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Are you seeing actual H1N1 cases or 'worried-well'? Be ready for both

Off-site screening could be a possible solution

In addition to all of the sick and injured patients you normally see, you are probably caring for a significant number of people in your ED with no complaint other than anxiety over H1N1.

"Our ED was getting hammered with panicked patients even before we had any confirmed cases reported in Connecticut," says **Nancy Bennett**, RN, MSN, ED educator at The Hospital of Central Connecticut in New Britain. Bennett says of 299 patients seen on the ED on a single day recently, 70 of them had flulike symptoms.

At Abington (PA) Memorial Hospital's ED, "Many people have entered our facility requesting that they be tested. Some have no symptoms at all and are not inclusive of the criteria for testing," says **Karen Sylvester**, RN, CEN, clinical coordinator for the emergency trauma center.

Bennett says "any potential pandemic is of great concern to us, but we can't overflow the ED with everyone who has a cough and sore throat running to the ED to be cultured. The rest of the public needs attention, too."

Bennett worked with her ED's medical chief and the hospital's director of plant operations and maintenance to set up an off-site flu clinic just for screening of H1N1. The plan is that the clinic will temporarily occupy a nearby vacant medical facility, which will be staffed with physicians or midlevel practitioners and nursing and clerical staff.

"We're working fast and furiously to unburden the ED with the off-site clinic," she reports. "In addition, the hospital's public affairs department is

Special focus in the next issue: How ED nurses can avoid lawsuits

The July 2009 issue of *ED Nursing* will be a special issue on the biggest liability risks for emergency nurses. We will cover the most significant lawsuits involving emergency nurses from the past 12 months and give you tips for how to avoid being sued by your patient. We'll also report on why time-dependent treatments in the ED increase your legal risks.

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working to start a campaign to the public with the message, "If you have these symptoms and think you might have the flu, don't go to the emergency room first. Go to the flu clinic."

The goal, says Bennett, is to be "prepared as best we can for the worst-case scenario with opening the temporary flu clinic. That hopefully will take pressure off of the ED. Emergency departments can't be any more overburdened than we already are."

Protect your patients

At Providence Hospital in Southfield, MI, "our triage nurses are on high alert for any patient presenting with fever, cough, sore throat, body aches, headaches, chills, and fatigue," says **Rosemary M. Lowry**, MSN,

APRN-BC, ED manager/nurse practitioner. "Any patient that presents with a cough and fever will be immediately given a surgical mask."

Any patient suspected of having H1N1 is placed in an appropriate treatment area, with standard precautions and strict hand washing with soap and water for 15-20 seconds required. "Using alcohol-based hand sanitizer is also acceptable," she says. "These actions are instrumental in the prevention and the spread of disease."

At Barnes-Jewish Hospital in St. Louis, ED nurses place surgical or isolation masks on any suspected patients. "Nursing staff should be donning N95 masks, goggles, gown, and gloves prior to room entry," says **Keith Outlaw**, RN, assistant clinical manager of emergency services.

If a patient fits the criteria for H1N1 at The Hospital of Central Connecticut's ED, he or she is given a face mask to wear until they are cultured and cleared by an ED physician. "Constant hand washing between patients or the use of [hand sanitizer] is a must," says Bennett. "Our triage nurses are also trying to minimize any panic and educate the public as to modes of transmission and prevention."

Lynn Ring, RN, ED clinical manager at Spectrum Health Butterworth Hospital in Grand Rapids, MI, says if H1N1 is suspected, ED nurses immediately place a mask on the patient, bring the patient back to a negative pressure room, and place him or her in an "airborne plus contact isolation." However, Ring acknowledges that the volume of suspected cases might far exceed the number of negative pressure rooms in many EDs. "In this case, place the patient in a private room and leave their mask in place, continuing the additional airborne-plus-contact isolation precautions," says Ring. These actions are consistent with recommendations from the Centers for Disease Control and Prevention, she says. (See story on how to keep ED nurses continually updated, p. 87, and checklist for screening and confirmatory testing of H1N1, enclosed in the online issue.) ■

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Editorial Questions

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EXECUTIVE SUMMARY

Emergency nurses report that patients anxious about H1N1 are coming to EDs even without symptoms and requesting to be tested. To manage these patients, as well as actual cases, take the following steps:

- Consider developing an off-site clinic for screening.
- Give nurses constant updates via e-mail, web sites, newsletters, and verbal exchanges.
- Provide inservices for screening and confirmatory testing.

How ED nurses are getting the word out about H1N1

Updates are coming fast and furiously

When the first cases of H1N1 hit, **Nancy Bennett**, RN, MSN, ED educator at The Hospital of Central Connecticut in New Britain, e-mailed nurses and put notices in the triage area on exactly what to look for and what questions to ask. Weeks later, though, ED nurses still require continual updates from the state health department and the Centers for Disease Control and Prevention (CDC), provided to them by the chief and nursing director of the ED.

Karen Sylvester, RN, CEN, clinical coordinator for the Emergency Trauma Center at Abington (PA) Memorial Hospital's ED, says she is "hypercommunicating" information to ED staff on a daily basis. She is using several ways to convey the latest developments. "Daily postings are placed on our web page, newsletters are distributed, blast e-mails are sent, and verbal exchanges are all utilized to keep our staff informed," she says.

Keith Outlaw, RN, assistant clinical manager of emergency services at Barnes-Jewish Hospital in St. Louis, says ED nursing staff are being given daily updates from himself, ED physicians, the ED's clinical nurse specialist and the hospital's environmental health and safety and infectious disease departments. "We are emphasizing to all of our staff the importance of using universal precautions and hand washing," says Outlaw. "Our ED is very concerned, but well prepared to deal with any H1N1 patients."

Rosemary M. Lowry, MSN, APRN-BC, ED manager/nurse practitioner at Providence Hospital in Southfield, MI, briefs ED nurses with information from the CDC, the Michigan Department of Community Health, and Oakland County Medical Control Authority.

Imelda Prado, ED clinical care coordinator at Swedish Covenant Hospital in Chicago, says ED nurses were given a memorandum regarding H1N1 from the state department of health on tests and treatment for suspected cases. "We were also given an inservice from the director of the laboratory on how to collect the culture/swab for swine flu virus," she says. "For confirmed or highly suspected cases of swine flu virus, antiviral medications/chemoprophylaxis are prescribed, either oseltamivir or zanamivir." [Steps taken by ED nurses for H1N1 screening and confirmatory testing are included with the online version of this month's *ED Nursing*. For assistance, contact customer service at customerservice@ahcmedia.com or (800) 688-2421.] ■

How you can avoid unsafe head injury discharges

Normal vital signs can change quickly

Your patient reports a minor fall, and vital signs are 100% normal. Can this patient be safely discharged from your ED? Not necessarily.

"Anyone with a closed head injury is at greatest risk for falling through the cracks," according to **Sanna Root**, RN, MSN, trauma injury prevention coordinator at University of California — Irvine Medical Center. "This is especially true when there is not a significant external sign of injury."

According to the Centers for Disease Control and Prevention, 80% of head injuries in the United States are treated in EDs, and of those, about 17% require admission. More than 1 million patients come to the ED each year for traumatic brain injury or concussion.

Jennifer Maul, RN, CEN, clinical educator of the ED at Sutter Roseville (CA) Medical Center, has seen several patients with subtle changes in their symptoms. A repeat CT scan showed significant worsening of the initial injury. "These patients were taken immediately up to the operating room to evacuate the blood, drill Burr holes in the skull to relieve pressure, or had an intracranial monitor placed in the brain," she says.

Here are some types of patients at high risk for being unsafely discharged:

- **Patients who appear normal.**

Your patient might have vital signs and neurovascular signs within normal limits, but this status can change quickly, warns Root. "This is why it is so important to perform accurate assessments and observation prior to discharging the patient home," she says.

