

ED NURSING™

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Do you know how to tell which headaches are life-threatening?

Don't miss life-threatening causes of headache; recognize danger signs and know key questions to ask

Patients who complain of headaches represent 1-2% of ED visits and present a unique challenge: They may be in need of Tylenol or could require life-saving surgery.¹ “At triage, your goal is to figure out whether this is one of the 97-98% of patients who have a benign cause of headache, in which case you’ll give them prompt pain relief and get them discharged,” says **Michael Callaham, MD, FACEP**, professor and division chief of emergency medicine at UCSF Medical Center in San Francisco. “Or is it one of the 2-3% who have a life-threatening cause of headache, in which case you focus on diagnostic workups and get them into the [operating room] OR or wherever they need to be.”

Determining if there is an underlying problem is paramount, stresses **Ann Dietrich, MD, FACEP**, an emergency department (ED) physician at Children’s Hospital in Columbus, OH. “CT scans are an important diagnostic tool, but subarachnoid bleeds may not be detected on a CT scan. A lumbar puncture or [magnetic resonance imaging] MRI may be necessary,” she says. “The CT scan also does not do a great job of imaging the posterior fossa, so the patient may also require an MRI. Lumbar punctures are diagnostic of meningitis.”

There is a tendency to minimize the seriousness of headaches, but that is a mistake, stresses **Michael Gerardi, MD, FAAP, FACEP**, vice chairman of the department of emergency medicine at Morristown Memorial Hospital (NJ). “People with headaches come to the ED because they have severe pain, they are scared, and they have nowhere else to turn,” he says. “There is a lot we can offer these patients, but our major role as ED nurses and physicians is to determine whether the patient has a life threatening condition.”

Here are the signs present if a headache is a life-threatening condition:

Explosive onset. “If a patient suddenly gets hit with an explosive headache and describes the onset as ‘boom, like a thunderclap,’ that is very suggestive of a subarachnoid bleed,” says Callaham. “That’s not the story you will get for migraine and most other kinds of headaches.”

“It’s the worst headache of my life.” “If a patient tells you it’s the worst headache of their life, or if they say ‘this is a completely different kind of headache,’ those are key phrases that force you to go looking for pathologi-

EXECUTIVE SUMMARY

- Headaches are usually benign, but 2-3% have a life-threatening cause.
- Red flags include severe pain, explosive onset, neck stiffness, fever, cancer, anticoagulants, elderly patients, and focal deficit.
- Give headache patients a journal to identify triggers. Provide a comprehensive care plan to abort headaches at home.
- Primary headaches are benign disorders. Secondary headaches have underlying pathology, including infections, generalized sepsis, toxic shock syndrome, meningitis, CNS infection, headaches from chemical abuse and withdrawal, and head trauma.

cal causes,” says Callaham. “Those words alone often mean you have to get a CT scan and lumbar puncture.”

Severe pain is an ominous sign, says **Patricia Mason, RN, MSN**, clinical systems facilitator at Massachusetts General Hospital and Partners Neurology at Brigham & Women’s Hospital in Boston, MA. “We have pain receptors within our meninges and our trigeminal trunk,” she notes. “Patients with ruptured aneurysms or subarachnoid hemorrhages are usually the ones who will complain of severe pain—the worst headache of their life.”

The patients may have had migraines all their lives, but pay attention if they tell you that this one feels different, says Callaham. “If they say ‘I’ve never had anything that came close to this,’ then you can no longer assume it’s the same cause. You need to start looking for one of the malignant causes of headache,” he explains.

Ask the patient what makes the headache different, advises Callaham. “The pain may be the most severe, but is this the same kind of pain or pattern as the other migraines?” he asks. “They may say, it never lasted this long, or they’ve thrown up once before, but this time they threw up four times. If you get that clear-cut story where it feels the same but is just much more

severe, in that case you can say it’s probably still the migraine.”

But the patient may insist the headache feels different than other migraines. “They may say, ‘I’ve had a lot of migraines but this feels different, not just more severe—there is something different about this just doesn’t feel like a migraine.’ And usually they are right,” says Callaham. “The headache may be something obviously different and you have to proceed accordingly.”

Neck stiffness. “This suggests irritation of the meninges, which could be due to either meningitis or blood in the cerebral spinal fluid, so, in either case, there is something serious going on,” says Callaham. Headache with neck pain is also associated with subarachnoid bleeds, he adds.

Children. “Migraines in kids under the age of 8 or 9 are pretty unusual. So if a 3-year old comes in and says they have a headache, you have to be concerned about that,” says Gerardi.

Cancer. “People get metastases to the brain pretty frequently. So if a patient has breast cancer and shows up one day with a tremendous headache they have never had before, there is good reason to be worried,” says Callaham.

Anticoagulated patients. “If a patient is anticoagulated and comes in with a headache, you should be very suspicious, unless you can prove their coagulation times are normal,” says Callaham. “One of the places you can bleed is in your head, which is a particularly dangerous place for bleeding.”

This requires little or no head trauma, Callaham notes. “It could be so minor the patient doesn’t even realize they’ve done something,” he says. “They may have banged their head on the bedpost two days ago and didn’t feel anything, but now they have this headache.”

Immune suppressed patients. When an immunosuppressed patient comes to the ED with a headache, it needs to be treated as a serious matter. “Particularly patients with AIDS, but also cancer patients because a common site of infection is the central nervous system,” says Callaham. “They might have an infection in the brain but don’t necessarily show neck stiffness, fever, or anything else, so they are high-risk patients.”

Neurological symptoms. “If a patient has neuro-

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logical symptoms with a headache, you have to wonder if something is going on with the brain that is impairing its function,” says Callahan. “Be concerned about any alteration of consciousness, even if they are just groggy or sleepy. That is something which almost guarantees a CT scan.”

Elderly patients. “The age of the patient determines the likelihood of certain disorders,” notes Callahan. “With an older patient, you are more concerned about stroke. A 70-year-old patient with the first headache of their life is not too likely to have a migraine.”

Ask these questions at triage

Asking the right questions at triage is key in determining whether the headache is life-threatening, says Masson. (*See sidebox on key assessment questions related to headache on page 41.*) Here are some key questions to ask:

1. Have you ever had headaches in the past? If a patient has had headaches his or her entire life, don't overlook the possibility of a serious problem, warns **Patricia Masson, RN, MSN**. “If the patient says, today my face is droopy and I can't move my right arm, or if the pain is not like their typical headache pain, you have to assume the worst.”

