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## Georgia hospital hit by F3 tornado — All patients evacuated through the ED

*Emergency nurses take lead role in triaging inpatients*

**M**ost ED nurse managers are prepared to respond to a disaster in their communities, but what do you do when your hospital *is* the disaster? An F3 tornado struck Americus, GA, after 9 p.m. on March 1, 2007, and Sumter Regional Hospital was directly in the path of harm.

The ED staff had been warned of the tornado, says **Schelly Murray, RN, BSN**, nurse manager and ER clinical coordinator. "They were getting ready to transfer a patient, and a pastor said, 'You might not want to do that. [A tornado] has touched down.' Four minutes later, it hit," she says.

**Charlie Robertson**, paramedic, was in the ED. "All the doors were flopping, and the windows broke out," Robertson recalls. Eventually the two main doors to the ED broke off. "Pine straw from the flower bed blew through the ED," Robertson says. It was 1½ minutes of chaos. "People were screaming and hollering," he says.

Murray was at home when the tornado struck. She immediately left to run three-fourths of a mile to get to the hospital. "I was climbing through power lines to get in to the hospital," she says.

The area surrounding the hospital had been devastated, and two people died in a residence directly behind one of the hospital buildings. Because of the warning, all patients, including those in the ED, had been moved to interior hallways and away from windows, Murray says. There were few serious

## EXECUTIVE SUMMARY

When an F3 tornado severely damaged a hospital in Americus, GA, all patients had to be evacuated through the emergency department.

- Fifty-three patients were evacuated by area ambulances and a school bus to other hospitals in the region.
- The hospital advises others to have an internal evacuation plan as well as two-way radios, a megaphone to direct staff and volunteers, and additional security.
- A temporary treatment area was set up at a local church.

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injuries among patients, visitors, or staff.

There was debris in the ED, including branches, dirt, grass, and leaves, and patients were everywhere in the hall. Because of its location, which is mostly below ground level, the ED suffered only cosmetic damage. However, the building was not structurally sound. The hospital had one side that was collapsing; additionally, it had lost part of the roof, had many windows blown out, and was flooding. Seventy-five cars in the parking lot were toppled on top of each other.

### **Decision: Evacuate, with ED nurses doing triage**

The hospital declared a Level 3 disaster and was evacuated. It was decided that two ED nurses would triage patients from the entire hospital. Murray had the role of evacuator.

Triage was relocated a couple of times as the building

became increasingly unstable. Ultimately triage ended up being conducted in the OR hallway flowing into the ED. Despite the precarious state of the building, staff members were calm and comforted patients, says **Susie Fussell**, BSN, RNC, VP of nursing at Sumter Regional Hospital in Americus, GA. "We were in ankle-deep water, with water pouring over our heads and down stairwells," she says. In the middle of those dismal circumstances, staff members were carrying inpatients down stairwells on mattresses into the ED, Fussell says. "Everybody was all business."

One immediate problem in the ED was that gases were leaking and needed to be cut off. The plant director notified Fussell that ventilators were needed immediately. The house supervisor already had assessed that no ventilators were available, and she had deployed portable oxygen tanks.

Everyone with a strong back joined members of the fire department and emergency medical services in moving patients, with the critical care patients being brought down first. Five post-op inpatients on the third floor were a particular concern because they had just completed surgery that day, Fussell says. Those patients needed pain medications after they were moved to triage. Amazingly, the pharmacy operated during the evacuation. The staff used an old-fashioned "runner" system and had staff go to the pharmacy to obtain medications, Fussell says.

Murray had all patients lined up in single file in this order:

- critical care unit patients;
- patients who had undergone inpatient surgery that day;
- a patient in labor;
- general med-surg patients;
- psychiatric patients. All of the psychiatric patients were stable and ambulatory, Murray reports.

In the midst of the evacuation, the ED staff stabilized and transported five patients having symptoms of heart attacks and one gunshot wound. "Emergencies continue, regardless of your conditions," Murray says. Also, one employee went into false labor, she says. "You have to be able to triage your own employees."

### **Getting patients out the door**

Murray was familiar with area hospitals, so she made decisions about where to evacuate individual patients based on their diagnoses. For example, the most critical patients were sent to the largest hospital in the area. A small nearby hospital with one floor unit received stable nursing home patients.

Because Sumter Regional had not fully implemented an electronic records system, staff members were able

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to send each patient's full record with them when they evacuated.

Many staff and area physicians showed up with their identification badges on, to assist. "We had to know who was in there," Fussell says. Each patient had a nurse at his or her side, and many had a physician there as well.

As each patient reached Murray, she yelled, "What's wrong?" "I didn't want to know their history," she says. "I wanted to know the immediate problem."

