



# ED NURSING

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## Study says EDs don't meet time targets for stroke: How do you measure up?

*Patients not given diagnostic tests in recommended time frames*

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**D**o stroke patients in your ED always receive a computed tomography (CT) scan within 25 minutes, and do you have results within 45 minutes? If not, you're not following recommended time frames for stroke care — a scenario commonly occurring in community EDs, according to a just-published study.<sup>1</sup>

To track compliance with time targets established by the Bethesda, MD-based National Institute of Neurological Disorders and Stroke (NINDS), researchers assessed care of 1,003 stroke patients presenting to community EDs in Cleveland and discovered that median time to CT scan was 65 minutes, and time to imaging results was 105 minutes — substantially longer time frames than recommended. **(See box on p. 102 for NINDS time targets.)**

If you don't follow the current NINDS guidelines for stroke care, your ED may face potential adverse outcomes, warns **W. Scott Burgin**, MD, assistant professor of neurology and radiology at the University of Rochester (NY). And that's not all.

"When guidelines are issued about fairly routine issues in management, it does open you up for liability issues if they aren't followed," Burgin warns.

Here are ways you can effectively reduce delays in care of stroke patients:

- **Intervene immediately if you suspect stroke.**

As soon as a suspected stroke patient is identified, an acute stroke pathway is initiated and the stroke team is called, says **Heidi Jahnke**, RN, BSN, clinical

### EXECUTIVE SUMMARY

Current guidelines for acute stroke care are not being followed in community EDs, with time targets for diagnostic tests significantly longer than recommended, according to a just-published study. Have nurses initiate protocols at triage for stroke patients.

- To reduce delays in computed tomography scan, have technicians carry a portable phone for quick communication.
- Identify and eliminate obstacles to meeting time targets.

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research nurse at Barrow Neurological Institute of St. Joseph's Hospital and Medical Center in Phoenix. (See facility's Acute Stroke Pathway, enclosed in this issue.)

"Nurses do not need a physician's order to initiate the stroke pathway if they suspect a patient is having a stroke," adds Jahnke.

To meet timelines, nurses should take the initiative and aggressively move the patient through the pathway, emphasizes Jahnke. "For instance, if CT scan is ready to scan the patient, and the physician is examining the patient, the CT should take precedence over the exam," she says.

The physician can accompany the patient to CT scan and finish the exam after the test, she explains. "Most of the neurology residents and attendings concur with this approach in decreasing delays," says Jahnke.

- **Get patients to CT quickly.**

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## Meet these time targets for all stroke patients

Comply with these stroke evaluation time targets recommended by the Bethesda, MD-based National Institute of Neurological Diseases and Stroke:

- door to doctor: 10 minutes;
- door to computed tomography (CT) completion: 25 minutes;
- door to CT read: 45 minutes;
- door to treatment: 60 minutes;
- access to neurological expertise: 15 minutes;
- access to neurosurgical expertise: two hours;
- admit to monitored bed: three hours.

Having a CT scanner within the ED is very helpful in reducing delays, Jahnke says. "Also, the CT tech carries a portable cell phone so the ED nurse can notify him or her of a stroke patient that needs a stat CT scan," she says.

After the acute stroke pathway was implemented, the ED decreased its average door-to-completion of CT scan time from 88 minutes to 38 minutes, says Jahnke. "When the CT scanner was placed in the ED, it was further decreased to around 20 minutes," she reports.

- **Identify obstacles to meeting timed goals.**

At Community Medical Center in Toms River, NJ, a multidisciplinary committee was formed to identify obstacles to meeting time goals for ED stroke patients, says **Debra Graf**, RN, BSN, CEN, ED educator. The committee consisted of the ED administrative director, ED medical director, ED physicians, ED nurses, representatives from information technology, pharmacy, radiology, neurology nurses, and a neurologist.

The following obstacles were identified:

- large volumes of patients presenting to triage simultaneously;
- no immediately available treatment bays;
- large volume of "stat" CT scans with no ability to prioritize according to acuity;
- inherent delays in the triage and registration process;
- knowledge deficit of ED staff regarding diversity of stroke symptoms and the impact of early intervention.

To address these problems, the following steps were taken:

1. **A dedicated rapid assessment area was created for stroke patients.**

The rapid assessment area is a five-bed monitored area staffed by a nurse and a licensed practical nurse

## Follow these steps for stroke patients

Nursing standing orders for ED patients with stroke symptoms include at Community Medical Center in Toms River, NJ, include the following:

- Check vital signs with pulse oximetry.
- Perform AccuCheck blood sugar.
- Document patient weight.
- Document time onset of symptoms.
- Insert saline lock 20 gauge or larger.
- Draw labs from saline solution lock.
- Give nasal oxygen 2 L per minute after pulse oximetry.
- Connect to cardiac monitor.
- Give 12-lead electrocardiogram (ECG).
- Obtain old ECG for comparison.
- Begin thrombolytic exclusion checklist.
- Note obvious magnetic resonance imaging exclusion criteria.
- Do not administer heparin, warfarin, or aspirin until ordered.

certified in intravenous (IV) lines. It is located by the ambulance and triage entrances. Patients with stroke symptoms bypass triage and registration and are seen within 10 minutes of arrival by an ED physician, Graf explains. Here are the steps that occur:

A. The triage nurse notifies an ED physician and registration.

B. Bedside registration is performed while standing orders are initiated.

C. The ED physician examines the patient and enters orders from an ED order set. If a patient is ruled out as a candidate for thrombolytic therapy, he or she can be moved to a regular treatment bay and receive a CT scan on a lower priority, says Graf. "Potential candidates are given priority in CT scan based on the ED order set used, then moved to the ED to await the decision to treat," she says.

**2. Nursing standing orders and ED physician order sets were developed.** These orders facilitate the treatment protocols decided on by the committee, says Graf. (See checklist of nursing standing orders, above.)

