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Inside

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ED visits rise for cocaine use: Don't overlook life-threatening conditions

A patient comes to the emergency department (ED) with chest pain. Do you immediately suspect cocaine use? According to a compelling new study, you probably should.

According to researchers, the number of ED patients with cardiovascular events linked to cocaine use has risen dramatically in recent years. These include angina pectoris, myocardial infarction, cardiomyopathy, and sudden death from cardiac causes.[1]

Current statistics underscore the prevalence of cocaine use in ED patients, warns **Matthew D. Sztajnkrycer**, MD, PhD, a toxicology fellow in the department of emergency medicine at the University of Cincinnati Medical Center. He points to the National Survey on Drug Use and Health, which reports that 14 million Americans are current users of illicit drugs, comprising 6.3% of the population 12 years of age or older.[2] The study showed that there are 1.2 million cocaine users.

According to the Emergency Department Data from the Rockville, MD-based Drug Abuse Warning Network, which tracks drug-related ED visits across the country, there were 71 ED visits per 100,000 population for cocaine use in 2000, he adds.

EDN simplifies CE testing process, adds critical care contact hours

Beginning with this issue, *ED Nursing* is simplifying its continuing education program and adding critical care nursing contact hours. We no longer require you to return a test form. Instead of completing a Scantron form as you have in the past, all you will need to do is complete a CE evaluation, which will be enclosed in your December issue. Upon receipt of your evaluation, your CE certificate will be mailed to you. It's that simple.

*(See **CE changes**, page 126)*

EXECUTIVE SUMMARY

Cocaine-related cardiovascular complications, visits to EDs, and deaths have risen dramatically in recent years.

- Of all drug abuse-related visits to EDs in 1999, 30% involved cocaine.
- Avoid beta-blockers for cocaine-induced tachycardia and hypertension.
- Benzodiazepines are the first-line drug for cocaine agitation and tachycardia.
- Watch for hyperthermia and rhabdomyolysis in agitated and restrained patients.
- Consider that pediatric patients may have used cocaine.

"To put this in perspective, heroin and marijuana both account for 39 visits per 100,000, and methamphetamine accounts for only six visits per 100,000," says Sztajnkrycer.

Here are ways to improve care of patients if you suspect cocaine use:

• Don't delay an electrocardiogram (EKG).

If you suspect a chest pain patient is linked to cocaine use, your immediate goal should be to start treatment as quickly as possible, regardless of the cause, says **Cindy Bruns**, RN, BSN, CEN, quality management coordinator for the emergency center at Tallahassee (FL) Memorial Hospital.

At Tallahassee Memorial, the ED has an EKG room at triage with a dedicated technician. When anyone comes in complaining of chest pain, tightness, or pressure, an EKG is done immediately before the patient sees a triage nurse, unless the patient is in acute distress and needs to go to the treatment area immediately, explains Bruns.

The technician brings every EKG to an ED physician, who reviews it and determines whether the patient can be triaged in the waiting room area or immediately brought back to the treatment area, says Bruns.

"In other words, we don't waste time getting a history and then deciding whether or not we need to get an EKG," she says. "Even if you did get a history first, I would imagine that probably at least half the cocaine users would deny that they used cocaine."

The idea is to "get the EKG first, and ask questions later," says Bruns.

While you should not delay in getting the EKG, Sztajnkrycer cautions that there are problems regarding interpretation of EKGs for cocaine-related chest pain. "There is decreased sensitivity and specificity for acute myocardial infarction compared with traditional etiology," he says.

He refers to one study, which showed that although 86% of patients with cocaine-related chest pain had abnormal EKGs, only three of 48 ruled in for acute myocardial infarctions with enzymes.[3]

• Consider clinical evidence before the patient's history.

Red flags for possible cocaine use are ischemic changes and/or tachycardias, says Bruns.

She acknowledges that age also is a factor when assessing patients for cocaine use. "While we all know that cocaine has no age boundaries, I think it's safe to say ED nurses are more likely to ask a 29-year-old with ischemic changes on their EKG about cocaine use than a 65-year-old," she says.

The clinical effects of cocaine reflect stimulation of central and peripheral adrenergic receptors, says Sztajnkrycer. They manifest as a sympathomimetic toxidrome, including mydriasis, tachycardia, hypertension, hyperthermia, and diaphoresis.

If you suspect cocaine use, you shouldn't hesitate to use a urine drug test, says Bruns. "Ours has a turnaround time of less than an hour, and includes marijuana, cocaine, amphetamines, etc.," she says. "With the above-mentioned 29-year-old with ischemia, a urine drug test would more than likely get ordered right along with the troponin level."

• Know which medications are appropriate.

According to Sztajnkrycer, the goal of treating patients with cocaine use is reducing central sympathomimetic output responsible for peripheral signs and symptoms. "Benzodiazapines are the first-line agent and should be titrated to effect," he says.

However, Sztajnkrycer warns that you should avoid beta-blockers when managing cocaine-induced tachycardia and hypertension. "This may result in hypertensive emergency," he explains.

COMING IN FUTURE MONTHS

- How to comply with patient privacy regulations
- Tips for reading critical-care monitors
- Update on medications to treat seizures
- New Joint Commission standards for patient safety

SOURCES AND RESOURCES

For more information on assessment of patients with cocaine use, contact:

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Copies of the report Summary of Findings from the *2000 National Household Survey on Drug Abuse* (DHHS Publication No. SMA-01-3549) can be obtained free of charge, from the National Clearinghouse for Alcohol and Drug Information (NCADI). To order a copy, contact NCADI, P.O. Box 2345, Rockville, MD 20847-2345. Telephone: (800) 729-6686 or (301) 468-2600. Or access the report at the Substance Abuse and Mental Health Services Administration web site (www.DrugAbuseStatistics.SAMHSA.gov). Click on "Reports," "OAS Publication Series," "SAMHSA's National Household Survey on Drug Abuse (NHSDA)," "Latest National Survey on Drug Use (NHSDA)."

• Watch out for hyperthermia in the agitated patient.

Sztajnkrycer cautions that hyperthermia is especially important to consider if the patient is restrained. Rhabdomyolysis can occur as well, with resultant acute renal failure, he adds.

• Don't assume pediatric patients haven't used cocaine.

Obtain drug levels for children of any age if cocaine use is suspected, advises **Barbara Coffel**, RN, MSN, lead transport nurse at Riley Children's Hospital in Indianapolis.

If the transport team picks up a child with an unexplained change in level of consciousness, new onset seizures with no known reason, cardiac arrhythmia, or chest pain, a toxicology screening and EKG are obtained, she says.

