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## Which acute MI patients are most at risk for mistriage? Identify them

*Look beyond 'typical' symptoms of ED patients*

A female patient told ED nurses that her only complaint was back pain, with no shortness of breath, chest pain, discomfort, nausea, or vomiting.

"There was no history of acute coronary syndrome, and no family history to support a suspicion of cardiac origin. Only because the EKG was done for admission did the team learn that there was an active STEMI [ST-elevation myocardial infarction] present," recalls Patrick L. Evangelista, RN, who cared for the patient at an ED where he worked previously. Evangelista is an ED nurse at Kaiser Permanente's Moanalua Medical Center in Honolulu, HI.

Certain acute myocardial infarction (AMI) patients are more likely to be mistriaged as low acuity, according to a new study. These are the elderly, women, and diabetics.<sup>1</sup>

Clare Atzema, MD, the study's lead author and a scientist at Sunnybrook Health Sciences Centre in Toronto, Ontario, Canada, says, "The triage process is necessarily brief. Even after a full ED work-up, between 2% and 5% of AMI patients are missed and sent home."

Evangelista says that one obvious problem for emergency nurses is "limited time to look at the whole picture of what is going on in that particular moment. Subtleties of symptoms can be overlooked as nursing focuses on the dramatics of a full ED, lobby, or waiting area, and a backup of ambulance rigs wanting bed space as well as nursing time."

Atzema acknowledges, "It is a tough job to identify these patients at triage. It will never be perfect. That said, it is a big opportunity to affect lives."

To improve your assessment of AMI, make these changes:

## EXECUTIVE SUMMARY

Elders, women, and diabetics with myocardial infarctions (MI) are more likely than other MI patients to be mistriaged as low acuity when presenting to EDs, according to new research.

- Ask further questions if patients downplay symptoms.
- Review outcomes of discharged ED patients.
- Suspect MI in patients with fatigue, indigestion, or mild shortness of breath.

- **Get as much practice as possible.**

Evangelista says you should “look at EKG after EKG, even if it’s someone else’s patient.”

EDs that saw high volumes of AMI patients triaged them more accurately than those with low volumes, according to the study. Atzema says, “Practice makes perfect, or as close to it as you can get. The more chest pain patients you see, especially those that turn out to be experiencing an AMI, the better you will become at recognizing and triaging them.”

- **Find out what happened to your ED patients.**

Atzema recommends taking the time to see which patients discharged from your ED were eventually diagnosed with an AMI.

Medical records of AMI patients are reviewed

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by ED nurses at Massachusetts General Hospital in Boston, reports **Jeffery Chambers**, RN, an ED nurse and member of the STEMI committee. “Feedback is given directly to the nurses involved in the patient’s care,” Chamber says.

- **Probe deeper if patients report vague complaints.**

Chambers says that patients who downplay their symptoms or withhold information, such as cocaine use, put themselves at risk. “Patients who are poor historians and have difficulty describing the events are also vulnerable,” he says. “Triage nurses must probe deeper in those patients who present with vague complaints.”

Chambers says that in his experience, it’s not unusual that further questioning leads to a diagnosis of an MI.

Always get an EKG done right away, even if the patient isn’t having or hasn’t experienced chest pain.

Atzema says, “Elderly patients, women, and diabetic patients often won’t have chest pain. If you get an early EKG on these patients, then you won’t miss any STEMIs, where delays in terms of minutes really matter. Even just capturing those patients would affect a substantial change in mortality rates.”

- **Look at the “big picture.”**

Evangelista says to “look beyond the typical MI symptom and see the patient holistically. We need to be able to reason through differential possibilities, and not just perform task nursing.”

Notice these details, advises Evangelista: Whether the patient is obese, presents with shortness of breath on exertion, is pale, is diaphoretic, is holding their arm or chest, whether they smell of cigarettes, the temperature of their skin, and even whether they have on a wedding band. “We can use all this information to evaluate the patient,” says Evangelista. Identifying risk factors can make a strong case for expediting the patient to a bed, an EKG and blood draw, he explains.

“An obese patient is more likely to have a heart

attack then someone who is not,” says Evangelista. The wedding band can be indicative of risk of MI. Married female patients statistically have a greater risk of dying of a heart attack than an unmarried woman, and conversely for men.” (See related stories on determining whether a patient’s symptoms are cardiac and recommended triage practices, below.)

