ED NURSING™

A MONTHLY CLINICAL UPDATE ON EMERGENCY NURSING

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IN THIS ISSUE

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Your patients are at risk after triage — wait times are unsafe for 59%

Dangerous delays are commonplace in the ED

You're worried about the patient standing in front of you, but you can clearly see that not only the patient care areas but also the waiting room is completely packed. How do you protect this person from deteriorating during a possible long wait?

The percentage of emergent patients who saw a physician within the recommended 14 minutes declined to 48% in 2006 from 59% in 1997, according to a study.[1] Yale University researchers analyzed a nationally representative sample of 151,999 ED visits from 1997 to 2006 from the National Hospital Ambulatory and Medical Care Survey, conducted by the Centers for Disease Control and Prevention.

"Triage nurses hold a huge responsibility for larger patient volume in overflowing waiting rooms," says **Bobbie Brothers**, RN, BSN, an ED nurse at University of California — San Diego (UCSD) Thornton Hospital. "As the U.S. economy has plunged, more and more people are finding themselves out of work and without insurance, therefore making the ED their primary or only source of health care."

Patients are waiting longer to present and, therefore, are much sicker in many cases. "This means the triage nurse must continuously reassess patients in the waiting room and consult with the physician and charge nurses on the patients' status," says Brothers.

Dangerous delays might occur, even for patients who need be seen immediately, says **Gabe Campos**, RN, MSN, CEN, clinical nurse educator for the ED

EXECUTIVE SUMMARY

More emergent patients are waiting longer than recommended at triage to see a physician, says a new study that analyzed 151,999 ED visits. To protect your patient during long waits:

- Use triage protocols for EKGs and chest X-rays.
- Look for changes in tone of voice, posture, and skin color or moisture.
- Probe further if a patient seems to be minimizing symptoms.

at The University of Chicago Medical Center. "If all the beds in the ED are occupied, and you receive someone who needs to be seen immediately, you then have to either move someone out of a room or find somewhere to place your new patient," says Campos. "This can take minutes." To avoid adverse outcomes in patients waiting to be seen, consider the following:

• **Use triage protocols.**

At UCSD Thornton, triage protocols are used "to ensure sick patients don't fall through the cracks," says Brothers. Triage nurses obtain EKGs for all patients with a potential cardiac issue or abdominal pain above the umbilicus for patients older than 40 years old, and they order chest X-rays for patients with suspected pneumonia and extremities fractures.

"We have implemented very clear guidelines and protocols for patients presenting with cardiac, abdominal, and pneumonia signs and symptoms," says Brothers. "Problematic diagnoses are being identified earlier."

In a single month, three "walk-in" ST-elevation myocardial infarctions were identified by ED nurses. "Activating the cath lab within minutes of arrival to the ED saved cardiac muscle and possibly even their life," says Brothers. "We even changed the layout of the triage room, to include a cardiac chair to perform EKGs, and purchased an additional EKG machine for use in triage."

• **Constantly scan the waiting room.**

"Each time the nurses open the door to bring back the next patient for triage, they must visually scan the waiting room, assessing for changes in patient status," says Brothers. Patients with any sign of declining status or abnormal findings are brought back to triage and reassessed at least every two hours.

"Red flags can be obvious, such as increased pain, decreased level of consciousness, and changes in vital signs. They can also be subtle: changes in the tone of voice, a change in posture, or changes in skin color or moisture," says Brothers. "The triage nurse must constantly listen to his or her gut instincts at all times."

• **Be especially careful with patients at greatest risk.**

Keep a close eye on patients with subtle symptoms and quiet patients who might be minimizing their condition. "Use your intuition and experience to obtain the *entire* story for their presentation," says Brothers. "Be persistent. You may need to reword or rephrase questions differently in order to obtain a thorough and accurate history."

An elderly woman seen at UCSD Thornton's ED complained of a headache that began that morning, but she said little else. "The nurse continued to probe to get more information, since the patient was just answering with brief explanations," says Brothers. The patient denied any recent injury or trauma, but when asked directly if she had fallen or hit her head, stated, "I did fall last night, but I was OK." After further probing about medications, it was determined that the patient was on aspirin therapy.

"The patient was taken directly to a room because the triage nurse was concerned for a potential head bleed, which in fact the patient did have," says Brothers. **(See related stories on instructing patients to tell you if they worsen and "rounding" in a busy waiting room, p. 27.)**

Reference

1. Horwitz L, Bradley EH. Percentage of US emergency department patients seen within the recommended triage time: 1997 to 2006. *Arch Intern Med* 2009; 169:1,857-1,865. ■

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Tell patients to let you know if they worsen

Give them specific instructions

"You definitely need to instill in the patient the need to let the triage nurse or someone else know if their condition is worsening," says **Gabe Campos**, RN, MSN, CEN, clinical nurse educator for the ED at The University of Chicago Medical Center. "Upon reassessment, if the patient's condition has deteriorated, then their triage acuity score should be updated."

Campos recommends telling patients exactly what to look for. For example, if you gave acetaminophen to a child with a fever, tell the parents to return in an hour so you can recheck the temperature. If you give ibuprofen to patients with extremity pain, tell them to come back in one hour so you can reassess their pain.