At least two staff members stood outside the door where patients were being evacuated at all times, and they verified armbands, patients' names, their chief diagnoses, and where they were going. "People were going to get away from you, so we always had two or three people keeping that list," Murray says. Because power was out, that information was recorded manually with pen and paper.

Two of the ambulances at the hospital were damaged by the tornado, although one of those was usable. Area ambulances responded, as well as a school bus for ambulatory patients, and 53 patients were evacuated to area hospitals. The evacuation took about three hours.

### ***Here's what they learned***

As in any disaster, there were lessons to share. One is to be prepared for the unthinkable — that your facility will be hit by a disaster — by developing an internal evacuation plan, Murray advises.

Another lesson involves the internal wireless phones and cell phones. They were working initially, but most eventually were unusable, Fussell says. "Two-way radios would have been most useful," Murray says. Additionally, Murray had difficulty supervising the triage and patient flow because she was constantly bombarded with questions. "There was so much help on top of me, it was difficult to organize," she says. Additionally, she struggled to make her voice heard and to get people's attention above the noise and chaos, she says. "We needed a megaphone," she says.

The hospital could have used additional security, Fussell acknowledges. "Everyone wanted to help and was coming in to help," she says. Murray was faced with directing patients *and* volunteers. "Eventually, we put volunteers in a waiting room and told them to await instructions," Murray says.

Staff and volunteers had difficulty hearing Murray's instructions, she says. "That was one of the biggest obstacles," she says. When Murray requested help from the police so that she could direct the triage and patient flow, she learned they were shorthanded trying to keep roads clear and manage traffic. The police requested backup from the Department of Natural Resources (DNR), which sent a game warden. "He stood behind me to keep people

away from me," Murray says. The game warden, who was more than 6 feet tall, repeated Murray's instructions over her head when she couldn't be heard.

After the evacuation was complete, approximately six men from the DNR performed a final check of every room on every floor to ensure no one was left behind.

Next on the agenda was the establishment of a treatment center in the town. Someone suggested First Baptist Church, which already was being set up as a Red Cross shelter. "I called the pastor, and he said, 'You can have my church,'" Murray says. **(For information on how the treatment center was set up, see story, below.)**

In hindsight, the hospital staff responded wonderfully to the disaster, Fussell says. Even though the hospital had never drilled for an internal disaster, all the members of the staff knew their roles, sources say. Previous disaster drills were a significant help, they say. "They gave us a game plan on how to evacuate internally, because they were about handling massive amounts of patients," Murray says.

Fussell agrees. "They might have not done it just by the book, but they knew someone had to track every patient as they were transferred, and they knew all hands had to be on deck to evacuate," she says. "We practice and we practice all the time, I'm telling you. When you get so panicked and in the midst of chaos, it takes that practice, because it becomes what you do instinctively." *(Editor's note: To see photos of the tornado damage, go to [www.sumterregional.org](http://www.sumterregional.org) and click on the hyperlink for the disaster photos.)* ■

## **How to set up emergency treatment area at a church**

When patients were evacuated from Sumter Regional Hospital in Americus, GA, after an F3 tornado hit on March 1, 2007, a temporary treatment center was set up next to the shelter area inside the town's First Baptist Church.

Much of the ED's equipment was salvageable, even though there was water on the floor, says **Schelly Murray**, RN, BSN, nurse manager and ER clinical coordinator. "[The Joint Commission] says no equipment on the floor," she says.

After all of the patients were evacuated from the badly damaged hospital, Murray moved two \$15,000 pieces of equipment that recently had been purchased: a glide scope and an ultrasound machine. Other equipment that wasn't needed immediately was moved to a large warehouse that the hospital recently had purchased, Murray says.

The temporary treatment center was set up primarily by **Betsy Jordan**, RN, CEN, clinical analyst in the Clinical Informatics Department at Phoebe Putney Memorial Hospital in Albany, GA. Jordan, who is married to a paramedic at Sumter Regional and knew Murray, had worked in the ED at Phoebe Putney for 12 years and was a former flight nurse. While the Sumter ED staff were evacuating patients and meeting, Jordan loaded supplies into her car and the car of a soldier who had showed up to help. "I threw them in the back of my Suburban," she recalls. "It was full to the ceiling."

Lifesaving equipment, including crash carts, was transported. Murray says, "We emptied the ER completely of supplies." Many of the linens had been used to transport patients to the ED for triage, but they were replenished by area hospitals, a nursing home in Americus, and the Red Cross. An EKG machine was transported from the ED in a staff member's car.