## REFERENCE

1. Atzema CL, Austin PC, Tu JV, et al. ED triage of patients with acute myocardial infarction: predictors of low acuity triage. *Am J Emerg Med* 2010;28:694-702. ■

# Clinical Tips

## Are patient’s symptoms cardiac? Ask why not

Eric Joncas, RN, patient care supervisor in the ED at Fairview Southdale Hospital in Edina, MN, considers any presenting complaint that is above the waist to be cardiac, and then he asks targeted questions to prove that it isn’t.

“Women in particular often present with vague atypical symptoms that often steer the triage or ED nurse down the wrong path,” notes Joncas. “It is because of this that I have adopted the approach of asking ‘How or why isn’t this cardiac?’”

Joncas considers the patient’s description of onset, duration, quality, and radiation, as well as past medical history, a brief medication history, and overall physical appearance “for that gut instinct.” He asks himself whether he is fully convinced that the complaint isn’t cardiac. “If all of the above is not enough to convince me, I do the EKG and have it read by an ED physician,” he says. ■

## Use these triage practices for MI

Lack of education regarding the signs and symptoms of myocardial infarction (MI) and failing to provide interpreter services quickly upon presentation are two reasons why an MI might be missed by a busy ED nurse, according to Jeffery

Chambers, RN, an ED nurse and member of the STEMI committee at Massachusetts General Hospital in Boston. Here are the ED’s triage practices:

- As soon as a patient enters the ED, he or she is seen by an experienced ED nurse who greets the patient.

After a 30-second to 2-minute interview, the nurse greeter determines the immediate need to send the patient directly to an acute treatment area, receive an EKG, or have the patient go to a triage desk to complete the normal triage process, says Chambers.

Patients sent to the acute treatment area skip the normal triage process, receive an EKG, and are immediately evaluated, says Chambers.

- If the nurse greeter decides an EKG is needed to help determine a patient’s acuity upon arrival, he or she asks a patient care associate (PCA) to perform the EKG.

The PCA immediately escorts the patient to a stretcher, located only a few steps from the triage area, and performs the EKG. “With the patient still lying on the stretcher, the EKG is handed directly to an ED attending physician,” says Chambers. “The attending doctor reads the EKG and determines the level of acuity.”

- If there is any suspicion of an acute cardiac issue, the patient is taken directly to the acute treatment area.

If there is no immediate life-threatening concern, patients will finish the triage process. “The latter group of patients will be evaluated by a physician within 30 minutes of arrival in the screening bays,” says Chambers.

## Expect vague symptoms

Remember that AMIs present without chest pain in one-third of patients, says Clare Atzema, MD, a scientist at Sunnybrook Health Sciences Centre in Toronto, Ontario, Canada. Atzema says to always consider the possibility of an AMI in an elder, woman or diabetic with weakness or shortness of breath.

“Triage them according to your clinical suspicion,” she says.

Patrick L. Evangelista, RN, an ED nurse at Kaiser Permanente’s Moanalua Medical Center in Honolulu, HI, notes that not all MI patients experience a crushing chest pain radiating to the jaw and left arm with diaphoresis, shortness of breath, and/or nausea and vomiting.

“Some symptoms are ‘silent’ and nonspecific to

a cardiac origin,” he says. “Men and women present differently with AMI symptoms. Women who have a first time acute coronary syndrome show a wider range and more atypical symptoms compared to men.”

Female symptoms might include generalized fatigue, indigestion, and/or mild to moderate shortness of breath, says Evangelista. “Many times a woman having an AMI may be overlooked both based on the patient’s chief complaint as well as presentation to the ED,” he says.

Elderly might have different symptoms than younger patients and might present only with shortness of breath, weakness, syncope or near-syncope, diaphoresis, and nausea or vomiting, says Evangelista.

Chambers notes that “typical signs and symptoms of an MI are more obvious and easy to detect,” such as chest pain, pressure, or discomfort that radiates to the neck, jaw, back, or arms. In reality, though, MI patients might present with abdominal pain, nausea and vomiting with or without pain, weakness, dizziness, shortness of breath, heartburn, and general malaise or fatigue, he adds.

Evangelista says that “atypical is typical. No one is absolutely typical. Don’t waste time trying to find that one thing that will let you avoid doing a full work-up.” ■



## Don't miss emergencies in 'challenging' teens

*Psych complaints are rising*

“More and more” preteen and adolescent patients are coming to the Emergency Department Trauma Center at Children’s Hospital of Wisconsin in Milwaukee with a variety of psychosocial needs, and many have underlying medical conditions as well, says **Carrie L. Baumann**, RN, BSN, patient care supervisor.