Coffel says that you shouldn't assume that young children haven't used drugs. "People are often reluctant to think outside the 'pedi box' because we don't want to think that kids are into bad things. The same holds true for pregnancy tests."

Obtaining early toxicology screens at least gives you a heads up as to what you might be dealing with, says Coffel.

"We have had toddler-age children who have been exposed to toxic substances. One never knows what Mom and Dad keep in their desk drawer," she says. "These children needed a toxicology screen done every bit as much as they needed a head CT."

If a child presents with cardiac symptoms and no history of any cardiac issues, you should have a high index of suspicion for drug use. "Testing for drugs should be a part of a cardiac rule-out protocol," she says. "Anytime that a workup goes in the wrong direction, a potential risk is present."

Because of this, Coffel recommends erring on the side of caution. "Being conservative and running tests on the outside chance that it may be the problem is better than wishing that we had," she says.

References

1. Lange RA, Hillis LD. Medical progress: Cardiovascular complications of cocaine use. *N Engl J Med* 2001; 345:351-358.
2. U.S. Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Summary of Findings from the 2000 National Household Survey on Drug Abuse*. Office of Applied Studies, NHSDA Series H-13, DHHS Publication No. (SMA) 01-3549. Rockville, MD; 2001.
3. Zimmerman JL, Dellinger RP, Majid PA. Cocaine-associated chest pain. *Ann Emerg Med* 1991; 20:611-615. ■

9 ways to improve care of ED 'hold' patients

When an intensive-care unit (ICU) nurse received a report on an emergency department (ED) patient who had lost consciousness and fallen, she learned that the man had used the bathroom and walked around in the ED and that the CT scan of his head was negative.

However, the ICU nurse then asked the ED nurse if the patient had X-rays to clear his spine and discovered

EXECUTIVE SUMMARY

Many simple interventions can improve the quality of care you give critical-care patients being held in the ED.

- Place IV catheters in nonantecubital areas such as lower forearms.
- Leave IV pumps with the patient.
- Put allergy bands on the patient while in the ED.

that he had not. The X-rays wound up revealing a fracture, which resulted in the man being transferred to the neurology unit.

This scenario shows the importance of ED and critical-care nurses working together to improve care, says **Katherine Blee**, RN, MSN, CNA, CCRN, nurse manager of the coronary care unit, medical intensive care unit and surgical intensive care unit at Jerry L. Pettis Memorial VA Medical Center in Loma Linda, CA. **(For more information on caring for critical-care patients, see "Are you uncomfortable caring for ICU patients in the ED? Here are strategies," *ED Nursing,* June 2002, p. 101.)**

Caring for critical-care patients in the ED often results in conflicts between ED and ICU nurses, Blee acknowledges. "But there is a lot you can do to make things easier for yourself, the patient, and the critical-care nurse who will receive the patient," she says.

Here is a nine-item "wish list" from critical-care nurses for you to consider:

1. Provide a time estimate for when the patient will be brought upstairs.

This time estimate assists the ICU nurse in planning the care of other patients and ensures that the assigned nurse is present when the ED patient arrives, says Blee.

2. Draw labs in the ED.

If an IV is started in the ED, Blee says to check with the physician for needed labs and draw them if possible. "This saves the patient from unnecessary pain," she explains.

3. Place a gown on the patient.

With a gown, the patient can be placed in bed directly from the gurney without having to undress, Blee explains.

4. Check that property inventory sheets are complete and accurate.

Blee recalls an incident in which a patient stated that he had brought in $1,000 with him, but no money was listed on the property sheet. She adds that the patient was disheveled and homeless, and staff doubted his credibility.

However, when the patient repeatedly insisted this was the case, Blee went to the ED to search the cabinets. "I found a paper bag with $1,000 and other belongings stuffed under the sink cabinet," she says.

She explains that during the time of the patient's admission, the ED staff were busy, placed his belongings in a cabinet, and forgot to transport them with the patient.

5. If possible, place IV catheters in a nonantecubital area.

A catheter in this site is very uncomfortable for patients, says Blee. "We often have to change the site within a few hours of the patient arriving to the unit," she adds.

The antecubital often is used for an IV site because lab draws can be done in conjunction with the placement of the catheter, she explains. "However, if a large-gauge catheter is not needed, please start the IV in the lower-arm forearm areas if possible," says Blee.

6. Bring a defibrillator when transporting patients.

For patient safety, Blee advises that a defibrillator always should travel with a critically ill patient, along with a mask/Ambu bag.

"I sometimes ask nurses, 'If your patient goes into respiratory distress and needs to be ventilated during transport, will you be giving mouth-to-mouth resuscitation?" says Blee. "Yes, you will need to, unless you carry a mask/Ambu bag during transports."

7. If possible, leave IV pumps with the patient in ICU.

Blee has received patients with medications infusing, only to have the ED nurse take the pumps upon leaving the unit. The problem is that critical-care medications are infusing without the control of a pump, until one is brought up from sterile processing, she explains. "This can be a long delay," she says.

Blee also has received patients from the ED who have infusions such as dopamine, dobutamine, or tissue plasminogen activator running into the patient without an infusion pump."This is unsafe practice," she warns.

8. Don't hesitate to ask for help.

If you feel that you are unprepared in a particular situation, you should say so, urges **Janice Piazza**, RN, MSN, MBA, director of consulting services for VHA, a nationwide network of community-owned health care systems, and a former critical-care nurse and manager at Ochsner Clinic Foundation, Memorial Hospital, and Tulane Medical Center, all based in New Orleans.

Piazza recommends saying, "I need some help in managing this patient" or "I have no experience in caring for a patient with this diagnosis."

SOURCES

For more information about caring for critical care patients in the ED, contact:

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Talk to critical-care nurses to formulate a plan for how support will be provided, she says. For example, Piazza suggests having an ICU nurse come to the ED to help manage the patient.

9. Place allergy bands while the patient still is in the ED.

When an agitated patient at Blee's facility was admitted from the ED, ICU nurses had no idea the patient was allergic to lorazepam (Ativan).

"Admitting orders were not yet written for this patient. The only place the allergy was noted was in the physician progress notes," she says. "Consequently, the patient was given Ativan and had an adverse reaction." ■

Try these strategies for better communication

When you're managing a critical care patient in the emergency department (ED), poor communication between nursing units often is a problem, says **Janice Piazza**, RN, MSN, MBA, director of consulting services for VHA, a nationwide network of community-owned health care systems, and a former critical care nurse.