**3. The computerized order entry system was changed to give priority to stat CT scans for patients eligible to receive thrombolytics vs. regular stat CT scans.**

"We have been able to meet the time goals of 10 minutes for door-to-physician and 25 minutes for door-to-CT most of the time," says Graf.

The average door-to-CT time was previously about 60 minutes, she notes. "We have reduced this by at least

## SOURCES

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30 minutes in thrombolytic candidates," says Graf.

The 30-minute reduction has allowed some patients to receive treatment with thrombolytics who otherwise would have been excluded because of the three-hour window of time for treatment, she adds.

### • Identify causes of delays.

An "immediate-response" committee reviews all stroke patients that are admitted through the ED on a monthly basis, says Jahnke. "We look for delays in ordering lab work and CTs, and in administration of thrombolytics," she says.

If delays are noted, the ED educator inservices the specific nurses, physicians, and technicians involved about the importance of following the pathway, says Jahnke.

Sometimes the committee identifies necessary delays, such as problems with blood pressure or airway management, she adds. "We allow nurses to carry antihypertensive medications with them when they take the patient to CT scan so they will be able to administer it if necessary," says Jahnke.

### • Educate staff.

When problems were identified with staff knowledge about the stroke protocol at Community Medical Center, an educational seminar was given to ED and neurology nurses, says Graf.

At St. Joseph's, an ED nurse attends the monthly stroke meeting, the stroke team reviews specific issues at ED staff meetings, and the ED educator works with individuals to review the process, says **Donna Zadrozny**, RN, BSN, an ED nurse at the facility.

"During our nursing orientation, the stroke protocol

is emphasized," she adds. "Also, general updates are passed on to the staff at our monthly staff meetings and through our ED newsletter."

- **Use a team approach.**

The following steps occur simultaneously when a stroke patient arrives in the ED, says Zadrozny:

- A patient care technician gets the portable monitor ready.

- ED nurses check vital signs and neurological status.

- The unit clerk calls the stroke pager and enters orders into the computer system.

- The neurological resident and/or the ED physicians establish the onset of symptoms and eligibility for thrombolytics.

"All of the staff and ancillary services pull together to expedite the care of the patient," says Zadrozny.

Delays may occur due to difficult IV starts, but that should not delay care, says Zadrozny. "In those cases, we have our lab draw the blood work and take the patient to CT scan," she says. "While we are waiting for the reading, we start the IV."

By making changes such as these, the ED has dramatically reduced delays and improved consistency of care, says Jahnke.

"We have come a long way since the institution of the pathway and stroke team concept," she says. "We continue to look for ways to improve our times in order to give quality stroke patient care."

## Reference

1. Katzan IL, Graber TW, Furlan AJ, et al. Cuyahoga County Operation Stroke: Speed of emergency department evaluation and compliance with National Institutes of Neurological Disorders and Stroke time targets. *Stroke* 2003; 34:994-998. ■

## Cut delays by an hour with triage protocols

When a patient is assessed at triage and no beds are available, what happens next in your ED? Instead of sending patients to the waiting room, why not start care immediately?

At St. Mary's Hospital in Tucson, AZ, triage nurses use protocols to immediately initiate care for female abdominal pain, minor orthopedic injuries, and upper respiratory illnesses, says **Cassie Pundt**, RN, clinical manager for emergency services. (See **triage protocols, enclosed in this issue.**)

The protocols were developed by the triage coordinator and ED physicians and give a set of

## EXECUTIVE SUMMARY

Use triage protocols to reduce length of stay for patients with complaints such as minor orthopedic injuries, abdominal pain, and upper respiratory illnesses.

- Encourage nurses to consistently use protocols by demonstrating the benefits to patient flow and patient care.
- Test results often are back before patients see physicians.
- Compare lengths of stay for patients before and after protocols are implemented.

orders for nurses to implement for patients in each category, says Pundt.

"The orders are implemented at triage, so if there is a need to draw blood or give a urine sample, these things can happen before the patient even gets in to see the physician," she explains.

If the patient still is waiting when the test results come back, nurses simply document them on the patient's chart, adds Pundt. "As soon as the doctor does the medical screening exam [MSE], the results are already back," she says. "This saves us a lot of time."

### One test saves 30 minutes

At Morrow County Hospital in Mount Gilead, OH, triage protocols are used for laboratory tests, X-rays, and pain management, says **Kimberly Hickman**, RN, BSN, director of the ED. "When we identified our throughput as being 140 to 160 minutes, we knew we needed to do something," she says.

The protocols are kept in a notebook in the triage area for reference by triage nurses. The nurse initiates a protocol by writing it as a verbal order, and the physician signs off on it when he sees the patient for the MSE, says Hickman.

The rural ED has only seven beds, and patients often are waiting in the hallways, she explains. "Patients are happier because something is being done for them while they are waiting," Hickman says.

For example, a rapid strep test is done for patients with sore throat, she says. "If no other work-up is warranted, the physician writes a prescription, if appropriate, and we can get the patient on their way," says Hickman. "In this scenario, doing the rapid strep can cut 30 minutes off a visit."

To significantly increase benefits of triage protocols, take the following steps:

## SOURCES

For more information on use of triage protocols in the ED, contact:

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### • Train ED nurses in use of protocols.

ED nurses attended a series of one-hour mandatory classes presented by the ED doctors on radiology exam ordering, says **Mary G. Kelley**, MS, ARNP, CEN, triage coordinator.

The education for the other protocols was completed by "supertrainer" nurses, says Kelley. "These ED nurses were staff who volunteered to champion the protocol project and were trained by me," she says.

### • Compare before and after times.

To assess the impact of the protocols on patient flow, Kelley audits charts on an ongoing basis.