Joyce Fuss, RN, BSN, CEN, FNE, a senior partner nurse in the ED at Methodist Hospital in Indianapolis, is seeing an increasing number of adoles-

cents with psychological problems. “I believe this is due to the decreased availability of community resources,” says Fuss. “Since psych is not a money maker, more and more facilities are having to cut back. This leaves the ED to figure out what is best for these patients.”

Fuss says that she is seeing an increasing number of this population without parents. “Many of the adolescents we see are parents themselves,” she adds.

### Privacy is key

Adolescent patients often fail to tell ED nurses important clinical information, warns Baumann.

“They will withhold pregnancy status, sexual activity, drug and alcohol history, and social/family history,” she says. “Triage may not be the appropriate area for personal questions. Privacy is your key to getting the most accurate information.”

Fuss agrees that your patient should be interviewed alone. “Many times, active listening is the key to getting all the information needed,” she says. “Treat them like you would an adult. Give all the information to them, allowing the parents to listen if appropriate.”

Speaking directly to the patient, instead of their parents, builds trust, says Fuss.

Trauma easily could be missed if the patient is out of control, combative, and has a psychiatric history, notes Fuss. “So could ingestions, if the patient does not state they took something,” she adds.

Fuss says that it is “very difficult to get patients who are having true psychiatric breaks calm. When they are, they require medications that sedate them. Sedated patients are difficult to interview to determine the cause of the problem.”

### Risk of self-harm

Fuss says that in her experience, “the adolescents who state they are going to harm themselves while making a big scene rarely do so on purpose.”

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### EXECUTIVE SUMMARY

ED nurses are seeing increasing numbers of pre-teens and adolescents with psychiatric complaints. To improve your assessment of these vulnerable patients:

- Interview the patient alone.
- Suspect a high risk of self-harm in patients who appear withdrawn.
- Work with social services to facilitate transfers.

## SOURCES

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Many times, they do something they feel will get them attention. They do not understand that the end result may be fatal," she adds.

The patients who Fuss has seen do intentional harm to themselves are most often "the quiet ones who have a flat affect and are withdrawn from everyone. Many times, you can talk the dramatic patient down quickly. The withdrawn one will tell you what you want to hear so they can continue on with their plan."

To improve the care of "challenging adolescents," Baumann's ED has made these changes:

- **Screening questions are asked.**

Before the patient even arrives at triage, he or she is greeted and screened by an ED nurse who can contact social workers or place the patient in a private screening room. "This is integral in quickly assessing the situation and starting the ball rolling," says Baumann.

- **Local inpatient facilities are consulted as needed.**

"There is a crunch for space in the current facilities that take our psychiatric patients," explains Baumann. "We do not have an inpatient psychiatric unit, so we depend on outside resources."

ED nurses work with social services, and in some cases local law enforcement, to facilitate a patient's transfer to outside facilities. "This decreases length of stay in the ED and gets them the help they need," says Baumann.

If the patient is discharged from the ED, parents are informed about outside resources such as support groups, adds Baumann. "Our social workers hand out multiple resources to parents to help them to cope with having a child with mental and psychosocial issues," she says.

- **An outreach nurse contacts each patient that was seen in the ED.**

This ED nurse asks if there are any problems with paperwork sent to a facility, difficulties with medications, or if any additional phone numbers are needed.

"Mostly, they are a support for the parents. They make sure that next steps are being taken," says Baumann. "This decreases repeat visits to the ED." (See related story on screening patients for bullying, below.) ■

## Is bullying occurring? Ask direct questions

### *Screen all children in the ED*

ED nurses at Tufts Medical Center and the Floating Hospital for Children in Boston have always performed pediatric safety screening, including car seat and seat belt use, fall risk, secondhand smoke exposure, and suicidality. Now, nurses have begun asking questions about bullying.

When Eileen Callahan, RN, BSN, one of the ED's pediatric nurse educators, was caring for a 12-year-old with complications from her diabetes, she learned that the girl had been ostracized at school by other children who thought "they could catch diabetes by being near me." "The bullying became so severe, the child needed to change to another school," says Callahan.

She formed a task force to discuss bullying screening in the ED. "We met to discuss what our plans would be if we had a positive bullying screen from a pediatric patient," Callahan says. "We are presently in the process of putting together a formalized algorithm of how we would respond." This is the ED's current process:

- **ED triage nurses tell pediatric patients, "We are checking all school age children who come into the ED to make sure they are safe at school."**

"We then ask if they have ever been bullied or if they are being bullied at school now," says Callahan.