2. At what age did they begin? It's important to ask how long their history of headaches has been going on, stresses Masson. “If they have only had a history for the last six months and it's been slowly getting worse, that's oftentimes an ominous sign of tumor,” she says.

3. Have you ever had a headache in the past like this? Looking for changes is key. “If the headache hasn't come in a year, and suddenly something is not right, you worry about those patients,” says Masson. “A critical assessment of the patient's preventative plan and change in headache pattern is where you need to focus.”

4. What current medications are you on? “If they are on some kind of abortive therapy, such as Midrin, you know they probably have a chronic history,” says Masson. “But people with chronic headaches can and do suddenly develop a sudden change or exacerbation issue.”

5. Is there any change in speech or mental status? Do a neurological assessment at triage. “Have the patient open and close his or her eyes, smile, check the

Post-coital headaches. “You always worry about headaches that are associated with intercourse, because that is a common time for aneurysms to rupture,” says Masson.

Fever. “Any patient who presents with headache and fever or rash should absolutely and immediately be placed in a treatment area, because you should be worried about the presence of meningitis,” says Gerardi.

Here are some things to consider when managing patients with headaches:

Observe how patients change over time. “Patients who have had an event will get worse, as opposed to

pronator drift and visual fields, and have him or her repeat what happened, so you can assess if there is any kind of speech change,” says Masson. “You are looking for any focal deficit that is new and persistent.”

6. Is there a family history of headaches? “There is a syndrome of genetic migraine referred to as familial migraine,” says Masson. “Patients will have a family history of headaches, and may come in complaining of visual field disturbances, vertigo, and some focal deficits. But as they start to reach into the pain syndrome, a lot of those deficits will start to subside,” says Masson. “The syndrome is usually unilateral, always recurring on same side.”

7. What are the patient's vital signs? “Any patient that has a neurological insult should be kept within a normal temperature range,” says Masson. “A rise in temperature by one degree increases cerebral metabolism by 7%. So temperature is important, because if a patient is hypothermic and has neurological changes, there could be meningitis going on or something else.”

Hypertension is often a function of the brain trying to maintain autoregulation, notes Masson.

“Pulse rate is also a key sign,” Masson stresses. “One of the most subtle indicators of increased intracranial pressure is a heart rate slowing down,” she says. “It can be as subtle as going from 90 to 80, so don't wait until the patient has become profoundly bradycardic.”

Determine the patient's Glasgow Coma Score, which quantifies the patient's level of consciousness, recommends Masson. “That allows you to measure whether the cardiac output is sufficient enough to maintain a level of consciousness,” she says.

8. How long have you had this headache? “If the patient has had the migraine for more than 48 hours, chances are he or she may have status migraine[.]” says Masson. “You should be worried about edema that can ensue.” ■

traditional migraine patients,” Masson explains. “At triage you may see a droopy face, but an hour later they are becoming sleepy and their face is very droopy. Their baseline at triage could worsen in as short a period of time as 15 or 30 minutes.”

However, observation is not reliable for subarachnoid bleeds, Callaham emphasizes. “A person with a small sentinel bleed will get *better*, lulling you into a false sense of security,” he says. “This is your chance to make the diagnosis before the aneurysm really blows out in a week or two.”

Give headache patients a journal. “I encourage ED nurses to develop a journal that they can give to patients, so they can identify headache patterns,” says Masson. (*See sample headache diary inserted with this issue.*) “Tell patients to think about what their triggers are. It could be eating bananas, chocolate, or white onions, or being around people with perfume on.”

Patients who keep such journals can eliminate triggers, Masson says. “It’s amazing how dramatically headache incidence drops after keeping a journal,” she notes. “Often, people are just reacting to the pain syn-

drome and haven’t thought about it in a preventative mode.”

Work with other physicians to manage headache patients. “Identify a neurologist in the community and work with them to develop a game plan for how to manage these patients,” Masson says. “For example, a lot of patients are being treated with drugs that aren’t going to help them when a headache gets out of control. They need a plan to abort the headache and know the rules for when they can come to the ED.”

Consider unique needs of pediatric patients. Headaches are an unusual complaint in the pediatric population, says Dietrich. “Serious diseases that should be considered include meningitis (fever, stiff neck, and headache), hydrocephalus (usually the children have already been diagnosed and have a VP shunt in place and the concern with a headache is a dysfunction), brain tumors (uncommon, usually associated with headaches that wake the child from sleep, vomiting, and ataxia or other neurologic changes), and bleeds,” she notes.

Know the differences of primary and secondary headaches

Headaches can be broken down into primary and secondary categories, says Masson. (*See charts on types of headaches and differential diagnoses on page 40.*) “The secondary headaches are the ones to worry about, because they have underlying pathology,” she notes.

- **Secondary headaches.** “Types of secondary headaches are infections, generalized sepsis, toxic shock syndrome, meningitis, any kind of CNS infection, and headaches from chemical abuse and withdrawal,” says Masson.

Another cause of secondary headache is head trauma. “Old head trauma can go on to cause a chronic headache syndrome and underlying epilepsy,” says Masson. “You need to determine if this really is a headache or if the patient having seizures, because some seizures can be masked as headaches.”

Secondary headaches can be caused by vascular disorders or spontaneous intracerebral hemorrhages, says Masson. “You can also get them from metabolic disorders like hypoglycemia, any kind of dramatic change in fluid and electrolytes, or nonvascular intercranial disorders, such as hydrocephalus.”

Asthmatics may develop a secondary headache after a serious coughing episode, says Masson. “Another kind that typically puts people in the ED is post coital, which is a migraine-like headache after reaching sexual orgasm,” she says. “Typically, people who have aneurysms tend to [have them] rupture during sex while the patient is in the act, whereas, with post-coital headache, the act has already been completed.”

- **Primary headaches.** These can be broken down into categories, including migraine, tension type, cluster, and miscellaneous. “External compression headaches can be caused by ponytails or bicycle helmets [being too tight],” says Masson. “Another type is the ‘ice creamer,’ caused by drinking cold drinks or ice cream.”

Migraines are a major health problem, stresses Masson. “Eighteen percent of women and 7% of men suffer from migraines, and that is a pretty big population. Twenty-five percent of those who suffer from migraines have more than four severe attacks a month,” she notes. “Studies have estimated a \$17 billion loss of productivity, so it’s an expensive proposition.”

Here are some tips for managing migraines: (*See chart on types of vascular migraine headaches on page 42.*)

Take migraines seriously. “Don’t look at the chronic migraine patient as crying wolf. You need to seriously look at which of these patients are worsening or at risk

Consider impact of pregnancy on migraines.

