments. Although the Quality Management Department did a couple of surveys prior to the actual survey, Irene and I did not implement our intended mock surveys because we were too busy in the department to come up with a plan to implement them. Also, the newsletter was produced less frequently than I had initially projected.

What could we have done better? Sharing screensavers with other units may have been beneficial. Also, the mock survey in our area would have reinforced our particular concerns. The cost for this project included approximately 85 hours of my time over 3 months (the cost was absorbed by the emergency department) and the cost of the video ($249, charged to the Quality Assurance Department).

In summary, the project took a great deal of one staff nurse’s time (approximately 85 hours) to complete, and it required a continuing commitment, if not “endurance.” However, this multi-pronged effort created more opportunity for dissemination of the information; the creative humor kept the subject alive; and the positive attitude, even in the face of disbelievers, kept the lines of communication open. In the end, our success was apparent in the staff’s level of confidence during the JCAHO survey.

SUGGESTED READING

Submissions to this column are welcomed and encouraged. Contributions may be sent to:

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A 7-month-old infant with a chief complaint of vomiting is brought to the triage desk. The triage nurse does an assessment and weighs the baby. She tells the mother that the baby weighs 8 kg. The mom wants to know what that equals in pounds, so the nurse switches the scale to display pounds and tells her that the baby weighs 17.6 pounds. There’s a line of patients at triage, so the nurse hurriedly documents the weight on the triage note. The chart has a space for weight in kilograms and, distracted, she writes in “17.6,” failing to recognize that she did not switch the baby’s weight back to kilograms.

The baby is taken to a room and assessed. A fluid bolus of 20 mL/kg (352 mL) is ordered, based on the weight documented on the chart. The nurse gives the baby a bolus of 352 mL, more than twice what the baby should have received. The error is not detected until the admitting physician writes an order for an intravenous (IV) antibiotic. The nurse thought the amount of medication seemed high, checked the weight on the chart, and reweighed the baby. Luckily, the baby had no preexisting conditions such as cardiac, lung, or kidney disorders and was able to handle the excess fluid without problems. If the nurse had not noticed the inaccurate weight before giving medication, the outcome could have been much worse. This specific actual case is not an isolated phenomenon. In fact, it is far from isolated.

Preventing medical errors is currently the focus of many organizations, including the Emergency Nurses Association and the Joint Commission of accreditation of Healthcare Organizations, especially since the Institute of Medicine report in 1998 described medical errors as the eighth leading cause of death.1 Of all medical errors,
medication errors have been studied the most because they are the second most frequent and the second most expensive event causing liability claims. In infants and children with fewer reserves, these errors can have serious consequences.

Most studies on medication errors in children are performed in inpatient units. One such study looked at preventable adverse drug events in pediatric inpatients and found that, although the preventable mistake rate was similar to that of a previous adult study, the potential rate of mistakes was 3 times higher, especially in neonates in the intensive care unit. This study also revealed that obtaining an incorrect weight or recording the weight incorrectly, such as in the case of the actual experience described above, caused 10% of all errors.

The incidents of medication errors in the pediatric emergency department (ED) are not fully described and this author could find no articles on the prevalence of medication errors in children seen in the adult setting. One study of pediatric ED patients showed that about 10% of patients may be exposed to medication errors. Most of the medication errors occurred during the evening or night shifts, and on weekends. Trainees were more likely to make errors, and seriously ill patients were more at risk. During a 5-year study of over 250,000 patient visits in a pediatric ED, there were only 33 incident reports filed involving medication or fluid errors, even though more were discovered in chart reviews. Actual incidents may be underreported because current mechanisms for reporting errors are often viewed as punitive.

Why are medication errors more likely in a pediatric ED patient? Dosages need to be calculated on a milligram per kilogram dosage. Weight-based dosing is often complicated and calculations can be performed incorrectly. In a busy ED, medications are often given quickly and fewer people are involved. Often the rule about double-checking doses is difficult to adhere to when a medication must be given immediately, especially in critical patients. Many medications are supplied to the pharmacy and to the ED in standard dosages that must be diluted for children. Moreover, some common medications that are given frequently in the ED may come in many different strengths. Acetaminophen, for example, may be available in as many as 9 different liquid concentrations, sobering given the potential for serious sequelae with overdoses of acetaminophen. In 1 study, acetaminophen was the most common drug involved in errors, followed by antibiotics and asthma medication.

Other factors involved in medication errors in children have been identified. They include:

- Residents and trainees: Errors in dosing are more likely to be made by residents and other trainees.
- The nursing shortage: The nursing shortage may result in fewer and less experienced nurses who may not be familiar with pediatric medications.
- Overcrowding in the ED: This may result in having to board inpatients for extended periods of time in addition to caring for other ED patients.
- Stress: Often nurses have several patients to care for and are interrupted, which limits their ability to focus.
- Lack of time to document: If the nurse doesn’t have time to document an order, another nurse, in an attempt to help, may repeat the medication. Or if medications are not documented on the record or in report when the patient is admitted, the dose may be repeated on the inpatient unit.
- Verbal orders and language barriers: Verbal orders may result in wrong doses being given. Discharge instructions may be a problem if the parents do not speak English.
- No pharmacist assigned to the ED: Many EDs do not have a pharmacist to assist with medication preparation and to serve as a resource.

How can nurses caring for children in the ED minimize the risk of a medication error? Here are several suggestions.

