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Inside

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Don't miss strokes: Be on the lookout for atypical symptoms and patients

You may be surprised by the next stroke patient you see in your ED

While working at her office job, a 27-year-old woman suddenly felt weakness in her left arm and leg, and she experienced facial droop. Alarmed, her co-workers rushed her to the ED. Upon arrival, she was alert, but her speech was slurred.

At first, ED nurses suspected her symptoms were due to an overdose, based on her age and her likely access to opioids as a sickle cell anemia patient. However, based on the woman's slurred speech and hemiparesis, nurses quickly placed her in a room, alerted the ED attending, and paged the stroke team.

A brain attack computerized tomography scan was ordered, which was negative for intracranial bleeding. Only 40 minutes after she arrived at the ED and 90 minutes after the onset of symptoms, the patient began receiving peripheral tissue plasminogen activator (t-PA).

She was admitted to the neurosurgical intensive care unit and discharged three days later with no neurologic deficits.

The above scenario is a success story that underscores the importance of having a high index of suspicion for stroke even in young patients, urges

EXECUTIVE SUMMARY

New research shows that women are more likely to present with nontraditional stroke symptoms.

- Symptoms may include pain, change in level of consciousness, and disorientation.
- Women have a higher incidence of hemorrhagic stroke, and they may present with headache or non-neurologic symptoms.
- Suspect stroke even in younger patients, since a quarter of all strokes occur in patients younger than 65.

Rebecca A. Steinmann, RN, MS, CEN, CCRN, CCNS, clinical nurse specialist for the ED.

She notes that 25% of all strokes occur in patients younger than 65 years of age.[1]

"Skilled triage clinicians are truly the key to good outcomes in all patients, particularly atypical presenters," she says.

Women have different symptoms

The age of your next stroke patient may not be what you expect, but the *way* they present also may surprise you.

Multiple studies have shown that women report different symptoms than men when having a myocardial infarction, says **Lauren Brandt**, RN, MSN, CNRN, clinical director of neurosciences for the Brain & Spine Center at Brackenridge Hospital in Austin, TX.[2]

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Editorial Questions

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THOMSON
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(For more information on this topic, see "Symptoms to watch for in women with MIs," *ED Nursing*, August 2000, p. 127.)

According to new research, these differences also are seen in patients presenting with stroke, she says. A recent study found that women presented more often with atypical stroke symptoms. Of 1,189 patients with acute stroke, nontraditional stroke symptoms were reported by 28% of women and 19% of men. These symptoms include pain, change in level of consciousness, disorientation, and non-neurologic symptoms.[3]

Men more commonly present with the traditional stroke symptoms of weakness or numbness on one side of the body, slurred speech, loss of balance, or gait disturbance, says **Dawn K. Beland**, RN, MSN, CCRN, CS, stroke center coordinator at The Stroke Center at Hartford (CT) Hospital.

"The presenting symptoms for women with stroke may be subtler than this, and therefore need a more focused assessment to detect," she says.

She points to another study that shows that female stroke patients present with more headache and facial sensory deficits.[4]

Brandt urges you to consider the study's findings as strong evidence that you always should evaluate women for stroke if they present with nontraditional stroke symptoms.

"The rapid identification and treatment of the patient who is having a stroke affects outcomes," she stresses. "Any delay may increase morbidity and mortality."

Here are items to consider:

• Be suspicious, even if patients don't report specific symptoms.

Any change from baseline functioning could be due to an acute ischemic stroke, Beland emphasizes.

"The patient or possibly the significant other may simply state the patient 'just isn't right,'" she says.

Help to identify a potential stroke patient by obtaining a brief past medical history, says Beland. She says to ask the following questions:

— Has this ever happened before? If so, when and for how long?

— What time did these changes start today?

— What was the patient's level of functioning before this change? Was he able to take care of himself independently?

— Is the patient diabetic, or does he or she have heart disease?

These two disease states significantly increase the risk for stroke, Beland emphasizes.

"Quickly ruling out changes in blood sugar, heart rate, rhythm, and blood pressure will help narrow the differential diagnoses to stroke," she says.

Your neurological assessment should include level

SOURCES

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of consciousness, orientation, and motor movement at a minimum, says Beland. An expanded assessment should include an assessment of drift, facial weakness, changes in sensation, and language, she adds.

"Women have more developed language abilities, so go beyond orientation questions to assess for clarity, and assess reading ability for fluency," she advises. "Ask the patient if her speaking ability is normal for her or difficult in any way."

You also should define time of symptom onset, Beland says. "If the patient was found changed, when were they last seen well?" she says. "Thrombolytics can only be given up to three hours after a known onset." **(See related story on interventions to take if stroke is suspected, right.)**

• Know signs of hemorrhagic stroke.

Women have a higher incidence of hemorrhagic stroke, either from intracerebral hemorrhage or subarachnoid hemorrhage, notes Brandt.

This subset of stroke differs in presentation from ischemic stroke in that the chief complaint is typically headache, change in level of consciousness, and non-neurologic symptoms, says Brandt.

"These nontraditional symptoms may delay the identification of stroke," she adds.

