# Journal of Emergency Nursing

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The 35th Anniversary of the ENA would seem to be a reason to celebrate. While this is certainly true, what is embedded in ENA’s success are “ordinary” emergency nurses. I recognize that there is no “ordinary” emergency nurse. Each one of us possesses our own unique traits that we bring to the profession of emergency nursing. It is important to remember that emergency nurses everywhere are more alike than they are different. Our challenges are the same, and so often these challenges cause us to overlook the reasons emergency nurses must remember to celebrate.

Celebrating our challenges is part of what makes us emergency nurses. Crowded emergency departments are a well-documented source of frustration for everyone: emergency nurses, physicians, ancillary departments, EMS, administrators, and, most of all, patients. Yet it is despite such challenges that the spirit of emergency nursing prevails. We provide care, miss meals (and bathroom breaks), and help our colleagues despite the obstacles we encounter. I certainly have gone home wishing I had done more, but also knowing that a lot was accomplished. With the desire to do more comes the knowledge that if any one of us had done it all, there would not be a need for emergency nurses. No one wishes for illness or injury, but emergency nurses love the challenge of caring for ill or injured patients; it is the very essence of who we are. Emergency nurses need to celebrate all that they have done and all they have yet to do.

I was honored to be able to attend the New York State Council Awards Recognition Ceremony in April of this year. What a wonderful celebration of each other and of emergency nursing. Their event began with a raffle to benefit the New York State EMS Scholarship awarded through the ENA Foundation. Networking, catching up with friends rarely seen, and making new friends was a significant part of the raffle’s success. What was most exciting about this evening was the warm camaraderie and recognition of this year’s award recipient’s contributions to emergency nursing. Every attendee was given a single rose that they in turn gave to someone in the room who had made an impact on their professional development. Several of those present went home with a bouquet of roses afterwards; this was a meaningful way to express appreciation to emergency nurses who willingly gave of themselves to help others. Every state council should follow this example and create an opportunity to honor those in your state who have made a difference. Rejoice in the knowledge that despite significant challenges in our everyday practice, each of us makes a difference.

It is all too easy to become too preoccupied with how busy we are, the record volumes we are seeing in our...
emergency departments, and the ever-advancing technology to remember those who have made an impact on our careers. Each of us has a special mentor who somewhere along the way made a difference for us. It may have been the emergency nurse who taught you how to be an “ED nurse,” or the co-worker who could make any shift fun. It is never too late to thank those who have made a difference for you. If we all remembered to just say “thank you” or “it was nice to work with you tonight,” think how differently we would all feel at the end of the shift. Emergency nurses work hard; we need to learn to celebrate with the same level of energy and intensity we bring to our practice. Together, we can get through anything. Celebrating, we can overcome any challenge we encounter. When the shift is over, every patient may not have had the outcomes we would have chosen if we could. But we can leave at the end of the shift knowing we remembered to celebrate each other. My challenge to you is take the time to not only make a difference for your patients during these challenging times, but also to rejoice in each other. I hope to see each of you at the ENA Annual Meeting in Nashville at the celebration of ENA’s 35th anniversary of helping emergency nurses meet the challenges of emergency nursing.
"Don’t look at headlines; look at trendlines," he told the young men and women in my daughter’s high school class at their commencement. In his address, former President Bill Clinton said that the terror of September 11, 2001, was a headline but that the trendline was there for many years, with previous bombings of the USS Cole and US embassies, and even an earlier attempt to destroy the World Trade Center.

I began to think about the headlines and trend lines in emergency care. Not a week goes by without a newspaper report of a hospital or emergency department closing, a diverted ambulance with nowhere to bring a patient, a sentinel event in some emergency department, and yet another emergency nurse wondering how long she can keep up the pace, wondering whether she should just leave her first love, the ED, to take that job in endoscopy so she can give patients the care they deserve. These are the headlines, but what helps us to understand, and plan, is the trendlines. And they go back to the ‘60’s and before—the relentlessly increasing use of the emergency department, overcrowding, compromised patient safety, increasingly severe cyclic nursing shortages, less and less money going to hospitals, increasingly sick patients, and endless unfunded mandates, to name a few.

Although the staff of a single emergency department struggles to shave 5 or 10 minutes off a “throughput” time and free up a stretcher, strong international market and political forces are directing less money, more patients, and more regulation toward that same emergency department.

Los Angeles’ new mayor, Antonio Villaraigosa, at his recent inauguration, said it best: “We need to start thinking big again.”

Enter the ACEP and their colleagues at ENA.

On September 27, when the American College of Emergency Physicians meets for their annual meeting in Washington, DC, they are taking the opportunity to bring together their members to say, “Enough!” Thousands of emergency physicians in scrubs or lab coats will be joined by emergency nurses in their scrubs and lab coats. ENA’s President, Patricia Howard, PhD, RN, CEN, will join ACEP’s leadership in calling for national solutions to a national crisis and speak to the staggering burdens emergency staff face every day.

I know what you’re thinking. “Take time to go march? I barely have time to sit down!” But given how much the current situation affects the daily lives of all emergency nurses, it will be important to be represented. Does it really matter? I think so. The sad truth is that the average American has little idea of exactly how much in danger our emergency system is. Efforts like this can change that.

By the time you read this, more specific information will be on the ENA Web site (www.ena.org). Emergency nurses across the country will count on those who live in the cities and states surrounding Washington, DC, to represent us. Gather some nurses and doctors from your emergency department, find a van, grab some scrubs and white lab coats, and maybe even bring the kids or grandchildren.

We may talk about this historic first for many years to come. But whether it becomes emergency care’s answer to LiveAid/8 or not, whether it succeeds or not, we can thank ACEP’s and ENA’s leadership for shining a light on a most disturbing trendline and “thinking big.” Mark your calendar and, on September 27, “Head for the Hill!”

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You Can’t Have It Both Ways

More on “The Magic Cloak”

Dear Editor:

It is 2:12 PM, and you are the triage nurse. A mother has brought her 22-month-old active but fussy daughter in for a “very high fever” for the past 2 days. Her fever is high—she has a rectal temperature of 103.3°F, but when you ask the mother if she has given the baby any medication, she says, “No.” You just shake your head and sigh.

As it is getting closer to the end of your shift, at 6:33 PM, another mother holding a spunky, chattering 1-year-old boy reports that he needs to see a doctor for a “very high fever” he has had for 3 days. The happy lad’s rectal temperature is 98.9°F (she has been alternating ibuprofen and acetaminophen for the past 2 days). You shake your head again and sigh.

Now, I’m a self-confessed softie where babies are concerned, and maybe it is just me, but it looks like those poor moms just can’t win. They are wrong if they do (give antipyretics) and wrong if they don’t. After attending a pedi course in which several subtle but disparaging comments were made about parents, I’m writing this letter to suggest that we can’t have it both ways. Frustrated with both types of parents? Perhaps our real aggravation lies with our stretched health care system. Still, it seems silly to become so annoyed at parents, when instead we could just educate them.—Wendy Weisz, RN, BSN, CEN, Medical Center of Plano, Plano, Tex; Email: p.weisz@comcast.net

doi: 10.1016/j.jen.2005.05.010
More on “The Magic Cloak”

Dear Editor:

I know you are going to be deluged with e-mails about your wonderfully touching article, “Donning the ‘Magic Cloak,’” in the February 2005 issue of the Journal. We have all been there at that moment wondering how we can possibly go on to the next patient. Last week we had a 6-month-old infant with a pediatric code, full arrest coming in from 20 minutes away. The baby was found down 1 hour after turning over in bed. The child was the son of a local firefighter, a beautiful boy. The parents were in tears watching the futile resuscitation efforts. Oh, how that broke my heart to watch the deep sorrow of the parents as they began to process their deep grief! Tears poured down my face as I delivered cups of steaming coffee in a pointless attempt to offer comfort on any level. I cried with them, hugged them, spoke quietly to them, and listened with a grief-stricken heart as they told me what a happy, smiling baby he was when he greeted them to the morning. I had to go outside into the sunny subzero temperatures to cry into the sun and let the cold wind take away my sense of insignificance before I had the strength to go to triage the next person, where I would say, “Hi, my name is Kathy. What brings you to the hospital today?”

Thanks for sharing so eloquently a moment we all have felt.—Name withheld by request

doi: 10.1016/j.jen.2005.06.014
Factors Affecting Hemolysis Rates in Blood Samples Drawn From Newly Placed IV Sites in the Emergency Department

Introduction: To decrease the number of hemolyzed samples in the emergency department, performance improvement activities were implemented, including phlebotomy classes for staff, evaluation of blood draw equipment, and a study to evaluate factors attributed to hemolysis of blood samples when drawn at the time a new intravenous catheter is inserted.

Methods: In a study with an observational design conducted in June and July 2004, researchers examined the cases of 100 randomly chosen patients who had blood drawn through newly placed peripheral intravenous access.

Results: In this study, the blood draw collection factors with the highest hemolysis rates included blood samples drawn between 12:00 AM to 5:59 AM; samples drawn by patient care technicians; right-hand site; 22-gauge intravenous catheters; syringe draws; blue tubes; 6.0 mL tubes; difficulty drawing blood; 2 tries for intravenous placement; resistance when aspirating blood using a syringe; and respiratory discharge diagnoses. Statistically significant ($P < .05$) blood draw factors included intravenous placement sites of right hand/forearm and antecubital; intravenous catheter size 22 gauge; blood drawing categorized as difficult; number of tries for intravenous placement; blood tube size 1.8 mL; and discharge diagnoses of respiratory, gastrointestinal, reproductive, dermatologic, and endocrine.

Discussion: Clinically meaningful factors associated with hemolysis rates included the use of a 22-gauge intravenous catheter size, which resulted in a hemolysis rate of 60%; in addition, intravenous placement sites on the right side had statistically significant higher hemolysis rates than the left side, a finding that merits further research. As a result of the study we modified our standard operating procedure to
discontinue the use of a 22-gauge or smaller intravenous catheter in adults. If required for small vein sticks, the use of a straight needle stick to obtain blood samples should be considered. The results of this study underscore the importance of education and training and the consideration for regular competency testing for staff with phlebotomy responsibilities.

Hemolysis of blood samples is a widely documented problem in emergency departments nationwide. Hemolysis is defined as a rupture of red blood cells with release of hemoglobin into the plasma. Improper specimen collection during the blood drawing process is a major cause of hemolysis, potentially rendering a blood sample unusable or the results inaccurate. Factors that may contribute to hemolysis of blood samples can range from physiologic characteristics of the patient (eg, dehydration) to the method and/or equipment used during phlebotomy, such as:

- not allowing the alcohol to dry when prepping the skin;
- using an intravenous catheter gauge that is too big or small;
- pulling a syringe plunger back too fast and/or forcefully;
- forcefully expelling the blood from a syringe into the blood tube;
- vigorously shaking the tubes;
- underfilled tubes, causing improper blood-to-additive ratios;
- variability in competency level; and
- increased tourniquet time and manipulation of the extremity.

To determine if a blood sample has hemolyzed, the laboratory technician manually compares the sample to a specimen integrity chart for hemolysis (Figure 1), and based on color, subjectively determines if hemolysis is present and to what degree. When the laboratory receives a blood sample that has hemolyzed, the staff will notify the emergency department if the sample has been rejected. Blood samples that are mildly hemolyzed can still be used and are not rejected. Rejected hemolyzed samples must be redrawn, requiring an additional blood draw for the patient.

Redrawing of blood samples results in additional discomfort to the patient, increases ED staff time, increases the expense of care, and affects the emergency physician’s ability to efficiently treat the patient without undue delay. To reduce the need to expose a patient to 2 separate needle sticks and maximize efficiency, ED staff often draw blood samples from an intravenous catheter at the time a new intravenous line is placed. This practice of drawing blood from newly placed intravenous sites versus a straight needle has been attributed to higher hemolysis rates.

When the ED management staff in our emergency department recognized that the number of hemolyzed blood samples were increasing each year (an average 14.8 hemolyzed specimens per month [range, 4 to 27] in 2001; an average 19.5 hemolyzed specimens per month [range, 8 to 37] in 2002; and an average 22.5 hemolyzed specimens per month [range, 8 to 50] in 2003), performance improvement activities were initiated. The objective was to improve the balance between patient comfort, nursing efficiency, and evidenced-based practice. The Loudoun Hospital Center Emergency Department (LHCED), a 21-bed unit at the Lansdowne Campus in Leesburg, Virginia, serves approximately 33,000 patients per year. Approximately 40% of LHCED patients have blood drawn during the ED encounter. It is estimated that on average, 3 to 4 tubes are obtained from each blood draw, producing up to 52,800 tubes of blood per year in the emergency department alone. LHCED management and staff undertook the following performance improvement activities to decrease hemolysis of blood samples.

In July 2002, an evaluation was conducted of the current LHCED phlebotomy equipment being used when drawing blood from a newly placed intravenous site. A clinical resource nurse consultant from Becton Dickinson was asked to provide recommendations regarding equipment and/or techniques that could be utilized to decrease hemolysis of blood samples when drawn from a newly placed intravenous site. The clinical resource consultant observed ED staff drawing blood from a newly placed intravenous site and made recommendations on how the standard operating procedure (SOP) could be improved. This resulted in the recommendation to place extension tubing on the end of the intravenous catheter to decrease the pressure placed on the intravenous catheter and the manipulation of the intravenous hub, to decrease the potential for lysis of red blood cells. Review of the literature did not address the use of extension tubing to reduce hemolysis.
In July and August of 2002, phlebotomy classes, provided by the LHC Laboratory, were required to be completed by all staff performing phlebotomy. The objective of the class was to teach the blood draw SOP that was modified to include adding extension tubing to the hub of the intravenous catheter for blood draws from newly placed intravenous sites.

In the 6 months preceding the phlebotomy equipment evaluation and phlebotomy classes, the average number of monthly hemolyzed samples was 25.7 (range, 20 to 37). In the 6 months after the class, the average number of hemolyzed samples decreased by more than half, down to 10.7 per month (range, 8 to 20). The observed number of hemolyzing samples 6 months before the class was 154; afterward, it was 64 (z value of difference: 6.096, \( P < .001 \), again suggesting a decrease in hemolyzed samples and a significant improvement. The improvement was attributed to the following: Inclusion in the SOP of extension tubing on the end of the hub of the intravenous catheter when drawing blood from a newly placed intravenous site and the training the staff had received.

However, in the year following the class, there was a slow increase up to 13.3 average hemolyzed samples per month (range, 8 to 19). In the 16 months following the class, it increased to 19.5 (range, 8 to 50). The increase was thought to be due in part to new staff unfamiliar with the SOP taught in the class the prior year. Additional actions were required to continue decreasing hemolysis of blood samples in the emergency department. ED management, with assistance from the ED nursing staff, designed a study to look specifically at hemolysis rates of blood samples taken from newly placed intravenous sites.

Evidence-based practice requires the professional nurse to conduct nursing research and utilize the results to develop interventions that support best practice. This is
beneficial when determining the most appropriate procedure for blood draws in the emergency department to reduce the number of hemolyzed specimens. In 2004, a study of hemolysis of blood samples drawn from newly placed intravenous sites in the LHCED was conducted. The purpose of the study was to identify factors that increase hemolysis in blood samples drawn from newly placed intravenous sites. The information obtained from the study would be used to improve the SOP followed for collection of blood samples from intravenous sites at the time of the intravenous placement.

Methods

This prospective, observational design study involved patients entering the emergency department who required blood to be drawn and who had newly placed intravenous access. Inclusion criteria were: men and women 18 years or older who were currently being evaluated in the emergency department, had a physician order for an intravenous line and laboratory tests requiring a blood sample(s), and had intravenous accessibility from the hand, forearm, or antecubital sites. Exclusion criteria were: blood culture samples and all blood samples that were drawn by EMS personnel or personnel other than the phlebotomist.

Phlebotomists, including registered nurses (RNs), licensed practical nurses (LPNs), and patient care technicians (PCTs), followed the SOP for drawing blood samples from patients from a newly placed intravenous site, which includes the use of extension tubing for all blood collection. Data were recorded on Case Report Forms for each blood sample, as follows:

- Data collected by the phlebotomist: date; time (12:00 AM to 5:59 AM, 6:00 AM to 12 noon, 12:01 PM to 6:00 PM, and 6:01 PM to 11:59 PM); phlebotomist type (RN, LPN or PCT); collection site (antecubital, hand, or forearm, and left or right); intravenous catheter size (18 gauge, 19 gauge, 20 gauge, 21 gauge, or 22 gauge); type of draw (use of 10 mL syringe or vacutainer); number of tubes collected by color top (blue, gold/red or marbled, green, lavender/pink, and gray); specification of difficulty of intravenous catheter placement; number of tries for adequate intravenous placement producing blood sample(s); presence of resistance when aspirating blood into the syringe; and diagnosis of patient.

- Data collected by the medical technician/technologist receiving the specimen in the laboratory included color of tube; size of tube (1.8 mL, 3.0 mL, 3.5 mL, 4.5 mL, 5.0 mL, or 6.0 mL); presence of hemolysis, determined by comparing the color of the blood in the test tube to the specimen integrity chart for hemolysis indicating the amount of hemoglobin present; and if the laboratory sample was rejected or accepted.

- Data collected for redraw for samples that were specified by the laboratory as being rejected: time and date; collection site (antecubital, hand, or forearm, and left or right); phlebotomy needle size (21 gauge or 23 gauge); use of 10 mL syringe or vacutainer; number of tubes collected by color top (blue, gold/red or marbled, green, lavender/pink, and gray); specification of difficulty of blood drawing procedure; number of tries for redraw; and presence of resistance for aspirating blood into the syringe.

There were no changes in the SOP or standard of care for patients involved in this study, and no changes were made in the laboratory procedures for processing the blood samples. This study was reviewed by an Institutional Review Board and was ruled to be exempt from the regulations regarding Institutional Review Board oversight requirements.

Blood drawing equipment used in this study included the following:

- Becton Dickinson: InSyte Autogaurd IV catheters, Vacutainer Brand Safety-Lok Blood collection set, evacuated blood tubes, 10 mL syringes;
- Baxter: Interlink System extension tubing; and
- Greiner: blue coagulation tubes with sodium citrate.

The Specimen Integrity Chart for Hemolysis was used to grade hemolysis (see Figure 1). Hemolysis categories were as follows: slight (100 mg/dL); moderate (200 mg/dL); and gross (400 mg/dL). Per the laboratory SOP, if hemolysis was greater than or equal to 200 mg/dL, the sample was rejected (see Table 1). For rejected samples, the laboratory would notify the emergency department, and the sample would be redrawn as needed.

During a 36-day study period, from June 3 to July 9, 2004, blood specimens were collected from a total of 100 patients. Study procedures were reviewed with ED
phlebotomists at study initiation meetings held prior to the phlebotomists’ drawing blood samples included in this study.

After the study was completed, Case Report Forms were coded and the data were input into a database. A 100% verification of the data was completed prior to analysis of the data using SAS software, version 9.1 of the SAS System for Windows (SAS Institute Inc, Cary, NC). Bivariate and multivariate statistical methods were used to determine whether any factors, singly or in combination, were associated with hemolysis. Odds ratios and pairwise t tests were used to determine whether any factors associated with hemolysis were disproportionately distributed among the various phlebotomy factors. Statistical tests were considered significant if P values were less than .05. The study was powered to estimate the prevalence or proportion (p) of hemolysis that occurs during blood sampling. Based on availability in the literature, a benchmark of 24% was used for the rate of total expected hemolysis.3 To determine the number of blood samples needed in estimating the true proportion or rate of hemolysis, a sample size of 76 was derived based on this probability of expected hemolysis (and using 10% margin of error). A total of 100 observations were completed to ensure a final sample size of at least 76 observations.

Results

A total of 100 blood draw observations were completed, generating a total of 382 blood samples (average of 3.82 tubes of blood per blood draw) (see Table 1). Of these 382 blood samples, there were 49 hemolyzed samples, producing a hemolysis rate of 12.8%. Of these 49 samples, 18 were rejected by the laboratory, producing a 3.7% hemolysis rate of unusable samples.

The following blood draw factors were noted to have the highest hemolysis rates: drawn between 12:00 AM and 5:59 AM; drawn by PCTs; right-hand site; 22-gauge intravenous catheters; syringe draws; blue tubes; 6.0 mL tubes; difficulty in drawing blood; 2 tries for intravenous placement; resistance when aspirating blood using the syringe; and respiratory discharge diagnoses (see Table 1).

The following blood draw factors were considered to be statistically significant using a test of proportions (P < .05) (see Table 1): intravenous placement sites of right antecubital, hand and forearm; 22-gauge intravenous catheter size; blood drawing categorized as difficult; number of tries of intravenous placement as 1, 2, 3, and 4; 1.8 mL blood tube size; and discharge diagnoses of respiratory, gastrointestinal, reproductive, dermatologic, and endocrine. The study did not show a significant difference in hemolysis rates for a syringe draw versus use of a vacutainer.

We further evaluated the significance of collection factors on the probability of hemolysis using a multivariate logistic model estimating the log odds probability or risk of blood sample hemolysis as a function blood draw factors (see Table 2). The outcome or dependent variable is specified as a binary variable: “sample hemolyzed” or “sample did not hemolyze.” All of the independent variables being tested are similarly specified as binary variables to facilitate interpretation of data results. For example, the numbers of attempts at intravenous placement are coded as binary variables with one try identified as the reference size or unit risk. Additional attempts were associated with “excess” risk of hemolysis using an odds ratio and 95% confidence intervals. For this analysis, the number of tries for intravenous placement of 2, 3, and 4 were considered statistically significant. There were a total of 2 redraws reported in this study, of which none of the blood draw collection factors was statistically significant.

Discussion

As a result of the study, we modified our SOP to discontinue the use of a 22-gauge or smaller intravenous catheter in adults, except in rare situations (eg, patients with very small veins). When a 22-gauge or smaller intravenous catheter is used, our SOP is to use a straight needle stick to obtain blood samples. Of interest, intravenous placement sites on the right hand/forearm had higher hemolysis rates than the left side; this finding merits further research. This finding may be correlated with the ease of obtaining blood samples from one side versus the other. Data related to the patient’s dominant arm was not collected because we did not consider this a factor at the time of the study design.

Results that were not considered clinically meaningful were the number of tries for intravenous placement of more than 1 and syringe versus vacutainer draws. The increased rate of hemolysis that occurs when there is difficulty in drawing blood may be a result of increased tourniquet time and manipulation of the extremity.4
TABLE 1
Blood draw factors (N = 100 observations generating 382 blood samples)

<table>
<thead>
<tr>
<th>Blood draw factors</th>
<th>No. hemolyzing (n = 49; of these 18 were rejected samples)</th>
<th>Total sample (N = 382)</th>
<th>% of total hemolyzing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00 AM – 5:59 AM</td>
<td>15</td>
<td>79</td>
<td>19.0</td>
</tr>
<tr>
<td>6:00 AM – 11:59 AM</td>
<td>6</td>
<td>72</td>
<td>8.3</td>
</tr>
<tr>
<td>12:00 PM – 5:59 PM</td>
<td>10</td>
<td>86</td>
<td>11.6</td>
</tr>
<tr>
<td>6:00 PM – 11:59 PM</td>
<td>18</td>
<td>145</td>
<td>12.4</td>
</tr>
<tr>
<td>Phlebotomist type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>20</td>
<td>177</td>
<td>11.3</td>
</tr>
<tr>
<td>PCT</td>
<td>29</td>
<td>205</td>
<td>14.1</td>
</tr>
<tr>
<td>IV placement site</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Right antecubital</td>
<td>9</td>
<td>165</td>
<td>5.5*</td>
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<tr>
<td>Left antecubital</td>
<td>17</td>
<td>131</td>
<td>13.0</td>
</tr>
<tr>
<td>Right hand</td>
<td>9</td>
<td>22</td>
<td>40.9*</td>
</tr>
<tr>
<td>Left hand</td>
<td>3</td>
<td>12</td>
<td>25.0</td>
</tr>
<tr>
<td>Right forearm</td>
<td>10</td>
<td>33</td>
<td>30.3*</td>
</tr>
<tr>
<td>Left forearm</td>
<td>1</td>
<td>19</td>
<td>5.3</td>
</tr>
<tr>
<td>IV catheter size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 gauge</td>
<td>15</td>
<td>183</td>
<td>8.2</td>
</tr>
<tr>
<td>20 gauge</td>
<td>25</td>
<td>184</td>
<td>13.6</td>
</tr>
<tr>
<td>22 gauge</td>
<td>9</td>
<td>15</td>
<td>60.0*</td>
</tr>
<tr>
<td>Type of draw</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Syringe draw</td>
<td>14</td>
<td>104</td>
<td>13.5</td>
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<td>Vacutainer</td>
<td>35</td>
<td>278</td>
<td>12.6</td>
</tr>
<tr>
<td>Tube color</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Blue</td>
<td>12</td>
<td>69</td>
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</tr>
<tr>
<td>Green</td>
<td>19</td>
<td>139</td>
<td>13.7</td>
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<td>Gold red/marble</td>
<td>4</td>
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<td>Lavender</td>
<td>14</td>
<td>110</td>
<td>12.7</td>
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<td>Size of tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.8 mL</td>
<td>0</td>
<td>3</td>
<td>0.0*</td>
</tr>
<tr>
<td>3.0 mL</td>
<td>15</td>
<td>162</td>
<td>9.3</td>
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<tr>
<td>3.5 mL</td>
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<tr>
<td>4.5 mL</td>
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<td>57</td>
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<tr>
<td>5.0 mL</td>
<td>11</td>
<td>71</td>
<td>15.5</td>
</tr>
<tr>
<td>6.0 mL</td>
<td>5</td>
<td>19</td>
<td>26.3</td>
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<td>Difficult IV catheter placement</td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>13</td>
<td>33</td>
<td>39.4*</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>349</td>
<td>10.3</td>
</tr>
</tbody>
</table>

IV, Intravenous; PCT, patient care technicians; RN, registered nurse.
* P < .05.
\(^1\) Licensed practical nurses did not participate in this study.
\(^2\) 19 gauge or 21 gauge intravenous catheter sizes were not used in this study.
\(^3\) Grey tubes were sent to outside reference laboratories. Hemolysis information was not reported.
\(^4\) N/A represents all samples drawn using a vacutainer.
In this study, the tourniquet time was not measured; however, there would likely be prolonged tourniquet time if more than one intravenous placement attempt is made.

