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Long waits put your emergency patients at high risk for contracting infections

Holding patients in hallways partly is to blame

Overcrowding, higher-acuity patients being held in hallways, and The Joint Commission's new National Patient Safety Goals (NPSGs) for 2009: It's the "perfect storm" to put hospital-acquired infections on the top of any ED nurse's priority list.

The goals contain three new requirements for preventing methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* (*C. diff*), and drug-resistant organisms, all of which are on the rise in EDs. And because admitted patients are being held in EDs for hours or even days, the risk of hospital-acquired infections is even higher, says **Shelley Calder**, RN, CEN, MSN, clinical nurse specialist for the ED at Beth Israel Deaconess Medical Center in Boston.

Which is the most challenging NPSG for ED nurses? The need to prevent health care-associated infections due to multiple drug-resistant organisms, according to several emergency nurses interviewed by *ED Nursing*.

Many patients present with symptoms of infection, including *C-diff*, which may cause diarrhea, abdominal pain, or foul-smelling stool, says **Karen Smith**, RN, MSN, director of nursing for the ED at MetroHealth Medical Center in Cleveland. These symptoms can be linked to many diagnoses, Smith says. Part

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EXECUTIVE SUMMARY

ED patients are at high risk for hospital-acquired infections due to overcrowding, long waits, and poor medication compliance. The Joint Commission's new National Patient Safety Goals require you to prevent methicillin-resistant *Staphylococcus aureus*, *Clostridium difficile* (*C. diff*) and drug-resistant organisms.

- Use a checklist to ensure that central lines are sterile.
- Avoid opening intubation equipment before the patient's arrival.
- Communicate the potential for infection at handoffs.
- Suspect *C-diff* with recent antibiotic use or hospitalization.

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of the plan of care is to send a stool specimen for further testing, she says. "This could mean days before a definitive diagnosis is made," Smith says. "As a result, exposure to other patients, health care providers, family, and friends may occur."

Also, ED nurses obtain only a limited health history from patients, and they often care for patients with poor medication compliance and without primary care physicians, adds **Michelle Underwood**, RN, BSN, MBA, nursing supervisor/clinical nurse educator for the ED at Baylor Medical Center at Irving (TX). "These patients are at increased risk for infection or complications secondary to other disease processes they may have — for example, an insulin-dependent diabetic," she says.

A patient might be prescribed an antibiotic for a skin infection and discharged from the ED, but cost of the prescription might result in noncompliance. "This

may result in a secondary visit to the ED for worsening infection, as well as increased exposure to the community for untreated infection," says Underwood.

Baylor's ED nurses work with social workers to identify patients at risk for noncompliance by completing a psychosocial assessment. Red flags include patients who don't have a primary care physician, recurrent visitors, patients who use the ED for their primary care needs, and patients with a complicated medical history or chronic medical conditions.

"This allows us the opportunity to intervene when appropriate," says Underwood. "We assist with purchasing prescriptions and educating patients about the importance of medication compliance and appropriate follow-up care."

Risks also are increased because the ED is not a "controlled setting," says Smith. "Due to the activity and acuity in the department, patients may be transferred from room to room, from room to hallway, and room to other support departments for further testing," she says.

Think about the long term

Taking appropriate precautions such as isolation might be a straightforward matter on an inpatient floor but next to impossible for ED nurses. "The big piece is us recognizing that the patient is positive and doing our best to keep them isolated," says Calder. "This is challenging when patients are held in hallways."

Calder says she works with critical care unit nurses to identify interventions that ED nurses can do, so that ED patients aren't put at risk for infections while waiting for an available bed. "We can't always move our patients out immediately, and we cannot run an ICU down here," she says. "But there are some critical things we can do for our patients." (**For some examples, see story, below.**)

In emergent situations, appropriate infection control measures might not be maintained, acknowledges Calder. "Obviously, the patient's life-threatening condition is the first priority. But when your resuscitation is completed, you have to think of the long term," she says. ■

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Use infection control tips from CCU nurses

Shelley Calder, RN, CEN, MSN, clinical nurse specialist for the ED at Beth Israel Deaconess Medical Center in Boston, has partnered with her hospital's critical care nurses to give ED nurses tips to prevent hospital-acquired infections when patients are held for

long periods. Some examples:

- **Ensure central lines are sterile.**

Before a central line is placed in the Beth Israel's ED, nurses fill out a procedural checklist stating that the procedure is performed on the appropriate patient and site, and that sterile technique is used. "If the line is placed emergently, this checklist is not completed, alerting the intensive care unit team that the line may need to be removed due to risk of infection," says Calder. "However, at the time of placement, the benefit outweighs the risk."