"When I do chart review, I include time statistics for several patients whom we didn't use the protocols for, although they met the criteria," she says. "I compare those times to patients who we used the protocol for."

The average length of stay for this group of patients is four hours and 37 minutes, and that is reduced by one hour and nine minutes when protocols were used, says Kelley

### • Ensure consistent use of protocols.

At first, triage nurses were reluctant to use the protocol for patients with possible fractures because they were afraid they would order the wrong X-ray, says Kelley. "Also, if we were busy at triage and not adequately staffed, protocols sometimes took a back seat," she adds.

To address the problem, the benefits of the protocols were emphasized to ED nurses, says Kelley. "I report our current length of stay back to the staff," she says.

ED nurses also saw the benefits firsthand when patients rapidly are discharged after having X-rays

done, says Kelley. "Patients tell the nurses that it is so much better having the X-rays done ahead of time," she says. "When the nurses see how it satisfies the patient, they are more willing to use the protocols."

There also are dramatic improvements in patient care, says Kelley. For example, the abdominal pain protocol recently was used for a young woman with left lower quadrant pain, with a urinalysis and urine pregnancy test ordered at triage.

Within 10 minutes, the technician reported the pregnancy test was positive and the urine test was negative, says Kelley. "She was positive for an ectopic pregnancy, which caught me by surprise because she did not look sick," says Kelley. "I was glad for the protocols." ■

## Are you mistreating sickle cell patients?

ED patients often deal with frightening symptoms, noisy waiting rooms, and long delays. However, patients with sickle cell disease have a unique problem: Although they are in excruciating pain, they often are viewed as drug seekers.

"Patients tell us that they are not believed by ED staff and they feel like they have to act out to get attention," says **Allan Platt**, PA-C, program coordinator for the Atlanta-based Georgia Comprehensive Sickle Cell Center at Grady Health System, which has a nine-bed dedicated ED for sickle cell patients. "The level of pain stated by the patient should be believed and treated accordingly."

He gives the following as an example: A 25-year-old auto mechanic with sickle cell disease hemoglobin type SC reports excruciating back and hip pain. The patient came to the ED twice in the previous week and was given a meperidine shot and some meperidine pills upon discharge. You overhear the ED physician

*Continued on page 107*

## EXECUTIVE SUMMARY

Patients with sickle cell disease often are viewed as drug seekers, so you must advocate for appropriate pain management.

- Ask patients if pain is typical for when they are having a sickle cell crisis.
- Believe the level of pain stated by patients.
- Ensure that immediate steps are taken to manage pain.

## Common Sickle Cell Problems

Signs and Symptoms	Diagnostic Tests and Differential	Treatment Options
Symmetric hand-foot swelling in infants	Hand Foot Syndrome — First manifestation of sickle cell disease	Fluids and pain management
Chills and fever	Sepsis, pneumonia, osteomyelitis: Do a complete blood count (CBC), white blood count differential, (check for elevated bands and total white blood count), blood cultures	Empirically treat with antibiotics until cultures are known. Prevent infections with immunization and prophylactic penicillin up until age 6.
Headache	Stroke, aneurysm, meningitis: Do a computed tomography (CT) scan, magnetic resonance imaging/magnetic resonance angiography (MRI/MRA), lumbar puncture.	Treat etiology
Chest pain, dyspnea, cough	Chest syndrome, pneumonia: Do a chest X-ray, arterial blood gas	Treat empirically with antibiotics and transfusion
Abdominal pain and swelling	Splenic or hepatic sequestration, gallstones — ultrasound or CT, CBC and chemistry profile	Transfusion for sequestration Surgery for gallstones
New weakness, parestesias	Stroke — do a CT Difficulty talking or MRI/MRA	Transfuse acutely and chronic transfusion program for prevention
Pain in extremities, low back “typical crisis pain”	Pain crisis: Look for precipitating causes such as infection, dehydration, or acidosis. Do a CBC, reticulocyte count, chemistry profile, and urinalysis.	Hydration with oral or intravenous water. Good pain management. Hydrera may prevent crisis.
Weakness, lethargy, pallor	Aplastic crisis: Do a CBC with reticulocyte count	Transfusion support until bone marrow responds
Acute decline after routine pain crisis	Multiorgan system failure: Evidenced by renal, hepatic, failure, acute respiratory distress syndrome, disseminated intravascular coagulation	Transfusions can be life-saving
Increasing jaundice	Increased hemolysis, hepatitis, or bile duct obstruction: Do a CBC, reticulocyte count, chemistry profile, hepatitis screen. Consider a gallbladder ultrasound.	Treat etiology. Administer folate 1 mg daily to all patients for red cell production demands.
Increasing ED visits for pain	Consider inadequate pain management, infection, increased anemia. Assess psychosocial aspects.	Provide good pain management. Consider hydroxyurea therapy to prevent pain. Case management
Focal bone pain — hips, shoulders, or any bone	Consider bone infarction, or osteomyelitis. If hip or shoulder pain, consider avascular necrosis. Do a CBC, and X-ray the area.	For bone infarction and avascular necrosis, treat with long acting agents nonsteroidal anti-inflammatory agents and decreased weight bearing.

Source: Allan Platt, PA-C, Program Coordinator, The Georgia Comprehensive Sickle Cell Center, Atlanta.

## SOURCES

For more information on sickle cell patients, contact:

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comment, “He’s back — he’s just drug seeking.”

As the ED nurse, you must advocate for appropriate pain management for this sickle cell patient, urges **Sylvia Ann Rainey, RN**, the facility’s research nurse. “A nurse can remind a doctor that patients have the right not to be labeled,” she says. “It is not for us to judge who should receive pain medications and who should not.”

Sickle cell patients may present to the ED with high levels of pain and need rapid pain treatment, she emphasizes. (See chart with specific interventions to take, p. 106.)

