



## ED nurses made 54% of drug errors — You're the 'last safety net' for patients

*Very few checks and balances for emergency nurses*

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A patient is mistakenly given tenectapase, an investigational drug, due to it being a “look-alike,” with proper protocols not followed. Another patient who has cardiac disease is given an inappropriate dose of intravenous metoprolol with a nitroglycerin patch also administered. For another patient, a tenfold overdose of anagrelide, erythromycin, and proparacain is given, due in part to poor lighting.

All of these patients died as a result of ED medication errors involving nurses, according to a recent study which analyzed 13,932 errors from 496 EDs. ED nurses were responsible for 54% of errors, with most involving incorrect doses or incorrect medications being given — either a medication that wasn't ordered was given, or a medication that was ordered wasn't given.<sup>1</sup>

Emergency nurses made a larger percentage of errors “only because they are the last safety net on the front lines of medication administration,” says **Julius Cuong Pham, MD, PhD**, the study's lead author and assistant professor of the Department of Emergency Medicine at Johns Hopkins University School of Medicine in Baltimore. “Physicians or pharmacists aren't administering medications. Nurses are the ones administering them, so that is why these errors are falling onto their laps.”

Pham says crowding was a factor in many of the drug errors. Two-thirds of 3,562 emergency medicine clinicians surveyed said that nursing staff in their EDs is insufficient to handle patient loads during busy periods, according to a just-published study funded by the Agency for Healthcare Quality and Research.<sup>2</sup>

### EXECUTIVE SUMMARY

Nurses made more than half of 13,932 drug errors analyzed in a recent study, with most involving incorrect doses or incorrect medications being given. Nurses are the ones administering medications and have few “checks and balances,” says the study's author.

- Double-check all intravenous drips, not just high-risk, low-volume drugs.
- Limit choices by using order sets with specific criteria for drugs and dosages, standardizing dosages, and storing medications in unit doses.
- Require nurses to program dosages using the smart pump's drug library.

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“Nurses have a lot of patients they have to take care of, and they are overworked,” says Pham. “This burden falls upon our nurses, and we ask a lot of them. In no sense should we interpret this data that nurses are more error-prone than physicians.”

As an emergency nurse, years ago, “it used to be that your repertoire was about 10 or 15 drugs, and you just gave them over and over again,” says **Libby Raetz**, RN, director of the ED at Saint Elizabeth Regional Medical Center in Lincoln, NE. “Now we have hundreds of medications, all with different dosages, complications, and interactions. It’s just not easy work to keep it all straight. It’s very convoluted and complex.” (See **related stories on preventing confusion with drug dosages and practice changes ED nurses have made to prevent drug errors, p. 39.**)

The study sends a message that if any changes are

made to improve ED medication safety, they should focus on the emergency nursing role “to help assist nurses to do the enormous job that they are expected to do,” says Pham. “As a physician, an error I make gets caught by a pharmacist, a technician, or a nurse. But for nurses, there are very [few] checks and balances.”

By using ED nursing protocol order sets, nurses at Saint Elizabeth Regional Medical Center in Lincoln, NE, can start patients on certain medications, such as ibuprofen for pain, with less risk of a dosage error, says Raetz. “We have limited choice. Nurses no longer need to ask, ‘Is it morphine or [hydromorphone hydrochloride]? Or, ‘What’s the dose on that?’ We have narrowed the scope so you don’t have 100 things to memorize,” she says. “The protocols are consistent, so people have learned them.”

If patients have a certain complaint and they meet the criteria, a specific medication and dose is given — always. “I think that when you have a lot of variability, that’s when you get into trouble,” Raetz says.

ED physicians no longer have to enter orders, because the protocol is very explicit for what is given to the patient, she adds.

Another change involved standardizing the dosage of norepinephrine for septic patients. Previously, the ED ordered this in micrograms per minute, while inpatient units delivered the drug in micrograms per kilo per minute. “We had a couple of near misses due to the difference,” says Raetz. “We started the patient on micrograms per minute and when we took them up to the floor, they thought it was micrograms per kilo per minute.”

To eliminate the potential for this handoff error, a standardized dose now is used of micrograms per kilo-gram per minute, so no new orders or recalculations are needed.

The strengths of heparin stored in the ED also were limited. “If we need a different strength, we have to call our pharmacy for it,” says Raetz.

At Presbyterian Hospital, Charlotte, NC, medications are stocked in “unit dose” containers whenever possible, says **Matt Lowery**, RN, ED nurse manager. “This means that medications are packaged as close to a usual dose form as possible,” says Lowery. “Medications are stocked in the usual appropriate concentration for administration. Any variance from the usual is clearly flagged for the nurse.”

