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IN THIS ISSUE

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Study: Emergency nurses have major knowledge gaps about stroke

Incorrect medication use increases hemorrhage risk

Do you know the recommended door-to-drug time for administration of tissue plasminogen activator (tPA) for ischemic stroke? Are you aware that the neurological status of a stroke patient should be monitored frequently for 24 hours after tPA is given? Do you know the recommended dosage of tPA?

When 20 ED nurses at two hospitals in the Mid-Atlantic region were asked these and other questions, half or more got the answer incorrect, says a recent study. Most of the ED nurses had not participated in continuing education on evidence-based ischemic stroke care within the previous 12 months.[1]

If you mix tPA incorrectly, you could give an overdose and increase your patient's risk of hemorrhaging, which is already at a 6.4% rate according to the National Institute of Neurological Disorders and Stroke trial, warns **Susan E. Wilson**, RN, MSN, C-ANP, adult nurse practitioner at the University of North Carolina in Chapel Hill's stroke center.[2]

"If you do not perform frequent vital sign and neurological checks, you may miss signs of hemorrhaging," adds Wilson.

Without conscientious, properly done assessments, a stroke patient can have an unnecessary poor outcome, says **Ken Lanphear**, RN, BSN, an ED nurse at Borgess Medical Center in Kalamazoo, MI. "All too often, changes in a neurological patient are small and, to a degree, insidious," he says. "Just a very little damage done in certain areas of the brain can have devastating

EXECUTIVE SUMMARY

Emergency nurses lack knowledge about evidence-based ischemic stroke care, including medication administration, and most have not participated in continuing education in the previous year, a recent study found. To improve knowledge on tissue plasminogen activator (tPA) administration:

- Share statistics on time-to-administration.
- Hold "lunch and learns" about the drug's administration.
- Create a training module for nurses.
- Encourage all nurses to observe when the drug is given.

outcomes for the patient."

To give stroke patients the best possible care, ED nurses must be given evidence-based education, says **John P. Harper**, MSN, RN, the study's author and clinical educator for the ED at Taylor Hospital in Ridley Park, PA. "There continues to be a research-practice gap in nursing. Although it was a small sample size, the findings do raise some concerns," says Harper. **(See related story on liability risks for emergency nurses caring for stroke patients, p. 123.)**

Because Borgess is certified as a primary stroke center by The Joint Commission, all nurses on the stroke team must have eight hours of stroke education per year, says Lanphear. **(For more information on certification by The Joint Commission, see "Creative ways to educate about stroke assessment," *ED Nursing*, December 2005, p. 22.)** "We are very progressive in the care of all neurological patients, but especially in regard to the stroke patient. This is something that we as a staff take pride in," says Lanphear.

When the Joint Commission representatives came to review the stroke program at University of North Carolina in Chapel Hill, they traced a patient back to the ED, says **Susan E. Wilson**, RN, MSN, C-ANP, adult nurse practitioner at the hospital's stroke center. "They spoke to several nurses concerning triage, signs and symptoms, mixing and administration of tPA, and emergency care of the stroke patient," says Wilson.

To improve care of stroke patients, use these strategies in your ED:

• Alert nurses to clinical practice changes at staff meetings.

At Edward Hospital, ED nurses are given statistics on timeframes for tPA administration and CT scans at monthly staff meetings. "If there is new information to be given to the nurses for assessing or treating stroke patients, they are notified then," says **Denise Arp**, RN, BSN, interim clinical educator for emergency services.

For example, the timeframe for "stroke red" patients was increased from three hours to eight hours of symptom onset. Although candidates for tPA must have treatment initiated within three hours, patients may be eligible for other interventions that can be done for up to eight hours after the onset of symptoms, says Arp. "All ED nurses were informed about this change with a mandatory inservice," she says.

A "stroke red" patient is anyone who arrives to the ED with stroke symptoms that started up to eight hours prior to arrival, regardless if the symptoms have resolved, says Arp. "The ED physician and stroke team, including a neurologist, evaluate patients to determine if they are a tPA or coiling candidate," she says.

• Give continuing education (CE) credits for attending inservices.

At Swedish Medical Center in Seattle, ED nurses receive mandatory continuing education once a year on stroke care, says **Stanalee Reisinger**, RN, an emergency nurse at the hospital.

"Our stroke care coordinators are very up to date on key information and keep the staff informed on any changes to the protocols and up-and-coming treatments," she adds.