RESOURCE

For the most current information about H1N1 flu, visit the Centers for Disease Control and Prevention (CDC) web site at www.cdc.gov/swineflu. To access the CDC's "Interim Guidance for Infection Control for Care of Patients with Confirmed or Suspected Swine Influenza A (H1N1) Virus Infection in a Healthcare Setting," select "Info for Specific Groups," "Clinicians," and then "Infection Control for Patients in a Healthcare Setting."

EXECUTIVE SUMMARY

Patients with a closed head injury are at greatest risk for being unsafely discharged, especially when there is not a significant external sign of injury. To reduce risks, remember that:

- Even if vital signs and neurovascular signs are within normal limits, this can change quickly.
- Elderly patients are at higher risk for serious head injury and subdural hematomas.
- Epidural hematomas are characterized by a short loss of consciousness, a period of mental clarity, then a rapid decline.

• Pediatric patients.

“Young children are at high risk, because we are unable to communicate as effectively as with older children and adults,” says Root.

Mary Kay Bader, RN, neurological clinical nurse specialist at Mission Hospital in Mission Viejo, CA, cared for a 3-year-old who struck a wall while riding a tricycle. A short time later, the child decompensated from a medial meningeal arterial tear. “The staff did an outstanding job getting the child to the OR in record time,” she says. “The child was discharged home a few days later.”

Be an advocate for all patients who have temporal injuries, says Bader. “This is a vulnerable area for a bleed and warrants a CT scan, as these patients are often ‘normal’ at initial exam,” she says.

• **Patients under the influence of alcohol or drugs, or patients with dementia who might not realize how injured they are.**

At St. Joseph Mercy Hospital in Ann Arbor, MI, “We have created a new neurological guideline in our ED specifically for this population, so their injuries and risks don’t go unnoticed,” says **Mary Frazier**, RN, an ED nurse. [The ED’s “Neurological Monitoring Guideline” is included with the online version of this month’s *ED Nursing*. For assistance, contact customer service at customerservice@ahcmedia.com or (800) 688-2421.]

When an intoxicated patient came to St. Joseph’s ED after a fall, a bleed was found on the CT scan, but his baseline mental status was unclear. “Vital signs were done, and the patient was evaluated at intervals. When it was time to admit him to his inpatient room, he was found unresponsive with unstable vital signs,” says Frazier. “He was subsequently intubated and taken to the intensive care unit. It was this case, and others like it, that prompted us to develop a guideline

to monitor for this kind of thing.”

ED nurses perform neurological checks on these patients every 15 minutes for four hours, then every 30 minutes for six hours, including Glasgow Coma Scale scores.

• Elderly patients.

The elderly are at higher risk for serious head injury, especially for subdural hematomas, says **Madonna Walters**, MS, RN, trauma program coordinator at St. Joseph. A subdural hematoma can occur with even a low fall and mild bump to the head in older adults, she explains, and the risk is even higher if the patient is taking an anticoagulant or antiplatelet agent.

“A subdural hematoma is an injury to the bridging veins in the brain, and older adults have more stress on their bridging veins as a result of the cerebral atrophy that occurs with age,” says Walters. “Since older adults are both prone to falls and more likely to be anticoagulated, this magnifies their risk of a serious and life-threatening head bleed.”

The anticoagulated patient who has experienced a fall should be rapidly triaged so that a stat head CT can be done and appropriate reversal of anticoagulation initiated, says Walters. “Even if the head CT is negative, these patients are usually observed for at least six hours,” she adds. (See related story on work-ups for head injuries, below, and Clinical Tip on assessment of long-term memory and epidural hematoma, p. 89.) ■

Here are absolute must-dos with head injury work-ups

Subdural hematomas develop slowly

Your initial work-up for suspected head injury should include a CT scan, says **Sanna Root**, RN, MSN, trauma injury prevention coordinator at University of California — Irvine Medical Center.

“Acute traumatic intracranial injuries usually show up early after the injury; however, subdural hematomas have been found to develop slower and over a longer period of time,” Root says. “This may not show up in the initial work-up.”

However, not every patient that presents with a head injury will receive a CT scan, and not all traumatic brain injuries will show up on a CT scan, says **Jennifer Maul**, RN, CEN, clinical educator of the ED at Sutter Roseville (CA) Medical Center. “If a patient has a history that is suggestive of a brain injury and is symptomatic, but has a normal brain CT, often the ED physician will consult with the trauma surgeon, and the patient is admitted for

additional observation,” says Maul.

Watch for these early signs of intracranial injury, says Root: Lack of memory of the event, headache, nausea or vomiting, confusion, visual disturbances, and lethargy. Late signs of intracranial injury include pupil changes, unresponsiveness to pain or verbal stimuli, posturing, widening pulse pressure, increased systolic blood pressure, respiratory changes, and bradycardia, says Root.

She says warning signs that a patient *does* need immediate attention include the following: dilated nonreactive pupil, restless, drowsiness, changes in speech, unresponsive, posturing, increased systolic blood pressure, widening pulse pressure, changes in respiratory status, and bradycardia. **Sheree Brown**, RN, trauma service nurse clinician at St. Joseph Mercy Hospital in Ann Arbor, MI, says, “Loss of consciousness, along with the presence of a period of amnesia, are two very good determinants of head injury.” Each is an important factor to assess, Brown says. “Warning signs are persistent confusion, one episode of vomiting, or worsening headache,” she says.

To rule out a life-threatening head injury quickly, Brown says to look for the following: no loss of consciousness, no amnesia, no risk factors such as being on blood thinners or coagulopathic from a medical comorbidity, and no dangerous mechanism.

If the patient is discharged home, document all findings and assessments, says Root. Educate the patient and family regarding signs and symptoms that would make it appropriate to return to the ED or call 911, she says.

Maul says to be very clear that patients should return to the ED immediately if they experience severe nausea, vomiting, dizziness, decreasing level of consciousness, lethargy, confusion, are “just not acting right,” have unequal pupils, blurred vision, or difficulty speaking or walking. **[St. Joseph’s discharge instructions for ED patients with mild head injury are included with the online version of this month’s *ED Nursing*. For assistance, contact customer service at customerservice@ahcmedia.com or (800) 688-2421.]**

Ask these questions of your head injury patient at triage, says Root:

- What was the mechanism of injury?
- Was there any loss of consciousness? “If someone does not recall the event, this is a positive loss of consciousness,” says Root.
- Do you have headache? If so, rate the headache on an appropriate pain scale.
- Do you have nausea or vomiting?
- Do you have any visual disturbances?
- What medications is the patient on? “Coumadin, aspirin, and Lovenox are very important to be aware of,” says Root. “When a person on these medications has an

injury, the body’s ability to protect itself and form a hematoma is decreased, so they are at higher risk for bleeding issues. This is especially true in head injuries.”

- Has the patient ever had a head injury or neurological problems?
- Does the patient have a history of alcohol or drug abuse? “This can affect the head injury itself in perpetuating the accident, as well as interfere with an accurate assessment,” says Root.

Above all, learn as much as you can about the patient and the mechanism of injury, says Maul. Ask patients what they were doing when they hit their heads, when the injury happened, how the patients were acting when they woke up, and how they are acting now. Is their behavior normal for them? Have they previously had a brain injury? Did they wake up quickly and are now are becoming altered? ■

CLINICAL TIP

Assess mental clarity; long-term memory

A period of lucidity in a head-injured patient might be a hallmark of an epidural hematoma, warns **Madonna R. Walters**, MS, RN, trauma nurse specialist/injury prevention specialist at St. Joseph Mercy Hospital in Ann Arbor, MI. Epidural hematomas are characterized by a short loss of consciousness, mental clarity lasting minutes to hours, and then a rapid decline, she says.