Ask the patient, “Is this pain typical for your pain crisis?” advises Platt. “This is a great question to determine if the pain is routine for the patient or a complication causing atypical pain.”

Use a visual analog scale to assess pain in sickle cell patients, says Platt. He points to a recent study which found that visual analog scale scores reflect the pain levels of patients accurately.<sup>1</sup> Researchers found that pain score rating by physician and parents is consistently lower than by patients, and that visual analog scores and categorical scale (ranging from “none” to “very severe”) scores are strongly correlated. The results emphasize the importance of patient self-reporting with a visual analog scale, says Platt.

In the above case, ED nurses made sure that an ED attending physician with sickle cell experience evaluated the patient, says Platt. The attending suspected that the patient had pain crisis and avascular necrosis of the right hip, and the following steps were taken:

1. The physician ordered X-rays, intravenous fluids D5W at 250 cc per hour, ketorolac (a nonsteroidal anti-inflammatory drug) 30 mg intravenously (IV) every six hours, and morphine 10 mg IV every three hours.
2. ED nurses ensured that basic lab work was ordered, including a complete blood count with

reticulocyte count, chemistry profile, and urinalysis.

3. Once the patient’s pain level was down to a level 5 on a numerical pain scale of 1-10, ED nurses escorted him to X-ray for hip films. This confirmed avascular necrosis of the right hip, a condition common in sickle cell disease patients, Platt adds.

4. The attending reviewed the findings with the patient, arranged a hematology-sickle cell clinic follow-up, and started the patient on a daily long-acting nonsteroidal anti-inflammatory drug. The patient was informed that orthopedic consultation would be needed in the near future and that he would need physical therapy and vocational rehabilitation to help with the hip pain and his job. He was given a 48-hour supply of hydrocodone/acetaminophen for breakthrough pain and told to return to the ED if the pain increased.

At this time, the patient’s pain had decreased to a level 4, and he thanked ED nurses for believing his level of pain. “He stated that this was the best ED visit he has ever had,” says Platt.

## Reference

1. Weiner DL, Stark PC, Hibberd PL. Pain assessment: A comparison of patient, physician, and parent ratings and of rating scales. *Acad Emerg Med* 2003; 10:441. ■

## Follow the ABCs for sickle cell pain

**A**lways use the “A, B, C, D, E, F” principles when caring for patients with sickle cell pain, urges **Allan Platt, PA-C**, program coordinator for the Atlanta-based Georgia Comprehensive Sickle Cell Center at Grady Health System.

### • A = Assess the pain.

Remember that all pain may not be attributed to sickle cell, says Platt. “Patients can have appendicitis, myocardial infarction, and everything those without sickle cell disease have,” he adds.

### • B = Believe the patient’s stated level of pain.

“This is so important to optimal pain management,” says Platt.

### • C = Complications.

Infection, dehydration, acute chest, acidosis, and hypoxia can set off a pain crisis, says Platt. “Always look behind the pain to see what triggered it,” he says. “Patients with complications should be admitted to the hospital.”

### • D = Drugs and distraction.

Use appropriate analgesics such as nonsteroidal anti-inflammatory drugs and central acting agents such

as morphine in fixed doses or a pump, says Platt. In addition, distract patients with video, music, and relaxation, he advises.

“Stay away from using meperidine in those with frequent pain,” he says. “It builds up toxic metabolites that can cause seizures.”

Inhaled nitric oxide is now in clinical trials as a pain crisis treatment, Platt reports. “Preliminary reports look promising that it may shorten pain crisis,” he says. “This may be the ED treatment of the near future.”

• **E = Environment.**

Provide a quiet place to calm pain and anxiety of patients, says Platt. “We treat patients for eight hours in our sickle cell ED and get 80% of the patients better to go home,” he says. “Patients who are no better in eight hours or have complications should be admitted.”

• **F = Fluids and fixed dosing.**

Give hypotonic D5W intravenously to reverse sickling, advises Platt. Use fixed drug dosing, with no “as-needed” pain medications, he advises. ■

## Are you meeting the needs of dying patients?

On a typically hectic day in the ED at Marlborough (MA) Hospital, several admitted patients were waiting in the hallway for an available bed.

“One of the patients was an elderly woman who had made the decision, after much discussion between the staff, the patient, and her family, that no heroic measures would be taken and no medications other than pain medications would be given,” says **Kay McClain**, RN, MS, CEN, nurse director for emergency services.

When a bed opened up, ED nurses debated over which of the six patients would get it, says McClain. “It essentially came down to two patients. Would it be the one with the most nursing demands or the dying

patient?” she recalls.

A decision was made that the terminal patient would get the bed, says McClain. “This would give her perhaps a little more peace and dignity during her final hours, even though this might be causing more work for everyone involved,” she explains.

This scenario underscores the dramatic impact that you can have on terminally ill patients in your ED, says McClain.

“The most important thing that ED nurses can do is realize the important role and unique perspective we have on patients at the end of life,” she says.

If you don’t comply with the wishes of patients, you face liability risks, warns McClain. “We may find ourselves in trouble for prolonging life when there is documentation that is not what the patient or health care proxy wanted,” she says.

Always ask patients and families if they have an advance directive, advises **Susan C. Stone**, MD, MPH, FACEP, assistant professor of emergency medicine at University of Southern California and Los Angeles County Medical Center. “This is a legal requirement, and it also is the ethical thing to do,” she says.

There is a growing trend of EDs treating more terminally ill patients, due to lack of access to primary health care, says **Susan Key**, RN, MS, CEN, director of emergency services at Cape Canaveral Hospital in Cocoa Beach, FL.

“More and more, we are seeing terminal patients ending up in ED for end-of-life care,” she says. “This is a completely different mindset for ED nurses, so we need to change our thought processes to meet their needs.”