## References

1. Pham JC, Story JL, Hicks RW, et al. National study on the frequency, types, causes, and consequences of voluntarily reported emergency department medication errors. *J Emerg Med* 2008. In press. Doi:10.1016/j.jemermed.2008.02.059.
2. The safety of emergency care systems: Results of a national survey of clinicians in 65 U.S. emergency departments. *Ann Emerg Med* 2008. In press. doi:10.1016/j.annemergmed.2008.10.007. ■

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Editor: **Stacey Kusterbeck**.

Associate Publisher: **Coles McKagen**

([coles.mckagen@ahcmedia.com](mailto:coles.mckagen@ahcmedia.com)).

Senior Managing Editor: **Joy Daughtery Dickinson**

([joy.dickinson@ahcmedia.com](mailto:joy.dickinson@ahcmedia.com)).

Senior Production Editor: **Nancy McCreary**.

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### Editorial Questions

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# Take these 6 actions to stop ED drug errors

Here are some practice changes that ED nurses have made to improve safety of medication administration:

## 1. All intravenous drips are double-checked by nurses.

In addition to double-checking high-risk, low-volume drugs, ED nurses at Saint Elizabeth Regional Medical Center in Lincoln, NE, also double-check the order, rate, and patient for all of the intravenous (IV) drips hung, including insulin, dopamine, nitroglycerine, and mannitol.

“When you give insulin subcutaneously, nursing 101 always is to double-check with another nurse,” says **Libby Raetz**, RN, director of the ED. “We are now double-checking anything we are going to drip for a period of time.”

## 2. Nurses use smart pumps to program dosages.

At Saint Elizabeth, ED nurses are required to program the smart pump before administering intravenous drugs, using the pump’s drug library. However, when a compliance audit was done, it was discovered that in some cases nurses were bypassing the pump and setting the rates themselves. “Nurses said, ‘We know how to do that,’ or ‘It takes longer to do it this way.’ Some didn’t have a reason, they just didn’t do it,” Raetz says.

The nurses were reminded of the potential for disciplinary action for failing to program a drug into the IV pump prior to administration. “This is hospital policy now. It’s not ‘Please,’ or ‘Would you?’ It’s ‘You must.’ When you have equipment and safety parameters put in place, you’ve got to use your tools to ensure patient safety,” says Raetz.

## 3. IV solutions containing medications are separated from general IV solutions.

These IV solutions include mannitol, heparin, dopamine, and nitroglycerin. “We put them in a specially labeled cupboard so there is no confusion. No one can accidentally grab something with meds in it,” says Raetz.

## 4. Verbal orders are no longer used.

“We have virtually eliminated verbal orders in our ED,” says **Matt Lowery**, RN, ED nurse manager at Presbyterian Hospital in Charlotte, NC.

“Any verbal order taken is written, read back, and affirmed with the provider prior to administration in all but the most emergent situations,” says Lowery. “Phone orders are minimized and taken using the same protocol.”

## 5. Low-frequency, high-risk medications are reviewed on a regular periodic basis.

“Any new medication introduced to the department

is covered by our educators to ensure staff is familiar with the med,” says Lowery. These methods are used:

- ED nurses attend periodic inservices on the latest data and indications.
- A unit-based educational team produces computer-based educational modules.
- Staff members are required to attend a “skills fair” on a regular basis, covering medication administration and protocols.
- Lunch and learn sessions are given by medical and pharmacy staff.

## 6. Nurses are alerted about actual medication errors.

If an ED medication error is reported in the news, the article is posted on a bulletin board for nurses to read, “as well as any other head-turning information related to medication safety,” says Raetz. For example, the ED recently posted an article about an incident involving an emergency nurse whose stroke patient died after tenecteplase was administered instead of tissue plasminogen activator.

“Just the article posted on the board has spurred a lot of communication and a big debate in our ED about how the error occurred — whether it was a mix-up of acronyms or a true misunderstanding about which drug should have been given,” she explains. “I think it made everyone realize that in a situation like that, they need to be willing to pause and ask the question, ‘Is that what you really meant?’” ■

## CLINICAL TIPS

### Install lock boxes in ED treatment rooms

Previously, if an ED nurse at Saint Elizabeth Regional Medical Center in Lincoln, NE, didn’t use all of a titrated syringe, it was usually left out on the counter, which is a potential hazard, says **Libby Raetz**, RN, director of the ED. These medications, including morphine, lorazepam, and hydromorphone hydrochloride, are now put into a lock box.

“This is especially important if you need to leave the room, if there are kids in the room, or your patient has a history of IV drug abuse,” says Raetz. ■

# Is your 'low-acuity' patient at risk during long waits?

*Impaired patients will need additional care*

If a patient comes to your ED with a fractured wrist, you'd probably triage them as low acuity based solely on their chief complaint. But what if this patient is also confused, irrational, or mentally impaired? For these cases, there is a hidden danger: Your patient needs to be kept safe while waiting for treatment.