“An epidural hematoma can be particularly lethal, because the patient feels fine at first and may not seek medical attention or may minimize their symptoms,” says Walters. “The bleeding source is arterial, so the blood may accumulate rapidly.”

Teri Arruda, MSN, FNP-BC, CEN, nurse specialist at Mission Hospital in Mission Viejo, CA, recommends asking head injury patients, “What did you have for dinner last night?” “This gives me a gauge of long-term memory,” she says.

When a patient cannot recall common information such as what they ate the previous night, this is considered a concussive symptom, says Arruda. Any amnesia is abnormal and should lead to close follow-up such as a CT scan or continued observation, she adds. ■

Avoid risk of MRSA for you and your patient

About one-third of stethoscopes used by emergency medical services is contaminated with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria, according to a new study. When researchers at the University of Medicine and Dentistry of New Jersey swabbed 50 stethoscopes, 16 had MRSA colonization.¹ This is a frightening prospect for both ED nurses and their patients.

“All emergency departments should be concerned about preventing the transmission of multidrug-resistant organisms, such as MRSA, from person to person or environment to person,” says **Phyllis McClanahan**, RN, ED nursing manager at Sutter Delta Medical Center in Antioch, CA.

Vickie Brown, RN, MPH, CIC, associate director of hospital epidemiology at UNC Health Care in Chapel Hill, NC, says, “While we do not know if a stethoscope contaminated with MRSA could actually lead to transmission of MRSA to a patient, shared equipment should be routinely cleaned, as well as whenever it is visibly soiled. In the case of stethoscopes, this can easily be done by wiping it with an alcohol pad after use.”

Clean equipment and surfaces such as bed rails and bedside tables on a routine basis, advises Brown. “There are many excellent cleaning products on the market, such as disinfectant wipes and sprays that are quick and easy to use,” says Brown. “This is important in a busy ED where there may be little time for cleaning.”

High-risk surfaces include equipment and surfaces that the patient had contact with and anything that a

gloved hand has touched in a room, says **Samantha Vining**, RN, MS, clinical nurse specialist for the ED at Albany (NY) Medical Center.

“Staff are pretty cognizant about cleaning areas in which the patient may have touched directly, but may be less aware of areas in which a gloved hand has touched: a monitor screen, cables, countertops, and door handles,” she says.

Remember that cleaning the ED is a cooperative effort between nursing and housekeeping, and “patient safety is the bottom line,” says Vining. “There is nothing wrong with a nurse grabbing a hospital disinfectant cloth and wiping down equipment or touch surfaces,” she says. “It may, in fact, instill confidence in the patient that this nurse takes infection control seriously.”

McClanahan says, “Any piece of equipment that comes into contact with a patient or their environment could become contaminated with bacteria.” She recommends:

- using a hospital disinfectant approved by the Environmental Protection Agency to clean beds, over bed tables, and call lights after patient use;
- having alcohol-based hand sanitizers easily accessible at the point of care, as well as disinfectant wipes.

Adriene Clark-Wilkerson, RN, MSN, TNCC, CEN, Sutter Delta’s ED clinical educator, recommends diligent use of santi-wipes for hospital equipment and furniture in between patient use. “Use alcohol-based hand sanitizing solution when entering and exiting patient care rooms,” she says. **(See story on hand hygiene tips, below, Clinical Tip on using dedicated equipment for MRSA patients, p. 91, and how to flag a patient’s previous MRSA history, p. 91.)**

Reference

1. Merlin MA, Wong ML, Proyor PW, et al. Prevalence of methicillin-resistant *Staphylococcus aureus* on the stethoscopes of emergency medical services providers. *Prehosp Emerg Care* 2009; 13:71-74. ■

EXECUTIVE SUMMARY

About one-third of stethoscopes used by emergency medical services are contaminated with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria, according to a new study. Other shared equipment in your ED also possibly is contaminated. To reduce risks of transmission in your ED:

- Wipe stethoscopes with an alcohol pad after use.
- Clean anything that a gloved hand has touched in a room.
- Use disposable blood pressure cuffs and dedicated stethoscopes and intravenous pumps for MRSA patients.

The No. 1 thing you can do to stop MRSA

What is the single most important practice to prevent the spread of methicillin-resistant *Staphylococcus aureus* (MRSA)?

“Hand hygiene, hand hygiene, hand hygiene,” says **Samantha Vining**, RN, MS, clinical nurse specialist for the ED at Albany (NY) Medical Center. “Fifteen seconds with soap and water or using alcohol-based

CLINICAL TIP

Use dedicated equipment for patients with MRSA

To prevent transmission of methicillin-resistant *Staphylococcus aureus* (MRSA), **Samantha Vining**, RN, MS, clinical nurse specialist for the ED at Albany (NY) Medical Center, recommends using dedicated equipment for identified patients.

“Disposable blood pressure cuffs and dedicated stethoscopes can be used, along with IV pumps that are dedicated to the room and not used on another patient until properly disinfected,” she says. ■

cleaners are the first defense against disease transmission,” she says.

According to **Vickie Brown**, RN, MPH, CIC, associate director of hospital epidemiology at UNC Health Care in Chapel Hill, NC, the greatest risk for spreading MRSA in the ED is by health care workers not washing their hands before and after patient care. Brown recommends providing staff with a variety of alcohol-based hand rubs, including pocket-sized containers that can be clipped to scrubs so hand hygiene is easy.

“Usually, ED staff clip a bottle onto the waistband of their scrubs,” says Brown. “We stock the 2 oz. bottles in our central distribution department so they can be ordered by the ED as needed.” The ED uses both Steris Corp.’s Soft N’Sure antiseptic hand gel and Gojo’s Purell gel, both sold in small individual 2 oz. and 4 oz. bottles with retractable clips. **(To order Gojo’s clip, go to www.gojo.com/product/accessories.asp?access_catid=129.)**

“We have done a combination of things to acquire the small bottles and clips for our ED staff,” says Brown. “Since we use a lot of hand hygiene product, Gojo and Steris have given us hundreds of the clips and we purchased some as well.” ED nurses were given clips and small Purell bottles at hand hygiene fairs, inservices, and when they were given the flu shot.

“The risk of transmission by hand far outweighs the risk of transmission from contaminated surfaces,” says Brown. “Since MRSA can survive for hours on inanimate surfaces, no one piece of equipment or surface is really more risky than another.” ■

Would you know if patient has a history of MRSA?

Busy ED nurses need a good system for finding out when a patient has a history of methicillin-resistant *Staphylococcus aureus* (MRSA), so appropriate precautions such as wearing disposable gowns and gloves can be taken, says **Vickie Brown**, RN, MPH, CIC, associate director of hospital epidemiology at UNC Health Care in Chapel Hill, NC.

“Placing an alert in the electronic medical record is one step we have taken to let our ED staff know when a patient has a known history of MRSA,” says Brown.

Many times, however, patients come to the ED with complex emergencies that require immediate lifesaving measures, so the patient’s history of exposure to MRSA might not always be readily available to staff, says **Adriene Clark-Wilkerson**, RN, MSN, TNCC, CEN, ED clinical educator at Sutter Delta Medical Center in Antioch, CA. “We have safety policy and procedures in place if the patient has already been treated at our facility and identified to have been exposed to MRSA in the past,” she says. For example, isolation signs are placed on curtains in the treatment area, and staff members are instructed to use appropriate precautions.

When a patient registers at the ED at Albany (NY) Medical Center and has had a past infection of MRSA or a similar multidrug-resistant organism, a flag appears in the registration system alerting nurses that special precautions need to be taken. “With this information, the triage nurse knows to place this patient on precautions,” says **Samantha Vining**, RN, MS, clinical nurse specialist for the ED. The precautions implemented are dependent on the organism that was previously identified, she says. “Oftentimes, it is contact precautions: gown and gloves for all contact with the patient, the patient’s equipment, or their environment and, as always, diligent hand hygiene.”

