

# ED NURSING™

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2001

## You're at risk for contamination: Here's how to protect yourself

*Chemically contaminated patients pose risk*

**W**hen a 40-year-old man swallowed insecticide in a suicide attempt, a friend rushed him to the nearest ED. Minutes later, the man was intubated for airway management and ventilation.

Within an hour of the patient's arrival, the ED nurses who had cared for the patient began to feel sick. One nursing assistant had to be intubated after developing respiratory distress, profuse secretions, emesis, and diaphoresis, and was hospitalized for nine days. Other nurses who had shared the patient's breathing space experienced diaphoresis, hypersalivation, nausea, and abdominal cramps.

As an ED nurse, you are at high risk for these injuries because you may care for patients contaminated with chemicals resulting from self-inflicted contamination, industrial incidents, and terrorist events. **(See recommendations from the CDC to prevent secondary contamination, p. 130.)**

There is no excuse for lack of preparation for these scenarios, argues **Ann Stangby, RN, CEM**, emergency response planner for San Francisco General Hospital. "You have a moral obligation to protect your staff," she says. "There is no choice in the matter."

If you don't have the materials you need to protect yourself and your staff, you'll have more victims when chemically contaminated patients come to the ED, warns Stangby.

### EXECUTIVE SUMMARY

ED nurses are at high risk for secondary contamination when treating chemically contaminated patients.

- Even if you don't have direct skin contact with the patient, you can develop symptoms from sharing the patient's breathing space.
- When treating a contaminated patient, wear personal protective equipment for Level 2 protection, which includes a chemical-resistant suit, powered air-purifying respirator, chemical protective gloves, and pull-on boots.
- Your disaster plan should include steps to protect staff from contamination.

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Here are ways to protect yourself when caring for contaminated patients:

- **Recognize signs of contamination early.**

You can minimize secondary contamination by recognizing it early, says **Bettina Stopford**, RN, chair of the national Weapons of Mass Destruction (WMD) work group for the Des Plaines, IL-based Emergency Nurses Association and chief nurse for the Denver-based U.S. Public Health Service's Central U.S. National Medical Response Team for WMD.

"If you know to immediately direct patients to an area that's secured, you can minimize secondary contamination," says Stopford.

Include decontamination as part of your annual competencies, including hands-on training with personal protective equipment, she recommends.

All nurses should be familiar with chemical contaminants and how to protect themselves, urges Stangby. There are excellent training courses available, she says. "Some of the people who received funding are now starting to share their expertise, which is a wonderful resource," she adds. (See resources box, p. 132, for a list of training courses to take.)

- **Don't rely on pre-hospital providers to decontaminate patients.**

No matter how much you prepare for a disaster, you'll need to work with pre-hospital providers to ensure you're ready to decontaminate large numbers of patients, says Stangby.

"With staffing numbers and financial constraints, we cannot do it alone," she stresses. "We are the non-traditional first responders, and we need to think of ourselves that way."

Even if the fire department did some gross decontamination in the field, you should still consider the patients contaminated and conduct further decontamination, says Stopford.

Stangby points to the 1995 sarin attack in Tokyo, where 80% of the contaminated patients came to EDs using their own transportation. "People with milder symptoms were jumping in cabs and buses and going to the hospital on their own," she explains.

As a result, a significant number of ED staff were contaminated and had to be treated themselves, says Stangby. "If nurses are becoming patients because of exposure, there will be no one to take care of patients," she says. "That is frightening."

## CDC Recommendations to Avoid Secondary Contamination

- To protect health-care workers caring for these patients, EDs should adhere to existing guidelines and decontamination protocols, train staff in the use of personal protective equipment, and maintain adequate quantities of antidotes. If sufficient quantities of antidote are not available, the National Pharmaceutical Stockpile at the Atlanta-based Centers for Disease Control and Prevention (CDC) maintains a mechanism to procure and deliver large quantities of pharmaceuticals to state health departments within 12 hours.
- Depending on the extent of the contamination, health care workers caring for chemically contaminated patients should use Level C protection (i.e., full-face mask and powered/nonpowered canister/cartridge filtration respirator) or Level B protection (i.e., supplied air respirator or self-contained breathing apparatus).
- The type of canister/cartridge should be appropriate to the agent; if the agent cannot be identified, an organic vapor/HEPA filter is recommended.
- To prevent dermal absorption, chemical barrier protection appropriate to the contaminant is needed; latex medical gloves are of little protection against many chemicals.
- In addition to the need for surface decontamination of patients, body fluids also must be contained to prevent dermal and inhalational exposure.
- To limit distant spread of the contaminant, the EDs ventilation exhaust should be directed away from the hospital's main ventilation system.

Source: Geller RJ, Singleton KL, Tarantino ML, et al. Nosocomial poisoning associated with emergency department treatment of organophosphate toxicity — Georgia. *Morbidity and Mortality Weekly Report* 2000; 4:1,156-1,158.

### COMING IN FUTURE MONTHS

Effective ways to assess spinal cord injuries

Update on Joint Commission staffing standards

Strategies for non-English-speaking patients

Improve care with music therapy

• **Know what protective gear to use.**

Aim for Level C protection, one of four levels of protection developed by the National Institute for Occupational Safety and Health, a division of the Atlanta-based Centers for Disease Control and Prevention, Stopford recommends. Level C protection consists of a chemical-resistant suit, powered air-purifying respirator, chemical protective gloves, and pull-on boots.

“If you can exceed that level of protection by using a self-contained breathing apparatus, that’s great, but the cost and training for that is usually prohibitive,” she adds.

Some traditional protective gear, such as high-filtration tuberculosis (TB) masks, doesn’t work for chemicals, notes Stangby. She recommends using powered air purifying respirators, which cost about \$700 apiece. “They have battery packs with supplied air, so the air you

## Donning Protective Equipment

1. Report to triage for baseline vitals.
2. Check suit for leaks and zipper integrity.
3. Remove all jewelry, wallets and valuables, prior to donning personal protective equipment and secure in personal locker.
4. Don chemical-resistant suit over boots.
5. Place pant leg over top of boots. Depending on the type of equipment used, secure with chemical-resistant tape if necessary.
6. Don nonsterile latex or vinyl gloves (elastic of chemical suit is placed over the gloves).
7. Apply respiratory and face/eye protection.
8. Pull up hood of chemical-resistant suit and secure in place.
9. Seal hood and zipper of suit with chemical-resistant tape.
10. Apply nitrile rubber gloves over outside of suit and seal with chemical-resistant tape.

## Doffing Protective Equipment

1. Stand in an open HazMat disposal bag.
2. Remove chemical boots.
3. Remove outer gloves.
4. Remove face/respiratory protection.
5. Remove chemical-protective suit. Note: Suit should be rolled down avoiding contact with outside of suit.
6. Step out of bag and secure bag.
7. Place HazMat disposal bag in designated barrels.
8. Proceed to shower, if necessary.

Source: St. John NorthEast Community Hospital, Detroit.