"Migraines do get better with pregnancy, but not until the second trimester," says Masson. "During the first trimester, the patient may have one headache after the other. Hormones are a big influence on headaches, so that is a group of patients you need to consider."

Many headaches are hormonally related, Masson notes. "Birth control pills can make them worse or better, and can either prevent migraines or cause severe headaches," she says. "We are also seeing an increase in incidence in the perimenopausal population, which seems to be hormonally related. So a [female] headache patient in her 40s should probably see her gynecologist to find a way to retard the increase in headaches."

Birth control pills increase the risk of dural venous thrombosis, Callahan notes. "This is a very dangerous and particularly difficult to diagnose type of headache," he adds.

Don't underestimate the value of sleep with migraines. "Sleep is critical and patients have got to lie down in a quiet room," stresses Gerardi.

for stroke," Masson says.

Don't overlook males with migraines. "With migraines, the most underdiagnosed population are men and boys. We always talk about women and cardiology, but this is the opposite problem," says Masson. "Little boys are often not recognized as having migraine syndromes. If a child has repeat headaches and the mother has headaches, he probably has familial migraines. These will peak out at the age of 12, and then often-times start again around the 30s."

Determine the category of the migraine. "One differential to look at [during] triage is whether the migraine is with aura or without," Masson explains. "Patients may tell you their vision has changed, or they may have some focal deficit, and that is the aura phase. New MRI imaging studies are looking at cerebral blood flow, and have noticed an overall change in blood flow during the aura phase, which explains why you get a neurological deficit."

An aura is a neurological finding associated with headaches, usually with classic migraines, such as scintomata, notes Gerardi. "If a person comes in with those symptoms and has no history of migraines, you are obligated to do a CT scan. But if they do have a history of migraines, then they are most likely experiencing a typical migraine."

Most migraine patients have prodromal symptoms for 24 hours. "If you have a history of headaches and you're having a really good day with a lot of ener-

Follow-up with patients to see how they're doing when not in pain. "Explain that we are concerned with the possibility of the patient becoming a 'transformed' headache patient, going from two or three times a month to chronic, daily headaches," advises Masson. "That can be initiated with many of the drugs we give, and even with over-the-counter drugs, such as ibuprofen. Those patients need to be on chronic daily prevention."

Encourage patients to be their own care managers. "Patients need to follow a collaborative care program, which may include avoiding identified food or environmental triggers, and taking preventive drugs every day," Masson explains. "Then, when they do have an exacerbation, they take a certain drug four times, one hour apart. If, by the 3rd or 4th time, it's still not effective, they may take a rectal suppository. Ninety-nine percent of them will break at that point."

If the plan is followed and the headache has not gotten better, then an ED visit is appropriate, says Masson. "You always worry about a migraine not

gy, chances are you will develop a migraine within 24 hours," Masson says. "Patients feel elated, have unusual hunger or cravings or abnormal thirst, [and] then the aura phase starts."

Headache symptoms may last for more than 24 hours, Masson notes. "During this phase, there are still moments of pulsation where it feels like the pain is coming back. It usually happens with bending over quickly," she says. "That's why some of the longer lasting drugs were developed, so patients don't get a rebound of the migraine."

Neurological symptoms usually resolve once the headache starts, says Gerardi. "My first migraine started with every other word disappearing off the blackboard at a conference I was attending, and I thought I was having a stroke. But 30 minutes later I got the worst headache of my life, so I knew it was a migraine," he recalls. "There can be overlap, but the neurological symptoms are usually getting better when you get the headache. There is also a variant called acephalgic migraine, when you get neurological symptoms but no headache."

Migraines have peak periods, so the patient's age needs to be considered. "The first peak comes on in adolescence, then the next peak usually occurs when the patient is middle aged," notes Gerardi. "Those are the people who come in with neurological symptoms and you think of stroke, but it may just be the migraines peaking again." ■

responding to the treatment plan, because there may be something else going on. So you would want to see the patient then," she explains.

Teach patients to abort a headache before it starts. "Some know when a headache is coming on, but instead of treating it immediately, they wait 30 minutes too long and it's too late," says Masson. "At that point, all the things we've given them to abort headaches will be totally ineffective because they have an ileus now, which is why they vomit."

Patients must have a comprehensive treatment plan to reduce ED visits, says Masson. "The first line of action may be to take a couple of Imitrex when they feel like something is coming on. Maybe the next line is a rectal suppository," she notes. "Deep sleep often promotes migraine relief."

Explain what to expect from diagnostic procedures. "Nurses should explain that lumbar puncture is a minimally invasive procedure and is mildly painful, and that it is necessary to rule out meningitis, encephalitis, and subarachnoid hemorrhage," says Gerardi. "Many people hear the words 'spinal tap' and they go ballistic. We should explain that it is a five-minute procedure, with four minutes of preparation and approximately one minute for the procedure," he explains.

Be familiar with new management approaches. "The new serotonin 5HT_{1d} receptor agonists are very selective and they go right to the cause of the headache, so they are much better drugs," says Gerardi. "It's an exciting time for the treatment of migraines, and also cluster headaches. The old ergots that worked on these receptors were not selective, and, therefore, also caused nausea and other symptoms."

Another advantage is that the agents can be taken at any time. "The original ergots had to be taken at the onset of the headache in order to work, but these can be taken at any time, even a day or two into the

headache," says Gerardi. "There are multiple delivery vehicles, including oral tablets, nasal sprays, and injections," he notes.

The drugs also last longer. "The newer agonists are longer acting than Imitrex, which would wear off in a few hours and you'd need to take another one," Gerardi says.

However, the older serotonin antagonists (DHE) are effective after the onset of headaches, Callaham notes. "There are multiple, randomized controlled trials showing they are just as effective at the same time in the headache evolution as Imitrex and newer drugs," he says.

Another advance is prophylactic medications, such as tricyclic antidepressants, aspirin, betablockers, calcium channel blockers, and magnesium. "These are being used more frequently as prophylaxis against migraines," Gerardi reports. ■

Reference

1. Rakel RE. *Conn's Current Therapy*. Philadelphia, PA; WB Saunders; 1997.

Headache myths revealed: Unravel some common misconceptions

Myth 1: You can tell if a patient has a brain tumor by what headache they have.

"There's a lot of talk about what kind of headache you get from a brain tumor but there's no truth to that," says **Michael Callaham, MD, FACEP**. Studies have shown that it's difficult to determine the cause of headache from a description of the headache, he explains.