"Older patients with cognitive impairment, anxiety, or aphasia potentially strain nursing ratios in ways that are not fully captured by considering patient severity alone," says **Mary Carter**, PhD, an associate professor with the Center on Aging at the West Virginia University School of Medicine in Morgantown.

For example, an older adult with dementia who comes to your ED unattended and is able to ambulate "poses a significant challenge to patient care that currently is simply not captured by current staffing ratio estimates," she says.

This patient is put at risk while waiting for care as ED nurses turn their attention to more severe cases, notes Carter. Crowding adds to the risks, with only one-third of 3,562 emergency medicine clinicians surveyed reporting that patients in their ED's waiting rooms are monitored often, according to a study funded by the Agency for Healthcare Quality and Research.<sup>1</sup>

If a patient comes in for a cough, upper respiratory infection, urinary tract infection, or swelling of the ankles, but also is confused, elderly, mentally challenged, or has another condition that impedes rational behavior or judgment, then this patient requires special care, says **Rosemary Lowry**, MSN, APRN-BC, nurse practitioner/manager of the ED at Providence Hospital in Southfield, MI.

## EXECUTIVE SUMMARY

Even if your patient has a low-acuity illness or injury, he or she could be put at risk during waiting periods if they also have anxiety, aphasia, or cognitive impairment. To reduce risks:

- Have patients don a hospital gown so they are easily identifiable.
- Place the patient near a nursing station.
- Inform clinical staff that the patient may have some deficits.

"We will bring them into the treatment area and have a patient advocate or clinical tech keep a special eye on them," says Lowry. "While clinically the condition might not warrant such attention, we are mindful that when treating patients holistically, one must take this into account." (See story on keeping patients at risk in close proximity, below.)

Recently, a young man with an exacerbation of asthma was dropped off by the leaders of a group home for developmentally slow young adults. "The problem was the patient had lost his rescue inhaler and would not have had to seek treatment if he had the inhaler," says Lowry. "At first, he was not in any distress, and therefore was triaged as nonemergent."

After probing further, the triage nurse thought that the man should not be unsupervised while waiting for medical treatment. Lowry, who was the charge nurse at the time, put the patient right in front of the nurse's station. "We gave the patient 'busy work' such as folding washcloths and were able to keep him in one place."

## Reference

1. The safety of emergency care systems: Results of a national survey of clinicians in 65 U.S. emergency departments. *Ann Emerg Med* 2008. In press. doi:10.1016/j.annemergmed.2008.10.007. ■

## You may need to keep a patient in close proximity

If you are worried about a patient with a low acuity triage because he or she is impaired, put him or her close by and alert the clinical staff that you suspect the patient has some deficits.

"The worse that can happen is that you are wrong," says **Rosemary Lowry**, MSN, APRN-BC, nurse practitioner/manager of the ED at Providence Hospital in Southfield, MI. "In the meantime, you are advocating for that patient."

Here are three ways you can ensure the safety of these patients, says **Herb Perry**, RN, an ED nurse at Long Island College Hospital in Brooklyn, NY:

- Place the patient on a 1-to-1 observation to prevent elopement or further injury. "In many EDs, however, additional staffing for this purpose is not always available," notes Perry.
- Place the patient close to the nursing station for enhanced observation.
- Change the patient into a hospital gown so he or she is easily identifiable by security.

Perry gives the example of a patient with a minor laceration requiring sutures who would most likely be

triaged as low acuity and have to wait to be seen. However, if the patient also is an insulin-dependent diabetic who took his insulin that morning, but didn't eat because of the laceration, that is a different situation.

"Such a patient has the potential to become critically hypoglycemic if unnoticed," says Perry. "It is hoped that the triage nurse would ask the appropriate questions while taking the patient's medical history. But the reality is that patients often omit crucial information until they are seen by the doctor."

Long Island College's ED has a policy that all patients go "inside" to be seen immediately after triage, instead of the waiting room. In the above patient's case, this would mean that the potential hypoglycemia would be "instantly noticeable," says Perry.

The policy also makes patients feel they are being seen more quickly. "If a lengthy wait is still required, he can see for himself that staff is busy taking care of patients truly more sick than he is," says Perry. ■

## Young children with asthma more likely to revisit EDs

*An asthma action plan is needed*

Children under 2 years old with asthma are more likely than other children to return to the ED within seven days, according to a recent analysis of 4,228 visits.<sup>1</sup>

"ED nurses may want to spend additional time with parents of younger children to ensure they are comfortable with identifying asthma symptoms and can manage them effectively," says **Christine M. Walsh-Kelly, MD**, the study's lead author and associate professor of pediatrics at the Medical College of Wisconsin in Milwaukee.