To significantly improve care of dying patients, do the following:

• **Manage pain appropriately.**

You may be inadequately treating pain in terminal patients due to fear of vital sign abnormalities, says Stone. “Do not worry about low blood pressure in a terminal patient that is in pain; just titrate to symptoms,” she says.

Any patient who is suffering should be offered analgesia, advises Stone. “Studies show that most patients are undermedicated by ED staff,” she says.<sup>1</sup> “Too many patients die in pain,” she says.

To provide effective pain management, you must educate yourself on drugs or dosage ranges that may be out of your comfort zone, says Key. “Terminally ill patients may be on huge doses of painkillers because of their condition, and ED nurses are not used to administering those dosages,” she explains.

If you suspect a narcotics overdose in a patient with altered mental status, remember that reversing agents such as naloxone have a half-life of 60-90 minutes in adults, says McClain. “If you have used the standard

### EXECUTIVE SUMMARY

EDs are treating more terminally ill patients, and you can have a dramatic impact on the care they receive.

- Become familiar with higher dosages of pain medications used for terminally ill patients.
- Explain the seriousness of the patient’s condition to family members.
- Ask patients and family if an advance directive exists.

## SOURCES AND RESOURCE

For more information about end-of-life care in the ED, contact:

- **Susan Key**, RN, Director of Emergency Services, Cape Canaveral Hospital, 701 W. Cocoa Beach Causeway, Cocoa Beach, FL 32931. Telephone: (321) 799-7156. E-mail: Susan.Key@health-first.org.
- **Kay McClain**, RN, MS, CEN, Nurse Director, Emergency Services, Marlborough Hospital, 157 Union St., Marlborough, MA 01752. Telephone: (508) 486-5520. Fax: (508) 229-1205. E-mail: McClainK@ummhc.org.
- **Susan C. Stone**, MD, MPH, FACEP, Assistant Professor, Emergency Medicine, University of Southern California and Los Angeles County Medical Center, 1200 N. State St., Los Angeles, CA 90033. Telephone: (323) 226-6667. Fax: (323) 226-6454. E-mail: susansto@usc.edu.

**A position statement on care of terminally ill patients in the ED** can be accessed free of charge on the Emergency Nurses Association (ENA) web site ([www.ena.org](http://www.ena.org)). Under "Publications," click on "Position Statements," and scroll down to "End-of-Life Care in the Emergency Department." A book on improving end-of-life care in the ED is also available. The cost is \$45 for nonmembers and \$40 for members, plus a \$10 shipping charge. To order from the ENA web site, click on "Marketplace," and under "Books/Journals," click on "Clinical Books," and "Improving Care for the End of Life: A Sourcebook for Health Care Managers and Clinicians." A pamphlet, *End-of-Life Care*, provides guidance in managing patient care situations. It is available at a cost of \$15 for nonmembers with \$4.50 shipping charge and \$7 plus \$3.50 shipping charge for members.

doses we are used to giving in the ED, you will not be able to get the patient comfortable again for that time period," she explains.

Smaller than usual doses may give you the clinical information you need without causing undue pain to the patient, says McClain. "We need to not whip off fentanyl patches or aggressively push naloxone immediately upon arrival to the ED," she says. "We need to not give injections if oral medications are being effective."

• **Explain the seriousness of the patient's condition if necessary.**

Family members may not realize how serious the patient's condition actually is, says Stone.

Stone recently treated a cancer patient with necrotizing fasciitis, who was in her third relapse and was severely netropenic and septic. "I encouraged her daughter and son to speak with her before she might have to be intubated," she says. "I explained to them how ill she was and that her prognosis was grave."

This explanation gave them the chance to have a final communication with their mother, who died in the intensive care unit the following day, says Stone.

### • Find out what patients want.

Patients have the right to decide what interventions they do and don't want, stresses Stone. "Ideally, this is carried out with advance directives and respecting our patient's wishes," she says. "This is hard for us in the ED because we are so used to 'treat it and fix it.' But what many patients need is reassurance that their wishes will be respected."

There often are times when interventions do not have to be done emergently, says McClain. "Time can be taken to consult with the patient, family, and primary care physician to make sure we are all working together for the same goal of a 'good' death as defined by the patient," she says.

## Reference

1. Petrack EM, Christopher NC, Kriwinsky J. Pain management in the emergency department: Patterns of analgesic utilization. *Pediatrics* 1997; 99:711-714. ■



## JOURNAL REVIEWS

Valente JH, Forti RJ, Freundlich LF, et al. **Wound irrigation in children: Saline solution or tap water?** *Ann Emerg Med* 2003; 41:609-616.

There is no apparent difference in infection rates between wounds irrigated with tap water or normal saline solution, says this study from Jacobi Medical Center and Albert Einstein College of Medicine in Bronx, NY. The researchers evaluated pediatric patients ages 1 to 17 with simple lacerations. Wounds were irrigated with running tap water or normal saline solution, and the patients returned to the ED 48-72 hours later for evaluation. Wound infection rates were similar: 2.8% infection rate for the normal saline solution group and 2.9% in the tap-water group.

Although standard of care in the ED is to use sterile normal saline solution with a syringe for pressure

irrigation of wounds, this study's findings suggest that tap water is an equally effective alternative, say the researchers.

"Tap water is cheap, clean, and abundant, and might be a suitable irrigating fluid for cleaning simple wounds," they wrote. They point to the following advantages of tap water use:

- Decreased cost of wound care in the ED. The researchers say that in their ED, the cost of a 60 mL syringe, splash guard, and liter bottle of normal saline solution is \$2.01. If all of the 530 patients enrolled had received tap water irrigation, approximately \$1,065 would have been saved, they say.

- Possible lessened biohazard risk, because irrigation time is less to provide the same amount of water and the distance from the irrigation source is increased.