Here, two critical care nurses give strategies to improve communication with critical care nurses:

• Agree on which orders will be initiated in the ED and which can wait until the patient gets to the intensive care unit (ICU).

There is often inconsistency in what tests, procedures, and administration of medications are done in the ED before the patient is transferred upstairs, says Piazza. She suggests completing a checklist of tasks to complete, depending on how long the patient is held in the ED.

• Verify admission orders before you bring a patient to the ICU.

In a busy ED, the patient's physician may downgrade the acuity level of the patient, says **Katherine Blee**, RN, MSN, CAN, CCRN, nurse manager of the coronary care unit, medical intensive-care unit and surgical intensive care unit at Jerry L. Pettis Memorial VA Medical Center in Loma Linda, CA. For instance, a patient who first was assessed to require an ICU bed later may be given different admitting orders, she explains.

As a result, the ED nurse gives a report based on the physician's verbal indication for an ICU bed, and the patient is brought to the ICU room, only to have the nurses note that the admission orders actually were for the telemetry or medical/surgical unit, says Blee. To avoid this mix-up, Blee advises checking the admission orders.

However, she adds that there may be discrepancies between what the ED physician orders and what the admitting physician deems appropriate. "It is not uncommon for us to admit a patient to the ICU based on the ED physician's orders, only to have the admitting physician reassess the patient on the unit and write transfer orders to a lower level of care," she says.

To prevent this from happening, Blee suggests calling the admitting physician to verify the level of care required.

• Make sure your documentation is clear.

Good written communication can avoid a lot of frustration, says Piazza. "In this day of fragmented information and documentation systems, it's often difficult to determine if orders have been completed," she says.

For instance, you should clearly document medications given, time they were administered, what tests are completed, and what results are available, Piazza says.

Sometimes, specific blood work has been drawn, but it is not listed on the ED sheet, which leads to patient having duplicate blood work drawn, adds Blee.

"Conversely, I have seen lab work that states on paper that they have been drawn, only to wait hours for results that never appear," she says. "A phone call to [the] lab indicates that the lab work was never sent to them."

• Give a thorough report to ICU nurses.

If you give report to the ICU nurse, Blee recommends making every effort to transport the patient upstairs. "The transporting nurse often is unfamiliar with the patient's history and is unable to clarify concerns and questions," she says.

Blee adds that a "thorough report" should include what labs were drawn, when they were sent, and what procedures were done.

She also suggests passing on information as to which family members are present, and in cases such as head traumas or decreased level of consciousness, who the next of kin is.

"Family members are comforted when they arrive on the unit and find that we are aware of what relationship they have with the patient," she says.

• **Don't bring the patient up to the ICU unless you are notified that the bed is ready.**

Blee points to frequent instances where the patient is brought to the unit and the bed is not clean. "The transporting nurse, who was not the admitting ED nurse, states they were told by someone in the ED that the bed was ready," she says. "When pressed for names, often names cannot be recalled."

This frustrating scenario can result in arguments while the patient still is on the gurney, she says. "This does not help the patient build a trusting relationship with the staff, especially when the patient is returned to the ED to wait until the room is cleaned," she notes.

Blee adds that you should never leave a patient in the hallway or in a part of the unit without proper notification. "ICU nurses sometimes find ED patients parked on gurneys outside the units," she reports. ■

Avoid problems when you transport a patient

A 68-year-old man with chest pain was being transported to the intensive care unit (ICU) to be admitted to rule out a myocardial infarction. The elevator became stuck between floors. After about 20 minutes, the patient coded.

"Fortunately, we were carrying a 'code box' with cardiac medications, and the patient was on a monitor with a defibrillator," recalls **Tracy Evans**, APRN, MS, MPH, emergency medical services director and trauma program manager at Norwalk (CT) Hospital. "The only thing that we could not do was intubate."

After defibrillation, ventilation with a bag valve mask, and administration of epinephrine and lidocaine, the man had a spontaneous return of pulses, says Evans. He was transferred out for a coronary artery bypass graft and was discharged to home, she says.

"Without a code box and cardiac monitor in the elevator, the patient would have died," says Evans.

There always are substantial risks when you transport a patient, says **Timothy Murphy**, RN, MSN, APN, C, CS, CEN, trauma program manager at Robert Wood Johnson University Hospital in New Brunswick, NJ. "These events, often called 'road trips,' should be treated similarly to interfacility transports," he argues.

EXECUTIVE SUMMARY

Reduce risks of an adverse outcome during transport by making sure that the right personnel and equipment are with the patient.

- If you bring a patient for testing, find out where oxygen outlets and suction equipment are located.
- Bring a defibrillator and bag valve mask for all patients, and bring intubation equipment or cardiac medications if appropriate.
- Don't transport high-risk patients alone.

If your gut tells you that something may go wrong, then plan for that to happen, advises **Reneé Holleran**, RN, PhD, chief flight nurse and clinical nurse specialist at University Hospital in Cincinnati. "For example, many of us have 'known' that the patient would arrest once outside of the [emergency department]," she says.

Here are ways to reduce risks during patient transport:

• **Bring appropriate resuscitation equipment.**

At a minimum, this should include a defibrillator and a bag-valve mask, says Evans. "For patients at higher risk or in large centers with long distances in between units, bringing intubation equipment and cardiac medications also may be a good idea," she advises. **(See list of supplies to bring, p. 119.)**

Depending on the patient's condition, you may need to bring additional equipment, emphasizes Murphy. "If the patient experiences a problem in an elevator, having the right equipment will be very helpful," he says. **(See checklist on assessing patient's status before transport, p. 120.)**

Murphy recommends the following. If the patient has:

— problems with airway secretions, bring a portable suction device;

— risk for cardiac instability, bring a monitor with a defibrillator;

— an unstable spine, bring a backboard;

— has a requirement for oxygen, bring a full oxygen tank.

• **Consider needs for areas performing diagnostic testing.**

These areas should be stocked with a code cart and other age-appropriate resuscitation equipment, says Evans. For hospitals verified as trauma centers by the Chicago-based American College of Surgeons, a criteria deficiency can be given to facilities without appropriate

SOURCES

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resuscitation and monitoring equipment in radiology, she adds. "This could result in loss of trauma center verification," warns Evans.

Always be familiar with the location of oxygen outlets and suction when going outside of the emergency department (ED) for testing, advises Holleran.

• **Bring appropriate personnel.**

Transport personnel should be familiar with the patient's illness or injury and be qualified to assess and intervene if a problem occurs en route, says Murphy.