Regard with a high level of suspicion any onset of new headache with other symptoms, such as disorientation, change in level of consciousness, or non-neurologic symptoms such as nausea and vomiting, says Brandt. Assess the characteristics of the headache, and note that the classic presentation of hemorrhagic stroke is the thunderclap headache or "the worst headache ever," she adds

"The only way to accurately diagnose ischemic versus hemorrhagic stroke is to perform CT imaging as soon as possible," says Brandt.

• Use the NIH Stroke Scale.

Because patients won't always present with classic stroke symptoms, the use of a standardized assessment tool can help with rapid triage and treatment, such as the National Institute of Health Stroke Scale, Brandt says. **(For more information on this topic, see "Use NIH Stroke Scale to assess patients," *ED Nursing,* March 2000, p. 61. Also, see "NIH Stroke Scale" inserted in this issue.)**

This scale assesses 11 areas that are consistent with the diagnosis of stroke, and it measures severity based on the number and type of deficits, explains Brandt.

"Incorporate this into your routine assessment whenever a patient comes in with suspected stroke," she advises.

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Take these steps if you suspect stroke

When paramedics brought a 43-year-old woman to the ED at Norwalk (CT) Hospital, she was awake and able to follow commands, but presented with right-sided weakness, confusion, and slurred speech.

The patient was identified as a potential stroke victim, and the hospital's stroke team was called.

"She was sent emergently to CT scan, and it was determined that she had suffered an ischemic stroke," says **Mary Galasinski**, RN, the facility's stroke coordinator.

The woman met the inclusion criteria for tissue plasminogen activator (t-PA), and it was administered in the ED. Within two hours, the woman was able to move her upper and lower extremities. After three days

EXECUTIVE SUMMARY

Research shows that stroke protocols are not always followed in EDs, with patients being given tissue plasminogen activator (t-PA) inappropriately.

- There is a three-hour window for treatment from the onset of symptoms.
- Patients should not receive t-PA unless a cranial computed tomography scan has been given.
- Anticoagulants agents are contraindicated for 24 hours after receiving t-PA.

in the intensive care unit, she was sent home.

This case illustrates the importance of immediate intervention for patients with suspected stroke, says Galasinski. She points to studies showing that significant delays exist in ED triage and evaluation of women with stroke.[1,2]

If you suspect a stroke, notify the ED physician and your facility's stroke team immediately, urges Galasinski. "Radiology needs to be notified for emergent CT scan, and if there is no stroke team, the neurologist needs to be called," she says.

Advances in the treatment of acute stroke have given patients a better chance at recovery, something that wasn't possible a decade ago, says **John E. Duldner Jr.**, MD, MS, FACEP, assistant professor of emergency medicine at Northeast Ohio University College of Medicine in Akron.

Unfortunately, treatment protocols are not always followed in the ED, says Duldner.

"This is evidenced by two studies that demonstrated protocol violations and higher death rates when patients are considered for, and treated with t-PA," he says.[3,4]

Duldner says that reported problems included treating patients who should have been excluded for treatment (those having a seizure at the onset of stroke), treating blood pressure outside of the accepted indications, and treating patients outside of the three-hour window. **(See chart on blood pressure management, below.)**

Your practice must be consistent with current guidelines for stroke, he emphasizes.

"If patient care orders deviate from the guidelines, refer to the guidelines to ensure patient safety," Duldner says. "ED nurses can lead the charge to ensure this is done."

Here are ways to improve management of patients with suspected stroke:

• Assess suspected stroke patients rapidly.

The key to evaluation is recognizing a stroke is occurring, says Duldner. Although patients may present atypically, he gives the classic warning signs of a stroke:

— sudden numbness of face, arm, or leg, usually on one side of the body;

— difficulty walking/loss of balance or coordination;

— sudden confusion and/or trouble speaking or understanding speech;

— sudden, severe headache;

— visual problems with one or both eyes.

Blood Pressure in Stroke Patients

Blood Pressure Level	Fibrinolytic Candidate	Not a Fibrinolytic Candidate
>185/>110 mm Hg	Nitropaste or labetalol IV. If blood pressure remains elevated: **no fibrinolytics**	No acute therapy indicated
During/after fibrinolytic treatment, blood pressure may rise		
DBP >140 M/Hg	Nitroprusside infusion	Nitroprusside infusion
>230/121-140 mm/Hg	Labetalol, then prn nitroprusside	Labetalol
180-230/105-120 mm/Hg	Labetalol	Acute therapy only if hypertensive urgency also present

Source: Lauren Brandt, RN, MSN, CNRN, Clinical Director, Neurosciences, Brain & Spine Center, Brackenridge Hospital, Austin, TX. Adapted from Advanced Cardiac Life Support, American Heart Association Stroke Study Group, and Scientific statement. Guidelines for thrombolytic therapy for acute stroke: A supplement to the guidelines for the management of patients with acute ischemic stroke. *Circulation* 1996; 94:1,167-1,174.

SOURCES

For more information on treatment of acute stroke, contact:

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Any patient with sudden loss of neurological function should be rapidly assessed, regardless if he or she arrives via triage or ambulance, says Duldner. **(See Heart Attack, Stroke & Cardiac Arrest Warning Signs in this issue.)**

• Determine if the patient is eligible for t-PA.