- Less anxiety by children, since tap water from a faucet or hose is less threatening than irrigation from a syringe. ▼

Magaret ND, Clark TA, Warden CR. **Patient satisfaction in the emergency department — A survey of pediatric patients and their parents.** *Acad Emerg Med* 2002; 9:1,379-1,388.

The management of pain in pediatric patients was a key factor for satisfaction of pediatric ED patients, says this study from the Oregon Health & Science University in Portland.

Researchers surveyed 101 pairs of children and their parents or guardians who were treated at a pediatric ED. The researchers found that satisfaction of parents was linked to the quality of provider-patient interactions, the adequacy of information provided, and shorter waiting room ties. Satisfaction of children was linked to the quality of provider-patient interactions, the adequacy of information provided, and pain resolution.

The researchers note that satisfaction of pediatric patients has not been assessed directly. They also noted that 75% of the patients received no analgesia, yet they reported some pain.

"These results reinforce the importance of sequential pain assessment, treatment, and reassessment in children," they wrote. "It also reinforces the need for health care personnel to ask parents specifically about concerns that they have related to their children's pain and to provide reassurance that pain can and will be adequately treated." ▼

Scheetz LJ. **Effectiveness of prehospital trauma triage guidelines for the identification of major trauma in elderly motor vehicle crash victims.** *J Emerg Nurs* 2003; 29:109-115.

Older trauma victims are at risk of being undertriaged, according to this study from the State University of New Jersey College of Nursing in Newark.

The researcher retrospectively studied patient discharge data for 2,063 adults involved in motor vehicle crashes in 2000, to assess whether patients were overtriaged or undertriaged, and compared young and middle-aged adults with older adults. The study found that while overtriage was present in all age groups, 8% of young and middle-aged men, 12% of young and middle-aged women, 18% in older men, and 15% of older women were undertriaged. The researcher suggests that older trauma victims are more likely to have a decrease in physiologic reserve and to take potent medications for chronic diseases, which could produce a blunted physiologic response to major trauma. As a result, the researcher recommends that guidelines should include age as a factor, to avoid undertriage of older patients.

"Every emergency nurse, especially those working in nontrauma emergency departments, should be alert to the possibility of major trauma in patients, especially older patients, who might have been undertriaged in the field," she wrote. She recommends that ED nurses do the following:

- careful assessment with serial measurements of heart rate, blood pressure, respiratory status, and neurologic status;
- manual measurement of blood pressure, or manually verifying readings from electronic blood pressure monitors periodically;
- measurement of the patient's Glasgow Coma Score periodically, until head trauma has been ruled out. ■

## Study: Your ED needs policy for family presence

Does your ED allow family members to be present during emergency procedures? Chances are you have no written policy for this practice, even if it's a common occurrence.

A just-published study found that only 5% of ED and critical care nurses surveyed had written policies permitting family members to be present during cardiopulmonary resuscitation or invasive procedures.<sup>1</sup>

Here are key findings:

- About half of the hospital units covered by the survey allowed family members to be present, but did so without a written policy.
- Nurses said family members asked to be present about one-third of the time for resuscitation and about

## SOURCE AND RESOURCE

For more information on the study, contact:

- **Theresa Meyers, RN, BSN, MS**, Director Emergency and Trauma Service, Memorial Hospital, 1400 E. Boulder St., Colorado Springs, CO 80909. Telephone: (719) 365-2700. Fax: (719) 365-6595. E-mail: Theresa.Meyers@memhospcs.org.

**The Emergency Nurses Association (ENA)** has developed a resource for developing and implementing a family presence program. To order, go to the Emergency Nurses Association web site ([www.ena.org](http://www.ena.org)). Click on "Marketplace," and under "Books/Journals," click on "Clinical Books," and "Presenting the Option for Family Presence (Second Edition)." The cost is \$48 for nonmembers plus a \$10 shipping charge, and \$38 for members plus a \$6.50 shipping charge. A position statement on family presence in the ED can be accessed free of charge on the ENA web site. Under "Publications," click on "Position Statements" and scroll down to "Family Presence at the Bedside during Invasive Procedures and/or Resuscitation."

two-thirds of the time for invasive procedures.

- About 25% of nurses reported that family presence was prohibited for cardiopulmonary resuscitation and invasive procedures, even though their units had no written policies prohibiting such access.

However, there is a trend toward more EDs allowing family members access during procedures, says **Theresa Meyers, RN, BSN, MS**, director of the emergency and trauma service at Memorial Hospital in Colorado Springs, CO, and one of the study's investigators.

"To have families present at the bedside during resuscitation is a paradigm shift from what most nurses were educated on and have practiced," she says.

Having the family at the bedside during the resuscitation is an important way to advocate for the patient, by including the family and keeping them informed of what is happening with their loved one, says Meyers.

"Often, the family initiates the discussion of making the decision to stop resuscitation efforts once they

have seen all that has been done to save their loved one," she says.

Meyers points to the study's findings that "critical care and emergency departments should consider developing written policies or guidelines on family presence to meet the needs of patients and their families and provide consistent, safe, and caring practices for patients, patients' families and staff."

If written protocols are developed, they should include a statement that supports the option of having the practice and a procedure for the staff to refer to when needed, says Meyers.