He gives the following example: A patient having a myocardial infarction and receiving thrombolytics should be accompanied by a nurse familiar with this type of patient.

Evans cautions against taking high-risk patients alone. "Take another nurse or a technician who has been trained in CPR," she says.

• **Identify special needs that may not be apparent.**

Murphy recommends discussing the patient's specific transport needs with the physician, to avoid misunderstandings and further clarify orders. "For example, has the patient's cervical spine been cleared, or should a collar remain on?" he asks.

• **Address impeded access to the patient during computed tomography (CT) or magnetic resonance imaging.**

Holleran warns that it's difficult to watch a patient's airway when he or she is placed in the CT scanner. "Cardiac monitors and pulse oximeters must be placed so that you can see them," she says.

A pulse oximeter and cardiac monitor also can help, adds Holleran. However, she cautions that if there is any possibility that the patient may suffer an airway compromise, it is safest to use elective intubation to protect the patient's airway and ensure adequate oxygenation.

• **Be especially careful with sedated patients.**

Patients may require sedation and neuromuscular blocking when they are intubated, to prevent them from pulling out endotracheal tubes or lines, says Holleran. "Sedation and analgesia also may be needed to decrease the patient's anxiety and pain that can occur with moving them from one place to another," she says.

Holleran urges you to pay extra close attention to medicated patients. "They must be closely monitored and emergency equipment, such as a crash cart, [must be] readily available," she says. ■

Bring these items to avert transport emergency

At Cincinnati-based University Hospital, a "travel box" contains advanced airway equipment and medications that may be needed when a patient is transported from the ED to another department, says **Marti Capizzi**, RN, BSN, an ED nurse at the facility.

The supplies are kept in a large tackle box, which is used when a potentially unstable patient needs to be transported out of the ED for a diagnostic procedure such as a computed tomography or angiography.

"The contents allow for cost containment by preventing a crash cart from being opened for one or two supplies needed," says Capizzi.

Capizzi explains that the transport stretcher always has an oxygen tank on the shelf below. A portable cardiac monitor, including blood pressure and oxygen saturation monitoring, is attached to the bed rail.

Transport medications are kept in an automatic medication dispensing system under "travel box." If the travel box is not returned to the unit, a charge slip is generated, says Capizzi.

Here is a list of the travel box's contents.

• **Top pull-out tray:** Four packages of 4" by 4" sterile gauze dressing; 3-inch elastic bandage; tape; soft restraints; IV start kit; injection caps; electrodes; 22-, 20-, and 18-gauge angiocaths — two of each; alcohol preps; adhesive bandages; needles; gloves; tonsil suction; oral/nasal airway; 3-cc, 10-cc tuberculin syringe — two of each; and normal saline injection.

• **Lower pull-out tray:** Laryngoscope handle and blades, 7.5 and 8.0 endotracheal tubes, stylet, and cloth tracheotomy tape.

• **Bottom bin:** Ambu bag, oxygen mask and cannula, carbon dioxide detector, 1 liter normal saline, and IV tubing.

• **Travel medications** (in preloaded syringes): Dextrose 50%, 25 g; sodium bicarbonate 50 mEq; atropine, 1 mg; epinephrine 1:10,000, 1 mg; lidocaine 2%, 100 mg; calcium chloride 2% 1 g; vercuronium, 10-mg bottle, unreconstituted. ■

Check patient's status before transporting

When transporting a patient, pay careful attention to the airway, breathing, and circulatory status, and consider any disabilities a patient may have, emphasizes **Timothy Murphy**, RN, MSN, APN, C, CS, CEN, trauma program manager at Robert Wood Johnson University Hospital in New Brunswick, NJ.

"You should assess the patient's current status, and anticipate needs both en route and at the destination," he adds.

Murphy gives the following checklist of things to consider when assessing a patient for transport:

• **Airway.**

— Is the airway patent?

— Is there a potential for any obstruction, such as a patient with an altered level of consciousness?

— Are there any secretions such as blood, mucous, or saliva?

— Is the patient nauseous and at risk for vomiting?

— Should the patient have an adjunct to keep his or her airway open (for example, oralpharyngeal, nasopharyngeal airway, or endotracheal tube)?

• **Breathing.**

— Does the patient have any difficulty breathing?

— Is the patient being assisted with a ventilator?

— Does the patient have a chest tube?

— Does the patient need a pulse oximeter or other monitoring of their respiratory status?

• **Circulation.**

— Does the patient have a pulse?

— Does the patient have any arrhythmias?

— Does the patient need to be on a cardiac monitor?

— Are there any signs of shock?

— Does the patient need IV fluids, blood pressure monitoring, or any other hemodynamic monitoring?

— Does the patient have any bleeding that requires ongoing monitoring or intervention?

• **Disability.**

— What is the patient's level of consciousness?

— If impaired, does it present any safety problems for the patient? (For example, could the patient harm himself/herself by rolling off a stretcher?)

— Can the patient protect his/her own airway? ■

Here's how to avoid problems with Dermabond

When a child presents with a laceration, painful sutures are avoided. Instead, the wound is "glued" shut. This once was wishful thinking, but now may be commonplace in your emergency department (ED), thanks to Dermabond Topical Skin Adhesive (2-octyl-cyanoacrylate), a wound tissue adhesive manufactured by Somerville, NJ-based Ethicon Products, currently the only wound tissue adhesive approved by the Food and Drug Administration.

"Dermabond has certainly found its place in our ED and is used on a regular basis," reports **Michael Ludwig**, RN, CEN, EMT-P, an ED nurse at Children's Hospital of Dallas. "It has proven a far less traumatic closure technique than suturing. With appropriate use, it has saved many children from the needle."

But the substance is not without problems. Here are some recent examples:

• A child's eye accidentally was glued shut after some of the Dermabond got onto the eyelashes. After hours of soaking, the eye reopened.

• A glove was glued to a patient's forearm while

EXECUTIVE SUMMARY

Potential problems with Dermabond include infection, dripping into the eye, and bleeding.

- You should always irrigate the wound thoroughly before closing with Dermabond.
- Use ophthalmic ointment to keep Dermabond from dripping into the patient's eye.
- Never use Dermabond on infected wounds or joint lacerations such as elbows or knees.

(Continued on page 122)

UNIVERSITY HOSPITALS OF CLEVELAND
Pediatric Emergency Department Patient Care Guidelines

CONDITION: Laceration Repair (Dermabond)
PRIORITY: Category 3
SUPERVISION: Attending/Fellow

Tissue adhesives (cyanoacrylates) have been used to close wounds for more than a decade in Europe. Several studies done in the United States and Canada have shown that closure of small, low-tension lacerations with tissue adhesives is a faster and less painful method of laceration repair that has cosmetic results similar to that of suturing. Dermabond recently has been approved by the Food and Drug Administration (FDA) and will be used in this institution.