A checklist of inclusion and exclusion criteria for t-PA should be used at the bedside, as is done with thrombolysis for acute myocardial infarction patients, Duldner says.

Other key points to consider include time of symptom onset, the patient's National Institutes of Health (NIH) Stroke Scale score, and cranial computed tomogram findings, he says. He notes that the time-to-treat window for t-PA is three hours.

"Probe the family and emergency medical services to aid in establishing an estimated time of symptom onset," he says. "The clock is ticking from the time the symptoms started."

The last time the patient was known to be "neurologically normal" is the time of symptom onset, he explains. If the patient's symptoms are present upon waking in the morning, Duldner says to go by the following guidelines:

— If the patient went to bed at midnight and awoke at 6 a.m. with right-sided weakness and difficulty speaking, then the time of symptom onset is midnight.

— If the patient got up at 5 a.m. to use the bathroom and was normal, then went back to bed and awoke at 6 a.m. with symptoms, then the time of symptom onset was 5 a.m.

An NIH Stroke Scale score of 22 or more suggests a large stroke and a higher likelihood of bleeding after t-PA administration, Duldner notes. A patient should not receive t-PA if they have not undergone cranial computed tomography, as it is necessary to rule out cerebral hemorrhage and evaluate for evidence of a large stroke, he adds.

• Treat with t-PA if appropriate.

The dose is 0.9 mg per kilogram, not to exceed 90 mg, Duldner says. "Give the first 10% as a bolus and the rest over 60 minutes," he says.

Antiplatelet agents and other anticoagulants are contraindicated for 24 hours after receiving t-PA for stroke, says Duldner.

"Monitoring for bleeding and elevated blood pressure is paramount, and both issues should be treated aggressively," he advises.

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Are you using this new cardiac diagnostic test?

Find out if low-risk patients can go home safely

A 39-year-old man. Chest pain atypical for angina or myocardial infarction (MI). A completely normal electrocardiogram (ECG). When he arrived at the ED at Boston-based Tufts-New England Medical Center, this patient appeared to be at very low risk for an acute coronary syndrome diagnosis.

However, instead of being admitted or sent home, the man received acute myocardial perfusion imaging, a noninvasive radionuclide imaging test. The test revealed a pronounced perfusion defect in the inferolateral wall of the left ventricle — an area of the heart not clearly seen by the ECG.

The patient actually was having an MI and went straight to the cath lab for emergency angioplasty, reports **James E. Udelson**, MD, the facility's associate chief of cardiology.

Without this additional imaging test, the man probably would have been admitted for observation, and all the cardiac enzymes would have come back positive, Udelson explains.

"He would have had a good-sized MI and may or

EXECUTIVE SUMMARY

Acute myocardial perfusion imaging can determine whether low-risk chest pain patients can be sent safely home.

- There is a trend toward use of this test in the ED along with electrocardiogram and cardiac enzymes.
- Instruct patients to follow up with a complete stress test.
- Candidates for this test generally are low risk.

may not have been referred for cardiac catheterization the next day," he says. "Because he was treated much earlier, we were able to salvage a lot of heart that otherwise might have been damaged."

Use of test is growing

Are you using acute myocardial perfusion imaging in your ED? According to a new study, this diagnostic test can improve treatment of ED patients with suspected acute myocardial ischemia.[1]

Not many EDs are using this potentially lifesaving tool yet, but the number is increasing, says Udelson, the study's principal investigator.

"Missed MI is one of the most common causes of litigation against ED personnel, and this test may also facilitate an earlier diagnosis in such patients," he underscores.

The goal is to make better decisions about who can safely go home from the ED, Udelson explains. "EDs are using this in low-risk patients who need more information to help decision makers decide what to do," he says.

ED physicians may think that the patients probably are not having an MI, but they are not sure enough to send them home, Udelson explains. "This test will help push that decision one way or the other," he says.

There is a huge problem with admitting patients for observation who don't really need it, Udelson says. "Many hospitals are so full that patients will end up spending the night in the ED," he says. "This ties up beds that ED patients could go to, so the whole system backs up."

Here are items to consider:

• Understand how the test is used.

Nuclear imaging of the myocardium provides additional data during stress testing, with resting images compared with stress images, explains **Steven D. Glow**, RN, MSN, FNP, CEN, EMT-P, nursing faculty at Salish Kootenai College in Pablo, MT, and ED nurse at Community Medical Center in Missoula, MT. If resting images reveal an area that is not perfused, this provides evidence of myocardial infarction, he says.

If resting images are normal and stress images show decreased perfusion, this area of the heart is possibly being supplied by a narrowed coronary artery, says Glow. "Such data suggest the patient may be a candidate for invasive or surgical repair of the narrowed artery," he says.

If resting and stress images are normal, there is no evidence of significant narrowing of the coronary arteries, says Glow. "Remember that, even in the absence of significant narrowing, coronary artery vasospasm still can result in chest pain and ischemia," he says.

By implementing resting imaging in the ED, a more informed decision can be made about whether to admit patients with suspected MI, says Glow. These data would be used to supplement current diagnostic data including 12-lead ECG and cardiac enzymes, he says.