However, the largest concern regarding MRSA is the patient population who haven’t been diagnosed with it yet, Vining says. “For these ‘unknowns’ who present with infected areas that are draining, the triage nurse should cover all open wounds and use gloves and a gown if necessary,” she says.

At Holy Cross Hospital in Chicago, ED nurses can track patients who have MRSA or a history of MRSA. “This activates as soon as the patient is registered. We can then place the patient in appropriate isolation precautions, which require the use of gloves and gown,” says **Diane Bures**, RN, TNS, CEN, the hospital’s EMS coordinator.

Patient labels are designated with an “M” if they

have MRSA or a history of MRSA. “We isolate them both the same,” she reports. “We also ask them what past medical history they have when in triage.” ■

Was this injury caused by abuse? Check for signs

An intoxicated woman came by ambulance to St. Luke’s Hospital in Cedar Rapids with cuts on her wrists, and she wouldn’t tell ED nurses what happened.

“Her cuts were very deep and serious. The doctor was worried that she could have cut an artery in one or both of her wrists,” says **Holly Eastman**, RN, BSN, CEN, SANE-A, an ED nurse who cared for the patient.

Would you assume this patient’s injuries were self-inflicted? The patient had an initial negative domestic violence screen and denied that she had ever been hurt in the past. However, Eastman discovered that the woman had frequent previous ED visits with various vague complaints, sometimes involving minor physical injuries.

“I became more concerned that her injuries were the result of abuse, and therefore decided to complete a full abuse assessment,” she recalls. “Upon asking more direct questions, she disclosed to me that her boyfriend had cut her wrists with a knife and threatened her saying, ‘You’ll never tell them what really happened. The doctors are going to think you did this to yourself.’”

The woman tearfully described physical, emotional, and psychological abuse that she’d endured for two years, which was progressively getting worse. “Fortunately, we were able to intervene and provide assistance before it was too late for this patient,” says Eastman.

Even if your patient denies abuse, document all physical injuries on your nursing assessment form, says Eastman. Also, she says, document any of these

indicators of possible abuse: multiple injuries, injuries/bruising in multiple stages of healing, frequent ED visits with various complaints, and any injuries not consistent with the patient’s history.

Victims of intimate partner violence have different patterns of facial injury than with trauma from other causes, according to a new study that reviewed six years of medical and dental records from women treated for facial trauma at the University of Kentucky Medical Center in Lexington.¹

Of the 326 women treated for facial trauma, 45 patients were identified as assault victims. The study found that women who are injured by an intimate partner tend to suffer from distinct types of upper facial injuries, such as brain injuries or breaks around the eye socket or cheekbones. Those injured from other causes, such as a car accident or fall, are more likely to suffer lower facial fractures, such as a broken jaw.

“The main unexpected finding was the number of injuries about the eyes. These by far were greater than the mandible,” says study author **Oneida Arosarena**, MD, FACS, an associate professor of otolaryngology at Philadelphia-based Temple University’s School of Medicine.

Even with directed questioning, women might not reveal the mechanism of injury, so you will need to consider other indicators, she says. These include a history of repeated falls or accidents, or bruises in different stages of healing. “A full body examination is important, as often the attacker will not hit a woman in the face,” says Arosarena. (See stories on screening for abuse, below, and family communication, left.)

Reference

1. Arosarena OA, Fritsch TA, Hsueh Y, et al. Maxillofacial injuries and violence against women. *Arch Facial Plast Surg* 2009; 11:48-52. ■

EXECUTIVE SUMMARY

Multiple injuries, bruises in multiple states of healing, and frequent ED visits with various complaints are all warning signs that a patient’s injuries might have been caused by abuse. In addition, injuries in the eye and cheekbone area were more likely to have been caused by abuse than lower facial fractures, says a new study. If you suspect abuse:

- Talk to your patient alone.
- Explain that all patients are asked routinely questions about violence.
- Ask direct questions.

3 screening tips for possible abuse injuries

According to **Holly Eastman**, RN, BSN, CEN, SANE-A, an ED nurse at St. Luke’s Hospital in Cedar Rapids, IA, every ED patient should be screened for domestic violence, regardless of age, gender, sexual preference, cultural beliefs, or economic status.

“It is often challenging to determine with certainty whether an injury was caused by abuse,” she says.

Your patient might deny vehemently that the injury was caused by physical abuse, even though the injuries

are highly suspicious, or might disclose abuse but refuse any assistance or referrals. "In any case, it is our job as emergency nurses to complete an abuse assessment and document any and all physical injuries, as well as screening for other types of abuse such as emotional, psychological, or sexual," says Eastman.

Here are three tips for screening:

- **Talk to your patient alone.**

According to **Oneida Arosarena, MD, FACS**, an associate professor of otolaryngology at Philadelphia-based Temple University's School of Medicine, interviewing your patient by herself is key. "They are more apt to be candid if away from their attacker or family or friends," she says.

- **"Normalize" the screening process.**

Eastman says, "Similar questions should be asked to every patient, just as we routinely ask about medications and allergies." She recommends telling patients, "Because violence is so common in our society, we've begun to ask about it routinely," or "I don't know if this is a problem for you, but many men and women are dealing with abusive relationships. Some are too afraid to bring it up themselves, so we've started asking about violence routinely."

- **Follow up with direct questions.**

CLINICAL TIP

Watch how the family of your patient communicates

When assessing a patient for possible abuse, **Bari Lee Mattingly, RN**, pediatric trauma nurse coordinator at the University of Kentucky Hospital in Lexington, suggests "looking at the family dynamics as a whole."

Consider these questions: Do other members of the family seem to be afraid of a particular member of the family? Is there someone that seems very argumentative? Do other members of the family have bruises? Does anyone seem unusually submissive to a certain family member?

If you suspect child abuse is occurring, Mattingly says to "document your findings thoroughly in the medical records, and report your suspicions to the appropriate social services agency in your area. Your actions may save your patient's life." ■

Eastman says to ask patients the following:

- Do you feel safe at home?

- Do you feel controlled or isolated?

- Have you ever been afraid of anyone you've been in a relationship with?

- Have you ever been emotionally or physically abused by your partner or someone important to you?

- Have you ever been hit, kicked, or punched by someone close to you?

- Has your partner ever refused to practice safe sex?

- Has your partner ever forced you to have sex when you didn't want to?

- Are you in a relationship in which you have been hurt or threatened?

"Oftentimes, patients who deny abuse when initially screened may disclose abuse as these types of direct questions are asked," says Eastman. ■

Young stroke patients: They're often misdiagnosed

A 32-year-old obese female patient arrived at Columbus, OH-based Riverside Methodist Hospital's ED at 7:55 a.m. Her exam revealed left facial droop, flaccid left arm and leg, decreased sensation on the left, and visual field deficit to the left. The woman had a National Health Institutes Stroke Scale (NIHSS) score of 16 and persistent left-sided paralysis.

The stroke team was activated, and a stat CT of the brain was obtained that revealed small, early ischemic changes and the appearance of acute occlusion of right internal carotid including right carotid terminus and middle cerebral artery.

"She was immediately transported to the interventional radiology suite for possible endovascular intervention," says **Carl Bricker, RN**, ED manager.

Because the patient was inside the three-hour window for intravenous tissue plasminogen activator

EXECUTIVE SUMMARY

Stroke patients under 35 were misdiagnosed one-third of the time, according to a new study. When assessing young patients for stroke:

- Assess a patient's gait before discharge.
- Ask about use of drugs, oral contraceptives, and other medications.
- Suspect stroke for any patient with weakness, numbness, or tingling of any extremity.

CLINICAL TIP

Suspect stroke? Check drugs/herbs, glucose

When assessing for stroke in younger patients, ask about usage of illicit drugs as well as herbal medications, advises **Tia Moore**, RN, CEN, clinical nurse educator at the University of California — San Diego Medical Center.