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When central lines are placed in the ED, nurses and physicians practice aseptic technique closely, says **Mickey Heidt, RN, BSN**, an ED nurse at St. Vincent Hospital in Portland, OR. "Each member of the team is compliant to ensure the best technique is followed."

St. Vincent's ED nurses use a checklist for inserting a central line. It requires following hand hygiene, draping, skin cleansing, using sterile gloves, maintaining a sterile field, and using a sterile dressing.

- **Don't open up intubation equipment in advance.**

All equipment including blades, endotracheal tube, and stylet should remain in sterile secure packaging until time of use, to avoid introducing microorganisms during intubation, says Calder. Nurses and physicians would routinely begin their shift by checking and preparing equipment for any emergent intubations. This included loading the endotracheal tube with the stylet and assessing the presence of the light source on the blade.

"This seems like a safe and reasonable practice. However, once the equipment is opened or removed from the sterile packaging, it has now been exposed to the environment and may increase the risk of microorganisms," says Calder. "We did a huge education blitz for this."

Once this behavior was identified, Calder worked with the physicians, nurses, and technicians to help them understand the risks that they were exposing their patients to by opening this equipment. This message was delivered at weekly morbidity and mortality rounds.

"We also incorporated a check into the daily equipment and room rounds. The nurse or tech would remove any open packages," she says. Nurses now collect the necessary equipment at the bedside, but it remains sealed until time of use.

- **Elevate the head of the patient's bed 30-45 degrees.**

"This reduces risk of aspiration of gastric contents and the development of ventilator-acquired pneumonia," Calder says.

- **Always clean equipment.**

Cleaning should occur before the next patient is placed in the bed, and shared equipment needs to be cleaned between patients, says **Nancy Church, RN**, St. Vincent's nurse manager of infection control.

Each team member in St. Vincent's ED — nurses, techs and health unit coordinators — cleans equipment between patient visits to decrease the spread of organisms. "The equipment in the ED is heavily used," says Heidt. "We clean the stretchers, monitor cables, bedside carts, and any other surfaces that have been contaminated." ■

3 ways you can stop infections in your ED

Here are three steps to take to prevent hospital-acquired infections in your ED:

- **Identify infections early on.**

Obtain as much information as possible at triage, to determine prior to any testing if your patient is at risk of having an infectious process occurring, says **Karen Smith, RN, MSN**, director of nursing for the ED at MetroHealth Medical Center in Cleveland.

Ask patients if they have a rash or skin lesions that appear to be draining, fever, diarrhea, recent exposure to someone with an infectious disease, travel outside of the United States, recent admission to the hospital, or recent antibiotic therapy, says Smith. "If any of the above questions result in a 'yes,' and the patient is symptomatic, they are placed in an isolation room," says Smith. "It is better to error on the side of caution."

- **Communicate with others.**

"The need to inform admitting units and support departments — lab, radiology, social work — is imperative," says Smith.

When MetroHealth's ED nurses give report to the next provider, nurse, or department, by telephone or at the patient's bedside, a review of the patient's chief complaint, course of treatment, and plan of care is always included. The person receiving report always is given the opportunity to ask and respond to questions. "We do not use a check-off process, but the nurse utilizes her electronic charting as a communication tool when giving patient report to the receiving nurse," says Smith. "If the clinical staff do not communicate the potential for infectious process, then exposure may occur."

- **Keep nurses up to date.**

Many multiple drug-resistant organisms are resistant

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to hand sanitizers and certain disinfecting solutions. "Educating and re-educating ED nurses about how to prevent transmission is imperative," warns Smith.

MetroHealth's clinical nurse specialist gives ED nurses inservices as needed or requested, such as caring for patients with *Clostridium difficile*. "Infection control clinicians also are key to this educational process," says Smith. ■

ED hand washing hard to track: Ask patients

Make sure staff wash their hands consistently. It sounds simple enough, and it's necessary to comply with The Joint Commission's National Patient Safety Goal to prevent deadly health care-associated infections due to multiple drug-resistant organisms. But it's anything but easy for most EDs to do this.

"EDs are fast-moving environments, and hand hygiene is still a continual improvement process," says

Marianne Fournie, RN, BSN, MBA, corporate director for system ED services at Methodist Healthcare in Memphis, TN.