These patients may not even have a definitive asthma diagnosis, says **Cindy Debiak, RN, BS, CPN, SANE-A**, pediatric coordinator for the ED at Helen DeVos Children's Hospital in Grand Rapids, MI. "Young children don't have enough of a history that documents an asthma diagnosis. There are so many potential diagnoses of a young child presenting with breathing problems. We are often left to manage their current symptoms when what's really needed is a long-term care management plan," she reports.

To improve care of these patients, consider these items:

- **Children normally have much smaller airways than adults.**

**Rosie Rodriguez-Henderson, RN, MHL**, advanced

### EXECUTIVE SUMMARY

Children under 2 years old with asthma are more likely to return to the ED within seven days than older children. To improve their care:

- Remember that children have much smaller airways.
- Ask parents to repeat information back to you.
- Advocate for a consult with a respiratory therapist.

clinician in the pediatric ED at Baptist Children's Hospital in Miami, says, "This is very important to keep in mind and is a major difference between the adult and the child. The smaller the child, the smaller the airway."

Remember that children's airways are different from adults, says Rodriguez-Henderson. "Continuously assess and reassess for improvements or deterioration in the child's respiratory status," she says. "Use pulse oximetry to monitor oxygen levels in the body, and intervene as needed when the child's respiratory status declines." (See related story on keeping children calm during assessments, p. 42.)

- **Review the treatment plan upon discharge.**

"Encourage questions. Ask the parents, or child, if age-appropriate, to repeat the information you have given them," says Rodriguez-Henderson.

- **Keep the child's prior history in mind.**

Children shouldn't simply be treated and released for repeated episodes of coughing and wheezing, says Debiak.

"Look at how many times they have been seen in your emergency room for the same symptoms," says Debiak. "If the patient is in for the sixth time for the same concern, why not pursue the child obtaining a primary care provider to get to the root of the problem? The provider can then develop an asthma action plan."

First, ask if the child has a primary care provider and if the answer is "no," be sure to include a referral in your discharge instructions.

- **Advocate for a consult with a respiratory therapist.**

"Treating a child in the emergency room is a team effort. Call in your respiratory team to assess the patient," says Debiak. This could be overlooked in a busy ED, she says, especially if the ED does not have a respiratory therapist working along with the team in the ED.

"Their expertise makes them the ideal person to assess respiratory problems, especially if they have experience with children," says Debiak.

## Reference

1. Walsh-Kelly CM, Kelly KM, Drendel AL, et al. Emergency department revisits for pediatric acute asthma exacerbations: Association of factors identified in an emergency department asthma tracking system. *Ped Emerg Care* 2008; 24:505-510. ■

## Keep children calm during your assessment

Evaluating a young child with asthma symptoms can be challenging, says **Rosie Rodriguez-Henderson**, RN, MHL, advanced clinician in the pediatric ED at Baptist Children's Hospital in Miami.

"It is important to try and keep them as calm as possible during your assessment, so you can see how well the child is breathing and hear lung sounds," Rodriguez-Henderson says. She recommends these interventions:

- sitting at the child's eye level so they don't feel overpowered by your presence;
- keeping the child close to their parents or primary caregiver from home at all times;
- talking to them in an age-appropriate level;
- explaining the treatments you are providing and why they are important;
- telling them that you are there to help them, not hurt them;
- asking them questions about themselves so you can continue to assess while they are distracted;
- offering "toys, toys and more toys! Provide crayons and paper and ask them to draw for you," says Rodriguez-Henderson. ■

## CLINICAL TIPS

## How to avoid inaccurate respiratory rates for kids

If you are assessing the respiratory rate of a young child, you need to count for at least a minute to be accurate.

"This is because of the variability of rates in young children," says **Cindy Debiak**, RN, BS, CPN, SANE-A, pediatric coordinator for the ED at Helen DeVos

Children's Hospital in Grand Rapids, MI. "Also, do as much as you can before you touch the child. You can assess work of breathing, respiratory rate, and color with the child being held by the caregiver." ■

## Can point-of-care testing save your patient's life?

*Decisions happen more quickly*

Point-of-care tests done by ED nurses at triage or the patient's bedside are increasing "both in terms of use and diversity," according to **Darlene Matsuoka**, RN, MN, CEN, CCRN, ED clinical nurse educator at Harborview Medical Center in Seattle.

"Our ED does several point-of-care tests," she says. "All are quick, accurate, life-saving, and cost-effective. They are well-validated tools that allow decision-making to happen more quickly."