### ***Setting up in the social hall***

At First Baptist, Jordan unloaded the supplies in the dark as large spotlights were set up. The treatment center was set up on about one-half of the first floor of the church building.

The treatment center included a treatment room (normally a chapel and social hall) that contained a triage area, cots provided by the church, a physician examination area, and a treatment area. A pharmacy was located in a small kitchen area of that room and included a sink, refrigerator, and cupboards. Adjacent Sunday school rooms were designated as a resuscitation unit; an obstetrics room, with fetal monitors, for emergency deliveries if needed; and a room stocked with emergency supplies and equipment. Pieces of paper labeled different areas of supplies, such as suction, respiratory, gloves, and orthopedics.

Two entrances were set up for the treatment center at First Baptist: one for emergency medical services (EMS), and one for ambulatory patients. In terms of staffing, two nurses were placed at each of two triage tables. As more nurses showed up, Jordan asked them about their jobs, credentials, and experience. Nurses who knew first aid were assigned to the treatment area.

After the evacuation, Murray salvaged her computer, policies, and data, including contact information for staff. "Policies are supposed to be on the network, but I'm not sure it's salvageable," she said.

About 500 hard copies of a one-page form titled "Emergency Triage Nursing Notes" were brought from the ED. That form had been used previously when the hospital was out of power or had multiple victims at once. Having the 500 copies proved valuable as there

was no copy machine available at the church, Murray says.

Jordan says the form worked well. "It may not meet [requirements of The Joint Commission] with every 'I' dotted and every 'T' crossed, but it statistically tracked patients or could be used if family members were looking for loved ones."

For the walking wounded, the original forms were kept at the treatment center. For patients who were moved to area hospitals, nurses wrote a general summary of the patient on another sheet of paper and sent the original form with the patient. "We had a trail of the patient," Jordan says. Accepting hospitals were notified of what patients were coming with which conditions.

Because the treatment center was set up in an area of the church that was used regularly, it was fairly clean with no dirt or dust on the walls or floors.

To prepare for patients coming in, Jordan put trash cans with red bags in each treatment area. "I decided that people might be bloody," she says. She also set up sharps disposal areas. Jordan put waterless antiseptic agents on all tables. Gloves of all sizes were placed at every station.

Dirty linens were transported to an area hospital.

### ***What made it work well?***

Help came from near and far away. First Baptist set up phones for the hospital to use. Orthopedic supplies were donated by a doctor's office in a nearby town.

Some paramedics from Medical College of Georgia Hospital in Augusta made repeated runs to the hospital to retrieve ED equipment and medications, including wheelchairs, stretchers, and tetanus. The night of the tornado, before the pharmacy was established at First Baptist, CVS brought a mobile pharmacy and was able to provide medications.

The treatment area was staffed with a minimal number of persons, Murray says. Within the first three days of the tornado, the center had treated about 50 patients.

One of the critical elements for making the treatment area work well was communication, Jordan says. As nurses showed up, Jordan gave them a walking tour and oriented them to the process, just as if they were a new employee, she says. "Communication needed to be clear in order to deliver efficient care," Jordan says. "Otherwise, there would be more chaos."

The EMS command set up in the hallway at the back door of the building, where ambulances arrived, which was just outside the treatment center. Jordan suggested putting a nurse there as well who would know what was happening in the treatment center. That nurse made a list of facilities accepting patients and had them designate one contact person at each. "They knew our situation and our process," Jordan says. "We knew if they

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could take none, or three patients.”

If your ED is ever faced with relocating, act quickly, even if you don't have a process in place, emphasizes Jordan, who felt led to take this role “Don't stand around and ask for direction,” she says. “We were working at 4 a.m.; and by 6 a.m., we had patients rolling in. And we had a process in place.”

Sumter Regional set up a temporary tent hospital across the street from the hospital building. (**See contact information in resource box, above.**) The three tents, which are intended to be used for two weeks, house a 50-bed unit. Patients can stay in the unit for 23 hours for stabilization and corrections of problems such as breathing difficulties. The buildings are sealed, so they can be heated and cooled.

There was a hard surface building being delivered for the ED to move into, but at press time, it wasn't certain when that ED would be established, Murray says. ■

## Nearby hospital accepted patients after evacuation

After an F3 tornado severely damaged Sumter Regional Hospital in Americus, GA, and led to an evacuation of all patients, Phoebe Putney Memorial Hospital in Albany, GA, was designated as one of the accepting hospitals. During the evacuation, Phoebe Putney accepted 45 patients, which included inpatients and emergency patients from Sumter Regional.