The ED has more than doubled the number of hand washing cleaning solution stations, and hand washing audits are done by infection control and ED staff on a regular basis. "I also do random checks when I'm in the department. We then post the data on compliance," she says. "But we still are not where we want to be."

The ED is considering a novel approach: having patients "police" compliance. "We are talking about educating our patients and family members so they can be our 'watchdogs,'" says Fournie. "It would require having the right method of hand cleaning solution available at the right place, the right height, and within eyesight of the patient, so they can monitor us."

At Baylor Medical Center at Irving (TX)'s ED, hand hygiene is kept at the forefront, says **Michelle Underwood, RN, BSN, MBA**, ED nursing supervisor/clinical nurse educator. All patient treatment areas have sinks with antibacterial soap and alcohol-based foams mounted on the walls outside patient rooms to encourage staff to "foam in and foam out."

"We have also been proactive in encouraging patients to utilize hand hygiene stations that have been strategically placed at ED entry points," Underwood says.

Also, environmental services staff are permanently assigned to the ED 24 hours a day. Nurses are able to ensure all rooms and equipment are routinely and

appropriately cleaned in between patients by staff specially trained in infection control. "This translates into a decreased risk of infection for not only our patients and visitors, but also our staff," says Underwood. "This directly impacts our ability to decrease the risk of hospital-acquired infection for our clients."

The ED monitors hand washing compliance with direct observation and random audits of staff in patient care areas. "When opportunities are identified, staff are re-educated about infection control policy. Hand washing expectations are formally reviewed by the direct supervisor," says Underwood. ■

Take these actions if you suspect CDAD

The number of cases of *Clostridium difficile*-associated disease (CDAD) doubled between 2001 and 2005 to 301,200, according to a new report from the Agency for Healthcare Research and Quality (AHRQ).¹

According to the report, 64.5% of all CDAD cases entered the hospital through the ED. "A decade ago, this figure was only 58%. So it seems that the proportion of patients admitted for *C. difficile* through the ED has been going up," says **Anne Elixhauser, PhD**, the study's author and senior research scientist at AHRQ. "If someone comes into the ED with diarrhea and they have been on antibiotics, *C. difficile* should be a consideration."

Theresa Patrick, RN, BSN, clinical resource nurse for the ED at University of North Carolina — Chapel Hill, says, "I expect we will be seeing an increase in these cases, because we are becoming more aware and are screening more."

Stool cultures are done for all diarrhea patients with risk factors, says Patrick. At triage, patients are asked about recent hospitalization or treatment with antibiotics, specifically clindamycin, penicillin, and cephalosporin. "This group of antibiotics is being heavily used for the treatment of MRSA [methicillin-resistant *Staphylococcus aureus*]. Therefore, patients receiving treatment for abscesses with diarrhea should raise a red flag," says Patrick. "Residence in a nursing home should also be a red flag at triage."

Signs that the CDAD infection could be life-threatening include hypotension, cardiac dysrhythmias related to electrolyte imbalance, and shock symptoms, says Patrick. "Place the patient on contact precautions immediately if you are concerned for CDAD," she says.

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For the first six months of 2008, the ED at Hennepin County Medical Center in Minneapolis has seen six patients with confirmed diagnoses of CDAD, says **William W. Larson**, RN, assistant nurse manager of the ED.

At triage, ED nurses identify patients with diarrheal disease who were hospitalized within 72 hours of onset of symptoms or received antibiotic therapy in the previous two months. If patients are having persistent active diarrhea, they are placed in contact isolation. "These patients are also triaged as a higher acuity," he says.

Extra care is taken to be certain that all surfaces the patient came in contact with are well cleaned after their use, especially items such as commodes, bedpans, and surfaces that are accidentally exposed to diarrhea stool, says Larson.

ED nurses also obtain orthostatic vital signs to determine the patient's state of dehydration. "If the

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patient is actively having diarrheal stools while in the ED, a stool sample is collected and sent to the lab for analysis," Larson says. "Nurses follow universal precautions, including gloves and gowns."

Reference

1. Elixhauser A, Jhung MA. *Clostridium difficile*-associated disease in U.S. Hospitals, 1993-2005. *HCUP Statistical Brief No. 50*. April 2008. Agency for Healthcare Research and Quality; Rockville, MD. ■

Monitor neuro status of pediatric patients

(Editor's note: This is the second of a three-part series on trauma care in the ED. This story covers neurological assessments in motor vehicle accidents. Last month, we covered violence-related trauma including suspected abuse. Next month, we'll cover self-inflicted trauma.)