## Sample Protective Equipment List

- Level B chemical-resistant suit with hood (8)
- Nitrile gloves (1 box each in small, medium, and large)
- Latex and vinyl gloves (1 box each in small, medium, and large)
- Chemical boots
- Goggles (12)
- Face mask with splash shield (1 box)
- Linen cart with gowns, blankets, and towels
- Absorbent pad (1 box)
- Zip-lock bags for patients’ personal belongings (1 box)
- Trauma shears (for cutting victims’ clothing) (6)

### Irrigation equipment:

- For eyes: normal saline (NS) IV bags with tubing (3); Morgan lenses (1 box)
- For wounds: NS irrigation bottles, Toomey syringes, basins, splash shields (3)
- For ears: (same as irrigation for wounds)
- For mouth: Toomey syringe or drinking glass
- For nose: saline-soaked cotton swabs
- pH paper
- Hospital scrubs for clothing substitute (4)
- Spill socks
- HEPA masks (12)
- Waterproof diapers (Chux) (1 box)
- Managing Hazardous Materials Incident Manual
- 3M 7800S full-face piece respirator (6)
- 3M 60926 multigas cartridge (18)

### Decontamination Supplies

- Plastic HazMat bags (to contain and transport contaminated clothing) (35 gallon and 55 gallon bags)
- Open-head salvage drums (55 gal on dollies x 4) (35 gal drums on dollies x 1)
- Mild soap for decontamination (liquid soap)
- Long-handle brushes and nail brushes (12)
- Sponges for decontamination (12)
- Duct tape (6 rolls)
- Plastic sheeting 20' x 100"
- Plastic fold-up sawhorse (2)
- Garden hose (3)
- Nose nozzles, wand, and short brass (1 each)
- Hazard cones (6)
- 5-gallon buckets (4)
- Bleach (3 gallons)
- Sump pump (1)
- Tent
- Shower

Source: St. John NorthEast Community Hospital, Detroit.

breathe is filtered," she says. "They give you excellent peripheral vision and are very comfortable to wear." (See **resource list for list of manufacturers, below.**)

New standards from the Washington, DC-based Occupational Safety and Health Administration (OSHA) require you to provide equipment to protect staff from TB exposure, she says. "If you don't have high-filtration TB masks available, you must have something else," she says. "The powered air-purifying respirators are a good way to go." (See **excerpt of OSHA guidelines, enclosed in this issue.**)

- **Have an identified area for decontamination.**

The Tokyo incident occurred in cold weather, so patients had on heavy coats, notes Stangby. "It was airborne, and they were rebreathing the stuff. If they had

simply taken off people's clothing, that would have taken care of 90% of the decontamination," she says. "But because it was an unknown, no one knew what to do. Now we know better."

You need to consider how to increase the numbers of patients you can decontaminate, but you don't have to build huge overhead showers to do this, says Stopford. "If you have a private area where patients can undress and shower so they won't contaminate your facility, you will be in a lot better shape," she adds.

Stopford recommends starting small and working your way up. "You don't have to prepare to decontaminate thousands of patients. Shoot for 100 patients to start with," she advises.

She recommends using mass decontamination

## RESOURCES

TVI Corp. has a line of "quick-erect" mass decontamination shelters. For more information, contact:

- **TVI**, 7100 Holladay Tyler Road, Suite 300, Glenn Dale, MD 20769. Telephone: (301) 352-8800. Fax: (301) 352-8818. E-mail: shelters@tvicorp.com. Web: www.tvicorp.com.

Louisiana State University offers training for health care providers in counterterrorism. Courses include *Emergency Response to Domestic Biological Incidents* and *WMD Tactical Operations Course*. For more information, contact:

- **Louisiana State University, Academy of Counter-Terrorist Education**, 334 Pleasant Hall, Baton Rouge, LA 70803. Telephone: (225) 578-1375. Fax: (225) 578-9117. E-mail: ace@doce.lsu.edu. Web: www.doce.lsu.edu/ace.

The U.S. Public Health Service offers instruction for health care personnel, including how to protect yourself against the effects of weapons of mass destruction, techniques and methods to protect the hospital physical plant, and current treatments for injuries/illnesses from nuclear, biological, or chemical incidents. For more information, contact:

- **U.S. Public Health Service Noble Training Center**, P.O. Box 5237, Fort McClellan, AL 36205. Telephone: (256) 820-9135. Fax: (256) 820-8694. Web: www.ndms.dhhs.gov. (Click on "Links," then "Federal Counterterrorism Sites," then "Noble Training Center.")
- **The 2002 National Disaster Medical Service Conference** will be held on April 13-17, 2002, in Atlanta. Courses will include public health, response teams, clinical medicine, health care facilities, and weapons of mass

destruction. For more information, call (800) 872-6367 (press the "star" key), or e-mail ndms@usa.net.

- **A complete copy of the Centers for Disease Control and Prevention (CDC)** guidelines titled "Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response," which were published in the April 21, 2000, issue of *Morbidity and Mortality Weekly Report (MMWR)*, can be downloaded at the CDC web site: www.cdc.gov. (Click on "MMWR," then "Publications," then "MMWR Recommendations and Reports: Past Year Volumes," then "Volume 49 (2000)," then scroll down for the April 21, 2000, issue).

3M offers the Breathe Easy RRPAS (Rapid Response Powered Air System) and Butyl Rubber Hood (BE 10) PAPR for use when decontaminating patients. Cartridges are available for protection against many industrial chemicals and military agents. For more information, contact:

- **3M Occupational Health and Environmental Safety Division**, 3M Center, Building 275-6W-01, P.O. Box 33275, St. Paul, MN 55133-3275. Telephone: (800) 896-4223 or (651) 737-0309. Fax: (800) 542-9373 or (651) 736-2555. E-mail: occsafety@mmm.com. Web: www.3M.com/occsafety.

Neoterik Health Technologies offers powered air-purifying respirators to protect first responders after accidents or terrorist events. The "First Responder" series includes the FR2 PAPR with full-face piece for \$475, and the FR3 PAPR with full hood for \$475. For more information, contact:

- **Neoterik Health Technologies**, 401 S. Main St., Woodsboro, MD 27198. Telephone: (301) 845-2777. Fax: (301) 845-2213. E-mail: sales@neoterik.com.

## SOURCES

For more information on secondary contamination, contact:

- **Ann Stangby**, RN, CEM, Emergency Response Planner, San Francisco General Hospital, 1001 Potrero Ave., San Francisco, CA 94110. Telephone: (415) 206-3397. Fax: (415) 206-4411. E-mail: ann\_stangby@sfggh.org.
- **Bettina Stopford**, RN, Denver Health Medical Center, 777 Bannock St., MC 8200, Denver, CO 80204. Telephone: (303) 436-3431. Fax: (303) 436-6828. E-mail: Bettina.Stopford@dhha.org.

shelters for large groups of patients, which cost approximately \$3,000 each. Inside, the tents have shower systems with separate areas for male and female patients. (See resource box for more information, p. 132.)

“The tent only takes two people to set up,” she says. “It’s a good middle-of-the-road [product], when you don’t have thousands of patients, but you have more than a few.”

- **Determine the route of exposure.**

The precautions you take will depend on how the patient was exposed, says Stangby. “For example, there is big difference if people were splashed with saran or chlorine, as opposed to inhalation or mild exposure on clothes,” she says.

If you hear there are chemical casualties, try to find out how the patients were exposed, she advises. “For example, if it’s only through inhalation, you don’t have to wear personal protective equipment,” she notes.