"Obviously if they say the headache feels like it's right in their left frontal sinus and they have mucus dripping out of their nose and are tender over the sinus, you might be able to diagnose sinusitis," says Callaham. "But for generalized headaches, you need to focus on severity and how different it is from previous headaches."

Timing of a headache is also not an indication of its cause, stresses Callaham. "Morning headache pain being associated with tumor is an old belief which has been disproved," he says.

Myth 2: Don't go by pain scales alone. "Some people are dramatic and will say that every headache feels like 300 pounds of TNT that just went off," says

EXECUTIVE SUMMARY

- It's generally not possible to determine the cause of headache, such as a brain tumor, by a description of the headache.
- Patients' self-reported pain scores are most accurate when compared over time.
- Patients with a subarachnoid bleed are not always groggy, confused, or comatose.
- Only a small percentage of headache patients are drug seekers.

Callaham. “But if it’s like that every time, it is consistent. Whereas someone else may be stoic but still can have bleeding or a tumor. So you can’t make an assessment based on how the patient is reacting.”

When patients are asked to describe their pain on scale of 1 to 10, their answers may be misleading. “Some patients who don’t appear to be in any distress at all may be snoozing on a gurney, but claim their pain is a 10,” says Callaham. “Others may say it’s a score of 3 or 4, but they also say they’ve never had pain before higher than a one-half.”

Ask patients to compare pain scores with their other headaches, says Callaham. “If they have headaches once a month and they’re usually a 9 or 10, that is consistent. But if they say they’ve never had one worse than a 2 before, then of course you need to figure out what is different—is it just more severe, or different in some way?”

If it isn’t immediately clear, then you should err on the side of caution, advises Callaham. “Some patients aren’t good at describing things. I’ve been in situations where several nurses and doctors all have a different impression,” he says. “If you spend a few minutes arguing with each other about whether a chest pain patient has a heart attack, you better act as if they do. It’s the same thing with headaches: If you are confused, you better act as if it’s serious.”

Myth 3: Patients with a subarachnoid bleed will be groggy, confused, or comatose. “That’s not true,” says Callaham. “Typically patients have a small warning bleed first. That is the nurse’s chance to save this patients’ life. The patient will usually be completely mentally intact with no obvious symptoms.”

Myth 4: Giving a headache patient a placebo will determine whether the headache is serious. “People misunderstand the placebo effect,” says Callaham. “They have this mistaken idea that if they give a patient Imitrex and the headache goes away, then it proves that it was a migraine.”

Actually, placebos work for all types of headaches, stresses Callaham. “There are plenty of case reports in the literature of thorazine relieving pain caused by meningitis, subarachnoid bleeding, and brain tumors. Imitrex works well in relieving headache caused by carbon monoxide poisoning. If a headache goes away with any particular treatment, that proves nothing about its cause.”

Clinicians tend to think that patients who respond to placebos are whiners and drug seekers, says Callaham. “But actually the patient with the highest response to the placebo effect is a person like the typical doctor or nurse—well educated, hard working, compulsive, and professional,” he notes.

Response to placebo doesn’t mean the patient is

faking it, says Callaham. “It doesn’t mean the response is not real or in your head, it just means that something in your brain releases substances that make you feel better,” he explains. “People think, this guy’s faking, let’s give him placebo and if it goes away it proves he was faking. It doesn’t prove any such thing at all. All it proves is the patient believes in you, because that’s where most of the placebo effect comes from.”

Myth 5: Headache patients are often drug seekers. It’s a mistake to assume headache patients are drug seekers, says **Patricia Masson, RN, MSN**. “It’s a very painful disease. If patients are having more than two or three headaches a month that debilitate them, they should be considered for chronic, daily therapy for prevention,” she stresses.

There is a small percentage who are repeat visitors abusing pain medicine, and are usually asking for Demerol, says Callaham. “But most of these patients are not seeking narcotics. They just want pain relief so they can go back to work, and are not getting it through other methods of treatment,” he adds.

Some patients may be addicted to medications through no fault of their own, Masson notes. “There are patients out there who have become addicted because of the type of medication the patient is on. The time to put them through withdrawal is not when they are seeking help in the ED,” she says.

Sometimes the primary care physician isn’t managing the patient to the best of his or her ability, and encourages patients to go the ED, says Callaham. “It’s also our job to get plugged back into primary care. You don’t want to just give them a shot of Demerol and send them out the door so they can come back a month later.”

Myth 6: Headache patients don’t belong in the ED. “Sometimes ED staff react as though headache patients shouldn’t be in the ED because they don’t have a life-threatening problem. That is failing to understand what our job really is. If you had a splitting headache in the middle of the night and couldn’t sleep, you’d want relief too,” says Callaham.

Still, some patients are repeaters. “A very small percentage comes in regularly. But that small group is very frustrating because each one could account for 20 visits each year. Also, many of these patients make multiple visits to multiple hospitals,” Callaham notes.

At UCSF Medical Center, patients are told that if they come in with a chronic pain problem, they will be treated once and then instructed to establish a relationship with one of the medical staff, Callaham explains.

Continued on page 41

Differential Diagnosis of Headache

	Subarachnoid Hemorrhage	Meningitis	Temporal Arteritis	
Onset	Acute	Acute or chronic	Acute or chronic	
Location	Global	Global	Localized	
Associated Symptoms	N, V, LOC, meningismus, focal neurologic symptoms	N, V, fever, photophobia, meningismus, focal symptoms, seizures	Weight loss, PMR, fever, decreased vision, jaw claudication	
Pain characteristics	worst ever	severe throbbing	severe throbbing over affected area	
Duration	Brief	Brief	Prolonged	
Prior history	(-)	(-)	(-)	
Diagnostic tests	CT 80-90%	LP (+), CBC	WSR (+)	
Physical Examination	Focal signs, decreased LOC, meningismus	Meningismus, decreased LOC, irritability, rash	Tender temporal arteries, myalgias, fever	

	Hypertensive	Migraine	Cluster	Muscle Contraction
Onset	Acute or Chronic	Acute	Acute	Chronic
Location	Localized	Unilateral	Unilateral	Global unilateral
Associated symptoms	N, V, focal neurologic symptoms	N, V, photophobia, phonophobia	Rhinorrhea, lacrimation of side	Multisomatic complaints
Pain characteristics	Throbbing	Throbbing	Sharp, stabbing	Ache
Duration	Brief	Prolonged	30 min-2 hrs	Daily
Prior History	(+)	(+)	(+)	(+)
Diagnostic tests	CT scan to rule out bleeding	-	-	-
Physical examination	Papilledema, decreased venous pulsations, decreased LOC, cerebrovascular changes	N, V, photophobia, phonophobia	Unilateral rhinorrhea, lacrimation, partial Homer's syndrome	(-)