If the answer is yes, ED nurses ask the parent or guardian if it has been reported to the school. "If it has been reported, we encourage the family to stay on top of the school to ensure the child's safety. We notify the primary care doctor to ensure the mental health of the child," says Callahan.

- **ED physicians perform a brief psychiatric screening to see if the child is in imminent danger of self-harm.**

A 12-year-old girl came to the ED significantly withdrawn, and ED nurses learned this condition was due to bullying. “We did a physical and mental health evaluation in the ED. She was admitted to a child psych facility for further treatment,” says Callahan.

If there are concerns about the child harming him or herself, ED nurses contact child psychiatry to evaluate the patient while still in the ED. “If the child has mental health issues, but does not appear to be at risk of imminent danger, we refer them to our child psychiatry outpatient department for close follow-up,” says Callahan.

• **Families are encouraged to file a report with the school if they have not already done so.**

Callahan cared for a 10-year-old boy who had been nauseous and vomiting for nine days, and she learned that he had had problems with bullying. “The child looked quite well physically, and blood work did not show any sign of dehydration,” says Callahan. “It was determined that some of the abdominal complaints may be attributed to his bullying at school.”

ED nurses notified the child’s primary care physician. “She was happy to have been informed of this information and planned to have close follow-up with the family,” says Callahan. ■

## Change in elder’s vitals? Consider medications

*Normal-looking patient can fool you*

An 85-year-old man who reports vomiting and diarrhea after an injury, and also happens to be on beta blockers, might have a blood pressure of 120/70 and heart rate of 82 and “look absolutely normal, even though in reality he is hypotensive and tachycardic, and he is in shock,” says **Justin Milici**, RN, MSN, CEN, CPEN, CFRN, CCRN, TNS, education specialist for the ED at Methodist Dallas Medical Center.

“That is what can fool ED nurses,” Milici says.

If an elder patient reports a minor head injury, he says, the first question you should ask is, “Are you on a blood thinner?”

Elder patients already are at risk for subdural hematomas, says Milici, “just because of the fact that they have fragile vessels. When you put them on a blood thinner, that is going to put somebody at an even higher risk. Patients who come in on

## EXECUTIVE SUMMARY

Medications can put elders at risk for life-threatening conditions, change vital signs, and mask symptoms. To prevent bad outcomes and unintentional overdoses:

- Ask if head-injured patients are taking blood thinners.
- Consider smaller dosages of vasoactive or cardiac medications.
- Ask elders if they take aspirin or pain medications with acetaminophen.

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blood thinners have a much increased risk of bleeding, especially intracranial bleeding.”

Medications might have a more profound effect on the elderly than a younger patient, because of changes in an organ’s ability to process or compensate for medications, says **Robert Denton**, RN, director of emergency and trauma services at Freeman Health System in Joplin, MO.

One example is medications that slow the heart rate to control abnormal rhythm, says Denton. “In addition, medications that lower blood pressure may contribute to patients being light-headed, dizzy, or passing out,” he says. “Their blood vessels, which may already be less flexible or adaptive due to aging, are now also being limited by medication.”

Elderly patients on beta blockers might develop cold intolerance and might need additional means to keep them warm, says **Judy Drummer**, RN, CEN, MA, director of emergency department nursing at State University of New York Downstate Medical Center’s University Hospital of Brooklyn. Elderly patients on beta blockers and other blood pressure medications might experience dizziness due to a drop in blood pressure, adds Drummer. “Elderly patients experience these side effects differently than younger patients,” she says. “Beta blockers will cause bradycardia and slow pulse. ED nurses might not recognize the side effect of this medication.”

Elderly patients are more sensitive to the side effects of calcium channel blockers, with possible side effects of dizziness, lightheadedness, and fainting, says Drummer. “Verapamil can cause hypotension. Incident of adverse reaction is higher in elderly patients,” she adds.

Milici says that certain medications should “raise up a red flag. Any beta blocker, calcium channel blocker, diuretic, or vasoactive, blood pressure, or cardiac medication can change the elder’s vital signs,” he says. (*See related stories on contrast dye and obtaining a medication history from an elder patient, p. 43.*) ■

## SOURCES

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## Clinical Tips

### Consider smaller dose of contrast dye

Does your elder patient need to have an angiogram done to rule out a stroke, an abdominal CT scan done, or a myelogram? Remember that “a little contrast goes a long way in geriatric patients,” warns **Justin Milici**, RN, MSN, CEN, CPEN, CFRN, CCRN, TNS, ED education specialist at Methodist Dallas Medical Center.