"Lunch and learn" and "nursing grand rounds" educational inservices are given to all nurses on Edward Hospital's stroke team, with continuing education credits for each nurse who completes these, says Arp. "The sessions are not mandatory, but most ED nurses attend them since it impacts their practice," she says. "The incentive is they get paid for their time, CE credits are given, and they learn a lot."

At Champlain Valley Physicians Hospital Medical Center in Plattsburgh, NY, ED physicians give nurses

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inservices on managing stroke patients, says **Ann Heywood**, RN, BSN, SANE, clinical practice coordinator of the Emergency Care Center. A recent topic was transient ischemic attacks (TIAs), since these patients now are observed in the ED to allow early diagnostic testing to be done. TIAs requires nurses to do ongoing neurological and vital sign assessments, says Heywood.

• Develop an online training module.

At University of North Carolina, educators are developing an online training module for emergency nurses on time sensitivity, mixing, dosing, and administration of tPA, reports Wilson. "We hope to make it a yearly competency," she says.

If there is any neurological change or deterioration, the nurse has to be readily aware of this and stop the tPA, notify the attending physician, and obtain a stat head CT scan to evaluate the patient for intracranial hemorrhage, says Wilson.

• Give hands-on training.

When a code stroke is called at Edward Hospital, nurses come to the patients' bedside for an initial assessment using the National Institutes of Health (NIH) Stroke Scale; the exclusion criteria form is filled out, and the dysphasia screen is done, says Arp. "We try to have some of our newer nurses in on these situations, to learn the steps for the when they would take a stroke patient themselves," she says.

Since tPA may be given only once or twice a month, dosage and pump settings are always double-checked with two nurses, says Arp. "We also make it known throughout the department when we are starting it for anyone who has not yet seen the process," she says. The charge nurse verbally notifies the newer nurses that the medication is being given, Arp explains.

• Audit charts to ensure neurological assessments were done.

"The singular, most important nursing function in acute care of stroke is assessments being done consistently and timely," says Lanphear. At Borgess, all stroke charts are audited to see that the NIH Stroke Scale assessments were done correctly, he says.

"We all were given multiple inservices on the NIH stroke scale so that it can be applied on a consistent basis," Lanphear says. Each neurological or stroke chart is audited to ensure the process is correct and that the time lines are met, he says. "If not, the personnel are questioned as to why," Lanphear says.

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Mistakes in your stroke care can lead to lawsuits

Nurses 'ultimately responsible for their education'

As an emergency nurse, you are expected to recognize the symptoms of a stroke and properly intervene in the patient's care and treatment, including planning for possible deterioration in the patient's condition, says **Mary Ann Shea**, JD, RN, a St. Louis-based nurse attorney and former ED nurse.

For example, if the patient is experiencing life-threatening symptoms, it is the responsibility of the nurse to get physician involvement immediately, says

EXECUTIVE SUMMARY

ED nurses caring for stroke patients can be held liable for delaying treatment, failing to follow one or more steps of the nursing process, or failing to assign the appropriate triage level. To reduce risks:

- Be aware of recommendations for stroke care.
- Have clinical nurse specialists act as "change agents" to educate other nurses.
- Read current literature and research.

Shea. "The nursing process must be followed at all times," she says. "Most lawsuits against nurses are the result of failing to follow one or more steps of the nursing process."

Any nurse that is not practicing according to the standard of care can be held liable if it causes harm to the patient, says **Vickie Halstead**, RN, CVNS, CCRN, CEN, CLNC, principal of Circle Pines, MN-based The Critical Difference, a consulting firm specializing in emergency and critical care education and an emergency nurse at North Memorial Medical Center, a Level 1 trauma center in Minneapolis. Nurses are required by law to follow the standard of care developed by the facility that employs them, she explains.

It is the facility that is liable if evidence-based guidelines are not incorporated in their standard of care for a stroke patient, says Halstead. "However, the nurse team that develops the standard of care for that facility could also be held liable if those standards do not follow evidence-based guidelines for stroke," she adds.

To successfully sue an emergency nurse for negligence, the patient would have to prove two things: That the nurse deviated from the standard of care, *and* that this resulted in an injury to the patient, says Shea. The standard of care is derived from many sources, one of which could be evidence-based guidelines developed for treatment of various disorders, she says. "However, the mere existence of such guidelines would not result in an automatic determination that the nurse deviated from acceptable standards," notes Shea.

Nurses are likely to be sued if they fail to assign the appropriate triage level to the stroke patient, do not gather the needed clinical data, fail to timely carry out orders for treatment, or do not communicate significant changes to the physician, says **Patricia Iyer**, RN, MSN, LNCC, president of Flemington, NJ-based Med League Support Services, a legal nurse consulting firm specializing in malpractice and personal injury cases. "I think that ED nurses have a high risk of breaching the standards of care for stroke patients by delaying treatment, thereby causing more disability," says Halstead. By not recognizing the signs of stroke or not treating the stroke patient as emergent, delays in care can occur, she adds.