Indications:
Clean:
1. lacerations less than 4 cm in length and 0.5 cm in width, not requiring deep-layer closure;
2. lacerations less than 12-hours old;
3. lacerations that would require size 5-0 or 6-0 sutures;
4. lacerations with minimal to no tension on the edges;
5. lacerations with no abrasions along the edges.

Contraindications:
1. infected lacerations;
2. animal and human bites;
3. lacerations with devitalized tissue;
4. lacerations needing debridement;
5. heavily soiled wounds;
6. lacerations on mucous surfaces or crossing mucocutaneous surfaces;
7. lacerations on wound sites subjected to prolonged moisture and friction;
8. lacerations in high-tension areas such as the chin and over joints;
9. stellate lacerations from crush injuries;
10. laceration close to the eye (e.g., on eyelid);
11. active bleeding;
12. allergy to cyanoacrylates;
13. young children who are unable to hold reasonably still during application;
14. young children who are likely to pick at the adhesive.

Procedure:
Use of Dermabond is restricted to the Pediatric Emergency Medicine (PEM) faculty and fellows. Residents will be permitted to use Dermabond only under the direct and continuous supervision of the PEM attending or fellow.
1. Laceration must be thoroughly cleaned and hemostasis achieved with dry gauze and pressure.
2. Wound edges must be approximated and everted and a thin film of tissue adhesive applied longitudinally with a light brushing motion of the applicator over easily approximated wound edges.
3. Three to five thin layers should be applied onto a dry wound allowing time for polymerization (30 seconds) between applications. The adhesive should never be placed inside the wound.
4. Full polymerization takes about one minute, and manual approximation and slight eversion of the wound edges must be maintained during that time.
5. If the laceration is in the proximity of the orbit, the eye should be covered with gauze.
6. Error at the site of union can be corrected by removing the adhesive in the first few seconds after application by dabbing with dry swab or wiping with dry gauze.
7. The wound may be covered with a Band-Aid and should be kept dry for at least five days. The adhesive peels off in approximately one week. Do not put ointment over the adhesive, as it will alter the adhesive properties.

Source: University Hospitals of Cleveland.

Dermabond was being applied.

• Plastic forceps adhered to a wound on a boy's chin.

According to **Cindy Reschke**, RN, a wound-care specialist at Children's Hospital Medical Center at Akron (OH), the main problems she's experienced with Dermabond are infection, dripping into the eye when used too close to the eyelids, and bleeding due to repeated trauma.

According to a spokesman for the distributor, who isn't named according to company policy, Dermabond is not associated with an increased incidence of wound infections. According to the spokesman, who points clinicians to the use instructions, actively bleeding wounds should not be closed. Failure to stop bleeding with any wound closure method will result in a hematoma and increase the risk of infection and poor wound healing, the spokesman says.

There is a tendency to oversimplify its use, argues **Emory Petrack**, MD, MPH, MS, chief of the division of pediatric emergency medicine at Rainbow Babies and Children's Hospital in Cleveland.

"On the surface, it seems it should be simple to glue the skin together," he says. "But if not used correctly, or used on the wrong types of lacerations, problems will occur." **(See protocol for use of Dermabond, p. 121.)**

Here are ways to avoid problems with Dermabond:

• **Irrigate the wound thoroughly.**

Reschke reports that patients have come to the ED with infected dog-bite wounds that had been closed with Dermabond.

She warns not to assume that once the wound is cleaned prior to examination, it is ready to be closed, and she recommends copious irrigation. "Dilution of the bacteria at the site of laceration is still the key to prevent infection," she says.

• **Use a barrier for eyes.**

At Children's Hospital, ophthalmic ointment is used as a barrier around the eye area, so the drip flows away from the patient's eye, says Reschke. "Keeping the patient's head below the rest of the body and tilting the head to one side prevents the drip from going into the eyes," she adds.

However, according to the distributor's spokesman, it is not sufficient to use a barrier near the eye when applying Dermabond. As outlined in the instructions for use, thin layers are to be applied while the patient is on a level surface.

• **Aspirate wounds instead of removing Dermabond.**

If a Dermabond-closed wound does become infected, remove the Dermabond with an antibiotic ointment to let the pus drain out, advises **Adarsh Gupta**, MD, medical director of the wound care and suture program for the division of emergency medicine at Children's Hospital Medical Center of Akron (OH).

Intravenous antibiotics also should be given, and the patient should be started on oral antibiotics, says Gupta.

• **Use ophthalmic ointment to remove Dermabond.**

If Dermabond gets into the patient's eye, Gupta recommends using ophthalmic ointment to remove it. "Apply gently to be able to open the eyelashes, and be careful not to pull them off," Gupta adds.

Gupta notes that if Dermabond gets into the eye, burning will occur, but there is no reported long-term effect.

Ludwig notes that closing wounds with this technique is at least a two-person task: one to hold the patient still and approximate the laceration, and the second to apply the Dermabond to the site.

There is always the risk of having your glove glued to the patient's head, says Ludwig. "This becomes a source of stress to the patient, family, and the staff member who finds himself stuck to the child," he says.

Application of a petroleum-based solvent will break the seal, says Ludwig. He recommends careful application, with extreme caution used around the eye area, with gauze handy to immediately soak up any Dermabond that may approach the eye.

SOURCES

For more information about Dermabond, contact:

- **Adarsh Gupta**, MD, Medical Director, Wound Care and Suture Program, Division of Emergency Medicine, Children's Hospital Medical Center of Akron, One Perkins Square, Akron, OH 44308. Telephone: (330) 543-8452. Fax: (330) 543-3761. E-mail: agupta@chmca.org.
- **Michael Ludwig**, RN, CEN, EMT-P, Children's Medical Center of Dallas, 1935 Motor Street, Dallas, TX 75235. Telephone: (214) 456-2995, ext. 9470. Fax: (214) 456-6014. E-mail: MLUDWI @childmed.dallas.tx.us.
- **Emory Petrack**, MD, MPH, MS, Chief, Division of Pediatric Emergency Medicine, Rainbow Babies and Children's Hospital, 11100 Euclid Ave., M/S MTH6097, Cleveland, OH 44106. Telephone: (216) 844-8716. Fax: (216) 844-8233. E-mail: emp4@po.cwru.edu.
- **Cindy Reschke**, RN, Wound Care & Suture Program, Division of Emergency Medicine, Children's Hospital Medical Center of Akron, One Perkins Square, Akron, OH 44308. E-mail: CindyLouWho717@aol.com.