• Educate patients.

You'll need to educate patients about this diagnostic tool, says Glow. He gives the following example: The patient should be informed that the ECG and first set of enzymes were normal, but an additional test is needed to determine if there has been any damage to the heart muscle.

The ED nurse would explain to the patient what will happen next, says Glow, who suggests you convey the following information: "A nuclear medicine technician from the medical imaging department will come and give you an injection of a short-acting radioisotope. You then will be taken to the nuclear imaging department where they will lay you on a table while a radiation sensor is passed over your chest. A computer will generate images that will be read by the radiologist, nuclear medicine physician, or cardiologist. The results will be used by the ED physician in consultation with the cardiologist to determine whether or not to admit you for further testing and treatment."

Glow says you should be ready for these common questions asked by patients:

— "Will I feel anything after the injection?" (No.)

— "Am I a hazard to others?" (No.)

— "How long does the radiation last?" (Only a short time: fewer than six hours.)

— "Should I take any special precautions after the test?" (No.)

— "If the test is negative, does that mean I'm OK?" (The test may not reveal if you have narrowing of the heart arteries or other risk factors for a heart attack. It is important to follow up with the doctor to whom we are referring you.)

SOURCES

For more information on myocardial perfusion imaging, contact:

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- **James E. Udelson**, MD, Division of Cardiology, Tufts-New England Medical Center, 750 Washington St., Box 70, Boston, MA 02111. E-mail: judelson@Lifespan.org.

Glow suggests discussing risk factor modification with the patient at this point.

If the index of suspicion is high enough to warrant nuclear imaging of the myocardium during an ED stay, patients should be instructed to follow-up for a complete stress test, he notes. Most cardiologists would prefer to schedule the stress images as soon as possible after the resting images, or else the resting images may have to be repeated, Glow adds.

• Understand that patients who are the most appropriate candidates for this test are low-risk.

ED nurses sometimes are uncomfortable with transporting potentially unstable patients for this diagnostic test, Udelson says.

"But if you select the patients properly, this is generally a low-risk group," he says. "In fact, the majority of these scans are normal."

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GUEST COLUMN

Make these changes or risk violating HIPAA

By **Kathleen Catalano**, RN, JD
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If you don't comply with the Health Insurance Portability and Accountability Act (HIPAA) privacy regulations, you may face civil penalties of up to $25,000 for each requirement violated, and criminal penalties of up to $50,000 and one year in prison for obtaining or disclosing protected health information.[1,2]

The regulations are not going to go away. They require a culture change on the part of each and every ED in the way care is rendered.

The best way to avoid problems with HIPAA is to objectively look at your own actions as you carry out your duties in the ED. Here are changes to make immediately:

• Never use a patient's health information inappropriately.

You may divulge only information that is necessary to diagnosis or treat the patient. For example, if a delirious patient tells you that he has just gambled away the family's life savings, when giving report to the next shift, you would relay information about the patient's vital signs, delirium, and the fact that the patient was ranting and raving. The specifics of what were said would not be given.

In the past, a family would bring their aging mother to the ED and wait until the nurse came out to tell them about their mother's condition. That practice no longer will be acceptable. Now, as long as the patient is lucid and able to make the determination, he or she will be asked to designate a member of her family to receive updates.

What if the patient is not in a condition to designate someone? You can assume that it is very likely that the person accompanying the patient to the hospital did so at the patient's request and/or because of a relationship. For example, a husband brings his wife into the ED. His wife is unable to focus and seems confused. It is very likely that the wife would want her husband to be kept abreast of her condition. Again, you should provide only the minimal amount of information that is necessary.

• Don't allow others to hear confidential information.

Protection of health information is difficult in the ED due to cramped space, lack of auditory privacy, and because of the crisis mode that seems to be the norm.

It is easy to forget that there is another patient on the other side of the curtain and that what you're saying is in all likelihood being overheard by many individuals.

In many EDs, the patient rooms circle the nurses' station. Thus, if family members stand outside of the patient's room, they often can hear much of what is being said.

Do you talk about one patient when you're in the presence of another patient or the other patient's family? We forget about people overhearing our conversations because we are in the treating mode. As caregivers, we must get a patient's medication stat and there's not much time to think about hushed voices or whether someone is observing what we're writing.

Sit back, watch, and listen. Do you hear staff talking about patients in an inappropriate manner?

If you overhear inappropriate statements, you can do several things. You could report it to your nurse manager or ED director, discuss it with the person making the statements, or call your compliance hotline and give a description of what occurred so that the issue will be addressed.

• Make sure that patient information is not visible to others.

You often can improve the privacy in your ED simply by changing the location of objects. Here are some examples:

— ***Computer monitors and fax machines.*** Can a patient's medical records be viewed by persons who have no right to the information? If so, move the computer or monitor to conceal protected information.

If individuals other than caregivers can see documents being faxed, the machine should be moved.

— ***Documents at the nurse's station.*** Are papers such as the operating room schedule visible if you stand at the nurse's station? If so, keep materials in a closed folder or turn them over so they aren't visible for all to see.

• Find a way to protect privacy at triage.