If the regular adult size dose is given, your patient might have a bad reaction, says Milici. “You almost have to go back to pediatric-size doses, because the patient can’t metabolize it as quickly,” he adds. ■

### Ask about aspirin — avoid ‘biggest mistake’

Unless you’ve obtained a completely accurate medication history from your elder patient, you might be misled by stable vital signs.

“In reality, the patient may be volume-depleted and needs to be resuscitated,” says **Justin Milici**, RN, MSN, CEN, CPEN, CFRN, CCRN, TNS, ED education specialist at Methodist Dallas Medical Center. “The biggest mistake that people make is going by what the numbers say and not looking at

the patient and their history.”

Often, elders will name only medications prescribed by their primary care doctor or cardiologist, and omit over-the-counter drugs or herbal supplements, says Milici. “They may not consider them as medications,” he explains.

Your elder patient might be taking pain medications that contain acetaminophen without realizing this fact, adds Milici. “This is potentially very dangerous for them, especially because of decreased excretion from their kidneys and decreased metabolism. Before you know it, they have overdosed on acetaminophen,” he says. “This is very toxic to the liver in high dosages. It could put them into an overdose situation.”

Geriatric patients often don’t consider aspirin as a “medication,” even though they take one every day, adds Milici. If an elder is being worked up for a cardiac event in the ED, or is picked up by paramedics because of a suspected cardiac event, aspirin is “one of the first medications they will get,” he says.

Unless you specifically ask about aspirin, says Milici, “The patient may forget to tell you that he or she has already taken aspirin that day, and thus get a second unnecessary dose. If they are on blood thinners, it can give them the potential to bleed.” To improve care of elders, keep these items in mind about their medications:

- **Elders might require dosage adjustments to maintain a therapeutic medication level.**

These adjustments are due to less efficient blood flow through the organs, says **Robert Denton**, RN, director of emergency and trauma services at Freeman Health System in Joplin, MO.

- **Elders are at higher risk for drug-drug interactions.**

Patients taking multiple medications, those who live alone or have cognitive impairment, patients recently discharged or admitted from a hospital or facility, and patients seeing multiple providers are at particularly high risk, says Denton.

- **Elders might need less than the regular adult dose.**

Milici says that you have to be careful when giving an elder patient the regular adult dose of medications, especially vasoactive or cardiac medications.

“Their kidney function tends not to excrete as quickly, and the liver doesn’t metabolize as fast. Medication tends to stay in their system a lot longer than a younger person,” he says. “This can actually mask signs and symptoms.”

- **Elders are likely taking certain medications.**

If your elder patient is unconscious with no family members present and you have to work them up, Milici says to keep some things in mind. Their blood pressure is most likely elevated, their heart rate is probably a little slower than a younger patient, and the patient is likely to have decreased pulmonary reserve, he notes.

“The brain tends to atrophy and the blood vessels get stiffer, including in the brain, so even a small bonk on the head can put elders at much higher risk of a bleed,” says Milici. “Take their age and physiological risk factors into consideration.”

If you have no knowledge of medications your elder patient is taking, Milici says to “have a healthy bit of assumption about cardiac and blood pressure meds they are on. You are giving them just that little bit extra ounce of protection.”

- **The elder’s response should be closely monitored.**

Milici says to remember that “a young healthy person can probably tolerate medications and treatment a lot better than an older person.” ■

## Do you verify patient’s documented weight?

*Dosage errors can occur*

After a child was diagnosed with acute appendicitis at St. John’s Mercy Medical Center in St. Louis, MO, the ED physician ordered antibiotics and dosed the patient according to the weight that was in her chart. The problem was that the patient’s weight, which was 23 pounds, was entered as 23 kg. Neither the ED physician nor the nurse caught the mistake.

“The antibiotic was started. The error was not noticed until the patient was in the operating room and in surgery,” says **Melisa Bay**, RN, BSN, one of the ED nurses who cared for the patient. “The nurse noticed the dose and double checked the medication. The medication was stopped.”

The patient wasn’t harmed, but Bay says that ED nurses learned an important lesson from this near-miss. “Be aware of the weight that is documented in the patient’s chart, especially for children,” says Bay. “Everything in pediatrics is weight-based.”

The child’s weight should be part of your initial

## EXECUTIVE SUMMARY

Weight-based dosage errors can be caused by confusing pounds and kilograms and failing to weight patients in the ED.