To prevent forceps from getting stuck, researchers recommend using metal instruments instead of plastic. According to one study, Dermabond only adhered to metal forceps after a long period of time and if the instrument remained perfectly still.[1]

According to instructions for use, if removal of Dermabond is necessary for any reason, carefully apply petroleum jelly or acetone to the adhesive to loosen the bond.

• **Only use Dermabond on appropriate wounds.**

Gupta says that although Dermabond is a useful tool in closing wounds, the wounds must be superficial, or the deeper layers must be closed already. It never should be used on any infected, dirty, or contaminated wounds or bites, he adds.

In spite of the obvious benefits, Dermabond does have limitations, says Ludwig. "This technique cannot be used across joints such as knees or elbows and is limited to lacerations that do not require multiple layers of suture to close," he explains.

According to the spokesman for the distributor, Dermabond should not be used across any areas of increased skin tension.

[Editor's note: According to the manufacturer, health care professionals should refer to the instructions for use in the package labeling when using Dermabond adhesive. If you have any questions regarding Dermabond, call (877) 384-4266, a toll-free number that reaches nurses who are knowledgeable about this product.]

Reference

1. Yamamoto LG. Preventing adverse events and outcomes encountered using Dermabond. *Am J Emerg Med* 2000; 18:511-515. ■

Here are hot trends in disaster training

Do you care for heart attack patients differently than emergency department (ED) nurses in other cities or regions? If not, shouldn't the way you manage a disaster be standardized as well? Experts in disaster management agree the answer is yes.

"Just as ACLS [Advanced Cardiac Life Support] protocols have been developed to give the best individual response to a cardiopulmonary arrest, disaster courses are now educating people to respond consistently during a disaster," says **Kathryn Perlman**, MS, RN, CEN, clinical specialist for the ED at Presbyterian Hospital of Dallas.

At Medical College of Georgia in Augusta and University of Texas Southwest, disaster medicine training courses were developed separately. The two facilities are working together to develop a nationally recognized training course, explains **Richard B. Schwartz**, MD, FACEP, vice chairman of the department of emergency medicine.

The courses will be titled Basic Disaster Life Support (BDLS) and Advanced Disaster Life Support (ADLS). The course is going through the accreditation process with the Atlanta-based Centers for Disease Control and Prevention, and Schwartz anticipates that a pilot course will be held this fall. Here are current trends in disaster management training:

• **Courses combine on-line and hands-on training.**

Schwartz explains that the BDLS course will consist of standardized didactic training modules, taught in lecture format, but it also can be completed on the Internet at the student's own pace.

The facility intends to partner with the Augusta-based Center for Total Access, an organization that provides distance learning for the military's aviation medicine program, he says.

The ADLS course will consist of hands-on training with decontamination equipment and a training exercise.

• **Simulators are being used.**

Schwartz reports that the group intends to work with a regional military reserve training center to utilize its high-fidelity simulators and training mannequins.

The simulators cost more than $100,000 apiece and mimic actual patients, including chest and heart sounds, response to medications, and other physiological responses, notes Schwartz.

The group also plans to work with a company that provides virtual-reality, computer-generated simulation. "We want to utilize on-line and computer-based training as much as possible," says Schwartz.

However, even if simulation is used more extensively, Schwartz predicts that hands-on exercises always will be an integral part of disaster training courses. "It's hard to simulate putting on a Level B suit and actually going

EXECUTIVE SUMMARY

New disaster training courses are emphasizing standardized planning for a consistent response.

- On-line training, virtual reality, and patient simulators are increasingly being used.
- Training should give an "all-hazards," unified approach to each type of disaster.
- Experiences from previous disasters and terrorist attacks are being utilized.

SOURCES AND RESOURCES

For more information about disaster education, contact:

- **D.C. Keyes**, MD, MPH, Director, Southwestern Toxicology Training Program, University of Texas Southwestern Emergency Medicine, 5323 Harry Hines Blvd., Dallas, TX 75390-8579. Telephone: (214) 648-2047. E-mail: daniel.keyes@utsouthwestern.edu.
- **Kathryn Perlman**, MS, RN, CEN, Emergency Department, Presbyterian Hospital of Dallas, 8200 Walnut Hill Lane, Dallas, TX 75231-4496. Telephone: (214) 345-6301. Fax: (214) 345-6486. E-mail: KathrynPerlman@texashealth.org.
- **Richard B. Schwartz**, MD, FACEP, Vice Chairman, Department of Emergency Medicine, Medical College of Georgia, 1120 15th St., AF2037, Augusta, GA 30912. Telephone: (706) 721-3548. Fax: (706) 721-9081. E-mail: rschwart@mail.mcg.edu.

The American Red Cross offers three basic disaster response courses: Introduction to Disaster, Disaster Health Services 1, and Disaster Health Services 2. The training includes an overview of Red Cross disaster response, the roles of government and other organizations, common health and emergency needs, and how nurses support an overall disaster-relief operation. Nurses interested in participating in the free training should contact their local Red Cross chapter, which can be accessed at www.redcross.org by entering your zip code.

West Virginia University has established a Center for Medical Preparedness to promote bioterrorism training, research, and readiness activities in partnership with federal and state government initiatives. The center will partner with the West Virginia Bureau for Public Health to provide training and education on bioterrorism and will offer a federally funded web-based course on hospital emergency management being jointly developed by the center and the Morgantown, WV-based Virtual Medical Campus. The center also will conduct research to assist in bioterrorism preparedness nationwide, with a focus on rural needs. For more information, contact:

- **Center for Medical Preparedness**, P.O. Box 9150, Robert C. Byrd Health Sciences Center, West Virginia University, Morgantown, WV 26506. Telephone: (304) 293-0259. E-mail: cmpinfo@hsc.wvu.edu. Web: www.wvucmp.org
.

The International Nursing Coalition for Mass-Casualty Education is a clearinghouse for nurses to prepare for mass-casualty incidents. For more information, contact:

- **Betsy Weiner**, PhD, RN, FAAN, Associate Director, INCMCE Coalition, Vanderbilt University School of Nursing, 327B Godchaux Hall, Nashville, TN 37240. Telephone: (615) 322-4639. Fax: (615) 343-8204. E-mail: betsy.weiner@vanderbilt.edu. Web: www.mc.vanderbilt.edu/nursing. Click on "Mass Casualty Education."