Do patients have vitals taken and an assessment performed in front of registration clerks? When the patient answers questions posed by the triage nurse, can the responses be heard throughout the ED lobby? A door or curtained windows are good solutions, but they need to be shut whenever a patient is being triaged.

• Change the flow of traffic in your ED.

Think about the configuration of your ED. Is there a different way to route families and visitors so they don't hear and see everything that is occurring in the ED? See if you can change that flow. Just because it's never been done, doesn't mean it shouldn't be done.

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1. 45 CFR §160.306 and §160.312 (2000) for Civil Enforcement.
2. 42 USC 1320d-6 (HIPAA Sec. 1177) for Criminal Enforcement. ■

WEB ALERT

Don't risk missing domestic violence victims

Do you want to be sure your ED's domestic violence program is effective? According to current statistics, 2%-4% of all female ED patients present with acute trauma associated with domestic violence, while 10%-12% have a recent history of domestic violence.[1,2]

A free on-line tool, offered by the Rockville, MD-based Agency for Healthcare Research and Quality, can be used to assess how well ED nurses are trained in recognizing domestic violence, screen patients to determine their risk of domestic violence and future injury, and intervene to provide medical treatment and arrange for follow-up care with victim advocacy services.

"The ED plays a major role through screening and intervention," says **Jeffrey H. Coben**, MD, associate professor of emergency medicine at Drexel University College of Medicine and director of the Center for Violence and Injury Control at Allegheny General Hospital, both based in Pittsburgh. He developed the tool.

Vital Signs

Site: Evaluating Domestic Violence Programs
Address: www.ahrq.gov/research/domesticviol
Contact: Jeffrey H. Coben, MD, CVIC Department, Allegheny General Hospital, 320 E. North Ave., Snyder Pavillion, Suite 214, Pittsburgh, PA 15212. Telephone: (412) 359-6260. Fax: (412) 359-6261. E-mail: jcoben@wpahs.org.

To use the tool, you'll answer 38 questions about your facility's domestic violence program. You are provided with an assessment of your program, based on the consensus opinion of domestic violence experts. These can be used as benchmarks to improve your domestic violence program, Coben says.

If your scores are poor, he suggests presenting administrators with formal documentation of this

poor rating. This rating can be used as leverage to advocate for resources such as additional training for ED nurses, he says.

Coben encourages users of the site to actively participate in comparing their scores with other facilities. "I am collecting data on a large number of sites, so if someone wants to compare their scores with 'average' or 'best-program' scores, they can contact me for assistance," he offers.

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COST-SAVING TIP

You can save up to $100,000 on supplies

Are you looking for ways to save money on supplies? **Paula Hafeman**, RN, MSN, director of the cancer and emergency center at St. Vincent Hospital in Green Bay, WI, has effective strategies to share. Here are several that her ED recently adopted:

• Invest in a barcoding system.

Hafeman's ED invested $3,500 to implement a barcoding system that prevents overordering of supplies.

"The par levels are set by past usage," she says. "When the order is placed, the number remaining is left, and the computer only orders number to par."

Costs are saved because inventory and usage are frequently reviewed, and par levels are adjusted accordingly, she explains. For example, only two chest trocars are needed of each size, but the barcoding system indicated that there were eight of each on the shelf, she says.

"We also limited the number of people involved in ordering supplies and educated them on the importance of fiscal responsibility," she says. Two ED techs were given eight hours of training that covered usage of supplies, appropriate levels, and areas where the ED was over budget, Hafeman says.

• Share orders with other departments.

To save money, orders are sometimes shared with other departments if a certain item is only sold in a large quantity, Hafeman says. This eliminates overstocking and items expiring, she says.

• Keep supplies on mobile carts.

The ED has switched to keeping supplies on mobile carts instead of in treatment rooms, she says. "We have the essentials to provide care, but not in large quantities," she says.

The carts can be restocked easily and are centrally located to cover several rooms. An effort is made not to duplicate rarely used supplies on the carts, says Hafeman. "If it is on the crash cart, then it does not have to be on other carts," she says.

Specialty carts are used for pediatrics, suture repair, and gynecology.

The ED has about 15 carts, which cost $1,400 each, and estimates that the cost savings is between $80,000 and $100,000 every year, she says. "This is just for supplies and does not take into account the time it saves staff," she adds.

• Carefully review requests for new supplies.

A team of nurses and technicians routinely reviews requests for ED supplies, says Hafeman. "They shop around for the lowest price and then make recommendations," she explains.

When all the facts are in, the nursing and medical directors are consulted, and a decision is made, says Hafeman.

Recently, a physician requested an ear, nose, and throat fiber optic lamp floor stand that cost $9,000. When the team denied the request, the physician shopped around and found a similar piece of equipment for only $1,200, says Hafeman.

Likewise, a recent request for specialty sutures was denied since it was determined that usage would be too low, she says. Instead, a process was put into place to obtain them from the operating room if needed, Hafeman says.

"We do deny requests," she says. "Interestingly, when the requester finds out the cost, they often decide they don't really need it."

[Editor's note: Hafeman can be reached at Cancer and Emergency Center, St. Vincent Hospital, P.O. Box 13508, Green Bay, WI 54307-3508. Telephone: (920) 433-8428. Fax: (920) 431-3093. E-mail: phafeman@stvgb.org.