In blood samples drawn using a syringe, there was a higher rate of hemolysis when resistance was noted than in samples drawn without resistance. In practice, staff are taught not to use force when pulling back on the syringe plunger, but this is difficult to control when one is having difficulty aspirating blood. The difference in the hemolysis rates between the syringe draw and a vacutainer draw (13.5% for syringe draws versus 12.6% for vacutainer draws) does not support eliminating the use of a syringe. Our findings are not consistent with one study that revealed a 19% hemolysis rate in syringe draws versus 3% in vacutainer draws. The reason for this difference in results is unknown; however, in our study, extension tubing was used for every blood draw, whereas that was not the case in the other study.

The phlebotomists collecting blood samples had different levels of training, which contributes to variations in practice unless staff education is done to teach the process outlined in the SOP and is strictly adhered to for all blood draws. Previously, the phlebotomy course was offered a few times a year, which did not provide training for new hires in a timely fashion. The course will now be offered quarterly for new staff and staff needing remedial education. All ED staff who perform phlebotomy will be required to complete an annual competency on the SOP for blood draws.

Limitations

Sample size in specific categories was small (eg, the 1.8 mL tube was used only 3 times in the specimens collected in this study), making it difficult to draw conclusions. Tourniquet time was not recorded because of the difficulty in collecting such data. Studies measuring the effects of tourniquet time are difficult to find; however, based on the results of this study in relation to the number of attempts at starting an intravenous line, further review is warranted.
In this study, we did not ask the patient to identify which arm was dominant, but dominance may not be a factor in hemolysis. There was significantly more frequent hemolysis in right hands/forearms. Given the fact that the majority of the population has right-sided dominance, future studies can explore how arm dominance affects hemolysis of blood samples.

This study did not control for the use of extension tubing, having found no published research to support its making a difference. We used it at the suggestion of a manufacturer’s (Becton Dickinson) consultant, and it may warrant further study.

Acknowledgements

We thank LHC Patient Care Services for sponsoring this study, the LHCED RNs, PCTs, and laboratory personnel who participated in this observational study, Irene Brown, MS, MT, Laboratory Safety and Quality Assurance Officer, and Martin Atherton, DrPH, Assistant Professor, College of Nursing and Health Sciences, George Mason University, for his help with the analysis of the study data.

REFERENCES


**TABLE 2**

Adjusted odds ratios and 95% confidence intervals, collection factors in relation to hemolysis (sample hemolyzed or not)

<table>
<thead>
<tr>
<th>Collection factors</th>
<th>Odds ratio</th>
<th>Lower CL</th>
<th>Upper CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00 AM–5:59 AM</td>
<td>1.303</td>
<td>0.188</td>
<td>9.047</td>
</tr>
<tr>
<td>12:00 PM–5:59 PM</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:00 PM–11:59 PM</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right antecubital</td>
<td>1.892</td>
<td>0.354</td>
<td>10.122</td>
</tr>
<tr>
<td>Phlebotomist*</td>
<td>2.973</td>
<td>0.536</td>
<td>16.5</td>
</tr>
<tr>
<td>IV placement site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left antecubital, left and right hand, left and right forearm</td>
<td>0.981</td>
<td>0.229</td>
<td>4.213</td>
</tr>
<tr>
<td>Right antecubital</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV catheter size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 gauge, 20 gauge, 21 gauge, 22 gauge*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 gauge</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of draw</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringe</td>
<td>6.123</td>
<td>0.796</td>
<td>47.076</td>
</tr>
<tr>
<td>Vacutainer</td>
<td>1.00</td>
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</tr>
<tr>
<td>Difficult IV catheter placement</td>
<td>0.613</td>
<td>0.03</td>
<td>12.401</td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of tries for IV placement</td>
<td>17.488</td>
<td>1.649</td>
<td>185.422*</td>
</tr>
<tr>
<td>1</td>
<td>1.00</td>
<td></td>
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</tr>
<tr>
<td>Resistance when aspirating blood using a syringe</td>
<td>6.6</td>
<td>0.361</td>
<td>120.594</td>
</tr>
<tr>
<td>Yes</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CL, Confidence limit; IV, intravenous; PCT, patient care technician; RN, registered nurse.
\*P < .05.
\*Licensed practical nurses did not participate in this study.
\*19 gauge or 21 gauge intravenous catheter sizes were not used in this study.
Planning Medical Coverage for Mass Gatherings in Australia: What We Currently Know

Large public gatherings such as fairs, sporting events, and concerts are increasingly common in modern society. These events, often called mass gatherings, have been studied for several decades and are defined in various ways. Although sometimes described as a public event attended by more than 1000 persons, more commonly, the term refers to events with an attendance of more than 25,000 people. Characteristically, people are crowded together and/or isolated from access to emergency medical care. An estimated 14 million-plus spectators attend mass gatherings (ie, community and sporting events attended by more than 25,000 people) each year in Australia. Such an event can generate patient loads for hospital, first-aid, and ambulance services of up to 1000 patients per day. Planning for such an event is important for all health services and requires the support of police and other emergency workers to (1) maintain timely response within the venue, (2) provide timely treatment on site, and (3) facilitate extrication and transport.

The little that has been written about these events generally focuses on a single event and describes the experience of health service providers. Few studies are available to apply across various types of events or differing venues. Work is currently underway in Australia to develop a reliable database of mass-gathering patient presentations to use for forecasting, designing risk assessment models, and developing comprehensive surveillance systems for mass gatherings. The following information is a summary of (1) what we know about the factors influencing injury and illness rates at mass gatherings and (2) how we can apply this information in planning for health services delivery.
Patient presentations

Although usually a collection of well persons, mass gatherings produce a higher incidence of injury or illness than in the general population.\textsuperscript{4-6} Several reasons account for this odd fact, including the relatively increased activity and mobility of the crowd at these events, which may result in higher risk of injury, and the tendency for patient presentations to be directed to the on-site facility rather than the more diffuse community-based health care facilities (this is particularly relevant where events are "bounded," that is, contained within a fenced or secure area/venue that limits access and egress).

Reported patient presentation rates (patients per thousand spectators presenting to health care services at the event) (PPRs) vary from 0.14 to 90, although most range between 0.5 and 2,\textsuperscript{2} which reflect variations in factors such as weather, event type, and data collection and reporting formats. Recent analysis of these factors\textsuperscript{3} identified an average PPR of 0.992.

\textit{A model to explain the [number of attendees requiring medical attention] includes: . . . weather, alcohol use, availability of care, the event nature, injury or illness type, crowd mood, and others (eg, age of the audience).}

Respiratory illnesses, minor injuries, heat-related injuries, and minor problems (eg, headache, blisters, and sunburn) make up approximately 80\% of casualties.\textsuperscript{3} Of patients requiring acute intervention, in the Australian context, asthma (3\%) is the most common complaint,\textsuperscript{4} although in other countries factors such as weather may alter the profile of serious illness or injury presentations.\textsuperscript{7} In general, outdoor events produce more environmentally related injuries, such as lacerations and sunburns. Events attracting young people, such as rock concerts, produce more alcohol and drug abuse–related problems. Cardiac arrests occur infrequently.\textsuperscript{8} The number is 1:500,000 at Australian Rules football events. (As an aside, even though it is a low number, on-site resuscitation and early defibrillation is important and can improve patient survival rates.\textsuperscript{8})

Crowd size is the principal contributing factor to casualty load. A model to explain the different PPRs of similar size mass gatherings includes the following parameters\textsuperscript{9}: weather, alcohol use, availability of care, the event nature, injury or illness type, crowd mood, and others (eg, age of the audience). Additionally, regression models predicting the rates of patient presentation and transport to hospital have been developed based on the geographic nature of the event (bounded or unbounded-indoor or outdoor), weather, time of day, crowd size, and crowd mobility.\textsuperscript{3}

Regulation

Researchers and service providers are recognizing that legislation as well as procedures of patient care at these events are based on precedent and tradition\textsuperscript{3,10} rather than research. While standards for patient care at mass gatherings have been proposed and occasionally formalized in legislation and government regulation, none are generally accepted, widely used, or evidence based,\textsuperscript{10-13} and the debate continues.\textsuperscript{10} Some work is being undertaken in Australian States to develop standards, and several State governments are developing legislation to regulate crowd safety at mass gatherings. The extent to which these are evidence-based is variable.

First aid and medical services

While various methods of providing medical and first aid services at mass gatherings\textsuperscript{4,13,14} exist, the most common is based on first-aid posts or medical centers, the number depending on the size and geography of the event, with additional mobile first-aid teams located throughout the venue.\textsuperscript{2} The qualifications and levels of required staffing are controversial and are based on past experience rather than any research findings or collaboration between agencies providing similar services. On occasion, this approach has resulted in patient care services being overwhelmed by unexpected numbers of casualties or casualty types. For example, when historical data are relied upon to plan for future events, providers can be caught by surprise by changes in the weather, event layout, or other event-related activity. A common example is the sudden and
unexpected increase in acute asthma or allergy presentations when local authorities mow grass prior to an event and do not inform health care providers. The following standards for patient care services at mass gatherings are recommended by Sanders et al.¹⁴ basic first aid within 4 minutes, advanced life support within 8 minutes, and evacuation to a medical facility within 30 minutes.¹⁴ However, these “standards” are again based on low-level evidence, including expert judgment, and need review.¹⁴ Presently, the average health care staffing at Australian events is 0.6 staff per 1000 spectators,³ consisting of basic first-aid providers with a public first-aid qualification (45.3%), advanced first-aid providers with more advanced first-aid training provided by their agency (43.5%), nurses (7.2%), ambulance officers (2.7%), and medical practitioners (1.3%).

The fact that 80% of the patients requesting treatment have minor injuries and problems underscores the importance of first-aid personnel. A well-organized first-aid service at an event may well provide some relief for local hospital accident and emergency departments that might otherwise be treating some of these patients.

Transportation of patients to receiving hospitals is most often by ground ambulance, with the inherent vehicle and pedestrian traffic congestion often requiring stand-by ambulances at the event. Published transportation rates to the hospital (ie, number of patients transported to the hospital per thousand in attendance) vary from 0.01 to 0.55, with an average of 0.027 for Australian events.³

...a direct relationship exists between higher humidity and an increased number of patients.

Several factors may account for the differences in the number of patients seeking care. Most significant, and perhaps surprisingly, may be the visibility of first aid or other patient care services. Patients with minor problems, such as blisters, a headache, or sunburn, might not seek care unless it is readily available and convenient. The size of attendance is a strong predictor of the number of patients seeking treatment, although the rate declines slightly in larger crowds; this might be because it is more difficult to find first aid in a larger crowd. Also, on-site presentation rates are significantly lower for “unbounded” or “extended” events where spectators and participants can leave the event without passing through controlled gates and where patient care services are more widely spread and less visible.

Temperature and humidity are correlated to the number of patients, although this relationship is complex. At temperatures in excess of 30°C (86°F) in Australia, crowd awareness and behavior appear to mitigate the effect of high ambient temperature and the PPR declines.³ The relationship between PPR and humidity is more significant; a direct relationship exists between higher humidity and an increased number of patients.

Other variables influencing the number and type of patients include the availability of alcohol and the mobility and activity of the crowd. When alcohol is on sale within the venue, the number of patients is increased. At an event where the crowd is predominantly mobile rather than seated, the number of patients will be higher. While statistical (multi-regression) analysis has linked these factors to PPRs, there is a need for focused research to explore the causal links and identify more focused strategies for injury and illness prevention.

Extreme emergencies

Typically at mass gatherings, emergency medical and first aid services are required to manage a relatively predictable patient load. Some improvement in the delivery of service could result from the use of predictive models to underpin planning for health services provision. In addition, health care services and other public safety agencies need to be prepared for an unexpected and catastrophic event such as occurred, for example, on May 11, 1985, at the Bradford City football stadium in the United Kingdom, where 56 people were killed and 256 were injured when a stand caught fire, and in Sheffield at the Hillsborough football stadium on April 15, 1989, where a crowd crush killed 96 people. Disaster planning also must form part of the planning process for these large public gatherings. In Australia, formalized disaster plans and disaster response arrangements exist across health and public safety agencies to ensure a coordinated response to these incidents. These arrangements provide for a State or Territory government response with provision for aid from the national government on request. Plans for mass gatherings generally
incorporate a subplan to manage health response to a catastrophic event, and these plans utilize the State or Territory plan as a foundational framework. This planning activity is even more important where the public becomes a target for terrorist attack.

**Nontraditional mass gatherings**

Recently, populations of displaced persons (refugees or disaster victims) and other groups isolated from timely emergency care (eg, in subway systems or large shopping precincts) also are being defined as mass gatherings and are thought to require similar plans for care.

**Forecasting and modeling of events**

Research indicates that patient presentations at mass gatherings are influenced by the nature of the event and features of the event environment. Simple analyses of crowd size and patient presentations do not provide a sufficiently sophisticated tool because both the number of patients and the range of injury and illness are determined by multiple factors. Current models predict overall patient presentation and transport to hospital rates under varying environmental conditions and consider parameters such as weather, mobility of the crowd, if the venue is bounded/fenced with controlled gates, indoor or outdoor, and the time of day. Each factor has an impact on the workload of health services.

Ultimately, if the proposed models are found reliable, it should be possible to use these quantitative tools to develop a computer-based system to monitor patient admissions in real time and to alert staff to unexpected or unrecognized hazards. That is, when the incidence of a particular patient problem exceeds the expected level, staff could be alerted to review patient records and alert authorities if a consistent history for the injury or illness presentation is found. For example, an outbreak of food poisoning, poor design features of the venue resulting in injury or, though less likely, low acuity reactions to chemical, biologic, or radiation attacks (such as respiratory distress or nausea) may be identifiable early, enabling the cause to be rapidly treated by public safety authorities. Such “intelligent” systems have the potential to learn from previous iterations of the event and to continue learning with each use of the technology.

**Conclusion**

Nine elements of patient care planning at mass gatherings were identified after the Papal mass in San Antonio: attendance (crowd size), personnel, medical triage and facilities, communications, transportation, medical records, public information and education, mutual aid, and data collection. Additional elements include public access, disaster planning, and the operating environment (eg, weather, terrain, and duration).

Additionally, local hospitals need to consider the potential impact of an event and plan for additional patients. The number of patients transported to accident and emergency departments from mass gatherings can be estimated by existing models, but the number of less seriously ill patients who may make their own way to hospital is less certain.

While some research reports on the implementation of hospital-based strategies to manage increased patient load when a mass gathering occurs in relatively close proximity to a hospital, a need exists for further investigation that considers the effect of increased urgent and nonurgent casualty presentations on hospital workload. Further, event planners need to consider the impact of an event on local health services and engage more directly with hospitals when planning their events.

Careful planning based on what we know about these events and which utilizes predictive models and historical data about the event can help ensure health services are adequately prepared to manage the numbers and types of patients that can be expected.

**REFERENCES**


Psychiatric Emergency Nurses in the Emergency Department: The Success of the Winnipeg, Canada, Experience

The lengthy and arduous process of psychiatric assessment and intervention tends to disrupt the normal flow of the emergency department. Individuals may present with vague, nonspecific symptoms and collateral information may be necessary but difficult to obtain. Consultations may be difficult to access in a timely manner, and community resources may not be available, especially on weekends or evenings. Acutely psychotic, aggressive, or self-harming patients pose additional concerns. Furthermore, ED staff often believe they lack the skills to assess and treat mental health clients effectively, creating a sense of tension around the care of psychiatric patients, which has the potential to be projected onto patients. To facilitate appropriate care for psychiatric or psychosocial patients, nurses with expertise in these areas are highly valued in Winnipeg.

The presence of psychiatric nurses or nurses with psychiatric expertise in general hospital emergency departments is not a new phenomenon. Programs have been developed in various places around the world, with varying levels of structure and sophistication. The common threads running through evaluations of these programs are the pronounced need for the services and the high value placed on the services by ED staff as well as patients.

The Winnipeg experience

Winnipeg is a prairie city in western Canada with a population of around 650,000. Psychiatric emergency nurses (PENs) were introduced into Winnipeg’s 2 tertiary care teaching hospitals and one community hospital in the 1980s. Initially PENs were registered nurses (RNs) with...
extensive psychiatric inpatient experience who were also expected to “help out” in the emergency department when they were not busy with psychiatric patients. More recently, as the work has become almost exclusively mental health–related, another category of mental health nursing professionals, registered psychiatric nurses (RPNs), whose education is specifically geared toward care of psychiatric patients, also are being hired into PEN positions. Currently, 5 of 7 hospitals within the Winnipeg Regional Health Authority (WRHA) have PEN services—20 hours per day at the largest tertiary care center (with a 2-hour shift overlap where 2 PENs are available at the busiest time of day) and between 12 and 16 hours per day at the other sites.

Patients triaged as “mental health” typically will be assessed by a PEN before being seen by an ED physician (ERP). The role of the PEN has some independent aspects and some interdependent aspects. Independent functions include maintaining communication with patients, families, and friends while the patient is awaiting assessment and treatment and providing information about and arranging linkages to community resources for patients who do not require admission. Interdependent functions include assisting the ERP/resident and psychiatry consult team in assessment and data collection, assisting with the care of patients who require admission and are waiting to be transferred to a bed, and assisting with the discharge planning of patients who do not require admission. The decision to admit to hospital is still made by the consulting psychiatrist. Transfers to a “crisis stabilization unit” however, frequently are facilitated by a PEN in collaboration with an ERP. PENs do not order medications but frequently recommend treatment to ERPs and to family physicians who take call in some of the community emergency departments. There has been some discussion regarding a “transfer of function,” allowing the PEN to discharge a patient from the emergency department, although this proposal has met with some resistance.

**Training/educational support**

It has been suggested that the role of the PEN is an advanced practice position. It is argued that the experience, knowledge, and assessment skills required to perform this role are likely best acquired through graduate-level education.8,9,11,13 Although this scenario would be ideal, currently there are not enough nurses in Winnipeg prepared at a master’s level to fill the positions, rendering this requirement unrealistic for the role. Currently, the PEN must be an RPN or RN (some have both designations); a university degree is preferred, and a minimum of 2 years recent acute psychiatric experience is required. The nurses’ background also should include experience in community mental health (particularly community crisis centers) and addictions. Although the PEN is not functioning as a traditional ED nurse, general medical experience is considered a definite asset.

At present a standardized orientation for PENs throughout the region does not exist. Individual orientations are designed to ensure competence and increase the mental health nurse’s confidence and comfort in the emergency department. Orientation schedules are site specific and may include time spent with a clinical resource nurse from the emergency department, shifts on the addictions unit, and shifts spent “buddied” with a senior PEN.

Ongoing education is provided through the facilities’ nurse educators and clinical nurse specialists. PENs are scheduled to attend annual professional education days and are expected to meet the continuing competency requirements of their respective professional colleges. We will continue to rely on research related to practice issues to inform future education and training. We may consider the development of a standardized orientation package for PENs or an increase in the minimum education requirement to graduate-level preparation for the role in order to consider expanding the PENs’ scope of practice.

**Reporting structure**

Even though the PENs relate with the staff and the managers of the emergency departments in which they work on a day-to-day basis, our experience has shown that, to maintain the mental health focus of the position, it is important that the positions report to and be funded from the Mental Health Program. The Mental Health Program needs to own the resource and define the role, thus ensuring that the PEN is used as intended and not subsumed within the ED staff. The PENs identify with the Mental Health Program and think of themselves as “mental health staff,” which assists them in maintaining their role within the busy ED environment as “being there for
the mental health patients.” The PENs are valued for their skills and often provide assistance in other areas with grieving families, traumatized staff, or difficult family members. They are willing and able to do so as long as the work does not detract from their primary function of caring for mental health patients.

A second compelling reason for the PENs to report through the Mental Health Program relates to their competencies within the mental health area. A formal reporting relationship ensures that PENs attend yearly mental health updates, are on mailing lists regarding mental health education, and are required to maintain the same educational requirements as other mental health staff. They also have access to the resources of the mental health clinical nurse specialist regarding clinical issues, recent literature, preparation of presentations, and participation in sessions with other PENs from across the region.

**Utilization of services**

In 2003, 6147 visits were recorded by PENs in emergency departments in the region. Fifty percent of these visits took place at 2 inner-city sites. Sixty-eight percent of the patients did not need to be seen by a psychiatrist. They were seen only by a PEN with medical backup from an ERP.

Major presenting problems included substance abuse, psychotic illness, suicidal tendencies, medical problems, personality disorder, anxiety, bipolar mood disorder, and depression. In addition to the more than 6000 patients seen in person, a further 1588 patients received telephone services. The majority of the telephone calls (80%) were logged at sites outside the inner city. Telephone calls ranged from follow-up care to appointment bookings. Approximately one third of the calls were patient-initiated or family-initiated crisis calls seeking guidance.

Of the 6147 patients seen in person, 46% (N = 2787) were discharged home, often with referrals to addictions programs, family physicians, community psychiatrists, or other community resources. Approximately 17% (n = 989) were admitted to a hospital bed, the majority to a psychiatric bed. A number of patients were admitted to medical beds, usually those who were confused or delirious or had attempted suicide and required medical stabilization. Ninety-four persons were referred to a crisis stabilization unit, and a further 350 were admitted to the chemical withdrawal/addictions unit. Beds in these latter 2 units are not considered inpatient mental health beds.

During a 4-week monitoring of the triaging of patients with mental health presentations at the largest site (Health Sciences Centre), we found that 15% of patients were triaged as “emergent” (level 2), 30% as “urgent” (level 3), 45% as “less urgent” (level 4), and 9% as “not urgent” (level 5), using the Canadian Triage Assessment Scale (CTAS). Not surprisingly, most patients arrived at triage between 3:30 and 5:30 PM (34%), with a further 22% presenting between 7:30 PM and midnight. The busiest day of the week was Friday, with 20% of the week’s presentations. On Saturday, 15.8% of presentations occurred, whereas on Sunday, 14.7% occurred. Interestingly, Friday was found to be the busiest day for both “emergent” and “nonurgent” presentations. This pattern was not seen for medical presentations, which were spread more evenly throughout the week.

**ED colleague satisfaction**

Nonpsychiatric emergency staff were surveyed in September 2001 about their satisfaction with the PENs’ presence in the emergency department. Of the 500 surveys sent out, 130 were completed and returned (26% response rate), including responses from 29 physicians and 70 nurses in addition to allied health care personnel, support staff, and security personnel. The surveys asked the following 3 questions: Has the presence of the PENs helped you in your work? Do you think that the PEN program enhances patient care? Do you have any suggestions for improvement? The options for response were “no,” “yes, some,” or “a great deal,” and there was space for comments after each question.

More than 90% of the respondents indicated that the presence of PENs had helped them “a great deal” in their work. Physicians commented that the PENs increased the efficiency of physician time by obtaining collateral information, performing the initial assessment and screening, and facilitating planning and disposition. The PENs’ in-depth knowledge of community resources in planning for discharge was important for many of the physicians. Nurses appreciated the reduced workload for the triage nurse, who previously had to care for psychiatric patients awaiting assessment or admission. One comment was, “Patients are
getting care and treatment while they’re waiting for a bed.” Nurses also cited their own lack of expertise in psychiatric assessment and intervention and said that they appreciated being able to focus on their own areas of expertise. A further comment from nursing involved the PENs’ role in helping to debrief staff regarding critical incidents, provide care for family members, and provide stress management for ED staff. One of the nurses noted, “We see a lot of death and suffering. Many times we go, as groups or individuals, to discuss things with [the PEN]. Without them more nurses would be quitting!”

About 85% of the respondents agreed that the PEN program enhanced patient care “a great deal.” They noted that the PEN program introduced a more comprehensive, broader spectrum of care, including “one-to-one time with patients and families who need to talk.” Others mentioned the PENs’ skills in defusing potentially violent situations and their in-depth knowledge of community resources. A number of respondents mentioned the genuine concern and comfort given to patients and families by the PENs.

Suggestions for improvement included 24-hour coverage (“psychiatric patients do not stop arriving at 2300h”), replacement for sick calls, and holiday coverage. A couple of respondents said that they would like more dialogue with PENs to enhance their own knowledge of mental health. These suggestions have resulted in an increase in PEN coverage to 20 hours per day at the largest center and an educational program for triage nurses.