When Sumter Regional announced the evacuation, Phoebe Putney implemented its disaster plan, according to **Todd Braswell**, RN, BSN, MS, CEN, director of the Emergency Center at Phoebe Putney. “We began looking at our census to determine who could be transferred and what beds were available,” he says. A few patients were discharged from the ED, he says. Inpatient areas were asked to perform an assessment and determine what staff could assist in the ED.

From the time Phoebe Putney was notified, it was two hours before the first patient arrived from Americus, which is about 60 minutes away. Sumter Regional

notified Phoebe Putney of what type of patients were being sent. EMS brought patients who were on stretchers through the ED, but they didn't stop, Braswell says. “We had a ready bed waiting for every inpatient transfer,” he says. “It made tending to emergencies easier.”

A bus brought a large group of ambulatory patients, he says. They were triaged in the EMS dock intake area, Braswell says. “We would route them to the appropriate areas: inpatient, ER, or the admit/discharge unit [ADU] for the walking wounded,” he says. Normally, the ADU functions Monday through Friday as a holding unit. The night of the tornado, it was staffed with nurses from the inpatient areas and the Emergency Center, plus a physician who responded to the call for help.

Each inpatient was assigned to an inpatient physician. “It was fairly seamless,” Braswell says.

The night was not without challenges, however. In setting up the command center, staff callback was a problem, Braswell says. “Due to the weather in Albany, it was dangerous for some to come in,” he says. “But we decided to handle it with the staff in-house. Forty-five is not an overwhelming number.” ■

## Don't withhold thrombolytics due to age

If a 67-year-old woman with acute ischemic stroke came to your ED two hours after onset of symptoms, you most likely would consider this patient as a candidate for treatment with intravenous tissue plasminogen activator (IV t-PA). But what if the patient were 91 years old?

Older stroke patients often are not given thrombolytics in EDs because nurses mistakenly fear it's unsafe,

*Continued on page 67*

## EXECUTIVE SUMMARY

Older stroke patients often are not given thrombolytics because there is a belief that this practice is unsafe, but new research shows that these patients can be treated safely.

- Thrombolytics should not be withheld on the basis of age, according to stroke experts.
- Remove age from your ED's list of exclusion criteria, recommend stroke experts.
- Treat older stroke patients with the same urgency as younger stroke patients.

## ED Criteria for T-PA Treatment for Acute Ischemic Stroke

<b>INCLUSION CRITERIA</b>	YES	NO	RN or MD INITIALS	COMMENTS
Age 18 or older				
Clinical diagnosis of ischemic stroke causing a measurable neurological deficit.				
Time of onset of symptoms well established to be less than 180 minutes before treatment would begin.				

<b>EXCLUSION CRITERIA</b>				
Major symptoms that are rapidly improving by the time of treatment.				
Evidence of intracranial hemorrhage on computerized tomography (CT) scan.				
Hypodensity or mass effect suggestive of evolving infarction on CT scan.				
Seizure at onset of stroke.				
Clinical presentation of subarachnoid hemorrhage, even if initial CT is negative.				
On repeated measurement, systolic blood pressure is greater than 185, or diastolic blood pressure is greater than 110 at the time treatment is to begin.				
Requires overly aggressive treatment to reduce blood pressure.				
Blood glucose is less than (<) 50 or greater than (>) 400.				
Platelet count of less than (<) 100,000.				
Patient is currently taking oral anticoagulants and prothrombin time is greater than (>) 15 [International normalized ratio greater than (>) 1.7]				
Patient has received heparin within 48 hours and has an elevated partial thromboplastin time.				
Serious head trauma in the previous three months.				
Major surgery or serious trauma in the previous 14 days.				
History of stroke in the previous three months.				
History of an intracranial hemorrhage.				
Patient is known or suspected to be pregnant.				

Source: Neurosciences, Brain & Spine Center at Brackenridge Hospital, Austin, TX.

says **Louise D. McCullough**, MD, PhD, director of stroke research at Hartford (CT) Hospital. “I think ED nurses, like ED physicians and neurologists, are more hesitant to treat the elderly, especially if they are coming from an assisted living type of setting,” she says.

However, a new study’s findings indicate that older stroke patients can be treated safely and that therapy should not be withheld because of a patient’s age. Researchers looked at 166 patients older than 80 years old who presented to Hartford’s ED with acute ischemic stroke from April 2003 to December 2005. A large number of elderly patients were excluded from tPA treatment despite arriving within the allowable time frame, and older patients who were treated did not have higher risk of intracranial hemorrhage.<sup>1</sup>

### **Research is evidence**

The study’s findings are evidence that older patients can be treated safely with thrombolytic therapy in the ED, says McCullough. “This therapy should not be withheld on the basis of age,” she says. “It is extremely important for nursing staff to recognize that these patients are candidates for lytic therapy.”