“Many times young patients arrive into the ED with stroke symptoms, and after inquiry it has been learned that they are taking natural supplements to bulk up their bodies or have recently used illegal drugs,” says Moore. “These, when ingested or smoked, can mimic stroke symptoms.”

Moore also notes that hypoglycemia can mimic a stroke, and many herbal supplements tend to decrease glucose and glycogen stores within the body due to increased metabolism. “Glucose checks should be done immediately on anyone who presents with stroke symptoms, regardless of age,” says Moore. ■

(tPA), the infusion was started at 9:12 a.m. Aggressive stroke treatment “saved this young woman from a devastating disability,” recalls Bricker.

Would it surprise you to learn that stroke patients under the age of 35 were misdiagnosed one-third of the time? That finding comes from researchers at Wayne State University School of Medicine in Detroit.¹ The study’s findings underscore the importance of considering the diagnosis of stroke regardless of age when patients present with the sudden onset of neurologic symptoms such as dizziness, trouble walking, and/or speech difficulty, says **Seemant Chaturvedi**, MD, the study’s author and director of the stroke program at Wayne State University/Detroit Medical Center.

According to Chaturvedi, “emergency room personnel need to have a heightened sensitivity to the possibility of stroke in people under 45.” In addition, consider getting neurology consults in the ED for patients with sudden onset of these symptoms. “It is important to assess the patient’s gait before discharging them,” Chaturvedi adds.

Younger patients oftentimes present with vague symptoms, and these symptoms often are waived off as

“nothing” or “it will go away,” says **Tia Moore**, RN, CEN, an ED clinical nurse educator at University of California — San Diego Medical Center. “The young patient often thinks, ‘This will never happen to me.’ The ED staff tends to call this type of patient as ‘The Teflon Don,’” she says. “This false sense of security within the younger community tends to increase the risk of residual damage post-stroke. Time is tissue, and the longer they play it off, the more severe the residual can become.”

“The assessment for the younger population is not much different than the older population, except for a couple of areas,” says Bricker.

Check meds, trauma, and surgery

In a younger patient, pay particular attention to the history of any drug abuse, the use of oral contraceptives, any other medication use, and recent trauma or surgery, he says. (See **Clinical Tip**, p. 94, on use of drugs and herbal medications.) “A diagnostic concern to check is that of a carotid dissection as a cause or hypercoagulation that has yet been diagnosed,” says Bricker.

Give a stroke work-up to any patient who presents with weakness, numbness, or tingling of any extremity, says Bricker. This stroke work-up is especially needed if the symptom is affecting unilaterally the upper and lower extremity, or the patient has facial droop, aphagia, sudden headache, or the “worst headache of their life.” “Our goal here at Riverside is to call a stroke alert on any patient that has an NIHSS score of over 3,” says Bricker.

Reference

1. Chaturvedi S. Misdiagnosis of acute stroke in the young during initial presentation in the emergency room. Presented at the American Stroke Association’s International Stroke Conference, San Diego. Feb. 18, 2009. ■

Quick and simple test can rule out penicillin allergy

Penicillin is often a better option

If your patients tell you they are allergic to penicillin, would you take their word for it? In fact, the vast majority of patients who say they are allergic to penicillin, — a surprising 91% — actually aren’t, according to new research.¹ Out of 150 participants who self-reported a penicillin allergy at the University Hospital in Cincinnati, 137 displayed false-positives.

“Only 10% of self-reported penicillin allergies are

EXECUTIVE SUMMARY

Ninety-one percent of patients who self-report a penicillin allergy really *aren't* allergic, according to a study of 150 patients at University Hospital in Cincinnati. A penicillin skin test might be commercially available soon for use in the ED.

- Penicillin is clinically effective in combating bacterial infections such as strep.
- Penicillin lessens the use of broad-based antibiotics and is cheaper than other alternatives.
- Patients who report allergies should be asked about their reaction.

really accurate,” says **Joseph Moellman**, MD, one of the study's authors and associate professor of emergency medicine at the University of Cincinnati.

The penicillin skin test was formulated by the hospital's Department of Immunology and Allergy and is not yet commercially available, but Moellman says he expects a comparable test to be available soon. During the study, ED nurses did the test and waited for 10 minutes. If the patient didn't react, they waited another 10 minutes after a subcutaneous test is applied to determine that the patient was not allergic to penicillin. Testing for penicillin allergy using skin tests in the ED could allow for more appropriate antibiotic selection in some cases, according to Moellman.

Penicillin is less expensive, is clinically effective in combating bacterial infections such as strep, and lessens the use of broad-based antibiotics, which contribute to bacterial resistance, he explains.

Moellman gives the example of a patient with strep throat that reports a penicillin allergy. “If we have to go by their history, the patient is given azithromycin or clindamycin. The cost is a difference of \$70, and you may not get the efficacy you want,” he says.

Reference

1. Raja AS, Lindsell CJ, Bernstein JA. The use of penicillin skin testing to assess the prevalence of penicillin allergy in an emergency department setting. *Ann Emerg Med*. Published online Feb. 12, 2009. Accessed at www.ncbi.nlm.nih.gov/pubmed/19217696. ■

CLINICAL TIP

If patients report allergy, ask them what happens

If patients report a medication allergy to you, don't stop there; find out what happened when they took the drugs.

“We are all busy in the ED, but when the nurse is doing the medication reconciliation, it's critical for any kind of drug to write down what the reaction was,” says **Joseph Moellman**, MD, associate professor of emergency medicine at the University of Cincinnati.

If patients say they got an itchy rash and their throat closed off, that represents an allergic reaction, he says. On the other hand, if the patients say they get nauseated, that's likely to be a side effect of the medicine or something they were being treated for already, Moellman adds. “That doesn't represent an allergic reaction.”

Whether to prescribe penicillin in this case is a

CNE instructions

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

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

The semester ends with this issue. You must complete the evaluation form provided in this issue and return it in the reply envelope provided in order to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

COMING IN FUTURE MONTHS

■ Stop dangerous delays with time-sensitive meds

■ The biggest legal risks posed by stroke patients

■ Documentation mistakes that can get you into legal hot water

■ What to do first if you think your patient might sue

“judgment call for the treating physician,” he says. “If I got a detailed history and the patient said they developed minor symptoms such as nausea or diarrhea, I may prescribe penicillin,” Moellman says. “If the history is vague and they don’t know, all bets are off, and I wouldn’t take the chance.” ■

CNE objectives/questions

Participants who complete this activity will be able to:

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

21. Which is an *early* sign of intracranial injury?
 - A. Pupil changes.
 - B. Increased systolic blood pressure.
 - C. Nausea and vomiting.
 - D. Widening pulse pressure.
22. Which is true regarding the risk of methicillin-resistant *Staphylococcus aureus* (MRSA) transmission in the ED?
 - A. Stethoscopes are highly unlikely to be contaminated.
 - B. Any surfaces touched by a gloved hand are high-risk.
 - C. Disposable blood pressure cuffs should not be used.
 - D. A patient’s previous history of MRSA is not relevant.
23. Which is true regarding injuries caused by abuse?
 - A. Lower facial fractures are much more likely than injuries in the eye area to have been caused by abuse.
 - B. Breaks around the eye socket or cheekbones are highly unlikely to have been caused by abuse.
 - C. Breaks around the eye socket or cheekbones were more likely to be caused by abuse than jaw injuries.
 - D. A full body examination usually is not necessary.
24. Which is true regarding self-reporting of penicillin allergy in the ED?
 - A. Penicillin is less clinically effective in combating bacterial infections such as strep than other alternatives.
 - B. Almost all patients who report penicillin allergy are truly allergic.
 - C. If a patient reports a medication allergy, the specific reaction they had is not relevant.
 - D. ED nurse should ask patients who report allergies what specific reactions they had, and document them.