Weigh all patients in kilograms. To prevent the error described in the example above, we modified our scale to weigh only in kilograms. If a parent wants to know the weight in pounds we have a conversion chart to use. Don’t use a reported weight. Often parents will say, “We were just at the doctor’s office and he weighed 18 pounds.” Insist on reweighing in kilograms rather than converting the weight the parent has given to kilograms. Look at the weight when you are preparing a bolus or a medication, then look at the child. If you have any doubt about the documented weight, it only takes a moment to reweigh the child. Weighing the child correctly in kilograms would prevent many errors in calculating doses of medications and IV fluids.
Obtain a good history. Generally, children are not taking as many medications as adults, but make sure you ask about all drugs, including over the counter drugs, just as you do in adults. Check for allergies and make sure you use an allergy band or some method to highlight the allergy on the chart.

We modified our scale to weigh only in kilograms

If a parent questions a dosage, double-check it. Children cannot question you, but their parents know their children better than anyone else, especially parents of children with chronic conditions. Be particularly careful if a patient comes in with any kind of an IV infusion line. Know what you can, and cannot, infuse through the line.

Double-check all medications dosages with another nurse. Ninety-five percent of all mistakes are found when someone checks the work of others. When checking another nurse’s calculations, don’t just look them over—do the calculations yourself. Double-check both the strength being given and the dosage, and of course, make sure you have the right patient. It’s easy to mix up orders in the ED. Be especially aware of “high-alert medications.” The Institute for Safe Medication Practices (ISMP) defines these as drugs that bear a heightened risk of causing significant patient harm when they are used in error. This list includes adrenergic agents such as epinephrine, sedation drugs including moderate oral sedation agents for children such as chloral hydrate, IV and oral narcotics, insulin, and heparin. Additional information on medication safety can be found on the ISMP website http://www.ismp.org.

Label all medications that are drawn up. Even if you are administering a medication right away, label it. You could get distracted and set it down for a moment and someone else could mistake it for something else. Errors have been made when IV infusions have been flushed with medication that was mistaken for normal saline. Our hospital buys syringes that are prefilled and labeled as a normal saline flush to prevent nurses from flushing IVs with other medications or drawing up the wrong fluid to be used as flush. Label everything and include the strength and dose on the label.

Use infusion pumps to administer all IV medications and fluids to children. Infusion pumps can control the amount of fluids that are infused and prevent fluid overload. Consider the use of “smart pump” technology. These IV pumps incorporate computer technologies for storing drug information, making calculations, and checking entered information against dosing parameters. Our hospital has adapted this method, along with standard drug concentrations and, as a result, has reduced by a full 73% the number of reported errors associated with continuous medication infusions given in the pediatric intensive care unit and the neonatal intensive care unit.

Our hospital buys syringes that are prefilled and labeled as a normal saline flush, to prevent nurses from flushing IVs with other medications or drawing up the wrong fluid to be used as flush. Label everything and include the strength and dose on the label.

Document medications in a timely manner on the ED record. We have had incidents in which a drug was given twice because the nurse had not charted the drug after she gave it. The physician, thinking the drug was not given, then asked another nurse to do it. The second nurse checked the chart and saw that it was not documented (ie, not given), so gave the child another dose. She did not check with the patient’s nurse first, which would have been another way to prevent this error.

Make incident reporting nonpunitive. At our hospital, we call our incident reports “event reports.” The staff is encouraged to fill out these reports and they are first reviewed with the charge nurse. The nurse manager reviews the report with the nurse involved to determine if more education is needed. By reviewing our reports, we notice trends. When the same error is being made, we can educate the staff and change our systems to prevent it. Event reports led us to change our scales to measure weight only in kilograms. Study your pediatric population to see what your medical errors are, and review them with staff, but don’t make it punitive. Look for trends in the type of errors; look for ways to improve the system, not punish the person making the error. It is rare that a nurse intentionally does the wrong thing and rare, in our experience,
that the error can’t be addressed by making the entire system safer.

*Check out your medication room.* Look for potential sources of errors. Do you have drugs that have similar labels that should not be stored together? Can you get smaller volumes or concentrations of drugs to use for pediatric patients? Does your staff have access to pediatric drug references that allow you to quickly double-check a prescribed dosage? Our hospital has a standard drug reference to be used to double-check dosages and side effects. Use oral syringes to administer oral medications, never use a luer-lock syringe to draw up oral medications—these can also be mistakenly injected into an IV site.

*Look for trends in the type of errors; look for ways to improve the system, not punish the person making the error.*

*Provide resources and education.* Because of the nursing shortage, we hire some nurses with less experience now, and have noted that many medication errors occur with newer staff. We are working to provide more training and support in giving medications, especially sedation drugs.

The potential for medication errors exists in both the pediatric and the adult ED, but many medication errors with pediatric patients can be prevented by simply using a scale that weighs only in kilograms and double-checking drug calculations with another ED nurse. Children can be more vulnerable than adults and depend on us to “first do no harm.”

REFERENCES

Fortunately, the most common pediatric exploratory ingestions (ie, in children younger than 6 years) are considered nontoxic. Exposures to these substances are expected to result in no symptoms or symptoms limited to mild gastrointestinal upset. Poison Centers aim to decrease unnecessary hospital visits for such poisonings. However, sometimes patients present to emergency departments without the recommendation for medical attention. Toxic substances, particularly those with a very narrow margin of safety, have been reviewed previously. It also is important to be aware of nontoxic substances when making decisions regarding priority and necessity of rapid decontamination and treatment.

**Cosmetics and personal care products**

- Products such as noncoloring shampoos, conditioners, soaps, lotions, and shaving cream are simply gastrointestinal irritants. Treatment of these ingestions is dilution with a small amount of fluid and reassurance.
- Baby oil acts as a laxative emollient when ingested. Although baby oil is viscous, there are reports of children aspirating baby oil and having lipid pneumonia develop.
- Toothpaste containing fluoride typically contains a maximum of 1 mg of fluoride per gram of toothpaste. Packaging often has warnings stating that if more than the amount used for brushing is ingested, medical attention is warranted. However, exploratory ingestion of sodium fluoride typically does not produce symptoms if the amount of fluoride ingested is less than 5 mg/kg.
**Household cleaning substances**

- Our Poison Center frequently receives calls about curious children accidentally ingesting household bleach. Although household bleach has a pH of 10 to 11, caustic injury is unusual from an exploratory ingestion. Typically childhood ingestions of household bleach result in self-limited vomiting and mild esophageal irritation. The treatment for this exposure is dilution and observation at home.
- Furniture polishes that contain petroleum distillates are not systemic poisons. They are dangerous if aspirated. There is no treatment indicated for the asymptomatic child who ingests furniture polish.
- Hand dishwashing detergents can act as emetics; however, automatic dishwasher detergents can be alkali.