"ED nurses need to be aware that strokes have many signs and symptoms in addition to paralysis, and that many patients who are not paralyzed at presentation to the ED need the same care as those patients with paralysis," says Halstead.

Take responsibility

There is not any universally accepted definition of when evidence-based care becomes the standard of care, says Iyer. "Is it a year later? Five years later? Or when other health care providers in the area start embracing the changes?" she asks. "Attorneys and experts often grapple with this issue."

It is unreasonable to expect ED nurses to immediately integrate new research findings into clinical practice, because there has to be a period of time when the recommendations are disseminated, Iyer explains. "But nurses *are* expected to keep current," she emphasizes.

Clinical nurse specialists and others with advanced nursing education often act as "change agents" to educate ED nurses on the needed changes in practice, says Iyer. "However, nurses who work in EDs without this level of educational support have to keep current with nursing literature and continually integrate new thinking, based on sound research, into their practices," she advises.

SOURCES

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In other words, ED nurses must take individual responsibility for maintaining their skill and knowledge, says Shea. "This includes an awareness of when standards of care change as a result of new research," she says. "Nurses are ultimately responsible for their own education." ■

Updated guidelines for infectious diseases in ED

New buzzwords: respiratory hygiene, cough etiquette

You'll need to make several changes to comply with updated isolation guidelines from the Centers for Disease Control & Prevention (CDC), which better address special environments and special populations such as EDs, says **Doe Kley**, RN, CIC, infection control coordinator at McKay-Dee Hospital in Ogden, UT.

Here are key changes in the CDC guidelines that will affect ED nurses:

• New terminology is used.

"The new 'buzzwords' are 'respiratory hygiene' and 'cough etiquette,'" says Kley. "Patients and visitors symptomatic with respiratory illness are asked to wear a mask, cover their coughs, dispose of tissues properly, and to perform hand hygiene."

The term "nosocomial infection" has been changed to "health care-acquired infection," and "negative pressure" rooms are now called "airborne infection isolation" rooms.

• There is clarification on when to don and remove personal protective equipment (PPE) when entering/exiting an isolation room.

"The correct technique is to don the PPE just before entering and to remove and discard the PPE just before exiting the isolation room," says Kley. **(For resources on use of PPE, see resource box on p. 126.)**

When transporting patients in isolation precautions, precautions should be reversed onto the patient. "For example, the transporter does not have to wear the PPE; instead, mask the patient," says Kley. The patient is masked if in droplet or airborne isolation precautions, but not for contact precautions. "To transport a patient in contact precautions, we should be sure that the infected site is covered," she says. "For *all* isolation patients, whether contact, droplet, or airborne, it is important that both the patient and the transporter perform hand hygiene upon exiting the isolation room."

• There are different requirements for various organisms.

The guideline now includes isolation recommendations for severe acute respiratory syndrome (SARS), norovirus, human metapneumovirus, and hemorrhagic fever viruses. "There are also new recommendations for Group A Strep (GAS) infections in adults," says Kley. These have been changed from standard precautions to droplet precautions for GAS pneumonia, and droplet and contact precautions for GAS-infected major draining wounds. "The new recommendations for extrapulmonary tuberculosis-infected draining wounds now call for contact and airborne precautions," she says.

• There are changes in isolation precautions for patients being transported. Visitors are addressed.

"Visitors were one of the bigger problems during the SARS outbreak a few years ago," says Kley. "They were an overlooked source of transmission. Consider screening visitors, especially during community outbreaks of flu," she says.

EXECUTIVE SUMMARY

New isolation guidelines emphasize the importance of respiratory hygiene and cough etiquette to protect patients and staff from transmission of infectious diseases.

- Don personal protective equipment (PPE) before entering the isolation room, and remove and discard just before exiting.
- Group A Strep infections now require droplet precautions.
- Use observers to document compliance with hand hygiene and PPE.

Update nurses

ED nurses at McKay-Dee will be educated on the updated guidelines, including standard precautions, the proper use of PPE, and isolation precautions for the newly included pathogens, says **Teri Howick**, RN, the ED's nurse educator. The ED is taking these steps to ensure nurses are complying with the CDC guidelines:

— **Use secret observers.** These individuals check to see that ED nurses are complying with hand hygiene, with monthly results posted, says Kley. "It's not so much that staff are being observed that improves their compliance; it's the feedback that you give them based on your findings," she says. "It is imperative to provide feedback to frontline staff, as they are the ones who can make the changes."