She cautions that patients may “off gas” and contaminate you by releasing the agent through respiration or other body fluids. “They will not require external decontamination, but they *will* require internal decontamination,” she says. “This may put you at risk if the correct personal protective equipment is not utilized.”

- **Have the fire department automatically respond.**

At San Francisco General Hospital, the fire department automatically sends an engine, truck, and hose tender to the ED whenever the HazMat system is activated.

“This is based on the threat assessment, including the level of decontamination that may be required, the number of potential victims, and the proximity to the hospital,” says Stangby.

Recently, the ED asked the fire department to critique their decontamination system. “Sometimes you have to check your ego at the door to get things done,” Stangby notes. “We told them, ‘You are the experts, so tell us if we’re doing this right.’”

As a result, several joint training exercises were held, which were videotaped and used to train staff.

“We’d now be able to decontaminate hundreds of patients because of the collegial relationship we forged with the fire department,” she says. “That is probably going to save us if anything bad happens here.” ■

## Do you screen patients for alternative therapy use?

If you assume patients aren’t taking herbal supplements because they don’t mention it, you may be wrong. A recent study found that although 24% of patients were using complementary and alternative medicine (CAM), only 67% of users informed their health care provider about this.<sup>1</sup>

It is important for nurses to ask about CAM use because nurses can use that information to help guide care, such as planning discharge instructions, says **Patricia M. Campbell**, RN, MSN, CCRN, ANP CS, an emergency nurse practitioner at Good Samaritan Regional Medical Center in Phoenix.

Here are things to consider when screening patients for CAM use:

- **Consider drug interactions.**

If patients are taking herbal supplements, there could be interactions with prescription medications that you should consider, says Campbell. She points to the following potential drug/herb interactions:

— Central nervous system depressants taken with kava or valerian may produce excessive drowsiness.

— Corticosteroids taken with echinacea or astragalus may offset the immunosuppressive action of glucocorticoids.

— Digoxin taken with hawthorn may potentiate digoxin.

— Monoamine oxidase inhibitors (MAOIs) taken with ginseng, ephedra, or St. John’s wort may cause a hypertensive crisis or serotonin syndrome.

Report the use of any supplement to the physician or nurse practitioner, says **Sherri-Lynne Almeida**, RN, MSN, MEd, DrPH, CEN, president-elect of the Des Plaines, IL-based Emergency Nurses Association and vice president of client services for Team Health Southwest in Houston.

## EXECUTIVE SUMMARY

If a patient uses complementary or alternative medicine (CAM), this can impact treatment, outcomes, and discharge instructions.

- Ask questions about CAM use and document patient responses.
- Be aware of prescription drug interactions with herbal remedies.
- Realize that patient's symptoms may be caused by CAM use.

“Most nurses and practitioners are not familiar with the many supplements available and would have to research the potential for a drug interaction,” she notes.

### **Prompting may be needed**

There are many herbal supplements on the market that can diminish the effects of prescription medication, adds Almeida. “This could result in a negative outcome for the patient,” she says.

#### **• Ask specific questions about CAM use.**

When asking patients if they take over-the-counter medications, specifically mention herbal supplements, amino acids, and vitamins, says Almeida. “Sometimes patients need to be prompted as they do not consider these to be medications,” she notes.

Campbell recommends asking patients these three questions:

— Do you use any herbs, vitamins, food supplements, or homeopathic remedies?

— Do you use complementary and alternative medicine, such as acupuncture, biofeedback, or meditation?

— Are you under the care of a complementary and alternative medicine practitioner?

#### **• Consider that symptoms may be caused by herbal supplements.**

Patients may be taking food supplements or herbs that are actually causing some of the symptoms that they are presenting with, says Campbell.

She gives the following example: If a patient presents with new onset hypertension or a cardiac arrhythmia, it is essential to ascertain if they are taking any herbs that may have caused this condition.

#### **• Document your assessment.**

Most ED forms do not include space to document CAM use, notes Almeida. “Out of the 16 hospitals I consult with, not one facility has a designated area on

the nursing assessment sheet for this purpose,” she says. “I don’t think that this concept has truly hit mainstream nursing yet.”

Document responses to specific questions about alternative therapy use on the patient record, says Campbell. “Most ED records do not have space for this information, but it can be documented in the ‘medication’ section,” she suggests.

### **Consider CAMs as patients leave**

Document any herbs, food supplements, homeopathic remedies, or vitamins, says Campbell. “Any other complimentary therapies such as acupuncture can be documented under past medical history, along with the condition they were treating,” she notes.

#### **• Address discharge planning.**

Campbell recommends including CAM therapies in your discharge planning if possible. “For example, a patient with back pain who seeks relief in the ED will usually be discharged with muscle relaxants and pain medication,” she says. “If a patient is open to CAM, then a referral for acupuncture may also be appropriate.”

You’ll also need to know about CAM use to ensure no problems occur after the patient leaves the ED, says Campbell. “In addition, if you discharge the patient on new medication but are unaware about the herbs they are taking at home, there could be an adverse reaction,” she says.

### **Reference**

1. Weiss SJ, Takakuwa KM, Ernst AA. Use, understanding, and beliefs about complementary and alternative medicines among emergency department patients. *Acad Emerg Med* 2001; 8:41-47. ■

## SOURCES

For more information about alternative therapies, contact:

- **Patricia M. Campbell, RN, MSN, CCRN, ANP, CS**, Good Samaritan Regional Medical Center, 1010 E. McDowell Road, Phoenix, AZ 85062. Telephone: (602) 239-6968. E-mail: CampbellNP@aol.com.
- **Sherri-Lynne Almeida, RN, MSN, MEd, DrPH, CEN**, Emergency Nurses Association, 915 Lee St., Des Plaines, IL 60016. Fax: (847) 460-4002. E-mail: Sherri\_Almeida@teamhealth.com.

# Are you neglecting children in pain?

When **Barbara Weintraub, RN, MPH, MSN**, was caring for a 7-year-old boy with a large elliptical laceration over his knee, a lidocaine injection was needed. As soon as the child saw the suture set, he began to scream and jump on the bed.

“It was clear that I would be unable to suture him in that condition,” she recalls.

Weintraub, who is a pediatric emergency services coordinator at Northwest Community Hospital in Arlington Heights, IL, made a bargain with the boy: She would give him 10 minutes to calm down.

“In the meantime, I had the technician wheel in a TV/VCR and put in one of his favorite movies,” she says. “After seeing that he was engrossed in the movie, I returned to the room. I told him I was going to suture and again prepare to infiltrate with lidocaine.”

Weintraub was able to complete the somewhat extensive laceration repair without holding the child down, without tears, and without any additional discomfort for that patient. “Distraction is truly one of the greatest tools there is in treating pediatric pain,” she says.

## Steps you can take

Research has repeatedly shown that pain management in children is frequently inadequate, reports **Pat Spurlock, RN**, clinic administrator at Neurological Associates of Des Moines (IA) and former service line director for emergency services at Mercy Medical Center, also in Des Moines.

Spurlock recommends informing colleagues about the physiological effects of pain. “Pain increases the demand for oxygen, which can be critical in a child with low oxygen saturation,” she says. “It also results in decreased blood flow impacting organ perfusion.”

Here are ways to improve pain management in children:

### EXECUTIVE SUMMARY

Pain is frequently undermanaged in children, but you can advocate for appropriate interventions.