At the University of California — San Diego (UCSD) Thornton Hospital, ED nurses use a standing script to tell each patient at triage that if he or she begins to feel worse or anything changes, to let the nurse know immediately, says **Bobbie Brothers**, RN, BSN, ED nurse.

If at any time a patient appears to have a change in status after triage, they are reassessed immediately. If any patient waits longer than two hours, they are brought back to the triage room, reassessed, and vital signs are retaken.

Recently, ED nurses cared for a middle-aged diabetic man who stated he was not sure if he took the wrong doses for his short- and long-acting insulins. The patient's blood glucose and vital signs were all normal. He was alert and oriented and said he was feeling fine.

Thirty minutes later, however, the triage nurse was doing a visual scan of the waiting room when she went to bring back another patient. She noticed that the man was looking diaphoretic, and she brought him to a hallway bed for a thorough assessment. "His blood sugar was rechecked," says Brothers. "He was now hypoglycemic, and he required rapid interventions." ■

CLINICAL TIP

Do a 'roll check' in the waiting room

When your ED is crowded, walk out to the waiting area to ask if everyone has been signed in or has been triaged. This "roll check" can ensure that you haven't missed anyone who has arrived to your ED for evaluation, says **Gabe Campos**, RN, MSN, CEN, clinical nurse educator for the ED at the University of Chicago Medical Center.

"When several people walk in at the same time, some will let you know they are there to be seen. Others may sit down in the waiting area," says Campos. "Unless you inquire, someone may be overlooked."

Have nurses walk around answering questions or calling out simple instructions to be sure everyone in the waiting room is accounted for, she suggests. "Rounding helps ensure people are still present and there are no acute changes in their condition," says Campos. "If there is private information to be shared, having a second triage room or another private area to talk to the patient is ideal." ■

New evidence is in, on ESI for pediatric triage

Infants difficult to triage

The Emergency Severity Index (ESI) Version 4 is widely accepted as a reliable triage tool for adults. There is now more evidence of its effectiveness in children. When researchers asked ED physicians and nurses to assign a triage level to 20 pediatric case scenarios, they found that the agreement rate was 83%.[1]

EXECUTIVE SUMMARY

There is room for improvement with the use of the Emergency Severity Index (ESI) to triage pediatric patients, particularly infants, says a new study that found undertriage and overtriage in this group. To improve accuracy:

- give nurses an educational intervention on pediatric triage;
- look for a pediatric chapter in future editions of the ESI handbook;
- get down to a child's eye level when performing your assessment.

"There have been studies on ESI in pediatrics, but they are limited. Most of the studies have been in adults," says **Yamini Durani**, MD, the study's lead author and an ED physician at Alfred I. duPont Hospital for Children in Wilmington, DE. "Our study and prior studies by other authors support ESI as a potential universal triage tool for adult and pediatric patients," says Durani.[2]

However, a different study indicated that the use of the ESI for pediatrics has some room for improvement.[3] Researchers identified areas in which ED nurses had difficulty triaging patients consistently when using the ESI at three general EDs and two pediatric EDs.

Debbie A. Travers, PhD, RN, FAEN, assistant professor of health care systems and emergency medicine at the University of North Carolina at Chapel Hill's School of Nursing, is a co-developer of ESI. "The big thing we found was that general EDs which see only some children tend to have more trouble, particularly with infants as a group," she says. "We found that infants were particularly hard to triage." There was undertriage and overtriage, she says. "And it's important to reduce both. As EDs get more and more crowded, it's really important that people who aren't that sick don't take the last bed," Travers says.

Travers is working on a follow-up study to see if ED nurses' accuracy rates improve after an educational intervention targeting pediatric triage. The intervention consisted of a one-hour computerized graphic presentation given by an ED nurse educator. This presentation was based on a newly written pediatric chapter for the ESI handbook, which will be included in future editions. "We hope to improve the reliability with education specific to using ESI to assign an acuity level for children," says Travers. **(See story on calming a child during your assessment, left.)**

SOURCES

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CLINICAL TIP

Get on eye level with child at triage

Imagine how frightened a small child can quickly become in a crowded, noisy ED, having strangers asking questions and examining them. This fear can interfere with your triage assessment.

"This often leads to crying and makes your examination more difficult," says **Rosie Rodriguez-Henderson**, RN/MHL, advanced clinician in the pediatric ED at Baptist Children's Hospital in Miami. To reduce anxiety, keep the child close to the parent or caregiver at all times, she says. "This helps them to feel safe and stay calm," she says. "Also, sit at their eye level. Having someone towering over you can be intimidating." ■

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2. Eitel DR, Travers DA, Rosenau AM, et al. The emergency severity index triage algorithm version 2 is reliable and valid. *Acad Emerg Med* 2003; 10:1,070-1,080.
3. Travers DA, Waller AE, Katznelson J, et al. Reliability and validity of the Emergency Severity Index for pediatric triage. *Acad Emerg Med* 2009; 16:843-849. ■

Stop poor compliance for verbal order standard

Have you struggled with compliance with The Joint Commission's standards for use of verbal orders in your ED? According to the most recent statistics, 40% of hospitals were noncompliant with requirements for qualified staff to record and receive verbal orders (standard RC.02.03.07) during surveys in the first half of 2009.