**Topicals**

- Diaper rash products are the most common topical preparations involved in pediatric poisonings. These may contain zinc oxide, emollients, and/or small quantities of vitamins A and D. The risk for vitamin A or D toxicity in this setting is negligible. With large ingestions, gastrointestinal upset may result.
- Hydrogen peroxide, in the low concentration (3%) used for first-aid treatment, acts as an emetic in small amounts. In fact, hydrogen peroxide is used to induce emesis in small animals that have ingested a potential poison.
- Topical steroids, such as hydrocortisone cream, do not cause systemic poisoning even with a large acute ingestion.

**Plants**

- The poinsettia (*Euphorbia pulcherrima*) has an undeserved reputation as being a toxic plant. However, the ingestion of poinsettia infrequently results in any symptoms.
- Plants that contain calcium oxalates (such as dumbcane and philodendrons) can cause local irritation, edema, and pain. However, systemic symptoms are unusual. Treatment for oxalate-plant ingestions involves symptomatic care, usually cool liquids or an ice pop.

**Foreign bodies**

- The most common foreign bodies ingested by young children are desiccants (such as silica gel). The parent is often alarmed following the child’s ingestion of silica gel because the packaging may have warnings such as “do not eat” or a “skull and crossbones” symbol. These warnings are used because those packers are a choking hazard to small children. Although we often hear about benign desiccants, there are some harmful desiccants. One Poison Control Center reported the ingestion of a desiccant packet containing a strong alkali. Call your Poison Center to check on the potential toxicity of any unfamiliar desiccants.
- Upon ingestion, coins are a concern because of the risk for esophageal lodging, rather than systemic toxicity.

**Arts/crafts/office supplies**

- Chalk and crayons are more of a choking hazard to young children than a poisoning hazard. Even though we still refer to the core of a pencil as “lead,” modern pencils contain nontoxic graphite.
- Water-based paints, white glue, and ballpoint pen ink are other nontoxic products that children commonly ingest.

**REFERENCES**

Submissions to this column are welcomed and encouraged. Submissions may be sent to:

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New Practical Book Helps Nurses
to Help Patients Stop Smoking Using the Five A’s:
Ask, Advise, Assess, Assist, Arrange

Emergency Department (ED) nurses witness the
devastating effects of tobacco daily. It kills more
Americans every year than AIDS, alcohol, car
crashes, suicides, homicides, drug abuse, and fires all put
 together. It affects almost every body system.¹

Yet many ED nurses do not know how to counsel
patients about quitting, and most institutions have no poli-
cies or programs to ensure that tobacco cessation counsel-
ing is provided for health care staff members themselves.
Many health plans do not cover cessation counseling ser-
vice services, and accreditation bodies have not yet required that
health care providers counsel patients who smoke, as a
standard of practice measure. Arguably, not addressing
tobacco dependence and addiction at every health care
visit in every setting can be seen as the equivalent of
admitting a diabetic patient without ever discussing his or
her blood sugar.

Emergency nurses may feel that the time pressures
under which they work preclude doing smoking cessation
counseling. Yet the literature suggests that even being asked
about tobacco use by a health care provider can help
patients quit or move toward making a quit attempt.²
At minimum, all patients’ tobacco use status should be
assessed as a basic “vital sign,” and those identified as
smokers should be advised that quitting smoking is the
most important thing they can do to protect their health.
If patients express readiness to quit, ED nurses should
provide referral resources. Although tobacco addiction is
very difficult to overcome and is often marked by relapses,
millions of people do quit successfully each year. It is
important for patients to hear that most people attempt
quitting more than once before they are successful, because
nicotine is a highly addictive drug.
Several years ago, many nurses were sent a copy of the U.S. Department of Health and Human Services’ Clinical Practice Guideline on treating tobacco use and dependence. This was an effort at the policy level to help practitioners address tobacco. The long, detailed, 179-page guide reviews the extensive research on tobacco use and addiction and offers instructions on how to address it in clinical settings, but was too unwieldy to be of practical use, especially in busy settings such as the ED. Fortunately, RNs from Tobacco Free Nurses (an initiative aimed at helping nurses themselves quit smoking and educating nurses to better help their patients do so) recently worked with the Department of Health and Human Services to develop a wonderful new resource for all nurses—a pocket guide that provides essential information on helping smokers quit, in a compact, easy-to-use form. Helping Smokers Quit: A Guide For Nurses is the first resource developed especially for use by nurses, the nation’s largest group of health care providers, and it is a great example of nurses working with policy agencies to help translate research evidence into practice.

The free booklet focuses on the Five A’s: Ask (Do you smoke? Did you ever smoke?), Advise (Quitting smoking is the most important thing you can do to protect your health), Assess readiness to quit (and provide resources/referrals), Assist tobacco users with a quit plan, and Arrange follow-up visits. The book also provides an easy-to-use chart for pharmacotherapy recommendations, which is important because use of nicotine replacement and other pharmacotherapies aids in successful cessation.

RNs from Tobacco Free Nurses . . . worked with the Department of Health and Human Services to develop a wonderful new resource for all nurses—a pocket guide that provides essential information on helping smokers quit, in a compact, easy-to-use form.