"It should provide guidelines for the family facilitator or support person and also include information on evaluating the need for a debriefing for the staff following the case," she adds. **(See insert containing a family presence policy in *ED Nursing*, February 1998, and "Should family members be present during resuscitations?" on p. 49 of that issue.)**

## Reference

1. MacLean SL, Guzzetta CE, White C, et al. Family presence during cardiopulmonary resuscitation and invasive procedures: Practices of critical care and emergency nurses. *Am J Crit Care* 2003; 12:246-247. ■

## CE instructions

Nurses participate in this continuing education program by reading the article, using the provided references for further research, and studying the questions at the end of the article. Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this semester's activity with the December 2003 issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

## COMING IN FUTURE MONTHS

■ Update on new EMTALA regs

■ Revamp care of pediatric trauma patients

■ Effective ways to cool hyperthermic patients

■ A creative way to boost morale

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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 *Are you mistreating sickle cell patients?* and *Journal Reviews* in this issue.)
2. Describe how those issues affect nursing service delivery. (See *Cut delays by an hour with triage protocols.*)
3. Cite practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts. (See *Study says EDs don't meet time targets for stroke: How do you measure up?*) ■

## CE questions

1. Which of the following is recommended for stroke care, according to Debra Graf, RN, BSN, CEN, ED educator at Community Medical Center?
  - A. Requiring nurses to have a physician's order to initiate stroke protocols
  - B. Waiting to give computed tomography (CT) scan until lab results are back
  - C. Prioritizing patients who are eligible for thrombolytics for stat CT scan
  - D. Drawing blood work only after the patient has been brought to CT
2. Which of the following is true regarding use of triage protocols, according to Kimberly Hickman, RN, BSN, director of the ED at Morrow County Hospital?
  - A. Patients are more satisfied because something is being done while they are waiting
  - B. Patient satisfaction often is a problem with triage protocols
  - C. Triage protocols are effective only in large urban EDs
  - D. Nurses should order X-rays without a physician order
3. Which of the following is recommended when caring for patients with sickle cell disease, according to Allan Platt, PA-C, program coordinator for the Georgia Comprehensive Sickle Cell Center?
  - A. Patients should be administered merepidine
  - B. The level of pain stated by the patient should be believed and treated accordingly
  - C. Pain score ratings by physicians usually are higher than patient's self-ratings
  - D. Nonsteroidal anti-inflammatory drugs are contraindicated
4. Which of the following is true regarding wound irrigation in children, according to a study published in *Annals of Emergency Medicine*?
  - A. Infection rates were higher in wounds irrigated with tap water
  - B. Infection rates were higher in wounds irrigated with normal saline solution
  - C. Increased anxiety was reported in children irrigated with tap water
  - D. There is no apparent difference in infection rates between wounds irrigated with tap water or normal saline solution

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

**ACUTE STROKE PATHWAY**

Date: _____		Time of Protocol Initiation: _____	
ER nursing staff should initiate the following orders STAT if patient has suspected stroke or TIA (see back of page):			
Clerk:			Time Ordered
1. Page STROKE TEAM 1 <input type="checkbox"/> or STROKE TEAM 2 <input type="checkbox"/> and notify ER MD STAT. (within 10 min ED)			
2. Order STAT CT scan of head (within 25 min of ED arrival; reading within 45 min)			
3. CTA Head and Neck (18 Gauge IV line required)			
4. Order STAT EKG			
Nurse:			
1. Perform rapid assessment of patient and report to stroke team (signs, symptoms, onset, VS, meds, and diseases)			
2. Stroke Box at bedside			
3. Start 18 Gauge IV: 0.9% NS to run at 100cc/hr			
4. STAT Labs: (Labs must be drawn prior to going to CT scan) <input type="checkbox"/> Stroke 1 Panel <input type="checkbox"/> Stroke 2 Panel			
5. O <sub>2</sub> : Maintain O <sub>2</sub> Sat > 95% by nasal cannula or mask.			
6. Assess neuro status, BP, HR, RR q 15 minutes.			
7. Additional orders: <input type="checkbox"/> Foley <input type="checkbox"/> Arterial line <input type="checkbox"/> Additional Labs:			
8. Refrain from treating BP unless compelled to do so, i.e. cardiac decompensation, or hypertensive encephalopathy. In all cases, avoid nifedipine and donidine.			
Physician Signature: _____			
<b>STROKE rt-PA (Alteplase) PROTOCOL ORDERS</b> (Must be ordered by physician after diagnostic evaluation completed)			Time Done
1. Confirm eligibility for rt-PA (Alteplase) protocol. (See check list back page)			
2. Start second IV line: 0.9% NaCl TKO or _____ cc/hr			
3. BP Treatment: (rt-PA should not be administered if BP > 185/110) a. Avoid nifedipine and clonidine. b. If BP > 185/110, apply 1" nitroglycerin ointment 2% and labetalol _____ mg IV (recommend 5-10 mg). c. If BP still > 185/110 in 10 min, give labetalol _____ mg IV (recommend 5-10 mg). Consider using hydralazine _____ mg IV (recommend 5-10 mg) with or instead of labetalol. d. If BP still > 185/100 in another 10 min, give labetalol _____ mg IV (recommend 10-20 mg). Consider using hydralazine _____ mg IV (recommend 5-10 mg) with or instead of labetalol. e. If BP still > 185/110, start nitroprusside drip (0.5 - 10 µg/kg/min) and titrate to keep BP < 185/110.			
4. Use rt-PA dosing chart in Stroke Box a. rt-PA (Alteplase) drug order: Patient wt. = _____ kg. b. Total rt-PA (Alteplase) dose of 0.9 mg/kg: _____ mg. (90 mg MAX) c. 10% of total dose: _____ mg IV bolus over 1 min. (Goal: Administered within 60 min of ED arrival) d. 90% of total dose: _____ mg as IV drip over 60 minutes. e. Mix rt-PA (Alteplase) vial 1mg/ml with preservative free sterile H <sub>2</sub> O.			
5. Continue neuro assessment, BP, HR, RR, q 15 min until patients leaves ED.			
6. Infusion to be stopped by RN immediately and MD notified if any of the following occur: <ul style="list-style-type: none"> <li>• Sudden decrease in LOC</li> <li>• Headache, nausea or vomiting</li> <li>• New neurologic deficit</li> <li>• Any signs of bleeding</li> </ul>			
7. No IM injections. Draw labs from pre-existing lines. Avoid using automatic BP machines.			
8. No heparin, other additional anticoagulants or anti-platelet therapy should be given within the first 24 hours.			
9. Other orders:			
ED or Stroke Team Physician Signature: _____			

X- MFR-4005 (04/02)

**ACUTE STROKE PATHWAY**

Source: Barrow Neurological Institute of St. Joseph's Hospital and Medical Center, Phoenix. This information is based on guidelines set by the National Institute of Neurological Disorders and Stroke in Bethesda, MD. These orders represent only one potential approach to the management of acute ischemic stroke patients. For each patient, physicians and institutions must determine treatment appropriate for their own situation.