Another study had similar findings: Researchers looked at 1,135 cases of stroke patients treated with IV t-PA and found that the risk of intracerebral hemorrhage was not higher in patients older than 80 years old.<sup>2</sup>

Despite the growing evidence, misconceptions about older stroke patients still are common in EDs, says **Dawn K. Beland**, RN, MSN, CCRN, CS, CNRN, coordinator of Hartford’s stroke center. “There seems to be an attitude from some of the ED physicians and neurologists that treating older patients could harm them more than help them,” says Beland. “In patients over 90 years old, we would see ED physicians cancel the ‘stroke alert’ solely based on the age of the patient.”

The misconception stems from the original trial of t-PA for stroke, which automatically excluded patients over 79, says McCullough. “No one was sure if it was safe, since there was no data,” she says.

The original research seemed to indicate an increased risk of hemorrhage in patients older than 77, adds **Lauren Brandt**, RN, MSN, CNRN, clinical director of the Neurosciences, Brain, & Spine Center at Brackenridge Hospital in Austin, TX. “Initially, a lot of EDs took that to mean it was a contraindication. Then they called it a ‘relative’ contraindication. Even with that, a lot of EDs never gave it,” she says.

Originally, age over 77 years was listed as a contraindication in Brackenridge’s ED. “Then we had it as a ‘relative’ exclusion. But because it was listed, physicians were still hesitant to give it to older patients,” says Brandt. “Now we’ve taken it off, so there is no upper

exclusion, and state that all ages over the age of 18 are eligible.” (See the ED’s inclusion/exclusion criteria for t-PA treatment on p. 66.)

If the patients are unable to speak for themselves and no family is reachable, but by report, they have a reasonably good quality of life, it must be assumed that they would want treatment, says Beland. “ED nurses can be the patient’s advocate by being informed about the current inclusion and exclusion criteria for thrombolytic treatment,” she says.

At Hartford’s ED, triage nurses were given one-to-one inservicing by the ED’s nurse educator to reinforce that age is not an exclusion criteria for IV t-PA, says Beland. ED nurses at Brackenridge were re-educated on the updated protocols, says Brandt. “I lecture all new staff on stroke in general and on the protocols and strongly state that there is no contraindication [due to age],” says Brandt. “We have a couple of really good case studies with good outcomes with older individuals that I present with this information.”

Age does play a role in the decision to use intra-arterial treatments for acute stroke, because patients older than 85 years old may have more intracranial or carotid atherosclerosis, notes Beland. “This brings additional risk to the procedure and makes accessing these vessels with catheters more technically difficult.”

However, older stroke patients should be treated with the same urgency as the younger patients, advises McCullough. “Often the ED nurses are the ones who

## **SOURCES**

For more information on treating older stroke patients in the ED, contact:

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recognize and identify the stroke patients,” she says. “Communication that the patient is a candidate for tPA — whatever their age — is key to getting these patients treated quickly.”

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# Make your ‘nightmare’ IV cases easier

*Ultrasound avoids ‘blind’ attempts, central lines*

Try to remember the most “difficult stick” you ever had when placing a peripheral intravenous (IV) line. If you could have used ultrasound to locate the patient’s veins at that moment, imagine how much easier it would have been — for you and your patient.

New research that shows that emergency nurses can save many “hard-to-stick” patients the pain of repeated needlesticks or central line access with ultrasound.

Emergency nurses were asked to fill out a survey after an ultrasound-guided IV attempt on a patient. Of 258 sticks rated as “very hard” without ultrasound, 29 still were rated as “very hard” even with ultrasound use, but 43 changed to “hard,” 112 changed to “easy” and 137 to “very easy.”<sup>1</sup>

The technique is easy to learn and doesn’t require extensive training, according to **Michael Blaivas**, MD, RDMS, an ED attending physician at Northside

Hospital-Forsyth in Cumming, GA. “When nurses utilize ultrasound for peripheral vascular access, it basically turns nightmare access cases into easy or fairly easy ones,” he says. The cost of the ultrasound equipment ranges from \$10,000 to \$15,000, he says.

Blaivas recommends a training course with a lecture covering basic ultrasound physics, machine function, vascular anatomy, and vessel identification. “It is helpful to have as much video as possible, then a hands-on portion during which nurses can actually practice ultrasound guided peripheral vascular access on an inanimate model,” he says. The first five IVs done using ultrasound should be supervised to provide helpful hints and answer questions, he advises. “We have found many nurses do great even on their first attempt on a live patient after the course,” adds Blaivas.