Patient and family satisfaction

Beginning in September 2001, each WRHA site that employs PENs received 50 surveys to be distributed to all persons who were seen by a PEN and who were not being admitted to a mental health inpatient bed. Fifty surveys per site were also distributed to accompanying family members or friends. Clients received the 8-item Client Satisfaction Questionnaire (CSQ-8), a psychometrically validated, one-dimensional measure of client satisfaction. Family members, friends, and other accompanying people received a modified version of the CSQ-8. Responses were anonymous and voluntary, and thus self-selected. In total, 250 surveys for clients and 250 for family members were sent out. Fifty-five usable surveys (a 22% response rate) were returned by clients of all sites, but 33 were from one site alone. Overall, the respondents were highly satisfied with PEN care. The average score regionally was 27.4 of a highest possible score of 32 (the lowest possible is 8). The regional quality indicator in the mental health program at the WRHA for overall satisfaction is set at a score of 24. All sites surpassed this number. Patients stated that they appreciated the professionalism and honesty of the PENs and valued their reassurance. A typical comment was, “The nurse helped me understand I could get through this.”

Eighteen responses were received from family members, friends, or others who accompanied patients to the emergency departments. The number of responses from this group was expected to be lower, because individuals often attend alone or the PEN may have little or no contact with the accompanying person for various reasons. Most responses were from parents or siblings, although a few surveys were completed by spouses, co-workers, or police officers. Because of the small number of responses, statistical analysis was not performed. Nonetheless, the respondents all rated the service “satisfied” to “very satisfied.” They commented that the PENs were helpful, and they appreciated that the PENs took the time to talk. Many also commented on the long wait in the emergency department before disposition occurred.

Because of the relatively poor response rate, focus groups of patients, family members, and community service providers have since been carried out. Major themes derived from the discussions included patients’ concerns related to the perceived attitudes of ED staff toward people with mental illness, being triaged as “mental health” based on history rather than on presentation, and the time it took to be seen and treated (Clarke DE, Hughes L, Dusome D. General hospital emergency departments through the eyes of mental health service stakeholders. Manuscript in review).

Wait times

Waiting times between critical points in the ED trajectory have recently been monitored. It was determined that the vast majority of individuals triaged as mental health (about 80%) are seen by a PEN before being seen by the ERP. The average wait time from triage to being seen by a PEN was 1.8 hours for all triage categories combined with a
range from 1 minute to around 6 hours for some persons, particularly those in the “nonurgent” category. The average length of stay in the emergency department for persons triaged as having a mental health problem was 11.2 ± 7.8 hours for persons who were admitted to the hospital and 8.0 ± 6.8 hours for persons discharged home. This is slightly longer than for medical patients, who stayed an average of 10.6 ± 9.7 hours if they were admitted and 5.5 ± 4.7 hours if they were discharged (Table 1).

In examining the wait times for persons within triage categories, there was a large range of wait times, with some level 4 and 5 individuals being seen very quickly with short lengths of stay. In speaking with PENs, it was determined that PENs perform some “retriaging.” For example, if they know that a level 4 or 5 person could be dealt with very quickly (eg, redirected to a community agency), they may take care of that person before the level 2 or 3 person. The PEN then could comfortably spend more time on an assessment for that level 2 or 3 individual, not feeling the need to rush because people are waiting. The notion of a “fast track” for patients with nonurgent presentations who could be dealt with quickly may be considered. Another option for these individuals may be to be seen by a social worker rather than a PEN, particularly if the problems may be more social in nature. The key must be to provide the most appropriate care to each individual and not necessarily to get them through the emergency department as quickly as possible16 (Clarke DE, Hughes L, Dusome D. General hospital emergency departments through the eyes of mental health service stakeholders. Manuscript in review).

**Challenges for PENs**

PENs were interviewed in focus groups conducted at their various sites. They typically enjoyed their jobs very much and found the work very satisfying. This finding was reinforced by the length of tenure in the positions (some up to 10 years!). Despite the differences among their sites (physical space, patient population, hours of work), however, their issues were remarkably consistent.

**TRIAGING OF PATIENTS**

The ERP will typically wait to see the patient until after the PEN’s assessment. Patients often are kept overnight to see the PEN in the morning (the majority of sites reported 3 to 4 patients routinely waiting at the start of shift). Nurses were concerned regarding the delay in ERP consultation. For example, physical injuries (eg, broken ribs) sometimes were not attended to until after the PEN’s assessment, and the wait for patients can be prolonged because they end up on 2 separate triage “tracks”—waiting a considerable amount of time for the ERP, who may then just provide the “rubber stamp” for what the PEN has already done.

**INTERDISCIPLINARY FUNCTIONING**

The nurses recognized the fact that their role was greatly respected and valued by the ED staff in general. The physicians appreciated them in that the PENs “did their work for them” (ie, assessed patients and arranged for disposition). The ED nurses were relieved of having to provide the care for psychiatric patients when the PEN was available. Thus, the PENs saw their function as an “anxiety reducer” for the department. The expectations of the PEN by ED staff, however, often were ambiguous and sometimes were not congruent with the PEN’s perception of her or his function. For example, while a PEN may prioritize assessment and arranging for disposition on a particularly busy shift, ED staff may be more concerned with the ongoing care of patients awaiting admission and tend to leave this work for the PEN as well. This has implications not only for the PEN’s workload, but also introduces the danger of blurring boundaries between PENs and ED nurses when PENs are expected to “help out.” A further concern at community hospitals where

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**TABLE 1**

Average LOS in an emergency department with PEN services in place for patients discharged from the emergency department versus those admitted to an inpatient unit

<table>
<thead>
<tr>
<th>Disposition</th>
<th>Mental health presentations</th>
<th>Medical patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean LOS</td>
<td>8.7 ± 7.8</td>
<td>6.5 ± 6.6</td>
</tr>
<tr>
<td>Admitted</td>
<td>11.2 ± 9.8</td>
<td>10.6 ± 9.7</td>
</tr>
<tr>
<td>Discharged</td>
<td>8.0 ± 6.8</td>
<td>5.5 ± 4.7</td>
</tr>
</tbody>
</table>

LOS, Length of stay; PEN, psychiatric emergency nurse.
family physicians who may not be comfortable or confident in dealing with psychiatric patients often provide coverage in the emergency department is that PENs may take on more responsibility with assessment and disposition than they are licensed for. For example, their assessment alone may be relied upon when deciding on disposition for a patient who presented as suicidal. This could have serious legal implications if there were to be a negative outcome.

SAFETY CONCERNS

Nurses at all sites identified safety concerns to some degree. Nurses were concerned about the location of interviewing space often adjacent to but outside of the department: “Especially if it’s a patient I don’t know or I’m not sure about. With the office (located) here, who’s going to hear me?”

WORKLOAD

PENs were typically expected to “take over” the care of all patients awaiting psychiatric assessment, transfer, or admission in addition to the usual work of initial assessment, referrals, and finding resources. This situation often resulted in numbers of up to 10 patients scattered throughout the department depending upon availability of space. Sometimes security personnel or constant care attendants were available, and other times they were not. This situation led to serious concerns for safety of patients and the potential for patients leaving without being seen.

Conclusions

The PENs are part of a system designed to provide care to persons with mental health problems. That system is in continual evolution as it finds ways to coordinated care and services in the best ways possible. The WRHA’s next goal is to improve access to urgent and emergent services for mental health patients through enhancements of mobile crisis services, enhancements of the psychiatry component of community crisis services, development of a common assessment process across the system (community, mobile crisis, hospital), and the implementation of a brief treatment team to provide immediate short term follow-up counseling in conjunction with the mobile crisis service.

Some of these changes may have an impact on the PENs’ target population, their roles and functions, and perhaps even the location of their work. Regardless, it is clear that the specialized skills and services of PENs have been well received in Winnipeg.

Acknowledgment

We wish to acknowledge the contribution of the PENs and the triage nurses employed by the Health Science Centre in Winnipeg for their contributions to this project.

REFERENCES

The Emergency Severity Index 
Version 4: Changes to ESI Level 1 and Pediatric Fever Criteria

Authors: Nicki Gilboy, RN, MS, CEN, Boston, Mass, Paula Tanabe, PhD, RN, Chicago, Ill, and Debbie A. Travers, PhD, RN, CEN, Chapel Hill, NC

The Emergency Severity Index (ESI) is a research-based 5-level triage acuity rating system. It was originally developed by a team of emergency physicians and nurses led by David Eitel, MD, and the late Richard Wuerz, MD, and was first introduced in 1999. The ESI has demonstrated good reliability and validity1-3 and has been identified by the Joint ACEP/ENA Five Level Triage Task Force as one of the two currently available valid and reliable 5-level triage acuity rating systems.4 The ESI is based on a conceptual model that not only asks the question “When should this patient be seen?” but also “What does this patient need?”1 The algorithm first incorporates acuity and later expected resource consumption to determine treatment priority.

Additional research and feedback from nurses and physicians using the ESI has led to a series of refinements to the original algorithm, which have led to clarification of decision points and improved ease of use.2,3,5 The purpose of this article is to describe ESI Version 4 and present multiple case examples to illustrate the revisions to the ESI algorithm. For a complete description of ESI Version 4 and to obtain the free training materials (DVD and implementation handbook), contact the Agency for Healthcare Quality and Research (call 1-800-358-9295 or e-mail ahrqpubs@ahrq.gov or download the implementation handbook from www.ahrq.gov/research/esi).

ESI level 1 criteria changes

Two significant changes were made to the algorithm. The pediatric fever criteria were revised and ESI level 1 criteria were expanded. As more and more hospitals implemented ESI, members of the ESI Triage Research Team received feedback from triage nurses that there were in fact two
groups of ESI level 2 patients: patients who needed to be seen immediately and patients who could safely wait for 10 minutes while a bed is made available. These nurses pointed out that the level 2 criteria in ESI Version 3 actually included patients with serious life-threatening problems who require immediate care, much like the priority that is given to level 1 patients.

To understand “the two levels of 2s” concern, it is important to review the ESI Version 3 criteria for ESI levels 1 and 2. The conceptual model gives an overview of the algorithm’s four basic decisions points. Decision A asks the question “Is this patient dying?” Two questions are used to determine whether this patient is dying: (1) is the patient intubated, apneic, or pulseless and (2) is the patient unresponsive? If the answer to either question is yes, the patient meets ESI level 1 criteria and the triage process is concluded. If these conditions are not met, then the triage nurse moves to the next decision point “Is this a patient who shouldn’t wait?” If the answer is yes, the patient is assigned ESI level 2. The three questions that the triage nurse uses to identify ESI level 2 patients are (1) is this a high-risk situation? (2) is this patient confused, lethargic, or disoriented?, and (3) is this patient in severe pain or distress?

Studies of ESI Version 3 have found that only 1% to 3% of all emergency department patients meet level 1 criteria.1,4,5 ESI level 1 criteria are very clear and unambiguous. Level 2 criteria are more subjective and require triage nurses to draw on their emergency nursing knowledge and experience. ESI level 2 patients typically represent 20% to 30% of emergency department patients, with an admission rate of 50% to 60%.1,4,5

With use of Version 3, all the ESI level 1 patients need to be seen immediately by a physician and a nurse, whereas ESI level 2 patients may be able to wait for 10 minutes without clinical deterioration, such as the hemodynamically unstable female with a known ectopic pregnancy, the elderly patient with a heart rate of 34 beats/min, and the trauma patient with a blood pressure of 80 mm Hg or the previously intubated asthmatic patient who is currently in severe respiratory distress. The research team recognized that there are critically ill level 2 patients who are assigned the same triage rating as patients with potentially serious but more stable medical conditions. As a result, the ESI Triage Research Team recognized the need to revise the narrow and restrictive ESI level 1 criteria.

To address this issue, a two-phase, multisite prospective study was conducted. Data were gathered at five different midwestern and east coast emergency departments that had been using ESI for at least 3 years. In Phase 1, emergency department staff (both physicians and nurses) were surveyed about their perceptions of the accuracy of ESI Version 3. In Phase II, we identified ESI level 2 patients who required immediate life-saving interventions and compared characteristics of ESI level 2 patients who actually received immediate interventions with those who did not receive immediate interventions. The goal was to identify and describe characteristics of those patients who would benefit from reclassification as ESI level 1. Results of the study have been previously published, demonstrating a clear subset of ESI level 2 patients (20%) who did indeed receive immediate life-saving interventions.3

After reviewing the results of this study, the ESI Research Team agreed that there was strong evidence to support revising the ESI level 1 criteria. The original conceptual algorithm will remain the same, with ESI level 1 asking the question “is this patient dying?” To answer that question, “intubated, apneic, pulseless, and unresponsive” has been replaced with “does this patient require immediate life-saving intervention?” It is important to understand that this new terminology will include intubated, apneic, pulseless, or unresponsive patients as well as those patients who could potentially die in the next few minutes if life-saving interventions are not immediately initiated. Many of those patients previously identified as “high 2’s” will now meet level 1 criteria in the the ESI Version 4 algorithm. Examples of what are and what are not immediate life-saving interventions are listed in Table 1.

It is critical for the emergency nurse to recognize that ESI level 2 patients remain a very high risk group and care should be initiated as quickly as possible for those patients. ESI Version 4 changes the acuity rating of the sickest of the Version 3 level 2 patients. These patients are now reclassified at level 1. Efforts should continue to be made to find an open bed for all level 2 patients. Although ESI does not identify a time frame in which care should begin, it is understood that in the ideal situation level 2 patients should wait no longer than 10 minutes for placement. In times of overcrowding we realize this may not be possible. The revised ESI will ensure that critically ill patients formerly assigned to the “high level 2” category will now
be assigned to ESI level 1 and will receive the immediate life-saving intervention they require. However, the triage nurse is cautioned to remember that in Version 4 ESI level 2 patients are still very ill and placement should be rapid...

**Pediatric fever criteria changes**

In addition to the changes made to ESI level 1 criteria, the ESI Research Team reviewed the pediatric fever literature and took the opportunity to make revisions to the pediatric fever criteria. The American College of Emergency Physician’s Clinical Policy for Children Younger than 3 Years Presenting to the Emergency Department with Fever has been incorporated into ESI Version 4. The infant less than 28 days old with a fever of 100.4°F (38.0°C) should be considered high risk and assigned to at least ESI level 2. There continues to be a debate in the literature over what to do with the infant aged 28 days to 3 months. ESI Version 4 suggests that the triage nurse follow their institutional protocol and assign this infant to ESI level 2 or 3. For children aged 3 months to 36 months, the triage nurse, as part of the triage assessment, needs to determine whether there is an obvious source for the fever and whether the child is underimmunized. The underimmunized child or the child with no obvious source of fever who is seen in the emergency department with a temperature of 102.2°F (39.0°C) should be assigned to ESI level 3. Conversely, patients not needing level 3 classification include a healthy-looking 18-month-old child, followed up in the clinic for well-child care, who is brought

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**TABLE 1**

<table>
<thead>
<tr>
<th>Immediate life-saving interventions</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Airway and breathing</td>
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<td>bag-valve-mask ventilation</td>
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<tr>
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<td>Surgical airway</td>
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<td>Continuous positive</td>
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<td>Biphasic positive</td>
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<td>Medications</td>
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<td>Naloxone hydrochloride (Narcan)</td>
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<td>Pain medications</td>
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CTAS is another 5-level triage acuity system that has been in use in Canada since 1997. CTAS describes Level 1 as “conditions that are threats to life or limb (or associated with imminent risk of deterioration) requiring immediate aggressive interventions.” ESI level 1 criteria has now changed to “requires immediate life-saving interventions.”

The revised ESI will ensure that critically ill patients formerly assigned to the “high level 2” category will now be assigned to ESI level 1 and will receive the immediate life-saving intervention they require. However, the triage nurse is cautioned to remember that in Version 4, ESI level 2 patients are still very ill and placement should be rapid...
to the emergency department by his mother, who reports that the baby is crying a lot and pulling on his right ear. On arrival his temperature is 103°F (39.5°C). This child would meet the criteria for ESI level 5, no resources. If the child had no obvious source of fever or was under-immunized he would be assigned to ESI level 3 (two or more resources).

Summary

As the number of patients seeking care in emergency departments continues to increase, it is imperative that the triage acuity rating system used by emergency departments allow for rapid sorting of patients into one of five explicitly defined triage levels. We believe that ESI Version 4 has further clarified the criteria for ESI level 1 and ESI level 2 and ensures that these high acuity patients will be recognized and receive appropriate timely interventions.

ESI Version 4 levels 1 and 2 practice case scenarios

Please read each case and, on the basis of the information provided, determine whether the patient meets ESI level 1 or 2 criteria.

1. “My heart is beating so fast,” reports a 21-year-old college student. She tells you that this started about 15 minutes ago and that she is now having a hard time catching her breath. “I feel like I am going to pass out.” Her skin is cool and moist and her heart rate is greater than 200.

2. “My mother is just not acting herself” reports the daughter of a 72-year-old woman. “She is sleeping more than usual and complains that it hurts to pee.” The patient is lethargic, oriented to person and place, and has the following vital signs: temperature 100.8°F, heart rate 98 beats/min, respirations 22 per minute, and blood pressure 122/80 mm Hg.

3. A 14-year-old boy walks into triage leaning against his father. He was sledding with friends, lost control of the sled, and ran into a fence. He has right upper quadrant pain and tenderness. He is pale and diaphoretic with a blood pressure of 70 mm Hg, a heart rate of 116 beats/min, and a respiration rate of 28 per minute.

4. Frantic parents run into the emergency department and hand you their 3-week-old baby. “Something is wrong with our baby; she has this funny cry when we touch her and she isn’t interested in nursing.” You run your hand over her anterior fontanelle and find that it is bulging. The baby’s heart rate is in the 80s and the baby is “floppy.”

5. “I am just so tired,” reports a 72-year-old woman with nausea and epigastric pain. She has a history of arthritis and high cholesterol levels. She takes atorvastatin calcium (Lipitor) and is allergic to penicillin. Vital signs are blood pressure 138/84 mm Hg, heart rate 82 beats/min, respirations 18 per minute, and temperature 96.8°F.

6. Paramedics arrive with a 32-year-old motorcyclist who was cut off by another car and slammed his bike into a guardrail. He has bilateral femur fractures and is complaining of pain when he takes a deep breath. Vital signs are blood pressure 90 mm Hg, heart rate 120 beats/min, and respirations 26 per minute.

7. Paramedics arrive with a 54-year-old man whose wife called 911 when her husband began complaining of chest pressure after shoveling the driveway. The pre-hospital electrocardiogram shows obvious changes: “tombstones” in II, III, and AVF. The patient is pale and diaphoretic.

8. A 4-year-old girl is transported to the emergency department after a fall of several feet from the preschool jungle gym. A witness reports that the child hit her head and immediately started to cry. You notice that the child’s left arm is splinted. On arrival she is awake and crying for her mother. Vital signs are heart rate 92 beats/min, respirations 28 per minute, blood pressure 82/60 mm Hg, and SpO2 100%.

9. The EMTs report that the patient ate a cookie at work and immediately began to feel his throat closing. The Medi-alert bracelet reads allergic to peanuts. The patient arrives in the emergency department covered in hives and with obvious stridor.

10. A well-known noncompliant asthmatic patient presents to triage in acute respiratory distress. The last time he was in the emergency department he was intubated. Today he is in obvious respiratory distress and looks like he is getting tired. His room air SpO2 is 85%.

11. “My husband worries too much; he insisted that I come here today because I still feel a little dizzy,” reports
a 74-year-old woman. The husband tells you that 30 minutes before admission his wife passed out in the kitchen. Vital signs are blood pressure 92/70 mm Hg and heart rate 34 beats/min.

12. “I missed my dialysis today. I woke up with a fever and cough and I was just too sick to get out of bed,” reports a 54-year-old patient with chronic renal failure. She takes multiple medications and has an allergy to penicillin. Vital signs are temperature 102.3°F, heart rate 72 beats/min, respirations 24 per minute, blood pressure 154/74 mm Hg, and SpO₂ 91%.

13. “My baby’s so sick! He has had vomiting and diarrhea for the past 2 days. I don’t think he has kept anything down.” The mother carries her cranky 2-year-old child into triage. The child looks very dry. There is no past medical history and no known drug allergies. Vital signs are heart rate 122 beats/min, respirations 26 per minute, temperature 101.8°F, and SpO₂ 99%.

14. “I suddenly started bleeding and passing clots the size of oranges,” reports a pale 34-year-old woman who is 10 days post partum. “I never did this with my other two pregnancies. Can I lie down before I pass out?” Her skin is cool and clammy and you notice blood on her pants. Vital signs are blood pressure 86/40 mm Hg, heart rate 132 beats/min, respirations 22 per minute, and SpO₂ 98%.

15. “My mother is not taking her medications or sticking to her low salt diet,” reports the daughter of a 74-year-old woman with a significant cardiac history. “Today, she can hardly catch her breath.” The patient has a respiratory rate of 32 per minute and an SpO₂ of 90% on room air. You notice that her ankles are very edematous.
ESI version 4 pediatric fever practice case scenarios

Please read each case and, on the basis of the information provided, determine the ESI level.

1. Through the hospital interpreter, a mother tells you that her 10-month-old infant has been sick since the family arrived in the United States 4 days ago. The mother reports that the baby has felt hot and has had frequent green liquid stools. The baby is sitting quietly in the mother’s arms and you notice that the baby has dry, cracked lips. No past medical history is reported, and there are no known drug allergies. The child is currently taking no medications. Vital signs are temperature 102.8°F, heart rate 140 beats/min, respirations 36 per minute, and SpO₂ 100%.

2. “Something is wrong with my baby,” reports a very anxious mother. “He has a fever. I checked it twice just to be sure.” The 3-week-old baby has a temperature of 101.2°F at triage.

3. A 6-year-old boy presents to triage with his father, who reports that the boy has had a sore throat and a fever all day. The father is requesting that a throat culture be done. The boy’s oral temperature is 101.6°F. The child asks his father if he can have a soda.

4. A 13-month-old girl is carried into the triage area by her parents, who tell you that their baby has been intermittently crying and pulling on her right ear. The baby’s immunizations are up to date, and there are no known drug allergies and no past medical history. Vital signs were temperature 103°F, heart rate 124 beats/min, respirations 32 per minute, and SpO₂ 99%.

5. You are trying to triage a normally healthy 22-month-old boy whose mother brought him to the emergency department for vomiting and diarrhea. The child is alert, playful, and drinking from a juice box. “All the other kids have had this GI bug,” reports the mother. Vital signs were temperature 100.5°F, heart rate 128 beats/min, and respirations 24 per minute.

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**ESI Version 4 pediatric fever case scenario answers**

<table>
<thead>
<tr>
<th>Case No.</th>
<th>ESI level</th>
<th>Rationale</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Unknown immunization status</td>
<td>This child will consume 2 or more resources.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Newborn with fever &gt;100.4°F</td>
<td>High-risk situation</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Throat is obvious source for fever.</td>
<td>Will consume one resource—throat culture. If bedside testing is done, then the patient would meet ESI level 5 criteria.</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Probable otitis media</td>
<td>Needs examination, oral medication, and discharge. Care can be facilitated in a fast-track area.</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Obvious source for fever</td>
<td>Taking oral fluids, needs examination and no resources.</td>
</tr>
</tbody>
</table>

**REFERENCES**

A 38-year-old, 38-week pregnant woman was having an uncomplicated second pregnancy until she felt a spontaneous gush of fluid and the umbilical cord “popped out.” She immediately assumed a knee-chest position and called for her husband, who dialed 9-1-1. When we received notification from EMS, we contacted the patient’s obstetrician, the house neonatologist, and a labor and delivery nurse, who responded to the emergency department.

The patient arrived with one medic on the stretcher with a gloved hand in the patient’s vagina, trying to relieve the pressure of the neonate’s descending head. The pale, purple umbilical cord protruded from the perineum, without a notable pulse. We administered 100% oxygen via a nonrebreather mask and initiated a large-bore intravenous line with 0.9% normal saline solution. The obstetrician determined that the patient was completely dilated and ready for a vaginal delivery.

The delivery was rapid and a baby girl, dusky in color, was born. The Apgar score at 1 minute was 0. Despite aggressive resuscitation attempts, the baby failed to respond and was pronounced dead, presumably because of long-term hypoxia.

When family members arrived in the emergency department, I provided them with the information we had. The mother was transferred to a private room on a medical/surgical floor, where I reiterated my condolences. Critical incident stress debriefing was offered to the ED staff, but I declined to participate.

Discussion

Prolapse of the umbilical cord constitutes an absolute obstetric emergency and requires immediate intervention.
from prehospital responders and ED staff. Umbilical cord prolapse occurs when a loop of umbilical cord is positioned alongside or in front of a presenting part of the fetus, resulting in cord compression between the fetus and the mother’s cervix or pelvis. When this occurs, fetoplacental perfusion is compromised, and without immediate intervention, fetal hypoxia and anoxia can ensue.

Most cases of prolapsed cord are unexpected and develop in the second stage of labor. Our patient was not in labor at the time of prolapse but demonstrated the risk factor of spontaneous rupture of the membranes before engagement of the presenting part of the fetus.

There are 3 types of umbilical cord prolapse, with classification based on the position of the cord in relation to the presenting part of the fetus (Figure 1). Our patient had a cord presentation prolapse, manifested by the cord dropping through the cervix into the vagina. This type of prolapse is most commonly observed directly after rupture of the membranes. Diagnosis of occult and complete cord prolapse generally occurs during the vaginal examination but may be made with either Doppler or B-mode ultrasound.