If the 2.2 million working nurses in the United States each helped just 1 person a year quit smoking, nurses could triple the quit rate in this country. Quitting smoking at any age improves health and reduces the risk of dozens of serious illnesses and premature death. Nurses, like everyone else, can become frustrated with patients who continue smoking or using other forms of tobacco, despite their health problems or risk factors. But nicotine is a powerfully addictive drug, and cigarettes are highly engineered to deliver that nicotine in particularly addictive forms; they are not just tobacco leaves rolled up in paper. Therefore, helping addicted patients calls for patience and tenacity.

It is also important for nurses to know something about the ‘vector’ of tobacco-related disease—the tobacco industry—and to remind patients that there is an entire industry pushing this drug, spending more than $1.4 million an hour, 24/7 on marketing cigarettes. Why is it important for nurses to know about the tobacco industry? Understanding how this industry has influenced tobacco control policy, undermined public health, and deceived the public about the scientific facts about the health risks of smoking and secondhand smoke helps nurses, in turn, to help patients. Once we understand that quitting smoking is not merely a matter of individual will power, we can also help build public support for strong tobacco control policies—like smoke-free workplaces—that help people quit and sustain quitting. And these efforts will pay off in reducing the disease toll from tobacco—another way to reduce ED overcrowding!

— Nicotine is a powerfully addictive drug, and cigarettes are highly engineered to deliver that nicotine in particularly addictive forms; they are not just tobacco leaves rolled up in paper. Therefore, helping addicted patients calls for patience and tenacity.

Resources


Web Resources:
Tobacco Free Nurses: helping nurses quit and cessation resources: www.tobaccofreenurses.org.
Nightingales Nurses: advocacy, activism, and information about the tobacco industry: www.nightingalesnurses.org


REFERENCES
Frostbite: Case Report, Practical Summary of ED Treatment

Late last fall, hikers in a mountainous area found a 57-year-old woman sitting in a snow bank in light clothing and running shoes. She told the hikers that she had been out in the woods for several days on a “spiritual journey.” Her vital signs on arrival at the emergency department were as follows: temperature, 32.9°C (91.2°F); blood pressure, 136/115 mm Hg; heart rate, 120 beats per minute; respiratory rate, 16 breaths per minute; and SpO₂, 100% on room air. Her shoes and socks were frozen to her feet, and we had to cut them off before we started rewarming her. Both her feet appeared pale and frozen, and she was unable to move either foot initially. She had a weak pulse by Doppler, detected only in the right posterior tibial artery.

We placed a large femoral line to infuse warmed saline, in addition to using multiple warming blankets and a Bair Hugger®. We warmed her feet by running warm water over them until they felt warm, which took about 20 minutes. By the time she was admitted to the ICU, her temperature had increased to 36.8°C (98.2°F). She was able to flex and extend her ankles and could weakly wiggle her toes. She had decreased sensation and “burning” discomfort of both feet. After 24 hours in the ICU, the left foot injury demarcated at the toes and the right foot injury demarcated at mid foot.

Subsequently, the patient was transferred to the ward and a cellulitis of the right leg appeared to develop. She had fever spikes as high as 38.9°C (102°F). The patient stated she was “allergic” to all Western medicine and was unwilling to accept any antibiotic therapy. At this time, a psychiatric consult was initiated with eventual involvement of the hospital Ethics Committee and the Palliative
Care Team. The patient continued to refuse all treatment other than occasional pain medication administration and visits from her acupuncturist. She consented to dressing changes to her feet. While the patient continued to be intermittently febrile, the appearance of the right leg improved. She was discharged to an adult foster care home 20 days after admission.

Discussion

Frostbite is a cold-induced injury that usually affects the extremities. It is classified as superficial or deep.\(^1\) Superficial frostbite affects the skin and subcutaneous tissue. When rewarmed, the skin will have clear blisters, which is a good prognostic indicator.\(^1\) Deep frostbite affects the tissues, bones, tendons, and joints. When deep frostbitten tissue is rewarmed, the skin forms hemorrhagic blisters, a poor prognostic indicator.\(^1\)

Physiologically, tissue damage from cold temperatures has two mechanisms: (1) direct cellular injury at the time of the exposure from ice crystals, and (2) progressive ischemia-related tissue damage resulting from vasoconstriction, endothelial injury, and the presence of inflammatory mediators.\(^1,2\) Treatment includes rewarining the extremity, providing pain relief, minimizing the inflammatory process, and preventing complications.

\[\text{One...}\] objective is to provide adequate analgesia, which will be particularly important as sensation returns to the affected extremity. The pain can be intense...\.

Rapid rewarining is the first treatment objective. In the emergency department, the frostbitten extremity should be placed in a warm water bath for 15 to 30 minutes.\(^2\) A mild antibacterial agent, such as hexachlorophene, can be added to the bath. The water temperature should be between 40°C (104°F) and 42°C (107.6°F).\(^2\) The frostbitten tissue is so fragile that meeting this narrow temperature range is important; warmer water could cause a burn, and cooler water could affect the survival of the tissues. The team should ensure the extremity is protected from the sides of the bath container to prevent any additional tissue damage. Similarly, the extremity should not be massaged as it rewarms. The goals of the water bath are to see the skin color change to reddish purple and to feel the tissue become pliable.

The second treatment objective is to provide adequate analgesia, which will be particularly important as sensation returns to the affected extremity. The pain can be intense for the patient.

The \text{water temperature should be between 40°C (104°F) and 42°C (107.6°F). The frostbitten tissue is so fragile that meeting this narrow temperature range is important; warmer water could cause a burn, and cooler water could affect the survival of the tissues.}

The only way to effectively prevent progressive vascular ischemia is to block the production of prostaglandins and thromboxane inflammatory mediators through the use of ibuprofen and topical aloe vera.\(^2\) Elevating the affected extremity can help decrease edema as well.

