ED NURSING™

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ED nurses vulnerable during chemical exposure incident

Protect yourself and your patients

(Editor's note: We sent an e-mail alert about the recent incident of chemical exposure at EDs in the St. Louis area. If you didn't receive it, we don't have your e-mail address. Please contact customer service at customerservice@ahcmedia.com or (800) 688-2421 so you won't miss out on future alerts.]

It's one of the worst-case scenarios outlined in a hospital's disaster plan: Patients walking into ED waiting rooms covered in dangerous chemicals, with absolutely no warning. Every single person in the ED is put in harm's way.

That's exactly what happened at several EDs in St. Louis after eight workers were exposed to the highly toxic chemical nitroaniline at an industrial plant. Three of these individuals walked into St. Anthony's Medical Center after pulling up in a pickup truck.

"The triage nurse could tell something was wrong right away, because one of the patients was literally blue," says **Patty Wors**, RN, nursing director of the ED. "Before we could stop them, they walked through our doors. That put a whole different light on things."

The charge nurse called the house supervisor, and the ED immediately was quarantined. The patients were escorted to two treatment rooms right off triage. Nurses gowned up with masks, goggles, shoe covers, gowns, and gloves. "The sickest one had a pulse oximetry of only 80%," says Wors. "The first thing we

EXECUTIVE SUMMARY

Patients exposed to a dangerous chemical walked into St. Louis EDs with absolutely no notice. Nurses had to lock down the EDs and decontaminate themselves and their patients as a result. To prepare:

- Give nurses an annual class on personal protective equipment.
- Don't let exposed patients into the ED before decontamination.
- Be suspicious if several patients present with trouble breathing, watery or burning eyes, skin rash, or irritation.

did was get their clothes off and wash them down. They were walking and talking, so we had them do that first. We didn't even know what it was at that time."

Just a month earlier, nurses had an anthrax scare that turned out to be a hoax, but it brought the topic of decontamination to the forefront. In this case, nurses weren't sure whether only the patients or the entire ED had to be decontaminated. "In the end, we wound up having to decontaminate everybody — patients and staff — as a precaution," says Wors.

At Barnes-Jewish Medical Center, the situation was quite different. Emergency nurses already had gotten word about the incident, and didn't expect to receive any patients. "But about two hours later, we got an EMS report that they were bringing us a patient involved in the incident," says **Keith Outlaw**, RN, assistant clinical manager of emergency services. "His oxygen saturation was low, and his heart rate was fast."

ED nurses jumped into action and carefully followed well-rehearsed policies for chemical exposure. "We found out that he had self-decontaminated at home — he took two showers and changed his clothes — but we needed to make sure he wasn't still contaminated," says Outlaw.

Outlaw put the man into the decontamination shower before he entered the ED, and he then was placed in the trauma bay. ED nurses put on protective gear, started an intravenous line, and gathered medications and supplies.

Here, ED nurses had another big advantage: They knew what substance they were dealing with. "So we started our normal process of pulling up our MSDS [material safety data sheets] sheets and trying to figure out what the chemical was made of," says Outlaw. "It causes loss of oxygen to the blood, so we gave him methylene blue to counteract that." The patient was admitted for observation.

Outlaw credits the smooth ED visit with the training given to all nurses, including a four-hour annual class that covers when and why to put on personal protective equipment. The class is given by various instructors including Outlaw and staff in Environmental Health and Safety and Radiation Safety. "We also have two ED physician residents that give hands-on training involving taking care of a contaminated patient," he says. "As far as our decontamination process goes, I would rate that as excellent. **(For more information on this topic, see related stories on steps taken by ED nurses to prepare for an influx of contaminated patients, below; when to suspect chemical exposure, p. 136; steps to take if decontamination is needed, p. 136; and what a patient's color can tell you, p. 136.)**

If you suspect your patient's symptoms could be due to chemical exposure, take immediate action, urges Outlaw. "The first thing to think of is not only their safety, but also your safety and the safety of your facility," he says. "They can start off gassing and affecting you right away, so you need to minimize that exposure to you or any of your co-workers. Don't let them into your ED without being deconned." ■

Likely chem exposure? Do this immediately

Although ED nurses at Saint Louis University Hospital didn't wind up caring for victims of a recent chemical exposure directly — the only patient they received went directly to the intensive care unit — nurses did the following to prepare for patients:

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ED nurses attend decon skills camp

You need 'across-the-room' recognition

Almost the entire ED staff at St. Joseph's Hospital in St. Paul, MN, just went through a contamination recognition "skills camp" given by **Joan Somes**, PhD, MSN, RN, CEN, FAEN, ED educator. Somes covered signs and symptoms of possible contamination, how to decontaminate patients, and how to route them through the hospital.