When monitoring a child's neurological condition after a motor vehicle accident, you need some specific information to determine what your "index of suspicion" should be, says **Cam Brandt**, RN, MS, CEN, CPN, emergency services educator at Cook Children's Health Care System in Fort Worth, TX.

She suggests using the mnemonic "AVPU" for an overall assessment of level of consciousness, standing for:

- A: Is the child **awake/alert**?
- V: Does the child respond to **verbal stimuli**?
- P: Does the child respond to **painful stimuli** only?
- U: Is the child **unresponsive**?

Also, obtain this additional information, advises Brandt:

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Because trauma patients can deteriorate quickly, assess those patients thoroughly and frequently.

- Perform a full neurological assessment before transporting the patient.
- Warning signs include confusion, agitation, combativeness, hypotension, and tachycardia.
- Headache, nausea, and irritability could indicate a future change in neurological status.
- Document the patient's condition at every handoff.

- Did the prehospital personnel or field triage report include loss of consciousness or significant vehicular intrusion?
- What was the speed of the vehicle?
- Was there a death in the patient's passenger compartment?
- Was this an automobile-pedestrian or automobile-bicycle crash?
- What is the patient's age-appropriate Glasgow Coma Scale score?
 - What is the patient's pupillary size and response to light, motor strength/response, and assessment of head circumference compared to the patient's normal assessment?

To improve your neurological assessment, do these three things:

- **Consider the patient's age.**

Compare your assessment to what would be expected in a "normal" child of that approximate age. "Age-appropriate, serial assessment is key," says Brandt. "The neurological assessment of a 6-month-old is very different from that of a 9-year-old. Variations in assessment should be further explored."

Take these steps if child's neuro status deteriorates

One of the first signs of a deteriorating neurological status in a pediatric patient might be a change in level of consciousness.

"The child who was originally aware of his or her surroundings but is now responding only to painful stimulation warrants closer evaluation," says **Cam Brandt, RN, MS, CEN, CPN**, emergency services educator at Cook Children's Health Care System in Fort Worth, TX.

Other more subtle signs, such as change in vital signs or posture, also should be noted, adds Brandt. She advises taking these three steps if you notice any change in neurological assessment:

1. Note the patient's previous assessment and any subsequent treatments or interventions, such as medications.
2. Address the most common causes of deterioration: hypoxia, hypoglycemia, and hypothermia.
3. Notify others about your findings.

Report changes in posture, responsiveness, pupillary response, and motor movement, says Brandt. "Even subtle changes should be reported to the physician and other members of the health care team," she adds. ■

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- **Communicate your findings in concrete, objective terms.**

Instead of saying, "He's not acting right," more detailed observations such as, "I'm noticing slurred speech and a delay in responding to commands" provide more effective communication and consistency in assessment, says Brandt.

- **Find out what the caregiver thinks.**

Compare your assessment to that of the primary caregiver. For example, if you notice a decrease in level of consciousness, Brandt recommends asking the parent or caregiver a question such as, "I see that Johnny is acting rather sleepy. Is that normal for him?" The parent can answer, "It is nap time, so he is very tired," or they can answer, "No, this is not normal for him."

"Consider these answers with the rest of your assessment for a more complete picture," says Brandt. "Children with special health care needs should be assessed based on their normal state of response, which is best known by the caregiver." ■

Ongoing assessment is vital for motor vehicle accidents

Your patient could die otherwise

A patient involved in a motor vehicle accident was alert with stable vital signs when he arrived at an ED. Three hours later, a nurse from the step-down unit came to transfer the patient for continued monitoring. She saw that he no longer was opening his eyes and didn't respond to verbal commands. The patient was transferred anyway because no one realized that his condition had changed. About 90 minutes later, his heart failed and he died.

The hospital was cited by the state department of health because emergency nurses failed to monitor the patient's deteriorating neurological condition.

"Trauma patients can deteriorate quickly, which is why it is so important for the ED nurse to assess the patient thoroughly and frequently," says **Sanna K. Henzi, RN, MSN**, trauma injury prevention coordinator at the University of California — Irvine (UCI) Medical Center.