"We have instructed all of our nurses to keep verbal orders to critical situations only," says **Sheri Leslein**, RN, CEN, assistant director of the emergency center at Medical Center of Central Georgia in Macon. "If a physician starts to give a verbal order, the nurse hands the chart to them to write it."

Physicians enter all of their own orders into the system, with the exception of medication orders. "This helps a lot," she says. "By October 2010, we will have all of the orders entered into the computer by the physician. Our physicians also carry a telephone to make them easily accessible."

2 nurses perform double-check

A scribe is in the room for critical and emergency situations, which allows two nurses to hear any verbal orders and perform a double-check. "We have the nurse repeat the order when it is heard. If giving the medication, the nurse will repeat the medication and the dose to the ordering physician before giving it," says Leslein. "This read-back and verify process is used for all verbal and telephone orders."

The initial culture change took some time, but it is now ingrained in the practice of ED nurses. "When I first came to the emergency department, it took me a long time to get used to working off verbal orders after coming from the floor where we worked off written orders. I have now come full circle," says Leslein.

EXECUTIVE SUMMARY

Forty percent of hospitals were found to be noncompliant with The Joint Commission's requirements for verbal orders. To improve safety:

- have physicians enter all their own orders into the system;
- repeat the medication and dose to the ordering physician;
- perform chart audits.

SOURCE

For more information on verbal orders in the ED, contact:

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Chart audits are performed to ensure compliance with this process. "I review all of the quality improvement referrals, and I have not seen any related to verbal orders since the process was started," Leslein says. ■

Immediate interventions for medication ODs in children

Upon hearing that a 15-year-old girl was "just not acting right," an ED triage nurse at Phoenix Children's Hospital quickly recognized this statement as a risk factor for suicide.

Within minutes, the ED nurse determined that the adolescent had ingested an unknown amount of acetaminophen. She immediately alerted the ED attending physician. "If the nurse had not been skilled in identifying risk factors, this patient may have been left in the lobby to deteriorate," says **Lori Wertz**, RN, MN, CPEN, clinical education specialist for the ED.

Drug levels were found to be high in acetaminophen. Intravenous acetylcysteine was ordered, along with ongoing liver function studies. The patient was admitted to the pediatric intensive care unit for ongoing monitoring.

Another ED nurse at Phoenix Children's recently cared for a toddler who had gotten into his grandmother's pills. The parents didn't know what the medication was, and they were not in labeled containers. Although the toddler appeared stable, the ED triage nurse knew this was a high-risk situation. "Even though the nurse did not know what pills may have been ingested, she knew that geriatric medications can potentially be fatal," says Wertz.

The pills were identified as blood pressure medications. "Drug levels were obtained from the patient, and it was discovered that the patient did not ingest any of the medications. But during this time, the nurse closely monitored the patient for signs and symptoms," says Wertz.

Researchers from the Centers for Disease Control

EXECUTIVE SUMMARY

Unintentional medication overdoses by children result in 71,224 ED visits every year. More than two-thirds of these cases involve prescription and over-the-counter medications.

- Recognize risk factors for suicidal adolescents.
- Know which drugs or chemicals are considered high risk.
- Monitor airway and breathing, and start an intravenous line.

and Prevention estimated that 71,224 children come to EDs every year because of unintentional medication overdoses. More than two-thirds of these visits involve prescription and over-the-counter medications.[1]

"It is vital the triage nurse has a very good understanding of ingestions and what drugs or chemicals are considered high risk," says Wertz. "If a patient arrives in the ED after an ingestion of one of these meds, either accidental or intentional, we take them back to the main ED right away for immediate intervention." Take these steps:

• **Take action right at triage.**

Wertz says ED nurses usually are the first ones to see the patient. "We have had parents arrive in the ED lobby with limp or blue children. The ED nurses take control of the situation, providing lifesaving interventions immediately," she says.

Wertz says her ED commonly sees cases involving "heart medication," placed in unlabeled vials or plastic containers, ingested by a child. "It is up to the triage nurse to quickly try and determine what the medication was and how much was ingested," she says. "Our first step would be to monitor the airway and breathing and start an intravenous line. The nurse will also obtain blood to send for a toxicology screen. The nurse does not need to wait for the physician or nurse practitioner to assess the patient to begin these interventions."

• **Perform continuous monitoring.**

A patient who has overdosed on a tricyclic antidepressant or an oral hypoglycemic initially might be stabilized, but then rapidly deteriorate, warns **Janelle Glasgow**, RNC, CPEN, an ED nurse at Nationwide Children's Hospital in Columbus, OH. For this reason, continuous monitoring of the patient's airway, ventilatory status, circulation and perfusion status, level of consciousness, and vital signs are imperative.

"Any deterioration must be managed aggressively in conjunction with the poison control center and toxicologist," says Glasgow. "Patients who present with few signs or symptoms may need to be admitted or observed for several hours, due to the length of time that symptoms may take before occurring. This may be due to differences in onset, peak, duration, and half-life of medications." **(See stories on how to reduce absorption, below, and when to suspect ingestion, p. 31.)**

Reference

1. Schillie SF, Shehab N, Thomas KE, et al. Medication overdoses leading to emergency department visits among children. *Am J Prev Med* 2009; 37:181-187. ■

Reduce absorption or eliminate toxin

A child presents for ingestion of an unknown substance. He is stabilized, and the toxin is identified. Now your focus is on reducing absorption and elimination of the toxin.