- Weigh patients as part of your initial ED nursing assessment.
- Change scales to read only in kilograms.
- Post conversion charts so you can tell parents a child’s weight in pounds.

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ED nursing assessment, says Bay. To prevent a patient’s weight being entered as pounds instead of kilograms, she suggests changing scales to read only in kilograms. “In our ED, we disabled the pounds button so that we don’t make that mistake again,” says Bay. “All our weights are now in kilograms. We have conversion charts posted so we can tell the parents what their child’s weight is in pounds, because it’s a popular question.”

### Obtain accurate weight

Patients presenting to the ED with leg pain who are diagnosed with deep venous thrombosis are given weight-based blood thinners to prevent pulmonary embolism, notes **Carrie April**, RN, BSN, an ED nurse at St. John’s Mercy Medical Center.

“Patients who check into the ED for shortness of breath and chest pain, with a history of congestive heart failure, will also need accurate weights for proper drug dosing,” she adds.

These patients benefit from your obtaining an arrival weight, April says. “If they have pulmonary edema or present with pitting edema, the success of drug therapy is monitored by weight and intake and out-takes,” she explains.

April says that the best way to prevent dosage errors due to incorrect patient weights is to simply weigh the patient. Emergency medical services (EMS) technicians bringing in stroke, congestive heart failure, or other critical patients should also use the scale and obtain an accurate weight, adds April.

“The patient complaining of leg pain who walks into the ED should walk over to the scale,” she says. “The congestive heart failure patient in fluid

## SOURCE

For more information on preventing weight-based dosage errors, contact:

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overload who is huffing and puffing needs to be placed in a wheelchair and wheeled to the clinical scale used for wheelchairs and EMS stretchers.” (See *clinical tip, below, on preventing dosage errors with ceftriaxone.*) ■

## Clinical Tips

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### Avoid errors with ceftriaxone dosage

Melisa Bay, RN, BSN, says that in her opinion, ceftriaxone, used to treat bacterial infections, poses a particularly high risk for dosage errors. Bay says to remember that there are two ways to dose and reconstitute the medication, based on the route ordered.

“For intramuscular injections, there are different amounts of lidocaine you reconstitute with depending on the mg. For a 250 mg vial, you add .45 ml of lidocaine for an intramuscular injection,” says Bay. “For the same medication given intravenously, you reconstitute per the package directions.” ■

### Beware of harm from insulin mixups

Errors involving insulin were commonly reported to Pennsylvania’s Patient Safety Authority in 2010, with 52% of 2695 events leading to a patient possibly having received the wrong dose or no dose, and 49 resulting in harm to the patient.<sup>1</sup>

There is potential in the ED for mix-ups between similar vials of insulin, says Matthew Grissinger, RPh, FISMP, FASCP, analyst for the Pennsylvania Patient Safety Authority and director of Error Reporting Programs at the Institute for Safe Medication Practices.

“There are often reports of mix-ups in all care areas between Humalog and Humulin [both manufactured by Indianapolis-based Eli Lilly and Co.], and NovoLog and Novolin,” both manufactured by Princeton, NJ-based Novo Nordisk, he notes.

In addition, Grissinger says, “We’ve seen mix-ups between vials of insulin and vials of heparin

flush. They are often found just lying on top of med carts. The insulin has accidentally been used to flush IV [intravenous] lines!”

He says to avoid storing vials on top of medication carts. “Keep them segregated as much as possible,” says Grissinger. Also, he says that you should minimize the variety of insulin products stored in your ED.

“The insulins that are really needed and used in the ED are probably just the short-acting insulins like Humalog and NovoLog,” says Grissinger. “You don’t want or need every type of insulin in the ED.”

#### REFERENCE

1. ECRI Institute and Institute for Safe Medication Practices. Medication errors with the dosing of insulin: Problems across the continuum. *PA Patient Saf Advis* 2010;7:9-17. ■

### Warning! Is your asthma patient normal?

A mother rushes into your ED and states that her child is having an asthma attack, but the child seems to be breathing normally. It’s a mistake to make your triage decision on the basis that your patient looks fine with stable vital signs, says William Downum, RN, an ED nurse at St John’s Mercy Medical Center in St. Louis, MO.

In fact, children with an acute asthma exacerbation often present with normal or near normal vital signs, says Downum.

“They may have received treatments just before arrival to the ED, which gives them temporary relief of their symptoms,” he explains. “Also, some patients have a tendency to compensate well for a certain period of time.”