UCI's ED nurses monitor the neurologic status of a patient involved in a motor vehicle accident upon arrival and at least hourly for a minimum of three hours, or as needed based on the stability of the patient's mental status, she says. The neurologic assessment includes the

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patient's general appearance, behavior, speech, and language; orientation to time, place, person, and situation; a Glasgow Coma Score; pupil reaction and symmetry; and movement, strength, and symmetry of extremities. "Neurologic status should always be checked and documented if there is a change in the patient's condition," says Henzi. "Prior to transporting a patient to any unit, a full neurological assessment should be done and documented."

When assessing the patient's condition, also consider the age and general health of the patient. Henzi gives these signs of deteriorating neurologic status: confusion, agitation, combativeness, somnolence, difficult to arouse, pupil reaction, hypotension, hypoxia, tachycardia, and/or respiratory difficulty. Also watch for increased headache, nausea/vomiting, and irritability, which could lead to a future change in neurologic status.

"These signs and symptoms can also be warnings of increased intracranial pressure and impending herniation," says Henzi. "These should all be documented and monitored appropriately."

If there are mental status changes, do these four things, she says:

1. Make sure the patient's airway is open.
2. Verify that vital signs are stable.
3. Notify the ED physician of the change.

The patient might need to be upgraded to a different unit for closer monitoring or might need to repeat a CT scan, laboratory tests, or medication administration, Henzi explains.

"The patient should not be transferred from the ED until this change in status is reported, appropriate interventions are initiated and properly documented, and the patient is cleared to move to the appropriate unit," says Henzi.

4. For trauma patients with possible head injuries, elevate the head of bed 30 degrees or in reverse Trendelenberg to avoid increased intracranial pressure and aspiration. ■

You should fine-tune your handoff process

When ED nurses at University of California Medical Center — Irvine transfer a trauma patient, a verbal report is given to the accepting unit.

"This report is given after reassessing the patient and making sure they are stable and appropriate for transfer," says **Sanna K. Henzi**, RN, MSN, trauma injury prevention coordinator.

After the verbal report is given, the trauma patient then is transported to the intensive care unit (ICU)/telemetry

unit by an ED nurse and a trauma technician with a portable EKG monitor/defibrillator, advanced cardiac life support drugs, and oxygen, she says.

The ED nurse assists with the transfer and makes sure all questions are answered before leaving the bedside. "This includes a quick neuro exam by the receiving nurse and the ED nurse simultaneously. The ED nurse then documents the transfer and the patient's condition upon handoff," says Henzi.

However, handoff communication is not only between an ED nurse and an inpatient nurse, but also between ED nurses and other members of the health care team during shift changes or break times, says **Cam Brandt**, RN, MS, CEN, CPN, educator for emergency services at Cook Children's Health Care System in Fort Worth, TX.

A standardized method of handoff should be used for all units, says Brandt. "We use a faxed report that includes vital signs, serial Glasgow Coma Score, treatments, medications, equipment, and any concerns," she says. "We also have a policy that designates the appropriate health care personnel required to accompany the patient during transport." For example, a child with deterioration in level of consciousness requires a discussion between the ED and inpatient nurse, to ensure the appropriate level of nursing care is maintained.

"Concerns would be addressed with the referring and receiving physicians and charge nurses," says Brandt. "Transport of this child would require appropriate monitoring and resuscitative equipment and transport personnel, and a copy of the chart with a discharge summary." ■

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Use this SBAR report for ED trauma handoffs

ED nurses at the University of California Medical Center — Irvine use a protocol for handoffs that involves giving verbal reports to the accepting unit using the SBAR (Situation-Background-Assessment-Recommendation) format. **Sanna K. Henzi**, RN, MSN, trauma injury prevention coordinator, gives this example of an incomplete report:

"I am calling report on John Doe. He is a 40-year-old male that was in an accident today. Everything is negative, and vital signs are stable. Labs were done."