Do you have a cost-saving tip you'd like to share with your peers? Contact Staci Kusterbeck, 280 Nassau Road, Huntington, NY 11743. Telephone: (631) 425-9760. Fax: (631) 271-1603. E-mail: StaciKusterbeck@aol.com.] ■

JOURNAL REVIEWS

Meier MA, Al-Badr WH, Cooper JV, et al**. Diagnostic and prognostic implications in patients with acute coronary syndromes.** *Arch Intern Med* 2002; 162:1,585-1,589.

The new definition of acute myocardial infarction (AMI) results in a significant increase in diagnosis of this condition, says this study from the University of Michigan in Ann Arbor. The new definition, which was jointly published in 2000 by the France-based European Society of Cardiology and the Bethesda, MD-based American College of Cardiology, officially included troponins for the first time. Elevated levels of enzymes with either symptoms or electrocardiographic changes suggesting ischemia now constitute an AMI.

The researchers studied 493 patients with suspected acute coronary syndromes. They divided the 275 patients who had positive cardiac enzymes and symptoms suggesting of coronary ischemia into two groups: a group that would have been diagnosed as AMI with the old criteria, and a group of additional patients that were diagnosed based on the new criteria.

The second group consisted of 51 patients, who tended to be older women with increased comorbidities such as previous stroke or aortic stenosis. All of them would have been missed by the old criteria.

The researchers say that the study has the following clinical implications for patients with symptoms of acute coronary syndromes:

- More AMI patients will be identified. The study found that 10.8% of patients with suspected acute coronary syndrome were not missed or wrongly classified as having unstable angina, as a result of the new criteria.
- Patients at risk for adverse outcomes can be given tailored treatment strategies to decrease mortality, such as glycoprotein IIb/IIa receptor antagonists, low-molecular-weight heparin, or clopidogrel. The additional patients diagnosed with the new definition had more comorbid conditions and were at greater risk of adverse events.

"Missed diagnosis of such a high-risk cohort has been shown to be associated with worse outcomes," the researchers wrote. ▼

Coyle YM, Hynan LS, Gruchalla RS, et al. **Predictors of short-term clinical response to acute asthma care in adults.** *International Journal for Quality in Health Care* 2002; 14:69-75.

Interventions are needed in the ED to improve patients' asthma knowledge, according to this study from University of Texas Southwestern Medical Center at Dallas. The researchers looked at 309 adult patients who presented to EDs with acute asthma from 1997 to 1999 and checked peak expiratory flow rates several weeks later. They found that patients most likely to have a worsened condition had two major risk factors: lower general knowledge of asthma and exposure to indoor allergens.

The researchers say the study's findings have important implications for clinical practice in the ED. They suggest the following steps be taken to improve short-term clinical response to acute asthma care in adult ED patients:

- Refer adult asthma patients of all severity levels for asthma education.
- Provide patients with education on use of inhalers, spacers, symptom monitoring, peak flow monitoring, and early signs of deterioration.
- Reinforce the importance of following the prescribed asthma management plan.
- Target interventions to groups at high risk for asthma morbidity, such as economically disadvantaged inner-city residents.

"High-risk patients consume a disproportionate amount of health care resources, and therefore reducing asthma morbidity in this group should lead to significant savings in acute asthma care," the researchers conclude. ■

TIP OF THE MONTH

Avoid interruptions with wireless pagers

Are you tired of constantly being interrupted while performing tasks? **Jerry Keyes**, RN, director of emergency services at Florida Hospital Celebration Health has a good solution for you. ED staff at his facility use a wireless pager system to schedule incoming messages and reminders.

"How nice to have a page come to you reminding you of an important meeting, while you have become distracted by the other 100 tasks you are dealing with," he says.

You can schedule daily reminder messages to jog your memory about routine tasks, such as staff meetings

or scheduled inservices, Keyes says.

"This is a great time management tool and an effective way for staff to give you reminders without writing long notes or trying to otherwise track you down, especially where phone calls would be inappropriate," he says.

Keyes suggests using wireless pages to notify physicians of callbacks or test results to speed up the disposition of patients. "We also use it to send messages to radiology or lab, without having to interrupt their patient care work," he says.

[Editor's note: For more information, contact Jerry Keyes, RN, Director, Emergency Services, Florida Hospital Celebration Health, 400 Celebration Place, Celebration, FL 34747. Telephone: (407) 303-4034. Fax: (407) 303-4334. E-mail: Jerry.Keyes@FLHOSP.ORG.] ■

NEWS BRIEF

Do you know about new hand hygiene guidelines?

Are you complying with new hand hygiene guidelines from the Atlanta-based Centers for Disease Control and Prevention (CDC)? The guidelines recommend using alcohol-based hand rubs along with soap and water and sterile gloves.[1] Here are key recommendations:

• When hands are visibly dirty or contaminated with blood or other body fluids, wash hands with an antimicrobial soap and water. If hands are not visibly soiled, use an alcohol-based hand rub for routine decontamination.

• When using an alcohol-based hand rub, apply product to the palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry.