At University of California-Irvine Medical Center, five ED nurses were given a hands-on tutorial by an ED physician who specializes in ultrasound on how to guide an angiocath into a balloon roughly the caliber of an average adult side peripheral line, says **Hanadi Varvais**, RN, one of the nurses who received ultrasound training. The first group of nurses now is teaching other nurses at the bedside on patients, she reports.

“The ‘see-one, do-one’ mantra is proving useful to get many of the nurses up to speed,” says Varvais. “This has resulted in a dramatic decrease in central line placement by the physicians.”

## Tool dramatically cuts delays

With ultrasound, the patient is able to get fluids and medication faster than if the nurse had to try repeatedly to obtain vascular access and eventually rely on a physician who then may place a central line, says Blaivas. He estimates that less than 5% of EDs have nurses using ultrasound currently, but he says that numbers are growing rapidly. “My patients and nurses will tell you that the difficult stick patients coming to those few EDs are quite lucky, as they avoid multiple ‘blind’ attempts and unnecessary central lines,” he says.

At Memorial Hermann Southwest Hospital in Houston, the ED is purchasing a vascular probe for the ED’s ultrasound machine, which will be an investment of about \$9,000, reports **Garry Thompson**, BSN, RN, CEN, the ED’s clinical educator, who used ultrasound at a previous facility. “I cannot overstate the benefits to the patient when nurses are able to use ultrasound for difficult sticks,” he says.

In some cases, difficult sticks take hours to complete, says Thompson. “This contributes to extended lengths of stay and might even result in the patient’s disease process getting worse,” he says. He gives the example of a septic patient with a systolic blood pressure of 70. “They

### EXECUTIVE SUMMARY

A growing number of ED nurses are using ultrasound for peripheral vascular access, to prevent repeated needlesticks or the need for central line access in “difficult-to-stick” patients.

- Cost of equipment ranges from \$10,000 to \$15,000.
- Training should include hands-on practice, with supervision for the first five ultrasounds done on actual patients.
- Without ultrasound, care may be delayed by 40 minutes or more.

are going to be a very difficult stick for not only the nurse, but also for the doctor getting central access,” says Thompson. With ultrasound, the line could be placed within minutes and fluids started, but without it, it could take 40 minutes to get a central line in place after the ED nurse has tried multiple times, he explains. “This delay at a vital moment in the patient’s stay can only lead to detrimental harm,” says Thompson.

### **Difficult sticks are increasing**

Since today’s patients are sicker with more comorbidities, more are difficult sticks, says Thompson. “When we place lines with one stick for these patients, they are grateful and look at you with admiration and thankfulness,” says Thompson.

Even with the most difficult cases, such as obese patients, burn patients, and young children, nurses often are surprised at how many veins are available for cannulation under ultrasound guidance, says Varvais. “This has resulted in increased patient comfort, safety, and improved job satisfaction,” she says.

### **Reference**

1. Blaivas M, Lyon M. The effect of ultrasound guidance on the perceived difficulty of emergency nurse-obtained peripheral IV access *J Emerg Med* 2006; 31:407-410. ■



## **Nurses say 5-level triage is more reliable for children**

*New systems ‘take the guesswork’ out of triage*

A growing number of ED nurses now use five-level triage systems, but not many studies have evaluated the use of these systems in children. New research says that a new five-level triage system, the Soterion Rapid Triage System, possesses high inter-rater reliability and validity when used to triage children younger than 13 years of age.<sup>1</sup>

ED nurses at Children’s National Medical Center in Washington, DC, switched to the Emergency Severity Index (ESI) system in late 2006, says **Stacy Doyle**,

### **EXECUTIVE SUMMARY**

A growing number of EDs are using five-level systems for triaging pediatric patients. Research says that five-level systems have high inter-rater reliability and validity when triaging children younger than 13 years old.

- Have “superusers” train other nurses.
- To track accuracy of triage, look at patients given low acuity levels who were admitted and patients given high acuity levels who were discharged.
- Do “spot checks” by asking nurses to explain their reasoning.

RN, MBA nurse manager of the ED. “Unlike a three-level system that basically classifies “very ill,” “somewhat ill,” and “not ill,” a five-level system gives a better clinical picture,” she says.

For example, asthmatic children with significant trouble breathing may not need to be rushed to a code room, but they cannot remain in a waiting room, so they would be classified as a Level 2. “This means they would go straight to the back and get the treatment they need to avoid further deterioration, but they do not need the resources of an entire code or trauma team,” says Doyle.

The new ESI system takes the guesswork and subjectivity out of triage, says **Deborah A. Higgins**, RN, BSN, nurse educator for the ED at Greater Baltimore Medical Center. The scale also addresses high-risk situations in which a patient’s condition could deteriorate easily, or when a patient has symptoms of a condition that is time-sensitive to treatment, says Higgins.