"If an antidote is available, it should be administered as soon as possible," says **Janelle Glasgow**, RNC, CPEN, an ED nurse at Nationwide Children's Hospital in Columbus, OH. "There are few antidotes available for the millions of substances that can be ingested, but antidotes can be life-saving if one can be identified."

In addition to administration of an antidote if available, whole bowel irrigation might need to occur to eliminate an extended-release medication that absorbs throughout the gastrointestinal tract, she says. "Hemodialysis, urine alkalinization, chelation therapy, or hemoperfusion may need to be undertaken to eliminate toxins as well," says Glasgow. "These efforts will typically be undertaken after the patient has been admitted to an intensive care unit, but the ED nurse may need to prepare the patient for this potential intervention."

SOURCES

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Clinical Tip

Suspect ingestion for all decreased LOC

Many substances cause central nervous system depression, says **Janelle Glasgow**, RNC, CPEN, an ED nurse at Nationwide Children's Hospital in Columbus, OH.

"Any patient who presents with decreased level of consciousness [LOC] or confusion without a known head injury should have ingestion considered as a differential diagnosis until proven otherwise," she says. ■

Stabilization of the patient, elimination of the toxin, and reducing absorption of the toxin might be occurring at the same time, she says.

If Poison Control Center directs you to administer activated charcoal to your patient, remember that this should be administered within one to two hours of the ingestion for it to be effective in absorbing the toxin, warns Glasgow. Activated charcoal might be contraindicated in patients who have nausea or vomiting due to the potential for aspiration, she adds.

Activated charcoal works by binding with the substance preventing absorption in the gastrointestinal tract, says Glasgow. "Some substances, such as alcohols, are nearly immediately absorbed after ingestion, and activated charcoal will be ineffective," she says. ■

Do you need to refuse an ED physician's order?

You aren't ready to rule out a cardiac cause to your patient's chest pain, but the ED physician orders a pain medication instead of nitroglycerin. When you question this, the physician insists the pain is musculoskeletal.

It's a harrowing moment for even an experienced ED nurse. What should you do immediately in this situation?

According to your state's nurse practice act, you have a legal and ethical obligation to challenge unsafe practices and orders. On the other hand, refusing an order without sound justification "will go nowhere," says

EXECUTIVE SUMMARY

If you believe a physician's order is unsafe, you have a legal and ethical obligation to challenge it. However, do so by going through the chain of command and documenting this challenge.

- Don't be confrontational and argumentative in front of the patient.
- Document facts, not personal feelings.
- Contact the pharmacist to ascertain whether a medication order is a safe dosage.

Teri J. Cox, RN, MS, CLNC, president and owner of Point Pleasant, NJ-based TCK Consulting, a legal nurse consulting firm. "And for goodness sake, don't be confrontational and argumentative in front of the patient," she says. "Take it outside." Cox is former director of emergency services at Bellevue Hospital/New York University Medical Center in New York City.

Can you be fired for refusing to carry out a physician's order? Cox says this situation is doubtful, but you're at greater risk if you don't document, fail to follow the chain of command, and go against the hospital's policy and procedure.

Mariann Cosby, RN, MPA, MS, CEN, LNCC, principal of Sacramento, CA-based MFC Consulting, a legal nurse consulting company, says, "Remember that you have an obligation to advocate for patients. You have a legal right to not administer drugs you think will harm a patient." Cosby also is a practicing emergency nurse.

You might choose to exercise this right if you think the dosage is too high, if the drug is contraindicated because of a dangerous interaction with other drugs, or the patient's condition contraindicates usage. "Using critical thinking and sound judgment should keep repercussions at bay," she says.

In fact, if you perform an order that you believe to be incorrect, you could be named in a malpractice lawsuit, warns **Elisabeth Ridgely**, RN, LNCC, a Telford, PA-based legal nurse consultant and an emergency nurse at St. Luke's Hospital in Quakertown, PA. "The nurse can and will be held liable for administration of medications that are known to be incorrect, wrong dosages or wrong medications, despite the fact that she may have an order to do so. Complacency is not a valid legal argument," she says.

Refusal to administer a drug *can* have legal implications if the drug is ordered by a physician, however. Ridgely says the safest course of action is to document all conversations regarding the refusal. "If you are correct and move up the chain of command, then I see no

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legal ramifications for the nurse, if appropriate treatment is then provided," she says.

If you refuse an order, "document very carefully, with no personal feelings or attitudes. Chart the facts," says Cox. "If there is no record of unsafe practices, there will be no consequences to the behavior. A pattern of unsafe practice is key, not an individual occurrence."

Next, write an incident report, and notify risk management of any physician order or procedure you thought was unsafe and possibly harmful to the patient, Cox says.

Ridgely says to document all pertinent information: presenting symptoms, EKG results, laboratory results, and the patient's response to interventions. Also document your concerns and the fact that these were reported to the ED physician.