Preventing complications is the last treatment objective. Some patients may have a cold diuresis from suppression of antidiuretic hormone, so replacing fluid and monitoring fluid balance is important. Also, because the damaged tissue is tetanus-prone, the patient may need prophylaxis. Careful skin care is essential to prevent further damage or infection. Using a soft fabric, such as wool with aloe vera, between the toes and fingers to keep them separate can help prevent skin from re-injury and sloughing. The use of a blanket cradle or boot may help prevent further mechanical trauma to the injured tissue. Finally, never attempt to rewarin a frostbitten part if there is a chance that refreezing could occur, for example, in transit from the scene of injury.

An old saying goes, “Frostbite in January, amputate in July.” Surgical debridement is usually a late treatment option. It is difficult in the early stages to accurately assess...
the true extent of the tissue damage. The only reason to debride early is if there are signs of infection, particularly gas gangrene.

The only way to effectively prevent progressive vascular ischemia is to block the production of prostaglandins and thromboxane inflammatory mediators through the use of ibuprofen and topical aloe vera. Elevating the affected extremity can help decrease edema as well.

Follow up

Our patient was readmitted approximately 1 month after discharge for surgical amputation and debridement of several gangrenous toes on her right foot. Her surgery and recovery were uneventful, and she was discharged back to her adult foster care home after 5 days with dressing changes and follow-up care in our trauma clinic.

REFERENCES


Contributions for this column are welcomed and encouraged. Submissions should be sent to:

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Two children arrive almost simultaneously in the emergency department, both with stridor and difficulty breathing. Patient A is a 5-year-old who arrives with inspiratory stridor, a barking cough, a runny nose, bilateral intercostal retractions, and a fever. Patient B is a 3-year-old boy who has severe difficulty breathing when he arrives. He has rapid respirations, biphasic stridor, a barking cough, and bilateral costal retractions.

Currently only one bed is open in the emergency department. Which child goes first? To make the decision, the emergency nurse must be familiar with certain childhood airway obstruction presentations.

Definitions

STRIDOR
Stridor, a harsh, high-pitched raspy sound heard on inspiration and/or expiration, is caused by airflow through a narrowed subglottic opening. The subglottic area is the narrowest portion of a child’s airway and is especially vulnerable to narrowing and obstruction by inflammation. When stridor is present during both inspiration and expiration it is called biphasic stridor, a sign of urgency. Stridor on inspiration is associated with obstruction above the glottis, whereas expiratory stridor suggests an obstruction at or below the lower trachea. A child with an airway obstruction often will cough in an effort to clear the airway. If the obstruction is high in the airway, the cough is described as “barking like a seal.” For this reason, the presence of a barking cough and stridor alone are not sufficient criteria to assume the presence of croup.
CROUP

Croup is a syndrome of infectious conditions characterized by a barking cough, stridor, hoarseness, and varying degrees of respiratory distress. It is the most common cause of acute stridor in children. Laryngotracheobronchitis, or viral croup, is the most common type of croup; it is most commonly seen during the winter and fall and is more common in male patients. A family history increases the chances of a child getting laryngotracheobronchitis croup by approximately 15%.4,5 Although it is most common in children younger than 3 years, it can develop in children up to 6 years of age.

When stridor is present during both inspiration and expiration it is called biphasic stridor, a sign of urgency.

Spasmodic croup presents similarly to viral croup. This type of croup tends to recur in approximately 5% of children. Symptoms frequently begin abruptly, continue for several days, and occur predominantly at night.5 Symptoms include sudden onset barking cough and stridor with or without signs of an upper respiratory infection. Spasmodic croup often involves an allergic reaction to a viral antigen.

UPPER AIRWAY OBSTRUCTION BY A FOREIGN BODY

The most common sources of obstruction include foods such as hot dogs, peanut butter, bread, and coins. The symptoms are similar to croup in that a child may demonstrate difficulty breathing, but with an obstruction, the onset is sudden after an initial gagging or choking, and the patient is unable to speak (aphonia). There also may be a barking cough and/or episodic cyanosis.

### Assessment

Table 1 highlights the differences and similarities between laryngotracheobronchitis, spasmodic croup, and obstruction with a foreign body. The importance of the history cannot be overstated. Ask the parent, “How did the stridor begin?” Sudden onset indicates airway obstruction by a foreign body; gradual onset may indicate an inflammatory process such as croup. Remember to inquire about medical history, immunization status, and recent medications. A child with a history of allergies may be experiencing recurrent spasmodic croup. Ask about recent activities, and consider the child’s ability to put objects into his or her mouth; children as young as 6 months are able to put objects in their mouths. Also assess whether the child is alert and makes eye contact. A seriously compromised child usually will be too focused on breathing to make eye contact. Remember that there is an inverse relationship between the size of the child and the incidence of chest wall retractions. An older child with mild retractions may be experiencing severe respiratory difficulty.

### Further history, assessment, and treatment of Patient A

After exhibiting cold symptoms for 3 days, the 5-year-old patient woke up with difficult, raspy respirations and a non-stop barking cough. Her blood pressure is 100/60 mm Hg, her pulse is 110, her respiratory rate is 40, and pulse oximetry shows 90% on room air. Her temperature is 39°C (102.2°F). The mother denies any significant medical history and tells you the child’s immunizations are up to date. The child is alert and interested in her surroundings. What is her diagnosis? Laryngotracheobronchitis. She is treated with humidified “blow-by” oxygen, acetaminophen for the fever, and dexamethasone. She is discharged home 3 hours after arrival with a prescription for dexamethasone and instructions to follow up with her pediatrician in the morning.