The Micromedex BioDex System provides access to electronic information on identification, protection, and treatment of bioterrorism agents for personal computers and hand-held devices. The *PDR Guide to Biological and Chemical Warfare Response* lists symptoms caused by more than 50 biological and chemical agents, with recommended treatments for conditions induced by each. *Bioterrorism and Public Health: An Internet Resource Guide* features an extensive listing of web-based resources for biological and chemical terrorism. For more information, call (800) 232-7379 or go to www.thomson-bioterrorism.info.

through decontamination procedures," he says.

• **An "all-hazards" approach is used.**

Courses should present a unified approach for each type of disaster, instead of focusing on only one aspect of disaster management, says Schwartz. "Many of the programs out there are focused on bioterrorism or chemical threats without taking the 'all-hazards,' unified approach that the Joint Commission is really encouraging now," he notes.

• **Information is being standardized.**

Schwartz recommends looking for training that provides standardized disaster management strategies. "It's very easy to put together a group of speakers and run a disaster course," he says. "It's different to develop content that is peer-reviewed with a consensus for a national standard."

Just as everyone who knows ACLS is able to respond in the same way to an individual emergency, everyone who is "disaster-trained" can respond in the same way regardless of his or her community of origin, says Perlman.

For example, if there is a disaster in Dallas, people

coming to help from other communities would be "speaking the same language" as the workers first on the scene, she says.

• **Training is based on actual experiences at previous disasters.**

The chances of actually using esoteric information is very low, and it's hard to retain, says **D.C. Keyes**, MD, MPH, director of the Southwestern Toxicology Training Program in Dallas. Instead, he argues that training should focus on practical information and lessons learned from previous disasters.

That knowledge should be used to prepare for future disasters, says Perlman. "We have a lot of information from the Israelis and from the United Kingdom. Applying that information in a systematic way makes the response more efficient. It increases the chances for the victims to survive," she adds.

Keyes points out that historical anthrax experience differs from the presentation of the recent attacks. "We thought that with anthrax you get sick, get better, then get really sick," he says. "With the new wave of pulmonary anthrax, that didn't happen. Patients got sick and just kept getting sicker."

The idea is to provide health care workers with current information, he emphasizes. "We don't want to tell you what you already saw on the news," he says. "People want to know about the 21 anthrax cases and what happened to them." ■

Involve community in your disaster drills

Are you in compliance with new disaster standards from the Oakbrook Terrace, IL-based Joint Commission on Accreditation of Healthcare Organizations?

"Before, how to perform the drill was pretty much left up to you. You had the option of involving the community," says **Ann Kobs**, president and CEO of Ann Kobs & Associates, a Cape Coral, FL-based consulting firm specializing in preparation for Joint Commission surveys. "Now, it's mandated."

She refers to standard EC 1.4, which became effective Jan. 1, 2002. You are required to participate in a communitywide drill that assesses communication, coordination, and the effectiveness of the organization's and community's command structures, Kobs explains.

"If we look at what is required of the plan, it is far more detailed than before," says Kobs.

EDs should participate in their communitywide drills on an annual basis, says **Katherine Haddix-Hill**, RN, MSN, director of emergency services at Brandon (FL) Regional Hospital. "We participate in countywide drills along with the other hospitals in our community," she reports.

Here are ways to comply with the requirements:

• **Participate in local disaster drills.**

Haddix-Hill recommends contacting your county's emergency command center or local emergency medical services (EMS) agency for information about participating in local disaster drills, such as those held at airports, nuclear power plants, and other agencies.

You should involve local hospitals, all EMS agencies including fire and rescue, law enforcement agencies, area schools, and various other community agencies in your drills, depending on the type of disaster, she notes.

Haddix-Hill adds that evaluators from the county come to observe the hospital's disaster drills. She says the ED is performing a mock disaster with the local EMS and airport authorities involving an airplane crash. "The EMS education coordinator is also another resource for disaster training," she adds.

• **Assess the hazards in your community**.

You're required to conduct a hazard vulnerability analysis to identify threats in your community, says Kobs. "In the Miami area, the biggest hazard may be a hurricane. In the Midwest, floods may be of concern. If you are located near a nuclear power plant, the hazard may be nuclear contamination," she says.

You must demonstrate that your staff members are competent to manage victims of the hazards you identify, she adds.

Scenarios for your communitywide drills should be based on this risk assessment, says Haddix-Hill. "Within our community, we identified the high-risk areas for potential disasters, such as an international airport, local theme park, international port, cruise ships, and hurricanes," she explains.

EXECUTIVE SUMMARY

New standards from the Joint Commission on Accreditation of Healthcare Organizations require you to involve the community in your disaster drills.

- You must participate in a communitywide drill at least once a year.
- Offer to participate in the disaster drills held at airports, nuclear power plants, and other agencies, and invite other first responders to evaluate your drills.
- Attend meetings to develop relationships with other community leaders.

SOURCES

For more information about the Joint Commission standards for disaster drills, contact:

- **Katherine Haddix-Hill**, RN, MSN, Director of Emergency Services, Brandon Regional Hospital, 119 Oakfield Drive, Brandon, FL 33511. Telephone: (813) 571-5156. Fax: (813) 681-4986. E-mail: Katherine.HaddixHill@hca healthcare.com.
- **Ann Kobs**, President/CEO, Ann Kobs & Associates, 166 S.E. 18th Terrace, Suite A, Cape Coral, FL 33990. Telephone: (239) 574-8318. Fax: (239) 574-8814. E-mail: aejbbk@aol.com.

Based on those areas, potential disaster scenarios include hurricanes, explosions, airplane crashes, cruise-ship fires, and bioterrorism attacks at area theme parks, says Haddix-Hill.

• **Attend community meetings.**

Kobs advises you to take any opportunity to attend public meetings, such as the Rotary Club, Lions Clubs, and the hospital auxiliary. She explains that the goal is to develop relationships with other leaders in the community.

Haddix-Hill says her facility participates in the countywide Emergency Medical Planning Council meetings, which address disaster planning. She adds that ED managers and directors from area hospitals also attend countywide Trauma Audit Committees and Metropolitan Medical Response System (MMRS) meetings. "At the MMRS meeting, we did a tabletop exercise," she says.

The goal is to understand how other first responders fit into the emergency preparedness plan, says Kobs, adding that cooperative planning with other health care organizations in your community is required.

"You should have the names, roles, and telephone numbers of individuals in their command structures," she adds. ■

Kim M, Strait RT, Sato TT, et al. **A randomized clinical trial of analgesia in children with acute abdominal pain.** *Acad Emerg Med* 2002; 9:281-287.