- Distract with music or movies (very effective).
- Reduce pain caused by interventions, such as pre-treating the site of IV insertion with EMLA cream.
- Hold seminars with lectures by pain clinicians or clinical pharmacists.

- **Use distraction.**

Distraction techniques work particularly well for children, says Weintraub. “A television playing a movie or headphones with music can do wonders to relieve both pain and anxiety in children,” she advises.

- **Use the most age-appropriate method to assess pain.**

These include the Wong-Baker Faces pain scale, numeric, or descriptive scales, says Weintraub. “Pre-verbal children should be assessed for muscle tone, activity, and facial expression,” she says.

If children don’t understand adult assessment tools, they can’t give you a response that accurately reflects their severity of pain, says Spurlock. “This could result in an overdose of medications or undertreatment,” she adds.

- **Watch for nonverbal cues.**

Nurses need to be alert to nonverbal cues, even in older children, as they may fear the treatment and try to hide their pain, says Weintraub.

She points to the following signs: not making eye contact, rocking back and forth or alternatively lying completely still and refusing to move. “Other cues can include silent tears and refusal to play, read, or engage in other favorite activities,” she says.

- **Address pain caused by ED interventions.**

Consider not only the pain the child arrives with, but the pain you cause by caring for them, says Weintraub. For instance, a child who presents with mild to moderate dehydration in need of intravenous (IV) hydration will experience pain upon IV insertion, she notes.

Weintraub recommends applying ice or a topical anesthetic to the site of an intramuscular injection prior to the injection. “Because the child is stable, there is more than enough time for EMLA to be applied and to take effect,” she says. “Don’t let your time restraints dictate your pain control measures.”

- **Address newborns.**

Remember that even newborns do experience pain, says Weintraub. “They not only remember it, but can suffer adverse physiologic outcomes due to the additional stress and catecholamine release that pain can cause,” she adds.

- **Allow parents to stay with the child.**

Allowing the parent to stay with the child and even hold the child when necessary, works well again in relieving pain and anxiety, says Weintraub. “This is true for both child and parent,” she adds.

- **Use dosage charts.**

Use dosage charts for pain management that provide calculations by kilo and interval, says Spurlock. “This will expedite time to administration,” she explains. **(For ordering information, see resource box, p. 136.)**

- **Hold seminars in your ED.**

Spurlock recommends asking a clinical pharmacist, especially one who has specialized in pediatrics, to educate nurses on new products or delivery systems that have proven to be effective treatments for pain.

A pain clinician would be another good choice for an inservice, says Spurlock. "They are current on delivery methods as well as the clinical application to each setting," she notes. "Their experience in many settings can be invaluable as they share their

knowledge and answer questions that ED nurses face in their daily practice."

Provide nurses with the latest research on pain management during orientation, at staff meetings, or inservices and assess staff competency annually, says Spurlock.

"So much new research is published annually, it is very difficult to keep informed and sometimes even to know the validity of the study," she notes. (**See recommended reading list, below.**) ■

## SOURCES AND RESOURCES

For more information about pain management in pediatric patients, contact:

- **Pat Spurlock**, RN, Neurological Associates of Des Moines, 1601 N.W. 114th St., Suite 338, Des Moines, IA 50325. Telephone: (515) 223-1917. Fax: (515) 223-0284. E-mail: DJTNeuro@aol.com.
- **Barbara Weintraub**, RN, MPH, MSN, Northwest Community Hospital, 800 W. Central Road, Arlington Heights, IL 60005. Telephone: (847) 618-5432. Fax: (847) 618-5419. E-mail: bweintraub@nch.org.

A *Pediatric Drug Chart* quick reference guide is available. The fifth edition (Product Code IN094A) is a 7 x 10-inch chart with drug dosages for 37 medications, including those used for pain management. The cost is \$9 including shipping. To order, contact:

- **Emergency Training Associates**, 105 Glen Hill Court, Union Bridge, MD 21791. Telephone: (800) 367-0382 or (410) 775-7663. Fax: (410) 775-0691. Web: [www.emsbooks.com](http://www.emsbooks.com). (Click on "Bookstore" and then "Reference.")

### RECOMMENDED READING

Here is a partial listing of pain management studies that pertain to patients in the ED:

- Attard A, Corlett M, Kidner N, et al. Safety of early pain relief in patients with acute abdominal pain. *BMJ* 1992; 305:554-556.
- Ferrell B, McCaffery M, Rhiner M. Pain and addiction: An urgent need for change in nursing education. *J Pain Symptom Manage* 1992; 7:117-124.
- Lenehan G. On making pain a priority. *J Emerg Nurs* 1992; 18:91-92.
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- Tanabe P, Buschmann M. A prospective study of ED pain management practices and the patients' perspective. *J Emerg Nurs* 1999; 25:171-177.
- Tanabe P. Recognizing pain as a component of the primary assessment: Adding D for discomfort to the ABCs. *J Emerg Nurs* 1995; 21:299-304.
- Turturro M. Pain management in the ED: Prompt, cost effective, state-of-the-art strategies. *Emerg Med Pract* 1999; 1:1-16.
- Wright W, Price S, Watson W. NSAID use and efficacy in the emergency department: Single doses of oral ibuprofen versus intramuscular ketorolac. *Ann Pharmacother* 1994; 28:309-312.

# Here's how to reduce noise in your ED

If you think that dealing with a noisy ED is just part of your job, you're mistaken, argues **Michael Buelow**, RN, CEN, an ED nurse at InteliStaf, a staff relief agency based in Phoenix.

"Avoid allowing other priorities to push noise management out of awareness," Buelow urges.

Noise levels in some EDs are sufficient to cause serious adverse psychological and secondary physical effects on staff, says Buelow. (See **bulleted list with adverse effects of noise, at right.**)

There is no evidence that the body adapts to continuous noise, adds Buelow. "So the entire time one is in a noisy environment, one's body is under this assault," he says. Here are some effective ways to reduce noise in your ED:

- **Use sound-absorbing materials.**

If your ED is being built or remodeled, use as many sound-absorbing materials as possible, says Buelow. These include carpeting, acoustic ceiling tiles, padded partitions, and solid doors that are routinely kept closed, he adds.

"A closed sliding glass door reduces sound transmission without preventing observation of a critically ill patient," he notes.

Carpet in the main ED treatment areas is not feasible due to cleanliness, but it can be used at the nurses' station, says **Laura J. Roepe**, RN, MA, CEN, quality systems analyst for United States Surgical/Tyco Healthcare and former administrative manager of the ED at Norwalk (CT) Hospital.

"Consider carpeting the walls as well," she suggests. "We did this in the psychiatric holding area, and it worked very well."

Design the central station to be surrounded by transparent thermoplastic or with high countertops, Roepe recommends. "Then those sitting behind the countertop are generally at head level with it," she says.

## EXECUTIVE SUMMARY

Noise in the ED has been shown to have harmful effects on staff, but it can be dramatically reduced.

- Use handheld radios or direct call phones to reduce overhead paging.
- Switch to sound absorbent materials such as carpeting.
- Set cardiac monitors carefully to reduce false alarms.

- **Disconnect telephone ringers.**

Contact your telephone company to substitute ringers with a flashing light or gentle gong, advises Buelow.