Rapid intervention aims at alleviating as much pressure as possible from the umbilical cord and delivering the fetus promptly. Initial treatment includes placing the patient in the steep Trendelenburg’s position or in the knee-chest position with her buttocks elevated. If the patient is unable to assume this position, she is placed in a supine position with her hips elevated. The mother is instructed not to push but rather to pant during contractions. The paramedic who transported our patient appropriately inserted his gloved hand into the patient’s vagina, providing firm manual pressure to elevate the presenting part of the cord, taking care not to cause further cord compression. The cord should pulsate when the compression is released unless the baby is already dead. Under no circumstances
should the hand be removed from the vagina or upward pressure released before delivery can be accomplished.

Obstetric and emergency texts\(^1,2\) note that the exposed cord should be covered with a warm, sterile, saline solution–soaked moist gauze or cloth pad and that any handling of the cord should be avoided. Handling of the cord may produce vasospasm, contributing to further fetal hypoxia.

The cord should pulsate when the compression is released unless the baby is already dead.

A pulsating cord indicates a potentially viable newborn. An ultrasound examination can further help to determine fetal viability. Fetal mortality from prolapsed cord depends on the time from prolapse to delivery. Approximately 20 minutes elapsed between our patient’s reported prolapse and her delivery.

...the exposed cord should be covered with a warm, sterile, saline solution–soaked moist gauze or cloth pad and...any handling of the cord should be avoided. Handling of the cord may produce vasospasm, contributing to further fetal hypoxia.

The type of delivery depends on the dilation of the cervix and the degree of fetal distress. As in this case, with a fully dilated cervix and no other obstetric contraindications, vaginal delivery or forceps delivery is appropriate. In some cases, despite full cervical dilation, abnormal fetal position may necessitate delivery by Cesarean section.

With the death of the neonate, we implemented psychological and supportive interventions immediately. The parents asked numerous times what had happened, trying to understand if the death of their baby was real. Each time, I confirmed that the baby was dead. I reassured the mother that nothing she did caused or contributed to the prolapse, and I reassured the parents frequently that their feelings of grief and loss were normal and healthy.

As was their custom, the neonatal resuscitative responders dressed the baby in a diaper and T-shirt before she was viewed by the mother. Handling the baby gently, I wrapped her in a clean, warm blanket. I encouraged the mother to hold and examine her baby, which she did after some initial reluctance, and she appreciated the opportunity to do so. The parents had chosen a name for the baby, so we referred to her by name. Later, the parents were referred to a grief counselor and to our Perinatal Loss Support Group.

We routinely ask parents if they would like to have a picture of the baby, because in our experience, they are grateful to have it. We have found that parents appreciate having other tangible evidence of their child, such as footprints or the identification bracelet, that may serve as mementos. With the parent’s permission, we cut a lock of the baby’s hair for them. In our hospital, when the parents choose not to accept any mementos, the items are stored indefinitely in a filing cabinet on the maternity unit. Parents are encouraged to call the hospital if they would like to receive the items later.

I opted not to speak with a critical incident stress debriefing counselor following this event, citing my need to return to my assignment and other patients. In reality, I was an emotional wreck and did not feel that I was able to relive the emotional intensity of this event by discussing it. In retrospect, I wish that I had discussed it soon after the event. Instead, in the weeks following the death, I suffered from emotional flashbacks with bouts of sadness and crying. None of my family or friends could relate to the tragedy or intensity of my experience. As time passed, I gradually came to terms with the overwhelming sadness of this event.

A little more than a year later, the obstetrician who was involved in the case told us that our patient had recently delivered a healthy baby and that mother, father, and baby were all doing well.

REFERENCES
Knowledge Assessment and Preparation for the Certified Emergency Nurses Examination

1. A patient presents to the emergency department with chest pain within 24 hours of taking sildenafil (Viagra). Which of the following medications would be contraindicated for this patient?
   A. Metoprolol (Lopressor)
   B. Aspirin
   C. Clopidogrel (Plavix)
   D. Nitroglycerin

2. A culture is ordered for an infant suspected of having pertussis (whooping cough). The nurse would obtain the specimen:
   A. from the throat using a cotton swab.
   B. from the nose using a Dacron swab.
   C. from the posterior nasopharynx using a calcium alginate swab.
   D. from the throat using a Dacron swab.

3. A patient presents to the emergency department with complaints of pain and redness at the site of a tattoo on his back. The patient underwent a magnetic resonance imaging (MRI) procedure 24 hours ago. Based on this history, an appropriate nursing diagnosis for this patient is:
   A. pain related to burn injury.
   B. infection related to invasive procedure.
   C. impaired tissue perfusion local, related to immobility during procedure.
   D. injury related to movement of tattoo dye pigments during the procedure.

References
4. A patient presents to the emergency department with an itchy, painful lesion on his leg. Examination reveals an erythematous lesion with a mottled, bluish-purple center. The patient states that a spider may have bitten him. Which of the following activities, within the past 24 hours, suggests that this lesion may be caused by a Brown Recluse spider?

A. Painting the outside of a house
B. Cleaning out an old shed
C. Weeding a garden
D. Mending a fence

5. Assessment of an intoxicated patient with intact upper airway reflexes indicates that the patient would benefit from the insertion of a nasal airway to maintain patency of his posterior nasal pharynx. Which of the following is appropriate when performing this procedure?

A. Select the smallest airway that will allow suctioning with a 14 French catheter
B. Determine appropriate length by measuring from the tip of the nose to the tragus of the ear
C. Pass the airway along the roof of the nostril with bevel facing away from the nasal septum
D. Rotate the airway toward the nasal septum while inserting

ANSWERS

1. Correct Answer: D
Nitrates are contraindicated because concurrent use with sildenafil increases the risk of potentially fatal hypotension. Metoprolol (A), aspirin (B), and clopidogrel (C) may be administered to patients taking sildenafil. However, caution must be used when administering antihypertensive drugs. Metules and Bauer,4 25; Hopfer-Deglin & Hazard-Vallerand,2 965.

2. Correct Answer: C
A sample should be obtained from the posterior nasopharynx using a Dacron or calcium alginate swab. If the patient is infected with pertussis, specimens from this area are more likely to grow out the organism in the laboratory. Specimens from the throat and nose are less likely to yield positive results. Schweon,3 34.

3. Correct Answer: A
Many tattoo pigments contain metallic compounds, such as iron oxide. These pigments can result in MRI images with artifacts that can prevent accurate diagnosis. They also can create an electric current that increases skin temperature high enough to cause burns. Permanent cosmetics can cause similar problems, as well as cosmetics that contain iron oxides. Armstrong and Elkins,4 65.

4. Correct Answer: B
Brown Recluse spiders are generally shy, hence their name. They are most often found in areas that are not usually frequented, such as abandoned buildings or basements. Bites can occur when a person wears clothing that has been stored for a long time, disturbs areas that are mostly unused, moves boxes, or disturbs a pile of wood or rocks. Reactions to the bite can range from small, localized lesions to large, necrotic wounds. In a small number of cases (10%), persons have a severe systemic reaction. (This is more common in children.) Zeglin,2 65-6.

5. Correct Answer: B
The largest airway that will pass easily through the naris should be selected (A). The airway should be inserted along the floor of the selected nostril, with the bevel facing toward the nasal septum, and rotated slightly toward the ear and inserted until the flange rests against the nostril (C, D). When inserting the airway into the left nostril, rotate it 180 degrees because the airway is designed to be inserted into the right naris. When inserted into the left nostril, the airway curvature will be opposite the natural nasal curvature. York-Clark,6 21-2.
A Frequently Used and Revised Emergency Department Chest Pain Pathway

Many hospitals are implementing patient care pathways or caremaps to guide patient care throughout the hospital stay. To promote consistency, timeliness, and use of research-based guidelines among our hospital health care providers and to improve patient outcomes, we have developed pathways for use in our Emergency Center (Figure 1). Development of the pathways was a collaborative effort that involved emergency physicians, registered nurses, hospitalists, respiratory therapists, and consulting physicians. For example, cardiologists and catheterization laboratory staff participated in the development of our chest pain pathway and suspected congestive heart failure pathway, pulmonologists and pediatricians assisted with the shortness of breath and suspected pneumonia pathway, and neurologists helped develop the stroke pathway. The emergency clinical nurse specialist is responsible for implementing and updating the pathways and staff education. Our emergency pathways integrate with the “in-house” pathways as well.

Initially, staff members were resistant; they saw these pathways as just creating more paperwork. Some of our physicians also were resistant at first; however, our medical director was very supportive and attended some of the development committee meetings. Staff members believed they were providing consistent care and “doing the best we can already.” However, when data (core measures) were collected and provided to the staff and physicians, they saw opportunities for improvement.

Currently we have 21 Emergency Center pathways. They are based on chief complaints as opposed to diagnosis. If pathways are to work in the emergency department, they must be chief complaint–driven as opposed to diagnosis-driven. Often ED pathways are started at triage, long before
TMH EMERGENCY CENTER
CHEST PAIN/ACS / UNSTABLE ANGINA / ACUTE MI Pathway

MD Initials

TIME

MD Signature

OWNER /Pathway/EC-ChestPain pathway.doc / revised 2/06/03, 2/13/03, 4/03, 7/03, 8/03, 12/03, 10/04, 11/04, 2/05, 5/05

Patient Label

TRIAGE CHEST PAIN PATIENTS (For documentation/ordering. Information here not to be duplicated on triage note.) Chest Pain Criteria: This is to be used on every patient entering the ED >30 y/o with a complaint of chest pain/SOB/weakness with no other obvious reason. This is also to be used on patients <30 with complaints of chest pain with a known history of cardiac problems or a strong family history of cardiac problems.

EKG stat, complete Risk Factors Stickers, and show to EC physician. MD EKG Interpretation:________

Place on continuous cardiac monitoring with initial and prn strip monitoring. NPO except for meds.

Initial O2 sat:_____ on RA or _____ liters O2. Start O2 via NC at min 2L/min Notify MD if O2 sat <92%

Saline lock. If SBP <90, hang NS bolus @ 250ml/hr then TKO and Reevaluate Sites:______ Gauge:______

STAT: Labs: CBC, CMP, Troponin, PT, PTT, Magnesium

STAT PCXR. Time called: ________. Time done _____ __

Repeat EKG 30 min.s after initial EKG (if initial not STEMI) / Stat EKG PRN Increased Pain or Other Cardiac Related Symptoms. Time _____ Reason _______

Give ASA 325mg to chew (contraindicated ________) Omit if taken within last 12 hours

If EKG shows ST Elevation – page Cardiologist immediately. Enter call back number followed by *911

4 hours after initial EKG and labs: Repeat: 1) EKG 2) Troponin

LOW RISK EVALUATION after 6 hour re-eval: schedule exercise stress test

MEDICATIONS (to be given with Physician order only)

Ask if patient has taken any erectile dysfunction drugs in past 36 hours: Yes ___ No ___

Morphine 2 mg IV q 5 min. prn pain for a total dose of 10mg. (document in nursing notes)

Lopressor 5 mg IV q5min x 3 doses; hold if BP systolic <100 or HR <45. Ask if pt. has used cocaine or crack in the last 36 hours: Yes____ No ____ If YES, hold Lopressor.

If not ordered why: Wheezing Heart Block, Bradycardia Hypotension Cocaine CHF

BP: _____HR: ______ 1st Lopressor given at: ______  s/p BP: ______ at ______

BP: _____HR: ______ 2nd Lopressor given at: ______  s/p BP: ______ at ______

BP: _____HR: ______ 3rd Lopressor given at: ______  s/p BP: ______ at ______

Heparin IV per cardiac weight dosed protocol after normal CXR. (Do not give heparin IV if you have given Lovenox.)

Lopressor 25mg over 3 minutes p 3rd IV Lopressor.; hold if BP systolic < 100 or HR < 45

Tritidil 400 mcg/ml IV for pain unrelieved by SL NTG and/or Morphine (Start at 2 ml/hr and titrate to “no pain” or SBP<90)

Lovenox 1mg/kg Subcut, or _________ after normal CXR

Direct PCI: Notify Cath Lab ext. 5665 “Code STEMI” Time notified ______ Obtain informed consent for LHC/PCI

GP II b / III a inhibitors (Reopro or Integrelin) – follow order set for weight based dosing

Thrombolytic therapy:

1. Give 1st Retavase 10 units IV bolus over 2 minutes. Time given: ______

2. Give 2nd Retavase 10 units IV bolus 30 minutes after first bolus. Time given: ______

EKG 60 minutes after 1st bolus of Retavase, repeat EKG in 12 hours and 24 hours

T:

FIGURE 1

a diagnosis is confirmed. “In-house” pathways are diagnosis-driven and thus do not work in the emergency department.

Our chest pain pathway has been the most successful. It has been revised many times and is a “living document.” To make it more user friendly, we provide space for staff to document directly on the pathway. We also work very hard to keep every pathway to one page. Initially the ED pathways were several pages long and staff did not use them. Our pathways serve not only as guidelines to practice but also provide data during chart audits. This tool has helped us track core measures and provide feedback to the staff. We have improved our practice and patient outcomes since implementing pathways in the emergency department. Implementation of the chest pain pathway in our emergency department was a large component of a hospital-wide system change in how we care for patients with chest pain. The overall mortality rate from acute myocardial infarction has been cut in half since implementation. Pathways can serve many purposes in the emergency department.

If pathways are to work in the emergency department, they must be chief complaint–driven as opposed to diagnosis-driven. Often ED pathways are started at triage, long before a diagnosis is confirmed. “In-house” pathways are diagnosis-driven and thus do not work in the emergency department.

ED registered nurses (RNs) initiate the pathways. If the RN does not initiate a pathway, sometimes a physician will do so. Physicians initial an order in the left column if they wish to implement that particular order. Shading in the area for physician initials indicates that the Emergency Center RN can carry out this order prior to consulting with the physician. The RN can document when the order is carried out on the right side of the pathway. Some medications like morphine and heparin are charted in the ED nursing notes or on a standardized hospital-wide form. Other medications such as nitroglycerin and Lopressor are simply documented on the pathway. They do not have to duplicate documentation elsewhere on the chart. On the bottom of the page, both the RN and the physician provide a signature to identify the initials used on the pathway.

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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Correction

In a brief question-and-answer segment, “Teleemergency Medicine” (Zimmermann PG. Cutting-edge discussions of management, policy, and program issues in emergency care. J Emerg Nurs 2005;31:188-96), the location of the University of Mississippi Medical Center and author Kristi Henderson, RN, MSN, CFNP, CACNP, were incorrectly noted as Missouri. The correct location of both the university and the author is Mississippi.
An Informal Discussion of Emergency Nurses’ Current Clinical Practice: What’s New and What Works

Accessing Ports in Pediatric Patients

A recent query to an emergency nursing listserve concerned the de-accessing of pediatric intravenous “ports.” Kelli Rosenthal, MS, RN, BC, CRNI, ANP, APRN, BC, President and CEO of ResourceNurse.com of Oceanside, NY, responded that in general, the ports used in pediatrics are the same as the ones used in adults, just usually a lower profile model. Most institutions use 10 Units/mL of heparin to maintain lines in pediatric patients, but the flush volume would still be 5 mL because the port volume is the same. Rosenthal suggests that you follow your institution’s protocol for port de-accessing, which typically includes these steps: (1) flush with saline solution (usually 5 mL); (2) flush with heparin (usually 5 mL); (3) close the clamp on the port needle extension; (4) clean around the site like you would for a central line dressing change; (5) secure the port with your nondominant hand, and (6) with your dominant hand, pull straight out. Finally, apply an adhesive bandage to the site. Theresa Cromling, RN, ED Pediatric Educator at Duke University Medical Center in Durham, NC, also shares her expertise by reminding us of the assessment and care parameters involved in caring for pediatric port infusions and sites. Cromling says that we should assess the patient’s vital signs; assess whether or not the child is experiencing pain or discomfort; assess for a heparin allergy; and assess for unexplained swelling and sensations felt during fluid administration, always maintaining asepsis. These assignments can be particularly challenging in young, nonverbal children; Cromling suggests that you always solicit the help of the parent or caregiver in interpreting the child’s typical responses to care. It also is important to avoid the use of latex gloves, because many special needs children are particularly sensitive to this allergy.
I was thrilled to see an E-mail message sent to the Journal from an emergency nurse colleague who lives and practices in Hong Kong. Wai-kwong Poon, MBA, MA(HCA), CEN, CIC, an experienced advanced practice nurse who has practiced in Canada as well as in China, says that in Hong Kong, simple suturing and wound care management are conducted by nursing staff unless the patient is admitted. The nurses are quite experienced in suturing and wound management. Poon wrote to encourage others to use a “last touch” that she performs just before dressing a wound she has sutured. If possible, after any suturing, for a better healing process, she finds it helpful to spread the loose skin edge evenly over the wound after the last saline solution wash. This little act allows loose, tiny skin edges to be sloughed off from the wound instead of being trapped inside the wound. This trapping of skin debris can cause delayed wound healing and enhancement of scar formation. Poon has seen these complications most commonly in lacerated wounds where the edges appeared to be “very thinly sliced skin,” and she says it is difficult to notice the epithelial layers being pushed into the wound. In Poon’s experience, these wounds are typically caused by unintentional laceration injury by a knife or other sharp object, with the resultant wound being “shallow towards deep.” She also says that this “last touch up” can work for all suturing, because positioning of the suture knot also is important for removal as well, and so is removing any debris on the top of the sutured wound surface. Poon also sends international good wishes, and greeted me with “GONG XI FA CHAI,” a greeting given during the Chinese New Year, which started on February 9, 2005, the week that we corresponded. Our emergency nursing world is much bigger—and smaller—than we can even imagine!

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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WHAT'S IN YOUR POCKETS?

Julie Sions, RN, BSN, a Maryland emergency nurse who recently relocated to Missouri, describes what she carries in her pockets, besides the usual items: a pocket holder that contains several types of scissors, hemostats, pens, calipers, a nail file, money, a tourniquet, information cards, alcohol wipes, tape, and a calculator; she also has a bag with her Palm Pilot for nursing information, and a tape measure “just in case.” Julie says that she also has to check her pockets frequently, especially before she goes home. At times, her colleagues have added items there during the course of the shift, and if she is not careful, she could be driving home with unused medications, catheters, or any number of extra objects she really does not want there.
A transformation in medical error reporting has begun in hospitals across the United States. That is good news, because in the past, error reporting was taboo. It was an unwritten rule that we (nurses) did not talk about our mistakes or air our “dirty laundry” for many reasons. Not only did we fear the reprimand we would receive from our nurse manager, but we also feared losing the respect of our nursing colleagues. After all, we came to believe that really “good” or “vigilant” nurses never made mistakes and thus, logically, only “bad” or “careless” nurses made mistakes.

Often the degree of punishment following an error was directly tied to the level of harm that resulted or to how frequently we had been involved in other errors. That is, if the error resulted in patient harm, it was more likely that we could expect a note in our file, a bad performance evaluation, suspension, job loss, reporting to our state board, or even liability issues. More importantly, having been involved in a previous error would most surely be considered a negative finding when determining our fate. For those of us not directly involved, we would only find out about the error through the hospital grapevine, or by learning about it the hard way...when we too made the same mistake. In this punitive environment of unspoken problems, patients continued to be harmed by preventable mistakes.

But things are changing. Organizations are beginning to see what other complex, “high-reliability” organizations learned years ago: There is no way to fix a “problem” when it is dismissed, forgotten, or swept under the rug. Organizations have started to appreciate the enormous value of error reporting—that is, the ability to understand that with each error comes a “lesson learned.” We now recognize
that error reporting can be used as an early warning system and can help prevent similar errors (or divert serious sentinel events) in the future.

We would only find out about the error through the hospital grapevine, or by learning about it the hard way...when we too made the same mistake.

Understanding “near misses” (which probably more appropriately should be called “near hits”) is equally as important to our learning about how mistakes happen in our workplace. The same “system problems” or inconsistencies are present in these near misses as in the actual errors that occur. The only difference about a near miss is that something “providential” happens along to way to intersect the chain of events, and it is caught before it reaches the patient. Instead of being cynical and blaming fellow caregivers who are involved for their carelessness, we should be grateful for the opportunity to stop the error and redirect our energies into creating a solution (or plugging the hole in our system that allowed this problem to happen). We must learn to look closely when these red flags occur and use this information effectively to change the way we practice.

They added reminders to the automated dispensing screens that would appear whenever Zosyn was selected.

Several large health care organizations across the United States recognize the value of near-miss information and demonstrate their commitment to better communication of these events through successful error reporting programs. Clarian Health Partners of Indiana, made up of Methodist, Indiana University, and Riley Hospitals, is a private, not-for-profit system in Indianapolis that offers a wide range of tertiary and pediatric care, including a level I trauma center. Clarian has created a program entitled Safe Passage to safeguard patients and protect everyone’s right to a “safe passage” through the health care system. The goals of this collaborative effort are to provide staff with the most current patient safety information available, 2-way communication between leadership and the frontline, an opportunity to analyze and learn from errors, and increased work efficiency and effectiveness. In this system, leadership recognizes that the staff is the best source of understanding many system problems and sees them as invaluable when selecting strategies to improve the safety of their work.

According to Mary Ross, RN, a nurse in the emergency department at Methodist Hospital, the Safe Passage program is responsible for many changes, including the clear identification of poorly labeled drug bins (which in the past had contributed to administration of wrong pre-mixed intravenous solutions), the identification of new insulin syringes that were likely to cause dosing errors because of the presentation of the printed dosing scale, and a variety of safe storage issues with “look-alike” medications. In another example, nurses identified that Zosyn was available in the automated dispensing cabinets, yet most colleagues did not recognize that an allergy to penicillin would be a contraindication to administration of this drug. Because typically there is no review by pharmacy for medications given from the emergency department, knowing this information was vitally important. Although educating nurses about this issue was important, Clarian recognized it needed a high-leverage, sustainable fix, so they added reminders to the automated dispensing screens that would appear whenever Zosyn was selected.

“One of the most challenging issues is providing timely feedback to reporters. Staff just want to know that their report has been received and that something is being done.”

More than 250 Safe Passage leaders are now decentralized on every unit at Clarian. These Safe Passage leaders undergo training on safety principles to take on the role. They help gather all near-miss reports from staff and are always on the lookout for hazardous conditions. These Safe Passage representatives come together in practice councils to discuss their findings and ideas and to share lessons learned. According to Ross, “This is a simple way to translate safety theory into practice.” Since its inception, reporting has increased at Clarian by more than 300%.
A similar program is in place at the Spectrum Health System in Grand Rapids, Michigan. According to Sylvia Baird from the quality department, the “Good Catch Program,” which started in January 2003, has been an effective tool in identifying hazardous conditions, with more than 10,000 “catches” that have been submitted to the database. Like the Safe Passage program, the Good Catch program hopes to identify hazardous conditions and “near misses” so that proactive changes can be made before patient harm occurs. Similar to the Clarion program, unit-based champions of the program are instrumental in helping to keep the program alive. Reporting on this program is done through “good catch” cards, which are available throughout their hospitals. These cards also ask staff what they think is a contributing factor to the hazard. According to Baird, “One of the most challenging issues is providing timely feedback to reporters. Staff just want to know that their report has been received and that something is being done.”

It has been 5 years since the Institute of Medicine’s groundbreaking report To Err is Human: Building a Safer Health System.1 Some persons say we have come a long way since then, and in many ways, we have. However, we must not lose sight of the long patient safety journey ahead. It takes courage to speak up and report an error or even a near miss, but doing the right thing on behalf of patients can never be wrong. As long as there are humans involved in health care, we will continue to make mistakes, but improving internal error reporting is one way all of us can make an impact on safety. Kudos to the organizations that have taken the lead in providing a safe haven to report mistakes and prevent further harm. I challenge emergency nurses everywhere to work together to make your department a safe haven for reporting. Just think about how much we will learn!

Acknowledgment
Thanks to Kelly Wright of Hetrick Communications, Mary Ross, RN, of the Clarian Heath System in Indianapolis, and Sylvia Baird, RN, of the Spectrum Health System in Grand Rapids for sharing their time and expertise with me.

REFERENCE
Experienced Critical Care
Nurse-led Rapid Response Teams Rescue Patients on In-patient Units

The rapid response team, called the medical emergency team (MET) at Tallahassee Memorial Hospital (TMH), is one of the latest strategies being used by hospitals across the nation to provide early intervention and prevent patient deaths. The MET helps nurses intervene early in a patient’s course to avert complications, failure to rescue, and unexpected deaths. Different from the “code team” but sometimes involving many of the same intensive care unit (ICU) nurses, a MET response is initiated most often by nurse-to-nurse consultation. To initiate the MET, an inpatient unit nurse or other hospital colleague concerned about a patient calls the ICU. Whichever critical care nurse is on call for the MET responds with equipment, such as a portable monitor-defibrillator. Experienced clinicians bring critical care expertise to the bedside at the first sign that the patient may be in trouble. Depending on the case, the MET nurse may then call other resources that she or he feels is indicated, such as a respiratory therapist. The MET may be called by a staff nurse, a nursing supervisor, a physician, respiratory therapist, or another provider, essentially anyone within the hospital system. Most often, MET responses are nurses consulting nurses.