Downum recommends the following clinical practices:

- **Always auscultate the patient’s breath sounds for any signs of wheezing or extremely diminished breath sounds.**

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#### EXECUTIVE SUMMARY

Patients with an acute asthma exacerbation might present with normal vital signs, but these normal signs can be misleading.

- Assess for a secondary diagnosis of pneumonia.
- Obtain a peak flow measurement.
- Use continuous capnography.

“Perform a rapid assessment in conjunction with the vital signs to assess the true status of the patient’s condition,” says Downum. (*See related story, right, on determining the actual status of an asthma patient, and clinical tip, p. 47, on allergic reactions.*)

- **Assess the patient’s chest area for signs of sternal retractions, intercostal retractions, and use of accessory muscles.**

“Some patients may present with a frequent dry cough that is unrelieved with over-the-counter medications,” notes Downum.

- **Initiate treatment for acute exacerbations shortly after arrival, even if vital signs are stable.**

“These patients should be treated as soon as possible, to prevent their condition from deteriorating,” says Downum. Your goal is to administer treatments and medications that will open the patient’s airways as soon as possible, he explains.

- **Provide the patient with a calm environment.**

“Anxiety interferes with the breathing process,” says Downum.

- **Identify other disease processes or conditions that might be affecting the patient’s ability to breathe.**

To determine if your asthma patient has a secondary diagnosis of pneumonia, Downum says to take these steps:

- After initial care is provided to improve breathing, assess the patient for a productive cough.

- Recheck the patient’s temperature, and check for depressed oxygen saturation after breathing treatment is given, especially if wheezing has improved.

- Assess for the presence of extremely diminished lung sounds over a specific area of the chest. “Alert the physician if these conditions exist, so that a chest X-ray or additional labs may be obtained,” says Downum.

- **If you encounter a pediatric patient with wheezing and respiratory difficulty and no previ-**

**ous history of asthma, obtain an accurate history.**

“Many times younger pediatric patients are evaluated for asthma, but not given a formal diagnosis of asthma until it is proven if the asthma will continue past childhood,” says Downum. “These patients need to be treated as asthma patients.” ■

## Learn actual status of asthma patient

*ED nurses shouldn’t be misled*

Temperature, pulse, respiratory rate, and blood pressure, and even oxygen saturation are only a small component of the assessment of an asthma patient, according to **Rebecca A. Steinmann, APN, CEN, CPEN, CCRN, CCNS, FAEN**, a clinical nurse specialist in the ED at Northwest Community Hospital in Arlington Heights, IL.

“These can all be relatively ‘normal,’ and your patient may still be in imminent danger,” Steinmann says.

The distinction between respiratory distress and respiratory failure is “a fine line,” she adds. “When a patient presents in respiratory distress, you see the evidence of the patient’s attempts to compensate,” says Steinmann. “They are working hard to breathe. Their heart rate is elevated, and the respiratory rate may be elevated, although expiration is prolonged.”

As respiratory distress progresses into respiratory failure, the work of breathing often decreases, because the patient has insufficient energy left to work so hard, says Steinmann. “The heart rate and respiratory rate normalize, until both rates become depressed,” she says.

Steinmann says to use these other assessment parameters:

- Level of consciousness.
- Pattern of speech. “Is the patient able to speak

## SOURCES

For more information on improving care of asthma patients in the ED, contact:

- **William Downum, RN**, Emergency Department, St John’s Mercy Medical Center in St. Louis, MO. E-mail: William.Downum@Mercy.Net.

- **Rebecca A. Steinmann, APN, CEN, CPEN, CCRN, CCNS, FAEN**, Clinical Nurse Specialist, Emergency Department, Northwest Community Hospital, Arlington Heights, IL. Phone: (847) 618-3935. E-mail: rasteinman@nch.org.

## COMING IN FUTURE MONTHS

- Stop the most unsafe handoff practices in your ED

- Prevent a bad outcome with unintentional ingestions

- Avoid dangerous communication gaps with physicians

- Be the one who first identifies an abnormal EKG

in full sentences, or are they barely able to speak short phrases?” asks Steinmann.

- **Posture.** Steinmann says to note whether the patient is sitting upright or hunched forward in an attempt to maximize their airway and allow full lung expansion.

- **Breath sounds.** “Wheezing is what we equate with an asthma attack, but the patient who is not wheezing and barely exchanging any air because of such severe bronchoconstriction is the graver concern,” says Steinmann.