- **Set cardiac monitors carefully.**

Careful setting of the monitors will reduce the number of false alarms, says Buelow.

- **Reduce noise caused by overhead paging.**

Eliminate overhead paging in each room by removing the speakers, Roepe recommends. "Have only speakers in the hallways of the department," she says.

- **Use handheld radios.**

Handheld radios can reduce noisy overhead paging, says Roepe. "A message can be sent without the recipient having to stop what they are doing to pick up a phone," she says. "The ambulance dispatcher can be put through automatically."

## Do you know the side effects of noise?

Working with chronic exposure to as little as 68-70 decibels can have an effect on staff members, according to **Michael Buelow**, RN, CEN, an ED nurse at InteliStaf, a staff relief agency in Phoenix. Consider the following:

- **Physiological effect:**

- hearing loss.

- **Psychological effects:**

- decrease in problem-solving ability;
- decrease in frustration tolerance;
- decline in mathematical abilities;
- decrease in altruistic behavior and sensitivity to others;
- hindered work efficiency;
- diminished worker effectiveness;
- reduced accuracy of work;
- irritability, anxiety, and sleep loss.

- **Secondary physiological effects:**

- release of adrenocorticosteroids, epinephrine, and norepinephrine;
- peripheral blood vessel constriction;
- changes in heart rate;
- increased cerebral blood flow;
- galvanic skin response;
- increase in skeletal muscle tension;
- increase in blood cortisol and cholesterol;
- ulcers;
- increased susceptibility to disease and infection;
- complicating factor in heart disease;
- implicated in headaches and fatigue. ■

## SOURCES

For more information about reducing noise in the ED, contact:

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- **Christine Clare**, RN, MN, Kaiser Permanente Harbor City, 25825 S. Vermont Ave., Harbor City, CA 90710-3599. Telephone: (310) 517-4370. Fax: (310) 517-4374. E-mail: Christine.X.Clare@kp.org.
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The triage nurse, unit secretary, charge nurse, physician, and other individuals can communicate by radios, says Roepe. "When a call comes in or a particular person is needed, the message goes out over the radio instead of the overhead speaker," she explains. "Even if the message goes to all radios, it still is less noise than an overhead."

For example, if the triage nurse needs a bed for a patient, she radios the message, "Charge nurse, call triage," says Roepe. Likewise, if a primary care physician is returning a call from the ED physician, the secretary radios the message, "Dr. Smith, Dr. Jones is on line four."

Phone extensions in each room and the hallways are a wise investment, says Roepe. "The radio can relay the message of a caller, and the provider can pick up the phone from wherever they are," she says.

Direct phones significantly decrease the number of overhead pages by allowing the individual to directly call the person they wish to speak to, says **Christine Clare**, RN, MS, CEN, CNA, director of critical care at Kaiser Permanente Harbor City (CA) and former nurse manager for express care at Loma Linda (CA) University Medical Center.

"This decreases the overhead pages as you don't have to figure out which individual paged which person, or who is going to give report on a specific patient, particularly if that individual left the work area for a few moments," says Clare.

She estimates that overhead pages can be decreased by 40% by using direct-call phones.

There are times when the caller can't wait any

longer for the individual to return the call, so he or she calls the ED again, says Clare. "This results in another overhead page," she says. "In addition, if the individuals don't respond immediately to the initial overhead page, they are again paged repeatedly until they answer the call."

Since direct calling allows for an immediate response, overhead paging is decreased even more, says Clare.

### • **Speak more quietly.**

Making sound control part of your department's culture is a slow process, but it will provide the greatest results, says Buelow. He suggests introducing the concept of noise control at orientation, providing inservices on the importance of noise reduction, and insisting that all conversations be muted.

Most noise in the ED is from people's voices, which are raised in response to stress, says Buelow. "When you are in a hurry, it is difficult to take the extra steps to be near the person you're addressing," he says. "Instead, we tend to speak loudly across the room."

A single loud conversation requires others to raise their voices to be heard, Buelow adds. "Soon, everyone is shouting," he says. ■



## JOURNAL REVIEW

Glass N, Dearwater S, Campbell J. **Intimate partner violence screening and intervention: Data from 11 Pennsylvania and California community hospital emergency departments.** *J Emerg Nurs* 2001; 27:141-149.

Although the vast majority of women supported routine screening for intimate partner violence (IPV), less than 25% said they were asked about IPV by ED staff, says this study from Johns Hopkins University School of Nursing in Baltimore.

The researchers anonymously surveyed women over 18 who came to the ED during selected shifts in 11 hospitals from 1995 through 1997. The 18-item questionnaire, which asked about physical, emotional, and sexual IPV, was given to 4,641 female patients.

More women reported abuse if they came to the ED because of acute trauma from abuse (39%) than if they had been abused within the last year (13%). A significantly higher number of women reported past year and lifetime IPV when the questionnaire was self-administered than when it was given by a nurse. Seventy-six

percent of women who acknowledged being abused in the past year came to the ED for reasons other than the acknowledged abuse. The majority of women (76%-90%) agreed with mandatory reporting of IPV to the police, but women abused recently were less likely to support this practice. ED staff were more likely to screen women for abuse only if the patient presented with an acute injury.

The researchers recommend the following interventions:

- Assess for abuse after the patient is taken to the examination room instead of at triage, so the patient's presenting injury or complaint can be fully assessed first.
- Ask all women, not just those presenting with an injury, about abuse.
- Change forms to include prompts for screening and intervention.
- Offer systematic, repeated training of ED staff about routine screening. ■

## Improve care with new pediatric kit

A Pediatric Emergency Care Resource Kit has been developed by Emergency Medical Services for Children (EMSC) in Washington, DC.

The kit was developed to ensure that health care professionals have the resources they need to provide state-of-the-art emergency care to children. The kit is available in CD-ROM format. It contains over 2,000 pages of information.

The kit can be downloaded at no charge from the EMSC web site ([www.ems-c.org](http://www.ems-c.org)) by clicking on "What's New at EMS-C" and then "The Pediatric Emergency Care Resource Kit." A free copy is available in CD-ROM format by contacting the EMS-C Clearinghouse at (703) 902-1203, or an e-mail to [emsc@circsol.com](mailto:emsc@circsol.com). ■

### NEEDLE SAFETY MANDATE:

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## CE questions

5. Which of the following is recommended regarding protecting staff from secondary contamination, according to Ann Stangby, RN, CEM, emergency response planner for San Francisco General Hospital?
  - A. Pre-hospital providers will take care of decontamination in the event of a large-scale disaster.
  - B. ED should ask pre-hospital providers to critique their system for decontamination.
  - C. The protective measures taken when treating chemically contaminated patients are the same regardless of route of exposure.
  - D. Traditional protective gear such as high-filtration TB masks are the most effective way to protect yourself from chemical contamination.
6. Which of the following is accurate regarding assessment of complementary and alternative medicine (CAM) use, according to Patricia M. Campbell, RN, MSN, CCRN, ANP, CS, an emergency nurse practitioner at Good Samaritan Regional Medical Center?
  - A. If patients are using CAM, they usually volunteer this information.
  - B. Complimentary therapies should not be included in discharge planning.
  - C. There are no known adverse interactions with central nervous system depressants and herbal supplements.
  - D. Monoamine oxidase inhibitors taken with ginseng, ephedra, or St. John's wort may cause a hypertensive crisis or serotonin syndrome.
7. Which is true regarding pain management in children, according to Pat Spurlock, RN, clinic administrator at Neurological Associates of Des Moines?
  - A. Newborns do not suffer adverse physiological outcomes due to pain.
  - B. Pain of ED pediatric patients is generally managed better than that of adults.
  - C. There are no known physiologic effects of pain which can lead to adverse outcomes in children.
  - D. Pain increases the demand for oxygen, which can be critical in a child with low oxygen saturation.
8. Which of the following is true regarding screening for intimate partner violence (IPV), according to a study published in the *Journal of Emergency Nursing*?
  - A. Almost all women were asked about IPV.
  - B. Most women did not support routine screening for IPV.
  - C. More women reported abuse if they used a self-report questionnaire than if asked by a nurse.
  - D. Almost all the women who reported abuse had come to the ED for an injury within the past year.