The secret observers are people who usually are in the ED so they don't arouse suspicion, says Howick. "They sit with a clipboard and observe several personnel as

they enter and exit a room, and mark down if they wash or use an alcohol hand sanitizer," she says. "They have a minimum number of people they must observe in a certain time period, usually 30 minutes." In addition, observation will be done to ensure that ED staff members are selecting appropriate PPE and using it appropriately, says Kley.

SOURCES/RESOURCES

For more information on the CDC's updated isolation guidelines, contact:

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- **Posters instructing patients on the correct way to put on masks are available** at no charge from 3M Health Care. The posters feature patients with fever, rash or coughing and read, "If this is you, this is what to do!" with illustrated instructions. Five or few posters can be ordered at no charge. To order, call 3M Health Care Helpline at (800) 228-3957, Option 2, or send an e-mail request to healthcare@3m.com.
- **A slide set and posters that can be used to train emergency nurses** on the correct way to don and doff personal protective equipment (PPE) can be downloaded at no charge from the Centers for Disease Control and Prevention (CDC). For more information, go to the CDC's web site (www.cdc.gov). Under "CDC For You," click on "Healthcare Providers," "Healthcare-Associated Infections," and "Infection Control Home." Under "Education & Training Tools," click on "Personal Protective Equipment (PPE) in Healthcare Settings."
- **A videotape on the correct use of PPE, titled *Personal Protective Equipment in Healthcare Settings*,** is available for $27.50 plus $5.50 shipping cost. To order, contact: Public Health Foundation, Publication Sales, P.O. Box 753, Waldorf, MD 20604. Phone: (877) 252-1200. Fax: (301) 843-0159. E-mail: info@phf.org. Web: bookstore.phf.org.

— Remind staff and patients about respiratory hygiene.

"We've been advertising respiratory etiquette in the ED at the point of entrance for years, via signage and stations that contain masks and alcohol hand sanitizers," says Kley. "But we will likely do some re-emphasis with staff on the importance of this."

Posters explaining respiratory hygiene practices in English and Spanish are posted throughout the ED, with illustrated instructions for how to put on masks, along with available masks for coughing patients or visitors, says Howick. **(To obtain the posters and signage used by the ED, see resource box, left.)**

A security desk is the first point of contact with ED patients and has a respiratory etiquette station with masks, tissues, and alcohol hand sanitizer. "The next 'gatekeepers' in the ED are the triage nurses," says Kley. Questioning patients about recent travel is an important part of triage, as it can give clues about what a patient was exposed to, she adds.

In the event of an epidemic or pandemic of an infectious disease, triage stations would be set up outside of the ED to screen patients *and* staff before entry into the facility, says Kley. "In this event, we would likely be turning visitors away. Security would be heavily involved."

— Make hand hygiene as easy as possible.

Bottles of alcohol hand sanitizer are made freely available in the ED: in patient rooms, on the wall outside the rooms, by all public areas, and next to telephones, says Kley. "Readily available hand sanitizer makes hand hygiene very convenient. It takes only a few seconds to rub it in," she says. (The guidelines are available at www.cdc.gov/ncidod/dhqp/gl_isolation.html.) ■

Protect your patients, yourself from flu, TB

In ED waiting rooms, there is growing concern that patients are spreading influenza to staff and patients during long waits.

"Flu is a great concern in the ED," says **Philip Ragusa**, RN, MBA, manager of emergency and trauma services at North Broward Medical Center in Deerfield Beach, FL. "In our ED, we try to isolate the patients who present as a possible risk by having them wear a mask, and using universal precautions when caring for them."

Any patient who is coughing or sneezing at Barnes-Jewish Hospital in St. Louis is asked to put on a mask at triage, with signs posted stating, "If you have a fever or a cough, please ask for a mask. Protect yourself and

EXECUTIVE SUMMARY

ED nurses are preventing flu transmission during long waits by having patients wear masks, and by using universal precautions. Natural ventilation is more effective at preventing tuberculosis transmission than mechanically ventilated isolation rooms, according to a recent study.

- Ask any coughing or sneezing patient to put on a mask at triage.
- Attach hand sanitizer to signs asking patients to wear masks.
- Consider opening windows.

SOURCES

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others," says **Jennifer Williams**, MSN, RN, BC, M-S CNS, CEN, CCRN, clinical nurse specialist for emergency services at Barnes-Jewish. "We also have hand sanitizer attached to these signs to help remind people that germs are spread by hand," she says.