• The use of gloves does not eliminate the need for hand hygiene. Hand rubs should be used before and after each patient, just as gloves should be changed before and after each patient.

• Health care personnel should avoid wearing artificial nails and keep natural nails less than ¼ inch long.

In addition, the CDC recommends that you implement a system to track your compliance with the new guidelines. Here are some performance indicators suggested by the CDC:

• periodic monitoring of hand hygiene adherence;

• providing feedback to staff about their compliance;

• tracking the volume of alcohol-based hand rub used per 1,000 patient days;

• assessing the adequacy of health care personnel hand hygiene when outbreaks of infection occur.

The best way to ensure compliance is to have a good working relationship with your facility's infection control nurses, advises **Pat Gabriel**, RN, BSN, CEN, nurse manager of the ED at Overlook Hospital in Summit, NJ. Gabriel recommends the following:

• asking the infection control nurse to give inservices during staff meetings;

• collaborating with the infection control nurse in data collection for infections in the ED;

• asking the infection control nurse to educate staff on equipment cleaning, especially reusable supplies;

• asking for tips on how to increase compliance with the CDC guidelines for hand hygiene.

"Anything that allows for the sharing of information and ideas will help," says Gabriel. ■

CE instructions

Nurses participate in this continuing education program by reading the articles, 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 2003 issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

COMING IN FUTURE MONTHS

■ New guidelines for spinal cord injuries

■ How to perform a mental status exam

■ Effective ways to improve pain management

■ Update on EMTALA regulations

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 *Don't miss stroke: Be on the lookout for atypical symptoms and patients* and *Take these steps if you suspect stroke* in this issue.)
2. Describe how those issues affect nursing service delivery. (See *Journal Reviews.)*
3. Cite practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts. (See *Make these changes or risk violating HIPAA*.) ■

CE*questions*

For more information about the CE program, contact customer service at (800) 688-2421, e-mail: customer service@ahcpub.com.

9. Which of the following is true about women and stroke, according to Dawn K. Beland, RN, MSN, CCRN, CS, stroke center coordinator for the Stroke Center at Hartford (CT) Hospital?
A. There is no difference in the way women present.
B. Women present more often with nontraditional stroke symptoms.
C. Women rarely present with disorientation or pain.
D. Women have a higher incidence of hemorrhagic stroke.

10. Which of the following is an appropriate way to manage stroke patients, according to John E. Duldner Jr., MD, MS, FACEP?
A. Determining the time of symptom onset by the last time the patient was known to be normal
B. Administration of t-PA to patients having a seizure at the onset of stroke
C. Administration of t-PA four hours after onset of symptoms
D. Administer anti-platelet agents immediately after patients receive t-PA

11. Which of the following is an example of a violation of the HIPAA privacy regulations, according to Kathleen Catalano, RN, JD, director of regulatory compliance for Provider HealthNet Services?
A. Using personal information to assess a demented patient
B. Asking a chest pain patient to designate a member of her family to receive updates on her condition
C. Storing patient files in a closed folder at the nurses' station
D. Having a stroke patient answer questions at triage that can be overheard by others

12. Which of the following is accurate about the new definition of acute myocardial infarction (AMI)?
A. Troponin levels are excluded.
B. Troponin levels are included.
C. Electrocardiographic changes are the only diagnostic findings considered.
D. Fewer patients are now diagnosed with AMI.

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

Heart Attack, Stroke, and Cardiac Arrest Warning Signs

Act in Time
The American Heart Association and the National Heart, Lung, and Blood Institute have launched a new "Act in Time" campaign to increase people's awareness of heart attack and the importance of calling 911 immediately at the onset of heart attack symptoms.

Dial 911 Fast
Heart attack and stroke are life-and-death emergencies — every second counts. If you see or have any of the listed symptoms, immediately call 911. Not all these signs occur in every heart attack or stroke. Sometimes they go away and return. If some occur, get help fast! Today heart attack and stroke victims can benefit from new medications and treatments unavailable to patients in years past. For example, clot-busting drugs can stop some heart attacks and strokes in progress, which reduces disability and saves lives. But to be effective, these drugs must be given relatively quickly after heart attack or stroke symptoms first appear. So again, don't delay — get help right away!

Statistics
Coronary heart disease is America's No. 1 killer. Stroke is No. 3 and a leading cause of serious disability. That's why it's so important to reduce your risk factors, know the warning signs, and know how to respond quickly and properly if warning signs occur.

Heart Attack Warning Signs
Some heart attacks are sudden and intense — the "movie heart attack," where no one doubts what's happening. But most heart attacks start slowly, with mild pain or discomfort. Often people affected aren't sure what's wrong and wait too long before getting help. Here are signs that can mean a heart attack is happening:

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness, or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- **Shortness of breath.** This feeling often comes along with chest discomfort. But it can occur before the chest discomfort.
- **Other signs.** These may include breaking out in a cold sweat, nausea, or lightheadedness

If you or someone you're with has chest discomfort, especially with one or more of the other signs, don't wait longer than a few minutes (no more than five) before calling for help. Call 911. Get to a hospital right away.