Answers: 21. C; 22. B; 23. C; 24. D.

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H1N1 Cases

Below are two lists of items given to ED nurses at The Hospital of Central Connecticut in New Britain for screening and confirmatory testing of suspected H1N1 cases, developed by **Jeffrey A. Finkelstein**, MD, chief of emergency medicine:

Influenza Screen

1. Wash hands and wear gloves.
2. Wear N95 mask and face shield.
3. Use red topped culture for initial screen. Separate the two cotton tipped swabs. Swab a pharyngeal tonsil with one swab and the nasal cavity with the other swab. Gently insert swab along the floor of either nostril, beneath the inferior turbinate. Aiming toward the same-side earlobe, insert the swab approximately one half of the distance to the earlobe (typically 3-5 centimeters, depending on the age and size of the patient). Roll the swab several times against the nasal wall and withdraw. The entire process should not be painful - most patients describe a "tickling" sensation, such as that felt prior to sneezing, when properly performed.
4. Place cotton swabs back in to the sleeve.
5. Label specimen, place in bio-hazard plastic bag, order influenza A&B and send to the lab. Results should be available within 60 minutes.
6. Remove gloves in room and wash hands.

Influenza Virus Culture (Confirmatory Testing For Swine Flu)

1. Wash hands and wear gloves.
2. Wear N95 mask and face shield.
3. Specimens should be collected using swabs with a synthetic tip (e.g., polyester or Dacron®) and an aluminum or plastic shaft. Swabs with cotton tips and wooden shafts are not recommended. Specimens collected with swabs made of calcium alginate are not acceptable. Gently insert swab along the floor of either nostril, beneath the inferior turbinate. Aiming toward the same-side earlobe, insert the swab approximately one half of the distance to the earlobe (typically 3-5 centimeters, depending on the age and size of the patient). Roll the swab several times against the nasal wall and withdraw. The entire process should not be painful--most patients describe a "tickling" sensation, such as that felt prior to sneezing, when properly performed. Cut the metal holder and place in viral medium.
4. Fill out Connecticut Department of Public Health's Lab Microbiology Testing Service Form
5. Label Specimen, place specimen and form in bio-hazard plastic bag, order in Empower (if applicable) and Cerner (undefined lab, state in comments: Swine Flu Culture) and send to the lab. Results should be available within 24 hours.
6. Remove gloves in room and wash hands.

Neurological Monitoring Guideline

Emergency Department
Pediatric Emergency Department

Guideline Number #1

Effective Date: March 6, 2008

Revised Date:

Reviewed Date:

Approved by: Emergency Operations
Pediatric Joint Practice

Policy:

This policy is intended to identify patients who require close observation of neurological status while in the emergency department. This guideline will also specify frequency of documented checks by the nursing staff.

Purpose:

This guideline applies to all head injured patients who have either a deviation for their baseline mental status and/or an acute intracranial injury identified by Computer Tomography Scan (CT Scan).

Inclusion Criteria:

1. Patients with normal neurological exam, with evidence of an intracranial injury (i.e. cerebral contusion, subdural, epidural, subarchanoid hemorrhage) identified with CT Scan.
2. Confused patients with a head injury whose baseline mental status cannot be confirmed
3. Patients with a head injury who are impaired (Drug or alcohol intoxication) with abnormal mental status.

Procedure:

1. Once any of these criteria have been met neurological checks must be performed and documented on a neurological flow sheet (Addendum A).
 - a. Glasgow Coma Scale, pupils, grips/grasps every 15 minutes for the first hour.
 - b. Glasgow Coma Scale, pupils, grips/grasps every 30 minutes for the next 6 hours and hourly there after
2. Any deterioration from the patient's initial baseline must be reported to the Attending Physician immediately.
3. The nursing staff should initiate this protocol, but an order needs to be placed in the computer chart by the physician.
4. The neurological flow sheet will need to be scanned into the electronic medical record upon final disposition of patient.

Responsibility

Registered Nurse

References:

Emergency Nurses Association (1998). Sheehy's Emergency Nursing Principles and Practice

Emergency Nurses Association (2007). Emergency Nursing Core Curriculum

Emergency Nurses Association (2005). Sheehy's Manual of Emergency Care

<u>Approval</u>	<u>Consultation</u>	<u>Committee/Person</u>	<u>Date</u>
X		Madonna Walters, Trauma	12/16/2008

Medical Director-Emergency Services

Date

Service Delivery Leader

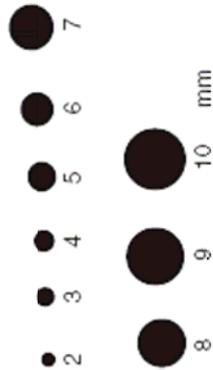
Date

Source: St. Joseph Mercy Hospital, Ann Arbor, MI.

The Glasgow Coma Scale scores the patient's "BEST" response.

Pupil Size

Record the pupillary size before and after constriction, or unable to open eye due to swelling.



Pupil Reaction

R equal to Reactive
BrisK
Sluggish
NR equal to No Reaction

Strength

Grasp: R equal to L,
R greater than L, or
R less than L
and
W equal to Weak
S equal to Strong

Leg Lift: Record R equal to L,
R greater than L, or
R less than L
and
W equal to Weak
S equal to Strong

Verbal Response

Score 5 if patient is oriented to person, place, and time.

Score 4 if patient is not oriented to person, place, and time, but is still able to converse.

Score 3 if patient only speaks in words or phrases that make little or no sense.

Score 2 if patient responds with incomprehensible sounds.

Score 1 if patient does not respond verbally.

Verbal Response (Intubated or Trached Patient)

Appears to converse equal to 5
Responsive but orientation in question equal to 3
No Response equal to 1

Motor Response

Patient can obey a command such as "raise your hand" equal to 6

Patient purposefully tries to remove a painful stimulus equal to 5

Patient flexes in response to pain, not a purposeful response to pain. equal to 4

Motor Response (Unconscious Patient)

Abnormal flexion/decortication equal to 3
Involves flexion of the arms at the elbow with internal rotation of the wrist. One or both arms are drawn up toward the chest, and legs are rigidly extended.



Abnormal extension/Decerebration equal to 2
Extension of one or both arms at the elbow with internal rotation of the shoulders and wrists. Legs are also rigidly extended.



No Motor response equal to 1
No response to painful stimuli

Hint: It is possible to see a patient who responds with a different motor response on each side, ie decorticate on left, decerebrate on right. If this occurs, rate the highest score.

MILD HEAD INJURY – AFTER ER VISIT



About Head Injury

Head injuries can result from falls, motor-vehicle accidents, bicycle accidents, sports injuries, or any blow to the head. Each injury is different and can range from a concussion, or mild injury, to a severe injury. Most people have a good recovery from mild head injuries. Recovery takes time and getting plenty of rest is important.

What to Expect

It is normal for many people with head injuries to have no memory of the accident or moment of injury. Other symptoms are usually mild and will go away within a day or two but can last longer. These symptoms may include:

- Nausea or Vomiting (throwing-up)
- Feeling dizzy or ringing in the ears
- Headaches
- Drowsiness or sleepiness

When You Go Home from the ER

A responsible person must pay close attention to you for the next 1-2 days. You should not be left alone for the first 24 hours.