Here, Henzi gives an example of a more complete

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SOURCES

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report in the SBAR format:

"Hi, this is Nurse H and I am calling report on John Doe. He is a 40-year-old male who was involved in a motor vehicle accident. He was a restrained passenger who was rear-ended by another car going approximately 45 mph. He has no medical history and takes no medications at home. He has no allergies. His primary physician

is Dr. Johnson. He has been awake, alert, and oriented with a Glasgow Coma Score of 15 since arrival. He is moving all extremities and has good strength bilaterally. His chief complaint is neck pain, rated a 5 out of 10, and he remains in cervical-spine precautions until the trauma team clears him. He is to be kept NPO until cleared by the trauma team as well. CT scans have been completed of the head, cervical spine, chest, abdomen, and pelvis. We are pending reports from radiology. Last vital signs, 15 minutes ago, were temperature 36.6, pulse 80, respiratory rate 14, and blood pressure 120/80. Lung sounds are clear. The abdomen is soft and non-tender. The patient has two largebore IVs. The Right AC 18 gauge with 1 liter Lactated Ringers at TKO. The left AC has been saline locked. The patient received fentanyl 50 mcg slow IVP, and stated relief, with pain now 1 out of 10. The family is at the bedside, and the patient remains in good spirits. The patient is able to urinate into a urinal with assistance. A specimen was sent. Trauma labs were sent. Hemoglobin was 13.5, alcohol was negative, and tox screen negative. Skin is warm, dry, and intact. The patient is to be admitted for observation and clearance of cervical spine. Do you have any questions? Thanks, I will see you when I bring the patient upstairs." ■

Are you undertreating children with asthma?

Do all pediatric asthma patients receive relievers, corticosteroids, and a home management plan in your ED? These are three measures of care for which The Joint Commission is collecting data.

Although only children's hospitals, for the most part, are collecting those data, nurses in community EDs should take careful note of the requirements, says **Jerod M. Loeb**, PhD, The Joint Commission's executive vice president for quality measurement and research.

"While children's hospitals have been very carefully paying attention to this for some time, I would like to see a trickle-down effect to the general hospitals," he says. "Asthma is a big reason for visits to the ED in both children's and general hospitals. If we can improve care by making sure that each patient gets the right guideline-based care every time, that is a good thing, whether the hospital is collecting data and transmitting it to us or not."

Home management plan required

Though compliance rates are "exceedingly high" for relievers and corticosteroids, Loeb says that he expects to see lower compliance rates for the measure

requiring patients to be given a home management plan. "I'm guessing the numbers will be lower, because that's sort of pushing the envelope," he says. "What these measures really address is preventable trips to the ED and, worse yet, preventable inpatient admissions."

If your care of children with asthma is guideline-based and you can get parents to understand the importance of home management, "you can avoid that trip to the ED and improve access as well," says Loeb. "A lot of times, ED throughput gets clogged up because there are people coming in for nebulizer treatments and other kinds of things associated with asthma care. The real impetus behind all this is to prevent the ED visit in the first place."

The Joint Commission's asthma measures are used as

EXECUTIVE SUMMARY

All children with asthma should receive relievers, corticosteroids, and a home management plan in the ED.

- Give oral steroids to reduce airway inflammation and prevent severe distress.
- Give medications within 30 minutes of arrival.
- If there is an incomplete response, give steroids within 120 minutes of arrival.

benchmark standards for pediatric asthma patients, says **Stephanie Haler**, RN, manager of the ED at Clarian North Medical Center in Carmel, IN. "We track each asthma patient that is seen each month and review their care to ensure we have met the standards," she says. "When we don't, we immediately begin looking at ways to improve our practice and then rapidly implement changes."

If a child's asthma is in good control, they should not need the ED and should need only minimal use of their rescue inhalers, adds Haler. "Our goal is to keep kids healthy so that they do not have a crisis which precipitates them coming to the ED," she says. "The best way to do this is education on the child's medications and dosing regimens, avoidance of triggers, and home monitoring such as peak flows." ■

ED nurses share best practices for asthma

Never delay the start of oral steroids for children with asthma, warns **Anne Borgmeyer**, RN, an ED nurse at St. Louis Children's Hospital.

"Oral steroids are crucial to reducing the airway inflammation that leads to severe distress," she says. "The oral steroids can be given by mouth and do not necessitate starting an IV."

To improve the outcomes of children with asthma, do the following:

- **Give medications immediately.**

"Intervening immediately for an acute asthma attack is our mission," says **Stephanie Haler**, RN, manager of the ED at Clarian North Medical Center in Carmel, IN. "We use a rapid assessment method for pediatric asthma patients. Rapid intervention is critical to a positive outcome for a severe asthma attack."

This method allows ED nurses to classify the patient into a mild, moderate, or severe category, which helps to guide their treatment. For severe asthma attacks, ED nursing care is driven by protocol, with immediate administration of albuterol nebulizer, and assessment of peak flow before and after. **Diana Volpe**, RN, an ED nurse at Children's Hospital Boston, says, "We give our meds within 30 minutes of arrival of triage. We are very much on top of that, and have 100% compliance."