Realizing that most hospitalized patients have subtle symptoms before cardiac arrest occurs, TMH formed its MET in 2003 while looking at ways to improve mortality rates. We wanted to decrease in-house arrests. When a call is placed to TMH’s MET, an experienced ICU nurse responds. Our experienced ICU nurses rotate call while on duty and assist with each others’ patients when one of their colleagues is on an MET response. The MET nurse responds to the floor first and summons help from additional team members when needed. The MET nurse
assesses the patient and the situation and may assist the floor staff in initiating appropriate interventions or simply validate their assessment. The MET nurse may contact the patient’s physician or assist the patient’s nurse in doing so. Our patient care providers have been informed that they can consult the MET anytime they feel uncomfortable or concerned about a patients’ situation. A list of frequently asked questions was developed and includes when to call the MET (Figure 1). The MET has been consulted for numerous things including when a patient “just doesn’t look right.”

Different from the “code team” but sometimes involving many of the same ICU nurses, a [medical emergency team] response is initiated most often by nurse to nurse consult....Whichever critical care nurse is on call for the MET responds with equipment such as a portable monitor-defibrillator.

One call came when a nurse technician noticed that the patient “did not seem to be breathing right.” The nurse technician then notified the floor nurse, who then called the MET. By the time the MET nurse arrived, the patient’s respirations were agonal. A full cardiac arrest was most likely prevented when the MET nurse quickly instructed the floor staff to grab a resuscitation bag-valve-mask and assisted ventilations. When a patient’s level of consciousness changes, the MET team might check a bedside blood glucose and give dextrose intravenously, or they may work with the floor staff to contact the physician for mannitol to combat increasing intracranial pressure. The MET nurse can provide cardiac monitoring to patients in unmonitored areas of the hospital and has been instrumental in the treatment of patients with new-onset arrhythmias. The MET works within the existing hospital policies and procedures when providing assistance. We have a hospital policy that lists several interventions that a nurse may implement before consulting with a physician. This list includes checking blood glucose level, initiating the hypoglycemia protocol, giving intravenous fluids for hypotension, ordering a 12-lead electrocardiogram, and administering nitroglycerin or naloxone as needed.

The MET nurse must have excellent assessment and communication skills. The MET members provide advanced care at the bedside, augment the nursing staff during crises, and teach assessment and communication skills to new nursing staff while serving as a role model. If necessary, ICU care can be initiated on the floor if a critical care bed is not immediately available and treatment cannot wait.

Since the inception of the MET team in August 2003, TMH has seen a 16% decline in overall hospital mortality, a 33% reduction in the number of times the code team was activated, and a 55% decrease in the number of codes outside the ICU. The average time for the MET team to respond is 4 minutes. The team spends an average of 25 minutes on each call, but calls have lasted as long as 2 hours.

To assist in evaluation performance of the MET, a brief survey was distributed to our staff during the initial inservice meeting to introduce the MET team to the hospital staff. The survey was given again 6 months later. When surveyed, both floor and ICU staff overwhelmingly consider the MET to be a positive resource for improving patient care. There was a 16% increase in the response to the question “I would feel safe being treated on this unit as a patient” after the MET had been in action 6 months. Also, a MET form, completed after each time the MET is called, helps us to gather useful data.

With the current nursing shortage, nurse-to-patient ratios are rising and an increasing number of less-experienced nurses are on the front lines of patient care. Hospitals are challenged to maintain adequate levels of care while stretching the available resources. Nurse-to-nurse consultations through rapid response teams are being shown to be effective tools in providing early interventions, decreasing cardiac arrests, and decreasing overall hospital mortality.

Although emergency nurses are not involved in the MET at our hospital, as experts in emergencies and resuscitation and as nurses with an innate “rescue” mentality, they, too, could lead a rapid response team or be valuable members of this team.

An excellent resource on implementing a MET or RRT can be found at www.ihi.org.
Frequently Asked Questions

Why did TMH form the Medical Emergency Team?
- The risk of death with an in-hospital arrest is 50 – 85%.
- Most patients have 6 – 8 hours of symptoms before arresting.
- More than 50% of ICU admissions receive inadequate pre-ICU care.
- Arrests, deaths, emergency procedures & ICU admissions may be averted by early recognition and treatment.
- TMH had 107 codes and 60 other patients who needed to be intubated on the med-surg floors in 2002.
- 34% of all TMH patients survived the code to be discharged; nationally only 17% survived to be discharged.

Who is on the MET?
- An experienced ICU RN
- Respiratory Care

How can you call the MET?
Call the ICU covering your area
- Cardiac ICU covers cardiac floor
- Neuro ICU covers ortho-neuro floor
- Med-surg ICU covers all others

Who can call the MET?
Anyone

When should the MET be called?
- The patient has a significant change in vital signs or LOC, including respiratory distress, a threatened airway, change in breathing pattern, decreased oxygen sats, oversedation, a change in blood pressure or heart rate/rhythm.
- The patient has no/inadequate response to interventions.
- You feel uncomfortable with the situation.

What are the expectations for floor staff?
- Initiate the call to the MET when the patient’s condition meets one of the criteria above.
- Describe to the MET RN/RT the patient’s history, current condition, what is happening and clearly state how they can help.
- After consultation with the MET, place a call to the appropriate physician if more orders are needed.
- It is not the intent of the MET to assume care for the patient, but to assist in evaluation, assessment, plans and interventions for patient stabilization.

FIGURE 1
Frequently asked questions.
What are the expectations for the MET?
• They are consultants.
• They will assist with assessment & management of the patient. The MET RN will arrange for additional monitoring equipment if needed.
• The MET will summon additional help as needed.
• Existing policies & procedures will be used to assist the patient, but the physician will be called if needed for further orders.
• MET nurses will assist in communicating the patient’s needs to the relevant physician.
• If the patient needs to be moved to a higher level of care, the MET will assist with the transfer if needed.
• If therapy (dopamine, etc.) needs to be started before the transfer, the MET RN will assist the staff RN regarding the monitoring needs of the patient and be available for questions/concerns until the transfer is complete.
• Teaching WILL occur:
  • Assessment & critical thinking
  • Physiology & interventions
  • Assertiveness & interpersonal skills
  • Policies & procedures

How will we know if we are successful?
• A log will be kept detailing the reason for the call, what was done for the patient, how long the RN was out of the unit and any special needs that should be addressed in the future (standing orders, equipment, inservicing, etc.)
• Outcomes we would expect:
  • Decreased number of codes
  • Decreased number of patients returning to ICU within 48 hours of transfer out
  • Decreased number of hospital deaths
  • Average time spent on MET call is less than 30 minutes
  • Improved comfort & confidence of staff in managing patients (survey scores)

Abbreviations
LOC – Level of Consciousness
MET – Medical Emergency Team
RRT – Rapid Response Team
RT – Respiratory Therapist
TMH – Tallahassee Memorial Hospital

FIGURE 1. (continued)
Grade IV Splenic Laceration

This image is of the abdomen and pelvis of a 14-year-old boy who fell off his bicycle. When he came to the emergency department he was hemodynamically stable with complaints of left upper quadrant pain. The view of the abdomen/pelvis shows a laceration larger than 3 cm extending into the hilum of the spleen with probable involvement of the trabecular vessels. There also is a moderate amount of dense free intraperitoneal fluid compatible with hemorrhage. Based on the computed tomography results, his physical examination, and stable hemoglobin and hematocrit levels (13.9 g/dL and 39.3%, respectively), he was admitted and managed nonoperatively with close monitoring of his hematocrit level, strict bed rest, and serial examinations. Increasing evidence regarding the influence of the spleen and our immunologic defenses has prompted a reluctance to remove it.

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

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Society’s Origin

Fighting, biting, hitting, spitting,
restrained to the ED bed—
Proficient in profanity,
and wishing all of us dead.

Denying my adrenalin,
I pause a moment and muse—
Who decides the victors in society,
and why did this man lose?

But there is no time to think such things,
I’m at work; it’s a busy day—
I do the required documentation,
then hurry on my way.

The day progresses without event,
happy to see my relief arrived—
Not too bad a day after all,
my patients all survived.

On the way home stopped at an intersection,
a red light I couldn’t make—
A homeless man is standing on the corner,
anything I offer he’d surely take.

His presence makes me uncomfortable,
seems this light’s been red quite a while—
I turn away because I have nothing for him,
not even a glance, a nod, or a smile.

At last the light changes from red to green,
solitude finally reached—
I quickly go on about my way,
my privacy having been breached.

Later, lying in my warm bed that night,
a quick review of the day—
Did every thing go as it should,
or could things have been a different way?
A few people quickly flood my mind,
the restraint and homeless guy for two—
Were my actions truly appropriate,
did I really do all I could do?
I think about understanding, acceptance,
and other affirmations on which I rely—
Do I give as freely as I receive,
or are there some whom I deny?
Then I question who is to blame,
for the ills of those I see—
And I feel the pang of guilt as I realize,
Society begins with me.

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

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Brain and spinal cord injuries are the most devastating and costly type of injury, resulting in physical and psychological damage and years of lost productivity, with more than 22,000 childhood deaths from such injuries and an additional 30,000 who suffer permanent disabilities.\textsuperscript{1} Approximately 11,000 new spinal cord injuries occur each year in the United States. In addition, researchers estimate that an additional 4860 persons with such injuries die before reaching the hospital.\textsuperscript{2} In the spring of 2001, the Injury Prevention Task Force of The Child and Adolescent Health and Wellness Council, a section of the Office of Community Health of the Conemaugh Health System in Johnstown, Pa, along with our level I trauma department, discovered that Cambria County, Pa, experienced pediatric head and spinal cord injuries at 5 times the state average.

Working on the problem

We set out to find an appropriate educational program for children to help combat the problem of pediatric head and spinal cord injuries. We found a comprehensive, evidence-based injury prevention program developed by the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and the ThinkFirst National Injury Prevention Foundation: ThinkFirst for Kids.\textsuperscript{3}

The Program

The ThinkFirst for Kids program is a 6-week comprehensive brain and spinal cord injury prevention program. The first lesson introduces the video Street Smart, A ThinkFirst Adventure. This video teaches children how to have fun and protect themselves from injury at the same time.
An informative lesson on brain and spinal cord injury is presented to the class following the video. During the next 5 weeks, the students concentrate on 1 of the 5 areas of injury prevention. Each 30-minute lesson is geared to the appropriate development level of the child and covers the following: vehicular and pedestrian safety; bicycle safety; safety around weapons and creative problem solving; playground, recreation, and sports safety; and water safety. Various teaching strategies are used such as videos, a gelatin brain mold, an egg drop (with and without a Styrofoam cup “helmet”), role playing, and age-appropriate handouts complete with a weekly “Parent Letter” to be read and signed by both the student and a parent or caregiver and returned to the school the following week.

Implementation of the Program

When we began the ThinkFirst for Kids Program, we needed to address various issues: obtaining a sponsoring physician, funding, and recruiting volunteer presenters for the program. The sponsoring physician was responsible for areas such as garnering support for the program from the medical center, other local physicians, health professionals, and the community; talking to the media; fund-raising; and coordinating with the national ThinkFirst office. Our sponsoring physician was a pediatrician in the community committed to injury prevention regarding the pediatric population. To begin a ThinkFirst for Kids program, $500 was needed to start up a chapter, which included instruction and assistance with program development, implementation and evaluation for the program’s key personnel, one ThinkFirst For Kids curriculum packet, including the “Street Smart” video, posters and comics, and one ThinkFirst For Kids Coordinator’s Guide. An additional $150 was necessary for other props and videos used in the presentation of the program. Our funding came from a variety of sources: SAFE Kids of Pennsylvania, our hospital auxiliary, and the Pennsylvania Trauma Society. One volunteer presenter was needed for each classroom presentation, because the program works best in a classroom setting of 20 to 25 students. The program was presented for 30 minutes for 6 consecutive weeks. Initially we used our injury prevention coordinator and 2 other employees in our office when we pilot tested the program in the first school. Since then we have recruited volunteers such as emergency nurses, technicians, and EMS personnel, other hospital department staff (floor nurses, administrators, physical and respiratory therapists), student nurses, school nurses and guidance counselors, parents of elementary school students, highway safety officers, and high school students. We also have developed our own instructor manuals specific for our community, based on the National ThinkFirst course curriculum. An Instructor’s Course (approximately 60 minutes long) is given to each volunteer presenter before he or she goes into the classroom setting. The injury prevention coordinator and other experienced coordinators follow up with “spot checks” to ensure continuity of the materials taught.

Program history

In the spring of 2001, the Child and Adolescent Health and Wellness Council implemented the ThinkFirst for Kids program beginning with one pilot elementary school. We found that the program was easy to present, and the students enjoyed it; they wrote us thank-you notes and gave us hugs as we left on our last day. The following school year, the Council offered to present this program to any of the 28 public and private schools in Cambria County; the program was presented in 10 of the 28 schools that year. By the spring of 2004, the ThinkFirst program had been presented in all of the 28 public and private schools in Cambria County at least once, with many of the schools continuing the program each year. Every student who participated in the program was given a pretest before the program and a post-test approximately 6 weeks after the completion of the program to determine the retention of the material taught.

Results

Overall, for the 3 years of data collected, 6973 children completed the pretest and 6644 children completed the post-test. We used the evaluation tool that had been developed by the National ThinkFirst Office.

BASELINE DATA REGARDING DEFICIENCIES IN KNOWLEDGE

Figure 1 summarizes the pretest results, demonstrating the deficiencies in knowledge regarding safety issues in all 3 grades.
Questions asked about “risky behaviors” varied from grade to grade. Risky behavior questions ranged from running in the road to get a ball and looking before swinging a baseball bat to hanging upside down on the monkey bars. Children in all 3 grades (1 to 3) were asked whether they wear a helmet when riding a bike (see Figure 2).

When looking at negative behaviors, 30% of children in grades 1 to 3 noted on the pretest that they do not wear a helmet when riding a bike.

**Thus, by these 2 measures, the first graders showed the highest scores for safer behavior following the program.**

The ThinkFirst for Kids program resulted in an overall 21% increase in knowledge for safety issues for first graders; second graders showed an overall 15% increase in knowledge, and third graders showed an overall 11% increase in knowledge (see Figure 3). The ThinkFirst for Kids program had the biggest impact on children’s increase in knowledge about school bus safety issues, followed by brain injury knowledge, water safety knowledge, and bicycle safety knowledge (see Figure 4).

**EFFECT OF THE THINKFIRST FOR KIDS INTERVENTION REGARDING NEGATIVE BEHAVIORS**

The ThinkFirst for Kids program was followed by a reported 10% decrease in overall risky behaviors following program implementation for first graders. Second graders showed an 8% decrease in risky behaviors, and third graders showed a 6% decrease in risky behaviors (see Figure 5). When asked whether they wear a helmet when riding a bike, first graders showed the greatest increase, at 8%. Second graders showed an increase of 4%, and third graders had an increase of 6% (see Figure 6). Thus, by these 2 measures, the first graders showed the highest scores for safer behavior following the program.

**Discussion**

The self-reporting surveys may or may not depict actual behavior. Also, the surveys for each grade level were distinctly different and contained different knowledge and behavioral questions. During the 2004-2005 school year, we rewrote the questionnaire so that each student would
receive the same age-appropriate questionnaire in all grade levels.

Preliminary data from our level I trauma center (Figure 7) revealed that our pediatric head and neck injuries have decreased. Specifically, 64 pediatric trauma patients with a Cambria County zip code were admitted in 2001; 47 (73%) had a head and/or back injury. In 2003, there were 57 total pediatric trauma admissions, with only 29 (51%) sustaining a head and/or back injury.

**Comments**

The ThinkFirst program is easy for a variety of personnel to present, and we have found that it has a positive impact on the young student population. It could work well in conjunction with other programs from ENA’s Injury Prevention Institute, ENCare. For more information about injury prevention programs, visit the following Web sites: www.thinkfirst.org and www.ena.org.

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

Polly Gerber Zimmermann, RN, MS, MBA, CEN

TIME OUT

What specific actions do other emergency departments perform to meet the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requirements for time out prior to an invasive procedure?

Answer 1:
We use a stamp to document the time out when the procedure is not a life-saving emergency that must immediately proceed to avoid increasing patient harm (during which the ED physician has not left the bedside since the patient’s arrival). The stamp includes the time, who was in the room, and what procedure we are preparing to do. It becomes part of the permanent record.—Karen Riley, RN, BSN, Director, Emergency Services, Heart of Florida Hospital, Tampa, Fla; E-mail: rileyerrn@aol.com

Answer 2:
We use a time-out sticker that is attached to appropriate equipment trays. It includes check-off boxes for the ID bracelet, patient’s name, agreement on procedure, and correct site and side. The nurse signs, dates, and times it. It is then attached to the nursing notes and becomes part of the permanent record.—Lorene Newberry, RN, MS, CEN, Clinical Nurse Specialist, Emergency Services, Wellstar Health System, Marietta, Ga; E-mail: lorene.newberry@wellstar.org

Answer 3:
We created a specific time-out form that applies to procedures for which informed consent is obtained (eg, percutaneous aspirations, biopsies, cardiac and vascular catheterizations, chest tube insertions, and endoscopies). It includes the following:

• Patient verification (comparing ID band patient’s name and medical record number with medical record or, if an ID band has not yet been placed, the
patient’s stated name and date of birth matching the medical record)

- Site marking or checking the indication that the physician did not leave the patient’s room after the decision to perform the procedure was made

- Procedural verification including proper consent, availability of related diagnostics available (eg, radiographs if applicable) and special equipment/supplies, and then immediately prior to the incision, performing another verification of the procedure, site if applicable, and patient’s correct position

The form is signed, dated, and timed and becomes a part of the permanent record.—Meridith Dunham, RN, BSN, Supervisor, Emergency Services, Valley Medical Center, Renton, Wash; E-mail: Meredith_Dunham@valleymed.org

Answer 4:

A simple solution is to add a “time out” section to any already existing preprocedural checklist. We found that the key aspect evaluated for our JCAHO survey was to have one individual assigned to a verbal confirmation of the patient, site, and procedure.—Robin Nandin, RN, Manager, Supplemental Staffing (formerly Manager, Emergency Department), Tucson Medical Center, Tucson, Ariz; E-mail: Robin.Nandin@tmcas.com

CHARGING FOR TRIAGE AND TRIAGE PROCEDURES

Do other emergency departments charge for a patient who is triaged by the nurse but then chooses to leave without being seen by the physician?

Answer 1:

We do not charge for triage, but our billing coders post an E & M level for these patients (that has no charge attached). This way these patients show up in our productivity reports. As a result, we have budget consideration for this high-risk, time-consuming class of patients.

Some persons have suggested charging and posting a sign to that effect in the waiting room. We have chosen not to do that for fear it could be interpreted as an attempt to influence patients not to be seen (and therefore be an EMTALA violation).—Nancy Zahradnik, RN, BSN, CEN, Nurse Manager, Emergency Services, ValleyCare Health System, Pleasanton, Calif; E-mail: nzrad@comcast.net

Answer 2:

In my opinion, although it is easily justified in terms of resources, charging for triage is a public relations nightmare. When you charge a patient who leaves because he or she was not seen by the ultimate caregiver within (in what the person considered) a reasonable length of time, he or she becomes very angry. I believe it is better to view this type of situation as “lost revenue” and work on efforts to implement a more timely patient flow. I have found this is a reasonable “sell” to finance as well, and it may even result in approval for an extra position.—Ann Marie Tyrell, RN, MS, CEN, Consultant, HealthLink Inc, formerly of Cape Fear Valley Medical, Wilmington, NC; E-mail: atyrell@healthlinkinc.com

Answer 3:

We charge for triage services. We also get a lot of complaints, and currently we are looking into changing this charge to increase patient satisfaction. We do not post a sign about charging for triage services, but we inform patients of the charge if they choose to sign out against medical advice.—Suzanne Carroll, RN, BSN, Emergency Center Director, Lake Charles Memorial Hospital, Lake Charles, La; E-mail: suzannecarroll@cox-internet.com

Answer 4:

We order off of protocols in our triage area and charge patients both for the nurse triage time and any procedure (eg, a laboratory test) that was done even if they decide to leave. We have a written policy specifically stating what can be done by protocol that is signed and approved by the medical director so it is a valid and legal order. We also follow up with a phone call if a result comes back positive after they leave.

You must pay for the drink you ordered while waiting to be seated in a restaurant, even if you then change your mind about waiting and leave. Similarly, we believe that we should be paid for the services that were rendered. If patients call and complain, we explain it with the above analysis.—Kevin Trainor, RN, CEN, Nurse Manager, Adult Emergency and Trauma Services, Christus Santa Rosa Hospital, San Antonio, Tex; E-mail: ktrainor@satx.rr.com

Answer 5:

We do not have standing orders/protocols for tests to be ordered in triage. However, our medical director recognizes
that it often expedites care to have some things done before the medical examination. Therefore, he agrees to sign off for all tests done in triage. If he believes the nurse did the test needlessly, we do not bill for it.

If for some reason the medical director is not here for several days, I review the charts and make them a verbal order per his direction and he then signs them in medical records when he returns. Our chargemaster has been very happy with this arrangement.—Deneen Brown, RN, Director, Emergency Services, Lexington Memorial Hospital, Lexington, NC; E-mail: dbrown@imh.cc

—Deneen Brown, RN, Director, Emergency Services, Lexington Memorial Hospital, Lexington, NC; E-mail: dbrown@imh.cc

PROVIDING FOOD TO ED PATIENTS

We are having a discussion about whether we should provide food to our ED patients. Some view it as good “customer service”; others see it as a way to limit costs. What do other emergency departments do?

Answer 1:
When we are holding admitted patients or have a specific need for a diet tray, we order the food from our cafeteria. During the nighttime (when the cafeteria is closed) and for other needs, we stock peanut butter, crackers, canned soup, cokes, juice, and some milk for any patient. We used to stock frozen meals but stopped doing so because staff ate them, so we did not have them when we needed them for the patients.

Providing meals or snacks to those that have been waiting for a while is just one more simple step toward providing patient comfort and increasing patient and family satisfaction.—Patty Dickson, RN, BSN, CEN, Patient Care Director, Emergency Department, Middle Tennessee Medical Center, Murfreesboro, Tenn; E-mail: Patty.Dickson@mtmc.org

Answer 2:
We offer meals if the ED patient is going to be an inpatient, will be running the “evaluation marathon,” or by request (particularly for diabetics). We also stock soup, crackers, and pop for the patients. “Meal tray provided” can be added to the EM acuity tool (charging sheet) as a way to help track, justify, and/or recoup some of the expense.—Shaun Zimmer, RN, CEN, BSM, ED Clinical Supervisor, Northwest Medical Center—Washington County, Springdale, Ark; E-mail: szimmer@nw-health.com

Answer 3:
We give meals to any of our patients who are waiting, and sometimes even to a family member. I believe failing to do this would have a great impact on patient satisfaction.—Sheryl Schroeder, RN, Director, Emergency Services, Fort Memorial Hospital, Fort Atkinson, Wis; E-mail: sheryl.schroeder@forthc.com

Answer 4:
When the cafeteria kitchen is open during the day, the desk technician orders trays (after verification with the primary care nurse) for any patients who need food, such as admitted patients or a patient in the emergency department for an extended period. If the patient is designated NPO but is getting an extended workup, we sometimes also feed the spouse.

During the time meal trays are not available, the kitchen supplies us with boxed lunches. We usually also have cereal, milk, juice, soda pop, crackers, and applesauce for those in-between times. We have found it worth the return in patient (and staff) satisfaction for the time and cost expended.—Virginia Hebda, RN, MS, CEN, Nurse Manager, Emergency Department, Thompson Health, Canandaigua, NY; E-mail: Virginia.Hebda@thompsonhealth.org

Answer 5:
The dietary department supplies meal trays for patients who are being held for whatever reason. We also stock “box lunches” with a turkey sandwich, fruit, and juice that we give to patients or even families at other times.

We stock soda and juice. At times of high volume and high acuity, we have a whole cart full of soda, juice, chips, and fruit delivered to give to persons in the waiting room and to families.

Providing food is a small price to pay for patient satisfaction when the wait has been exceedingly long, especially for elderly persons. These actions have effectively decreased negative comments.—Patricia Fuller, RN, ED Nurse Manager, Barnes-Jewish West County Hospital, St Louis, Mo; E-mail: patriciafuller@bjc.org
MULTIPLE UNIDENTIFIED PATIENTS

How do others handle the accurate identification of multiple unknown patients, especially in light of the requirement for 2 unique identifiers from the JCAHO? We have used John Doe 1, John Doe 2 in the past, but that can be a problem when we have multiple unidentified patients at the same time.

Answer 1:
We identify such patients with a “TRMA” number. We started with TRMA001 and move sequentially (TRMA002, TRMA003, etc.) Each patient also is assigned a new, unique medical record number. Once the patient is identified, and if he or she has been here before, we then merge the records after the patient is discharged.