When you document in the patient record why the medication was not given, Cosby says to "include additional actions that may have been taken in this situation, such as notifying your supervisor and their follow-up actions, and your communications with the ordering physician." **(See clinical tip on contacting the pharmacist, below left, and story on how to follow the chain of command, below.)** ■

CLINICAL TIP

When in doubt, contact pharmacy

Do you suspect an ED physician ordered the wrong dosage of a drug? Have you already checked with the physician who insists the dosage is correct? If so, call the hospital pharmacist, suggests **Mariann Cosby**, RN, MPA, MS, CEN, LNCC, principal of Sacramento, CA-based MFC Consulting, a legal nurse consulting company.

"The pharmacist can either validate that the medication order is a safe dosage or corroborate the nurse's concern," she says. "Assuming the concern is confirmed, the nurse should convey the information obtained from the pharmacy back to the ordering physician, to ensure that he or she is aware of the data that supports the nurse's concern." ■

You need to follow chain of command

When **Elisabeth Ridgely**, RN, LNCC, a Telford, PA-based emergency nurse and legal nurse consultant, was caring for a patient during a code, a resident ordered diltiazem to treat an increased heart rate during a code. However, "the patient barely had a blood pressure and required dobutamine, fluids, or blood — definitely not [diltiazem]," she recalls.

She explained her thoughts to the resident, who quickly acquiesced. Had the diltiazem been given, the patient would have become more hypotensive and probably not survived. "Had the resident not been reasonable, the situation could have deteriorated. I would have had to move up the chain of command," says Ridgely.

Teri J. Cox, RN, MS, CLNC, president and owner of Point Pleasant, NJ-based TCK Consulting, a legal nurse consulting firm, says to follow these steps if you're uncomfortable with an order: Go to your charge nurse, then the ED attending physician if it is a resident order, then the in-house attending if you have one, then the ED nursing supervisor, then the ED nursing director, and finally, the ED medical director. "Rarely have I seen a refusal of an order go all the way up the chain, but I have seen it," says Cox. "It can generally be resolved at the charge nurse level."

If everyone on the chain of command agrees with the physician's order but you still do not, here are some options: Ask for your assignment to be changed, have another nurse perform the order, or have the physician give the drug himself. "Of course, if the nurse allows the physician to administer a drug which she knows is wrong, then she has an obligation to report that to her superiors and the medical director," says Ridgely.

If the ED nurse and physician are in conflict with each other, it could be one is less informed about a change in treatment practice, says **Mariann Cosby**,

MPA, MS, RN, CEN, LNCC, principal of Sacramento, CA-based MFC Consulting, a legal nurse consulting company. When an admitting physician ordered medications and treatments for an asthma patient that were no longer the standard of care, Cosby notified the ED physician. He recommended that she go up the medical chain of command since he had no authority to override an admitting physician's orders.

"After letting nursing administration know what I was doing, I spoke with the physician who was chief of staff and conveyed my concerns," she recalls. "Orders were revised based on his interventions."

Cosby says "it all boils down to communicating your concern about what you perceive to be an inappropriate or potentially harmful treatment or medication with those who will support your actions to remedy the situation, and then documenting what transpired." ■

Don't miss these adverse drug reactions in elders

A well-kept elderly couple presented to triage and seemed knowledgeable about their medication regimen. The man told the nurse that his wife had become confused and lethargic over the past three days.

"He had all of her medications on a 3x5 card and seemed to be aware of the need for compliance with dosing times," recalls **Tia Valentine**, RN, CEN, clinical nurse educator for the ED at University of California — San Diego Medical Center.

The woman had been prescribed an antibiotic for urinary tract pain, but she stopped taking it because of nausea. "It was discovered that she was taking ginkgo. Although this is an over-the-counter medication, it can interfere with some prescription medications," she says. "It was not listed on their 3x5 card because it was not prescribed by their physician."

In fact, it was the herbal supplement that caused the patient's nausea, causing her to stop the antibiotic. "Her diagnosis was urosepsis. She was admitted to the hospital for three days and eventually discharged home. If they had stopped the ginkgo instead, perhaps her urinary infection would have been treated and she would not have required admission," says Valentine.

Researchers looked at ED patients 65 and older admitted to France's Toulouse University Hospital for four consecutive weeks in 2002 and 2003. They found that 66 of the admissions were a result of adverse drug reactions (ADRs).[1] Multiple medications, antithrombotics, and antibacterial drugs were linked to a higher risk of ADRs.

Valentine says most of the drug interactions she's seen in her ED involve cardiovascular drugs, diuretics, antibiotics, nonopioid painkillers, and anticoagulants. "Symptoms of ADRs can be subtle," she says. "Having knowledge of *all* the medications being taken by the patient, as well as potential interactions, can assist with the problem-solving of potential drug-to-drug interactions."

If your patient has a complex medical history, determining whether the issue at hand is related to an ADR or a medical problem might be "difficult at best," says Valentine. "If the patient is confused or uncertain of their own medication regimen, it makes the diagnostic work-up more challenging." Here are other challenges Valentine has seen:

— A patient with an ADR might present with confusion, which can be difficult to differentiate if there also is a diagnosis of dementia.

— Muscle cramping might be confused with nausea.

— Alteration in baseline vital signs, whether hypo or hyper, might be linked to emotions and excitement. "This may cause a false sense of security when assessing the patient," says Valentine.