After the first medication, if there is an incomplete response and the patient still is wheezing, nurses give corticosteroids steroids within 120 minutes. "We are meeting that goal so well that we lowered it to 90 minutes," she says. "If you stay on top of this, and get the steroids in early, you might be able to turn a patient

SOURCES

For more information on caring for pediatric asthma patients in the ED, contact:

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- **Stephanie Haler**, RN, Manager, Emergency Department, Clarian North Medical Center, Carmel, IN. Phone: (317) 688-3125. E-mail: shaler@clariannorth.com.
- **Diana Volpe**, RN, Emergency Department, Children's Hospital Boston. Phone: (617) 355-2358. E-mail: diana.volpe@childrens.harvard.edu.

around and avoid an admission."

• **Closely assess patients so they get treatments in a timely manner and don't have to wait for needed doses.** "Stack those nebulizers every 20 minutes, and do an asthma severity score to see what the response is," says Volpe. "Make sure the reassessment happens after each and every one."

• **Instruct patients to follow up with their primary care provider in three to five days.**

Borgmeyer says, "This gives the provider a chance to assess for resolution of the episode and tune up the asthma action plan."

• **If patients are discharged home, inform them about their medications.**

"Make sure that the patient and family know when and how to give their medications," says Borgmeyer. "Ideally, patients who are going to use albuterol metered dose inhalers will have used them in the ED prior to discharge." ■

Be sure that all MI patients get equal care

Protocols and 'STEMI team' ensure consistent care

When a woman came to the ED at Christiana Care Health System in Wilmington, DE, complaining of nausea, vomiting, and diarrhea, she was initially triaged as low acuity. "But when the ED nurse saw how uncomfortable the patient was, she decided to do an EKG on her," says **Kelly Powers**, RN, an ED nurse at the hospital.

The physician assistant took one look at the EKG and immediately knew the patient was going to need

EXECUTIVE SUMMARY

Use protocols to ensure consistent care of chest pain patients, and include patients with atypical symptoms such as fatigue, anxiety, or indigestion.

- Ask about diabetes, hypertension, and family history.
- Bypass triage for patients presenting with certain complaints.
- Set a goal of obtaining EKGs in 11 minutes or less.

to go to the cardiac catheterization lab. He ordered the blood work and alerted the on-call cardiologist.

"If the on-call cardiologist is not in-house, the EKG gets faxed to them or they come down into the ED to evaluate the patient," says Powers. "This patient ended up being a heart code and was taken emergently to the cath lab to relieve her heart blockage."

Ask about symptoms, history

With any chest pain patient, you'll need to know any associated symptoms, such as diaphoresis; nausea; shortness of breath; radiation of pain to the shoulders, neck or back; what they were doing when the chest pain started; and whether anything makes it worse or better, says Powers. "Also, if the patient has diabetes, hypertension, or other medical problems, that can make chest pain more suspicious," says Powers. "I ask about family history also to see if it is relevant."

If there are no available rooms, the triage nurse obtains an EKG and, if possible, a previous one to compare. The triage nurse shows them to a physician immediately. "If the physician deems it necessary, the patient is moved into a room, or blood work is started at triage," says Powers.

Obtain this info

At Loma Linda (CA) University Medical Center, a ST-elevation myocardial infarction (STEMI) activation team ensures that all chest pain patients are treated consistently.

Sherry Nolfe, BSN, MICN, core measures resource nurse in the ED, says, "We treat all acute MIs the same, regardless of gender. On average, we can get our STEMI patients from the door to the cath lab in 45 minutes or less."

At triage, she recommends asking these questions:

- What type of medical history do you have? Diabetes?

Hypertension? High cholesterol? Are you a smoker?

- Do you have a family history of heart disease?
- What symptoms are you having? Most women report unusual fatigue and sleeplessness for several days or weeks, are anxious, and complain of indigestion, notes Nolfe.

"I find that in the past, women were less likely to come in for chest pain," says Powers. "Lately, though, women are more aware and are coming in for chest pain, even with very vague symptoms." ■

Women less likely to get treatments for heart attack

If a woman came to your ED with atypical symptoms and then obtained normal results from an angiogram, you might assume that she was not having a heart attack. However, that is a dangerous assumption to make, according to a new study.¹

Researchers examined data from the Global Registry of Acute Coronary Events on 25,755 men and women who had a heart attack or chest pain episode between 1999 and 2006. Here are key differences the researchers found:

- **Women were more likely to have atypical symptoms.**

Although 94% of men and 92% of women reported chest pain, female patients who didn't have chest pain were more likely to experience symptoms such as nausea and jaw pain.