During the recent Republican convention, the ED was provided with a decontamination unit staffed with Marines in the parking lot, should massive decontamination be necessary. Normally, however, patients would be routed through the shower system in the hospital's ambulance garage and would not be allowed to get any further than the ED waiting room door.

"They would be redirected back out to the ambulance garage area," says Somes. "The triage nurse would also probably go through the decon process as well."

As an ED nurse, Somes says you need to have "across-the-room" recognition when a patient needs decontamination.

Somes says when she heard about a recent St. Louis incident of chemical exposure, she hoped that the ED nurses knew how to protect themselves. "White powder on someone is a good reason to stay back, call security, and let the charge nurse know you have a decon situation. Instruct the patient to keep back and that help is being arranged," she says.

Also, have the patient undress, as 90%-95% of the contamination is on their clothing. "We would then direct them to the decon area and have them do their own showering," Somes says.

Keep in mind the acronyms SLUDGE (salivation, lacrimation, urination, defecation, gastrointestinal upset, and emesis), and DUMBELS (diarrhea/diaphoresis, urination, miosis, bronchospasm/bradycardia, excited muscles/tremors/seizures, lacrimation, and salivation) as reminders of what to check.

Decontaminate the patient without contaminating yourself as well. "Way too often, if a patient presents with respiratory distress or other problem, we jump in," says Somes. "If the patient has an odd odor, powder, or presentation, use caution." ■

• Security was put on alert, stationed at the ambulatory entrance. "They made sure that anyone who may have been exposed did not enter the building," says **Jeanne Fogarty**, RN, BSN, MBA, the ED's patient care manager. "Security is always in direct contact with both the triage and charge nurse. Immediate assistance is readily available."

• Decontamination equipment was pulled out and set up in the hallway, ready to be pulled outside at a moment's notice.

• Staff trained in decontamination were on standby in the ED.

• All appropriate managers were notified, on standby and ready to respond if needed.

ED nurses learned two lessons from the event, says Fogarty. "As with any event, real or drill, there is always room for improvement with communication," she says.

Too many staff members, both on duty and off duty, used the ED as the source of information. "There were too many phone calls," says Fogarty. "This creates problems when the ED needs to keep providing patient care and prepare for the event. We will need to continue to educate staff."

Also, the chain of command was not always followed, and staff received conflicting instructions. "Information should be coming from one source and one source only, and that is the command center or the nursing supervisor," says Fogarty. "The ED cannot take on that responsibility. We want all ED staff to concentrate on the task at hand: caring for the influx of patients. This will be addressed in our next drill."

Make supplies accessible

The ED also learned that storage areas for decontamination supplies need to be more easily accessible. In addition to the ED's indoor decontamination shower, there is an outdoor decontamination area right outside in the ambulance bay. "We have it set up so that maintenance will respond and hang the curtains, as well as turn on the mixer for the water," says Fogarty. "The person working the off shift was not familiar with where the curtains were stored, which resulted in extra phone calls and a bit of a delay in getting things ready."

One possible solution is to permanently hang the curtains in a recessed storage container, so all staff need to do is open the container. Another suggestion came from an ED technician: to obtain a bug-spraying device to fill with the detergent used for decontamination. This item would be added to the boxes used to store decontamination equipment at triage.

"We can then spray the victim down first, which will shorten the decon time," says Fogarty. ■

See or hear this? Suspect exposure

History is key

After ED nurses received an emergency medical services call of an "asthma attack" in a pregnant woman, suddenly multiple patients arrived in respiratory distress. It turned out that someone had sprayed pepper spray in a nightclub.

"The doors were blocked and people panicked, resulting in many victims who were trampled," says **Theresa Patrick**, RN, BSN, clinical resource nurse for the ED at University of North Carolina — Chapel Hill.

A few minutes later, ED nurses started experiencing burning eyes and throat irritation and coughing. "Nobody knew the pepper spray was released, so no decontamination was done," she recalls. "If this had been a more toxic chemical release, many of the staff and EMS would have been exposed and could have died." The lesson, says Patrick: "History is the key in knowing how to protect others from exposure."

Most of the time, workers in industrial plants know exactly what they have been exposed to, "so pay attention to their stories," says **Joan Somes**, PhD, MSN, RN, CEN, FAEN, ED educator at St. Joseph's Hospital in St. Paul, MN.

If patients do not mention chemical exposure, however, you still should suspect this if they present with respiratory problems. "These are a good clue: Patients may wheeze, cough, or present with stridor, an indication of bronchospasm," says Somes.

However, patients may not know themselves that they have been exposed, so take note of a pattern of similar symptoms. Be suspicious if several people from the same area — a shopping mall or workplace, for example — present with trouble breathing, watery or burning eyes, skin rash, or irritation. Your questions at triage should be geared toward identifying route of exposure, says Patrick. Ask patients: Did you smell anything funny? Did you see any fumes or feel something splash on your skin? "Find out if the patient changed clothes or showered," says Patrick.