According to a recent study, as lab turnaround time decreased from 120 minutes to 10 minutes, the average ED length of stay also decreased (from 2.77 hours down to 2.17 hours) and average daily throughput increased (from 104 patients to 120 patients).<sup>1</sup>

### Technology improves flow

EDs should consider processes to improve turnaround time, such as point-of-care testing, to obtain these goals, says **Alan B. Storrow**, MD, the study's lead author and vice chairman for research and academic affairs in the Department of Emergency Medicine at Vanderbilt University Medical Center in Nashville, TN.

"I believe ED nurses and lab personnel will be increasingly relied upon to improve patient flow through implementation of technologies such as

### EXECUTIVE SUMMARY

Point-of-care tests done by ED nurses can decrease lab turnaround time, which in turn decreases length of stay and speeds ED throughput. Some benefits:

- A bedside blood glucose level can tell you if your patient needs insulin or glucose.
- Urine drug screens can detect very low levels of drugs.
- Dropping hemoglobin levels in trauma patients are detected quickly.

point-of-care testing,” Storrow says.

Vanderbilt administrators are discussing the possibility of doing more point-of-care testing in the ED, reports **Gary Howard**, RN, MHA, director of emergency services. ED nurses do some point-of-care testing now for human immunodeficiency virus screening, urinalysis, and blood glucose. Soon, ED nurses might perform tests for cardiac markers, venous thrombosis markers, electrolytes, renal function, sepsis, and complete blood count.

“Point-of-care testing is expensive, as a general rule, and does not produce the hoped-for revenue downstream, as is often stated when arguments are being made for this,” he says. “That said, it does enable clinical decisions to be made more rapidly than the conventional method of utilizing a central laboratory.”

### **Speed your treatment**

Rapid identification of positive cardiac markers for myocardial infarction can speed appropriate treatment and save heart muscle, adds Storrow. “Negative markers can decrease the time to exercise or similar testing,” he says. “Faster identification of electrolyte disorders, such as abnormalities in sodium or potassium, can speed potentially life-saving therapies.”

In Vanderbilt’s ED, nurses doing a fingerstick blood glucose can decide in a minute or less whether a patient needs insulin or glucose. “The alternative is the blood has to be drawn, labeled, and the specimen sent to the lab. From there, the specimen has to be processed and ran with results reported out,” says Howard. “That process could take an hour or longer.”

Point-of-care testing is likely to result in better outcomes for patients with clinical problems that are improved with faster time to treatment, such as cardiac ischemia and infarction, hyperkalemia, hyponatremia, life-threatening anemia, hypoglycemia, and some infections, says Storrow.

“In addition, other diagnostic tests that require a lab result prior to starting will be able to be performed more expeditiously,” says Storrow. “For example, our patients with chest pain and nondiagnostic initial EKGs frequently wait on cardiac markers to determine whether aggressive anti-ischemic treatment needs to be started. Point-of-care testing allows that decision to be made in minutes.”

### **Reference**

1. Storrow AB, Zhou C, Gaddis G, et al. Decreasing lab turnaround time improves emergency department throughput and decreases emergency medical services diversion: A simulation model. *Acad Emerg Med* 2008; 15:1-6. ■

## **These POC tests can be ‘literally lifesaving’**

*Results are less painful and cheaper*

**B**elow are some point-of-care (POC) tests done by ED nurses at Harborview Medical Center in Seattle:

#### **• Blood glucose testing at the bedside.**

“Over the years, the monitoring and management of hyperglycemia has changed,” says **Darlene Matsuoka**, RN, MN, CEN, CCRN, ED clinical nurse educator at Harborview. The strict normoglycemic protocols instituted by intensive care units (ICUs) have relaxed, she says. Current target goals for insulin drips range between 100 mg/dL-140 mg/dL for ICUs or 80 mg/dL-180 mg/dL for inpatient floors.

“In the ED, we realize that even a patient with a normal glucose may change during the hours of his stay,” she says. For this reason, ED nurses check glucose levels for a Type I diabetic every two hours, and they check levels every six hours for a Type II diabetic.

“Having an Accu-Chek machine allows serial finger sticks to be done quickly instead of venous lab draws. This is less painful, and cheaper,” says Matsuoka.

#### **• Urine toxicology screens.**

ED nurses use Syva RapidTest d.a.u. 10 (manufactured by Deerfield, IL-based Siemens Healthcare Diagnostics) with 10 indicators. They are methamphetamines, opiates, cocaine, cannabinoids, phencyclidine, benzodiazepines, barbiturates, methadone, tricyclic antidepressants, and amphetamines. **(See the ED’s competency validation checklist for urine drug abuse screens, p. 44.)**

The screening device requires six drops of urine, costs about \$15, and detects even low levels of drugs used by the patient several days ago. “The volume of chemically impaired patients or patients who need drug screening at our ED is high,” says Matsuoka. “The staff use it on trauma patients, medicine patients, and psych patients when there is altered mentation or possible drug use. We do about 30 tests a day.”