## CE objectives

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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 *You're at risk for contamination: Here's how to protect yourself; Do you screen patients for alternative therapy use? Are you neglecting children in pain?* and *Journal Review* 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.



## PROCEDURE:

**Medical personnel must protect themselves and other patients from potential exposure to hazardous substances before providing initial care of contaminated patients.**

### **A. The Administrative Director/PCC or designee directs the ED personnel involved in the decontamination of the patient to:**

1. Report to triage for baseline vitals. Obtain PPE supplies from the designated, locked storage area.
2. Check suit for leaks and zipper integrity.
3. Remove all jewelry, wallets, and valuables, prior to donning PPE and secure in personal locker.
4. Don chemical resistant suit over boots.
5. Place pant leg over top of boots. Depending on the type of equipment used, secure with chemical-resistant tape if necessary.
6. Don nonsterile latex or vinyl gloves (elastic of chemical suit is placed over the gloves).
7. Apply respiratory and face/eye protection.
8. Pull up hood of chemical-resistant suit and secure in place.
9. Seal hood and zipper of suit with chemical-resistant tape.
10. Apply nitrile rubber gloves over outside of suit and seal with chemical-resistant tape.

### **B. Plant Operations will:**

1. Place plastic sheeting in area proximal to contamination area, and secure area with hazard tape as directed by ED physician to protect area from contamination, if necessary.
2. Secure additional HazMat supplies from DRZ such as salvage drums and linen cart.

### **C. Environmental Services will:**

1. Bring an additional linen cart to the ER treatment area.
2. On the midnight shift, weekends, and holidays, initiate setting up decontamination tent.

### **D. Security Officers will:**

1. Divert all traffic from the contaminated area.
2. Secure additional areas with hazard tape as necessary.

### **E. Patient:**

1. The patient(s) **will not** enter the ED until they have been decontaminated.
2. If the patient(s) arrive to the ED unannounced, security will prevent the patients from entering the hospital until the DRZ is prepared for the patient.
3. If the patient(s) is still in a private vehicle and is known to be contaminated, the patient should be held in vehicle until the DRZ is prepared. Note: *If the patient(s) is in a life-threatening situation and requires immediate attention, ED staff with proper PPE should begin treatment in the ambulance and an emergency decontamination should be performed.*
4. Patient's clothing should be removed in the ambulance (if not already removed at the scene). Note: *The greatest portion of contamination is usually found on the patient's shoes and clothing. Prompt removal of garments at the scene greatly reduced the amount of product the patient(s) and rescuers are exposed to.*
5. Clothing should be placed in a clear plastic bag and labeled with the patient's name and marked contaminated. Jewelry and other valuables should be placed in a zip-lock bag and labeled accordingly. Note: *All items may be returned to the patient(s) if the product is determined to be nontoxic. If the*

(Continued)

*substance is deemed toxic, all items will be disposed of with the exception of jewelry and other non-porous items such as credit cards.*

6. Patient(s) should be covered with a disposable blanket and advanced to the DRZ.
7. Patient(s) should enter shower area.

## **F. Shower/Decontamination**

**Uncomplicated** HazMat Exposure (without physical injury).

1. The patient(s) will be instructed to shower as long as necessary based on specific chemical product guidelines.
2. ED physician will determine decontamination solution based on available resources.
3. Eyes should be irrigated as directed by the ED physician.
4. Ears/Nose/Mouth: The ED personnel to decontaminate passages should use moist swabs.
5. Proceed with decontamination of body.

**Complicated** HazMat Exposure (with physical injury).

*The patient(s) will be decontaminated using the above protocol. Use a gentle scrubbing technique with surgical sponge and soft brush to avoid irritation to skin. Remember, volume of water is more important than velocity.*

## **G. Airway, Breathing, and Circulation (ABCs) should be maintained.**

1. The patient(s) will be placed on a backboard.
2. ED staff will place the backboard on the sawhorses in the decontamination shower.
3. Wounds: After cleansing of the eyes, ears, nose, and mouth, irrigation of all wounds should be performed. When appropriate, use waterproof drapes to cover clean areas as to minimize cross-contamination.
4. Proceed to decontaminate patient's body starting at the neck and working toward feet. Also include posterior portion of body, genitalia, and anus.

## **H. Decon Room Exit**

1. The decontaminated patient(s) should exit the shower, and care should be transferred to the ED staff in the Buffer Zone. Note: *Personnel in the Buffer Zone should not enter the DRZ because of potential increase of contamination. Nuclear Medicine Department (NMD) personnel will determine when the patient(s) and employees may be moved into the ED, if radioactive.*
2. ED personnel will remove PPE according to protocol (see below). PPE will be placed in the salvage drum or hazardous waste bag and sealed. Personnel should remove inner clothing and shower. Substitute clothing should be made available.

### **Undressing sequence:**

1. Stand in an open HazMat disposal bag.
2. Remove chemical boots.
3. Remove outer gloves.
4. Remove face/respiratory protection.
5. Remove chemical protective suit. Note: *Suit should be rolled down, avoiding contact with outside of suit.*
6. Step out of bag and secure bag.
7. Place HazMat disposal bag in designated barrels.
8. Proceed to shower, if necessary.

*(Continued)*

Pre-hospital providers should remove their clothing and shower following patient(s) decontamination. Clothing should be secured in a salvage drum or hazardous waste-disposal bag. Substitute clothing should be provided. Note: *Determine if pre-hospital providers are using SCBA as they may require a rapid decon due to limited air supply.*

**I. Equipment removal:**

All equipment used during the course of treatment such as cardiac monitors, BP cuff, etc. should be left in the DRZ. Disposition of the equipment will be determined by the Waste Management Team.

**J. Waste Removal Contractor:**

Young's Environmental should be notified to determine disposal and clean-up procedure.

**K. Environmental Services:**

Environmental Services personnel will decontaminate shower and nondisposable medical equipment based on waste disposal contractor's guidelines.

**L. Nuclear Medicine Department (NMD):**

Nuclear Medicine will decontaminate DRZ if radioactive materials are involved. Radioactive storage containers are available from the NMD if necessary.

**M. Supply/Storage Replacement:**

The PCC/ED Administrative Director or designee should inventory and order supplies as needed after an event and on a quarterly basis.

**N. Documentation:**

All documentation should be done on the patient(s) care record.