Calling 911 is almost always the fastest way to get lifesaving treatment. Emergency medical services (EMS) staff can begin treatment when they arrive — up to an hour sooner than if someone gets to the hospital by car. The staff also are trained to revive someone whose heart has stopped. You'll also get treated faster in the hospital if you come by ambulance.

If you can't access EMS, have someone drive you to the hospital right away. If you're the one having symptoms, don't drive yourself, unless you have absolutely no other option.

Stroke Warning Signs
The American Stroke Association says these are the warning signs of stroke:

- Sudden numbness or weakness of the face, arm, or leg, especially on one side of the body
- Sudden confusion, trouble speaking, or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance, or coordination
- Sudden, severe headache with no known cause

(Continued on page 2)

If you or some with you has one or more of these signs, don't delay! Immediately call 911 or the EMS number so an ambulance (ideally with advanced life support) can be sent for you. Also, check the time so you'll know when the first symptoms appeared. It's very important to take immediate action. If given within three hours of the start of symptoms, a clot-busting drug can reduce long-term disability for the most common type of stroke.

Cardiac arrest strikes immediately and without warning.

Here are the signs:

- **Sudden loss of responsiveness.** No response to gentle shaking.
- **No normal breathing.** The victim does not take a normal breath when you check for several seconds.
- **No signs of circulation.** No movement or coughing.
- **If cardiac arrest occurs, call 911 and begin CPR immediately.** If an automated external defibrillator is available and someone trained to use it is nearby, involve them.

Patient Name_____ MR #_____ Date___/___/___ **TOTAL=**

Date/Time of Stroke Onset_____ Stroke Type_____ Examiner _____

NIH STROKE SCALE ITEM	Scoring Definitions	Score
1a. LOC	0 = Alert and responsive 1 = Arousable to minor stimulation 2 = Arousable only to painful stimulation 3 = Reflex responses or unarousable	
1b. LOC Questions -- Ask patient's age and month. Must be exact.	0 = Both correct 1 = One correct (or dysarthria, intubated, foreign lang) 2 = Neither correct	
1c. Commands -- Open/close eyes, grip and release non-paretic hand, (Other 1-step commands or mimic ok)	0 = Both correct (ok if impaired by weakness) 1 = One correct 2 = Neither correct	
2. Best Gaze -- Horizontal EOM by voluntary or Doll's.	0 = Normal 1 = partial gaze palsy; abnl gaze in 1 or both eyes 2 = Forced eye deviation or total paresis which cannot be overcome by Doll's.	
3. Visual Field -- Use visual threat if nec. If monocular, score field of good eye.	0 = No visual loss 1 = Partial hemianopia, quadrantanopia, extinction 2 = Complete hemianopia 3 = Bilateral hemianopia or blindness	
4. Facial Palsy --- If stuporous, check symmetry of grimace to pain.	0 = Normal 1 = Minor paralysis, flat NLF, asymm smile 2 = Partial paralysis (lower face=UMN) 3 = Complete paralysis (upper & lower face)	
5. Motor Arm --- Arms outstretched 90 deg (sitting) or 45 deg (supine) for 10 secs. Encourage best effort. Circle paretic arm in score box	0 = No drift x 10 secs 1 = Drift but doesn't hit bed 2 = Some antigravity effort, but can't sustain 3 = No antigravity effort, but even miminal mvt counts 4 = No movement at all X = Unable to assess due to amputation, fusion, fx, etc.	L or R
6. Motor Leg ---Raise leg to 30 deg supine x 5 secs.	0 = No drift x 5 secs 1= Drift but doesn't hit bed 2 = Some antigravity effort, but can't sustain 3 = No antigravity effort, but even miminal mvt counts 4 = No movement at all X = Unable to assess due to amputation, fusion, fx, etc.	L or R
7. Limb Ataxia -- Check finger-nose-finger; heel-shin; and score only if out of proportion to paralysis	0 = No ataxia (or aphasic, hemiplegic) 1 = Ataxia in upper or lower extremity 2 = Ataxia in upper AND lower extremity X = Unable to assess due to amputation, fusion, fx, etc.	L or R
8. Sensory -- Use safety pin. Check grimace or withdrawal if stuporous. Score only stroke-related losses.	0 = Normal 1 = Mild-mod unilateral loss but pt aware of touch (or aphasic, confused) 2 = Total loss, pt unaware of touch. Coma, bilateral loss	
9. Best Language ---- Describe cookie jar picture, name objects, read sentences. May use repeating, writing, stereognosis	0 = Normal 1 = Mild-mod aphasia; (diff but partly comprehensible) 2 = Severe aphasia; (almost no info exchanged) 3 = Mute, global aphasia, coma. No 1 step commands	
10. Dysarthria -- read list of words	0 = Normal 1 = Mild-mod; slurred but intelligible 2 = Severe; unintelligible or mute X = Intubation or mech barrier	
11.Extinction/Neglect -- simultaneously touch patient on both hands, show fingers in both vis fields, ask about deficit, left hand.	0 = Normal, none detected. (vis loss alone) 1 = Neglects or extinguishes to double stimuli stimulation in any modality (vis, aud, sens, spatial, body parts) 2 = Profound neglect in more than one modality	