For the pediatric population, the system provides guidelines for fever with age parameters, as well as “danger zone” vital signs that are age-related, says Higgins. “The high-risk situations also focus in on specific pediatric issues that need to be considered,” she says. For example, if an infant under 28 days came into the ED with a temperature of more than 100.4° F, the child automatically would be triaged as a Level 2.

Greater Baltimore’s ED nurses were given a four-hour training session before the ESI system was implemented. All were required to take a written competency test and pass with a grade of 90% or greater, with separate tests for pediatric and adult populations, Higgins says.

Separate tests were done to emphasize that children are not “little adults,” says Higgins. “They are pediatric patients and need to be treated and assessed as such,” she says. They present differently and have different needs than adults, Higgins says. “It is very important to

be proficient in both areas, she says. "You never know what type of patient is going to walk through the doors."

Once ESI was instituted, all nurses that passed the written competency were required to demonstrate 10 real-time triage competencies, says Higgins. "Only the nurses that have passed both competencies are permitted to assign an ESI level on patients," she says.

### **Track accuracy of triage**

At Greater Baltimore, weekly chart audits are done to track accuracy of triage levels, says Higgins. Previously, nurse educators performed the chart audits by looking at the ESI level, the patient's chief complaint, vital signs, and history to see if the appropriate level was assigned. If a problem was noted, the nurses were asked to explain their thought processes, says Higgins.

"This communication was done via e-mail with a requested response," she says. "In most cases, the nurse was on the right track. If they were off, we would individually remediate the nurse."

The ED is implementing a peer review chart audit process, which requires each triage nurse to audit two charts during each shift. "We have developed an audit tool that will allow the nurse to audit the entire triage assessment," says Higgins. "The educators will compile the results and see where we may need additional training or remediation."

To track the accuracy of the ESI levels, the ED compares its level charges with acuity assignments. Initially this was done every day, and it is now done once a week, says Doyle. The ED also looks at patients given a 4 or 5 acuity rating who wound up being admitted to the hospital. "We look at whether their condition changed after they got there, or was there something missed in the assessment," says Doyle. "We also look at kids with the highest acuity who went home. Did we overreact? Or perhaps we didn't get a good history, and they were upgraded higher than they should have been."

The ED also does "spot check" reviews with Doyle and the ED's clinical specialist pulling charts if, for example, there are a significant number of Level 2s in the department. "These are very unscientific, but we ask the nurse to tell us what they were thinking with each patient," says Doyle. "They may have been thinking

along the right path, or the nurse may have upgraded someone because they didn't understand an element of the new system."

The remediation done with chart reviews is not a punitive process, stresses Doyle. "We really do want people to 'triage up' or decide on a higher acuity, rather than take a chance on a lower one with a longer wait time for a very ill child," she says.

### **Reference**

1. Maningas PA, Hime DA, Parker DE. The use of the soterion rapid triage system in children presenting to the Emergency Department. *J Emerg Med* 2006; 31:353-359. ■

## **Comply with requirements for critical lab values**

*Your process must be consistent*

Failing to document that a critical lab value was read back, if your ED's policy requires this. Failing to realize that there are long delays in reporting urgent test results to ED physicians.

These are both common violations of The Joint Commission's requirements for reporting critical lab values that involve emergency nurses.

Because the ED receives a much higher volume of lab values that are considered "critical" compared with other hospital units, it's particularly important that your process is consistent, says **Megan Sawchuk**, MT (ASCP), The Joint Commission's associate director of standards interpretation. "EDs are obviously more likely to have critical values which require taking immediate action," she says.

To comply with The Joint Commission's requirements, you must verify critical test results given to you by reading back the results and then confirming the results with the person giving the information. Here are problems surveyors have identified at some EDs:

- **Confusion over the definition of a critical result.** "Understanding the difference between the two is something that people still struggle with," says Sawchuk.

Critical *results* are any test results that require immediate attention, including imaging studies, lab

### **COMING IN FUTURE MONTHS**

■ New Joint Commission standards for storing high-risk drugs

■ What to tell angry patients during long waits

■ Soccer injuries on the rise in EDs: Improve care

■ Use life-saving interventions for septic patients

## EXECUTIVE SUMMARY

The Joint Commission requires timely reporting of all critical lab values and verification by having the person receiving the information read it back and confirm it. Because of higher volumes of critical results, this requirement is more challenging for EDs than other hospital units.