The patients might be so ill that they are unable to tell you what they were exposed to, but the plant manager, first responders, or other workers might be able to provide information, says Somes. "Many will have the MSDS sheets [material safety data sheets] out and ready to send with the patient," she says. "We have had companies fax them to the ED, so we were aware of the best and safest method to proceed."

Somes once cared for a cardiac arrest patient who she later found out was off gassing hydrogen cyanide from his clothing. Burning eyes, running noses, wheezing, and a pungent odor noticed by people walking into the ED prompted a call to the poison control center.

"Those in the department no longer could smell the chemical as our olfactory senses were totally overloaded," says Somes. "Our patient, and the staff, did much better after we removed the patient's clothing and contaminated sheets from the room. All too often with the very sick patient, we cut the clothing open but leave them laying in the 'soup' underneath them." ■

Clinical Tips

Don't be fooled by 'good color'

If a patient reports exposure to a chemical but doesn't look pale or cyanotic, and instead, has a rosy glow, don't let this fool you.

"Good color is not a good indicator, as both cyanide and carbon monoxide cling to hemoglobin like oxygen does," says **Joan Somes**, PhD, MSN, RN, CEN, FAEN, ED educator at St. Joseph's Hospital in St. Paul, MN. "The patient's color may be nice and pink, and their oxygen saturation looks great, but it is not oxygen that is causing these colors." ■

Follow these steps if decon is needed

Patients with chemical exposure "should be quarantined from the rest of the department, medically stabilized, and decontaminated," says **Theresa Patrick**, RN, BSN, clinical resource nurse for the ED at University of North Carolina — Chapel Hill. Patrick gives these tips:

- Wear chemical-resistant protective equipment.
- Save clothing for law enforcement.
- Consider the route of exposure.

If there was gas or vapor exposure only and the patient doesn't have skin or eye symptoms, decontamination is a priority, says Patrick. If there was liquid

exposure, or the patient has skin symptoms, and they haven't showered or changed clothing, they should be grossly decontaminated.

• For eye exposure, flush the eyes until a pH level of 7 to 7.5 is reached. Be sure to use tetracaine prior to eye irrigation.

• Assess the patient's airway.

If inhalation exposure is a possibility, Patrick adds that careful assessment of the patient's airway is needed to monitor for a life-threatening condition. "Aggressive treatment of bronchospasm and wheezing is needed with bronchodilators," she says.

Consider the severity and type of symptoms. Determine whether it is a local reaction on the skin, inhaled with respiratory symptoms, or ingested with symptoms, says **Cindy Vanek**, MS, RN, director of emergency and critical care services at Indian River Medical Center in Vero Beach, FL. "If the patient walked into and contaminated the ED, then a quick decision must be made to shut down that area or the full ED, depending on the layout," she says. ■

EDs were ready during Republican convention

Police officers spraying pepper gas at protesters. Anarchists throwing urine at police officers. Worrying about the possibility of food served at parties stored at the wrong temperatures causing food poisoning. Filling prescriptions on the fly for out-of-town delegates.

These are just some of the things that ED nurses at St. Joseph's Hospital in St. Paul, MN, have had to deal with during the recent Republican convention, which was held only two blocks away. "We actually went into lockdown status yesterday afternoon for a while, when the anarchists stormed past our hospital to get to the back door of the convention center," reports **Joan Somes**, PhD, MSN, RN, CEN, FAEN, ED educator. "The scary part is when we got home in the evening, we saw the damage they did to other parts of the city and realized what a good job the police had done to keep us intact."

ED nurses spent much time before the convention planning and preparing for what might happen, such as terrorist attacks. "Interestingly, it has been almost deathly quiet in our ED during the convention," she says. "There is so much security around the area that many people are afraid to try to come to see us."

During one of the protest marches, ambulances were unable to get through the crowds to the ED for about five hours. "We realized one of the benefits this week of not being too busy was that we are bringing all patients and families into rooms on arrival and registering them at the bedside," says Somes. Safety was one reason. "During one of the protests, they were breaking windows," she says. "Our entire waiting area is windows. The folks are safer inside the department, just in case."

A computerized system provided early warning that the police had to use pepper spray on protesters. "This information was communicated to the ED staff," says Somes. "Thus, if someone appeared covered with powder, or with runny eyes, respiratory symptoms, or vomiting or diarrhea, first we stop them to check if it is an exposure." ■

Is trauma self-inflicted? You can do these 3 things

Don't be judgmental, ED nurse advises

(Editor's note: This is the third of a three-part series on trauma care in the ED. This story covers self-inflicted trauma. Previous issues covered neurological assessment of children involved in motor vehicle accidents and violence-related trauma.)

ED nurses are seeing increasing numbers of self-inflicted trauma cases, particularly in female patients.