### Further history, assessment, and treatment of Patient B

The 3-year-old played outdoors for most of the afternoon and began to cough after coming indoors at the end of the day. The coughing subsided after he drank milk, and the

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**Table 1**

<table>
<thead>
<tr>
<th>Differential diagnosis</th>
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<tr>
<td><strong>Assessment parameters</strong></td>
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<tr>
<td>Retractions</td>
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<tr>
<td>Stridor/cough</td>
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<tr>
<td>History of URI</td>
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<tr>
<td>Fever</td>
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<td>Age</td>
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LTB, Laryngotracheobronchitis; URI, upper respiratory infection.
patient took a nap but woke up with a barking cough after only minutes of sleep. The father says that the patient became briefly cyanotic in the car on the way to the hospital. The patient’s vital signs are: blood pressure, 100/50 mm Hg; pulse, 120; temperature, 36°C (96.8°F); and pulse oximetry, 88% on room air. The father is anxious and answers questions impatiently. The child appears to be apprehensive and frightened and is unable to speak or make any sounds. The father denies any significant medical history and states that the child is current on his immunizations. What is his diagnosis? Coin ingestion. A bedside, soft-tissue radiograph of the child’s neck reveals a small, flat disc lodged just above his trachea. The coin is removed endoscopically and he is discharged home 8 hours later.

A seriously compromised child usually will be too focused on breathing to make eye contact.

Intervention strategies

CROUP

Providing humidified “blow-by” oxygen is a nonthreatening method of delivering oxygen to a child. Humidity is effective in treating croup because it provides water droplets that penetrate the area of airway inflammation and add moisture to the bronchial mucosa, as well as thins secretions. Racemic epinephrine administered either subcutaneously or by nebulization works quickly in moderate and severe symptoms of croup to reduce airway swelling. Epinephrine’s short-acting effects require that children be observed for several hours for rebound effects before being discharged home. Steroids often are used to reduce and control the severity of symptoms associated with croup. Children also may be given a short course of maintenance steroid therapy after discharge.3,6,7

UPPER AIRWAY OBSTRUCTION

It is important to provide oxygen and airway protection to a patient with upper airway obstruction. A soft tissue radiograph of the neck can reveal the foreign body, which then can be removed using endoscopy.8

Discussion and triage acuity

The triage nurse correctly brought in Patient B, the 3-year-old, for treatment first because of her critical thinking and knowledge of differentiating stridor in children. A bed quickly was made available for Patient A, the 5-year-old, who was brought in for treatment soon thereafter.

Acknowledgement

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REFERENCES


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1. After reading the articles, darken the appropriate circles on the answer sheet on page 510 (or a photocopy). Each question has only 1 correct answer.

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GENERAL PURPOSE
To provide registered professional nurses with current information on a variety of clinical, research, and professional or administrative topics of interest to emergency nurses.

LEARNING OBJECTIVE—RESEARCH (CONTACT HOURS 2.0; FEE $14.95)
After reading this article and taking this test, you will be able to:
1. Outline the effectiveness of an online course in the five-level Canadian Triage and Activity Scale (CTAS) on the clinical practice of the triage nurse.

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2. Describe the appropriate treatment for frostbite.
3. Discuss the use, administration, and contraindications for promethazine.
4. Differentiate croup from upper airway obstruction by a foreign body.

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In accordance with Iowa Board of Nursing administrative rules governing grievances, a copy of your evaluation of the CE offering may be submitted directly to the Iowa Board of Nursing.
RESEARCH TEST QUESTIONS

Effectiveness of a 6-week Online Course in the Canadian Triage and Acuity Scale (CTAS) (pp. 436-41)

1. Which of the following accurately indicates a result of this study?
   A. Those who were ambivalent about the course indicated they would have benefited from more online discussion.
   B. Those that did not have previous experience with online learning were all older than fifty-five years.
   C. 75% of the nurses reported having previous experience with online learning.
   D. 78% of the nurses reported that the course had a positive impact on their triage practice.

2. Which of the following was a consistent report given by nurses regarding the online discussion forums?
   A. Learners frequently posted threads that lacked focus and accuracy.
   B. Learners did not have the necessary time to read the discussion threads posted.
   C. Learners had difficulty connecting with peers who did not work in a similar type of institution.
   D. Learners wanted the teacher to take an active role in guiding and directing their discussions.

3. Following the online course, some nurses reported that barriers to implementing CTAS included the
   A. delegation of the triage role to a physician’s assistant.
   B. physicians’ lack of interest in implementing a triage system.
   C. absence of an existing formal triage system used by their institutions.
   D. limited variance in the acuity of patients to justify use of the system.

4. A chart audit by experts on the triage level coding done by graduates of the CTAS course revealed
   A. 70% of the charts were coded at the exact same triage level assigned by the expert.
   B. overall agreement between expert and graduate, within one triage level, was 90%.
   C. additional teaching was required to improve the accuracy of CTAS implementation.
   D. online course performance was not a reliable predictor of clinical practice performance.

5. Which of the following was not an impact of CTAS online on triage practice?
   A. Improved triage accuracy
   B. Improved patient re-assessment
   C. Improved communication among the team
   D. Improved patient flow through the department

CLINICAL TEST QUESTIONS

Topical Anesthetic Sprays Directly Associated with a Serious, Sometimes Fatal Adverse Drug Reaction: Methemoglobinemia (pp. 468-9)

1. Which of these over-the-counter medications is associated with the drug reaction methemoglobinemia?
   A. Efferdent Plus
   B. Neosporin
   C. Listerine
   D. Cepacol

2. At greatest risk of developing methemoglobinemia is a patient who
   A. has a history of sickle cell disease.
   B. is less than 6 months of age.
   C. has a history of smoking.
   D. is African-American.

3. A patient with a methemoglobin level that is 15% of total hemoglobin is likely to present with
   A. palpitations.
   B. delirium.
   C. anxiety.
   D. cyanosis.