Types of Headache in the Emergency Department

Final Diagnosis	Percentage
Infection—Other than intracranial	39.3
Tension headache	19.3
Miscellaneous	14.9
Post-traumatic	9.3
Hypertension related	4.8
Vascular (Migraine type)	4.5
No diagnosis	6.0
Subarachnoid hemorrhage	0.9
Meningitis	0.6
Migraine and tension	0.5

Source: Michael Gerardi, MD, FAAP, FACEP

“There is no reason to treat patients in the ED on a chronic basis if they don’t have a primary care physician associated with our hospital, unless they are visiting from another part of the country,” he says. “If the patient is associated with another hospital, why aren’t they going to that hospital? The answer to that is usually because they have abused it.”

To prevent that abuse, the medical staff member provides a written treatment plan for appropriate ED visits. “The treatment plan will never include more than one ED visit per month, and sometimes not even that often,” says Callaham. “That eliminates a lot of the abuse right there.”

For the first visit, the patient is given the benefit of the doubt and treated. “But at that point, we tell them, ‘I understand you have had severe headaches for 10 years, but the ED is not the place to treat chronic pain. So we want you to have a relationship with a primary care doctor.’”

Still, even the most aggressive medical therapy doesn’t work well enough for some patients, so allowances are made in those cases, says Callaham. “If the patient comes back, we can check their written protocol, which is on file,” he explains. “If they don’t have a protocol on file, we’ll see them and assess their

Key Assessment Questions Related to Headache

- Is this the patient’s first headache?
- When did this headache start?
- Has the patient been injured recently?
- Have there been any personality changes?
- Has the patient experienced any memory loss?
- Has the patient had a recent infection?
- Does the patient have any problems with vision?
- Has the patient had any recent neurologic problems?
- Does the patient have hypertension? For how long?
- Does the patient have any emotional problems?
- What medication is the patient currently taking?
- Has the patient ever had a seizure?

Source: *Sheehy’s Emergency Nursing: Principles and Practice*, 4th Edition. Lorene Newberry, ed. St. Louis, Missouri: Mosby-Year Book, Inc.;1998.

emergency. But we do not treat their pain or give them narcotics.”

Myth 7: Demerol is the best treatment for headache. Demerol is the most frequently abused treatment for headache, says Callaham. “It’s not a particularly effective treatment for headache. We no longer use Demerol in the ED, and the moment we got rid of it, certain patents never came back. We don’t use Demerol because we think it’s too easily abused. We have better alternatives that are just as strong and long lasting, such as morphine, fentanyl, and oral agents.”

Still, Demerol is a popular drug. “Whole generations of doctors have been trained to give it automatically instead of morphine, for no particular reason,” notes Callaham. “If you read pharmaceutical books, you won’t find anything that says Demerol is better than these other drugs. It gives people a bigger rush, which is why they abuse it more.”

Myth 8: Giving narcotics to headache patients will make them addicts. “Giving big doses of narcotics doesn’t make anybody addicted. If you take people who don’t have an affinity for these drugs, and pump them full of morphine for weeks, physiologically they will be addicted, and feel crummy like they have the flu, but nobody gets addicted for that reason,” says Callaham. “If someone has a severe headache, and nothing else works, it wouldn’t worry me to give a big dose of morphine.”

The small percentage of headache patients that are

SOURCES

For more information about management of headaches, contact the following:

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addicted usually ask for Demerol, notes Callaham. “These patients have had migraines for years and say the only thing that works for them is Demerol, and they come in regular as clockwork every two weeks. They are addicted to Demerol, but it’s the personality type, not the drug itself,” he says.

Myth 9: If it’s not the worst headache of your life, it’s nothing serious. “That is not necessarily the case, because everyone’s pain threshold is different,” says Gerardi. “People with migraines actually have a higher risk of meningitis. So if a patient has a migraine and fever, it doesn’t mean they don’t have meningitis. You’ve got to evaluate them like anyone else.”

Headaches with moderate pain must be taken seriously, stresses Callaham. “The headaches I worry about people missing are not the spectacular, severe

pain ones, but the not-so-impressive ones that are reported as moderate pain, which they may not work-up,” he says. “That is a big mistake. Tumors, infection, subarachnoid bleeds, and even meningitis can present with headache that is not extremely severe.”

Myth 10: If a patient gets better with an antiemetic such as Compazine, they don’t have a subarachnoid bleed. “There are studies that show that patients can get a leaking aneurysm and the pain goes away after a little leak and doesn’t persist,” says Gerardi. “People think that since the pain went away, they are not obligated to do a further workup such as a spinal tap. However, the only way to fully rule out a subarachnoid bleed is with both a CT and a lumbar puncture.”

CTs tend to be more sensitive early on. “Studies

Types of Vascular Migraine Headaches

Type	Description
Classic migraine	Aura that lasts 15-20 min; clears more quickly than it develops; severe pain, usually unilateral, can be bilateral; lasts 30 min to several days; photophobia, sound sensitivity, nausea, vomiting, and anorexia; worsened by walking, straining, or sudden changes in body position; occurs during increased stress and pregnancy. <i>Treatment</i> includes ergotamines, sumatriptan (Imitrex)
Common migraine	Euphoria, hunger, depression, irritability, intense yawning, generalized edema, and photophobia present; usually does not occur during pregnancy. <i>Treatment</i> includes ergotamines, sumatriptan
Cluster headache	Ten times more common in men; closely grouped attacks over several weeks followed by remission of months or years; may have 12 or more headaches per day; more frequent in spring and fall; excruciating, unilateral pain, usually behind eye or in temporal region; may travel to ear, nose, and cheek; facial flushing, nasal congestion, lacrimation, rhinorrhea, and salivation may be present; may wake patient from deep sleep or occur during periods of rest after exhaustion. <i>Treatment</i> includes oxygen, ergotamines, sumatriptan, prednisone, and, in some cases, lithium
Ophthalmoplegic migraine	Begin during infancy or early childhood; headache and paralysis of cranial nerve III; if untreated, prominent visual field defects or blindness may occur. <i>Treatment</i> includes ergotamines, sumatriptan, and steroids
Hemiplegic migraine	Visual field defects, numbness of mouth and/or extremities, and various paresthesias; unilateral extremity weakness or paralysis; family history positive for migraine. <i>Treatment</i> includes rest, sedation, analgesia, and increasing CO ₂ levels; ergotamines contraindicated
Facial migraine	Unilateral episodic facial pain; associated with cluster headache or common migraine
Migraine equivalent	All features of migraine present except headache; symptoms include vomiting, abdominal migraines, menstrual syndromes, precordial migraines, and periodic diarrhea, fever, mood changes, and sleep or trance-like states