A recent study presents another low-cost option for preventing transmission of infectious diseases such as flu and tuberculosis (TB): Use of natural ventilation.[1] Researchers compared the airflow in 70 naturally ventilated rooms in eight hospitals in Peru, including areas where the potential risk of airborne contagion spread was high, such as EDs, with airflow in 12 mechanically ventilated negative-pressure respiratory isolation rooms. Even with low wind speeds, natural ventilation replaced air more quickly than mechanical ventilation. EDs are a hotspot for TB transmission, says **Rod Escombe**, MD, the study's lead author and an infectious disease physician at Imperial College London. "Waiting rooms and triage areas are particular hazards," he adds.

It usually is the most infectious TB patients who come to EDs, such as patients with new diagnoses and those with treatment failures, adds Escombe. In another study, the same group of researchers found a 30% incidence of TB infection in ED staff in a Lima hospital.[2] EDs are never likely to have high air exchange ventilation, Escombe says. "This is reserved for respiratory isolation rooms," he says. "Natural ventilation therefore offers a good alternative, but it depends on your climate."

At North Broward's ED, two dedicated isolation rooms are used for patients with infectious illnesses, both with negative air-pressure systems, says Ragusa. Ventilation is done in accordance with Lenexa, KS-based American College of Healthcare Architects regulations, he adds. "Opening windows may be a good solution for this issue, but not one I have ever used," he says. "Natural ventilation is something I would consider, but I cannot make this call on my own. Epidemiology and facility maintenance must be involved."

Other EDs say opening windows simply is not possible logistically. "We have no windows, so this is not an option for us," says Williams. "However, I would highly recommend it if we did. In the ED, we tend to keep out the normal bacterial flora and keep in problematic flora."

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2. Escombe AR, Huaroto L, Ticona E. Defining tuberculosis transmission risk in a hospital emergency department in a high-prevalence area. Abstract presented at The First Global Symposium on Interferon-Gamma Assays. Vancouver, British Columbia, Canada; Feb.21-22, 2007. ■

Don't miss abuse during your clinical assessment

Women may have completely unrelated conditions

If a 36-year-old woman came to your ED with obvious signs of a stroke, would you suspect that intimate partner violence (IPV) might be the cause? After ED nurses at a university medical center treated the woman for stroke, a nurse asked about IPV during a routine assessment.

"It turned out that the stroke was secondary to having been choked by her husband," recalls **Jacquelyn Campbell**, PhD, RN, a nurse researcher at Johns Hopkins

EXECUTIVE SUMMARY

Women may present with conditions unrelated to intimate partner violence (IPV), so it is important to screen every woman who comes to your ED.

- Computerized screening identifies more patients reporting IPV than a personal interview.
- Patients may prefer anonymity.
- Simple interventions include social work referrals and pocket-sized cards.

University School of Nursing in Baltimore. "The No. 1 implication is that emergency nurses need to be assessing *all* women for IPV."

Physical and psychological effects

In addition to serious injuries, IPV has been linked to several adverse physical and psychological health effects, says **Deborah E. Trautman**, PhD, RN, director of nursing for the Department of Emergency Medicine at The Johns Hopkins Hospital in Baltimore. These include arthritis, chronic neck or back pain, migraine and other headaches, visual impairment, sexually transmitted infections, chronic pelvic pain, stomach ulcers, spastic colon, indigestion, diarrhea, and constipation, she says.

A computer-based health survey in the ED can identify dramatically higher numbers of women reporting IPV, as compared with verbal questioning, according to a new study. Nineteen percent of 411 women who completed a computer-based health survey reported IPV, as compared with only 1% who were asked about IPV during the nursing assessment, which was the ED's usual practice.[1]

Women in the study presented with various complaints including headache, viral illness, and sore throat, which underscores the fact that victims of IPV won't necessarily come to the ED with injuries from the abuse, says Trautman. One of the most common problems women will present with is severe pain, Campbell says. "Chronic pain is associated with IPV, either because of old injury or alterations in the stress response," she says. If the patient can't be screened for IPV in the ED because of the acuity of her condition, it should be flagged on the patient's chart so that an inpatient nurse can do the screening, she advises.

ED nurses still not screening

Most EDs don't routinely screen, even though there have been many calls to do so, says Campbell. Part of the reason is because ED staff lack training and don't know what interventions to offer if the patient reports IPV, says Campbell.

Prior to the new research, a personal interview was the preferred method to identify abused women, but this research found that a computer-based survey identifies more individuals, perhaps because of anonymity, says Trautman.