4. Treatment for a patient without G6PD deficiency who develops methemoglobinemia includes
   A. oxygen and methylene blue.
   B. plasmapheresis and ascorbic acid.
   C. chelation therapy and nitroglycerin.
   D. hypertonic intravenous fluids and nitroprusside.
5. Treatment of a patient with frostbite includes
   A. providing gentle massage to the affected extremity.
   B. placing the affected extremity in a whirlpool bath for 60 to 90 minutes.
   C. placing the affected extremity in water that is between 40°C (104°F) and 42°C (107.6°F).
   D. immediately applying silver sulfadiazine (Silvadene) cream 1% to the affected extremity.

6. Which of these medications is commonly prescribed to prevent the progressive vascular ischemia associated with frostbite?
   A. benzocaine
   B. diltiazem
   C. ibuprofen
   D. nitroglycerin

7. When caring for a patient with frostbite, the first treatment objective is
   A. rapid rewarming.
   B. surgical debridement.
   C. providing adequate analgesia.
   D. preventing vascular ischemia.

8. Correct administration of promethazine includes
   A. protecting the medication from light.
   B. administering the medication at a rate not exceeding 25 mg/minute.
   C. administering the medication through a peripheral vein.
   D. discarding the medication if a slight yellow color is present.

9. Promethazine is contraindicated in patients
   A. under the age of 2 years.
   B. allergic to sulfonamides.
   C. taking prescribed phenytoin.
   D. with a history of methemoglobinemia.

10. Promethazine is used to treat
    A. narrow angle glaucoma.
    B. prostatic hypertrophy.
    C. motion sickness.
    D. sleep apnea.
2. In preparation for the JCAHO survey, the ED staff was first required to
   A. participate in a mock survey.
   B. participate in a game of *Jeopardy*.
   C. view a video on tracer methodology.
   D. view a poster presentation on JCAHO updates.

3. Which of the following statements about the use of the computer screensaver as a JCAHO learning tool is accurate?
   A. It was used to highlight the National Patient Safety Goals (NPSG).
   B. It was most effective when it cycled information every 15 seconds.
   C. It was determined to be a useful method for presenting short, clear information.
   D. It was necessary for the information to be continuously displayed for a minimum of 5 to 7 days.

4. Which of these statements about the newsletter is accurate?
   A. It was limited to electronic distribution in an effort to reduce costs.
   B. The creation was more involved than the author had anticipated.
   C. The information focused on Hospital Core Measures.
   D. The hospital’s Board of Directors halted distribution based on privacy concerns.

5. Which of the following was a challenge this Emergency Department encountered during JCAHO preparation?
   A. an effort by the staff to implement a collective bargaining unit
   B. an unexpected delay in the scheduled JCAHO survey date
   C. an outbreak of meningitis among hospital staff
   D. an increased census with winter illnesses

6. What effect did the implementation of *Jeopardy* have as a learning tool?
   A. It resulted in a 95% written participation rate.
   B. It earned the institution recognition as a magnet hospital.
   C. Staff did not recognize the seriousness of the preparation.
   D. Discussion spilled over to more than just the actual participants.

7. What recommended improvements were made by the author?
   A. sharing the computer screensaver information with other units
   B. improving the types of prizes awarded to the participating staff
   C. hiring a temporary RN in a full-time position to assist with preparation
   D. having the quality improvement department perform the mock survey
CE ENROLLMENT FORM

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   O d O d O d O d O d O d O d

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   O d O d O d O d

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FEES AND CONTACT HOURS LISTED ABOVE
The nursing shortage continues and will only get worse. The Health Resources and Services Administration projects that 800,000 more nurses will be needed in the United States by the year 2020.1 Southeast Missouri Hospital is meeting this issue head on by introducing regional youth to career nursing through a hands-on Nursing Camp experience. The mission of the Hospital’s Nursing Camp is to provide an opportunity for students to learn about nursing and the life of nurses. Research has documented that young people decide on a profession from a limited point of view simply because of existing stereotypes, gender bias, and lack of exposure. 2 This camp was designed to educate high school-aged individuals about nursing at the time they are making career decisions.

Nursing Camp addresses the region’s growing need for nurses while displaying many career opportunities offered by our profession.

In February 2002, Southeast Missouri Hospital’s nursing administration entertained the concept of using a nursing camp to introduce high school students to the realm of nursing. Thoughts about student housing, clinical experiences, site visits, educational offerings, speakers, camper transportation, and financial constraints were addressed. The camp schedule would include opportunities for shadowing in the hospital, educational programs, nursing in non–acute care settings, and social/cultural activities.

The Planning Committee held its first meeting the fall of 2002 and established the following goals: (1) To expose young people to the registered nurse role in various clinical and nonclinical settings; (2) to make nursing an attractive career option to male and female students of diverse ethnic and socioeconomic backgrounds; and (3) to make camp an enjoyable, fun-filled week of exploration of not only the nursing career but also the lives of nurses.

Colorful informational brochures with applications were distributed to area high school counselors. Campers ranged in age from 15 to 19 years and represented 14 communities in southeastern Missouri. Many campers were awarded scholarships funded by private donations, Southeast Missouri Hospital Foundation, and Southeastern Missouri Area Health Education Centers. Grant funding from Johnson & Johnson Campaign for Nursing Future was also sought and received for Nursing Camp 2004.

In 2003, the first year camp was initiated, students were housed in the homes of willing Southeast Missouri Hospital nurses. While that scenario allowed for fellowship with nurses, the campers were missing the camaraderie of a “camp” atmosphere. For Nursing Camp 2004, we contracted for dorm space through the local University.

Camp starts with an opening banquet that provides the campers and their parents with an opportunity to envision the plans for the days ahead and to ask questions. The first evening includes opening games and ice-breakers.