We had tried using vegetable names but switched to the current system after one patient questioned why a staff member referred to him as “Mr. Lettuce.”—Vivian Rebel, RN, Director, Trauma Services, Interim Director, Emergency Services, Henry Mayo Newhall Memorial Hospital, Valencia, Calif; E-mail: rebelvl@henrymayo.com

Answer 2:
We use Greek names, with the last name being the Greek letter and the first name being “male” or “female.” We go down the list starting with alpha and start over when we reach omega. The medical record number used for the unidentified patient is later reconciled with any previous numbers associated with that patient. This is important given that there will eventually be numerous “Beta females,” for example.—Maggie Borders, RN, BSN, CEN, Operations Manager, Gill Heart Institute—University of Kentucky, former Nurse Manager, University of Kentucky Emergency Department, Lexington, Ky; E-mail: Maggie.Borders@uky.edu

Answer 3:
We use blood ID bands that have unique letter/number identifiers.* We add a fake birth date for the record identifier, starting with the 1800s. Patients are registered with the blood band number and birth date, such as Name: WBP 11304, DOB: 12/14/1809. Later they can be merged as an also-known-as (AKA) once the patient’s proper identify is known.—Jonathan Rosen, RN, Director Emergency Services, Southern Ocean County Hospital, Manahawkin, NJ; E-mail: jrosen@soch.com

EXTERNAL JUGULAR OR INTRAOSSEOUS PLACEMENT IN ADULTS

We have limited resources for our small, rural emergency department, but we are having an increase in vasculopathic patients. Do others allow skilled nurses to place external jugular (EJ) or intraosseous devices in emergent adult patients?

Answer 1:
Our ED policies and procedures allow nurses to insert EJ intravenous catheters. We based this policy on the Advanced Certified Life Support (ACLS) course’s position that an EJ vein is a “peripheral” site. Our ED physicians concur.

Most of the nurses do not feel comfortable cannulating an EJ vein, and it is not a required skill, but it is an option for those who do feel comfortable with it. It is not a difficult procedure to learn—I (tongue-in-cheek) just remind the staff to not use a tourniquet, but rather to “tourniquet” the vein lightly with a finger.—Jean Proehl, RN, MN, CEN, CCRN, Emergency Clinical Nurse Specialist, Dartmouth-Hitchcock Medical Center, Lebanon, NH; E-mail: Jean.A.Proehl@Hitchcock.org

REFERENCE

Answer 2:
Our ED nurses (and the paramedics in the field) obtain EJ intravenous access. We based this policy on the Advanced Certified Life Support (ACLS) course’s position that an EJ vein is a “peripheral” site. Our ED physicians concur.

Most of the nurses do not feel comfortable cannulating an EJ vein, and it is not a required skill, but it is an option for those who do feel comfortable with it. It is not a difficult procedure to learn—I (tongue-in-cheek) just remind the staff to not use a tourniquet, but rather to “tourniquet” the vein lightly with a finger.—Jean Proehl, RN, MN, CEN, CCRN, Emergency Clinical Nurse Specialist, Dartmouth-Hitchcock Medical Center, Lebanon, NH; E-mail: Jean.A.Proehl@Hitchcock.org

REFERENCE

Answer 2:
Our ED nurses (and the paramedics in the field) obtain EJ intravenous access. There is disparity in the nurses’ comfort level, and some choose not to do it. Physicians are now using ultrasound for difficult intravenous line placement, and there are plans to eventually extend this skill to senior nurses.—Tom Trimble, RN, CEN, Staff Nurse, Emergency Department, University of California—San Francisco Medical Center, San Francisco, Calif, and List Administrator, “Em-Nsg-L: The Emergency Nursing List”; E-mail: Tom@ENW.org

*One such product is the Fenwal Typenex Blood Recipient ID bands from Baxter Healthcare Corporation (www.baxter.com).
CELL PHONE USE IN THE EMERGENCY DEPARTMENT

Are emergency departments still banning cell phones? I have heard that the newer technology now used in cell phones no longer interferes with equipment operation.

Answer 1:
I wrote to several manufacturers because we wanted to determine whether patients’ cell phones would interfere with their intravenous infusion pumps. The manufacturers’ answers included the comment that, although their electromagnetic interferences testing passes guidelines, they do not recommend allowing cell phone use in hospitals to ensure a “safe zone.”

The manufacturers cited the peer-reviewed article that described a compromise with electronic medical equipment that can occur with cell phone or two-way radio use in close proximity. In addition, they have had reports of resulting interference with the intravenous infusion pumps. “Close proximity” is not defined because there is an ever-changing variety of telephones (and outputs) available that may make distances variable.—Larry Torrey, RN, EMT-P, Emergency Department, Tufts-New England Medical Center, Boston, Mass; E-mail: ltorrey@main.rr.com

Answer 2:
I found that even the “newer” cell phones have caused problems with different ventilators. In one instance, the ventilator alarmed “in Op” and stopped ventilating when a cell phone was used nearby. Our Respiratory Therapy and Bioengineering Department did an experiment and found that a cell phone could cause our new ventilators to malfunction. The company that produces the ventilators confirms that this is a known problem.—Robert G Flade, RN, BS, Director, Emergency Department, New Britain General Hospital, New Britain, CT; E-mail: rgflade@NBGH.ORG

Answer 3:
Our ED director objects to the use of cell phones, independent of any equipment concerns, because of the issue of privacy. With the increasing popularity of phones that can take pictures, it is believed to be the best way to ensure all patients’ privacy.—Peg Pedone, RN, 3-11 Clinical Coordinator, Parkland Medical Center Emergency Department, Derry, NH; E-mail: pegpedone@attbi.com

Answer 4:
We had a recent experience of a video cell phone being used against the staff. A patient angry about the long wait to be seen, while in the hall, recorded the ED nurses engaged in a social conversation at the nurses station. The patient then called Risk Management and the ED nurse manager to complain and show the “evidence.”—Valorie Sweigart, RN, MN, CS, ED Director, Emory Crawford Long Hospital, Atlanta, Ga; E-mail: valorie_sweigart@EMORYHEALTHCARE.ORG

VERBAL ORDERS

We are having problems with verbal orders being miscommunicated, misinterpreted, or used excessively. How are others dealing with this safety issue?

Answer 1:
We do not allow any verbal orders to be used except in an arrest, or near-arrest, situation. Our nurses have been using a process of listening to the orders, then politely either requesting that the physician write it on the chart or simply handing the chart to the physician.

We are at 98% compliance with avoiding the use of verbal orders in our facilities. Awareness about the new emphasis from the JCAHO also helps, as we recently had a JCAHO visit.—Judy Nordblom, RN, MS, Clinical Nurse Specialist, Emergency Services, Legacy Health System, Portland, Ore; E-mail: jnordblo@LHS.org

Answer 2:
We have a specific ED order sheet that was created in response to the same concern. It includes a check-off box for the most frequent ED orders, including laboratory tests, x-rays, point-of-care testing, and interventions such as EKG, saline lock, intravenous fluid, oxygen, and a Foley catheter. The order sheet also includes a table for medication orders so the prescriber is prompted to include all elements of the order (eg, dose and route).
The use of this sheet has not eliminated verbal orders, but it has helped decrease them. Nurses frequently need to remind the physician to “write it down.”—Jean Proehl, RN, MN, CEN, CCRN, Emergency Clinical Nurse Specialist, Dartmouth-Hitchcock Medical Center, Lebanon, NH; E-mail: Jean.A.Proehl@Hitchcock.org

Answer 3:
Our ED standard is that nurses may only accept verbal orders during an emergency, such as a resuscitation. All verbal orders must be read back, and that fact is documented when the verbal order is written and signed by the nurse. Otherwise, nurses are to communicate to the physician to please write the nonemergent verbal order so the nurse can initiate it.

Our emergency department uses standing orders to expedite care. The orders are based on the patient’s chief complaint and are kept current with the standards of the ENA and the American College of Emergency Physician guidelines and research reviews. We also have prewritten order sets for trauma, cardiopulmonary arrest, and some admission orders.

The primary reason we initially established standing orders and protocols was to decrease patient care turnaround time and increase our customer satisfaction scores. However, a side benefit has been an automatic decrease in the number and/or inaccuracies of verbal orders.—Sylvia Simpson, RN, BSN, ED Nurse Clinician, Orlando Regional Medical Center, Orlando, Fla; E-mail: sylvies@orhs.org

Answer 4:
Both emergency departments where I work only allow verbal orders in true emergent situations. Otherwise all orders are written except for the advanced triage protocols.

One hospital has standard treatment protocols/standing orders that cover the main patient presentations (eg, female abdominal pain, male abdominal pain, and sepsis). The other hospital’s ED attending physicians allow the nurses to order what they think the patient needs as long as they ask first. The order is then written as “advanced triage order per doctor so and so.”—Conni Tucker, RN, CEN, ED Supervisor, Glens Falls Hospital, Glens Falls, NY; E-mail: cptrcat@yahoo.com

Answer 5:
When we need to use verbal orders, they are repeated back to help verify accuracy. They would be written on the chart with a repeated verbal verified order (RVVO). For example: Epinephrine 1 mg 1:10,000 IVP RVVO/C. Fisher/Dr Jones. This procedure has helped to avoid miscommunication.

We also have a series of protocols that the nurse can initiate. There is a policy reflecting the preprinted protocols, and the physician can later sign the order set.—Caroline Fisher, RN, SANE, Manager Emergency Department and Center of Hope Coordinator, St Francis Hospitals and Health Centers, Indianapolis, Ind; E-mail: Caroline.Fisher@SSFHS.ORG

Answer 6:
We use an electronic documentation system. Since we went “live” with physician order entry, we have had very few verbal orders.

Any verbal order is entered VO/RB, an approved abbreviation that stands for “verbal order/read back.” The emergency physician signs off on all orders when doing the discharge instruction.—Dotty Kuell, RN, Manager, Emergency Department, FirstHealth Moore Regional Hospital, Pinehurst, NC; E-mail: dkuell@firsthealth.org

WEIGHT MEASUREMENTS

Are emergency departments using patients’ actual or estimated weights?

Answer 1:
Our policy is to obtain a height and weight for all ED patients and indicate how the information was gathered. The triage sheet has check-off boxes for “stated” or “actual.” The common practice is actual weights for children and stated weights for adults.—Ouida Lester, RN, Staff ED RN, Western Baptist Hospital, Paducah, KY; E-mail: ouida509@aol.com

RAPID RESPONSE NURSE

I have heard of other hospitals that have a STAT nurse available to help out as needed. How does that practice work?

Answer:
Our level II hospital has had a rapid response nurse program for 2 years. The nurse’s role is to be ready at a
moment’s notice to meet an unexpected critical care need. We have 2 nurses (and are planning to go to 3 nurses) 24 hours a day, 7 days a week. The nurses have critical care and ED experience and understand how the areas function.

The nurses respond when any patient has an unexpected critical care need to assist with care until stabilization occurs. This is whether the need is in the traditional critical care areas, step-down units, or medical-surgical units. It allows the hospital to create a virtual ICU bed anywhere (with portable monitors) until the appropriate bed becomes available. This could include managing a trauma patient after initial stabilization until an ICU/surgery placement, responding to a near or actual cardiac arrest, or troubleshooting problems with critical care equipment/central lines. The nurse is not used for scheduled procedures (such as procedural moderate sedation) or for staff coverage.

This program has worked quite well for our high-acuity but smaller (270-bed) hospital, which has limited resources when the 30 ICU beds are full. It also provides an educational opportunity, mentoring experience, and psychological backup for nurses inexperienced in that aspect of critical care and working with residents.—Daniel Kane, RN, BSN, Med, CEN, CFRN, EMT-P, Rapid Response Nurse, Lahey Clinic, Burlington, MA; E-mail: dankanern@aol.com

COMPETENCY FOR PROCEDURAL MODERATE SEDATION

How do other emergency departments ensure competency for providing conscious sedation?

Answer:
Part of an ED nurse’s initial orientation is learning our policy, procedure, and safety precautions for administering procedural moderate sedation (also known as conscious sedation). This includes completing a check-off list. The nurse also is required to watch a procedure, do one procedure with the preceptor, and then do one procedure independently under the preceptor’s observation before being allowed to do the procedure as the sole designated nurse. All nurses, including agency nurses, must complete this process before being the responsible nurse during the procedure.

We also include it as part of our annual competency, which includes a written test. The test includes questions on the drugs and reversal agents. Failure to pass the annual test is grounds for remediation, discipline, and potential termination.

ENA has a position statement on conscious sedation that can be viewed at the Web site ena.org.—Pamela Isbell, RN, BSN, CEN, PHRN, ED Relief Charge Nurse, Orlando Regional Healthcare, Orlando, Fla; E-mail: ps12009@aol.com

PREHOSPITAL ANESTHESIA

Do some EMS systems allow prehospital pain control?

Answer:
The research done shows that accurate assessments can be done in the field, but analgesia often is not provided even for obvious causes, such as a fracture. 1-3 When it was given, the patients received significant relief earlier (up to 2 hours) and had no serious adverse effects.

One system I work with allows paramedics to administer up to 1 mg/kg morphine sulfate (with the standard contraindications, such as a closed head injury) for pain stemming from either trauma or medical causes. This is done by standing order based on the paramedic’s clinical judgment. Pain scale must be documented before and after administration.

In addition, we do the standard nonpharmacologic interventions, such as positioning, splinting, pillows, and cold application, when appropriate.—Dave Adler, EMT-P, Editor, Prehospital Perspective Magazine, Philadelphia, PA; E-mail: adler@prehospital-perspective.com

REFERENCES

ORGAN DONATION

I have heard that people can donate organs after other types of death besides brain death. Is that true?

Answer 1:
More than 85,000 people in the United States are currently waiting for organ transplants from deceased donors, but
an average of 17 people on the transplantation waiting list die each day. The national average for a hospital donation rate is 46%, although the range is from 0 to 100%.

The 2003 Organ Donation Breakthrough Collaborative works to propagate best organ procurement practices. A key aspect is promoting awareness of every potential donation situation. Because of the shortage of available organs, there has been renewed interest in Donation After Cardiac Death (DCD), formerly known as non–heart beating donation. DCD donors are patients who have sustained a severe and irreversible traumatic brain injury but do not meet all clinical brain death criteria. The families of these patients have made the decision to withdraw all life-sustaining treatment. Prior to the introduction of brain death laws in the 1980s, this was the way in which all organs were recovered for transplant.

ED nurses can be an integral part of the donation process by making referrals to the organ procurement organization as soon as possible after a patient arrives in the emergency department with a Glasgow Coma Scale score (GCS) of 3 or 4.—Teresa Shafer, RN, MSN, CPC, Executive Vice President and Chief Operating Officer, Life Gift Organ Donation Center, Tex; E-mail: tshafer@mail.lifegift.org

Answer 2:
Our organization uses all intensive care nurses as certified requestors instead of an organ procurement organization representative. In 2003, we stepped up our process of recognizing “clinical triggers” of potential donors, including calling the organ procurement organization for patients with a GCS score of 5 or less. This was a contributing factor to a marked increase in DCD donations.

We also changed our DCD procedure for the procurement. We now have a critical care nurse and respiratory therapist transport the patient to the operating room and stay until death has been declared. The deceased patient (after organ harvest) is returned to the critical care unit if the family wishes to spend further time with their deceased family member.

The family does well with this arrangement because a relationship was established with the nurse as they worked through the process. Staff issues, such as ethics or process, have been managed with education and case debriefing.

Simonoff et al1 and Fuller-Kautz2 found that donation rates are higher when families have ample time to discuss their questions and concerns with the health care team. That has been our experience too. The rate of DCD patients at our level II facility has increased from 1 per year to 5 to 9 DCD donations per quarter.—Kathy Fuller-Kautz, RN, MSN, Manager, TC Critical Care and Respiratory Services, Theda Clark Medical Center, Neenah, Wis; E-mail: Kathleen.fuller@thedacare.org

REFERENCES

SECURITY DURING A DISASTER
We are reviewing our disaster plan. Are there any newer concerns we should consider?

Answer:
We consult in risk and safety management services to EMS organizations and health care facilities. We advise clients that hospitals will become likely targets for secondary hits. Some things to consider:

- Establish tight access controls to prevent unauthorized vehicles from entering the hospital campus during a disaster.
- Require all staff to wear identification at all times.
- Do not allow any vendor to be in the hospital without an authorization badge.
- Do not expect local police, fire, or EMS availability in a disaster. They may be committed to another location.

—Steven S. Wilder, CHSP and Christ Sorensen, CHPA, Sorensen, Wilder & Associates, Bradley, Ill; E-mail: www.swa4safety.com

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Reviews of Books, Videos, 
CDs, Audiotapes, Web Sites, and More, 
Written by Emergency Nurses

**Media Reviewers:** Benny Marett, RN, MSN, CEN, and Gail Pisarcik Lenehan, RN, EdD, FAAN, Rock Hill, SC, and Hingham, Mass

Benny Marett is President and CEO, Emergency Care Consultants of the Carolinas, Inc, Rock Hill, SC; E-mail: bmarett@InfoAve.Net. Gail Lenehan, Beacon Chapter, is the Editor of the *Journal of Emergency Nursing* and per diem Clinical Nurse Specialist, Massachusetts General Hospital, Boston, Mass; E-mail: glenehan@comcast.net. J Emerg Nurs 2005;31:395-7.

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**MI Rule, Visions $29.95 (with practice ECG Kit, $34.95); EMS, MI Rule, $24.95 (with practice ECG Kit, $29.95); MI Rule 15/18, $24.95**


These 3 individual teaching tools (sold separately) demonstrate, in a very colorful, graphic format, various aspects of 12-plus lead EKG evaluation. Each of the 3 templates is sold separately and gives a very detailed and well-explained technique for EKG instructors to use. Each template is user friendly and covers various types of myocardial infarctions (MIs) in a complete fashion. Current guidelines of the American Heart Association, ACC and CMS for AMI best practices and treatment strategies are referenced in each program.

Each clear plastic template allows the user to slide a 12-lead EKG into a color coded “jacket” or “sleeve” with markings that indicate various dysrhythmias, transforming the patient EKG into a teaching tool. Various locations for MI are highlighted in each defined lead. The user can easily perform ST analysis and evaluate myocardial injury or ischemia based on locations around the myocardium. The “MI Rule, Visions” provides a dynamic 3D colorful format for identifying waveform changes. It is designed with moveable waveforms as you tilt the template, allowing the user to easily see normal patterns, ischemia, and injury in a 12-lead EKG.

The “MI Rule 15/18” features additional leads for further MI evaluation. Right-sided and posterior lead placement and interpretation are described, and a colorful template is provided to assist the learner. The “EMS, MI Rule” utilizes the same template format with additional very useful information presented in a concise, well-presented fashion. Eight practical EKGs are sized for EKG printouts from all brands of transport monitors.
All 3 templates are very well presented and would be useful for emergency nurses or EMS providers. Through colorful graphics and an easy-to-read format, learners should enjoy and benefit from these excellent learning tools.

I brought these templates to a recent ACLS course and let the participants use them during the MI case study. Even the experienced ED nurses thought they were great. They found it helpful to actually see the EKG interpretation at the same time it was being taught. Many of the American Heart Association’s courses now expect nurses to be more familiar with 12-lead EKGs, and these templates will help them gain that familiarity.

I highly recommend these 3 reasonably priced templates for ED, CCU, critical care, and prehospital care providers.—Benny Marett, RN, MSN, CEN
doi: 10.1016/j.jen.2005.05.008

Making Waves (includes “MI Rule Visions,” “MI Rule 15/18,” and “EMS Rule”)  

This CD-ROM software for teaching 12-lead EKG interpretation would be an excellent asset for an individual learner or for an instructor-led program. The secure log-in and log-out procedure allows learners to pace themselves as they learn. Users experience a content-driven menu and are guided through myocardial infarction (MI) and ischemia recognition using an interactive format. The computer-based program appears user-friendly, and the graphics and materials are very well written. Topics covered include acute MI anatomy, EKG basics, rhythm review, MI basics, MI advanced, abnormal rhythms, MI review, and MI testing. Help sessions are available, and a printed score competency is provided upon completion. Approved continuing education units are available upon successful completion of the program.

Through simple mouse clicks, response-prompted interaction, and well-displayed material, learners should enjoy this program while enhancing their knowledge of 12-lead EKGs. The creators of this CD have obviously put a great deal of thought into its content. For ED, critical care, and prehospital care providers who are comfortable using CDs and interactive software and are able to take their continuing education by sitting at a computer, this could be a valuable tool. At a cost of $995 for the single-station version with no annual licensing, this program would be an excellent addition to an ED or critical care library.—Benny Marett, RN, MSN, CEN
doi: 10.1016/j.jen.2005.05.009

Ultra-Prevention: The 6 Week Plan That Will Make You Healthy for Life  

Ultra-Prevention is a gem—it is simply the best book I have read on the subject of staying healthy. The authors are 2 former emergency physicians, now co-medical directors at the Canyon Ranch Health Resort in Lenox, Mass (a sister resort is located in Tucson, Ariz). I was introduced to Canyon Ranch, which first opened in 1979, by a colleague and former co-worker, an emergency nurse with a reputation for excellence and integrity, who is now the Director of Nursing at Canyon Ranch. She mentioned the book when she gave me a tour of the impressive facility. I ordered it immediately, told friends about it, and now refer to it in virtually every talk I give to nursing audiences.

Stressed, overworked emergency nurses barely have time to keep up with the latest drugs, protocols, and equipment with which to take care of patients who are in dire need, let alone try to research how to prevent illness. And there is no time and little incentive for our primary care providers to take the time to learn and teach us what we need to know. Each of the physician authors of this book has suffered a significant illness, and together they have explored the research, gathered information, and synthesized the latest and best information about a topic that absolutely could not be more important—keeping healthy. They share their wisdom in a readable style, packed with valuable, practical information.

If you think you already know it all, think again. You will be amazed, not only at how much you do not know, but also at how much conventional wisdom is just plain wrong. The authors dispel myths like the one that says all fats are bad, when good fats (such as olive oil, nuts, avocados, or small oily fish) actually can lower our cholesterol. Even more important than cholesterol readings, we learn that homocysteine levels predict not only cardiac problems but stroke and dementia as well. We learn of
things still not that widely appreciated, such as mercury toxicity (from eating large fish like tuna and salmon, or from amalgam dental fillings, among other things). The authors also raise our consciousness about the all too familiar: Many of the drugs our patients take are just treating their symptoms, rather than the causes of their problems. Patients are prescribed antihypertensives, for example, rather than being helped to lose weight or get control of their diabetes. Drugs can create problems of their own, and then more drugs are ordered, until some patients find themselves in a deteriorating downward spiral. We can now recommend Ultra-Prevention to such patients, rather than watching helplessly. Just as surely as we teach patients to use seat belts or helmets to prevent devastating trauma, we can teach patients healthful habits and help prevent devastating illness. This is not to say we throw away our medical armamentarium, but we can certainly augment it.

Not everyone will be able to afford a thorough evaluation at Canyon Ranch, housed in a beautiful mansion in western Massachusetts, but everyone can afford the modest cost of the book—$25, which is a compilation of the wisdom of the health resort’s medical directors. It is a great gift for friends and family members, but also a perfect gift to yourself! And at no cost, the authors offer a Web site where they give us pearls of wisdom. At www.ultraprevention.com, you will find the “Top Ten Do’s and Don’ts for the New Year” and the “Top Ten List for Successful Weight Loss,” as well as many other helpful hints about ways to improve your health. The Web site gives tidbits of information that definitely do not replace the book, but rather offer a sample of what the book systematically lays out.

This is the type of book that should be read and re-read on a yearly basis. I enthusiastically recommend it.

—Gail Pisarick Lenehan, RN, EdD, FAAN

doi: 10.1016/j.jen.2005.06.009
Regional Emergency Nursing Program: How One Region Solved Its Needs For More Efficient Orientation Education

Two years ago, ED and critical care educators from 8 area hospitals met to assess the recently completed regional Critical Care Course that has been used by these hospitals for 6 years. The Southeast Chapter of the Massachusetts Organization of Nurse Executives had sponsored this orientation program, which combined the resources of 8 area hospitals twice yearly for new critical care nurses, and it had been very successful. We began to talk about the feasibility of establishing a similar program for new ED nurses. All of the individual hospitals had been teaching their own separate programs for their new ED nurses (usually 2 to 4 a year) several times a year, but these small classes took their toll on the educators’ time and energy. Could the combined regional Critical Care Course model translate into an ED program? The answer is yes!

ENA has a course, *Orientation to Emergency Nursing* (© 2000), that 3 of our hospitals have used in the past for our small classes. Educators at Jordan Hospital in Plymouth, Cape Cod Hospital in Hyannis, and Caritas Good Samaritan Medical Center in Brockton use the ENA program successfully by having a “didactic day” each week for the new orientees. This aspect of the orientation program is labor intensive for a small number of students, and because some of the ED educators are also the critical care educators for their facilities, this group began talking about how to “create” our regional ED program.

The Critical Care Course is held twice weekly for 6 weeks in the spring and fall. The first 6 sessions are held at the St Luke’s Hospital campus of the Southcoast...
Hospital Group, and the last 6 are held at Jordan Hospital. These facilities are at both ends of the region, so all students “traveled” for the classes. A critical care educator took a topic based on the American Academy Critical Care Nurses Critical Care Course, and each session ran from 8 AM until 2:45 PM daily. Each student receives extensive handouts and a bibliography. Contact hours were provided initially through the American Academy Critical Care Nurses, but this year each presenter provided the hours for her own portion through their respective hospitals. Evaluations and attendance records were kept by each educator and also at St Luke’s Hospital. A final examination was developed by the whole group of educators based on the material presented to the class.

How would we take this critical care course model and turn it into an ED class? Educators from the 8 hospitals in the region met and decided that we would use St Luke’s Hospital and Jordan Hospital for 2 sessions weekly for 5 weeks. The course outline and schedule were developed by Diane Gurney at Cape Cod Hospital, with sessions starting at 8 AM and ending at 3 PM. Each educator took a topic based on the ENA program. Sheehy’s Manual of Emergency Care (5th edition) was used for reference, and then lectures were developed using PowerPoint software. All students were given a copy of each presentation and a bibliography. Some instructors had copies of articles for the individual topics.