However, when ED nurses first started using the urine tox screens, the hospital’s psychiatric emergency services staff were skeptical of the accuracy. To address this concern, side-by-side testing was done comparing results of laboratory and point-of-care tests. “A patient who showed up negative on the lab urine tox, showed up positive for THC [tetrahydrocannabinol] with the point-of-care test. The patient admitted to having done THC days ago,” says Matsuoka.

*Continued on page 45*

**POINT OF CARE TESTING SKILLS VALIDATION  
 URINE DRUG ABUSE SCREEN**

**EMERGENCY SERVICES**

Name _____
Date _____

Performed by: Skills validated personnel including:  
 Health Care Providers, RNs, MAs

Equipment: \* Syva® RapidTest d.a.u.® 10 device  
 Disposable sample dropper as provided in kit  
 Clean plastic or glass urine collection container  
 Patient Identification Labels  
 Timing device  
 Personal protective equipment such as gloves

Skill	Qualified Observer Initials
1. Dons gloves.	
2. Labels the urine specimen with the patient's name and hospital number.	
3. Opens the pouch kit and remove the test device and plastic dropper. Labels the test device.	
3. Draws up a urine sample with the plastic dropper, and dispenses 3 drops into each sample well located along the lower section of the test device.	
4. Begins timing device to measure reaction time.	
5. Reads the results after five (5) minutes, but within ten (10) minutes of sample application <input type="checkbox"/> A "NO LINE" result next to a specific drug name is a POSITIVE (+) test <input type="checkbox"/> A colored line is a negative test. <input type="checkbox"/> A Control "C" line should always appear for the results to be valid. The background changes from purple to pale pink-white.  <b>DOES NOT READ RESULTS BEYOND THE TEN (10) MINUTE INCUBATION TIME.</b>	
6. Documents results on the "Urine Drug Abuse Screen" form and gives report to the MD/ HCS provider.	
7. Retains patient's sample if further testing is indicated.	

Qualified Observer Signature \_\_\_\_\_

\* Harborview Medical Center does not specifically endorse or recommend any product.

• **Hematocrits/hemoglobins.**

Getting these results quickly “is of utmost importance,” says Matsuoka. “Having the HemoCue machine available is literally life-saving,” she says. “With trauma patients, a dropping or low hemoglobin value means immediate blood transfusions, and decisions to go to angio or the OR.”

The ED switched last year from using a hematocrit centrifuge spinner to the HemoCue Hb 201 machine (manufactured by Lake Forest, CA-based HemoCue). Even though the values obtained by centrifuge spinning were very accurate, there were problems with blood splatter, potential exposure, and frequent breakdowns, says Matsuoka.

“The HemoCue machine is ED breakdown-resistant and provides values quickly,” says Matsuoka. “We look for Hgb values that drop more than one point — an approximate hematocrit change of 3%. Our ED averages 60 tests a day.” ■

## ED nurses do MSEs to cut triage delays

*[Editor's note: This is the first of a two-part series on medical screening examinations (MSEs) performed by emergency nurses. This month, we report on two EDs that have implemented this practice. Next month, we'll cover the potential liability risks of nurse-performed MSEs and how to them.]*

Have you ever wondered why ED nurses aren't the ones to perform medical screening examinations (MSEs) required by the Emergency Medical Treatment and Labor Act (EMTALA)? Although this is legally

### EXECUTIVE SUMMARY

Only a small number of EDs have nurses perform the medical screening examinations (MSEs) required by the Emergency Medical Treatment and Labor Act (EMTALA), but with this system, sicker patients can be seen faster.

- The MSE process is completely separate from triage.
- Only specially trained triage nurses perform MSEs.
- If no medical emergency exists, patients can choose to be seen in the ED or follow-up care is arranged.

## These complaints get an MSE from an ED nurse

Here are the 16 chief complaints that fit criteria for a medical screening examination to be performed by an emergency nurse at MetroHealth Medical Center in Cleveland, for patients between the ages of 18 and 65:

- upper respiratory infection;
- sore throat;
- earache;
- pregnancy test;
- sexually transmitted disease check — male patient;
- sexually transmitted disease check — female patient;
- penile discharge;
- vaginal discharge;
- dental pain;
- medication refill;
- established fracture;
- toe/foot pain;
- ankle injury/pain;
- knee injury/pain;
- chronic low back pain;
- rash.

permitted, it's rarely done.

Some EDs, however, have had excellent results with this practice, including MetroHealth Medical Center in Cleveland, which went live with nurse-performed MSEs in March 2008.