"Assess the basic knowledge of the patient concerning their medication regimen," she says. "This should be your primary focus when attempting to establish any drug reaction." Valentine says to remember these three things:

• Tell patients the common side effects of each medication and what to do if they occur.

For example, a patient taking a statin drug to lower

EXECUTIVE SUMMARY

Adverse drug reactions in elder patients often involve cardiovascular drugs, diuretics, antibiotics, nonopioid painkillers, and anticoagulants. Signs can be subtle. To improve your assessment:

- find out *all* medications being taken by the patient;
- ask specifically about herbal supplements;
- remember that pharmacy labels aren't always accurate.

SOURCE

For more information on adverse drug reactions in elderly patients, contact:

- **Tia Valentine**, RN, CEN, Clinical Nurse Educator, Emergency Department, University of California — San Diego Medical Center. E-mail: thooley@ucsd.edu.

cholesterol levels should know to stop taking the medication and call their physician if muscle pain occurs.

• **Remember that nutritional supplements can interact with prescription medications.**

Gingko, garlic, and ginseng, for example, can all interfere with warfarin. "Patients are often reluctant to discuss these self-prescribed herbal supplements," says Valentine.

• **Pharmacy labels aren't always accurate, because physicians might change dosing instructions based on the patient's response.**

"That is a huge reason for patients to keep their own, up-to-date, written instructions with them when going to the emergency department," says Valentine.

Reference

1. Pascale O, Bertrand L, Tubery M, et al. Hospitalizations because of adverse drug reactions in elderly patients admitted through the emergency department: A prospective survey. *Drugs Aging* 2009; 26:475-482. ■

Identify early, subtle signs of septic shock

Act before it's too late

In a septic patient, the normal defenses of the body against overwhelming infection are breaking down. Bacterial germs are loose and multiplying in the bloodstream.

"Once this state has arisen, the patient's chances for recovery begin to decline rapidly," **Melissa Gaines**, RN, BSN, education clinical coordinator for emergency services at Sts. Mary & Elizabeth Hospital in Louisville, KY. "Septic shock and death will follow if this condition is left untreated for long."

At Sts. Mary & Elizabeth Hospital's ED, a septic work-up includes obtaining culture specimens of blood, urine, and spinal fluid via lumbar puncture or spinal tap. "While awaiting these test results, powerful antibiotics are administered intravenously in high doses until the situation is clearer. The patient is truly, gravely infected or perhaps suffering from another illness, often viral, which is not serious," says Gaines.

Gaines says in fact, most septic work-ups are false alarms. "But they are a small price to pay for saving lives. Children are more at risk, especially young infants as they cannot tell us exactly what is happening within their body," she says.

Early, subtle signs of shock are agitation, confusion, lethargy, pale skin, dry mucous membranes, generalized weakness, and tachycardia, says **Holly Mason**, RN, BS, CEN, unit manager of the pediatric ED/Fast Track/clinical decision unit/observation unit at Wake Forest University Baptist Medical Center in Winston-Salem, NC. Also, patients with nausea, vomiting, diarrhea, or fevers are at high risk. "Elderly and pediatric patients are more at risk for developing septic shock," adds Mason. "What may first appear as a mild case of dehydration can quickly develop into an emergent situation, due to volume depletion and infection."

Perform these interventions immediately for patients in septic shock, says Mason:

• Give intravenous hydration to address volume depletion.

• Perform cardiac, noninvasive blood pressure, and pulse oximetry monitoring.

• Draw labs.

• Monitor urinary output closely to assess for kidney failure.

Wake Forest's ED nurses use a protocol with several indicators, including a patient's history and vital signs, to identify sepsis. "It is initiated immediately and includes a standardized list of orders for rehydration and antibiotics if indicated," says Mason. "100% of these patients are QI'd to ensure that we are identifying and treating septic patients appropriately." **[The sepsis protocol used by ED nurses is included with the online version of this month's *ED Nursing*. For assistance, contact customer service at (800) 688-2421 or customerservice@ahcmedia.com. Also see related stories on signs of sepsis in the elderly and patients without spleens, p. 35.]** ■

SOURCES

For more information on identifying early signs of sepsis, contact:

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• **Melissa Gaines**, RN, BSN, Education Clinical Coordinator, Emergency Services, Sts. Mary & Elizabeth Hospital, Louisville, KY. Phone: (502) 361-6740. Fax: (502) 367-3340. E-mail: melissa.gaines@jhsmh.org.

• **Holly Mason**, RN, BS, CEN, Pediatric Emergency Department, Wake Forest University Baptist Medical Center, Winston-Salem, NC. Phone: (336) 713-9054. E-mail: hmason@wfubmc.edu.

Watch for these vague signs of sepsis in elders

Because an 84-year-old man who owned a business and worked there every day was suddenly unable to remember what day it was, his family brought him to the ED at St. Joseph Mercy Hospital in Ann Arbor.

ED nurses quickly obtained labs, obtained a urine specimen, performed a nursing assessment, and administered intravenous fluids and antibiotics. "Within four hours, the patient was back to his baseline mental status and was improving," says **Sheri Belanger**, RN, BSN, CEN, SANE, an ED nurse.