"In the past few weeks, I know of at least three women admitted with intentionally self-inflicted stab wounds," says **Regina Curry**, RN, an ED nurse at Thomas Jefferson University Hospital in Philadelphia.

Curry adds that in her experience, male patients are more likely to use violent means, such as firearms or knives to self-injure, while women tend to use more passive means such as drug overdoses. To improve care, do these three things:

EXECUTIVE SUMMARY

If you suspect a patient's injury was self-inflected, offer help in a nonjudgmental way, arrange for follow up, and pay close attention to family history. Some patients at high risk:

- Adolescents over age 11, female, socially disadvantaged, and with low self-esteem.
- Patients with a family history of domestic violence, sexual abuse, or drug abuse.
- Patients presenting with self-poisonings of drugs or alcohol, or injuries caused by impulsiveness or high-risk behaviors.

• **Look for signs that patients' injuries were self-inflicted, even if their histories says otherwise.**

"Teenage girls may try to conceal cuts on their arms, legs, abdomen, and inner thighs by wearing long sleeves and pants on hot days," says Curry. "Self-inflicted wounds look deliberate. Scabs in neat rows are typical. You can also see signs of compulsive acts like skin picking or hair pulling." **(See related story on the patient's family history, below.)**

• **Offer help in a nonjudgmental way.**

"These patients want their feelings to be taken seriously. They need help and guidance," Curry says.

• **Arrange follow-up for problems you can't solve.**

Helping your patient get the proper follow-up care could be the most important intervention you can do. "I saw a camp nurse bring a girl to the ED for 'pink-eye.' It turns out she was pulling out her own eyelashes. She had problems that could not be fixed in an ED, obviously," says Curry. "Utilizing social work for home follow-up was helpful and gave me some peace of mind." ■

CLINICAL TIPS

With self-injurers, pay close attention to history

"Self-injurers" usually are adolescents over the age of 11, female, socially disadvantaged, and with low self-esteem. They often have a family history of domestic violence, sexual or drug abuse, says **Kathy Hendershot**, RN, MSN, director of clinical operations of the Emergency Medicine & Trauma Center at Methodist Hospital of Indiana in Indianapolis.

"Family history is a very valuable resource of information, as well as the medication list, which may show ADHD [attention deficit hyperactivity disorder] medication or SSRI [selective serotonin reuptake inhibitors] treatment for depression," she says.

You might see patients in the ED for an event unrelated to the self-harm, but risk factors within the family history might clue you in. "With a good assessment you may discover this, and it should cue you to a more in-depth evaluation," says Hendershot. Patients might present with self-poisonings of drugs or alcohol, or injuries caused by impulsiveness or high-risk behaviors.

Whenever you care for an overdose case, regardless of whether a recreational drug or prescription medication is taken, evaluate these patients for self-harm "each and every time" stresses Hendershot. "All of these should have a behavioral health evaluation." Assess the patient's current medications, previous visits or admissions, screenings for domestic violence, nutrition, weight, and the history of the current illness or injury, along with the family history. "These all start to paint the picture," she adds. ■

Take these steps if you suspect pericarditis

If a patient presents with sharp, stabbing chest pain, this doesn't necessarily mean a myocardial infarction. Your patient might have pericarditis, which can be life-threatening if myocarditis or cardiac tamponade develops.

"Although progression to either of those disease states is rare, if this does occur it becomes a serious situation," says **Dee Fontana**, RN, MSN, ACNP-BC, ED nurse manager and nurse practitioner at University of Illinois Medical Center in Chicago.

Here are three assessment tips if you suspect pericarditis, from **Karen Sylvester**, RN, CEN, clinical coordinator for the ED at Abington (PA) Memorial Hospital:

• **Listen for a pericardial friction rub.** "This is most easily heard at the lower left sternal boarder when the patient is sitting and leaning forward," says Sylvester. "If you are having a difficult time hearing, you can ask the patient to hold their breath."

• **Check for a paradoxical pulse over 10 mmHg.** "Extra beats can be detected on cardiac auscultation, during inspiration, when compared to the radial pulse," says Sylvester.

• **Inquire about recent upper respiratory infections.** Ask patients if they have had a runny nose, cough, or scratchy throat.

MI or pericarditis? Ask these questions

The precipitating factors for pericarditis are viral or bacterial illness, says **Karen Sylvester**, RN, CEN, clinical coordinator for the ED at Abington (PA) Memorial Hospital.

Sylvester recommends asking these questions if you suspect pericarditis:

• When did the pain begin? Was it associated with exertion or activity?

• What makes your pain worse? Exercise, deep breathing, changing positions?

EXECUTIVE SUMMARY

When assessing patients for pericarditis, listen for a pericardial friction rub, check for a paradoxical pulse over 10mmHg, and ask about recent upper respiratory infections.

- On the initial electrocardiogram, look for ST elevation in all leads except AVR and V1.
- Ask if patients have had fevers, chills, or cough.
- Treat with anti-inflammatories and aspirin.