Class size was limited to 24 students for the initial program, because it was the first time some of the critical care educators had seen the ED material. The educators for 4 of the hospitals are assigned to both the critical care units and the emergency department, one is strictly an ED educator, and 3 hospitals do not have an assigned ED educator. We also wanted to work out some of the expected glitches with the length of the lectures and ensure that the focus of each topic was on ED nursing and not on the critical care aspects of care.

Although 8 hospitals participated in the initial course, there are actually 11 hospitals in the region that potentially could send 2 to 4 students to future programs. We also expect requests to place students in the program from outside the Southeast Massachusetts Organization of Nurse Executives group in the future.

### Costs

The first program was offered at St Luke’s and Jordan Hospital starting in October and finishing in November. Twenty-four students completed the 10 sessions and also participated in their own clinical orientations at their respective hospitals. All instructors were paid as part of their usual work hours, and most believed that teaching 1 or 2 of the regional sessions involved less time than teaching the whole program themselves. All the educators had copies of all materials and were aware of what material had been presented so that the clinical portion of the orientation could correlate with the didactic sessions. There was no charge to the students, and all students were paid by their own hospitals because the class was part of their orientation to the emergency department. Coffee was provided, but students provided their own lunch. Each instructor prepared his or her lectures during work hours and made his or her own copies of handouts. The educators for the hosting hospitals were in the classroom at the beginning of each session to help with audiovisual equipment but were not required to be present throughout the entire day’s session. Because most of the instructors taught both the critical care class and the ED class, there was familiarity with each host hospital. A final examination was based on material presented and old CEN review tests.

Was the program successful? All of the participants completed the didactic sessions and continued their clinical orientations at their home hospitals. One participant has left ED nursing, but all the others continue to learn and work in emergency nursing.

The group is planning a class for this spring following the same model, but with the addition of contact hours for the sessions. We have not yet decided whether one hospital will provide all the contact hours or whether each provider will provide them, as with the critical care program. One hospital may leave the group because the educators there believed their students did not receive “small group” attention in the regional program, although a majority of the educators are pleased with the program and its results. This regional program seems to provide excellent education for new ED nurses with minimal costs of time, money, or effort.
Vulvovaginitis and Vaginal Discharge in the Pediatric Patient

**Nonspecific vulvovaginitis**

A 6-year-old girl is brought to the emergency department by her mother because the child has been scratching at her vulva and has a green stain on her underwear. The skin surrounding the vulva is red.

Vulvovaginitis is the most common pediatric gynecologic condition seen in the emergency department. Vulvovaginitis is erythema and inflammation of the vaginal mucosa, usually with a vaginal discharge. Vulvitis is local irritation related to poor hygiene, chemical irritation, mechanical irritation, topical allergy, or trauma. In premenarchal girls, 68% of nonspecific vaginitis cases are associated with coliform bacteria. It causes a brown to green discharge and may have a foul odor. The mainstay of therapy is improved perineal hygiene using nonirritating soaps and drying the area meticulously after bathing. No antibiotic therapy is necessary.

For premenarchal girls, the site of involvement for infection is usually the vulva, with secondary extension into the vagina. Predisposing factors include a lack of an acidic pH, lack of the protective effects of estrogen, which leads to a thin vaginal epithelium, relative lack of lactobacilli, which helps prevent bacterial colonization and infection, immature antibody response, variations in the configuration and location of the hymen, obesity, lack of protective hair and labial fat pads, which result in the skin being easily traumatized by clothing and friction, and the short distance from the vagina to the anus.
Streptococcal vaginitis

A 4-year-old girl presents with pain on urination, purulent yellow discharge, and a bright red, well-demarcated region on the vulva. The patient had a sore throat and fever 1 week ago. This patient has Streptococcal vaginitis, caused by passing respiratory flora from the nose and oral pharynx to the vulvar area. \textit{S pyogenes} and \textit{S aureus} are the most common pathogens isolated. It may cause genital pain and pruritus and can mimic candidal or gonococcal vaginitis. A swab of the patient's discharge should be cultured to verify a clinical diagnosis, as well as to exclude a gonococcal infection. Penicillin is the preferred treatment for this condition.

Infectious vaginitis (gonorrhea, chlamydia, trichomonas)

A 5-year-old girl presents with complaints of a large amount of white watery discharge for the past 3 weeks; it has no odor and is not pruritic. It often causes her underwear to feel damp. She has not yet started her menstrual cycle. In adolescent girls, physiologic leukorrhea is the most common vaginal discharge not accompanied by other symptoms. This vaginal drainage increases 6 to 12 months before the onset of menarche. Following the beginning of breast development, estrogen stimulates endocervical mucous production. The vulva is not inflamed, there is no odor, and the pelvic examination is normal. The findings are consistent with physiologic leukorrhea.

### Table 1

<table>
<thead>
<tr>
<th>Type</th>
<th>Etiology</th>
<th>Discharge</th>
<th>Vaginal smear</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonspecific vaginitis</td>
<td>Irritation from bubble baths, perfumed soaps, tight-fitting clothes, back-to-front wiping</td>
<td>Scant to copious foul-smelling discharge, brown to green in color</td>
<td>Leukocytes; bacteria, debris</td>
<td>Improved hygiene</td>
</tr>
<tr>
<td>Streptococcal vaginitis</td>
<td>Streptococcal infection that may accompany or follow a symptomatic strep pharyngitis</td>
<td>Purulent discharge, beefy red vulva</td>
<td>Positive strep culture</td>
<td>Penicillin V; erythromycin</td>
</tr>
<tr>
<td>Physiologic leukorrhea</td>
<td>Endogenous hormones 6 to 12 months prior to menarche</td>
<td>Scant to moderate; clear to white</td>
<td>Normal epithelial cells</td>
<td>None</td>
</tr>
<tr>
<td>Infectious vaginitis (gonorrhea, chlamydia, trichomonas)</td>
<td>Acquired through an infected birth canal (may persist a year or more after birth) or through sexual contact</td>
<td>Profuse; yellow to green</td>
<td>Cultures needed; motile flagellated organisms with trichomonas</td>
<td>Ceftriaxone for gonorrhea; doxycycline or azithromycin for chlamydia; metronidazole for trichomonas</td>
</tr>
<tr>
<td>Foreign body retention</td>
<td>Foul-smelling discharge</td>
<td>Purulent, dark brown, bloody</td>
<td>Leukocytes, epithelial cells</td>
<td>Remove foreign body</td>
</tr>
</tbody>
</table>
and the discharge is nonirritating. It generally disappears when the child’s menstrual cycle has normalized.4

Vaginal foreign bodies

A 7-year-old girl is in the emergency room with her parents. They are concerned because she has had a foul-smelling brown vaginal discharge for the past several days with associated irritation of the vulva. Examination reveals she has a large piece of toilet paper wedged in her vagina.

...with vulvovaginitis, a thorough history includes whether the child wipes from posterior to anterior, wears tight-fitting undergarments, is exposed to vaginal irritants such as bubble baths, has had a recent upper respiratory infection, has a skin condition such as eczema or psoriasis that may involve the vagina, and whether the child might be a victim of sexual abuse.

Although parents will often deny the possibility, vaginal foreign bodies should always be considered when a child presents with persistent, foul-smelling, or bloody discharge. The most common foreign bodies found are wads of toilet paper; marbles, beads, and paper clips also are seen. They can be removed by lavaging the vagina with warm water. The possibility of abuse should be explored. A recent study demonstrated that 8 of 12 girls with vaginal foreign bodies met criteria for sexual abuse.5

Summary

When assessing a patient with vulvovaginitis, a thorough history includes whether the child wipes from posterior to anterior, wears tight-fitting undergarments, is exposed to vaginal irritants such as bubble baths, has had a recent upper respiratory infection, has a skin condition such as eczema or psoriasis that may involve the vagina, and whether the child might be a victim of sexual abuse. In my experience, a complete history and brief external physical examination, rather than laboratory evaluation, are all that are required in the majority of children who have only a slight or mucoid discharge, although a strep culture may be appropriate in the proper clinical context.2

Here are some clinical pearls of wisdom:

- The most common cause of vulvovaginitis in prepubertal females is a nonspecific irritation or inflammation.
- Prepubertal females are more vulnerable to vulvovaginal infections than are pubertal females because they do not have the protective effects of estrogen.
- Children with a visible vaginal discharge are more likely to have a diagnosis with a bacterial etiology.
- Treatment for nonbacterial conditions should include careful hygiene, avoidance of known irritants, and warm baths.

REFERENCES


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Tricky Toxic Presentations at Triage

The clinical presentation of patients exposed to certain common drugs and toxins can be misleading. It is important to remember these “tricky toxic triages” when assessing your patients.

Sustained release medications

Overdoses with sustained-release (SR) calcium channel blockers and β-blockers can cause hypotension and bradycardia that can be refractory to treatment, and the onset of signs and symptoms can be delayed for hours. At our Poison Control Center, we recently managed a case of verapamil overdose in which the patient was asymptomatic for 12 hours after the ingestion and then suddenly became seriously hypotensive and bradycardic. The lesson is that if the patient has ingested an SR calcium channel blocker or β-blocker, he or she may look fine but needs immediate intravenous access, cardiac monitoring, gastric decontamination if appropriate, and admission to a monitored bed.

Toxic in small amounts

The topic of toxicity in small amounts has been discussed before in this Journal, but it is worth mentioning again. Small amounts of some drugs and chemicals can be dangerous to small children. These substances include calcium channel blockers, β-blockers, sulfonylureas, clonidine, SR bupropion, antifreeze (ethylene glycol), and windshield washers/de-icers (methanol). It may be hard to believe that 1 tablet or a small sip of something can pose a serious risk; the situation can be more confusing if the child is asymptomatic in triage. However, if a child has been exposed to one of these drugs or chemicals—even in small
amounts—he or she cannot wait to be seen and needs an immediate bed assignment.

**Herbal medications/over-the-counter medications**

Many people do not consider natural or herbal medications to be drugs, and thus they forget to mention that they are taking them. Some of these products can be seriously toxic, so a patient’s complaints may be the result of something he or she is using but has not told you about. The same is true for over-the-counter (OTC) drugs. We have seen many cases at our Poison Control Center of patients neglecting to tell the ED staff that they have been using large amounts of aspirin or acetaminophen on a chronic basis; they just did not consider them “real” medications. The lesson is that when you are triaging, always ask the patient if they are using any OTC drugs or herbal products.

**Carbon monoxide**

Carbon monoxide produces its effects almost immediately after an exposure, but it can also produce signs and symptoms days and weeks later. The *recurrent syndrome* and *delayed neurologic sequelae* occur after an asymptomatic “dormant” period of 1 to 30 days after an acute carbon monoxide poisoning. The onset can be gradual (recurrent syndrome) or sudden (delayed neurologic sequelae), and the patient’s complaints can mimic a minor carbon monoxide exposure with headache, confusion, and memory problems (recurrent syndrome) or mimic a major exposure with effects such as ataxia, hallucinations, incontinence, nystagmus, and parkinsonism (delayed neurologic sequelae). The lesson is to be aware that the signs and symptoms of carbon monoxide poisoning can return after an asymptomatic period of days or weeks, and they may be more severe than the original exposure. It is important to find out not just what happened today, but what has happened to the patient during the past few weeks. After being treated for acute carbon monoxide poisoning, patients can be taught to watch for returning symptoms.

**Hydrofluoric acid**

Dermal hydrofluoric acid exposures can be tricky to triage. Exposures of as little as 1% body surface area can cause fatal arrhythmias from electrolyte disturbances if the hydrofluoric acid concentration is greater than 50%; few ED nurses would expect serious effects from an acid exposure of 1% body surface area. Also, burns from dilute solutions (<5% to 15%) are usually unimpressive. The affected area may look fine or be only slightly red and swollen, but the patients are in excruciating pain. Even more confusing, it may take 24 hours for the pain to begin after a splash from a dilute solution of hydrofluoric acid. The lesson is that patients who have been splashed with a strong (>50%) solution of hydrofluoric acid need decontamination, *immediate* IV access, cardiac monitoring, and measurement of serum electrolytes and calcium. Be aware that exposure to dilute solutions of hydrofluoric acid can be difficult to assess; the pain may not start until 24 hours after the exposure, and the pain the patient reports will seem out of proportion to the visible burn.

**Metal fume fever**

Metal fume fever is a group of signs and symptoms that is caused by inhaling the fumes produced when galvanized metal is welded or burned. It is a common occupational hazard but is difficult to spot for 2 reasons. First, the signs and symptoms—fever, headache, chills, fatigue—are similar to those of the flu or a viral illness. Second, it is not clear why, but the onset of metal fume fever starts *hours* after the patient has stopped work, making it difficult to connect the exposure with the complaints. It is easy to forget to ask what a patient does for a living and exactly what he or she does while on the job, but this information can be important. Suspect metal fume fever if the patient is a welder and complains of flu-like symptoms.

**REFERENCES**


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

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A young woman trauma patient has arrived in the emergency department (ED). When her clothes are cut off, her breasts and male genitalia are apparent. Will the care she receives be influenced by this discovery? Ideally, gender expression and identity should not make a difference in health providers’ care delivery. But in reality, negative attitudes and lack of knowledge can compromise the care of transgender (TG) patients. What if she were your child? Would you want her to be treated, as any other patient, with dignity and respect? What if she is subjected to ridicule and shame, with inappropriate examinations or inadequate treatment?

“Transgender” is an umbrella term for several distinct but related groups, which include cross-dressers, gender-variant individuals, and transsexuals (TS). Transsexuals often express the feeling of being “trapped inside the wrong body,” and they may undergo medical and surgical treatments (sexual reassignment/transition) to align their outer appearance with their gender identity. “Gender identity” refers to the internal sense of feeling male or female, regardless of biologic sex, and it may be firmly expressed by even very young children. Some TG persons do not completely identify with either gender. Gender expression and gender identity are unrelated to sexual orientation. Transgender people may define themselves as heterosexual, gay, lesbian, or bisexual.

Public policy and legislation affecting TG status and rights vary. To date, six states, 62 cities, and 10 counties have passed laws prohibiting discrimination on the basis of gender identity or expression. Eight states have transgender-inclusive hate crime laws. However, most health insurance policies specifically exclude all procedures related to being TS. In fact, transsexual people are routinely denied health policy coverage solely because they are TS. Even those who...
have insurance coverage may be denied payment for essential health screenings, such as prostate examinations for male-to-female (MTF) persons and pelvic examinations for female-to-male (FTM) persons.

According to a recent study, TG persons frequently encountered humiliating treatment, widespread insensitivity, and discrimination when seeking health care. There was a lack of provider knowledge necessary to adequately treat the routine health issues of TG individuals, who may remain silent about health issues they fear could lead to further stigmatization or loss of insurance. Another study found that MTF persons were more likely to seek care and adhere to human immunodeficiency virus (HIV) antiretroviral therapies when health care providers were perceived to be aware and accepting of sexual and social identity.

**Implications for emergency nurses**

ED clinicians are accustomed to caring for patients who may have stigmatizing conditions and know that patients can end up in the emergency department partly because of limited access to other health care services. Most institutions do not have inclusive policies that recognize or address TG issues, probably simply because of lack of awareness. Transgender persons encounter many of the same challenges and biases when accessing health care as lesbian, gay, or bisexual persons; but their health concerns, especially for transsexuals, may be very different. Although some transitions involve surgery, many involve only hormone use or no medical intervention at all. Many transgender people are seen in the emergency department with the genital characteristics of their birth sex, although they may "pass" in everyday life as the sex to which they have transitioned.

For example, a feminine-appearing 24-year-old patient with severe asthma was placed with three other women in an ED room until it was discovered, during the physical examination, that she had a penis. She was a preoperative transsexual who was taking female hormones. She was immediately moved to a male room, where the other patients called her "babycakes" and "sweetie." She was ridiculed by some of the staff, who referred to her as "pervert" and "freak."

My friend’s son recently went to the emergency department with significant pelvic pain, fever, and excruciating pain with urination. The examining physician was not aware that this masculine-looking fellow was a “transman” (FTM), who injects testosterone but still has female internal organs. He was already undergoing antibiotic treatment for chlamydia and a suspected urinary tract infection (UTI) and had been told by an obstetrics-gynecology nurse practitioner 3 days previously to go to the emergency department if symptoms worsened. During the physical examination, which revealed no penis, the ED physician appeared shocked and embarrassed. An ultrasound of the kidneys and uterus was done, along with a urinalysis and complete blood cell count. Despite the chief complaint of pelvic pain, no pelvic examination was performed in the emergency department. Because of fever, pain, and lack of sleep, he felt powerless to advocate for his own needs and was uncomfortable with how the ED staff reacted to his being trans. He received an intravenous antibiotic for a diagnosis of UTI and was sent home in severe discomfort. Two days later he returned to the nurse practitioner, who examined him and found blisters due to a primary herpes outbreak. Because he still had female reproductive organs, he could have had any related medical problem, ranging from minor irritation to ovarian cancer. A pelvic examination in the emergency department could have helped to detect or rule out a more serious gynecologic condition, such as infection, pelvic inflammatory disease, ovarian cysts, or trauma.

Most TG people remain invisible until a crisis occurs. These crises are not just medical but usually include shunning and further isolation from family and peers. TG individuals may be unemployed and homeless. Denied health insurance, they are unable to afford basic medical and mental health services. Some MTF individuals may resort to sex work to pay for hormones and surgery and may share needles to inject silicone to transform their bodies. They are at increased risk for hepatitis and HIV infection. Other TG health issues, including substance abuse, depression, suicide, and violence from others, are linked to social stigma. All these variables contribute to the vulnerability of TG persons in our health care system.

**Policy and practice recommendations**

Institutional or state level consensus policies should be created with inclusive, gender-sensitive standards related to ED patient placement, communication, and work-up. Explicitly including “gender identity” in organizational
nondiscrimination statements and ED nursing practice guidelines could help raise consciousness and promote openness toward TG patients. It is a myth that TG clients only reside in San Francisco, Seattle, or Boston. However, organizations from these communities, such as the Massachusetts GLBT Health Access Project, Seattle and King County Public Health, Kaiser Permanente National Diversity Council, and the Gay and Lesbian Medical Association, have suggested standards of care and clinical guidelines for TG patients that can serve as a resource. These guidelines, based on awareness, education, and patient advocacy, are an excellent place to start.

Emergency nurses can help create a safe environment through awareness of gender identity issues and related cultural values. Educating all staff, from front desk to executive directors, is the most effective way of ensuring a unified message for welcoming all clients. Education regarding TG patients could be incorporated into cultural diversity training. As health professionals, we must recognize our personal feelings and biases about TG individuals’ motivations or mental status. Assumptions about lifestyle or sexual orientation should be avoided. For example, even after transition, a transgender person may remain with his or her life partner.

Although it may be human nature to be curious regarding the unusual, the emergency nurse can act as the patient’s advocate by guarding the individual’s right to privacy and protecting the patient from harm, including unnecessary examinations or disrespectful treatment. Transgender patients may be sensitive about disrobing for examinations. We can work to ensure that they are treated with dignity and respect and not forced to fit within rigid gender norms. A key recommendation is for clinicians to refer to TG patients by the gender pronoun (he/she) and by the chosen name with which they identify. Take cues from the individual. Intake forms and the patient interview can be adapted to be inclusive of gender variance and alternative family structure. Partners of TG patients should be given the respect usually given to a spouse or relative.

The issue of confidentiality is an important one in health care, but even more so for TG patients. A great deal of worry and effort is expended in “passing” in the new gender. An inadvertent “outing” could cause significant problems with employment and social status, family relationships, and personal safety. Because sexual minority youth are at increased risk for both suicide and abuse, special attention must be paid to the mental health of a TG teenager. ED clinicians can assess the patient’s access to support and offer referrals to appropriate community groups, where available, or to other resources, such as local PFLAG (Parents and Friends of Lesbians and Gays) chapter transgender support groups.

Now, please take a minute to ask yourself this question: how would I want my child to be treated if he or she were transgender? I know that I have a gnawing fear—that some day my own son (who is transgender) could arrive at your emergency department with critical injuries, where he might be the subject of ridicule, or where his treatment could even be delayed. I worry—what if he were unconscious and there was no one to advocate for him? My hope? That emergency nurses will.

REFERENCES
A 46-year-old woman who was struck on the left side of her face with a plate sustained multiple facial lacerations, including a 2-cm full-thickness laceration in her left eyelid. She did not lose consciousness and was able to raise her brows; her sensation was grossly intact. We obtained a computed tomography scan that showed a displaced lateral orbit fracture extending into the sphenoid region (Figure 1). We asked both the plastic surgery and ophthalmology departments to consult on this case. The ophthalmologist carefully opened the patient’s eye lids and found she had a scleral laceration with protruding uvea. She had a fixed, dilated pupil and no light perception. The ophthalmologist was unable to examine her posterior eye because of a hyphema (blood) in the anterior chamber that blocked his view. While in the emergency department, the patient received a tetanus toxoid booster, intravenous antibiotics, and analgesia. The ophthalmologist took her to the operating room, where he repaired her ruptured globe and her lacerations.

**Discussion**

A ruptured globe is a devastating injury with long-term consequences for the patient. A ruptured globe is an open-globe injury caused by a blunt object. The impact of the blunt object causes a sudden increase in intra-ocular pressure and the eye wall gives away at its weakest point, known as an “inside-out” injury. In our patient, the eye wall gave away at the point of the plate impact.

The injured eye must be assessed carefully. One should start by inspecting the lids for lacerations. Four types of lacerations can be problematic and must be assessed by an ophthalmologist: deep lacerations, large lacerations with tissue loss, lacerations extending to the lid...
margin, and lacerations involving the nasolacrimal system. Deep lacerations may indicate eye wall trauma, lacerations with extensive tissue loss and fat prolapse require complex repair, lid margin lacerations also require complex repair to avoid cosmetic deformity, and nasolacrimal system lacerations can cause long-term tearing if not properly repaired.

Assessing the patient’s presenting visual function is a key prognosticator. For the trauma patient confined to a stretcher, a near acuity card should be used. The card should be held about 14 inches from the patient; 14 inches will become the numerator when it is documented. For each eye, the patient should be asked to read the smallest line of print that is legible. If most of the letters on the line are correctly identified, that line should be indicated as the denominator.

If the patient is unable to see the largest number on the acuity card, he or she should be asked to count your fingers, recorded as “CF.” The distance at which the patient was able to successfully count your fingers should be recorded, for example, CF at 3 feet. Finally, if the patient is unable to count your fingers, the patient’s light perception can be tested by shining a bright light directly into his or her eyes. This is recorded as “LP,” for the ability to perceive light, or “NLP,” for no light perception.

If the eyelid is too swollen to open, try passing a penlight over the eye and see if the patient can detect the light and the direction it is coming from. By shining the light in various directions, you are getting a picture of the gross function (or nonfunction) of the retina. If you are unable to gently open the swollen eyelids, stop and wait for an ophthalmologist. If the examiner presses too firmly when trying to open the patient’s swollen lids, the ruptured globe may leak intraocular contents.

Next, check ocular movements by asking the patient to follow your finger as you move from straight ahead, to far right and left, then up and down. Derangements here may indicate an orbital wall fracture. If the patient is unable to complete this test or is uncooperative, try assessing the corneal light reflex. Shine a light from 10 feet into both eyes at the same time and compare the 2 corneal light reflections. With the eyes both looking straight forward, the light reflection should be centered in both eyes.

Finally, inspect the eye for ecchymosis, corneal or scleral laceration, an irregular pupil, or hyphema. A hyphema—blood layering in the anterior chamber—will reduce vision by scattering light entering the pupil. A hyphema can be associated with critically high intraocular pressure, and permanent damage to the cornea and optic nerve can result if treatment is delayed.

These tests are dependent on the patient’s ability to open his or her eyelids. If the eyelid is too swollen to open, try passing a penlight over the eye and see if the patient can detect the light and the direction it is coming from. By shining the light in various directions, you are getting a picture of the gross function (or nonfunction) of the retina. If you are unable to gently open the swollen eyelids, stop and wait for an ophthalmologist. If the examiner presses too firmly when trying to open the patient’s swollen lids, the ruptured globe may leak intraocular contents.

The treatment of an open globe injury, from the ED perspective, is straightforward. First, arrange for an
ophthalmologist consult as soon as possible. Place a shield (not a patch) over the patient’s eye to prevent any further trauma. A fenestrated aluminum shield offers excellent lightweight protection, but a paper cup also can serve in a pinch. The patient should have a tetanus immunization, if indicated. The patient will need excellent systemic analgesia to manage pain; do not use ophthalmic preparations for persons with an open globe injury.

... an early ophthalmologist consult ... [has been recommended] with the following problems: subconjunctival hemorrhage, complex lid laceration, diplopia, infraorbital anesthesia, ptosis, and periorbital ecchymosis.

Two studies suggest that we are not doing a good job making early referrals to the ophthalmologist. To provide the optimal care for the patient and allow for appropriate coordination and timing of interventions, the researchers recommend consulting ophthalmology early. For example, some injuries, such as hyphemas or globe ruptures, must be repaired before the surrounding bones are manipulated, so it is essential to coordinate the procedures. Pelletier and his colleagues recommend an early ophthalmologist consult with the following problems: subconjunctival hemorrhage, complex lid laceration, diplopia, infraorbital anesthesia, ptosis, and periorbital ecchymosis.