Because computerized screening seems to increase disclosure rates, that method is ideal to use in the ED, says Campbell. To obtain buy-in from hospital administrators to invest in this, she recommends including other types of screening as well, such as alcohol abuse. "Once the system is in place, we can use it to take care of several psychosocial issues that are so often underlying the problems we see in the ED," says Campbell.

The cost would vary depending upon the technology used, but in this case, the ED's costs were "very low," says Trautman. Expenses include developing a web-based survey, purchasing computers for patients to use, and providing dedicated printer capabilities for the results, she says.

The Johns Hopkins' ED utilized laptops and a mouse for their IPV survey, but this could also be done with a touch-screen computer, or even pencil and paper, says

SOURCE/RESOURCE

For more information on screening for intimate partner violence in the ED, contact:

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Pocket-sized Domestic Violence Cards are available from the American College of Obstetricians and Gynecologists (ACOG) to help patients identify whether they are in an abusive relationship and encourage them to discuss the issue with their health care provider, with space for local shelter and domestic violence resources telephone numbers, available in English (Item AA410) and Spanish (Item SA410). A pack of 50 cards costs $17 plus $12.50 shipping. To order, contact ACOG Distribution Center, P.O. Box 933104, Atlanta, GA 31193-3104. Phone: (800) 762-2264, ext. 349 or (770) 280-4184. Fax: (866) 441-2120 or (770) 280-0080. E-mail: sales@acog.org. Web: www.acog.org/bookstore.

Trautman. Whichever method is used, the survey results should be placed in the patient's medical record for the ED nurse to review during their assessment, she says.

If the patient reports IPV, there are several simple but important interventions that can be provided, says Trautman. These include referrals to social workers or giving patients preprinted education materials, a listing of community resources, or pocket-sized cards. **(See resource box on p. 128 with listing of tools.)**

"No one expects that the ED nurses should do it all," says Trautman. "Simply providing important safety and referral information is an important first step."

Reference

1. Trautman D, McCarthy M, Miller N, et al. Intimate partner violence and emergency department screening: Computerized screening vs. usual care. *Ann Emerg Med* 2007; 49:526-534. ■

Reduce risks of switch to 5-level triage system

Nurses may be over- or undertriaging patients

A growing number of EDs are switching to the Emergency Severity Index (ESI) five-level triage system, but many emergency nurses are struggling to find effective ways to determine competency.

After the ESI was implemented at NorthEast Medical Center in Concord, NC, ED nursing competencies were determined before and after the new system went live. First, nurses took an online post-test after attending a mandatory three-hour training course, says **T.M. (Pat) Patrick**, RN, staff development coordinator for the emergency care center.

Patrick created the course using a workbook from the Agency for Healthcare Research and Quality (AHRQ) and various other texts on ESI triage, after taking a two-day triage course held by Fairview, NC-based TriageFirst. **(See resource box for more information on the workbook and course, p. 130.)** "Their courses would run approximately $14,000 to run all 200 of my staff through, so the decision was made to home grow a course to cover the material," he explains. The post-test came from the AHRQ material, which was from the government (not copyrighted) and free of charge, says Patrick. He used Macromedia's Breeze product, a web communications system from Adobe Systems, to turn it into an online test.

If a nurse got an answer wrong, the rationale for the correct answer was given, and nurses were required to achieve a minimum score of 90%, says Patrick. "Those who did not were required to remediate with one of the trainers," says Patrick. "After the test was completed, the nurse saw their score, entered their name and employee number, and e-mailed the test results to me."

After ESI went live, a second validation was done by having emergency nurses audit random charts of other nurses, says Patrick. The nurse then would indicate whether the triage nurse had appropriately triaged, overtriaged, or undertriaged the patient based on the documentation, he explains.

"For the most part, we found that we were overtriaging. This was a drastic swing from the under triage that routinely occurred with our previous system," says Patrick. "Now that we have been live for some time, we need to do another round of peer review to validate that everyone is triaging in the same fashion."

EXECUTIVE SUMMARY

After your ED switches to a five-level triage systems, competency of nurses must be determined to avoid errors. Some effective methods include:

- Give nurses a post-test after attending a mandatory training course.
- Use mistakes as teaching opportunities.
- Audit charts to assess consistency.

Spreadsheet assesses accuracy

At Community Medical Center Healthcare System in Scranton, PA, accuracy of triage levels is assessed with a spreadsheet listing the date, medical record number, chief complaint, age, and triage level assigned, says **Debbie Clark,** RN, ED nurse manager. "I talk with the nurse involved to get their take on it. I plan to use scenarios that are in question as teaching moments," she adds.