“The MSE process is completely separate from triage,” reports **Karen Smith**, RN, MSN, director of nursing for the ED. For patients between the ages of 18 and 65 with any of 16 chief complaints based on physician-approved protocols, a specially trained triage nurse performs the MSE, which includes asking a list of questions. (See list of the 16 complaints, above.) “Any time the nurse has a gut feeling, even if the patient says ‘no’ to all the questions, she can override the protocol,” notes Smith.

If the nurse determines that there is no medical emergency, the patient is given two choices: They can wait to be seen in the ED with a copay, or \$75 upfront deposit for self-pay patients, or follow-up care is arranged in one of the hospital's clinics or satellite offices. “We have 16 sites to choose from, including right across the street, and we often get them seen by a physician the same day. We are not saying, ‘There's the door.’ We are offering them resources,” says Smith. “Usually these patients would wait hours, because their acuity is not one that warrants immediate attention. As

the only Level 1 Trauma Center in this region, we can get hit with multiple traumas.”

Because there are fewer people in the waiting room, sicker patients are now seen faster. “A lot of times, a sick patient will come in, see a full waiting room, and leave,” notes Smith.

About half of the ED’s 50 triage nurses have gone through the MSE training, which includes updates on EMTALA, triage guidelines, and role playing. Nurses also demonstrate competency with observation by a clinical nurse specialist, who researches, prepares, and presents the training.

At University of California Irvine (UCI) Medical Center in Orange, more than 80 of the ED’s 100 nurses now perform MSEs, after taking a preceptorship with an experienced ED nurse who is credentialed to conduct the MSE. **(See the ED’s acuity system that determines how the MSE is performed, below.)**

Many EDs don’t have nurses do MSEs because physicians are concerned about liability risks, says **Darlene Bradley**, RN, PhDc, CNS, CCRN, CEN, MICN, FAEN, UCI’s director of emergency/trauma services. “In our program, once the nurse has completed the training and passed the exam, they have to do a number of adult and peds MSEs. The attending physician then validates that the nursing assessment was correct,” she says. “In this manner, they feel a part of the process and approve that the nurse is credentialed to provide this level of service.”

To perform MSEs, nurses have must have five adult and five pediatric MSEs completed, reviewed and validated by an attending board-certified ED physician, says **Sylvia Chavarria**, RN, a clinical nurse III at UCI, one of the ED nurses who provides the preceptorship.

The benefit of MSE triaging is that patients are properly triaged based on their acuity,” says Chavarria. “Patients that are ill and have a true emergency are then able to get back to the ED within an appropriate time frame. The patients are taken directly to the treatment area where emergency interventions and ongoing care can occur. This expedites the care of the patient.” ■

## ED nurses use this triage acuity system

Below is the acuity system used by triage nurses in the ED at University of California Irvine Medical Center in Orange:

- **Level 1:** Life-threatening, such as respiratory distress, full arrest, and unconscious patients. These patients are taken straight back to a bed, and the

medical screening examination (MSE) is completed at the bedside.

- **Level 2:** An emergency medical condition exists, such as chest pain, severe abdominal pain, dislocated joints, or psychiatric patients that are homicidal or suicidal. These patients are triaged with appropriate interventions initiated within 15 minutes, as bed placement becomes available.

- **Level 3:** An emergency medical condition cannot be excluded, such as minor abdominal pain, minor extremity injuries, lacerations, pain scales less than 7, back pains, and vaginal bleeding. If an open bed is available, the patient is placed in the appropriate care area. If not, the patient is placed in the sub-waiting area to be registered and placed in a bed within two hours.

- **Level 4:** No emergency medical condition exists, such as medication refills, school or work releases, and referrals for orthopedics and nonemergent eye conditions.

If the patient is found to be a Level 4, he or she is sent to registration. The ED registration clerk calls the ED attending physician to see the patient in the registration cubicle. “At that time, the attending determines if a medical emergency exists or not,” says **Sarah Landrum**, RN, clinical nurse II in the ED. “If one does exist, the patient is registered and placed in the appropriate care area when a bed is available. If one does not exist, the patient is then triaged out to a community clinic.” ■

## Gain a child’s trust to obtain accurate history

To obtain an accurate history from a child, you need to gain their trust, just as you do with adult patients that are in crisis, says **Freda Lyon**, RN, BSN, MHA, service line administrator at Bixler Emergency Center in Tallahassee, FL.

“It is not unusual for the emergency nurse to hear only a partial truth, omission of the truth and even

### EXECUTIVE SUMMARY

To get a more accurate history from a pediatric patient, speak with them individually. Look for lack of eye contact or changing the subject.

- Separate the child from the parent or caregiver.
- See if the injuries or illness match what you see during your assessment.
- Have a social workers interview the parents if you suspect abuse.

answers that are not truthful,” she says.

Nonverbal clues include failure to make eye contact or a “flat” affect when talking. “Patients may also change the subject or let others answer for them,” Lyon says.