"These women need to be assessed, particularly those with multiple risk factors such as hypertension or diabetes, as they may be experiencing an acute coronary event," says **Elizabeth A. Jackson**, MD, MPH, one of the study's authors and assistant professor of medicine in the University of Michigan Health Systems' Division of Cardiovascular Medicine.

- **Women were twice as likely as men to have "normal" or "mild" results on an exam of their heart's blood vessels, with no single blockage taking up more than 50% of any one blood vessel.**

Patients who have had a prior cardiac catheterization that shows nonobstructive coronary artery disease (CAD) still can have recurrent chest pain or acute coronary syndrome, says Jackson. "This means that some of them should have medications such as aspirin or statins, depending on their risk factors."

- **Women were significantly less likely than men to receive beta-blockers, statins, and angiotensin-converting enzyme (ACE) inhibitors.** "This was one of the interesting findings. There is continued disparity

among women and men in regard to effective cardiac medications, in particularly those with more severe CAD," says Jackson.

Reference

1. Dey S, Flather MD, Devlin GP, et al. Sex-related differences in the presentation, treatment and outcomes among patients with acute coronary syndromes. The Global Registry of Acute Coronary Events. *Heart* May 2008. doi:10.1136/heart.2007.138537. ■

Get EKG time down to 11 minutes or less

At Loma Linda (CA) University Medical Center, ED nurses have decreased door-to-EKG time to 11 minutes from almost an hour a year ago, reports **Teri D. Reynolds**, RN, BSN, clinical educator in the Department of Emergency Services.

"We are now experts at getting the patient to the cath lab before 30 minutes," she says.

In January 2007, door-to-EKG time was an average of 50 minutes. **Sherry Nolfe**, BSN, MICN, core measures resource nurse in the ED, says, "At that point, I implemented an education plan for the nurses and patient care techs. I educated them on the importance of a 10-minute EKG and how it was the only tool we use to identify a STEMI."

By July 2007, door-to-EKG time was down to nine minutes, and it has remained at 11 minutes or less to date. "Our average door-to-reperfusion time for 2007 was 113 minutes and, for 2008, it is 87.5 minutes," reports Nolfe. "I think this is due to our early recognition of [ST-elevation myocardial infarction] STEMI with our EKG times, and also the implementation of our STEMI activation team."

All chest pain patients in Loma Linda's ED are required to receive an EKG within 10 minutes of arrival. All EKGs completed in the ED are then given to an attending to interpret, and if it shows a STEMI, the attending physician activates the STEMI team. "The patient is brought to an ED bed immediately, and the cardiovascular checklist is completed by the nurse," says Nolfe. "Our average for this year is door-to-cardiovascular lab in 26 minutes." ■

SOURCES

For more information on ED nursing care of myocardial infarction patients, contact:

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CNE instructions

Nurses 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 **December** 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

■ Which medications you should *not* give to elderly patients

■ Nurses catch atypical MIs with rapid EKG process

■ Why reassessment could save a psych patient's life

■ Steps to take immediately for self-inflicted injuries

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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.

9. Which of the following is recommended to prevent hospital-acquired infections in the ED?
 - Ensure that all intubation equipment remains in sterile packaging until time of use.
 - Never pull central lines unless a nurse specifically states the line was placed under emergent circumstances.
 - Open intubation equipment each morning to prepare for a patient's arrival.
 - Keep the head of the patient's bed completely flat.
10. Which is an indication of possible *Clostridium difficile*-associated disease?
 - Recent hospitalization.
 - Recent antibiotic use.
 - Persistent active diarrhea.
 - All of the above
11. Which is recommended for care of children with asthma in the ED?
 - Delay the start of oral steroids.
 - Give only intravenous steroids.
 - Avoid early introduction of steroids.
 - Immediately give albuterol nebulizer treatment for severe asthma attacks.
12. Which is true regarding chest pain patients in the ED, according to a recently published study?
 - Men have atypical symptoms more often than women.
 - Women have atypical symptoms more often than men.
 - Women are more likely to receive beta-blockers.
 - Men are often not given ACE inhibitors.

Answers: 9. A; 10. D; 11. D; 12. B.