Giving intravenous morphine to children with acute abdominal pain does not adversely affect the examination, according to researchers from Medical College of Wisconsin in Milwaukee and Cincinnati Children's Medical Center.

The study looked at 60 children with abdominal pain who participated in the study, 29 receiving morphine and 31 receiving saline. There was no significant change in the areas of tenderness for either group, and no significant accuracy in the diagnosis. All children who required laparotomy were identified.

The study showed that tenderness to palpation or percussion remained after morphine is administered, so physicians were able to correctly evaluate the abdomen for peritoneal signs in children who required surgery.

"Our findings suggest that the use of intravenous opioids in children with moderate to severe acute abdominal pain is possible without the fear of significant changes in physical findings or delay in diagnosis," the researchers conclude. ▼

Cooper RJ, Schriger DL, Flaherty HL. **Effect of vital signs on triage decisions.** *Ann Emerg Med* 2002; 29:223-232.

CE changes

(Continued from cover)

CE questions will continue to be included in every issue. Answers to those questions will be printed in the issue as well, giving you the opportunity to reinforce the learning activity by immediately reviewing any missed questions. This process has been shown to be an effective adult-education method and fits well with our commitment to provide you with quality continuing education activities that are designed to meet your needs.

Also, *EDN* is offering critical care nursing contact hours accredited through the American Association of Critical-Care Nurses. The newsletter will continue to offer nursing contact hours accredited through the American Nurses Credentialing Center. This simply enhances the value of your subscription and gives you more options on how to allocate your nursing contact hours.

If you have any questions about these changes, please contact our customer service department at (800) 688-2421 or customerservice@ahcpub.com. ■

Although the vast majority of triage decisions made by emergency department (ED) nurses were not affected by knowledge of the patient's vital signs, the vital signs did change the nurse's assessments for 7.9% of patients, says this study from the University of California at Los Angeles School of Medicine.

The study looked at assessments made by 625 experienced triage nurses at 24 EDs for 14,285 patients, before and after vital signs were taken. The nurses chose one of five hypothetical triage destinations for the patient: calling 911, being seen in the ED in less than two hours, being seen in the physician's office in two to eight hours, being seen in the physician's office in eight to 24 hours, or receiving home care.

After the vital signs were known, triage destinations were downgraded in 2.4% of patients and upgraded in 5.5%. However, the researchers note that changes were more likely to occur in children 2 years old or younger, patients with communication problems, and patients 75 years or older.

The researchers say that although vital signs affect triage decisions only in a small minority of patients, the individuals often are from vulnerable populations. They warn that the actual urgency of a patient's presentation may not be recognized if vital signs are not known. "For at least some of these patients, the upgrades may be of clinical consequence," they wrote. ▼

Stermac LE, Stirpe TS. **Efficacy of a 2-year-old sexual assault nurse examiner program in a Canadian hospital.** *J Emerg Nurs* 2002; 28:18-23.

Sexual assault victims were assessed more quickly by sexual assault nurse examiners (SANEs) than emergency physicians, says this study from the University of Toronto and Sunnybrook and Women's College, both in Toronto. Records of 515 women who presented at a sexual assault care center in 1996 and 1997 were examined. Victims were examined either by a physician or SANE, and similar treatment services were provided.

However, the study found that if a victim was seen by a SANE, the average assessment time was 3.25 hours, as compared with an average of four hours for victims who were seen by physicians. The researchers suggest that a possible explanation is that physicians were treating victims who had sustained more severe trauma and injuries, as the center's protocol requires. In addition, the physicians were interrupted during the examination more often than SANEs (25.1% of the time for physicians, and 20% for the SANEs).

According to the study, SANEs were more likely than physicians to conduct partial physical examinations or evidence collection for sexual assault evidence kits. "In some cases, full examinations and kits may not be required, a SANE may delete parts of the examination, or an examination may be discontinued because of the distress of the victim," the researchers theorize, adding that partial kits still can be used as evidence in court.

The findings support the use of SANEs in the treatment of sexual abuse victims, say the researchers, since shorter treatment times and less frequent interruptions are important considerations.

"It is well understood that waiting a long time to receive emergency services is difficult and stressful for sexual assault victims," wrote the researchers. ■

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Editorial Questions

For questions or comments, call Joy Daughtery Dickinson at (229) 377-8044.

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CE objectives

After reading this issue of *ED Nursing*, the CE participant should be able to:

1. Identify clinical, regulatory, or social issues relating to ED nursing. (See *"ED visits rise for cocaine use: Don't overlook life-threatening conditions; 9 ways to improve care of ED "hold" patients; Here's how to avoid problems with Dermabond; Journal Reviews* in this issue.)
2. Describe how those issues affect nursing service delivery.
3. Cite practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts. ■

CEquestions

1. Which of the following is recommended for assessment of patients with cocaine use, according to Matthew D. Sztajnkrycer, MD, PhD, a toxicology fellow in the department of emergency medicine at the University of Cincinnati Medical Center?
   A. Beta blockers are indicated for cocaine-induced tachycardia and hypertension.
   B. Agitated and restrained patients are at risk for hyperthermia.
   C. The need for an electrocardiogram depends on the patient's history of cocaine use.
   D. Urine drug tests to confirm cocaine use should not be used for pediatric patients.

2. Which is recommended to avoid conflict with critical-care nurses when holding patients in the ED, according to Katherine Blee, RN, MSN, CNA, CCRN, nurse manager of the coronary care unit, medical intensive care unit, and surgical intensive care unit at Jerry L. Pettis Memorial VA Medical Center?
   A. Avoid drawing labs in the ED.
   B. Take IV pumps with you when you leave the patient.
   C. Place IV catheters in antecubital areas.
   D. Place allergy bands on the patient while in the ED.

3. Which of the following is recommended when using Dermabond, according to Cindy Reschke, RN, a wound care specialist at Children's Hospital Medical Center at Akron?
   A. Irrigate the wound thoroughly.
   B. Use for knee and elbow lacerations.
   C. Have patients sit up straight when applying in eye area.
   D. Remove Dermabond instead of aspirating the hematoma.

4. Which of the following is true regarding vital signs taken at triage, according to a study published in *Annals of Emergency Medicine*?
   A. Most triage decisions were affected by the patient's vital signs.
   B. Knowing a patient's vital signs had no impact on assessments of any patients.
   C. After vital signs were known, triage decisions were changed for a majority of patients.
   D. Triage decisions were changed only for a small minority of patients, but the patients were from vulnerable populations.

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