Source: *Sheehy’s Emergency Nursing: Principles and Practice*, 4th Edition. Lorene Newberry, Ed. St. Louis, Missouri: Mosby-Year Book, Inc.; 1998.

show that if the patient presents within the first 12 hours of the headache, CT scans are almost 95% sensitive for picking up a subarachnoid bleed,” says **Michael Gerardi, MD, FAAP, FACEP**. “But if the headache is going on for two or three days, sensitivity of the CT scan drops off. So you are more obligated to do a lumbar puncture in that situation.”

The severity of the pain will not determine whether the patient has a subarachnoid bleed, stresses Gerardi. “You may think that since the headache has been going on for three days and it’s not a thunderclap headache, it’s not a subarachnoid bleed, but that’s not true at all,” he says.

Myth 11: Headache patients should not be given pain medication. “There’s been a bias against giving pain medications to patients with headaches,” says Gerardi. “People are reluctant to give anything for pain because they don’t want to alter the patient’s mental status. Giving pain medicine is not going to significantly alter subsequent exams.”

If a spinal tap is necessary, patients will need to be given pain medication anyway, notes Gerardi. “If you have to do a spinal tap, you may as well give them something for pain and make them comfortable. If you are thinking about not doing a tap or CT, then you have to carefully watch them. Otherwise, you may as well give them something for pain,” he says. ■

Are you ready to deliver a baby in your ED?

When a woman in labor comes to your ED, there are three possibilities, says **Jay Kaplan, MD, FACEP**, chairman of the department of emergency medicine at Saint Barnabas Medical Center in Livingston, NJ. “Labor may be early and birth is not imminent, in which case the woman can be transported to labor and delivery in a timely fashion, but with no rush. Or there could be an impending obstetric emergency, calling for stat transport to [labor and delivery] L&D. Or, birth is imminent and you prepare for delivery in the ED. You do not want to have to deliver babies in elevators.”

It’s rare to deliver a baby in the ED, but you need to be ready for it, says Kaplan. “It’s a challenge because it doesn’t very commonly happen,” he notes. “Also, there is heightened anxiety. You go from having two patients in one body to two patients in different bodies, and you need enough resources to take care of both the mom and baby.”

The most common scenario leading to emergency delivery is a woman who presents with a full-term pregnancy, says **Karen B. McGee, CNM, MSN**, director of Nurse-Midwifery Associates at University Hospital in Cincinnati, OH. “She has not adequately evaluated the situation or she has no one to help her out with other children or transportation,” she explains. “She may have had several children and has had little pain warning her of the imminent delivery.”

This is challenging for the ED nurse because there is no time to prepare, notes McGee. “It requires a quick assessment, call for help, and attending to the mother with whatever equipment is available. Sometimes it may be your bare hands and a coat or sweater, which recently happened to me outside the admission door!” she says.

Another scenario is an accident where there has been trauma to the mother, McGee says. “Labor is stimulated and the mother is unable to recognize the uterine activity due to distraction from other injuries,” she explains. “This may be a preterm situation which may fulminate and the baby is born very quickly.”

The key to a successful delivery in the ED is preparation, stresses **Renee Holleran, RN, PhD**, chief flight nurse and clinical nurse specialist at University Hospital in Cincinnati, OH. “There is probably not any ED that is immune to the potential for a delivery,” she says. “When people are anxious, they will present to any hospital whether you have obstetrical services or not. No matter what type of ED you work in, protocols and equipment should be in place to appropriately respond to an emergency delivery.”

Here are things to consider when facing an emergency delivery:

Know appropriate interventions. “If the mother

EXECUTIVE SUMMARY

- Nurses must be prepared for obstetric emergencies such as breech deliveries, shoulder dystocia, and neonatal resuscitations.
- In an emergency, a delivery table and infant warmer are not needed. It’s not necessary to cut the umbilical cord immediately.
- Differences in maternal physiology include increase in vascular volume, increase of heart rate, elevated white blood cell count, and increase of red blood cell mass.

says the baby is coming, it usually is,” says McGee. “Attention is needed in delivering the baby, not in starting an IV or rushing her through the halls to labor and delivery.” Usually, it is impossible to stop the baby from coming, nor should you, but you can verbally encourage gentle pushing and flex the head for slow delivery of the head, she explains.

The first provider at the imminent delivery should call for the delivery kit, help the mother into a comfortable and safe position, put on gloves, support the baby as it is being born, reassure the mother, and protect her privacy if at all possible, says McGee. “As the baby is being born, it is important to use the bulb syringe correctly, dry the baby off, stimulate breathing after a clear airway is assured, and place the baby on the mother’s abdomen,” she explains.

Assure adequate ventilation by stimulation to the feet with a gauze 4×4 or gentle rubbing of the back, says McGee. It is also important to keep the baby warm and dry. “Place the hat on the baby’s head and the identification bands on the mother and baby,” she advises.

There will be a small gush of blood when the placenta is ready to deliver, says McGee. “Strong traction on the cord is unnecessary and may lead to a broken cord,” she notes. “Once the placenta and membranes are delivered, usually within 10-30 minutes after birth, the uterus will need to be evaluated. It should be firm and low in the pelvis and there should be no gushing of blood from the introitus.”

Know what to look for in physical exam. “Examine the perineum for any bulge during contractions. Also look for bloody show or leakage and the color of amniotic fluid,” says Kaplan. “It’s also important to check fetal heart tones, which should be in the 120 to 160 range.”

Check the position of the baby’s head. If the presenting part is anything other than the head, one has to be concerned about an obstetric emergency, says Kaplan. “Ninety percent of vaginal deliveries at term occur with the head as the presenting part, and 3-4% of those deliveries are breech,” he notes. “Check to see if the membranes are intact, since labor usually goes more quickly if membranes are ruptured. Do a bimanual exam to check how far the baby’s head has come down the birth canal.”

When the patient goes into labor, the cervix will be 2-3 cm dilated. “It has to be 10 cm before it’s completely dilated, and the cervix has to efface or thin out completely before it will slide over the baby’s head so that the baby can be delivered,” says Kaplan.