**ROLES AND RESPONSIBILITIES**

**NOTE: THE SAFETY OF ED STAFF AND PATIENT(S) CURRENTLY IN THE ED ARE OF PRIMARY CONCERN. CONTAMINATED PATIENT(S) FROM A HAZMAT OR WMD INCIDENT SHOULD NOT POSE A RISK TO ED STAFF OR OTHER PATIENTS IN THE EMERGENCY DEPARTMENT.**

The following section should be used as a quick reference based on duties performed during a HazMat or WMD incident based on job description. A thorough understanding of hospital policy and training are essential in an actual incident. This section **should not** be used as an alternative, but as an aid to assist personnel during a HazMat or WMD incident.

**Emergency Department Physician Responsibilities**

The ED Administrative Director/Medical Director/designee will make the determination to activate the HazMat/WMD Response Plan and coordinate all activities in regard to patient care. EMS will notify the ED via radio/cellular phone as to an incoming contaminated or potentially contaminated patient. Note: *In the event of an unannounced walk-in patient(s), security personnel should be notified immediately to isolate patients and minimize cross-contamination.* The physician should determine whether the patient should be diverted

*(Continued)*

elsewhere, i.e., St. John Hospital (313) 343-4000 or Detroit Receiving Hospital (313) 745-3374. This determination should be based on the briefing from EMS (see No. 1 below). If the patient is rerouted, then the ED physician will notify the designated hospital.

The decision to activate the HazMat/WMD Response Plan will be made by the ED Administrative Director/Medical Director/Security Director/designee who will:

1. Obtain information from EDS or patient(s) regarding medical condition, level of contamination, and risk associated with the hazardous material involved.
2. Assign an individual to research chemical product utilizing available MSDS/Poison Control to assist in identification of product, choosing appropriate decontamination solution and antidote pharmacology that may be needed upon patient(s) arrival.
3. Based on primary medical assessment of the patient(s), hazardous material involved, and contamination levels:
  - a. Provide medical treatment.
  - b. Provide patient decontamination.
4. In the DRZ, direct all necessary medical procedures to accommodate patient(s) medical condition and maintain contamination control.
5. Direct all sample taking procedures and decontamination procedures as suggested per resource indications.
6. Direct and coordinate the debriefing of all personnel after the patient has been transferred from the DRZ.

### **PCC/Charge Nurse Responsibilities**

The PCC/Charge nurse will obtain a briefing from the ED physician in regard to the patient(s).

#### **Prior to Patient(s) Arrival:**

The PCC/Charge nurse will:

1. Obtain HazMat patient information.
2. Ensure notification (see Disaster Policy Telecommunication List).
3. Assign ED nurses to selected areas:

#### **Complicated Exposure:**

**DRZ** — Two nurses (or one nurse, one physician as available)

**Buffer Zone** — One nurse

**Triage** — One nurse

#### **Uncomplicated Exposure:**

**DRZ** — One nurse

**Buffer Zone** — One nurse

**Triage** — One nurse

4. Ensure personnel are dressed in appropriate protective clothing.

#### **Patient(s) Arrival:**

The PCC/Charge nurse will:

1. Provide guidance and direction to team members.
2. Ensure Fire/EMS/HazMat personnel do not enter ED and are held for decontamination.
3. Direct all media to Public Relations or designee.

*(Continued)*

## **DRZ and Hot Zone Staff Responsibilities**

**Note: Any nursing staff members who are pregnant should not be designated as support persons in the DRZ or Buffer Zone.**

DRZ support staff that are located in the Ambulance area for emergency patient care or the DRZ (warm) zone must wear proper protective clothing.

The DRZ support staff will:

### **Prior to Patient(s) Arrival:**

1. Obtain briefing from Charge Nurse.
2. Dress in required protective clothing and take appropriate preparations:
  - a. Report to triage for baseline vitals.
  - b. Check suit for leaks and zipper integrity.
  - c. Remove all jewelry, wallets, and valuables prior to donning PPE and secure in personal locker.
  - d. Don chemical-resistant suit over boots.
  - e. Place pant leg over top of boots. Depending on the type of equipment used, secure with chemical-resistant tape, if necessary.
  - f. Don non-sterile latex or vinyl gloves (elastic of chemical suit is placed over the gloves).
  - g. Apply respiratory and face/eye protection.
  - h. Pull up hood of chemical-resistant suit and secure in place.
  - i. Seal hood and zipper of suit with chemical-resistant tape.
  - j. Apply nitrile rubber gloves over outside of suit and seal with chemical-resistant tape.

### **Patient(s) Arrival:**

1. Assist ED physician with medical treatment of patient.
2. Assist ED physician with obtaining samples, decontamination, and patient transfer.
3. Remove protective clothing and perform self-decon prior to departure of DRZ.
4. Following completion of the HazMat incident, the PCC/Charge Nurse will review supply cart and reorder as necessary.

## **Buffer Zone Staff Responsibilities**

The Buffer Zone nurse is located in the Buffer Zone designated area (clean area).

**Note: If the patient is contaminated with an unknown chemical product and you suspect the potential for secondary contamination, Buffer Zone nurse must don proper PPE.**

### **Prior to Patient(s) Arrival:**

1. Obtain a briefing from the Charge Nurse.
2. Initiate patient record.
3. Secure baseline vitals of DRZ staff.

### **Patient(s) Arrival:**

1. Record the medical/hazard information provided by EMS.
2. Transfer medical equipment to DRZ staff as needed.
3. Control entrance and exit of personnel and equipment from DRZ.

*(Continued)*

4. Provide any additional information related to hazardous materials agent.
5. Document all medical information, sample-taking measures, and decontamination efforts as provided by DRZ staff.
6. Transfer the patient(s) to the appropriate area within the ED once the patient has been decontaminated.

### **Post Patient Exit:**

Assist DRZ support personnel as they exit the DRZ, making sure the following procedures are performed:

1. All DRZ support personnel remove PPE in the DRZ and shower for decontamination prior to leaving the DRZ.
2. That exit vital signs are obtained from members of the DRZ and that personnel are properly hydrated.
3. That DRZ is isolated and secured by Security personnel.
4. Notify the waste management company per procedure for clean-up of DRZ.

### **Maintenance and/or Environmental Services Personnel Responsibilities**

1. Will receive notification by the ED Physician/PCC/designee of classification (complicated vs. uncomplicated) of the HazMat Response Protocol.
2. Obtain the DRZ equipment immediately and set up tent.
3. Place two (2) 55-gallon waste drums with plastic liners in the DRZ.
4. Set up warning tape, signs, and stanchions as indicated.
5. Set up decontamination equipment in the DRZ.
6. Stand by for further direction from the ED PCC/Charge Nurse.

### **Security Personnel Responsibilities**

#### **Prior to Patient(s) Arrival:**

1. Don proper PPE (if necessary).
2. Place warning tape, signs, and stanchions in the ambulance receiving area as per procedure.
3. Direct ambulance traffic to designated arrival area.

#### **Patient(s) Arrival:**

1. Secure ambulance with warning tape and stanchions.
2. Advise ambulance crew to stay in Hot Zone and anticipate decontamination. (Direct contact with EMS crew should be avoided due to possible cross-contamination.)
3. Limit access to the controlled area per procedure.
4. Maintain all control points until given the "all clear" notification by supervisory personnel.