• Have you had any upper respiratory infections lately? Runny nose, cough, scratchy throat? "These are signs and symptoms of viral or bacterial illnesses, which would prompt you to think of pericarditis," says Sylvester.

• What makes your pain better: rest, deep breathing, or changing positions?

• Does leaning forward make the pain decrease any? "Typically, with pericarditis, the chest pain is relieved when the patient sits up and leans forward," says Sylvester. "This does not occur with cardiac pain, which remains constant regardless of position."

Precipitating factors for myocardial infarction are effort-related activity, large meals, and emotional stress, says Sylvester. "An EKG [electrocardiogram] within 10 minutes of arrival will help to determine your next step," she says. **(See related story for what to look for on your patient's EKG, below.)**

Ask these questions if you suspect your patient is having a myocardial infarction:

• Are you experiencing palpitations, shortness of breath, nausea, vomiting, or diaphoresis?

• What were you doing when the pain began?

• Does anything make the pain worse?

• Is your pain constant? What makes it better?

• How long have you had the pain? Have you had this pain in the past? What was the resulting diagnosis?

• What interventions already have been taken prior to your arrival in the ED: medications, oxygen, and/or antacids?

• Have you had any relief with nitrates? ■

What to look for on your patient's EKG

There are two distinct differences seen on an electrocardiogram (EKG) that can tell you whether your patient has an acute myocardial infarction (AMI) or pericarditis, says **Dee Fontana**, RN, MSN, ACNP-BC, ED nurse manager and nurse practitioner at University of Illinois Medical Center in Chicago.

In pericarditis, the ST elevations are usually less than 5 mmHg above baseline and are *generalized;* they occur across most of the leads on the ECG. With AMI, the ST-elevations are specific to the coronary artery that is blocked and causing the ischemia and subsequent infarct.

For example, if the patient is having an inferior wall MI, the ST-elevations would be in leads II, III, and AVF because those are the leads that reflect the blood supply provided by the right coronary artery, which feeds the inferior wall of the heart, says Fontana.

"In contrast, if that same patient presented with pericarditis, then all the leads would show ST-elevation, likely of a lesser degree in height but generally the elevations would be across the board," says Fontana. "The other difference is the shape of the ST-elevation, which is upwardly concave in pericarditis. This is a unique finding for this disease."

With pericarditis, the progression of the Q-wave conversion occurs after ST elevations have returned to the baseline, says Fontana, whereas with AMI, it might accompany ST-segment elevations.

Do this in addition to EKG

At Mission Hospitals in Asheville, NC, all chest pain patients get immediate EKGs at triage. "During this rapid time of assessment, a good storyline is needed," says **Frank A. Luther Jr.**, RN, a nurse clinician in the hospital's ED. "And you need to get all of this, plus other history and supportive data, in about one minute. Chest pain is chest pain, and you work it up until proven otherwise."

You'll need to know the following pieces of information, says Luther:

• When did the pain start? Where is it, and does it go anywhere, such as the middle of the chest to the arm or straight to the back?

• Are there other supporting signs and symptoms, such as nausea or shortness of breath?

• Is there a history of recent illness, especially heart-related?

• Does the patient have fever and/or cough? "Often for pericarditis, you are looking for that slight history of fevers or chills, and sometimes cough for a few days leading up to the painful episodes," says Luther.

While the EKG is being done, the pericarditis needs to be treated and the inflammation relieved. "Anti-inflammatories are used. Aspirin is given for the blood aggregation and also helps with the anti-inflammatory

effect," Luther says.

However, nonsteroidal anti-inflammatory drugs and aspirin are very aggravating to the stomach lining, especially in constant or higher doses. "Use coated aspirin when possible," says Luther. "Watch for nausea and check for increased GI [gastrointestinal] distress and history of ulcers, especially bleeding ones." ■

'Clock' form scores 100% compliance for pneumonia

Nurses use clock logo for timely antibiotics

More than 1.2 million Americans were hospitalized for pneumonia in 2006, with 71% of those cases admitted through the ED, according to a new analysis using data from the Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project.

At Inova Alexandria (VA) Hospital, the ED Clinical Practice Council, which consists of physician, nursing, and quality staff, wanted to improve compliance with The Joint Commission's requirement to give antibiotics within four hours of arrival for patients who are diagnosed with pneumonia. In previous years, compliance hovered at 85%. **(See related stories on a recent change in The Joint Commission's required timeframe, p. 142; symptoms that suggest pneumonia, p. 142; immediate steps to take if you suspect pneumonia, p. 142; and how to tell if a patient's condition is possibly life-threatening, 143.)**

A form was created with a picture of a clock, printed on bright-yellow paper, and placed on the top of the patient's chart. "We literally sketched it out on paper, with input from our Council," said **Joanne Scarlato**, RN, management coordinator for the ED. A decision was made to use a digital clock, since it was easier for nurses to record the time. **(See the ED's form on p. 141.)** Triage criteria and protocols were also developed.