- Measure the timeframe from the nurse becoming aware of the result to the physician being informed.
- If your policy requires documentation of the read-back, make sure it's followed consistently.
- ED nurses can be taken out of the process by having the lab communicate with the ED physician directly.

tests, electrocardiograms, or other diagnostic tests. A critical *test* is any test that is needed for the immediate care of the patient requiring rapid communication of results, even if the result is not life-threatening, so EDs usually will consider all "stats" as critical tests, Sawchuk explains.

• **Failure to measure the time interval from when the nurse became aware of the result to the physician being informed.** "Most often when there is a reporting problem in an ED, it's a failure in communication after the result is reported to the nurse," says Sawchuk. "Without measuring the interval between the nurse and physician, you won't know if you have a delay in that reporting process."

It's acceptable to perform a random audit of a percentage of charts, rather than auditing 100% of charts, she adds.

• **Failure to follow documentation requirements.** Although The Joint Commission doesn't have a specific requirement for documentation of critical values, many EDs fail to follow their own policies consistently, says Sawchuk.

"On the nursing side, documentation tends to be inconsistent," she says. The ED's policy might use "RB" as a code to indicate the read-back was done, but nurses don't always write that next to the critical value even though they might have done it, she explains.

Below are the steps taken by ED nurses at Champlain Valley Physicians Hospital Medical Center in Plattsburgh, NY, says **Ann Heywood**, RN, BSN, SANE, the ED's clinical practice coordinator:

— Nurses assess all results received. Critical values received by phone are read back to the person reporting the results.

— Nursing reviews the medical record for pertinent

information related to the critical result, such as previous lab results or medications. The patient is assessed immediately for complications.

— The ED nurse notifies the ED physician immediately of all critical values called into the department. Nurses document the date and time the physician was notified.

At Borgess Medical Center in Kalamazoo, MI, the lab gives the critical value to the ED charge nurse. "That value, and the name of the individual who received the call, is sent to the ED," says **Ken Lanphear**, RN, BSN, an ED nurse. The charge nurse notifies the ED attending physician, as well as the assigned nurse, he says. "The system works well for our department."

If the patient already was discharged, the charge nurse fills out a form documenting the notification and action taken, he says. "Otherwise, there aren't any firm time-lines for notifying the ED physician," says Lanphear. "The name of the person who took the call from the lab is on the lab printout, as well as the time of the call."

At Edward Hospital in Naperville, IL, ED nurses were taken out of the process entirely. "The lab calls the ED and usually speaks to the unit clerk, who in turn forwards the call to the ED physician," says **Lisa DiMarco**, RN, BSN, MBA, CEN, administrative director for emergency services. The physician then documents the result in their dictation, she says.

In the past, the lab would contact the ED, and a nurse would take the result and inform the physician. To improve the notification process, a hospitalwide decision was made to document the finding in the electronic medical record, says DiMarco. "So in the ED, we decided not to involve nursing, but instead, to have the lab contact the ED physician who then enters the information into their dictation. It saves a step or two," she says. ■

## CE instructions

**N**urses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material.

After completing this semester's activity with the **June** 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. ■

## CNE objectives/questions

Participants who complete this activity will be able to:

- **identify** clinical, regulatory, or social issues relating to ED nursing;
- **describe** how those issues affect nursing service delivery;
- **integrate** practical solutions to problems and information into the ED nurse's daily practices, according to advice from nationally recognized experts.

13. When Sumter Regional Hospital was evacuated following an F3 tornado, what patients were at the front of the triage line?

- A. Critical care unit patients
- B. Patients who had undergone inpatient surgery that day
- C. A patient in labor
- D. Psychiatric patients

14. Which of the following is recommended as exclusion criteria for treatment with recombinant tissue plasminogen activator, according to Lauren Brandt, RN, MSN, CNRN?

- A. Patients older than 77 years old should be excluded.
- B. Patients older than 80 years old should be excluded.
- C. Patients older than 90 years old should be excluded.
- D. All patients older than the age of 18 should be considered for eligibility.

15. Which is a result of ED nurses using ultrasound for peripheral vascular access, according to a study published in *Journal of Emergency Medicine*?

- A. Most "very hard" sticks changed to very easy cases.
- B. Most "difficult sticks" were impossible to complete without central line access.
- C. The number of patients requiring central line access increased.
- D. Nurses were unable to complete the extensive training that is required.

16. Which of the following is in compliance with The Joint Commission's requirement for reporting critical lab values?

- A. Defining all lab values in the ED as critical results.
- B. Considering all "stats" as critical tests.
- C. Considering only lab tests, not diagnostic tests, as critical.
- D. Reading back results only for diagnostic tests.

**Answers: 13. A; 14. D; 15. A; 16. B.**

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