### **Nuclear Medicine Personnel Responsibilities**

**Note: If incident is deemed a "Radioactive Emergency," all personnel must wear dosimeters.**

1. The Nuclear Medicine Department (NMD) will assist the ED staff at checking patient(s), pre-hospital responders, and equipment for radioactive contamination.
2. If adequate personnel are available from the NMD, one individual should be assigned to assist the physician and nurse in the DRZ in regard to contamination control and assist in monitoring patients, staff, and equipment as needed.
3. A second individual from NMD should assist in the Buffer Zone in maintaining contamination

*(Continued)*

control. This individual is responsible for monitoring all patient articles, patients, and staff who depart the DRZ for contamination.

### **Administration/Community Relations Responsibilities**

1. Provide support, as needed, to medical staff and handle press/media inquiries.
2. Designate a spokesperson for the hospital and prepare an area in the hospital to address the media.
3. Maintain media control during the incident and post incident.
4. Appoint a liaison to coordinate efforts of ED staff and other agency resources.

Documentation: ED Patient Care Record

Compiled by: Disaster Committee Members

Written 11/99

References: U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry. *Managing Hazardous Materials Incidents, Hospital Emergency Departments. A Planning Guide for the Management of Contaminated Patients (Volume II)*.

# Occupational Safety and Health Administration (OSHA) Guidelines for Emergency Preparedness and Response (Excerpt)

## Personal protection

Effective personal protection is essential for any person who may be exposed to potentially hazardous substances. In emergency situations, employees may be exposed to a wide variety of hazardous circumstances, including:

- Chemical splashes or contact with toxic materials;
- Falling objects and flying particles;
- Unknown atmospheres that may contain toxic gases, vapors, or mists, or inadequate oxygen to sustain life;
- Fires and electrical hazards;
- Violence in the workplace.

It is extremely important that employees be adequately protected in these situations. Some of the safety equipment that may be used include:

- Safety glasses, goggles, or face shields for eye protection;
- Hard hats and safety shoes for head and foot protection;
- Proper respirators for breathing protection;
- Whole body covering chemical suits, gloves, hoods, and boots for body protection from chemicals;
- Body protection for abnormal environmental conditions such as extreme temperatures.

The equipment selected must meet the criteria contained in the OSHA standards or described by a nationally recognized standards-producing organization. The choice of proper equipment is not a simple matter, and consultation should be made with health and safety professionals before making any purchases. Manufacturers and distributors of health and safety products may be able to answer questions if they have enough information about the potential hazards involved.

Professional consultation most likely will be needed in providing adequate respiratory protection. Respiratory protection is necessary for toxic atmospheres of dust, mists, gases, or vapors and for oxygen-deficient atmospheres. There are four basic categories of respirators:

- Air-purifying devices (filters, gas masks, and chemical cartridges), which remove contaminants from the air but cannot be used in oxygen-deficient atmospheres;
- Air-supplied respirators (hose masks, and air line respirators), which should not be used in atmospheres that are immediately dangerous to life or health;
- Positive-pressure self-contained breathing apparatus (SCBA), which are required for unknown atmospheres, oxygen-deficient atmospheres, or atmospheres immediately dangerous to life or health;
- Escape masks.

*(Continued)*

Before assigning or using respiratory equipment, the following conditions must be met:

1. A medical evaluation should be made to determine if the employees are physically able to use the respirator.
2. Written procedures must be prepared covering safe use and proper care of the equipment, and employees must be trained in these procedures and in the use and maintenance of respirators.
3. A fit test must be made to determine a proper match between the facepiece of the respirator and the face of the wearer. This testing must be repeated periodically. Training must provide the employee an opportunity to handle the respirator, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a familiarity period, and wear it in a test atmosphere.
4. A regular maintenance program must be instituted including cleaning, inspecting, and testing of all respiratory equipment. Respirators used for emergency response must be inspected after each use and at least monthly to ensure that they are in satisfactory working condition. A written record of inspection must be maintained.
5. Distribution areas for equipment used in emergencies must be readily accessible to employees.

SCBA offers the best protection to employees involved in controlling emergency situations. It must have a minimum service life rating of at least 30 minutes. Conditions that require a positive-pressure SCBA include the following:

- Leaking cylinders or containers, smoke from chemical fires, or chemical spills that indicate high potential for exposure to toxic substances;
- Atmospheres with unknown contaminants or unknown contaminant concentrations, confined spaces that may contain toxic substances, or oxygen-deficient atmospheres.

*Source:* Occupational Safety and Health Administration. Employee Emergency Plans and Fire Protection Plans. 29 CFR 1910.38.

<b>Name of Herb</b>	<b>Common Uses</b>	<b>Possible Side Effects or Drug Interactions</b>
<b>Echinacea</b>	Boosts the immune system and helps fight colds and flu; aids wound healing.	May cause inflammation of the liver and is used with certain other medications such as anabolic steroids, methotrexate, or others.
<b>Ephedra</b> (also called <i>Ma-Huang</i> )	Used in many over-the-counter diet aids as an appetite suppressant; also for asthma or bronchitis.	May interact with certain antidepressant medications or certain high-blood pressure medicines to cause dangerous elevations in blood pressure or heart rate. Could cause death in certain individuals.
<b>Feverfew</b>	Used to ward off migraine headaches and for arthritis, rheumatic disease, and allergies.	May increase bleeding, especially in patients already taking certain anticlotting medications.
<b>Garlic</b>	For lowering cholesterol, triglyceride levels, and blood pressure.	May increase bleeding, especially in patients already taking certain anticlotting medications.
<b>Ginger</b>	For reducing nausea, vomiting, and vertigo.	May increase bleeding, especially in patients already taking certain anticlotting medications.
<b>Ginkgo</b> (also called <i>ginkgo biloba</i> )	For increasing blood circulation and oxygenation and for improving memory and mental alertness.	May increase bleeding, especially in patients already taking certain anticlotting medications.
<b>Ginseng</b>	Increases physical stamina and mental concentration.	May cause decrease effectiveness of certain anticlotting medications. May see increased heart rate or high blood pressure. May cause bleeding in women after menopause.
<b>Goldenseal</b>	Used as a mild laxative and also reduces inflammation.	May worsen swelling and/or high blood pressure.
<b>Kava-kava</b>	For nervousness, anxiety, or restlessness; also a muscle relaxant.	May increase the effects of certain antiseizure medications and/or prolong the effects of certain anesthetics. Can enhance the effects of alcohol. May increase the risk of suicide for people with certain types of depressions.
<b>Licorice</b>	For treating stomach ulcers.	Certain licorice compounds may cause high blood pressure, swelling, or electrolyte imbalances.
<b>Saw palmetto</b>	For enlarged prostate and urinary inflammations.	May see effects with other hormone therapies.
<b>St. John's Wort</b>	For mild to moderate depression or anxiety and sleep disorders.	May prolong the effects of certain anesthetic agents.
<b>Valerian</b>	Mild sedative or sleep aid; also a muscle relaxant.	May increase the effects of certain antiseizure medications or prolong the effects of certain anesthetic agents.

Source: Excerpted from *What You Should Know About Herbal Use and Anesthesia* from the American Society of Anesthesiologists. A copy of the full text can be obtained from ASA, 520 N. Northwest Highway, Park Ridge, IL 60068-2573.