Lyon recommends interviewing the child in a quiet, private area where he or she feels comfortable speaking with you. **Misty N. Eiler**, RN, BSN, clinical nurse leader at the Emergency Center at All Children’s Hospital in St. Petersburg, FL, says, “Adolescents can be stoic and unwilling to speak with strangers about what they have done or what they are feeling.”

Sometimes it is necessary to separate the parent or caregiver from the child and speak with them individually, says Lyon. “When asking a pediatric patient about sexual history and drug and alcohol use in front of an adult caregiver, you are likely to get less than a truthful answer,” she says. “The pediatric patient may also be uncomfortable describing some symptoms with a family member in the room.”

Remember that you might not always get an accurate history from the child’s parents, warns Eiler.

## CLINICAL TIPS

### If you suspect abuse, get history this way

**D**o you suspect your young patient is being abused? If so, avoid asking leading questions, says **Michelle Clark**, RN, assistant manager of nursing for the ED at Children’s Healthcare of Atlanta. Instead, have the child tell you the story of their injury in his or her own words.

“Unfortunately, many children in abusive situations have already been prepped by the caregiver and recount the same story as told by the abuser,” she says. “I just continue to let them know I care about them and am available throughout their stay in the Children’s ED.” ■

“The parent may be trying to cover something up and may not tell the whole truth. The parents are usually requested to leave the room so we can speak with the patient one on one. Then we speak with the parents,” she says.

Does the story a child or parent tells you match the injuries or illness? If not, this could be a clue that someone is not being truthful and abuse could be the reason, says **Pamela Bucaro**, MS, RN, clinical nurse specialist for the Emergency and Trauma Center at Dayton (OH) Children’s Hospital. “Make sure that the child or adolescent’s history or chief complaint is consistent with the nursing assessment and physical exam,” she says.

At Dayton Children’s, ED nurses make social service referrals for patients whose story does not match the injury or illness. The social worker then performs a detailed assessment of the patient and the family in the ED. He or she determines if law enforcement needs to be involved.

At Children’s Healthcare of Atlanta, if abuse is suspected, a social worker interviews the caregiver in one room, with the ED nurse talking to the child at the same time in a different room, says **Michelle Clark**, RN, assistant manager of nursing for the ED. “I let the child know I will do anything I can to help them, but I need them to be honest in return,” says Clark. ■

### CNE instructions

**N**urses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material.

After completing this semester’s activity with the **June** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

## COMING IN FUTURE MONTHS

■ Proven ways to put a stop to dangerous intravenous drug errors

■ What patients may not tell you about medications taken at home

■ How interventions by ED nurses decreased sepsis deaths by 30%

■ Strategies that could save lives of admitted patients being held in your ED

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## CNE objectives/questions

Participants who complete this activity will be able to:

- **identify** clinical, regulatory, or social issues relating to ED nursing;
  - **describe** how those issues affect nursing service delivery;
  - **integrate** practical solutions to problems and information into the ED nurse's daily practices, according to advice from nationally recognized experts.
5. Which is recommended to reduce the risk of dosage errors?
    - A. Discontinuing the use of ED protocol order sets.
    - B. Omitting specific drugs and dosages in ED protocols.
    - C. Per approved protocols, giving a specific medication and dose if patients meet criteria.
    - D. Avoiding stocking medications in "unit-dose" containers.
  6. Which is a practice change made by ED nurses to improve medication safety?
    - A. Only intravenous (IV) drips with high-risk, low-volume drugs are double checked, as opposed to all IV drips.
    - B. Smart pumps are no longer used to program dosages for intravenous drugs.
    - C. IV solutions containing medications are stored alongside general IV solutions.
    - D. Nurses are required to program drugs into the IV pump prior to administration.
  7. Which is a result of point-of-care testing done by emergency nurses?
    - A. Treatment decisions for chest pain patients with nondiagnostic electrocardiograms can be made more rapidly.
    - B. The average length of stay increases.
    - C. Average daily throughput decreases.
    - D. Patients with cardiac ischemia and infarction are unlikely to have improved outcomes.
  8. Which has been a result of emergency nurses performing medical screening examinations at University of California Irvine Medical Center?
    - A. Attending physicians refused to credential nurses to provide this level of service.
    - B. Patients were no longer properly triaged based on their acuity.
    - C. Delays were increased for patients with a true emergency.
    - D. Care of patients was expedited.

**Answers: 5. C; 6. D; 7. A; 8. D.**

## Correction

In the January 2009 issue of *ED Nursing*, we reported on Masimo's noninvasive and continuous total hemoglobin monitoring (SpHb). The test is not a urine test. The test is a new technology that measures hemoglobin via a noninvasive sensor placed on the finger. ■