# Protocol for Adult Respiratory Distress

## Purpose:

1. To rapidly identify and assess any adult presenting to the emergency department in respiratory distress.
2. To expedite physician evaluation and initiation of respiratory treatment.

## Assessment/Inclusion Criteria:

### — Primary

Increased respiratory effort as indicated by:  
dyspnea, wheezing, dysphasia, decreased air movement, persistent cough and/or use of accessory muscles.

### — Secondary

- Decreased level of consciousness, anxious, listless, or lethargic
- Skin color changes — pallor, cyanosis and/or diaphoresis
- Vital Sign changes — tachypnea, bradypnea, tachycardia, bradycardia, rhythm pattern disturbances
- Pulse oximetry < 92% (excluding chronic hypoxic patients)
- Delayed capillary refill time (>2 seconds)

## Interventions

- Position patient to facilitate breathing.
- Provide oxygen as indicated; monitor oxygen saturation.
- Initiate respiratory therapy via small-volume nebulizer using albuterol (Ventolin) 5 mg in 3 cc normal saline (unit dose) when patient present to ED without use of inhalers prior to arrival.
- Use albuterol (Ventolin) 5 mg with ipratropium (Atrovent) 0.5 mg in 2 cc normal saline (unit dose) when patient presents to ED and has used albuterol inhaler without positive results.
- If pulse oximetry < 92% use oxygen with small-volume nebulizer.
- Titrate patient pulse oximetry to 92%. (Consult physician immediately for further orders if patient has chronic obstructive pulmonary disease and there is a concern about over-oxygenating the patient).
- If patient shows signs of increased respiratory distress with decreased level of consciousness — notify physician stat and prepare to intubate.

## Documentation:

1. Breath sounds
2. Pulse oximetry
3. Level of consciousness
4. Work of breathing
5. Ability to talk in sentences
6. How long symptoms
7. Use of treatments, medications

## Select References

- Grossman V.G.A. *Quick Reference to Triage*. Philadelphia, PA: Lippincott, Williams & Wilkins; 1999.
- Emergency Nurses Association. *Triage: Meeting the Challenge*. Park Ridge, IL: Emergency Nurses Association; 1998.

Prepared 04/19/2001 by Mary G. Kelley, MS, RN, CEN, GNP-C

Revised 06/14/01 by Margie K. Brundage RN, CEN

DEPARTMENT/DIVISION      Department of Emergency Services  
DATE    9/01

Source: St. Mary's Hospital, Tucson, AZ.

# Protocol for Abdominal Pain

## Purpose:

1. To rapidly identify potentially seriously ill patients with complaints of abdominal pain.
2. To expedite Emergency Services Physicians evaluation and initiation of treatment.

## Assessment:

(If bed available triage will do abbreviated assessment, which includes Chief Complaint, Vital Signs, Medical History, Domestic Violence question, Medications, and completion of form.)

*Below should be used for the bedside nurse or if no beds available.*

1. History
2. Description of present symptoms
3. If male, penile discharge or bleeding
4. Dysuria, frequency, urgency, or retention.
5. Vaginal pressure
6. History of or strong suspicion of kidney stones.
7. Severe pain as reason for presenting to the ED

## Criteria for Intervention

Female of childbearing age with potential for pregnancy, any person with complaint of significant abdominal pain, any person who appears ill and significant vaginal bleeding.

1. Clean-catch, mid-stream urine specimen
  - a. Not menstruating
  - b. Fever < 100 degrees — no chills
  - c. No vaginal discharge
2. Mini-catheter or straight catheter urine specimen
  - a. Menstruating
  - b. Fever > 100 degrees with chills
  - c. Vaginal discharge
  - d. Disabled/incompetent to collect clean-catch urinalysis

## Interventions

1. Collect urine; hold culture and sensitivity
2. Urine pregnancy test on all females ages 12-50 unless they have had a hysterectomy.
3. Do dipstick urine and record results on point-of-care sheet and place with chart
4. If mini-catheter is indicated, notify charge nurse to locate a room for procedure and have patient wait in waiting room until room is available for catheter.
5. Blood work for complete blood count and comprehensive medical panel If patient has fever >101
  - a. Use Fever protocol (Need rectal Tylenol)
  - b. Blood cultures drawn and hold at small-volume nebulizer
6. Nothing by mouth

## Re-evaluation

The triage nurse or nurse assigned will re-evaluate all patients waiting according to nursing judgment, vital signs, and patient condition.

## Documentation

1. Complete physician order sheet and place it with the chart. If the patient is going to the waiting room, place chart with orders with registration clerks.
2. Complete history and assessment if no bed available in the ED.
3. Lab work drawn/sent and time.

## References

- Grossman V.G.A. *Quick Reference to Triage*; Philadelphia: Lippincott, Williams & Wilkins; 1999.
- Emergency Nurses Association. *Triage: Meeting the Challenge*. Park Ridge, IL: Emergency Nurses Association; 1998.

Prepared 04/19/2001 by Mary G. Kelley, MS, RN, CEN, GNP-C

Revised 06/14/01 by Margie K. Brundage RN, CEN

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Source: St. Mary's Hospital, Tucson, AZ.