Prepare for complications if the baby isn’t coming down headfirst. “The diameter of the baby’s head

6 questions to ask a woman in labor

“If you need to do a rapid evaluation on a patient in labor, you need to know what are the key questions you need to ask,” says **Jay Kaplan, MD, FACEP**, chairman of the department of emergency medicine at Saint Barnabas Medical Center in Livingston, NJ. Those key questions include the following:

- 1. What number baby is this?** “Is this a first baby or has the woman delivered one or many babies before?” says Kaplan. “That gives you some sense of the timetable you’re dealing with, because first babies generally come more slowly than the second or third.”
- 2. What is the due date?** “If you are within three weeks of the due date on the short side, or two weeks on the long side, then, by and large, there will be fewer complications with the baby,” says Kaplan.
“Before the 37-week period you have to be concerned about respiratory difficulty, and, after the 42 weeks, you have to be concerned about post maturity with issues such as hypoglycemia or difficulty with temperature regulation,” explains Kaplan. “Rather than being premature, they get malnourished, because the placenta loses its ability to keep up with the baby’s needs for nourishment.”
- 3. Did the water break and if so, when?** “If you have an intact membrane, then labor generally occurs more slowly, and babies are more protected,” says Kaplan. “Fetal distress is less common with an intact bag of water than with ruptured membranes.”
- 4. What is the color of the amniotic fluid?** “If the color is yellowish white and clear, by and large you do not have a distressed baby. If it is greenish, that indicates the baby has had distress at some point during pregnancy. If it’s thick and green, like pea soup, you may well have an actively distressed baby and have to prepare for the worst,” Kaplan says.
- 5. Has there been any bleeding?** “Some bloody show is normal, but you want to try and quantify that, because you want to make sure you’re not dealing with the possibility of placenta previa,” says Kaplan.
- 6. How often are the contractions?** “You also want to know if there an urge to push,” says Kaplan. ■

(which dilates the cervix) is bigger than the buttocks, so what potentially can happen is that the body comes out, but the head gets caught by the cervix," Kaplan notes.

Shoulder dystocia involves the baby's shoulder getting caught underneath the pubic symphysis, Kaplan explains. "If that happens, one of the first things you can do is to roll a woman on her side, so the baby's bottom shoulder is not pressing into the bed, and then press down directly over the pubic bone," he says. "This occurs in 0.13-2.0% of all vaginal deliveries."

Treat the process as normal. "In the ED, we mostly see diseases or illnesses, but this is a normal process. Neither doctors nor nurses nor EMTs deliver babies, mothers do. So our primary role is to help the mother as she delivers the child and be prepared if complications arise," says Kaplan.

TABS Procedure for Newborn Resuscitation

T (temperature)

Dry and cover the neonate as soon as possible to prevent heat loss. Place in a heated environment as soon as possible.

A (airway)

Suction the mouth first and then the nose. A neonate with fetal distress in utero may have meconium present. Suction early, when the head is delivered, with a suction trap. If the airway cannot be cleared, the neonate should be endotracheally intubated and suctioned.

B (beats [heart rate])

If significant bradycardia is present (< 80 beats/min) and does not improve with ventilation, initiate chest compressions. A brachial pulse should be palpable with compressions. Continue ventilating the neonate.

Consider pharmacologic support with drugs such as epinephrine, atropine, naloxone, dextrose, and sodium bicarbonate.

S (sugar)

A blood glucose level < 40 mg/dL is a critical level in a neonate. When glucose is given, administer a 25% solution at 0.5 g/kg (or 2 mL/kg of a 25% solution).

Source: *Sheehy's Emergency Nursing: Principles and Practice*, Fourth Edition. Lorene Newberry, Ed. St. Louis, Missouri; Mosby-Year Book, Inc.; 1998.

The process may be easier than you expect, says Kaplan. "Quick babies are often good babies. When babies come more quickly than anyone expects, the woman thinks she's going to have a long, hard labor, but some don't have much labor at all," he notes.

Assess the mother's emotional state. "The more in control a woman is, the better the delivery will go," says Kaplan. "There needs to be a cooperative relationship. It's imperative for the physician and nurse to remain as calm as possible."

Make direct eye contact with the woman, says Kaplan. "Establish a partnership with the woman as quickly as possible, so you become a team working together. Tell her, 'Keep looking in my eyes and I'm going to talk to you, we'll work together on this.' Otherwise a woman will close her eyes and she'll get lost in the pain."

If the delivery appears imminent (the baby is crowning), place the mother in a position of comfort so that she may assist you with the delivery process, says Holleran. "Someone needs to 'coach' the mom. A good inservice may be to review the stages of labor and the breathing exercises that accompany them," she recommends.

In an emergency, you do not need a delivery table. "Ninety percent of the births I assisted involved the woman giving birth in the left lateral position, says Kaplan. "An assistant holds up the woman's right leg and the doctor or nurse gets positioned between the legs to catch the baby. That is quick and comfortable, and you can do that on any stretcher."

Have a delivery pack on hand. Equipment should include an emergency delivery tray composed of a bulb syringe, umbilical cord clamp, scissors, and a scalpel, says Holleran. "A neonatal resuscitation bag, something to place on the baby's head to help retain heat and an infant face mask should also be included with the tray," she notes. "There needs to be an isolette (if possible) or some type of method to keep the infant warm. If you do not have one, skin-to-skin contact with the mother may be used in a pinch."

Know what supplies are needed. "In an absolute emergency, all you need is a couple sterile drapes, gowns and gloves, two kelly clamps and a pair of scissors, availability of oxygen, and a bulb suction device," Kaplan says.

Understand that women do not need to push during contractions. "There is a misconception that women have to push babies out," says Kaplan. "The fact is that once the baby's head comes way down, the contractions of the uterus can push it out. It is important to control the delivery of the baby. So women

should push in between contractions, or let the contraction itself push the baby out.”

As the baby [emerges], support the head and place it in a dependent position, Holleran says. “Clear the airway with the bulb syringe,” she adds. “As the rest of the child presents, be sure the baby is in a safe position and will not fall or be dropped.”

Give oxygen. “Oxygen in the short term will do no harm to either the mother or the baby,” says Kaplan. “If you get signs of fetal distress, such as the baby’s heart rate is less than 120, roll the woman on her left side if she’s been on her back and give her oxygen. That way, the weight of the baby and uterus are not lying directly on the aorta and inferior vena cava, decreasing venous return to the heart, cardiac output, and placental flow. Oxygen will then more easily get to the baby.”