Day 1. After signing and reviewing confidentiality contracts, the campers begin their rotation through various hospital departments for shadowing experience. Hot spots (highly requested areas) include the emergency department,
operating room, obstetrics, and pediatrics. In 2004, eight campers were privileged to observe healthy deliveries, 12 campers observed open-heart surgeries, 4 observed cardiac angiograms, and 6 observed colonoscopies (Figures 1 and 2).

**Hot spots (highly requested areas) include the emergency department, operating room, obstetrics, and pediatrics.**

**Day 2.** Shadowing at the hospital continues in the morning, with CPR training in the afternoon. Nurses at Southeast Missouri Hospital are very receptive to students; they eagerly take the time and energy to explain procedures, laboratory tests, and disease processes. The Hospital overall is very education oriented, as evidenced by our loan reimbursement/forgiveness program for nursing and other health care careers. Director of Education Dr Gwen Thoma verified that more than $1 million was spent last year on education assistance programs.

**Day 3.** To allow the campers to experience the life of a nursing student, the third day is spent at Southeast Missouri Hospital College of Nursing and Health Sciences. Faculty members hold mini classes in radiology, surgical technology, and handicap awareness. To appreciate what some patients experience, the campers are challenged to cross the street, handicapped by crutches, splints, and walkers.

**Day 4.** So campers can experience nursing outside the hospital setting, they tour The Lutheran Home, an extended care facility with services extending from assisted living to a skilled care unit, and ARCH Air Medical, a medical helicopter transport unit, where the campers are permitted to climb on board to appreciate the limited space available for patient care.

**Day 5.** A Mid America Transplant Representative is invited to present statistics and information regarding organ transplants. This presentation is followed by a rousing ethical discussion of “Who gets the organ?” A farewell luncheon highlights the week with a video and humorous award presentations (eg, most luggage ever for a camper and ultimate cell phone usage).

...an impact is being made on the lives of those attending.... “It opened my eyes to job options that I never knew existed,” “I know now that nursing is what I want as my career”....

Because summer camp cannot be all education and needs to include fun and games, outings are organized for each evening. One night features pizza and a movie; another evening, there is a picnic in the park and bowling. Chief Nursing Officer Dr Karen Hendrickson, EdD, RN, CNAA, BC, provides a catered pool party at her home, which is a hit with the campers and chaperones alike.
Has camp been successful? Each year, camper evaluations are compiled and assessed. The results show that an impact is being made on the lives of those attending camp. Comments have included the following: “It opened my eyes to job options that I never knew existed,” “I know now that nursing is what I want as my career,” and “It made me want to become a nurse even more.”

Campers see what nursing is like in the trenches, alongside real nurses. . . that’s vastly different than overhead projector presentations and classroom lectures.

Evaluations from Nursing Camp 2004 prompted some changes in this year’s camp schedule. Camp will be shortened by a half day, closing on Thursday evening instead of Friday noon, to make it easier for parents to attend the closing banquet. More “down time” at the dorm will be built into each day for rest and socialization.

Southeast Missouri Hospital already has benefited from introducing campers to nursing. While planning their future careers, two 2004 attendees recently have been hired as a pharmacy technician and a nurse assistant.

“Campers see what nursing is like in the trenches, alongside real nurses,” says Sharon Stinson, MSA, BSN, CAN, BC, director of patient-care services and past camp director. “That’s vastly different than overhead projector presentations and classroom lectures.”

REFERENCES

ACEP/ENA Policy Statement on Delivery Agents for Procedural Sedation and Analgesia by Emergency Nurses

The Emergency Nurses Association (ENA) and the American College of Emergency Physicians (ACEP) support the delivery of medications used for procedural sedation and analgesia by credentialed emergency nurses working under the direct supervision of an emergency physician. These agents include but are not limited to etomidate, propofol, ketamine, fentanyl, and midazolam.

Approved by the ACEP Board of Directors April, 2005 and the Emergency Nurses Association (ENA) Board March, 2005.

Coming Meetings

OCTOBER 2005

5th International Conference for Emergency Nurses
October 13-15, 2005, Crowne Plaza Coogee Beach, Sydney, Australia.
Sponsor: College of Emergency Nursing Australasia. Contact: Ms Emma Waygood, Conference Action Pty Ltd. Phone: +61 2 9437 9333; Fax: +61 2 9901 4586; E-mail: emma@conferenceaction.com.au; Website: www.cena.org.au.

NOVEMBER 2005

CEN Review Course
November 3-4, 2005, Sheraton LaGuardia East Hotel, Flushing, NY
Sponsor: Montefiore Medical Center. Contact: Lisa Kosits; Phone: 718-920-5241; E-mail: lkosits@montefiore.org

Annual Vermont ENA Education Day
November 4, 2005, Ascutney Mountain Resort, Brownsville, VT
Sponsor: Vermont ENA. Contact: Maureen Heyder; Phone: 802-728-3961; E-mail: Maureen.Heyder@hitchcock.org; Website: www.vermontena.com

2005 Canadian Injury Prevention and Safety Promotion Conference
Evidence to Action: Injury, Violence and Suicide Prevention
November 6-8, 2005, Westin Nova Scotian Hotel, Halifax, Nova Scotia, Canada Contact: Purple Dog Consulting. Phone: (613) 798-8029. E-mail: purpledog@sympatico.ca. Website: www.injurypreventionconference.ca

FEBRUARY 2006

ENA Leadership Challenge
February 23-26, 2006, Austin, Texas
Sponsor: Emergency Nurses Association. Contact: Emergency Nurses Association, 915 Lee St, Des Plaines, IL 60016. Phone: (800)243-8362; fax: (847)460-4001; E-mail: enainfo@ena.org.

ENAsponsored meeting.