Annie Carter, MS, CNS, RN, CEN, former ED clinical trainer at Upstate Medical Center in Syracuse, NY, realized that no audit tool was available after the ED switched to ESI. As a result, no audit of charts was done, she says, so Carter had to create her own tool. "When I audited some charts for scenarios for the class, I could see that everyone was not consistent. Nurses continued to use their own opinions to assign an ESI level instead of the criteria presented in the algorithm," says Carter, who is a clinical nurse specialist in the ED at Riverview Medical Center in Red Bank, NJ.

She first looked to see if nurses were choosing the correct resources and counting them correctly. "I had them audit four of their charts, then had their preceptor also audit the same four charts, to compare how they

assigned levels," says Carter. "I then pulled an additional eight charts, to see how consistent they were."

Interestingly, the preceptors did not always assign the correct triage level, Carter reports. "However, I was surprised at how many the students *did* get correct. Out of four students, one got 100% correct, and one only got one wrong," she says. "To my delight, one of the four came to me for clarification of when to assign someone to ESI Level 1 [requiring immediate lifesaving intervention.]"

Since nurses were not being consistent, Carter developed an online program using a poorly assigned triage as an example, such as abnormal vital signs in pediatric patients. "I was able review the abnormal vital sign criteria for up-triaging to Level 2 [a high-risk situation], which was an issue," she says.

There was some disagreement about when a patient may have a life-threatening condition that requires intravenous fluids, Carter recalls. "These discussions not only allowed me to evaluate what people consider to be life-threatening interventions, but to re-educate the students *and* preceptors about the type of patients who should have an ESI Level 1 assigned to them," she says. ■

SOURCES/RESOURCES

For more information on triage competencies, contact:

- **Annie Carter**, MS, CNS, RN, CEN, Emergency Department, Riverview Medical Center, One Riverview Plaza, Red Bank, NJ 07701. E-mail: anniesnote@hotmail.com.
- **Debbie Clark**, RN, Emergency Department, Community Medical Center Healthcare System, 1800 Mulberry St., Scranton, PA 18510. Phone: (570) 969-8000. E-mail: Debbie.Clark@cmc healthsys.org.
- **T.M. (Pat) Patrick**, RN, Staff Development Coordinator, Emergency Care Center, NorthEast Medical Center, 920 Church St. N., Concord, NC 28025. Phone: (704) 783-1670. E-mail: tpatrick@northeastmedical.org.

- **Up to three free copies of *The Emergency Severity Index, Version 4 Implementation Handbook* (Publication No. 05-0046-2) and *The Emergency Severity Index, Version 4: Everything You Need To Know* DVD set (Publication number 05-0046-DVD)** are available at no charge or shipping costs. To order, contact the Agency for Healthcare Research and Quality Publications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907-8547. Phone: (800) 358-9295. E-mail: ahrqpubs@ahrq.gov. A free copy of the handbook can be downloaded at www.ahrq.gov/research/esi/esihandbk.pdf.
- **A Comprehensive ED Triage Course is offered by TriageFirst**, consisting of an online pretest, a two-day workshop, an Emergency Severity Index (ESI) training module and online clinical expertise modules, and online post-test. The cost of the course is $499 per person. A Triage Acuity Audit Guide is a web-based chart auditing tool for retrospectively reviewing triage levels assigned by ED nurses. The cost ranges from $500 to $2,000 a year, depending on the extent of use. For more information, contact TriageFirst, P.O. Box 1924, Fairview, NC 28730. Phone: (828) 628-8022. Fax: (828) 628-8025. E-mail: mmcnair@triagefirst.com. Web: www.triagefirst.com.

High blood pressure goes unrecognized in ED

Make patients aware of need for recheck

A patient comes in with a superficial laceration that is expertly assessed by the ED nurse and repaired by the ED physician — but the patient's hypertension is missed.

"We do a good job, but we miss the opportunity to have a much greater impact on their health by telling them their blood pressure is elevated," says **Francis Counselman**, MD, chairman of the Department of

EXECUTIVE SUMMARY

Identify all patients with elevated blood pressure and refer them for a recheck before they leave the ED. Research shows that this intervention often is overlooked in EDs.

- Catching hypertension early can prevent damage to the kidneys, heart, and brain.
- Check blood pressure on every patient and if elevated, check again in 15 minutes.
- Flag patients with hypertension on electronic boards.