## Obtain this info

Steinmann gives these tips to determine a patient’s status:

- **Use objective measures.**

“Obtain a peak flow measurement on every patient presenting with an exacerbation of asthma,” Steinmann says. “Typically, children can cooperate with this measurement by 5 years of age.”

Determine how this reading compares with the patient’s predicted measurement and their baseline, she says. “By measuring exhaled carbon dioxide, you can determine the effectiveness of the patient’s ventilation and can monitor their response to interventions,” Steinmann adds.

- **Use the patient’s history to learn valuable clues.**

Steinmann recommends asking these questions:

- What medications are you using? Are you taking steroids? How often are you using “rescuer” inhalers?

- Have you ever been intubated?

- Have you had an ED visit for asthma in the past three months?

- Have you had an overnight hospitalization for asthma in the past three months?

“These questions provide information regarding the severity of this chronic illness and the degree of control the patient has in managing the disease,” says Steinmann.

- **Be familiar with how equipment needs to be maintained, zeroed, and/or calibrated, to make sure readings are accurate.**

“Some devices require warm-up time, and some have to be calibrated. Others perform their own self-test and don’t require calibration. Every brand is different,” says Steinmann.

She notes that the American Heart Association’s 2010 guidelines cite use of continuous capnography as a Level I recommendation for every intubated patient.<sup>1</sup> In light of this guideline, says Steinmann, “ED nurses will have to become famil-

iar with this technology.”

Otherwise, you might not recognize early warning signs that your patient is in trouble, she says. “Nurses should understand reasons why the readings would be low or high, and know how to interpret the waveform,” Steinmann says. “Asthmatic patients have a characteristic ‘shark-fin’ appearance to their waveform which normalizes as bronchoconstriction resolves.” ■

## REFERENCE

1. Field JM, Hazinski MF, Sayre MR, et al. 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care science. *Circulation* 2010;122:S640-S656. ■

# Clinical Tips

## ‘Asthma’ may be allergic reaction

Is your patient wheezing? Don’t assume that asthma is the acute problem, says **William Downum**, RN, an ED nurse at St John’s Mercy Medical Center in St. Louis, MO.

“Always assess the patient for allergies, and note skin for signs of an allergic reaction,” he says. “An allergic reaction may cause the patient to wheeze, but requires a different drug regimen for treatment.” ■

## CNE INSTRUCTIONS

**N**urses 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.

After completing this semester’s activity with the June issue, you must complete the evaluation form provided and return it in the reply envelope provided in that issue to receive a letter of credit. When your evaluation is received, a letter will be mailed to you. ■

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## CNE OBJECTIVES/ QUESTIONS

Upon completion of this educational activity, participants should be able to:

- identify clinical, regulatory or social issues related to ED nursing;
- describe the effects of clinical, regulatory, or social issues related to ED nursing on nursing service delivery;
- integrate practical solutions to ED nursing challenges into daily practice.

5. Which is true regarding acute myocardial infarction patients presenting to EDs, according to a study published in the *American Journal of Emergency Medicine*?

- A. Only a small percentage of patients present without chest pain.
- B. There is no difference in presentation between male and female patients.
- C. Elders, women, and diabetics are more likely to be mistriaged as low acuity.

6. Which is true regarding elders and medications, according to Justin Milici, RN, MSN, CEN, CPEN, CFRN, CCRN, TNS, at Methodist Dallas Medical Center?

- A. Patients taking blood thinners are at higher risk for intracranial bleeding.
- B. Pediatric-sized doses should not be considered for contrast dye.
- C. Beta blockers will only cause bradycardia and slow pulse in younger patients.

7. Which is recommended to prevent dangerous errors with insulin products in the ED, according to Matthew Grissinger, RPh, FISMP, FASCP, at the Institute for Safe Medication Practices?

- A. It is not advisable to store only short-acting insulins in the ED.
- B. Insulin vials should be stored on top of medication carts.
- C. The variety of insulin products stored in the ED should be minimized.

8. Which is recommended to determine the actual status of an asthma patient, according to Rebecca A. Steinmann, APN, CEN, CPEN, CCRN, CCNS, FAEN, at Northwest Community Hospital?

- A. If a patient presents with normal vital signs, a rapid assessment is not needed.
- B. If the patient is wheezing, you can safely assume that asthma is the acute problem.
- C. If temperature, pulse, respiratory rate, and blood pressure are normal, your patient is not in imminent danger.
- D. A peak flow measurement should be obtained and compared with the patient's baseline.

**Answers: 5. C; 6. A; 7. C; 8. D.**

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