Pneumonia standing orders are now used for patients with two or more of these symptoms:

- temperature of 100.5° or higher;
- cough;
- dyspnea/shortness of breath;
- noncardiac chest pain;
- hypoxia (pulse oximetry less than 94%);
- altered breath sounds;
- tachycardia (heart rate over 90).

"If a patient is short of breath and coughing and they arrive at 2 p.m., you know that you have only until 6 p.m. to treat them," said Scarlato. The ED has been at 100% compliance for more a year now, she reports.

After the patient's arrival time is documented on the clock form, ED nurses notify the charge nurse and obtain a chest X-ray, complete blood count, comprehensive metabolic panel, blood cultures, and urinalysis. If the chest X-ray is positive, the patient receives antibiotics within four hours.

In the beginning, though, some ED nurses thought the new protocol would mean additional work. "There are always questions and concerns when you change anything. Our staff thought this process was not of high importance," says **Jessica Rocca**, RN, an ED nurse who helped educate staff on the new process. "But once they saw the results, they realized the additional steps that were taken improved patient care."

The picture of the clock on the form "really does make a big difference," says Rocca. "Nurses know if the patient has two of any of these symptoms, they qualify even if you don't think they have pneumonia."

For example, a patient might report a racing heart and chest pain, and will therefore get an electrocardiogram (EKG), but this patient also will qualify for the pneumonia protocol. In addition, the protocol catches pneumonia patients during the summer when they might be more easily overlooked. "For every 100 patients on the protocol in July, we may get one who actually has pneumonia," Scarlato says.

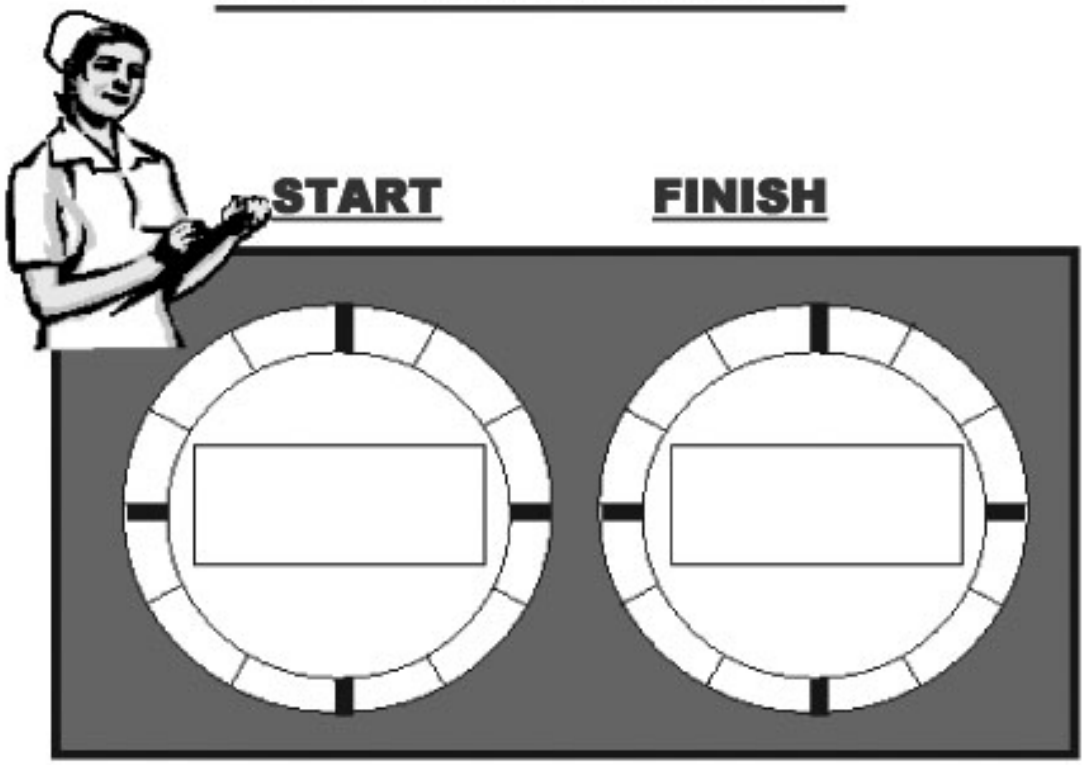
Documentation was another challenge, as with a patient who was not given an antibiotic for a good reason: He already had taken it before coming to the ED. "He was admitted, but unfortunately the record did not indicate that the patient took their own antibiotic," said Scarlato. "This was recorded in the statistics as being noncompliant. The champions of this pneumonia process took steps to ensure a similar situation did not occur again." ■

EXECUTIVE SUMMARY

To comply with The Joint Commission's requirement to give antibiotics within four hours for patients diagnosed with pneumonia, ED nurses created a form with a picture of a clock to record the time, placed on top of the patient's chart.