Look for these subtle changes in your patients over the age of 55, says Belanger:

- slight changes in mental status, confusion or "just not feeling good";
- minor changes in the patient's body temperature;
- slight changes in vital signs: a decrease in oxygen saturation or increase in heart rate;
- known or suspected infection;
- no improvement in symptoms for patients already on antibiotics;
- slightly elevated blood sugar.

"Patients need to be screened at the time of triage for any of the above changes," says Belanger. "Do a conscious, thorough questioning of the patient and their family." ■

CNE instructions

Nurses participate in this continuing nursing 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. ■

CLINICAL TIP

Patients without spleen are high risk for sepsis

Before a young man was able to walk up to the triage nurse at Sts. Mary & Elizabeth Hospital in Louisville, KY, she noticed he was weak and his color was grayish.

"She immediately assisted him and obtained a wheelchair," says **Melissa Gaines**, RN, BSN, education clinical coordinator for emergency services. "His blood pressure was in the 80s diastolically, so she wheeled the patient to a trauma bed and alerted the physician of his presence."

A septic work-up was performed, including obtaining blood cultures, labs, urine, and rapid administration of intravenous fluids and strong antibiotics, but these interventions were too late.

"The patient's body shut down. His pressure continued to rapidly decline despite the numerous interventions," says Gaines. "Within three hours, the 24-year-old normally healthy man coded twice and died."

Emergency nurses struggled through the rest of the shift. "The ED doctor repeated his clinical findings over and over to make sure he did not miss anything that could have altered this young man's fate," says Gaines.

It was determined that the patient must have contracted bacteria from an intensive care unit, where he had visited a sick uncle. "Not having a spleen hastened the growth of the bacteria in the patient's system," says Gaines. "In short, when any patient arrives with a history of vomiting and diarrhea that does not have a spleen, I take them to a bed immediately to start the work-up." ■

COMING IN FUTURE MONTHS

- Proven ways to speed up evaluation of stroke
- Make poor hand hygiene compliance a thing of the past
- Stop life-threatening mistakes with pain medications
- Dramatically improve care of congestive heart failure

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CNE *objectives/questions*

Upon completion of this educational activity, participants should be able to:

- **identify** clinical, regulatory or social issues related to ED nursing;
- **describe** the effects of clinical, regulatory or social issues related to ED nursing on nursing service delivery;
- **integrate** practical solutions to ED nursing challenges into daily practice.

1. Which of the following is recommended for triage nurses to do during periods of crowding in the ED?
   A. To improve patient flow, continuously reassess only those patients triaged as emergent.
   B. Avoid the use of triage protocols for chest X-rays for patients with suspected pneumonia.
   C. To avoid increased delays, don't routinely tell patients with pain to return in one hour for reassessment.
   D. Watch for subtle changes in patients, including tone of voice, posture, or skin color.
2. Which is true regarding an emergency nurses' actions if he or she believes a physician's order is unsafe?
   A. The ED nurse has a legal right to not administer drugs he or she thinks will harm a patient and to protect patient safety by reporting concerns through the chain of command, consulting pharmacy and documenting these actions.
   B. The ED nurse cannot be held liable for giving an incorrect drug or dosage, as long as the medication is ordered by a physician.
   C. The ED nurse should not document any conversations with supervisors or the ordering physician about his or her concerns.
   D. As long as the physician administers the drug him or herself, the ED nurse has no obligation to report his or her concerns.
3. Which is true regarding care of pediatric ingestions in the ED?
   A. Standing orders should not be used for starting intravenous lines or obtaining blood for toxicology screens.
   B. If a patient who overdosed on a tricyclic antidepressant is initially stabilized, continuous monitoring is not necessary.
   C. Continuous monitoring of the patient's airway, ventilatory status, circulation, perfusion status, and level of consciousness is imperative for patients who overdosed on an oral hypoglycemic.
   D. Activated charcoal is never contraindicated in patients who are nauseous or vomiting.
4. Which is true recommended regarding ED nursing care of sepsis patients?
   A. Do not consider elderly and pediatric patients to be at higher risk than other ED patients for developing septic shock.
   B. Watch for early, subtle signs of shock including agitation, confusion, and lethargy.
   C. Do not use triage protocols for rehydration or antibiotics.
   D. Do not increase your index of suspicion if changes in vital signs are slight.

Answers: 1. D; 2. A; 3. C; 4. B.

NCBH EMERGENCY DEPARTMENT

INFECTION/PNEUMONIA /SEPSIS Protocol

Patient Label

DATE: _____ TRIAGE TIME: _____ INITIATED BY _____(MD / PA / NP / RN)

ALLERGIES: _____

TIME INITIATED	VITAL SIGNS **BP:** _____ **P:** _____ **R:** _____ **T:** _____ **O2 Sat:** _____

SUSPECTED INFECTION

(2 or more signs and symptoms OR 1 sign or symptom and 1 risk)

SIGNS AND SYMPTOMS	HIGH RISK
[ ] Temperature > 100.5 [ ] SOB	[ ] Age ≥ 65
[ ] Chills [ ] O2 Sat < 93%	[ ] Nursing home resident
[ ] Tachypnea	[ ] Tracheotomy
[ ] Tachycardia	[ ] Indwelling catheters/tubes (Foley, nephrostomy tube, etc.)
[ ] Productive cough	[ ] Central venous lines (PICC, portacaths, etc.)
[ ] Diagnosis of pneumonia within past 2 months	[ ] Immunocompromised patients (Cancer, HIV, Transplants)