SOURCES

For more information on blood pressure assessment in the ED, contact:

- **Francis Counselman**, MD, Eastern Virginia Medical School, Raleigh Building, Room 304, 600 Gresham Drive, Norfolk, VA 23507. Phone: (757) 388-3397. E-mail: counsefl@evms.edu.
- **Jane Hottinger**, RN, MSN, Clinical Educator, Emergency Department, Aurora Medical Center, 855 N. Westhaven Drive, Oshkosh, WI 54904. Phone: (920) 456-7420. Fax: (920) 456-7421. E-mail: dhottinger@new.rr.com.

Emergency Medicine at Eastern Virginia Medical School in Norfolk. "In the long run, that might be much more important than the reason they are in the ED."

Only a small percentage of ED patients with asymptomatic elevated blood pressure are recognized, treated, or referred, according to a new study.[1] Researchers looked at 1,574 patients whose documented blood pressure was 140/90 mm Hg or higher. They found that only 112 received attention for their elevated blood pressure, such as diagnosis, treatment, a medication prescription, or a referral.

If a patient's blood pressure still is elevated on recheck, as they are getting ready for discharge, remind the physician to refer the patient for a blood pressure check, says Counselman, one of the study's authors. Also, inform the patient that their blood pressure is elevated, he says.

Patient should follow up

The most important actions are recognition and having the patient follow up, Counselman says.

"We don't need to necessarily treat the vast majority of these; we just need to let the patient know their blood pressure is elevated," he says. "It may be because they are nervous or in pain or scared, but it may be because they have hypertension."

Many adults have hypertension that goes unrecognized, and catching it early can prevent secondary damage to the kidneys, heart, and brain, says Counselman. "If nurses can be on the lookout as well as physicians, then we've got twice the opportunity to recognize it and get the patient headed in the right direction," he says.

At Aurora Medical Center in Oshkosh, WI, ED nurses check blood pressure on every patient five years and older, no matter what the complaint or symptoms, says **Jane Hottinger**, RN, MSN, clinical educator for the ED. If blood pressure is elevated, it is circled on the paper chart and repeated in 15 minutes, since the "white coat syndrome" is a possible factor, she says.

The ED's electronic charting program, FirstNet (Cerner Corp.; Kansas City, MO), is preprogrammed with high or low blood pressure readings, and alarms with flashing lights alert staff to abnormal readings. "If it exceeds our present limits, the physicians have to address it when they access the electronic chart," says Hottinger. "This way, we rarely miss the opportunity to address unidentified hypertension."

Reference

1. Tilman K, DeLashaw M, Lowe S, et al. Recognizing asymptomatic elevated blood pressure in ED patients: How good (bad) are we? *Am J Emerg Med* 2007; 25:313-317. ■

CNE instructions

Nurses participate in this CNE program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue.

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

After completing this semester's activity with the **December** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

COMING IN FUTURE MONTHS

- ■ Dramatically improve care of asthma patients
- ■ The best protocols for ED heart attack care
- ■ Avoid complications with anticoagulants
- ■ Life-saving assessment tips for sepsis patients

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.

9. Which is true regarding liability of ED nurses, according to Vickie Halstead, RN, CVNS, CCRN, CEN, CLNC?
A. Any nurse who is not practicing according to the standards of care can be held liable if it causes harm to the patient.
B. Evidence-based care becomes the standard of care immediately after research is published.
C. Nurses automatically are held individually liable if the facility's stroke protocol doesn't reflect evidence-based guidelines.
D. Nurses can be found negligent even if the deviation from the standard of care did not result in an injury to the patient.

10. Which is in compliance with the Center for Disease Control and Prevention's updated isolation guidelines?
A. When transporting patients in isolation precautions, the patient should be masked, but the transporter does not have to wear personal protective equipment (PPE).
B. PPE should be donned immediately after entering an isolation room.
C. PPE should be discarded immediately after exiting the isolation room.
D. Standard precautions should be used for Group A Strep infections in adults.

11. Which is true regarding screening of women for intimate partner violence in the ED, according to a recently published study?
A. None of the women reporting abuse presented with unrelated conditions.
B. Computerized screening identified higher numbers of victims than verbal screening.
C. Computerized screening did not identify significant numbers of abuse victims.
D. Verbal screening identified more victims than computerized screening.

12. Which is recommended regarding hypertension, according to Francis Counselman, MD?
A. You can safely assume elevated blood pressure is due to "white coat syndrome."
B. Avoid rechecks of elevated blood pressure, because this step impedes flow with no benefit to the patient.
C. Always inform patients that their blood pressure is elevated and requires follow-up.
D. Avoid use of alarms alerting staff to abnormal readings.

Answers: 9. A; 10. A; 11. B; 12. C.