- ED nurses obtain a chest X-ray, complete blood count, comprehensive metabolic panel, blood cultures, and urinalysis.
- If the chest X-ray is positive, the patient receives antibiotics within four hours.
- Changes in mental status might indicate pneumonia for elderly patients.

PNEUMONIA



Please Fill In Times and Leave Q/A Sheet At Charge Desk:

PULSE OX: _____

CXR: Completed:____ Reviewed:_____

BLOOD C/S To Lab_____

ANTIBIOTIC: Name_____ Time Given:_____

Route_____ Dose _____

Please complete and leave in Yellow Folder at Charge Desk marked Joanne.

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PT. LABEL

Source: Inova Alexandria (VA) Hospital.

Unlikely symptoms just might be pneumonia

An elderly man says he's "not quite himself." Would you suspect pneumonia if this was your patient's only symptom? Even if your patient doesn't have a respiratory complaint, that does not mean they do not have pneumonia, says **Cheryl Webber**, RN, MS, CEN, nurse manager of the ED at Tufts Medical Center in Boston.

"It has to be on your radar screen so you are thinking of it. You have to do a full assessment," she says. "It is quite common for elderly patients with changes in mental status to be diagnosed with pneumonia."

If your patient has a fever or any change in vital signs if they are hemodynamically unstable, you should consider pneumonia as a possibility, says Webber. "You want to get your baseline labs drawn and IV [intravenous] started and fluids if they can tolerate it," she says.

Recently, ED nurses cared for an 87-year-old woman with a chief complaint of confusion and disorientation. She also complained of nausea, vomiting, urinary incontinence, and abdominal pain. Her vital signs were normal, with no fever, and she had a finger stick glucose level of 130. "Her work-up revealed a left lower lobe pneumonia, and she was started on antibiotics within the four-hour limit," recalls Webber. ■

You now have 2 extra hours for antibiotics

Diagnosis sometimes takes time

In 2004, The Joint Commission issued a standard requiring that ED patients be given an antibiotic within four hours of presentation if they are discharged with a diagnosis of pneumonia. As of October 2007, the time frame has since been increased to six hours. Also, The Joint Commission is allowing EDs to document "diagnostic uncertainty" to indicate that the diagnosis of pneumonia was not clear at the time of the patient's arrival in the ED.

"There is no evidence that supports that outcomes at four hours are better than six hours," says **Cheryl Webber**, RN, MS, CEN, nurse manager of the ED at Tufts Medical Center in Boston. "You don't want to do a knee-jerk response and treat everyone with antibiotics. Sometimes it takes time to make the diagnosis."

It might not be possible to give the antibiotics even within the six-hour timeframe in some cases, she adds. For example, if congestive heart failure is a possible diagnosis, you have to wait longer to make a decision. "There are a lot of variables involved," says Webber. "If it's an unstable patient, it's a no-brainer. But if it's a stable patient, you may have delays in getting an X-ray. You can only work with the resources you have."

Right now, the ED is between 85% and 95% compliance with the four-hour time frame, says Webber. She attributes this high level of compliance to giving nurses constant feedback.

"We are always letting them know how they are doing," she says. "We send e-mails monthly to all the ED staff. I list every nurse and doctor involved in the care of pneumonia patients, and if they got the antibiotics in less than two hours, I highlight those names and thank them for improving patient care." Webber also does her own internal audit of every patient admitted from the ED with pneumonia.

Webber identified a documentation problem with their electronic record, involving ED nurses indicating that they gave antibiotics before drawing blood cultures, when in reality, the practice occurred in the opposite order. "Even though they generally draw blood cultures when the IV is started, they didn't document that," says Webber. "It wasn't valid information, so we had to change our documentation tool. They are now required to enter the time the blood was drawn." ■

Steps to take immediately in order to treat pneumonia

When assessing whether a pneumonia patient's condition may be life-threatening, begin with the "A, B, C, Ds," says **Amanda Person**, RN, an ED nurse at Methodist North Hospital in Memphis, TN:

- **Airway.** "Assess the patient's ability to speak clearly," says Person. "If the patient's speech is easily audible, that gives you a lot of information about their ability to maintain their own airway. This also helps to determine dyspnea. Look for excess oral secretions."
- **Breathing.** Assess for low oxygen saturation, increased respiratory effort, increased or decreased respiratory rate. "This assessment is crucial to determine if the patient is in impending respiratory failure or respiratory arrest," says Person.
- **Circulation.** "Look for signs of shock or decreased cardiac output," says Person. Assess for tachycardia, hypotension, increased capillary refill time, diminished peripheral pulses, and pale or cool skin.
- **Disability:** Assess for altered level of consciousness. "Objectively determine if the patient is alert or lethargic,"

says Person. "Question the patient for orientation to person, place, time, and situation."