Physician's First impression: _____

TIME FRAME	1. ORDERS / INTERVENTIONS **(* - RN can initiate without order / ** - Must have physician's order.)**	TIME ORDERED	Time DONE	TIME SENT	RN INITIALS
0-1 hr	*** Monitor / Pulse ox**				
	*** CHEST X-RAY** (Portable with ESI 1 or 2 / PA & Lat with ESI 3,4, or 5) **TIME RESULT RECEIVED:** _____				
	*** IV # 1:** Saline Lock (20 or 18 gauge) with blood draw (Rainbow with blood culture x 2)				
	**** LABS:** (Hold until MD Order) [ ] CBC with diff [ ] CMP [ ] Lactate [ ] PT/PTT				
	(One BC from each vascular access device in place > 48 h) [ ] Blood cultures X 2 **(Prior to administration of antibiotics)**				
	[ ] ABG [ ] CO-Ox				
	[ ] UA and culture				
	[ ] Sputum Culture				
	[ ] Wound Culture				
	[ ] Other: _____				

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NCBH EMERGENCY DEPARTMENT
INFECTION/PNEUMONIA /SEPSIS
Protocol

Patient Label

SITE OF INFECTION			
[ ] Lungs	[ ] Bowel	[ ] Skin/Soft tissue	[ ] Other
[ ] Liver or gall bladder	[ ] Kidneys / Urinary tract	[ ] CNS	

TIME FRAME	2. ORDERS / INTERVENTIONS (** - Must have physician's order.)	TIME ORDERED	TIME GIVEN	RN INITIALS
CAP <4 hr from arrival	** **ANTIBIOTICS**: * See Antibiotic Recommendations form			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
Sepsis <3hrs from identi-fication	**Other Medications:**			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			
	[ ] _____			

DISPOSITION:

VS: BP: _____ P: _____ R: _____ T: _____ O2 Sat: _____ GCS:_____

TIME:	D/C HOME [ ] ADMISSION [ ] OTHER/COMMENTS:

Physician Computer ID #:		**Physician Signature:**			
RN Signature:	**Initials:**	**RN Signature:**	**Initials:**	**RN Signature:**	**Initials:**

*** If Sepsis suspected continue to page 3***

NCBH EMERGENCY DEPARTMENT
INFECTION/PNEUMONIA /SEPSIS
Protocol

Patient Label

SEPSIS

(Suspected Infection criteria plus 1 VS abnormality and 1 organ dysfunction criteria)

[ ]Hypothermia ≤ 96.8 degrees F [ ] Tachycardia ≥90 bpm [ ]Tachypnea ≥20 rpm [ ] O2 Sat < 93%	[ ]Acute altered mental status [ ]Decreased UOP [ ]Decreased capillary refill or mottling [ ]MAP < 65mm Hg [ ]SBP < 90mm Hg

TIME FRAME	3. ORDERS / INTERVENTIONS (* - RN can initiate without order / ** - Must have physician's order.)	TIME ORDERED	TIME DONE / SENT / GIVEN	RN INITIALS
1-6 Hour	* **SEND PAGE 1 LABS** (if meets sepsis criteria, send labs without physician's order)			
	* **IV # 2:** (18 or 16ga) with blood draw			
	* **Foley catheter** with temperature probe			
	FLUID RESUSCITATION: **Maintain MAP > 65 mm Hg.** * [ ] NS 1000 ml bolus # 1			
	Maintain SBP >90 mm Hg. * [ ] NS 1000 ml bolus # 2			
	Target a CVP ≥ 8 mm Hg **(≥ 12 mm Hg if mechanically ventilated)** ** [ ] NS 1000 ml bolus # 3			
	** [ ] Other: _____			
	****VASOPRESSORS** **Maintain MAP > 65 mm Hg.** [ ] Norepinephrine: _____mcg/min			
	[ ] Other: _____			
	****PRE-SEP CATH - SvO2 / CVP monitor** **SvO2:_____, CVP: _____**			
	****BLOOD PRODUCTS ADMINISTRATION** **Target HGB > 7.0 – 9.0g/dl** [ ] RBC unit # 1			
	SvO2 <70% [ ] RBC unit # 2			
	[ ] RBC unit # 3			

DISPOSITION:

VS: BP: _____ P: _____ R: _____ T: _____ O2 Sat: _____ GCS:_____

TIME:	ADMISSION [ ] OTHER/COMMENTS:				
Physician Computer ID #:	**Physician Signature:**				
RN Signature:	**Initials:**	**RN Signature:**	**Initials:**	**RN Signature:**	**Initials:**

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Source: North Carolina Baptist Hospital, Winston-Salem, NC.

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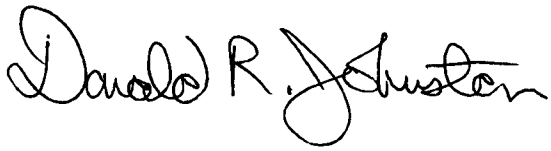

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