- **You may sleep if you want to, but whoever is watching you should wake you up every 2 hours for the next 24 hours. They should make sure you awaken easily and to check for any symptoms listed in the box below.**
- Vomiting usually goes away in a few hours. When you have not thrown up for at least 2 hours you may drink clear liquids (water, pop or apple juice). If you keep fluids down you may try to eat.
- No alcohol (beer, liquor, or wine) for 48 hours.
- Keep quiet and decrease your activity for the next 24 hours. Do not drive a car, participate in sports activities, or operate machinery until cleared by a doctor.
- Headaches may be constant or frequent for a few days or longer but should gradually improve over time. For headache pain, you may use only plain Tylenol® or acetaminophen (if not allergic), according to package directions for age. **DO NOT** take Aspirin®, Motrin®, or ibuprofen products since these can make bleeding worse. **Call your primary doctor or return to the emergency room for severe, worsening headache that does not improve after taking Tylenol®.**
- Do not take any sedatives, pain medications, or medications that cause sleepiness without your doctor's approval.
- Babies should be watched for irritability, poor feeding and vomiting.

(continued on back)

Have someone Call 911 or bring you back to the Emergency Department if you have any of these symptoms:

- Unable to wake up or becomes unconscious
- Vomiting (throwing up) more than 2 or 3 times
- Changes in your ability to hear, speak or see
- Stumbling or having difficulty walking
- Weakness, paralysis or uncontrollable twitching of face, arm or leg
- Fits, seizures (convulsions)
- Bleeding or drainage from ears or nose
- Pupils (black center of eyes) that are now different sizes from each other
- Trouble answering simple questions (What day is it? Where are you?)
- Changes in behavior or not able to recognize familiar people or objects

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MILD HEAD INJURY – AFTER ER CARE (continued)

Follow Up Care

In some cases the emergency room doctor may advise you to be evaluated by a your primary care physician or a head injury specialist (PM&R doctor). To follow up with a head injury specialist, call the **Associates in PM&R Concussion Clinic** at (734) 712-0050 to make and appointment.

In the Future

For some patients recovery is slow and they may have delayed symptoms such as headache, irritability, frustration, poor concentration, memory loss, confusion, behavior changes, difficulty sleeping, difficulty performing normal activities and even depression. It is important to seek proper treatment for head injury symptoms. If you have continued or delayed symptoms please call your primary care doctor or the **Associates in PM&R Concussion Clinic (734) 712-0050** to be evaluated.

Avoid further head injury

Many head injuries are preventable by taking simple safety measures. It is extremely important to prevent a second head injury while still recovering from a concussion or mild head injury. Do not return to driving or sports activities unless cleared by a doctor.

- **Buckle your seat belt.** Always wear your seatbelt and make sure children are in proper car seats/restraints.
- **Wear a helmet during recreational activities** such as bicycling, skating, riding motorcycles or ATVs, riding horses, snowboarding or skiing.
- **Wear safety equipment while playing competitive sports.** Properly fitting and appropriate safety equipment may protect you from injury while participating in sports such as hockey, football, and martial arts.
- **Avoid falls.** Keep your home well lit and free of situations that might cause you to trip and fall. Falls around the home are the leading cause of head injury for infants, toddlers, and older adults.
- **Protect your children.** Pad sharp countertop or table edges, block off stairways, and keep children from climbing on unsafe or unsteady objects.
- **Wear sensible shoes.** If you're older, wear thinner, hard-soled, flat shoes. Avoid shoes with thick soles that may impair your balance. Avoid high heels, or shoes that are too slippery or too sticky.

Author: James A. Wilde MD, FAAP, Associate Professor of Emergency Medicine and Pediatrics, Medical College of Georgia, Augusta; member, State of Georgia Pandemic Flu Planning Committee and the Altered Standards of Care Sub-committee. Dr. Wilde assisted in the preparation of the Medical College of Georgia Pandemic Flu Plan, and is an influenza sentinel provider for the CDC.

As this article goes to print in the first week of May, we are ending the second full week of the 2009 H1N1 swine flu outbreak. It appears the World Health Organization (WHO) may raise its Pandemic Alert level to Phase 6, indicating a full-scale pandemic with sustained human-to-human infection. Despite this, there are signs that this outbreak will turn out to be relatively mild and may even fade altogether.

Why, then, the high level of concern from both WHO and the Centers for Disease Control and Prevention (CDC)? What is the significance of this outbreak? Are there any further actions we as individual clinicians should take? These questions and others will be examined in this article.

Background

A frequent question from the audience in flu pandemic presentations is “How much time will we have to prepare once a pandemic starts?” The 2009 swine flu outbreak provides an excellent example to illustrate just how little time we will have. This is of critical importance in planning for a pandemic at the national, state, and local level.

To understand the events of the past two weeks, it is helpful first to understand how flu activity is monitored at the state and national level.

More than 1,000 clinicians from around the United States voluntarily collect data on patients in their practice setting who present with influenza-like illness (ILI) and relay that information to the CDC on a weekly basis. ILI is defined by the CDC as temperature of $\geq 100^{\circ}$ F PLUS either cough or sore throat in the absence of an alternative diagnosis such as pharyngitis due to group A *streptococcus*.¹ The CDC has found that ILI correlates well with influenza activity and is an excellent way to monitor the progress of a typical flu season. These “sentinel providers” also are asked to send occasional throat or nasopharyngeal swabs to the CDC for influenza culture so that the circulating strains can be monitored.

A graph of ILI found on the CDC web site shows that the season was winding down by week 14, the week ending April 11, 2009.² The number of people seen in clinics and emergency departments with ILI was actually below the baseline of approximately 2%, indicating that the rate of ILI was no higher than the background rate for the year.

As of week 14, CDC reported that the majority of the isolates tested during the influenza season that started October 1, 2008, were influenza A/H1N1. About one-third of the isolates tested were influenza B, and there was a small number of A/H3N2 isolates.¹ Subtypes H1N1 and H3N2 have accounted for all the human influenza A strains that have circulated in the world since 1977.³ Overall flu activity that week was down substantially on the national level, and only 15 states were still reporting regional or widespread activity.

Swine Flu Appears, then Events Unfold Rapidly

On April 22, 2009, CDC announced that it had detected two unusual cases of influenza in children in California.⁴ The isolates were type A influenza, subtype H1N1, but they were clearly distinct from the A/H1N1 human influenza virus that had circulated earlier in the winter. They appeared to be of swine origin. The earliest of the two cases was a

child with onset of symptoms on March 28, and both patients had already recovered at the time of the report.

That report was met with interest by some in the infectious diseases world but hardly raised an eyebrow elsewhere. In general, influenza viruses do not cross the species barrier, although isolated cases of swine or avian flu have been reported in humans before and are not necessarily cause for alarm.^{5,6} The largest recent outbreak was caused by avian influenza type A, subtype H5N1, also known as “bird flu.” This virus was first reported in 1997 in Hong Kong and has since infected more than 300 people, with a mortality rate over 60%.⁷

A/H5N1 is still circulating in the Eastern Hemisphere but has not yet been found in the Western Hemisphere. It has shown limited person-to-person spread. It has caused public health authorities throughout the world to advise their nations to prepare for a new pandemic, possibly coming from a mutated strain of A/H5N1 or from a currently unknown source. The last influenza pandemic to strike the world was Hong Kong flu in 1968, a type A, subtype H3N2 that caused the deaths of 1 million to 2 million people worldwide. At least 50 million people worldwide perished from the 1918 “Spanish Flu.”

Everything changed on Thursday, April 23, when CDC reported human cases of swine influenza A/H1N1 in seven patients in California and Texas, with evidence of human-to-human spread. Anne Schuchat, Interim Deputy Director for Science at the CDC, indicated in a news conference that day that the virus has components from swine, human, and possibly avian sources. According to Dr. Schuchat, “That particular genetic combination of swine influenza virus segments has not been recognized before in the U.S. or elsewhere.”⁸ This news was particularly relevant because of the fact that swine can serve as intermediate hosts for both avian and human viruses. This allows for genetic reassortment and the production of novel viruses with human and avian components that can theoretically produce pandemic influenza.⁵

Suddenly there was cause for concern, and the CDC decided to send a team of seven epidemiologists to California to aid in the investigation. Part of the reason for the increased urgency was that three ingredients are required for a new flu pandemic: the emergence of a novel virus; a population with no existing immunity against the subtype; and rapid transmission from person to person. It appeared that the first two criteria had already been met. It was not yet clear if the third criterion had been.