If pneumonia is suspected and a bed isn't immediately available, Methodist's ED nurses initiate the following protocol:

- **Obtain a stat chest X-ray.**
- **Obtain a complete blood count, complete metabolic panel, serum lactate, and blood cultures every five minutes taken from two sites.**

These lab results can confirm suspected pneumonia with evaluation of the white blood cell count and differential, such as leukocytosis or bandemia. "Serum lactate is obtained to determine if the patient may be in septic shock," adds Person. Also, blood cultures before antibiotic administration are critical so that appropriate antibiotics may be given for severe infection.

- **Administer azythromycin 500 mg orally if pneumonia is confirmed by the ED physician and venous antibiotics are not yet possible.** "Supplemental oxygen is also administered if indicated," says Person.

The protocols used by ED nurses at Methodist's ED expedite identification of patients with pneumonia, speeding diagnostic tests and antibiotics. Otherwise, the delay in diagnosis and treatment is "directly related to the amount of time the patient must wait for a bed assignment," says Person. "In times of boarding or very high census, this wait can be hours."

Using complaint-based protocols also identifies patients who might be much sicker than initially suspected by the triage assessment. "Precious ED beds can be given to those who are truly in the most dire need," says Person. ■

Do this if you suspect life-threatening condition

As soon as the triage nurse suspects life-threatening pneumonia, the ED nurse stops his or her assessment, moves the patient to a treatment room, and notifies the ED physician, says **Amanda Person**, RN, an ED nurse at Methodist North Hospital in Memphis, TN. She gives the following example: Mr. J. is a 76-year-old male who presents to ED triage with his wife.

Chief complaint. "I've been short of breath for three days."

History of the present illness. Dyspnea for three days, gradual onset. Dyspnea on exertion initially, but now the patient is short of breath at rest. Has used albuterol inhaler from a previous episode of bronchitis six months ago, but without relief. Admits to pain in the right, middle, posterior chest, dull, non-radiating, 6/10. Also admits to productive cough with moderate amounts of thick, yellow sputum. Denies fever, but admits chills and diaphoresis.

Primary survey.

General: Presents in wheelchair, sitting in tripod position; occasional cough noted.

Vital signs: Heart rate 120. Blood pressure 90/45. Respiratory rate 30. Oxygen saturation 90% on room air. Temperature 38.9.

Airway: Speech is clear, but patient is unable to speak more than a few words without gasping for air. No excessive oral secretions.

Breathing: Tachypneic and labored. Rhonchi and diminished breath sounds over the right middle lobe.

Circulation: Capillary refill of five seconds. Skin clammy and mottled. Peripheral pulses thread.

Disability: Lethargic. Oriented to person, place, time, and situation.At this point, the ED nurse should realize that this patient's condition is potentially life-threatening and is likely related to pneumonia. "This warrants cessation of triage, immediate bed placement, and notification of the ED physician on the patient and his condition," says Person. ■

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

- ED nurses share their best protocols for reassessment
- What to do if you think a patient isn't telling the truth
- Prevent hypothermia in pediatric trauma patients
- Learn which patients should *not* be given beta-blockers

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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.

13. Which is recommended regarding care of patients with possible chemical exposure?
A. If the patient's color is good, take this as a sign that the condition isn't life-threatening.
B. Avoid having the patients do their own showering.
C. Ask if the patients changed clothes or showered.
D. Decontamination isn't a priority unless patients have skin or eye symptoms.

14. Which is true regarding assessment of patients with self-inflicted trauma?
A. Family history is not relevant to the patient's current medical history.
B. Nurses should look for signs that patients' injuries were self-inflicted, even if their history says otherwise.
C. You should evaluate overdose patients for self-harm only if they report suicidal intention.
D. Patients should not be separated from family members during your assessment.

15. Which of the following is a characteristic of a pericarditis patient's electrocardiogram?
A. ST-segment elevations usually less than 5mmHg above baseline, occurring across most of the leads.
B. ST-segment elevations are specific to the coronary artery that is blocked.
C. ST-segment elevations in leads II, III and AVF.
D. Progression of Q-wave conversion before ST-segment elevations.

16. Which is recommended for care of pneumonia patients in the ED?
A. This diagnosis should not be considered unless the patient reports respiratory complaints.
B. Elderly patients with changes in mental status shouldn't be assessed for pneumonia unless they also have fever or cough.
C. If your patient has a fever or any change in vital signs if they are hemodynamically unstable, consider pneumonia as a possibility.
D. Patients should be given antibiotics before the diagnosis of pneumonia is made, even if congestive heart failure is a possible diagnosis.

Answers: 13. C; 14; B; 15. A; 16; C.