You don’t have to cut the umbilical cord right away. “In an emergency, one of the best positions for the baby is lying across the mother’s abdomen with the head in a dependent position. The umbilical cord can remain intact,” says Kaplan. “That gives the baby a bit of transition time, until the uterus contracts again and shears the placenta off the wall of the uterus, the baby is still getting oxygenated blood from the mother.”

You don’t need an infant warmer. “The mother’s abdomen is a great warmer, as long as you dry the baby off and then put a fresh, dry blanket over the baby,” says Kaplan.

Once the baby is born, wipe it clean, advises Holleran. “This will decrease the risk of hypothermia and stimulate the infant,” she says.

Know the role of ultrasound. “If you are concerned about complications in the third trimester, such as a placenta previa or abruptio placenta, ultrasound can be useful,” says Kaplan. “If a woman has excessive bleeding, it’s helpful to know where the placenta is. Placenta previa can be a life-threatening complication, in that the placenta is sitting over the cervix. Under those circumstances, you don’t want to do a bimanual exam because if you put your finger in the placenta, the woman can hemorrhage.”

Estimate the gestational age of the baby. “In addition to the due date, look at the amount of vernix on the baby, and look at feet to see how many creases are on bottom,” says Kaplan. “Very premature babies will have almost no creases and will be covered with vernix.”

Avoid complications after birth. “You want to dry the baby off and maintain body temperature, because hypothermia can be a significant problem, as can hypoglycemia,” says Kaplan. “If the heart rate is less than 100, one has to be concerned. The baby’s color is

also important. If pale or blue, it is a major cause for concern.”

If the child does not respond immediately, initiate resuscitation using the Neonatal Resuscitation Pyramid from the Pediatric Advanced Life Support Course, Holleran recommends. (*See TABS procedure for newborn resuscitation on page 45.*) “Protocols should be developed for complications such as a breech delivery or meconium staining,” she says.

Obtain an APGAR Score. “It is a good idea to tape this information to the isollette or in a convenient area,” Holleran says. “Most of us do not remember the components of the APGAR Score unless we use it routinely.”

Evaluate whether the baby is in distress. The most common problems are low fetal heart rate, meconium, bleeding either before or after birth, shoulder dystocia, and the baby not breathing, notes McGee.

Assess the baby’s respiratory rate, heart rate, and color. “If the heart rate is below 100 and the baby is not making a good respiratory effort with persisting cyanosis, then initially use an infant ambu bag to ventilate the baby,” says Kaplan. “If the heart rate is less than 80, and there is no rapid response to the blow by oxygen and ventilation, then begin chest compressions with the two finger method at rate of 120, with one-half to three-fourths inch depth of compression,” says Kaplan.

If the fetal heart rate is taken and it is below 90 and the baby isn’t coming immediately, it is important to get obstetrical assistance, notes McGee. “If the water is greenish brown or very bloody, it is also important to get assistance from an experienced provider,” she says.

Suction on the perineum when the head is delivered. “After delivery, a bulb is preferable, because other suction devices can lead to bradycardia,” says Kaplan. “If there is a thick meconium, the baby should be intubated and suctioned below the cords.”

Know differences in maternal physiology. “The more familiar you are with what is normal for a pregnant woman, the quicker one can recognize what is abnormal,” says Kaplan. “A pregnant woman can lose 30-35% of her blood volume before she becomes hypotensive.”

Fetal distress may be the first sign of impending maternal deterioration, Kaplan notes. “If the baby becomes bradycardic or is having late decelerations, then you have to ask yourself if something is going on with the mother. The vascular volume in pregnant women is increased by 40-50%, which means she can have significant blood loss without vital sign change.”

A pregnant woman's normal heart rate increases 15-20 beats to an average pulse of 95 by the third trimester, says Kaplan. "The blood pressure decreases to an average of 108 over 67 by third trimester, and cardiac output increases 40 percent."

The white blood cell count is elevated in the 12,000 range, and the red blood cell mass increases 33%, Kaplan notes. "But with plasma volume increasing 40-50%, it gives you a normal physiologic anemia. "There is delayed gastric emptying, which increases the risk of aspiration, and there is displacement of normal anatomic position of the organs, which changes the presenting physical findings of illness."

There is also the hyperventilation of pregnancy, notes Kaplan. "It's mislabeled because the respiratory rate doesn't change but the tidal volume increases. So if you've got a woman who has a rapid respiratory rate, don't just assume it's due to the pregnancy."

Keep education current. ED nurses need hands-on experience in labor and delivery as part of an annual competency program, McGee recommends. "They need to attend a continuing education program that teaches nurses to safely deliver babies in an urgent care setting," she says. "Nurses can perform mock deliveries and utilize training models to learn skills. Nurse-midwives can teach ED nurses to apply basic principles of emergency delivery through regularly scheduled learning labs and clinical preceptor programs." ■

SOURCES

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Prewarm activated charcoal

Prewarm activated charcoal; pour into soda can. With almost all ingestions of poisons or toxic substances, you will be asked to administer activated charcoal.

Prewarming the charcoal prior to administration is helpful. "Before you lavage a patient, put the charcoal container in a basin of warm water, to warm it to body temperature," recommends **Maureen Heyder, RN, CEN**, an ED nurse at Dartmouth Hitchcock Med-

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Editorial Questions

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ical Center in Lebanon, NH.

By the time you have finished your initial assessment and care, the charcoal will be smooth and slightly warmed, says Heyder. "It will flow easily without chunks of charcoal plugging the gastric tube," she explains. For safety, test the temperature of a few drops on your inner wrist as in testing the temperature of a baby bottle.

Convincing children to drink charcoal is another challenge. "Many a uniform has been ruined in this effort, and every ED staff person has a story to tell about trying to get kids to drink charcoal," says **Carolynn Zonia, DO, FACEP**, Education Division of the ED at St. Francis Hospital, Evanston, IL. "While the charcoal actually has no 'taste,' it is gritty, and once kids see it, they usually won't drink it."

Put the charcoal in an empty soda can with a straw, Zonia suggests. "If they can't see it, you'll have much better success with them drinking it. It does work," she says. ■

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CE Objectives

After reading this issue of *ED Nursing*, the ACE participant should be able to:

1. Identify clinical, regulatory, or social issues relating to ED Nursing.
2. Describe how those issues affect nursing service delivery.
3. Cite practical solutions to problems and integrate information into the ED nurse's daily practices, according to advice from nationally recognized experts.