After April 23, events unfolded with breathtaking speed best illustrated with a timeline. (See Table.)^{9,10}

Discussion

As of May 5, it is still unclear if we are heading for a full-scale influenza pandemic with the impact of the pandemics we encountered in 1918, 1957, or 1968. The very high death rate initially reported from Mexico has been revised downward with each passing day. At this point the mortality rate in Mexico is about 4%, but the mortality rate in the United States and the rest of the world combined is not appreciably different from the mortality rate from routine seasonal flu. It is possible that

Table. H1N1 Timeline

- Friday April 24:** Mexico's Minister of Health confirms seven cases of swine flu in Mexico. There are 854 cases of pneumonia reported from Mexico City, with 59 deaths; further investigations are in progress. Data provided by the Mexican government to the WHO indicate an upturn in ILI cases in Mexico starting March 18. CDC confirms that the Mexican strains match those found in the U.S. The CDC begins to refer people to its web site for information on preparation for a pandemic. There are now 18 confirmed cases of H1N1 in the United States.
- Saturday April 25:** CDC sends a team to Mexico.
- Sunday, April 26:** There are now 20 cases confirmed in five U.S. states. A cluster of students is identified in New York; most have traveled recently to Mexico. The Department of Health and Human Services declares a public health emergency in the United States. Homeland Security Secretary Janet Napolitano announces the release of 25% of the 50 million treatment courses of Oseltamivir (Tamiflu) in the Strategic National Stockpile.
- Monday April 27:** There are 40 confirmed cases in five U.S. states. The median age of infected patients is 16 years, with a range of 7 to 54 years. All have recovered uneventfully. The new strain is susceptible to Oseltamivir and Zanamivir (Relenza). It is resistant to the older adamantane class of antiviral medications (Amantadine, Rimantidine). CDC reports that there is no cross-reacting antibody from the seasonal vaccine H1N1 against the H1N1 swine virus. This means that the new virus is so completely different from the human H1N1 subtype that there is no protection to be offered against the new strain by the influenza vaccine that was in use this season. CDC now confirms 26 cases in Mexico and advises that "non-essential" travel to Mexico should be avoided but does not recommend that the border to Mexico be closed.
- Tuesday April 28:** Sixty-four cases are confirmed in five U.S. states. WHO reports seven countries with confirmed swine flu H1N1 infection in humans: New Zealand, Canada, United Kingdom, Israel, and Spain. The WHO raises the worldwide pandemic alert level from Phase 3 on its 6-point scale, where it has been since the emergence of H5N1 avian flu, to Phase 4. This indicates confirmed person-to-person spread. The CDC directs clinicians to its Web site for guidance on detection and treatment of swine flu. President Obama requests \$1.5 billion in emergency supplemental funding for swine flu.
- Wednesday, April 29:** There are now 91 confirmed cases in 10 U.S. states. CDC issues guidance on antiviral recommendations for patients with confirmed, probable, or suspected H1N1. Definitions of those terms in persons with acute febrile respiratory illness are as follows:¹¹
- Confirmed: by RT-PCR or culture (available only at CDC but soon to be available in all state laboratories).
 - Probable: positive for flu A, negative for human H1 and H3. Further testing at CDC required.
 - Suspected: contact with confirmed patient within seven days of symptom onset or travel within seven days to an area with known swine flu activity or in a community with confirmed H1N1.
- There is no recommendation to treat patients with ILI who are not in those categories. CDC and the Food and Drug Administration (FDA) issued recommendations in favor of using Oseltamivir in children younger than 1 year of age, a group for which the drug has not yet been approved.¹² The WHO raises its Pandemic Alert Level to Phase 5, indicating significant person-to-person transmission.
- Thursday April 30:** 109 cases are confirmed in 12 U.S. states. One death is reported in Texas, a 23-month-old child from Mexico City who had crossed into Texas shortly before her death. WHO reports 257 confirmed cases in 11 countries other than the United States and Mexico, with no deaths.
- Sunday May 3:** CDC completes the deployment of 25% of the supplies in the Strategic National Stockpile to all states in the continental United States.
- Monday May 4:** There are now 286 confirmed cases in 36 U.S. states with one confirmed death. WHO reports that 21 countries have a total of 1,085 confirmed cases of swine flu, with 25 deaths in Mexico (590 laboratory confirmed cases) and no deaths outside the United States and Mexico (209 laboratory confirmed cases).¹³

Mexico has undercounted the number of infected persons, driving the mortality numbers artificially high. More data are urgently needed to better understand the widely divergent mortality figures between Mexico and the rest of the world.

While the spread of the disease around the world has been quite rapid, the total number of infected patients has been relatively modest in the 4–6 weeks since the first case was identified. Even in Mexico, approximately two thirds of the patients who had ILI and were in a known endemic region tested negative for swine flu. It is not clear yet how easily the virus is spread, or how many additional cases result from each infected individual. If that number is small, as it was with the SARS virus, then this outbreak may fade.

We will probably know by the middle of May how severe this outbreak will be. Until we have more information, we should maintain our vigilance and continue to make preparations for a possible pandemic. It is also important to be aware that an aborted outbreak now may reappear next flu season as a more widespread pandemic.

(On May 1, the Medical College of Georgia Department of Emergency Medicine and the MCG Center for Operational Medicine broadcast a one-hour lecture on pandemic flu and H1N1. A videotape of that lecture can be viewed by going to www.mcg.edu/about/h1n1 and clicking on "Pandemic Influenza: What We Should Know" in the corner box.)

References

1. Centers for Disease Control and Prevention. Flu Activity and Surveillance. <http://www.cdc.gov/flu/weekly/fluactivity.htm>.
2. Centers for Disease Control and Prevention. Flu View: 2008-2009 Influenza Season Week 14 ending April 11, 2009. <http://www.cdc.gov/flu/weekly/weeklyarchives2008-2009/weekly14.htm>.
3. MMWR Centers for Disease Control and Prevention. Prevention and Control of Influenza. *MMWR* 2008;57(No. RR-7):4.
4. Centers for Disease Control and Prevention. Swine Influenza A(H1N1) Infection in Two Children: Southern California, March-April 2009. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58d0421a1.htm>
5. Mandel, Betts RF. Influenza Virus. In: *Principles and Practice of Infectious Diseases*, 4th ed, Mandel GL, Bennet JE, Dolin R, editors. Churchill Livingstone: Philadelphia;1995:1550.
6. Myers KP, Olsen CW, Gray GC. Cases of swine influenza in humans: a review of the literature. *Clin Infect Dis* 2007;44:1084-1088.
7. Gambotto A, Barratt-Boyes SM, de Jong MD, et al. Human infection with highly pathogenic H5N1 influenza virus. *Lancet* 2008;371:1464-1475.
8. Centers for Disease Control and Prevention. Press Briefing Transcripts: CDC Briefing on Public Health Investigation of Human Cases of Swine Influenza. <http://www.cdc.gov/media/transcripts/2009/t090423.htm>.
9. Centers for Disease Control and Prevention. H1N1 Flu (Swine Flu). www.cdc.gov/h1n1flu.
10. World Health Organization. Influenza A(H1N1): Special Highlights. www.who.int/en.
11. http://www.cdc.gov/h1n1flu/casedef_swineflu.htm.
12. Centers for Disease Control and Prevention. Interim Guidance for Clinicians on the Prevention and Treatment of Swine-Origin Influenza Virus Infection in Young Children. <http://www.cdc.gov/h1n1flu/children-treatment.htm>.
13. World Health Organization. Influenza A(h1N1): Update 14 http://www.who.int/csr/don/2009_05_04a/en/index.html.