Follow up

Our patient had no return of light perception, and her prognosis for sight recovery is poor. The plastic surgery team took her to the operating room a week later to repair her severely depressed orbit fractures. She is now being monitored as an outpatient by the ophthalmologist as well as by a counselor to help her deal with her new disability.

REFERENCES

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

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A 38-year-old Woman With Numb Fingertips, Shortness of Breath, Vomiting, Watery Diarrhea, and Red Swollen Painful Buttock: Are They All Related?

A 38-year-old woman presents to triage complaining of numb fingertips and shortness of breath. She appears anxious and is tachypneic, but her skin color is good. She is encouraged to slow her breathing, and the triage nurse asks her to take a seat in the triage room. The patient has expiratory wheezes scattered throughout both lung fields but is moving air. The triage nurse notes she appears agitated. The patient admits to a history of asthma and has an albuterol inhaler, although she had not used it today. The triage nurse asks when the wheezing began and whether she has any other symptoms. The patient explains that she vomited a couple of hours ago and then had some watery diarrhea. She also feels warm and, by the way, her buttock is red, swollen, and painful. Someone at home told her it looked like she had a spider bite. She does remember being out on the deck a couple of days ago when she felt a pinch to that buttock, but did not think much of it at the time. The patient’s vital signs are as follows: blood pressure, 117/66; pulse, 120; respirations, 28; pulse oximetry, 100% on room air; and temperature, 100.9°F. There is a ready bed, so the triage nurse sends the patient into the main department.

Further assessment of the buttock by the primary nurse reveals a large 8-inch swollen reddened area to her left buttock just lateral to her rectum. There is a central area of bluish-white discoloration. The erythematous area is hard and tender to touch. The patient rates her pain as 6 out of 10. The patient still has expiratory wheezing throughout both lungs, so the physician orders a nebulizer treatment and methylprednisolone sodium succinate (Solu-Medrol) intravenously. The remainder of her examination is within normal limits except that her skin feels hot. A repeat reading reveals that her temperature is now...
The wheezing resolves almost completely after the nebulizer treatment, and an intravenous line is started with normal saline solution to keep the vein open. Solu-Medrol is administered. Acetaminophen is given for her fever, as well as morphine, 2 mg intravenous push, for the pain. The physician orders a complete blood cell count, chemistry panel, and a set of blood cultures.

The patient’s blood tests demonstrate a low potassium level of 2.8 and an elevated white blood cell count of 18,000. The patient remains tachycardic, with a pulse of 130, and her temperature is now 102.4°F. Potassium, 40 mEq, is added to her intravenous fluids, and the rate is increased to 150 hour. Ceftriaxone, 1 g, is given intravenously while the blood cultures are pending.

What do you suspect?

Discussion

The emergency physician obtains a surgical consult. On examination, the surgical attending physician determines there is no deep mass suggesting an abscess. There is no area to incise and drain, and no aspirate on physical examination. A computerized tomography (CT) scan of her pelvis is ordered to look for any deep collection of pus, and the patient is admitted to the hospital.

...the mention of the “pinch” to the buttock and the pain there could have been missed if the triage nurse did not ask, “Do you have any other symptoms?”

During her hospital course, the patient was noted to have a mild anemia with a hematocrit of 34%. All of her iron and bleeding studies came back within normal limits, except for an initial platelet count of 160,000. She continued to require pain medication. After the CT scan showed no evidence of loculation, consultation with an infectious disease physician was obtained. Although her blood cultures came back negative, the infectious disease physician thought the most likely organisms involved were Staphylococcus aureus and Streptococcus pyogenes, so her antibiotic was changed to oxacillin, 2 g every 4 hours intravenously. After 5 days, the patient’s buttock showed some improvement, with the redness and swelling markedly decreased, although the center core was necrotic. After 8 days, she was discharged home with antibiotics to be taken by mouth and follow-up with her primary physician.

Editor’s note

Although it seemed the most likely diagnosis, “Brown Recluse spider bite” was not noted as the diagnosis by the physicians in this case. They would not note this particular diagnosis based simply on wound characteristics, because necrotic wounds can result from a variety of causes. The first teaching point here is the importance of the triage nurse asking the question, “Do you have any other symptoms?” after a patient has described all of his or her complaints. In this instance, the mention of the “pinch” to the buttock and the pain there could have been missed if the triage nurse did not ask, “Do you have any other symptoms?” After ascertaining all symptoms, careful documentation will help the triage nurse to sort through them and determine the patient’s level of acuity.

The second teaching point is that all of a patient’s symptoms need to be considered. Disparate symptoms such as this patient’s can be part of a syndrome, such as a spider bite, or one or more of the symptoms can be unrelated. This is one of the most difficult challenges for triage nurses. Were this particular patient’s symptoms all related? The venom from the spider bite most likely caused the patient’s vomiting, watery diarrhea, and fever. The numbness in her fingers could have been the effects of hemolysis and vasoconstriction, or simply the result of anxiety and hyperventilation. Her wheezing, mild at the time of her presentation, may have been an exacerbation of chronic asthma. All symptoms need to be considered in deciding the acuity level. Although this triage nurse undertriaged the patient as an ESI 4 (needing one resource—most likely she was thinking that would be a nebulizer treatment), as it happened, there was a ready bed, and the patient went directly into the main department, so her care was not delayed.

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

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CE Earn up to 9 Contact Hours by Reading the Designated Articles and Taking These Post Tests

TAKE 1, 2, OR 3 TESTS TO RECEIVE CONTINUING EDUCATION (CE) CREDIT. SEE INSTRUCTIONS BELOW.

1. After reading the articles, darken the appropriate circles on the answer sheet on page 420 (or a photocopy). Each question has only 1 correct answer.
2. Review learning objectives on this page and complete the registration information and program evaluation* on the answer sheet.
3. Send the answer sheet with your registration fee to: Continuing Education Group, Lippincott Williams & Wilkins, 333 7th Avenue, 19th Fl, New York, NY 10001.

Within 6 weeks after Lippincott Williams & Wilkins receives your answer sheet, you will be notified of your test results. If you pass, Lippincott Williams & Wilkins will send you a CE certificate indicating the number of contact hours you have earned. If you fail, Lippincott Williams & Wilkins gives you the option of taking the test again at no additional cost. All answer sheets for this test must be received by August 31, 2007.

This continuing nursing education (CNE) activity is provided by Lippincott Williams & Wilkins, which is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center’s Commission on Accreditation and by the American Association of Critical-Care Nurses (AACN 00012278, category O). This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP11749, for the indicated contact hours. Lippincott, Williams & Wilkins is also an approved provider of CNE in Alabama, Florida, and Iowa and holds the following provider numbers: AL#ABNP0114, FL#FBN2454, and IA#75. All of its home study activities are classified for Texas nursing continuing education requirements as Type I.

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 OBJECTIVES—RESEARCH (CONTACT HOURS 3.5; FEE $23.60)

After reading these articles and taking this test, you will be able to:
1. Discuss research that identified factors that increase hemolysis in blood samples drawn from newly placed IV sites.
2. Discuss the recent changes to the Emergency Severity Index Version 4.

LEARNING OBJECTIVES—CLINICAL (CONTACT HOURS 3.5; FEE $23.60)

After reading these articles and taking this test, you will be able to:
1. Describe the characteristics and treatment for various types of vulvovaginitis.
2. Discuss the case of a 38-week pregnant woman with a prolapsed umbilical cord.
3. Describe appropriate triage techniques for patients exposed to toxins.
4. Explain the assessment of and treatment for a patient with a ruptured eye globe injury.

LEARNING OBJECTIVES—PROFESSIONAL/ADMINISTRATIVE (CONTACT HOURS 2.0; FEE $14.95)

After reading this article and taking this test, you will be able to:
1. Summarize what is known about the factors influencing injury and illness rates at mass gatherings and apply this information in planning for health services delivery.
2. Discuss the results of a hospital-based injury prevention program for first-, second-, and third-grade students.

*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

Factors Affecting Hemolysis Rates in Blood Samples Drawn from Newly Placed IV Sites in the Emergency Department (pp. 338-45)

1. Clinically meaningful blood draw factors associated with hemolysis rates include
   A. blood tube size 3.0 mL.
   B. blood draws by practical nurses.
   C. IV placement sites on the right side.
   D. lack of resistance when aspirating blood using a syringe.

2. The results of the study underscore the
   A. consideration for implementing a phlebotomy certification program.
   B. consideration for regular competency testing for staff with phlebotomy responsibilities.
   C. need to limit the role of patient care technicians for performing blood draws.
   D. need to limit the role of newly licensed registered nurses for performing blood draws.

3. According to this author, patient factors that may contribute to hemolysis of blood samples include
   A. dehydration.
   B. hypertension.
   C. being left-handed.
   D. being over the age of 65.

4. Method and/or equipment factors that may contribute to hemolysis of blood samples include
   A. overfilling the blood tubes.
   B. shaking the blood tubes sluggishly.
   C. pulling a syringe plunger back too slowly.
   D. not allowing the alcohol to dry when prepping the skin.

5. Which of these statements about blood draw practices is correct?
   A. Higher hemolysis rates have been attributed to drawing blood from a straight needle.
   B. Higher hemolysis rates have been attributed to drawing blood from a newly placed IV site.
   C. Lower hemolysis rates have been attributed to blood draws by patient care technicians.
   D. Lower hemolysis rates have been attributed to the years of experience of the health care provider.

6. Which of these recommendations for improving the blood draw standard operating procedure was made by a clinical resource nurse consultant?
   A. placing extension tubing on the end of the IV catheter
   B. increasing the tourniquet time to at least 1 full minute
   C. using a blood pressure cuff inflated to 300 mm Hg as a tourniquet
   D. placing a warm soak on the extremity for 3 minutes before drawing blood.

7. After the phlebotomy equipment and evaluation and phlebotomy classes, the average number of monthly hemolyzed samples
   A. increased by 13.3%.
   B. increased by 19.5%.
   C. decreased by less than 25%.
   D. decreased by more than 50%.

8. The author recommends further research on hemolysis of blood samples
   A. collected using a Vacutainer blood-collecting tube.
   B. collected between 12:01 AM and 5:59 AM.
   C. drawn from IV sites difficult to obtain.
   D. drawn from IV placement sites on the right hand/forearm.

9. Which of the following discharge diagnoses categories was associated with a higher incidence of blood sample hemolysis?
   A. psychiatric
   B. respiratory
   C. cardiovascular
   D. infectious disease

10. Which size tube was associated with the highest hemolysis rates?
    A. 6.0 mL
    B. 5.0 mL
    C. 4.5 mL
    D. 3.0 mL

11. Which tube color was associated with the lowest hemolysis rates?
    A. blue
    B. green
    C. lavender
    D. gold red/marble
12. As a result of this study, which standard operating procedure for this emergency department was modified?
   A. limiting IV insertion attempts to one
   B. eliminating the use of 3.0-mL blood tubes
   C. eliminating the use of a 22-gauge or smaller IV catheter in adults
   D. limiting the number of IV insertions between 12 midnight and 5:59 AM

The Emergency Severity Index Version 4: Changes to ESI Level 1 and Pediatric Fever Criteria (pp. 357-62)

13. The ESI research team agreed that the ESI level 1 criteria algorithm should be based on the answer to the question
   A. “Is the patient dying?”
   B. “Is this a high-risk situation?”
   C. “Does this patient appear to be in severe distress?”
   D. “Does this patient require immediate life-saving intervention?”

14. ESI Version 4 requires that an infant less than 28 days old with a fever of 100.4°F (38.0°C) be assigned to at least ESI level
   A. 1.
   B. 2.
   C. 3.
   D. 4.

15. ESI level 1 criteria is met by the patient
   A. with a history of asthma, who has an SPO₂ of 82%, and who is being prepared for intubation.
   B. who takes a prescribed β-blocker and currently has a heart rate of 61 beats/min and a blood pressure of 82/60 mm Hg.
   C. who receives continuous ambulatory peritoneal dialysis, who has a temperature of 102.6°F, and who is reporting abdominal pain.
   D. with diabetes mellitus type 2 who is reporting nausea and vomiting and has a blood sugar of 62 mg/dL.

CLINICAL TEST QUESTIONS

A 38-week Pregnant Woman With a Prolapsed Umbilical Cord (pp. 363-5)

1. At greatest risk for an umbilical cord prolapse is the woman who
   A. is primiparous and is at 43 weeks gestation.
   B. is over the age of 35 years and has decreased amniotic fluid.
   C. has gestational diabetes and is carrying a large-for-gestational age fetus.
   D. has spontaneous rupture of the membranes before engagement of the presenting part.

2. Which of the following nursing interventions should be performed when caring for a woman with umbilical cord prolapse?
   A. Cover the exposed cord with iced saline solution.
   B. Place the woman in the lithotomy position.
   C. Place the woman in a steep Trendelenburg’s position.
   D. Encourage the woman to push during each contraction.

3. Which of the following is evidence of a potentially viable newborn infant?
   A. a moist cord
   B. a pulsating cord
   C. a nonvariable fetal heart rate
   D. a decelerated fetal heart rate

Vulvovaginitis and Vaginal Discharge in the Pediatric Patient (pp. 402-4)

4. The most common cause of vulvovaginitis in prepubescent females is
   A. sexual abuse.
   B. nonspecific irritation.
   C. Staphylococcus aureus.
   D. progesterone production.

5. A common treatment for streptococcal vaginitis is
   A. ceftriaxone.
   B. ciprofloxacin.
   C. penicillin V.
   D. trimethoprim.
6. You should suspect the presence of a vaginal foreign body in a child who presents to the ED with
   A. large amount of white watery discharge.
   B. thick yellow vaginal drainage and vaginal redness.
   C. vaginal discharge not accompanied by other symptoms.
   D. foul-smelling, bloody discharge and vaginal irritation.

7. What is the recommended treatment for nonspecific vaginitis?
   A. metronidazole
   B. improved perineal hygiene
   C. no current treatment is available
   D. warm, soapy baths twice a week

8. Which of these questions would be essential to ask when obtaining a history from a child with symptoms suggestive of vulvovaginitis?
   A. “Tell me how you wipe yourself when you go to the bathroom.”
   B. “Do you wash your hands with soap and water after you go to the bathroom?”
   C. “Does your child have a history of glomerulonephritis?”
   D. “Has your child had a temperature greater than 102°F within the past few days?”

9. When caring for a patient who overdosed with a sustained-release calcium channel blocker and is asymptomatic you should
   A. obtain immediate IV access.
   B. prepare the patient for hemodialysis.
   C. teach the patient when to return to the emergency department.
   D. closely monitor the patient’s temperature.

10. An immediate bed assignment would be required for a child who has ingested a very small amount of
    A. lanoxin.
    B. warfarin.
    C. clonidine.
    D. theophylline.

11. You should suspect delayed neurologic sequelae in a patient who sustained carbon monoxide poisoning 2 weeks ago and is currently reporting
    A. headache.
    B. memory problems.
    C. a sudden onset of ataxia.
    D. a gradual onset of confusion.

12. Which of these statements about hydrofluoric acid exposures is correct?
    A. The pain may not start until 24 hours after the exposure.
    B. A burn from a 10% solution should be treated as a strong solution.
    C. A burn from dilute solutions is likely to cause fatal arrhythmias.
    D. The burn is likely to look much worse than the amount of pain reported by the patient.

13. You should suspect metal fume fever in a patient who
    A. works as welder and complains of flu-like symptoms.
    B. works as a jeweler and has a fever of unknown origin.
    C. was exposed to asbestos and is reporting shortness of breath.
    D. was exposed to hydrofluoric acid and has developed an arrhythmia.

14. Which of these statements about a ruptured globe eye injury is correct?
    A. It is caused by a blunt object.
    B. It is known as an “outside-in” injury.
    C. It results from a sudden decrease in intraocular pressure.
    D. It must be repaired after the surrounding bones are manipulated.

15. Which of the following visual function assessments for a patient with a ruptured globe injury who is confined to a stretcher is appropriate?
    A. Place the stretcher 20 feet from the eye chart and instruct the patient to read the smallest line of print.
    B. Instruct the patient to count your fingers if the patient is unable to see the largest number on the acuity card.
    C. Place a pinhole in a piece of paper and ask the patient to describe what is seen when looking through the hole if the patient is unable to count your fingers.
    D. Instruct the patient to look at the center of a grid where a dot is present and to take notice of any distortion or disappearance of lines on the grid.

16. Which of the following treatments should you anticipate for a patient with a ruptured globe eye injury?
    A. patching the affected eye
    B. placing a shield over the affected eye
    C. irrigating the affected eye with normal saline solution
    D. applying ophthalmic ointment into the affected eye
PROFESSIONAL/ADMINISTRATIVE QUESTIONS

Planning Medical Coverage for Mass Gatherings in Australia: What We Currently Know (pp. 346-50)

1. Of the patients requiring acute intervention at a mass gather in Australia, the most common complaint is
   A. asthma.
   B. sunburn.
   C. chest pain.
   D. dehydration.

2. What is the principal contributing factor to casualty load?
   A. weather
   B. type of event
   C. crowd size
   D. use of alcohol

3. Which of these standards for patient care services at mass gatherings is recommended by Sanders et al?
   A. advanced life support within 2 minutes
   B. basic first aid within 4 minutes
   C. triage within 15 minutes
   D. evacuation to a medical facility within 60 minutes

4. Given the types of treatment required, at mass gatherings it is essential to have the majority of staffing consist of
   A. nurses.
   B. ambulance officers.
   C. medical practitioners.
   D. basic first aid personnel.

5. An Interactive, Hospital-based Injury Prevention Program for First-, Second-, and Third-Grade Students (pp. 383-7)

   5. The ThinkFirst for Kids program had the biggest impact on children’s increase in knowledge about
      A. brain injury.
      B. water safety.
      C. bicycle safety.
      D. school bus safety.

   6. As a result of the ThinkFirst for Kids program, preliminary data from the Level One Trauma Center revealed pediatric neck and head injuries have
      A. increased.
      B. decreased.
      C. remained the same for males and decreased for females.
      D. remained the same for females and increased for males.

7. After the ThinkFirst for Kids program, the highest scores for safer behavior were noted
   A. in first graders.
   B. in second graders.
   C. in third graders.
   D. to be the same for all three groups.

8. Which of these statements about second graders is correct?
   A. They were least likely to wear a helmet before the program.
   B. They were least likely to wear a helmet after the program.
   C. They had the greatest overall improvement in negative behavior.
   D. They had the lowest overall improvement in negative behavior.

9. Which of these statements about specific safety knowledge is correct?
   A. All groups had similar increases in knowledge after the program.
   B. All groups had the highest knowledge deficit regarding water safety before the program.
   C. Third graders’ knowledge was least affected by the program.
   D. Third graders had the highest knowledge deficit before the program.
CE ENROLLMENT FORM

August 2005 issue—Journal of Emergency Nursing
Expiration Date: August 31, 2007
CEN-RO Category: Clinical
CE credit 3.5 contact hours research; 3.5 contact hours clinical; 2.0 contact hour professional/administrative.
Fee: $23.60 research; $23.60 clinical; $14.95 professional/administrative
To receive continuing education credit for this issue, simply do the following:
1. Read the articles.
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Program evaluation:
Please rate this CE material by darkening the appropriate circles below:
1. Did this CE activity’s learning objectives relate to its general purpose?
   Research O Yes O No
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Instructions: Darken only one circle for your answer to each question.

RESEARCH (11 correct answers needed to pass)
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   O d O d O d O d O d O d O d
   O b O b O b O b O b O b O b
   O c O c O c O c O c O c O c
   O d O d O d O d O d O d O d
15. O a
   O b O c O d

CLINICAL (12 correct answers needed to pass)
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   O c O c O c O c O c O c O c
   O d O d O d O d O d O d O d
   O b O b O b O b O b O b O b
   O c O c O c O c O c O c O c
   O d O d O d O d O d O d O d
15. O a 16. O a
   O b O b O c O c
   O d O d

PROFESSIONAL/ADMINISTRATIVE (7 correct answers needed to pass)
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   O c O c O c O c O c O c O c
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8. O a 9. O a
   O b O b O c O c
   O d O d

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FEES AND CONTACT HOURS LISTED ABOVE
ENA JOINS WITH ACEP AND HEADS FOR THE HILL

Save the Date—Tuesday, September 27, 2005—and Save America’s EDs.

Join thousands of emergency physicians and nurses in a call on Congress to save America’s EDs. ENA President Patricia Howard Kunz will be among the speakers at the rally.

Make sure you’re represented among the sea of white coats and scrubs on the west lawn of the Capitol at 10 AM and make this a memorable and historic event. Special Emergency Nurse buttons will be provided. Significant media outreach is under way.

Get a car pool together. Bring your white coat. Bring the family and head for the Hill!


CEN, CFRN EXAMS SCHEDULED FOR NASHVILLE

The Board of Certification for Emergency Nursing (BCEN) will administer a paper-and-pencil version of the CEN and/or the CFRN exam on Friday September 16, 2005, in Nashville, Tennessee, during the ENA Annual Meeting September 15-17, 2005. Request an application on-line at www.ena.org/bcen or call the BCEN office at (800) 900-9659, ext. 2630. Submit your application either for the paper-and-pencil exam scheduled for Friday September 16, 2005, in Nashville or for the computer exam. For the paper-and-pencil exam in Nashville, you MUST include a note with the application requesting the Nashville paper-and-pencil exam. There is a 90-day window to schedule and complete the computer exam. Log in at www.ena.org/bcen/cen/AlternateTestSites.asp for information.

INTERNATIONAL FACULTY POSITIONS OPEN

Nurses from Italy, Portugal, Israel, and Singapore are interested in bringing the Trauma Nursing Core Course (TNCC) and Emergency Nursing Pediatric Course (ENPC) to their countries to help improve patient care. If you are TNCC or ENPC faculty and want to be considered for a faculty position, submit a letter of interest describing your ENPC/TNCC teaching history, international travel and teaching experience, and foreign language skills, along with a current curriculum vitae to: Emergency Nurses Association, 915 Lee Street, Des Plaines, IL 60016, ATTN: Donna Massey, Education Officer, or e-mail this information to dmassey@ena.org.

CALL FOR ABSTRACTS FOR LEADERSHIP CHALLENGE 2006

Abstracts on research and management topics are being accepted through September 15, 2005. For complete details visit www.ena.org/research/abstracts, call (800) 900-9659, ext. 4119, or e-mail abstracts@ena.org.

NATIONAL NURSES SURVEY ON HEALTH AND CHEMICAL EXPOSURES

ENA members are invited to complete the National Nurses Survey on Health and Chemical Exposures. This collaborative environmental health initiative is sponsored by Health Care Without Harm (HCWH), the American Nurses Association (ANA), and the University of Maryland School of Nursing. The online instrument can be found at http://www.ewg.org/sites/nurse_survey/.

The survey explores the relationship between a nurse’s health and on-the-job exposures to chemicals, drugs, and other harmful agents. Over a period of several months, nurses will be able to enter information on-line about their workplace experiences and exposures. They will also be able to download information related to hazardous substances and alternative products. Once the data collection period is completed, findings will be analyzed by environmental scientists and nurses and disseminated to the profession.

For additional information on this project, contact Karen A. Ballard, MA, RN; HCWH’s Nurses Workgroup at (518) 469-0474 or KBallard@nyc.rr.com.

RETIRED EMERGENCY NURSES FORMING SPECIAL INTEREST GROUP

Linda Yee, RN, MSN, CEN, and Joanne Fadale, RN, BSN, need your help in forming a Special Interest
Group (SIG) for retired emergency nurses. Go to www.ena.org/SIGs for more information.

NURSES LIGHT THE WAY TO ENVIRONMENTAL HEALTH

The Luminary Project—Nurses Lighting the Way to Environmental Health is a new collaborative environmental health initiative of Health Care Without Harm (HCWH), the American Nurses Association (ANA), and the University of Maryland School of Nursing. The Luminary Project is a Web-based collection and sharing of illuminating stories of nurses who protect people’s health by improving the health of the environment. These Luminary Nurses will be recognized and their stories told to provide models and mentorship for other nurses with a shared sense of concern about environmental health issues. Strategic tools and resource materials used by the Luminary Nurses are available for downloading by those who access the Web site. For more information about this project and how you can submit stories and become a Luminary Nurse, visit www.TheLuminaryProject.org or contact Marjorie Buchanan, MS, RN, Project Coordinator, The Luminary Project, (410) 829-2862 or E-mail mbuchana@ana.org.
Coming Meetings

### SEPTEMBER 2005

**2005 ENA Annual Meeting**
September 14-17, 2005, Opryland Hotel and Convention Center, Nashville, Tenn. 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.

**Certified Forensic Nurse (CFN) Training & Certification Review Course**
September 30-October 1, 2005, Manchester Grand Hyatt, San Diego, Calif. Sponsor: American College of Forensic Examiners Institute (ACFEI). Contact: ACFEI. Phone: (800) 423-9737; E-mail: cao@acfei.com; Web site: www.acfei.com.

### OCTOBER 2005

**5th International Conference for Emergency Nurses**

### 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: lkosis@montefiore.org.

**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; Web site: www.injurypreventionconference.ca.

### FEBRUARY 2006

**ENA Leadership Challenge**
February 23-26, 2006, Austin, Tex. 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.

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- ENA-sponsored meeting.